Comment Response Document (CRD) to Notice of Proposed Amendment (NPA) 2009-02b

for a draft Agency Opinion on a Commission Regulation establishing the Implementing Rules for air operations of Community operators

and

a draft Decision of the Executive Director of the European Aviation Safety Agency on Acceptable Means of Compliance and Guidance Material related to the Implementing Rules for air operations of Community operators

'Part-NCC and Part-NCO'

CRD c.2 – Comment Response Summary Table (CRST) Part-NCO

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Part-OPS	Commentators have been coded as: IS: industry sector BA: business aviation GA: general aviation H: helicopter IA: industry association MS: Member State INDIV: individual	
Subpart A - General operating and flight rules - IR		
Section I - General requirements		
OPS.GEN.015 Pilot-in-command responsibilities and authority	1. Pilot-in-command (PIC) responsibilities should be aligned with the Basic Regulation and Annex 6. 2. Allow PIC to deviate from the Rules in emergency situations.	1. Accepted. In accordance with the new drafting principles, the Implementing Rules (IRs) make a reference to the Essential Requirements (ER) of the Basic Regulation (BR), where such requirements are addressed in more detail in the IRs. 2. PIC is already permitted to deviate from the Rules - see 7.d. of Annex IV to Regulation (EC) No 216/2008.

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ALL AIRCRAFT		
(a) The pilot-in-command shall be responsible for:	1. Define when responsibility of PIC starts and ends [Ind Assoc] 2. INDIV: request to define and use consistently PIC throughout the NPA. 3. Concerns were expressed regarding the use of the term pilot-in-command rather than commander as used in EU-OPS. 4. IS (GA): request definition of who is PIC for training and check flights – instructor and/or trainee pilot? Clarification requested as to whether both can log the time as flight time/instruction time.	1. The time when the responsibility of the PIC begins and ends is explained by the revised rule text. 2. Part-NCC and Part-NCO only use the term 'pilot-in-command'. A definition is provided in Annex I. 3. 'Pilot-in-command' is used for non-commercial operations, and also aligns with ICAO Annex 6. Following stakeholder feedback, the PIC is termed "commander" for commercial air transport (CAT) operations. 4. This issue is within the scope of Part-FCL but beyond the scope of Part-NCC.
(1) the initiation, continuation, termination or diversion of a flight, when involved in non-commercial operations with other than complex motor-powered aircraft;	MS, IS (BA, GA): request to address this rule to all operations.	Text amended to reflect new structure and NCO activity.
(2) compliance with all operational procedures and checklists;	IA: Pilot of parachute aircraft not necessarily able to comply with all procedures.	Parachute operations are covered by Part-SPO and will be subject to a standard operating procedure (SOP). However, the text has been changed to clarify that the pilot should ensure that the operational procedures and checklists have been complied with, thus allowing another person to carry out the procedures of

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		checklists.
(3) not commencing a flight unless he/she has confirmed that all operational limitations referred to in paragraph 2.a.3. of Annex IV to Regulation (EC) No 216/2008 (Essential requirements for air operations), can be complied with;	1. The PIC should be "satisfied that" but should not have to "confirm that". 2. MS: request to remove reference to ER and to repeat the text in this IR. 3. IS (GA): request to review the list and reduce the requirements.	1. This rule implements ER 2.a.3. 2. Reference kept but the items of the ER have been added to the IR. 3. Not accepted. List has been aligned with Annex 6 Part II.
(4) not commencing nor continuing a flight beyond the nearest suitable aerodrome or landing site when flight crew members' capacity to perform functions is significantly reduced from causes such as fatigue, sickness or lack of oxygen;	1. IS, IA, INDIV: A definition of a "suitable aerodrome" is required. "Adequate" is understood but not "suitable".	1. A definition for 'weather-permissible aerodrome' is added to Annex I, in addition to that for 'adequate aerodrome' that was published in CRD OPS I and Opinion 04/2011.
(5) admission to the cockpit or, in the case of balloons, the pilot compartment;		This requirement is not transposed as it is not applicable to NCO ops.
(6) deciding, in accordance with the Configuration Deviation List (CDL) or Minimum Equipment List (MEL), as applicable, whether or not to accept an aircraft for flight with unserviceable equipment; and	1. IS: Non-commercial other than CMPA do not have MEL or CDL. 2. MS: align with OR.OPS.010.GEN and replace "unserviceable equipment" with "*inoperative or missing item(s)*"	1. Following the advice of the review group members, this requirement was kept in order to allow NCO operator to decide if they want to have the MEL or CDL. 2. Text has been transposed in the new rule of (a)(3) and (4).
(7) recording utilisation data, and all known or suspected defects in the aircraft at the	1. IS: Not always practical to record immediately after every flight, especially	1. Text amended to allow for recording of information after a series of flights. This

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termination of the flight, in the aircraft log book or journey log book for the aircraft.	short flights.	is the usual practice in some helicopter operations where each flight may be only a few minutes. A GM to the notion of series of flight has been added.
(b) The pilot-in-command has the authority to refuse carriage of or disembark any person or cargo that may represent a potential hazard to the safety of the aircraft or its occupants.		
(c) The pilot-in-command shall, as soon as possible, report to the appropriate Air Traffic Services (ATS) unit any hazardous flight conditions encountered that are likely to affect the safety of other aircraft.	1. IS: Conditions may be considered hazardous by one pilot but normal or expected by another.	1. PIC is only required to report conditions that are likely to affect the safety of another aircraft.
(d) Notwithstanding the provision of OPS.GEN.015(a)(4), in a multi-crew operation the pilot-in-command may continue a flight beyond the nearest suitable aerodrome when adequate mitigating procedures are in place.		This requirement is not applicable for NCO operations.
BALLOONS		This paragraph is now a separate requirement in NCO.GEN.106.
(e) The pilot-in-command shall in addition to paragraphs (a), (b), (c) and (d) be responsible for:		
(1) the pre-flight briefing of those persons assisting in the inflation and deflation of the envelope;	1. IA: The briefing may be given by another member of the crew besides the PIC. 2. IA: Persons assisting with deflation may	1. Noted. In NCO the briefing is usually given by the PIC. 2. The rule assumes that these persons

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	not be present at the time of the pre-flight briefing.	assisting the deflation would also be available for the inflation. If this is for specific cases not possible, common sense demands that the PIC would perform a briefing before deflating the balloon.
(2) notwithstanding OPS.GEN. 130, ensuring that no person is smoking on board or within the direct vicinity of the balloon; and	MS: 'Direct Vicinity' should be replaced by a specific distance.	The distance that may be considered to be safe can vary depending on the circumstances. It should remain the responsibility of the pilot to decide what distance the 'direct vicinity' is considered to be.
(3) ensuring that persons assisting in the inflation and deflation of the envelope wear appropriate protective clothing.	IA: 'Appropriate protective clothing' should be more specific.	GM1-NCO.GEN.106(c) details what 'adequate protective clothing' consists of.
OPS.GEN.020 Crew responsibilities		This requirement is not transposed as it is not applicable to NCO operations. The pilot's responsibilities are foreseen in NCO.GEN.105
(a) Crew members shall be responsible for the proper execution of their duties which are related to the safety of the aircraft and its occupants, in accordance with the applicable requirements and, where applicable, the operations manual.		
b) Crew members shall be seated at their assigned stations and shall not perform any activities other than those required for the safe operation of the	MS: Add "and when deemed necessary by the pilot-in-command in the interest of safety" to the end of this provision and re-	

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aircraft during critical phases of flight.	structure to clarify.	
(c) Flight crew members shall keep their safety belt fastened while at their stations.	1. MS, IA, IS: Clarification of the subject “shoulder harness” requested – for some helicopters, the seat harness is not a belt. 2. IA: Jumpmasters should be exempt if wearing a parachute. 3. MS: Safety belts are not used in private balloons.	
(d) At least one qualified flight crew member shall remain at the controls of the aircraft at all times.	1. IA: Clarification of ‘qualified’ flight crew member required.	
(e) Crew members who undertake duties from more than one operator and are subject to flight and duty time limitations and rest requirements in accordance with OR.OPS.FTL shall:	1. INDIV: Professional pilots should not be subject to FTL when flying privately.	
(1) comply with all flight and duty time limitations and rest requirements applicable to their activities;		
(2) inform each operator of their activities;		
(3) maintain their individual records regarding flight and duty times and rest periods as referred to in OR.OPS.020.FTL; and		

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(4) upon request, present their records to each operator before commencing a flight duty period.		
(f) Crew members shall not undertake duties on an aircraft if they know that they are suffering from or are likely to suffer from fatigue or they feel unfit, to the extent that the flight may be endangered.		
(g) A crew member shall report to the pilot-in-command:		
(1) any fault, failure, malfunction or defect, which he/she believes may affect the airworthiness or safe operation of the aircraft, including emergency systems; and		
(2) any incident that was endangering, or could endanger, the safety of the operation.		
OPS.GEN.025 Common language		
All crew members shall communicate in a common language.		Text not transposed as it is considered not applicable for NCO operators where the only crew member is the pilot-in-command.
OPSGEN.030 Transport of dangerous goods		

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(a) The transport of dangerous goods by air shall be conducted in accordance with the 2007-2008 Edition of the Technical Instructions for the Safe Transport of Dangerous Goods by Air published by decision of the Council of the International Civil Aviation Organization. (ICAO Doc 9284-AN/905.).	MS: It is important not to refer to a specific edition of the ICAO Technical Instructions since new editions are published every 2 years. Reference to an out-of-date edition would mean States would not be in compliance with Annex 18 and would cause difficulties for both operators and shippers of dangerous goods.	Text edited to include: "as last amended" and the reference to the editions has been removed. This has been solved with the new definition in Annex I of 'Technical Instructions' as the latest effective edition and including the Supplement and any addenda.
(b) Dangerous goods shall only be transported by an operator approved in accordance with OPS.SPA.DG, except when:		
(1) they are not subject to the Technical Instructions in accordance with Part 1 of those Instructions.		
(2) required on board the aircraft in accordance with airworthiness and operational requirements;	Not required since the text is shown in Part 1 of the Technical Instructions and is therefore already included by (b)(1).	Deleted as already covered by (b)(1)
(3) required on board the aircraft for specialised purposes;	Not required since the text is shown in Part 1 of the Technical Instructions and is therefore already included by (b)(1).	Deleted as already covered by (b)(1)
(4) carried by passengers or crew members in accordance with the Technical Instructions; or	Text needs to specifically refer to only those dangerous goods that passengers and crew are permitted to carry.	Reference to Part 8 of the Technical Instructions added to clarify that only specific items may be carried. Reference to baggage added to avoid duplication.
(5) in baggage which has been separated from		This paragraph is now merged with (b)(4).

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its owner.		
(c) All reasonable measures shall be taken to prevent dangerous goods from being carried on board inadvertently.		The text is changed to put the obligation on the pilot-in-command
(d) The operator shall, in accordance with the Technical Instructions, report without delay to the competent authority and the authority of the State where the accident or incident occurred:	The text does not read well grammatically.	Paragraph renumbered due to additional paragraph (d). Text moved to end of section.
(1) any incidents or accidents involving dangerous goods; and	MS: re-align with Technical Instructions - amend to refer to dangerous goods incidents and accidents, which are not the same as incidents and accidents involving dangerous goods.	Paragraph is amended to refer to dangerous goods incidents and accidents as specified by the Technical Instructions.
(2) the finding of undeclared or misdeclared dangerous goods discovered in cargo or passengers' baggage.		
Section II - Operational procedures		
OPS.GEN.100 Ice and other contaminants	MS: request that the rule title be amended to refer to ground procedures. An additional rule is required for in-flight procedures in order to tie into AMC/GM;	Accepted, the rule has been split into two requirements, NCC.OP.175 Ice and other contaminants – ground procedures and NCC.OP.190 Ice and other contaminants – flight procedures
(a) At the commencement of a flight the external surfaces of the aircraft shall be clear of any	1. MS: The rule as presented does not have	Entire requirement redrafted to align with

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deposit which might adversely affect its performance or controllability.	an objective requirement. 2. MS: suggest use of the terms "critical surfaces" (e.g. also in front of the fan blades) and "contaminates,". 3. IS (GA): request to amend text to "… *significantly* affect its performance…"; 4. MS: request to amend text to state that the aircraft must be clear or contaminants at commencement of take-off; 5. MS: safety issue: request to specify the contaminants (frost, snow, slush, ice) and that the A/C must be free of these before flight; 6. MS: "external surface" could be misinterpreted to exclude contamination inside of engine inlets in front of the fan blades, "external surface" should be deleted.	Annex 6 Part II. 1. Accepted and re-drafted to include PIC responsibilities 2. "Critical surfaces" would need to be more precisely described. The term "contaminates" was accepted. 3. "Significantly" is not precise enough. 4. Text redrafted accordingly. 5. Contaminants are specified in guidance material. 6. The term "external surfaces" is deleted to ensure that contamination inside engine inlets in front of the fan blades is also covered by this requirement.
(b) The operator shall apply ground de-icing/anti-icing processes whenever determined necessary, on the basis of inspections and weather conditions.	IS (BA): Operator is not always in a position to "apply" de-icing, where this service is provided by a third party.	Text amended to put the obligation on the pilot-in-command. The intent of the requirement remains. This paragraph now applies to both ground and flight procedures.
OPS.GEN.105 Simulated abnormal situations in flight		

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Except in the case of flight instruction provided by a training organisation approved in accordance with Part-OR, when carrying passengers or cargo or when conducting commercial operations the following shall not be simulated:	1. MS: Request to exempt test flights and demonstration flights. 2. MS: Request to re-consider "Except….", since it would constrain commercial and GA operators.	1&2.The rule has been re-drafted to fit NCO operations. The Cover Regulation proposes that flying training is conducted in accordance with either Part-NCC or Part-NCO, depending on whether the aircraft is complex motor-powered or not.
(a) abnormal or emergency situations which require the application of abnormal or emergency procedures; or		
(b) Instrument Meteorological Conditions (IMC) by artificial means.	MS: "Artificial means" is redundant.	The text has been rephrased, the content remained unchanged.
OPS.GEN.110 Carriage of persons	IA: Consider operations when passengers do use part of aircraft for accommodation which are not designed for persons, e.g. parachutists.	This consideration is foreseen in Part-SPO, which covers parachute operations.
ALL AIRCRAFT		
(a) No person shall be in any part of an aircraft in flight which is not a part designed for the accommodation of persons, unless for the purpose of taking action necessary for the safety of the aircraft or of any animal or goods therein.		Text not transposed as it is not considered applicable to NCO operators.
AEROPLANES AND HELICOPTERS		

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(b) In the case of aeroplanes and helicopters, persons carried shall be seated where, in the event of an emergency evacuation, they may best assist and not hinder evacuation from the aircraft.		Text not transposed as it is not considered applicable to NCO operators.
(c) Prior to and during taxiing, take-off and landing, and whenever deemed necessary in the interest of safety by the pilot-in-command, each person on board shall occupy a seat or berth and, except in the case of parachute operations, have his/her safety belt or harness properly secured.	Some helicopters may use restraint devices other than seat belts.	Text amended and adapted for NCO operators.. The new text replaces "harness" with "restraint devices". Also, "Person" was changed to "passenger" to clarify the intent of the rule.
HELICOPTERS		
(d) A helicopter operator shall specify which aircraft seats may be occupied by one adult and one infant properly secured by a restraint device.		Text not transposed as it is not considered applicable to NCO operators.
OPS.GEN.115 Passenger briefing		
Passengers shall be briefed on the location and use of emergency exits and relevant safety and emergency equipment.	1. MS, INDIV: Suggestion that the text is returned to the responsibility of the PIC rule. 2. MS: Text clarification requested regarding the fact that a passenger briefing should not be limited to the mentioned subjects and regarding as to when and how the briefing has to occur. 3. MS: request to indicate how the briefing	1, 2&3. Accepted. The rule text is adapted to NCO operations. It also clarifies that the briefing can also be made during the flight and not only before take-off or in case of emergencies.

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	will be presented, including reference to an illustrated safety briefing card.	
OPS.GEN.120 Securing of passenger cabin and galleys		This new rule text now combines the requirements for securing of cabin and for the stowage of equipment and baggage. The intent remains the same. It is found in subpart B in NCO.OP.155
(a) Prior to and during taxiing, take-off and landing, all exits and escape paths shall be unobstructed.		Text not transposed. The new text covers this concern.
(b) Prior to and during take-off and landing, and whenever deemed necessary in the interest of safety by the pilot-in-command, all equipment and baggage shall be properly secured.	Suggestion that prior to taxi, only baggage shall be stowed and properly secured.	Not accepted. Loose equipment can be a significant hazard.
OPS.GEN.125 Portable electronic devices		Editorial amendments to fit for Part-NCO.
Portable electronic devices that can adversely affect the performance of the aircraft's systems and equipment shall not be used on board the aircraft.	1. IS (GA): Request to publish a listing with PED that adversely affect the systems. 2. MS: Some equipment that has the potential to affect aircraft systems may be allowed at specific times - such as mobile phones when taxiing, and electronic healthcare devices. 3. IA: Delete "can".	1. The related GM listing the types of PED that could adversely affect the systems is not transposed in Part-NCO. The PIC will make his/her own assessment on the PED to be carried on board according to the type of aircraft and the flight to be conducted. 2. Accepted. Proposed text takes this into account. 3. "can" is now replaced by "could".

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OPS.GEN.130 Smoking on board		
ALL AIRCRAFT	MS: request to list all items in (a) and (b) as relevant to all aircraft.	In Part-NCO this rule is applicable to aeroplanes and helicopters. A separate requirement is proposed for sailplanes and balloons.
(a) No person shall be allowed to smoke on board:		The rule text put the obligation to the pilot-in-command to allow or not smoking on board.
(1) while the aircraft is on the ground, unless specifically permitted by the operator in accordance with specified procedures;	MS: Request to replace "on the ground" with "on the surface" to pay due consideration to seaplanes.	This paragraph is considered already covered in (a)(3).
(2) while the aircraft is being refuelled; or		
(3) whenever the pilot-in-command deems necessary in the interest of safety		Editorial amendment to fit Part-NCO
COMPLEX MOTOR-POWERED AIRCRAFT		This requirement is not applicable to NCO operators
(b) No person shall be allowed to smoke on board a complex motor-powered aircraft:		
(1) in cargo compartments or other areas where cargo is carried;		

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(2) in those areas of the cabin where oxygen is being supplied;		
(3) if the operator has declared a flight to be operated as a non-smoking flight; or		
(4) outside those areas that the operator has designated smoking areas.		
OPS.GEN.135.A Taxiing of aeroplanes		
Aeroplanes shall only be taxied on the movement area of an aerodrome when the person at the controls is properly qualified to taxi an aeroplane.	1. Request to clarify the expression "properly qualified" and "properly qualified to taxi an aeroplane" respectively. 2. Suggestion to substitute "aeroplane" by "aircraft" to cover all types of aircraft. 3. Request to add a condition under which taxiing in low visibility conditions will be permitted.	Modified to comply with Annex 6 Part II. AMC has been upgraded to IR. 1. Text amended to avoid misinterpretation on who can taxi an aeroplane. 2. Not accepted. The rules intentionally only apply to aeroplanes. 3. When low visibility operations (LVOs) are underway further restrictions need to be addressed in the requirements for aerodromes.
OPS.GEN.140.H Rotor engagement		
A helicopter rotor shall only be turned under power for the purpose of flight with a qualified pilot at the controls.	1. IS: There may be circumstances when the pilot has to leave the controls while the rotor is turning (e.g. remote landings in a hostile environment). This should be addressed in	1. Not accepted. The requirement is in line with ICAO and is there to prevent accidents.

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	the operations manual. 2. MS: re-align with ICAO Annex 6, 2.2.3.2. to specify that only a qualified pilot can be at the controls while the rotors are turned under power for ground movement or flight – this is after all considered as flight time.	2. Accepted.
OPS.GEN.145 Use of aerodromes/operating sites		
An operator shall only use aerodromes or operating sites that are adequate for the type of aircraft and operation concerned.	"operating site" is not defined	1. The definition of operating site is included in Annex I to the regulation on Air operations.
OPS.GEN.147 Visual Flight Rules (VFR) Operating minima		This requirement is not transposed as it is now covered under the Standard European Rules of the Air – Part-SERA
(a) Visual flight rules (VFR) flights shall be conducted in accordance with the Visual Flight Rules and table 1.		
Table 1 – Minimum visibilities for VFR operations		
Airspace class | **ABCDE*** | **F** | **G**		

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		Above 900 m (3 000 ft) AMSL or above 300 m (1 000 ft) above terrain, whichever is the higher	At and below 900 m (3 000 ft) AMSL or 300 m (1 000 ft) above terrain, whichever is the higher		
Distance from cloud	1 500 m horizontally 300 m (1 000 ft) vertically		Clear of cloud and in sight of the surface		
Flight visibility	8 km at and above 3 050 m (10 000 ft) AMSL** 5 km below 3 050 m (10 000 ft) AMSL**		5 km***		
* VMC minima for Class A airspace are included for guidance but do not imply acceptance of VFR flights in Class A airspace.					
** When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL100 should be used in lieu of 10 000 ft.					
*** see (c)(1) below.					
(b) Special VFR flights shall not be commenced when the visibility is less than 3 km and not otherwise conducted when the visibility is less than 1.5 km.					

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HELICOPTERS		
(c) Helicopters shall be operated in a flight visibility of not less than:		
(1) 1 500 m during daylight, except when in sight of land, if the helicopter is manoeuvred at a speed that will give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision, the visibility may be reduced to 800 m for short period.		
(2) 5 000 m during night.		
(d) In Class G airspace, when flying between helidecks where the overwater sector is less than 10 nm, VFR flights are conducted in accordance with table 2.		
Table 2 – Minima for flying between helidecks located in Class G airspace		

	Day		Night	
	Height*	Visibility	Height*	Visibility
Single pilot	300 ft	3 km	500 ft	5 km

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Two pilots | 300 ft | 2 km** | 500 ft | 5 km*** * The cloud base shall be such as to allow flight at the specified height below and clear of cloud.		
** Helicopters may be operated in flight visibility down to 800 m provided the destination or an intermediate structure are continuously visible.		
*** Helicopters may be operated in flight visibility down to 1 500 m provided the destination or an intermediate structure are continuously visible.		
OPS.GEN.150 Instrument Flight Rules (IFR) Operating minima	This rule does not provide an 'Instrument Flight Rules (IFR) Operating Minima' but 'Aerodrome Operating Minina';	Accepted. The rule title is now: NCO.OP.105 Aerodrome operating minima. This entire requirement was reviewed by the Review Group 04 and the new rule text in NCO.OP.105 was agreed on.
(a) The operator shall specify aerodrome operating minima for each departure, destination and alternate aerodrome to be used. Such minima shall:	1. IS (GA): Operators must be able to use commercially available material – non-commercial operators cannot be expected to establish minima themselves.	1. Text amended to specify that the PiC shall "use" and not "specify" aerodrome operating minima.
(1) not be lower than those specified by the State in which the aerodrome is located, except when specifically approved by that State; and		
(2) require the prior approval of the competent authority in accordance with OPS.SPA.001.LVO.	Clarification requested that not every individual aerodrome minima requires authority approval, but only the method of	Text revised accordingly. The new rule text clarifies the condition under which the

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	establishing such minima;	operating minima is to be used by the PiC. Furthermore, the establishment of DH/MDH is moved from AMC to IR for NCO in order to provide mandatory requirements for all operators.
(b) The minima referred to in (a) shall take into account any increment imposed by the competent authority.	This provision appears to be unnecessary.	This is considered as a CAT rule and not applicable to NCO.
(c) The minima for a specific type of approach and landing procedure are applicable if:		This requirement is amended to adapt it to NCO operations.
(1) the ground equipment required for the intended procedure is operative;		
(2) the aircraft systems required for the type of approach are operative;		
(3) the required aircraft performance criteria are met; and		
(4) the crew is qualified accordingly.		
(d) In establishing the aerodrome operating minima which will apply to any particular operation, an operator shall take account of:		
(1) the type, performance and handling characteristics of the aircraft;		

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(2) the composition of the flight crew, their competence and experience;		
(3) the dimensions and characteristics of the Final Approach and Take-off Areas (FATOs)/runways which may be selected for use;		
(4) the adequacy and performance of the available visual and non-visual ground aids;		
(5) the equipment available on the aircraft for the purpose of navigation and/or control of the flight path, as appropriate, during the take-off, the approach, the flare, the landing, the roll-out and the missed approach;		
(6) the obstacles in the approach, the missed approach and the climb-out areas required for the execution of contingency procedures and necessary clearance;		
(7) the obstacle clearance altitude/height for the instrument approach procedures;		
(8) the means to determine and report meteorological conditions; and		
(9) the flight technique to be used during the final approach.		

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OPS.GEN.155 Selection of alternate aerodromes		Title amended since the rule was split into separate rules for take-off alternates and destination alternates.
TAKE-OFF ALTERNATE AERODROMES		This requirement is not transposed to align with Annex 6 Part II which has no requirements for take-off alternates
ALL AEROPLANES		
(a) A take-off alternate aerodrome shall be selected and specified in the flight plan if the weather conditions at the aerodrome of departure are at or below the applicable aerodrome operating minima or it would not be possible to return to the aerodrome of departure for other reasons.	1. A Take-off alternate should not be required when the departure aerodrome is at limits – only when it is below limits or…. 2. IS (GA): please clarify that (a)-(c) refer to IFR ops only;	
(b) The take-off alternate aerodrome shall be located within the following distance from the aerodrome of departure:	MS: request to define distance for single-engine A/C.	
(1) aeroplanes having two power-units. Not more than a distance equivalent to a flight time of one hour at the single-engine cruise speed; and	1. IS: request to define “power unit” to avoid confusion with “electrical power unit”.	
(2) aeroplanes having three or more power-units. Not more than a distance equivalent to a flight time of two hours at the one-engine inoperative cruise speed.		

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(c) For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the aerodrome operating minima for that operation.	IS (BA): request to align text with OPS.CAT rule to require conditions above the applicable operating minima for a reasonable time before and after estimated time of use.	Paragraph not transposed See NCO.OP.150
HELICOPTERS – COMMERCIAL AIR TRANSPORT		Text not transposed as it is out of the scope of Part-NCO.
(d) Helicopters used in commercial air transport shall comply with (a) and (c) above.		
DESTINATION ALTERNATE AERODROMES		
(e) For a flight to be conducted in accordance with instrument flight rules (IFR), at least one destination alternate shall be selected and specified in any flight plan, unless:		Text amended to make it consistent for NCO operations. RG04 proposal.
(1) for aeroplanes, the duration of the flight and the available current meteorological information indicates that, at the estimated time of arrival at the place of intended landing, and for a reasonable period before and after such time, the approach and landing may be made under visual meteorological conditions; or	MS, INDIV, IS (GA): Definition of "reasonable period" requested. Suggest 1 hr before and 1 hr after ETA.	Text revised to take into account the comment. Review Group proposal.
(2) for helicopters, available current meteorological information indicates that the following meteorological conditions will exist from two hours before to two hours		Helicopter-specific provisions are in a separate rule.

A: Rule	B: Summary of comments	C: Reason for change, remarks
after the estimated time of arrival:		
(i) A cloud base of at least 130 metres (m) (400 ft) above the minimum associated with the instrument approach procedure;		
(ii) Visibility of at least 1 500 m more than the minimum associated with the procedure; or		
(3) the place of intended landing is isolated and:	IS (GA): "Isolated" should be defined for A/C and H.	The term is not defined for helicopter operations and it is understood that the pilot-in-command would specify the selection criteria. In the Explanatory notes, the Agency asks stakeholders to comment this approach and to provide their recommendations for selection criteria if they believe that the term should be defined in the Implementing Rules.
(i) there is no suitable destination alternate;		
(ii) an instrument approach procedure is prescribed for the aerodrome of intended landing;		
(iii) for aeroplanes, available current meteorological information indicates that the following meteorological		Coherence change made in rule text.

A: Rule	B: Summary of comments	C: Reason for change, remarks
conditions will exist from two hours before to two hours after the estimated time of arrival:		
(A) A cloud base of at least 300 m (1 000 ft) above the minimum associated with the instrument approach procedure;		
(B) Visibility of at least 5.5 km or of 4 km more than the minimum associated with the procedure; and		
(iv) for helicopters, a Point of No Return (PNR) is determined in case of an offshore destination.		
OPS.GEN.160 Departure and approach procedures	1. MS: It should be clear that this applies to IFR operations. 2. IS (GA): proportionality – re-align with ICAO Annex 6, Part II and exempt non-commercial operations from using only published, approved procedures.	1. Departure and approach procedures can also be prescribed for VFR flights. 2. The new proposed text is in compliance with Annex 6 Part II and adds further alleviations consistent with Annex 6 Part II.
(a) Unless otherwise approved by the State responsible for an aerodrome, an operator shall use the departure and approach procedures established by that State.	MS, IS (GA): Alignment with ICAO, especially referring to the term for the State, requested (to cater for offshore operations).	The new proposed text is aligned with Annex 6 Part II.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(b) The pilot-in-command shall only accept an Air Traffic Control (ATC) clearance to deviate from a published departure or arrival route, provided obstacle clearance criteria can be observed and full account is taken of the operating conditions. In any case, the final approach shall be flown visually or in accordance with the published approach procedures.	IS (GA): ATC can use vectoring altitudes below published obstacle clearance altitudes. Request that ATC is responsible for obstacle clearance when PIC follows radar vectors provided by the ATC.	The new proposed text takes into account the comment.
OPS.GEN.165 Noise abatement		
Operating procedures shall take into account the need to minimise the effect of aircraft noise	IS (H): request to have the rule apply only to aeroplanes, in line with AMC/GM material to the rule.	Part-NCO does not contain AMC/GM linked to this requirement. Noise abatement procedures are applicable to aeroplanes, helicopters and powered sailplanes.
OPS.GEN.170 Minimum terrain clearance altitudes – IFR flights	MS: re-align with ICAO to refer to minimum obstacle clearance altitudes.	Text is not transposed because the content of the rule will be in the Standardised European Rules of the Air - Part-SERA.
For each flight to be conducted in accordance with instrument flight rules (IFR), terrain clearance altitudes for the route to be flown shall be specified.	IS (GA): request exemption for GA ops outside controlled airspace from *specifying* method used.	Covered by Part-SERA.
OPS.GEN.175 Minimum flight altitudes		Text is not transposed because the content of the rule is in Part-SERA.
An aircraft shall not be flown below minimum altitudes established by the State overflown, except when:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(a) necessary for take-off or landing; or		
(b) descending in accordance with procedures established by that State subject to demonstration by the operator that the operation does not create a hazard to persons or property on the surface.		
OPS.GEN.180 Routes and areas of operation		
Operations shall be conducted in accordance with any restriction on the routes or the areas of operation imposed by the State overflown.		This provision is not transposed as it is considered to be a commercial requirement. For NCO operators it is sufficient when they follow the rules of the air and the AIP.
OPS.GEN.185 Meteorological conditions		Text amended to align with ICAO Annex 6 as well to cater for mixed IFR/VFR flights.
(a) The pilot-in-command shall not initiate or continue a Visual Flight Rules (VFR) flight unless the latest available meteorological information indicates that the weather conditions along the route and at the intended destination at the appropriate time will be at or above the applicable VFR operating minima.	1. MS: Request to add "if the weather conditions are of such kind that the latest available meteorological information will be similar to the previous issued information the pilot can fly based upon that information" to clarify that the pilot does not have to check the MET every minute. 2. MS: request exception for helicopter operations, as helicopters can be put on the ground at almost any time.	1. The proposed wording is considered to be clear and realistic. 2. Annex 6 Part III 2.6.1 contains: 'except one of purely local character in VMC' which should only apply to NCO operations. 3. Accepted, in consultation with the members of the RG. 4. Noted. This IR requires only "available

A: Rule	B: Summary of comments	C: Reason for change, remarks
	3. IS (GA): request to allow commencement and continued flight to a destination aerodrome where meteorological conditions are below VFR operating minima, as for IFR. 4. IS (GA): proportionality – request exemption for GA where weather information may not be available (e.g. to aerodromes without a TAF), or inaccurate for low-level. 5. IS (GA): request to delete "initiate" as, in mountainous regions, weather can change rapidly and pilots are trained to react accordingly.	information" to be considered. 5. Not accepted. This would be below the safety level established by ICAO. Nevertheless, a new paragraph (c) is added to address flights covering VFR and IFR segments.
(b) A flight in accordance with instrument flight rules (IFR) shall only be initiated or continued towards the planned destination aerodrome when the latest available meteorological information indicates that, at the estimated time of arrival, the weather conditions at the destination, or at least one destination alternate aerodrome are at or above the applicable aerodrome operating minima.	Request to align with ICAO which states that the weather conditions at the destination and at least one destination alternate have to be at or above the minima;	Aligned with ICAO wording. Text amended to reflect the obligation on the PIC.
OPS.GEN.190H Take-off conditions		Text amended to adapt it to NCO operations. A specific requirement for balloons is proposed in NCO.OP.181
Before commencing take-off, the pilot-in-command shall ensure that:		Text amended to adapt it to NCO operations. RG members' proposal.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(a) according to the information available , the weather at the aerodrome or operating site and, for motor-powered aircraft, the condition of the runway/Final Approach and Take-off Area (FATO) intended to be used, will not prevent a safe take-off and departure; and		
(b) the visibility/Runway Visual Range (RVR) and the ceiling in the take-off direction are equal to or better than the applicable aerodrome operating minima.		
OPS.GEN.195 Approach and landing conditions		Text amended to adapt it to NCO operations. A specific requirement for balloons and sailplanes is proposed in NCO.OP.196
Before commencing an approach to land, the pilot-in-command shall ensure that according to the information available, the weather at the aerodrome or operating site and, for motor-powered aircraft, the condition of the runway/Final Approach and Take-off Area (FATO) intended to be used, will not prevent a safe approach, landing or missed approach, having regard to any performance information contained in the Aircraft Flight Manual (AFM) and/or the operations manual.		Text amended to adapt it to NCO operations. RG members' proposal.
OPS.GEN.200 Commencement and continuation of approach		The entire requirement is amended to fit for NCO operators.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(a) An instrument approach shall only be continued below 1 000 ft above the aerodrome on the final approach segment when the reported Runway Visual Range (RVR) is at or above the applicable minima specified for the runway.	IS (BA): Request to delete "reported" RVR, since it is also possible that a pilot assesses the RVR.	This has been addressed in a new paragraph (c): where the RVR is not available, RVR values may be derived by converting the reported visibility. It should also be noted that for RVR minima below 800 m only the reported RVR can be used.
(b) If, after passing 1 000 ft above the aerodrome on the final approach segment, the RVR falls below the applicable minimum, the approach may be continued to Decision Altitude/Height (DA/H) or Minimum Descent Altitude/Height (MDA/H).		
(c) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that at least one of the following visual references for the intended runway is established at the DA/H or MDA/H and maintained:	MS: request clarification that PIC *shall* only continue an approach and landing below DA/GH or MDA/H when….	Text amended to take into account the comment. The visual references are specified in the corresponding AMC for NPA, APV and CATI operations.
(1) Elements of the approach light system; (2) The threshold; (3) The threshold markings; (4) The threshold lights; (5) The threshold identification lights; (6) The visual glide slope indicator;		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(7) The touchdown zone or touchdown zone markings;		
(8) The touchdown zone lights; or (9) Runway/Final Approach and Take-off Area (FATO) edge lights.		
OPS.GEN.205 Fuel and oil supply	1. MS: The header discusses both fuel and oil while the details are for fuel only – request to change title to Fuel supply. 2. MS, IS: Request for a requirement for a fuel reserve stated for a local / A-to-A flight, e.g. of 10 minutes.	1. The amended rule text also mentions oil in the requirement. 2. Not accepted. 2.a.7 of the ER requires a fuel reserve for contingencies, which is considered sufficient for local VFR flights. A safety justification should be provided.
(a) In compliance with paragraph 2.a.7. of Annex IV to Regulation (EC) No 216/2008 (Essential requirements for air operations), the following amounts of reserve fuel for visual flight rules (VFR) flights and fuel for instrument flight rules (IFR) flights shall at least be carried.	The rule is overly complex.	The rule has been simplified and aligned with Annex 6 Part II.
BALLOONS		Text moved to NCO.OP.127 Fuel and ballast supply and planning - balloons
(b) For flights conducted in accordance with VFR, reserve fuel (gas or ballast) shall not be less than 30 minutes of flight.		This provision is now in NCO.OP.127 and is amended to take into account the comment.
AEROPLANES		NCO.OP.125 is simplified and aligned with Annex 6 Part II to adapt to NCO operations. The obligation rests on the

A: Rule	B: Summary of comments	C: Reason for change, remarks
		PiC.
(c) Except for non-commercial flights with other than complex motor-powered aircraft taking off and landing at the same aerodrome/operating site and remaining within 50 nautical miles (nm) of that aerodrome/operating site, flights conducted in accordance with VFR shall carry reserve fuel not less than:	1. INDIV: request that the rule apply to all A/C and operations. 2. IS (GA): request that amount of fuel reserve be at the PIC's discretion.	1. This requirement is now applicable to NCO operations. 2. The proposed rule would be below the safety level established by ICAO.
(1) 30 minutes fuel at normal cruising altitude by day; or	IS (GA): What is the requirement when the flight includes both day and night?	If part of the flight is night, the night requirements would apply.
(2) 45 minutes fuel at normal cruising speed by night.	MS, IS: Why is cruising altitude specified for day and cruising speed for night?	Text amended to take into account the comment.
(d) For flights conducted in accordance with IFR the amount of fuel to be carried shall be sufficient:		Text simplified and aligned with Annex 6 Part II to adapt to NCO operations.
(1) to fly to the aerodrome/operating site of intended landing, and thereafter to fly 45 minutes at normal cruising altitude, when no alternate is required or no suitable alternate is available (i.e. the aerodrome/operating site is isolated and no suitable alternate is available); or		
(2) when a alternate is required, to fly to and execute an approach and a missed approach at the aerodrome/operating site		

A: Rule	B: Summary of comments	C: Reason for change, remarks
of intended landing, and thereafter:		
(i) to fly to the specified alternate; and		
(ii) to fly at least 45 minutes at normal cruising altitude.		
HELICOPTERS		
(e) Except for non-commercial flights with other than complex motor-powered aircraft taking off and landing at the same aerodrome/operating site and remaining within 50 nautical miles (nm) of that aerodrome/operating site, flights conducted in accordance with VFR shall carry reserve fuel not less than 20 minutes fuel at best range speed.	IS: The alleviation from the fuel carriage rule was previously permitted for non-complex helicopters under specific operating conditions; this has not been carried across to OPS.GEN.	The 20 min fuel carriage is considered to be applicable to NCO operators and no alleviations must be permitted. This is a safety issue.
(f) For flights conducted in accordance with IFR, the amount of fuel to be carried shall be sufficient:		
(1) to fly to the aerodrome/operating site of intended landing, and thereafter to fly 30 minutes at holding speed at 450 m (1 500 ft) above the destination aerodrome/operating site under standard temperature conditions and approach and land, when no alternate is required or no suitable alternate is available (i.e. the		

A: Rule	B: Summary of comments	C: Reason for change, remarks
aerodrome/operating site is isolated and no suitable alternate is available); or		
(2) when an alternate is required, to fly to and execute an approach and a missed approach at the aerodrome/operating site of intended landing, and thereafter:		
(i) to fly to the specified alternate; and		
(ii) to fly 30 minutes at holding speed at 450 m (1 500 ft) above the alternate aerodrome/operating site under standard temperature conditions and approach and land.		
OPS.GEN.210 Refuelling with passengers embarking, on board or disembarking		After internal consultation, if was decided that for all NCO operations refuelling with passengers embarking, on board or disembarking shall not be allowed.
(a) A balloon shall not be refuelled with passengers embarking, on board or disembarking.	IS, IA, INDIV: Clarify balloon refuelling procedure by introducing "Fuel cylinders" in the text: one cylinder is used to inflate the envelope and embark passengers. This empty bottle may be replaced by a filled one. This action may be interpreted as a refuelling action. This CRD do not assume gas balloons (Hydrogen).	The filling of gas cylinder is not connected to balloons flights and passengers are not involved in that kind of refuelling operation. Therefore it was considered, in agreement with the balloon community, that no specific rule is required.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(b) All other aircraft shall not be refuelled when passengers are embarking, on board or disembarking, unless:		After internal consultation, if was decided that for NCO operations refuelling with passengers embarking, on board or disembarking shall not be allowed.
(1) it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation of the aircraft; and	1. Remark that due consideration should be paid to the fact that the whole process shall take place under the authority of the PIC.	
(2) for commercial operations, two-way communication is maintained between the personnel involved in the operation supervising the refuelling and the pilot-in-command or other qualified personnel required.	1. Request to replace "maintained" by "shall be established and remain available". 2. MS: Precautions when refuelling with wide cut fuel should be added.	
OPS.GEN.215 In-flight fuel checks		The title is amended: "In-flight fuel management" is considered to better reflect the intention of the requirement.
In-flight fuel checks shall be carried out on each flight at regular intervals.	IS (GA): request exemption for A/C that rely on a dip-stick to test fuel levels (i.e. older/vintage A/C).	Vintage aircraft are "Annex II aircraft" and beyond the scope of this requirement.
OPS.GEN.220.B Operational limitations - balloons		
(a) A landing with a balloon during night shall not be made, except for emergencies.	IS: May be restrictive for a small number of balloon operations, such as flight in northerly latitudes in summer, record attempts: This proposed rule should be discussed with the	This requirement was reviewed by the Review Group members and in the internal consultation. It was agreed that

A: Rule	B: Summary of comments	C: Reason for change, remarks
	ballooning experts (from industry) to see whether it is unduly restrictive on the sport of ballooning. Maybe the draft rule could be limited to 'commercial' operations.	this sentence should be removed.
(b) A balloon may take-off during night, provided sufficient fuel is carried for a landing during day.	Please exempt tethered balloons (as far as a tethered flight is considered as a flight).	The amended text specifies that the rule applies to hot-air balloons.
OPS.GEN.222 Ground proximity detection		
When undue proximity to the ground is detected, the pilot flying shall immediately take corrective action to establish safe flight conditions.	1. MS: This paragraph is far too vague and gives no guidance as to what is an acceptable method of detection or corrective action. Text should be expanded or the paragraph deleted. 2. IS: This rule needs clarification for the circumstances when the corrective action contradicts Air Traffic Control clearance or airspace requirements. The corrective action for a ground proximity warning may require the pilot to violate another operating rule.	The text has been amended to better clarify the intent.
Section III – Aircraft performance and operating limitations		
OPS.GEN.300 Operating limitations		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(a) During any phase of operation, the loading, the mass and, except for balloons, the centre of gravity (CG) of the aircraft shall comply with any limitation specified in the Aircraft Flight Manual (AFM).	IS: Some non-complex aircraft have no AFM available. They are operated with a Pilot Operating Handbook(POH).	The term AFM is kept in the rules as all NCO aircraft should have a AFM. However, the Agency will take into account the reactions received and will address it after the CRD consultation.
(b) An aeroplane shall be operated within the limitations imposed by compliance with the applicable noise certification standards.	MS: In paragraph (b) helicopters have been excluded from the requirement to comply with noise certification. [	The revised text takes into account the comment
OPS.GEN.305 Weighing		
(a) The mass and, except for balloons, the C of an aircraft shall be established by actual weighing prior to initial entry into service.	1IS, IA: Move the paragraph to Part-M and Part-21 since the entire paragraph is related to airworthiness and maintenance tasks.	It is currently considered to keep this requirement in the OPS rules until its integration in Part-M with the CRD of rulemaking task MDM.047.
(b) The accumulated effects of modifications and repairs on the mass and balance shall be accounted for and properly documented. The aircraft shall be reweighed whenever the effect of modifications on the mass and balance is not accurately known.		
(c) The mass and CG of complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations shall be re-established by actual weighing:	A balloon will undergo negligible changes to its weight during its lifetime unless it is modified or components change, which is addressed by paragraph (b).	The reweighing provision is transferred to a GM to the related rule (NCO.POL.105) until it is sufficiently covered under Part-M.
(1) at least every 4 years if individual aircraft	1. MS: Request to extend (c) to 5 and 10	1&2. This is deleted for NCO.

A: Rule	B: Summary of comments	C: Reason for change, remarks
masses are used; or	years. 2. IS (BA): request to weigh every 4/5 years, to facilitate operators, where fleet masses have a 9 year cycle of weighing.	
(2) at least once every 9 years if aeroplane fleet masses are used.		
(d) The weighing shall be accomplished by the manufacturer of the aircraft or by a maintenance organisation approved in accordance with Part-M or Part-145.	MS, IA: This paragraph should be transferred to Part-21, Part-M and Part-145.	It is currently considered to keep this requirement in the OPS rules until its integration in Part-M with the CRD of rulemaking task MDM.047.
OPS.GEN.310 Mass and balance system- complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		Text not transposed as it is considered to be beyond the scope of part-NCO
COMPLEX MOTOR-POWERED AIRCRAFT USED IN NON-COMMERCIAL OPERATIONS AND AIRCRAFT USED IN COMMERCIAL OPERATIONS		
(a) An operator of a complex motor-powered aircraft used in non-commercial operations or an aircraft used in commercial operations shall establish a mass and balance system specifying how the following items are accurately determined for each flight:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(1) Aircraft dry operating mass and CG, if applicable;		
(2) Mass of the traffic load		
(3) Mass of the fuel load;		
(4) Aircraft loading under the supervision of qualified personnel;		
(5) Load distribution;		
(6) Take-off mass, landing mass and zero fuel mass, if applicable;		
(7) CG positions, if applicable; and		
(8) Preparation and disposition of all documentation.		
(b) The mass and balance computation based on electronic calculations shall be replicable by the flight crew.		
AIRCRAFT USED IN COMMERCIAL OPERATIONS		
(c) For commercial operations, mass and balance documentation shall be prepared prior to each		

A: Rule	B: Summary of comments	C: Reason for change, remarks
flight specifying the load and its distribution.		
OPS.GEN.315 Performance - general		
(a) An aircraft shall only be operated if the performance is adequate to comply with the applicable rules of the air and any other restrictions applicable to the flight, the airspace or the aerodromes/operating sites used, taking into account the charting accuracy of any charts/maps used.		Editorial change to put the obligation on the pilot-in-command.
(b) Except when necessary for take-off or landing at an approved operating site, an aircraft shall only be operated over the congested areas of cities, towns or settlements or over an open-air assembly of persons, if it is able to make a landing without undue hazard to the aircraft occupants or to third parties, in the event of a power-unit failure.	1. IS (H): request to re-draft (b) as the intent should be to mitigate risks to third parties. Safety of A/C occupants is covered in other rules. 2. MS: Request to delete or rephrase (b), add "and property", and to define "open air assembly of persons". 3. IS (BA): request to clarify if (b) applies in emergency situations.	1. Accepted. The text transposed should be the one contained in ICAO Annex 2 3.1.2 and 4.6 and links it to performance such that performance is available to comply with these requirements. 2. "Open air assembly" is also not further defined in ICAO. 3. Please refer to the ERs, which already contain the clause that in emergency situations the PIC can deviate from the rules (7.d.).
OPS.GEN.320.A Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations	IS (GA): request to exempt non-commercial operations from this rule.	Text not transposed as it is considered to be beyond the scope of part-NCO.

A: Rule	B: Summary of comments	C: Reason for change, remarks
COMPLEX MOTOR-POWERED AEROPLANES USED IN NON-COMMERCIAL OPERATIONS AND AEROPLANES USED IN COMMERCIAL OPERATIONS		
(a) When determining the maximum permitted take-off mass, the following shall be taken into account:		
(1) the take-off distance shall not exceed the take-off distance available, with a clearway distance not exceeding half of the take-off run available;	1. IS (GA): request to define "clearway distance". 2. MS: request to also add width of runway. CS should require this information in the AFM.	Not applicable for Part-NCO. However, a definition for 'clearway', based on that in ICAO Annex 14, has been added to Annex I Definitions.
(2) the take-off run shall not exceed the take-off run available;		
(3) a single value of V_1 shall be used for the rejected and continued take-off; and	1. MS request to clarify that this is not applicable to single-engine A/C. 2. IS (GA, BA): request that this rule applies to single-engine aeroplanes.	
(4) on a wet or contaminated runway, the take-off mass shall not exceed that permitted for a take-off on a dry runway under the same conditions.	MS: request to redraft the text which makes no sense in this form.	
COMPLEX MOTOR-POWERED AEROPLANES		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(b) In the event of a critical engine failure during take-off, complex motor-powered aeroplanes shall be able to discontinue the take-off and stop within the runway available or, in the case of multi-engined aeroplanes, continue the take-off and clear all obstacles along the flight path by an adequate margin until the aeroplane is in a position to comply with OPS.GEN.325.		
OPS.GEN.325 En-route - Critical engine inoperative - complex motor-powered aircraft		Text not transposed as it is considered to be beyond the scope of part-NCO.
In the event of a critical engine becoming inoperative at any point along the route, a multi-engine complex motor-powered aircraft shall be able to continue the flight to an aerodrome without flying below the minimum obstacle clearance altitude at any point.	1. MS: Request to standardise use of "minimum flight altitude/minimal obstacle clearance altitude" throughout the NPA". 2. IS (GA): Request to apply only to commercial operations. 3. IS: Add landing site.	
OPS.GEN.330.A Landing - complex motor-powered aeroplanes	IS (GA): request to withdraw this rule as the PIC should decide if the chosen landing aerodrome is suitable for a safe operation.	Text not transposed as it is beyond the scope of part-NCO.
At any aerodrome, after clearing all obstacles in the approach path by a safe margin, the aeroplane shall be able to land and stop, a seaplane come to a satisfactorily low speed, within the landing distance available. Allowance may be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of	1. IS (BA): request clarification that the landing factor = 1. 2. IS (GA): request GM regarding variation in approach and landing regarding: temperature, excess height/speed at threshold, runway slope,	Not applicable for Part-NCO

A: Rule	B: Summary of comments	C: Reason for change, remarks
performance data.	unpaved/wet/contaminated runway, non-standard flare techniques, gusts and crosswinds. 3. MS: Replace "by a safe margin" by "from an appropriate screen height". 4. Add "at an *adequate* aerodrome".	
Section IV - Instruments, data and equipment	1. This subpart is applicable to all aircraft, whatever the date of issuance of the first individual certificate of airworthiness might be. This is a major difference compared to ICAO Annex 6 provisions and to EU/JAR-OPS 1/3 as well as to national rules (e.g. regarding harnesses, TAWS). The question of cost/benefit of the retrofit must be studied carefully, especially in the case of general aviation or aerial work where situations can be different according to the Member States rules, as the only common basis (ICAO Annex 6 Part II) may either be a simple recommendation or a standard that takes into account the date of issuance of the first individual certificate of airworthiness.	1. Appropriate transition periods have now been established in order to enable smooth implementation of the operations rules affecting installation of additional equipment. This is particularly the case where Member States have filed differences to ICAO standards.
	2. The European Private Helicopter Alliance (EPHA) is strongly opposed to the proposed regulations commented upon herein. It is simply grossly unreasonable to impose such a heavy burden of compliance when no safety case exists. We thus urge EASA to	2. Partially accepted The rule should be based on and compliant with Annex 6 Part III Section III. The rules need to encompass:

A: Rule	B: Summary of comments	C: Reason for change, remarks
	either withdraw these proposals entirely, amend them as suggested, define a maximum take-off mass (MTOM) weight limit below which they would not apply (e.g. 3 175 kg or 2 000 kg), or simply apply the fixed wing proposals to helicopters. Other practical mitigation measures could be exemptions for helicopters under 2 000 kg MTOM, for non-complex helicopters, or for helicopters in private flight. Our preferred solution is that EASA adopt option 4C as defined in paragraph 2.9 of Notice of Proposed Amendment (NPA) No 2009-02G. Should EASA mandate equipment that is not currently required under a Member State's present regulations, it is essential that a practical time period of exemption is allowed for equipage to occur. We would suggest that a major item such a floats should have a 25 year compliance period (this being a reasonable life for the current helicopter fleet). ELTs could have a 10 year compliance period. It would be completely unreasonable and disproportionate to demand immediate compliance, especially when there is no immediate perceived safety need. Helicopter owners would be asked to comply with these costly proposals merely because of out-dated ICAO standards, whereas light	- offshore operations; - provide leeway for other-than offshore operations. The rules on floatation equipment and emergency equipment for over water flight have been adapted to take into account helicopter size in Part-NCC and Part-NCO. Specific requirements for SPO will also be developed.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	fixed wing aircraft operating in the same manner will have almost no changes nor the resulting costs imposed on them. EASA's policy should be "regulation at a sensible minimum", and "safety in a cost-effective manner", as stated by Peter Hunt, Head of Operating Standards Division of the UK CAA in December 1998. EASA should consider: The proportionality of the proposals as regards private helicopter use; the lack of legal necessity of ICAO compliance; the unreasonableness of ICAO helicopter standards as applied to private operations; the safety benefit of the proposals, if any; the practicality of the equipment which is proposed to become mandatory; the cost of the equipment which is proposed to become mandatory; the need as perceived by a substantial majority of helicopter pilots; the arbitrary and discriminatory nature of parts of the NPA as applied to private helicopters (but not to private aeroplanes). Ref: European Parliament resolution of 3 February 2009 on an Agenda for Sustainable Future in General and Business Aviation (2008/2134(INI)).	
OPS.GEN.400 Instruments and equipment –		

A: Rule	B: Summary of comments	C: Reason for change, remarks
General		
GENERAL OBJECTIVES		
(a) An aircraft shall be equipped with instruments which will enable the flight crew to:		This ICAO performance-based rule is very generic and may be difficult to implement. Furthermore, this rule may be seen as a duplication of paragraph 5 Instruments, data and equipment of Annex IV to Regulation (EC) No 216/2008 that this Section implements. The various instruments, data and equipment that are required by this Section IV shall suffice to ensure that the Essential Requirements are complied with. In order to avoid duplication of the Essential Requirement, (a) has been deleted. Consequently the title of the rule has been revised.
(1) control or, in the case of balloons, determine the flight path;	1. To determine the flight path or to navigate under VFR conditions do not need approved equipment. Modern GPS equipment together with a map of the area are sufficient for safe navigation. We suggest the text in (a) (1) to read: (1) control or, in the case of non-commercial VFR flight with non-complex	1. & 2. The proposed rule was derived from ICAO. The issue will be clarified in the separate section containing the equipment requirements for balloons.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	aircraft, determine the flight path. 2. The reader does not understand which equipment may determine the flight path in a balloon. Does it mean the pilot in command should carry on a map? In fact 2: one aeronautical and one detailed (scale adapted to balloon activity). Note: all VFR balloon operations should be performed with the surface in sight.	
(2) carry out any required procedural manoeuvre; and		
(3) observe the operating limitations in the expected operating conditions.		
APPROVED AND NON-APPROVED EQUIPMENT		
(b) Equipment and instrument required by Part-OPS shall be approved , except as specified in (b), and installed in accordance with Part-21.	1. Approval shall be also required for equipment that is used to perform a function required by Part-OPS. 2. The approval of equipment shall not be required if "deemed not practical".	1. The statement of compliance is used to encompass equipment required through the function(s) it performs. 2. The exceptions to the requirement of (a) are listed in (c). See below for the changes proposed to (c).
(c) Instruments and equipment required by Part-OPS which do not need to be approved in accordance with Part-21, as well as any additional equipment which is not required by Part-OPS, but is carried on a flight, shall comply with the following:	1. The requirement on equipment not required by this Part shall be separated from those on required equipment for greater clarity. 2. All instruments and equipment on board	1&2 To improve clarity, (c) has been revised to address equipment not required by this regulation and that does not need to be approved in accordance with Part-21. This will ensure that equipment or

A: Rule	B: Summary of comments	C: Reason for change, remarks
	an aircraft should be approved according to Part-21. Reason: Airlines must demonstrate in accordance with Part-21 that all instruments and equipment shall not affect the airworthiness of the aircraft, even in the case of failures or malfunction.	instruments that have not been subject to an approval in accordance with Part-21 are used to comply with airworthiness and operations safety requirements.
(1) The information provided by these instruments, equipment or accessories shall not be used by the flight crew to comply with(a);	1. This requirements will prevent the use of GPS devices not approved under Part-21 from being use for navigational purpose (e.g. glider competitions). It is proposed to amend the rule to state that the safe navigation of the aircraft must not be dependent on the use of unapproved instruments.	1. The proposed rule ensures that compliance with Essential Requirements does not rely on non-approved equipment. If equipment is installed in addition to that required to comply with the Essential Requirements, its utilisation is not precluded.
(2) The instruments and equipment shall not affect the airworthiness of the aircraft, even in the case of failures or malfunction.		
ACCESSIBILITY AND POSITIONING OF INSTRUMENTS AND EQUIPMENT		
(d) Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated.	1. Paragraph (d) states: "Instruments and equipment shall be readily operable or accessible from the station where the flight crew member that needs to use it is seated." We recommend that this paragraph be reworded or eliminated. The location of equipment needing to be readily operable or	1. The paragraph has been removed. 2. The paragraph has been removed.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	accessible might require redesign and recertification of existing and approved locations of the emergency equipment. Justification: Paragraph (d) appears to be specifying design requirements for airplanes, which is inappropriate for an operational rule. It should be removed from this NPA. 2. (d) "seated" is not applicable to balloons. Rewrite (d) as follows: "Instruments and equipment shall be readily operable by or accessible to from the station where the flight crew member that needs to use it is seated."	
(e) Instruments and equipment used by flight crew members shall be arranged so as to enable them to see the indications for use readily from their station, with the minimum practicable deviation from the position and line of vision which they normally assume when looking forward along the flight path.		
(f) All required emergency equipment shall be easily accessible for immediate use.		
OPS.GEN.405 Equipment for all aircraft		
(a) Aeroplanes and helicopters shall be equipped with:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(1) except in the case of aerobatic flights, at least one hand fire extinguisher:	It is not clear why the previously single rule for seats, safety belts and harnesses has been divided between a number of rules (GEN.405, GEN.480 GEN.545, CAT.406 and CAT.482); it might be more appropriate to put all of the elements concerned with seats into a single rule in GEN.480.	For clarification of presentation of the requirements: - OPS.GEN.405 (a) (2), (a) (3) and (e) (2) on seat, berth, seat belts and harnesses, and child restraint devices have been moved to a dedicated rule. - A dedicated rule for hand fire extinguisher has been created incorporating OPS.GEN.405 (a)(1) and (b).
(i) in the cockpit; and	1. Whether powered sailplanes including SLMGs are included in the definition of aeroplanes is not clearly stated in this NPA. They should be excluded from the requirement to carry fire extinguishers since, as far as I know, none already in service are so fitted and physical constraints may make retrofitting very difficult if not impossible. They are not required under the EASA rules that cover certification of such aircraft. 2. In aircraft with very limited cockpit space, the requirement to install a hand fire extinguisher: - may not be feasible, - may create an additional safety hazard: losing sight and aircraft control when intentionally or not activated,	1. Powered sailplanes are not aeroplanes according to their Certification Specification. Applicable requirements for sailplanes and powered sailplanes are defined at the beginning of Part-NCO The Agency agrees that in this specific case the TMG should be excluded from this requirement because of the mentioned limited cockpit space. 2. Not accepted. The requirement is maintained, in compliance with ICAO Annex 6 Part II and Part III section III. 3. Aerobatic flights are beyond the scope of Part-NCO. Exceptions to the requirement will be investigated as part of future rulemaking task OPS.066 Operations and equipment for high performance aircraft, to take into account

A: Rule	B: Summary of comments	C: Reason for change, remarks
	- installation and periodic maintenance of a fire extinguisher on board that category of aeroplane will cost time and money for the operators (mainly aero-clubs), - the use of any fire extinguisher in a cabin of an aircraft is dangerous for all occupants because of the agents used. It is much safer to have a pilot concentrating on the emergency procedures learned and on landing the aircraft as quickly as possible, rather than to try to extinguish the fire. It is proposed to delete the requirement for non-complex aeroplanes involved in non-commercial operations, at least for aeroplanes below 2 000 kg maximum take-off weight (MTOW). 3. It is proposed to replace "except in the case of aerobatic flights" by "except where it adversely affects the safety of crew and/or passengers". Add AMC OPS.GEN.405(a)(1) "Adverse effects on the crew's and/or passenger's safety are expected on aerobatic flights, where the hand fire extinguisher may become a hazard due to high G-loads" reason: Aerobatic flights are only one (although the most common) example for possible adverse effects on the crew's safety, as stated in the respective Guidance	other-than aerobatics operations where high G-loads can be met.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	Material. Launching gliders into a lee wave system can require the tug aircraft to repeatedly climb and descend in the extremely turbulent air associated with strong air flows in the lee of mountains. Once off tow, the glider can climb in the smooth higher air, but the tug immediately returns for a further dose. Following EASA's concept of "hard" and "soft law", the Aerobatic Flights would be subject to the AMC, where other exemptions might be added, in case adverse effects on safety are identified. Advantage: the proposed wording gives the same level of safety but offers more flexibility in case other hazards than the one mentioned in the GM are identified in the future.	
(ii) in each passenger compartment which is separate from the cockpit;		
(2) a seat or berth for each person older than 24 months;		1. Clarification of the wording, consistent with other paragraphs.
(3) a seat belt for each seat and restraining belts for each berth;		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(4) a restraint device for each person younger than 24 months; and	1. A baby in an incubator cannot be provided with a restraint device. 2. The proposed text says restraint device for each person younger than 24 months but does not give any indication on where the infant should sit or if double occupancy is permitted. 3. Replace "a restraint device" by "a child restraint device (CRD)". This will make the link with the AMC more understandable.	1. The AMC provides several means of compliance. In this specific case, an alternate means of compliance may be proposed to the NAA and could eventually be published as an AMC to this rule. 2. This is proposed to be clarified in future rulemaking task MDM.063 Child restraint devices. 3. Reference to child restraint device clarified in line with AMC.
(5) spare electrical fuses, of the ratings required for complete circuit protection, for replacement of those fuses that are accessible in flight.	1. The requirement shall apply only for fuses that are required for the correct operation of instruments and equipment required by Part-OPS. 2. We feel that accessibility is not the criteria. As NPA OPS 43 was not approved and was just a draft, the criteria should be "for use". Therefore please change sub-paragraph 5 to read: (5) "Spare electrical fuses, of the ratings required for complete circuit protection, for replacement of those fuses that are allowed to be changed in flight".	1&2. Text has been amended to improve clarity and in order to cover the intent of the rule. Alignment with CAT.IDE and NCC.IDE has been also considered.
(b) The type and quantity of extinguishing agent for the required fire extinguishers shall be suitable for the type of fire likely to occur in the compartment where the extinguisher is intended to be used and the hazard of toxic gas		

A: Rule	B: Summary of comments	C: Reason for change, remarks
concentration in compartments occupied by persons shall be minimised.		
SAILPLANES		
(c) Sailplanes shall be equipped in accordance with (a)(2) and (a)(3).		
BALLOONS		
(d) Balloons shall be equipped in accordance with (a)(1)(i) and an alternative source of ignition.	1. INDIV: An external source of ignition, a means to assess the fuel quantity and universal pliers are missing in this equipment list. 1. MS: (d) : add "in the case of "hot air balloons" after "alternative source of ignition" In balloons where the lifting gas is inflammable (such as hydrogen gas balloons), sources of ignition are generally discouraged. It is assumed that this is an oversight in the wording, rather than a startling display of ignorance on the subject. Suggestion that this should apply to hot air balloons only.	1. & 2. Partially accepted. A dedicated rule has been added for miscellaneous equipment where an alternative source of ignition and a means of displaying fuel quantity remaining has been included. The Agency does not accept the need to carry universal pliers.
LARGE BALLOONS AND BALLOONS INVOLVED IN COMMERCIAL OPERATIONS		Not transposed, beyond the scope of Part-NCO. Some specific items; based on comments received will be required for NCO.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(e) Balloons with a maximum passenger capacity of more than 11 and balloons used in commercial operations shall, in addition to (d), be equipped with: (1) protective gloves for each crew member; (2) crew restraint harness(es); (3) a hook knife; (4) a fire blanket or fire resistant cover; and (5) a drop line of at least 30 metres (m).	MS: (e)(1), (e)(3) and (e)(4) shall be applicable to all balloons. MS, IS, INDIV: Rewrite as follows : "(e)(5) a drop line of at least 30 25 metres (m). Justification : There are only two length available for drop lines : 25 or 50 metres INDIV: A drop line is often an unnecessary burden when it is clear that it will not be needed in the forthcoming short duration of the flight.	1. Some items have been added.
CARRIAGE OF PARACHUTISTS		Not transposed, beyond the scope of Part-NCO.
(f) Notwithstanding the provisions of (a)(2), in the case of carriage of parachutists, the floor may be used as a seat, provided means are available for the parachutists to hold on.		
OPS.GEN.410 Flight instruments and equipment - VFR flights		In order to comply with ICAO the requirement on Mach number indication has been added
(a) When operating under Visual Flight Rules (VFR), sailplanes, aeroplanes, and helicopters shall be equipped with a means of measuring and		

A: Rule	B: Summary of comments	C: Reason for change, remarks
displaying:		
(1) magnetic heading;		
(2) time, in hours, minutes and seconds;	1. For a VFR flight, there is no need for a precision down to the nearest second. Hours and minutes are enough. 2. Delete "shall be equipped with". Justification: A requirement for a time piece equipment could be subject to an installation, which could be very costly.	1. Not accepted. The requirement for seconds is in line with ICAO. 2. Not accepted. The AMC OPS.GEN.410(a)(2) allows compliance by using a wrist watch for other-than-complex motor-powered aircraft.
(3) pressure altitude; and		
(4) indicated air speed.		
(b) When sailplanes, aeroplanes and helicopters operating under VFR cannot be maintained in a desired attitude without reference to one or more flight instruments, it shall, in addition to those required in (a), be equipped with a means of measuring and displaying:	1. This paragraph details the required flight instruments and equipment for various flight regimes. The matter is complex due to the varying requirements of the different types of operation, the flight conditions and the time of day. There is a need to specify the types of flight conditions for which additional instruments shall be installed. Text proposal provided. 2. As written, "cannot be maintained in a desired attitude" refers to a concept of "IMC	1. This paragraph is based on ICAO Annex 6 Part II, 2.4.7. The additional instruments necessary to fulfil the Essential Requirements may vary depending on the operational conditions. Leaving the uncertainty on which of the instruments listed in (b)(1) to (5) shall be installed, in case operations that will require them are performed, is not acceptable at this level of Implementing Rule.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	rating", which is not applicable, even considered as illegal, in other European countries. There is no certainty as to the operational conditions it corresponds to. 3. MS: request to stay away from the performance base rule making here. If this system shall be used, OPS.GEN 405 should be phrased in a similar way. However, this does not make much sense at all. 4. The set of rules for instruments VFR, night VFR and IFR are made extremely complex by the policy of inheritance. The combination of rules has to provide for simple types and complex types in General Aviation; it must also cater for simple types and complex types in Commercial Air Transport; and simple and complex types in commercial and non-commercial Aerial Work. The criteria for instruments and equipment vary for simple types within GA, CAT and AW and also for complex types in GA, CAT and AW. There are also differences between: single pilot and two pilots; operations when control can be maintained by reference outside the cockpit and those where it cannot - even though all of these are designated as VFR (and even further complicated by the inheritance from VFR to IFR). 5. IA (GA): A VFR-flight is by definition a	2. The new proposal is based on the deletion of current (b) and the introduction of more specific conditions of applicability. The intent of the requirement is to cover operations under VFR, that is to say, in VMC for which nevertheless the need to refer to instruments may be foreseen. Alternatively the same additional instruments shall be required for special VFR flights performed below the VMC minima. In order to avoid confusion it is proposed to further specify the operational conditions for which additional flight instruments may be required. 3-5. Refer to 1&2.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	flight when the attitude is maintained by visual references out of the cockpit and in VMC. AOPA-Sweden does not agree to a need of additional instruments during operations in VFR/VMC, where the desired attitude cannot be maintained by one or more instruments. Only a need can be seen for vertical speed indicator during night and direction during VFR on top.	
(1) vertical speed; (2) turn and slip for aeroplanes, and slip for helicopters;	Move (b)(1) and (b)(2) to OPS.GEN.410 (a) to read : "(5) vertical speed only for sailplanes";"(6) turn and slip for aeroplanes and slip for helicopters". Justification: these items are necessary for VFR with sailplanes, aeroplanes and helicopters.	Accepted.
(3) attitude. In the case of helicopters, two separate means of indicating attitude shall be available;		
(4) stabilised heading; and		
(5) when power is not adequately supplied to the instruments.	None of the instruments listed in OPS.GEN.410 (a) has a need of external power, which suggests that this point can be deleted. How can we measure when power is not adequately supplied to the instruments? On	It is proposed to clarify the requirement by changing the text to: "a means of indicating when the supply of power to the gyroscopic instruments is not adequate".

A: Rule	B: Summary of comments	C: Reason for change, remarks
	some a/c, no power is needed for vertical speed required by §(b)(1) - only air pressure is enough - so §(b)(5) cannot be complied with. Proposal is to keep this requirement but not under §(b)(5), under a new (c) for example, and also to exempt vertical speed from this requirement.	
AEROPLANES AND HELICOPTERS IN MULTI-PILOT OPERATIONS		Not transposed, beyond the scope of Part-NCO.
(c) Whenever two pilots are required for the operation, aeroplanes shall be equipped with an additional separate means of displaying (a)(3), (a)(4), (a)(5) and if applicable (b) (1), (b)(2), (b) (3) and (b)(4).		
BALLOONS		
(d) When operating under VFR, balloons shall be equipped in accordance with (a)(2), (a)(3) and also with: (1) a means of indicating: (i) drift direction; and (ii) envelope temperature; and	1.INDIV: Drift direction would be measured how? And why is this necessary? Does it mean the pilot in command should carry on a map? In fact 2: one aeronautical and one detailed (scale adapted to balloon activity). Note: all VFR balloon operations should be performed with the surface in sight. 2. INDIV: The means of indicating drift direction in a balloon must be a GPS as a compass cannot be read accurately when the	1. 2. & 3. The rule gives a performance objective. Means of compliance will be given at AMC level. 4. Accepted. 5. Accepted. Wording will be changed to say "indicating excessive envelope temperature". The use of an approved temperature flag would be considered

A: Rule	B: Summary of comments	C: Reason for change, remarks
	orientation of the basket changes frequently in flight. As the flight speed in generally very low it is possible to assess drift direction by reference to the map and does not require instrumentation 3. INDIV: The most practical method of measuring drift is with a map and the mark 1 eyeball. Would it not be simpler to say a map must be carried? Indeed, since a map will always be carried anyway, why not just delete this clause? 4. INDIV: to e: Every balloon should be equipped with a variometer. It is an essential for life-instrument. 5. A means of "indicating envelope temperature" would mean adding thermistors to many balloons which do not have them and do not need them. If the wording was changed to say "indicating excessive envelope temperature" then a temperature flag would be adequate. (1) (ii) temperature is already catered for with a "temp link" and a flag attached. Electronic temperature devices are useful but should not be mandatory. Balloons are already fitted with a means of indicating maximum operational temperature. Regular monitoring of internal envelope temperature even when flying with	adequate.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	large passenger balloons is not a standard practise nor is it necessary, as the flight preparation requires a load calculation to be carried out for the meteorological conditions at the time of the flight so that the max. temperature will not be exceeded. Balloon pilots do not fly and monitor the internal envelope temperature during normal operational procedures. It is not necessary to add a second temperature indicator, even if this indicator is an instant-reading one. Justification: CS-31 HB.49 (e) requires a means to indicate the maximum envelope skin temperature or maximum internal air temperature during operation.	
LARGE BALLOONS AND BALLOONS INVOLVED IN COMMERCIAL OPERATIONS		Not transposed, beyond the scope of Part-NCO.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(e) Balloons with a maximum passenger capacity of more than 11 and balloons used in commercial operations, when operating under VFR shall, in addition to (d), be equipped with: (1) a means of measuring and displaying: (i) vertical speed; and (ii) pressure for each supply line;		
OPS.GEN.415 Flight instruments and equipment - VFR night flights and IFR flights	1. Amend the title as follows to take into account the fact that not only VFR night flights and IFR flights are dealt with in this paragraph and that the criteria are not only the flight rules but the meteorological conditions: "Flight instruments and equipment – Flight at night or in IMC and VFR night flights and IFR flights" for IMC flights add the following instruments: 1) attitude 2) stabilized heading 3) vertical speed 4) a second attitude instrument or a turn and slip indicator with an electrical supply independent from the first one. 2. There are numerous other instruments required by our national safety requirements for general aviation that are missing in this NPA. Drawing the comparison has been	1. The proposed rules are developed with the basic assumption that the flight rules for VFR will impose VMC and that flight in IMC will have to be performed under IFR. Reducing the requirements in terms of instruments when flying in IMC compared to IFR is contradictory to ICAO Annex 6 Part II. 2. Comment period of this NPA was extended to allow stakeholders to review its content. 3. Accepted. A dedicated paragraph will be created for operating lights.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	really time-consuming. We are not in a position, though, to make deeper comment in such a short time. This is in favour of converting this NPA into an A-NPA to enable stakeholders to give more detailed comments. 3. Simplify by breaking out the lighting requirements from the instrument requirements into a new section (OPS.GEN.XXX) as there are several errors of omission included in the NPA.	
AEROPLANES AND HELICOPTERS.		
(a) Aeroplanes and helicopters operating Visual Flight Rules (VFR) night flights and Instrument Flight Rules (IFR) flights shall, in addition to complying with OPS.GEN.410(a), (b), and (c), be equipped with:	1. To require the same requirements for night VFR and IFR is not reasonable as some requirements are not relevant for night VFR flight. ICAO Annex 6 Part III now has separate requirements for night VFR for helicopters. The ICAO designation for helicopters should be used; it removes 'flight in controlled airspace' and has three separate requirements ('Day VFR', 'Night VFR' and 'IFR - day and night'). 2. Fitting IFR equipment in a VFR-only private helicopter that is necessary only in IFR conditions will only serve to encourage pilots to fly in those conditions, thereby	1. The night VFR requirements are covered under paragraph (b). ICAO designation is taken into account. 2. The additional instruments are required to be fitted only if operations at night are envisaged. The night VFR requirements are covered under paragraph (b). IFR or VFR ratings for pilots have nothing to do with the instruments installed on the aircraft. 3. Requirements are in line with ICAO Annex 6. 4. Rules for different aircraft classes have now been drafted.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	breaking the law and being a negative as far as safety is concerned. It is illegal for VFR helicopter pilots to fly IFR unless they have an appropriate rating. In VFR flight such conditions are rarely encountered and are overcome by applying VFR flying rules. 3. Not practical to fit on small helicopters. Weight limitations and system requirements would mean that the useable load of small helicopters such as the R22 would be reduced further by this equipment. Training for night qualifications would therefore have to be carried out on larger, more expensive types adding to the costs of obtaining a CPL (H). 4. The compliance with (c) shall be "if applicable".	
(1) a means of measuring and displaying outside air temperature;	1. Measuring would insinuate a probe to directly measure the OAT while often the OAT (in the form of SAT) is derived from TAT and airspeed or Mach number.	1. Flexibility on the means of is given at AMC level.
(2) a means of preventing malfunction due to either condensation or icing for the means of measuring and displaying indicated air speed;		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(3) an alternative source of static pressure;	The requirement for an alternate source of static pressure is not requested by ICAO Annex 6 Part III Section III General Aviation - what is the justification for this requirement? We draw the attention that currently many single helicopters are not equipped with an alternate source of static pressure because it is not mandated by ICAO and because JAR-OPS 3 (CAT) forbids to operate in VFR night, as it is a limitation of the Performance Class 3.	Accepted.
(4) an anti-collision light system;	Anti-collision for helicopters already occurs in CAT.410; it appears to be a double requirement.	This issue is corrected with the new presentation of the rules.
(5) navigation/position lights;		
(6) a landing light;	This differs from JAR-OPS 3 where two light sources were required (landing and search light, the latter adjustable). At least two landing lights; electric torch for each crew member.	The requirement is in line with ICAO Annex 6 Part II, 2.4.8 c)
(7) lighting supplied from the aircraft's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the aircraft;		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(8) lighting supplied from the aircraft's electrical system to provide illumination in all passenger compartments;		
(9) an electric torch for each crew member station;	A carry-on flash-light should be acceptable for small GA-airplanes with a MTOW <5 700 kg.	The requirement is in line with ICAO Annex 6 Part II, 2.4.8 f)
(10) lights to conform with International Regulations for Preventing Collisions at Sea (hereinafter referred to as International Regulations for Preventing Collisions at Sea) if the aircraft is amphibious; and		
(11) in the case of aeroplanes with speed limitations expressed in terms of Mach number, a means of indicating Mach number.		In order to comply with ICAO the requirement on Mach number indication is added
(b) Aeroplanes operating VFR night flights and IFR flights and helicopters operating IFR flights shall be equipped with a chart holder in an easily readable position which can be illuminated for night operations.	1. This requirement should only be applicable to IFR flights. For VFR flights, AOPA-S does not deem a lighted chart holder necessary and the size of the map will make it impractical to fit in, since the critical parts of the flight will be performed with visual references. 2. Paragraph (b) is not a certification requirement for night VFR or IFR and should be deleted for non-commercial operations. The variety of suitable cockpit lighting, accessories and layout is captured during	1&2&3. The requirement for a chart holder has been withdrawn.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	certification of individual types, and should not be constrained by this kind of "one-size-fits-all" regulation. 3. If the operator and aeroplane are approved for alternate means to provide chart data to the flight crew (like EFB electronic charts) this requirement is not necessary.	
SAILPLANES		
(c) Sailplanes operating VFR night flights or IFR flights, shall comply with (a) (4) to (10) inclusive.	1. INDIV: When sailplanes fly IFR it is only en-route and never for take-off or for approach and landing. Invariably they fly IMC / IFR by day. For those reasons most of the proposals in this rule which assume that aircraft that fly IMC will also do so at night are totally inappropriate for sailplanes. There is no safety case for the disproportionate proposal to apply rules designed for CAT to sailplanes. In any case the power required is not available. The requirements for instrument lights and cabin lights in gliders are beyond any reasonable person's comprehension. I believe the only solution is to separate this section into two. One section covering night flights and the	1. 2. & 3. Accepted. IFR flights have been deleted (a sailplane is not capable of IFR operations due to its nature e.g. its aerodynamic stability, safety level of propulsion system etc.)

A: Rule	B: Summary of comments	C: Reason for change, remarks
	other IFR flights. It is proposed to require for sailplanes: Sailplanes operating VFR night flights shall display either a steady red light of at least five candela, showing in all directions, or lights in accordance (a) (5) and (9). [This is the current UK regulation.] & Sailplanes operating day IFR flights, shall comply with OPS.GEN.415b (a) (1) 2. INDIV: Requirement on landing light for sailplanes is not realistic. 3. MS: Sailplanes don't fly IFR but only temporarily in IMC (cloud flying).	
BALLOONS		
(d) Balloons operated at night shall, in addition to complying with OPS.GEN.410(d) and (e), as applicable, be equipped with:		
(1) position lights; and	Normally a balloon is moving with the air mass and how shall the position lights be oriented?	This is clarified at AMC level. The Scope of the position lights is to indicate the position of the balloon not to indicate the flight direction
(2) a means of illuminating all of the instruments used by the flight crew.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
OPS.GEN.420 Flights over water		
SAILPLANES AND BALLOONS		
(a) The pilot-in-command of a sailplane or balloon shall determine the risks to survival of the occupants of the aircraft in the event of a ditching, based on which he/she shall determine the carriage of: (1) life jackets, or equivalent floatation devices, for each person on board, stowed in a position which is readily accessible from the seat or berth of the person for whose use it is provided; (2) emergency locator transmitters; and (3) equipment for making distress signal, when operating a flight: (i) over water beyond gliding distance from the shore; or (ii) where the take-off or approach path is so disposed over water that in the event of a mishap there would be a likelihood of ditching;	1. MS: General comment: Flight over water should be defined more clearly for balloons (e.g. the size of lakes, rivers...) (a) (3) (i) A definition "over water beyond gliding distance from the shore" is not practicable for Balloons, therefore there should be a distinction between sailplanes and balloons. 2. INDIV: Replace 'ELT' by 'PLB'. Justification: landings and route transport may cause inappropriate activations of any automatic ELT. An ELT is necessary for each basket. A personal locator beacon (PLB) is really better for the ballooning activity. 3. IS: ELT is used only on really long flights above water like Gordon Bennett flights. These are really rare flights and there is an internal regulation at this type of competition that imposes a minimum equipment list. I would remove the paragraph: simply overruled.	1. Requirements for sailplanes and balloons have been addressed separately. 2. & 3. Use of PLBs has been introduced in NCO for all aircraft categories.

A: Rule	B: Summary of comments	C: Reason for change, remarks
LANDPLANES		
(b) Landplanes shall be equipped with (a)(1) when:		The requirement applicability to single-engined landplanes has been modified in line with ICAO.
(1) flying over water beyond gliding distance from the shore; or	Proposal: (a)(i) and (b)(1) replace "from the shore" by "to the shore". Justification: Change to take into account wind, the intent being to return to the shore within a certain time.	Text is in line with ICAO Annex 6 Part II 2.4.4.2.
(2) taking off or landing at an aerodrome or operating site where, in the opinion of the pilot-in-command, the take-off or approach path is so disposed over water that in the event of a mishap there would be a likelihood of a ditching.	1. French FFA believes that this proposal is not adapted to non-commercial sports and recreational operations, even for initial flight training. Justifications: Life-jackets for each person on board seems disproportionate and very difficult to implement for the numerous sports and recreational flying organisations (aero-clubs) based on aerodromes or airfields situated next to a shoreline (sea, lakes or ponds). Flight safety statistics do not show specific problems justifying that requirement. FFA proposal: Delete the OPS.GEN.420 (b) (2) requirement for non-commercial operations on non -complex aeroplanes, and at least for non-complex aeroplanes below 2 000 kg MTOW. 2. EPFU is of the opinion that the requirement for life-jackets for all persons on	1.&2. The requirement is in line with ICAO recommendation and is based on pilot assessment under (b)(2) operational conditions. 3. Accepted.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	board as soon as take-off or landing are partially conducted above water is not necessary on non-commercial operations with non-complex aeroplanes. Justifications: Decades of air operations without life-jackets in those circumstances (i.e. flight over water during take-off or landings) on non-commercial operations on non-complex aeroplane show no flight safety problem, so there is no justification for this requirement. 3. Delete "in the event of a mishap" Justification: These words don't bring anything useful; moreover the word 'mishap' is not adapted to regulatory wording.	
SEAPLANES		
(c) When flying over water, seaplanes shall, in addition to (a)(1), be equipped with:		
(1) equipment for making the sound signals, as prescribed by the International Regulations for Preventing Collisions at Sea;		
(2) one anchor; and		
(3) one sea anchor (drogue), when necessary to assist in manoeuvring.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
AEROPLANES		50 NM included instead of 100 NM in line with ICAO Annex 6 Part II definition of extended flight over water.
(d) The pilot-in-command of an aeroplane operated at a distance away from land where an emergency landing is possible greater than that corresponding to:	”Normal” cruising speed is missing as per ICAO Annex 6 Part II standard at 2.4.4.3. Additionally, it is noted that the ICAO definition of ‘Extended flight over water’ as the distance of 93 km (50 NM) or 30 minutes at normal cruising speed, has been extended to 100 NM, in the proposal (mirrored by EU-OPS).	The proposed changes have been incorporated, in line with ICAO Annex 6 Part II standard at 2.4.4.3. The wording ”from land” is conventional ICAO wording used throughout the regulation.
(1) 120 minutes at cruising speed or 400 nautical miles (nm), whichever is the lesser, in the case of aeroplanes capable of continuing the flight to an aerodrome with the critical power unit(s) becoming inoperative at any point along the route or planned diversions; or		
(2) 30 minutes at cruising speed or 100 nm, whichever is the lesser, for all other aeroplanes,		Changed to 50 NM in line with ICAO Annex 6 definition of ‘extended flight over water’.
shall determine the risks to survival of the occupants of the aeroplane in the event of a ditching, based on which he/she shall determine the carriage, in addition to (b) or (c) and (a)(3), of:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(i) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency; and		
(ii) life-saving equipment, including means of sustaining life, as appropriate to the flight to be undertaken.	Editorial comment: Page 44: OPS.GEN.420 §(d)(2)(ii) : "is" seems superfluous.	Editorial change.
HELICOPTERS		
(e) Helicopters shall be equipped with (a)(1), when operated in:	1. This proposed legislation seems absolutely disproportionate to the risk. I do not believe there has ever been a case of an R22 or R44 ditching. Surely the kind of requirements that you outline should be confined to helicopters over 3 175 kg. Please don't spoil or make unaffordable the genuine enjoyment of visiting countries outside the UK. Why is EASA trying to impose far more restrictions on helicopters than single-engined fixed wing aircraft? 2. For non-commercial operations, safety measures for flights over water should be left entirely at the pilot's discretion. Suggestion to apply OPS.GEN.420 to commercial operations only. 3. I agree for commercial flights, but this is	1. 2. & 3. The requirements are in line with JAR-OPS 0 and ICAO Annex 6 Part III.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	ridiculous for private flights in the UK! We're an island for goodness sake with more water than any other country in the EU!	
(1) Performance Class 1 or 2 on a flight over water at a distance corresponding to more than 10 minutes flying time at normal cruising speed;	1. The distance shall be referenced from/to the land. 2. All distances stated as time "from land" should be exchanged with "to land". This since a strong wind from land would carry an aircraft further from land and result in greater distance to land. Furthermore, if the return heading towards land results in a headwind the time to reach land will increase. This scenario would produce a lower level of safety level than anticipated. 3. The requirement is more stringent. Flight to Helgoland can, in accordance with the proposed requirement, only be performed with helicopters fully certified and equipped. The HEMS flights should be excluded from the requirement.	1. Editorial change for clarification. 2. "from land" is a phrase used in ICAO. The comment will be taken into account for the development of GM as part of future rulemaking tasks. 3. HEMS is regulated under SPA.HEMS. Moreover for HEMS operations a CAT air operator certificate (AOC) is required.
(2) Performance Class 3 on a flight over water beyond autorotational distance from the land; or	OPS.GEN.420 (e)(2) uses the wording "beyond autorotational distance from land" while OPS.GEN.425.H § (b)(2) uses the wording: "beyond a safe forced landing distance from land". Proposal: the terms shall be harmonised.	The terms "autorotational distance" or "safe forced landing distance" have different definitions and are introduced in the requirements on purpose.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(3) Performance Class 2 or 3 when taking off or landing at an aerodrome/operating site where the take-off or approach path is over water.		
(f) When operated in Performance Class 1 or 2 on a flight over water at a distance corresponding to more than 10 minutes flying time at normal cruising speed or in Performance Class 3 on a flight over water at a distance corresponding to more than three minutes flying time at normal cruising speed, helicopters shall, in addition to (a)(1), and when not precluded by considerations related to the type of helicopter used, be equipped with (a)(3) and (d).	1. Because there are a number of complicated conditions in (d), the requirement should be spelled out here: "(f) ..., be equipped with (a)(3) and (d)(i) and (ii)." 2. Comments are against the propose rule because: - Lack of proportionality for recreational and private helicopter flights; - Lack of space to accommodate the rafts in light helicopters; - Risk of inadvertent inflation; - Risk of adverse consequence when trying to deploy the raft; - UK CAA statistics shows better record for helicopters than for aeroplanes overwater (single engine aircraft). Proposal: carriage of life-rafts is left at pilot's decision. For private helicopter flights in non-complex helicopters it should be the pilot's option to	1. Editorial change for clarification purposes. 2, 3 & 4. The requirement to carry life-rafts in small helicopters was reviewed based on an analysis of the safety benefit, considering the necessary time to deploy the raft from a small cabin in a short time compared to the additional purchase and maintenance costs. Giving appropriate considerations to the comments made, small helicopters are understood to be other-than-complex helicopters and therefore the passenger threshold is nine or less. The Agency therefore believes that for complex helicopters, a life-raft shall be carried. This text: "when not precluded by considerations related to the type of helicopter used" should therefore be interpreted not to apply to NCO and is consequently proposed to be deleted.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	carry a life-raft or not. Reason for objection: proportionality for recreational and private helicopter flights. Where the helicopter is non-complex there is not room in the helicopter for safe storage of an accessible life-raft when only one person is in the helicopter. Successful deployment is unlikely. There is also a danger of inadvertent inflation, which could cause loss of control of the helicopter. Suggested alternative wording: add new sentence at the end of current text. "For non-complex private helicopter flight life-raft carriage is at the pilot's option." 3. UK CAA statistics demonstrate that privately operated single-engined helicopters have a substantially better safety record with regard to flight over water than do privately operated single-engined aeroplanes. 4. There would be great chance of anyone getting caught or snagged when trying to do so and be pulled down under the water by the sinking machine. Any fire officer will advise any member of the public to leave a burning building asap and let it burn. Why do you want someone who has escaped a ditching helicopter to go back to it and try and retrieve a life-raft? Any sensible pilot-in-command wears and asks their passengers to wear the life-jackets when	Other-than complex helicopters are addressed in Part-NCO and alleviations have been included, as provided in Annex 6 Part III Section III.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	flying over large areas of water. This is common sense but shouldn't be mandatory as often it could cause fear in passengers even before they set off. Life-jackets maybe, life-rafts no - they only add a disproportionate amount of weight and are inaccessible when needed. There isn't sufficient room in most small helicopters for anything else. We don't need the extra weight either.	
(g) The pilot-in-command of a helicopter operated in Performance Class 3 shall determine the risks to survival of the occupants of the helicopter in the event of a ditching, based on which he/she shall determine if the life jackets required in (e) shall be worn by all occupants.	The text would be improved by amending as follows: "(g) The pilot-in-command of a helicopter operated in Performance Class 3 shall determine the risks to survival of the occupants of the helicopter in the event of a ditching, based on which he/she shall determine when deciding if the life jackets required in (e)(1) shall be worn by all occupants."	Accepted. Wording adapted for NCO.
ALL AIRCRAFT		
(h) Each life jacket or equivalent individual flotation device, when carried in accordance with (b), (c), (d), (e), (f) or (g) shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons.	1. To keep the electric illumination in good shape and working is demanding. The same lighting can be supplied by chemical lights. Electric or chemical illumination should be an option - not a demand. 2. The requirement for life-jackets to be equipped with a means of electric illumination, according to the title, is for all	1. & 2. The requirement is based on ICAO. Electric illumination will be indicated at AMC level. 2. Requirements for sailplanes and balloons are re-introduced based on a risk assessment made by the pilot-in-command..

A: Rule	B: Summary of comments	C: Reason for change, remarks
	aircraft and yet sailplanes and balloons ((a)) are omitted from the list.	
OPS.GEN.425.H Ditching - Helicopters		
(a) Helicopters operated in Performance Class 1 or 2 on a flight over water in a hostile environment at a distance corresponding to more than 10 minutes flying time at normal cruising speed shall be:	1. Comments are against the propose rule because: 1. There is no safety case for these proposals. 2. These proposals would, effectively, prohibit helicopter flights over water without emergency floatation equipment. 3. Many helicopters cannot be fitted with floats. 4. The cost of fitting floats is very high (price list provided by some commenters) - disproportionate to the risk. 5. There is a strong argument that ditching without floats is safer than ditching with floats. 6. Specific training for autorotation techniques with floats may be required. 7. The risk of uncommanded inflation can create more hazard than potential safety. 8. Floats increase the operating costs and decrease the performance of helicopters -	1. & 2. The requirement to install a flotation device is reviewed giving alleviations for NCO.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	fuel efficiency is also reduced. Recorded proposals are as follows: The requirements for light helicopters should be the same as those for aeroplanes, or: - to apply the requirements OPS.GEN.425.H (a) & (b) to CAT only (with AMC to require wearing lifejackets whilst more than 10 minutes flying time to land), or - to apply the requirement OPS.GEN.425.H (a) to CAT only and only maintain OPS.GEN.425.H (b) for PC 1 & 2. The decision is left to the private pilot's decision. Compliance is achieved for private flights by wearing life-jackets whilst more than 10 minutes flying time from land when operating over open water. When an IFR helicopter is flying in IMC it is rightly and reasonably considered adequately safe even if IMC conditions extend below 1 000 ft AGL, and potentially to the ground. The risk of flying over land in such conditions is no less, and may be greater, than flying over water. The equipment levels required for IFR certification should therefore enable flight over water for at least 60 minutes without floatation equipment. 2. This proposal is prejudiced against non-	

A: Rule	B: Summary of comments	C: Reason for change, remarks
	mainland European helicopter owners/pilots. UK owners/pilots live on an island and very occasionally wish to cross to mainland Europe or to Ireland.	
(1) designed for landing on water; or		
(2) certificated in accordance with ditching provisions in the relevant airworthiness code.		
(b) In addition, helicopters shall comply with (a) or be fitted with emergency flotation equipment when operated in:		
(1) Performance Class 1 or 2 on a flight over water in a non-hostile environment at a distance corresponding to more than 10 minutes flying time at normal cruising speed;		
(2) Performance Class 3 on a flight over water beyond a safe forced landing distance from land; or		
(3) Performance Class 2 when taking off or landing over water, except in the case of Helicopter Emergency Medical Services (HEMS) operations, where for the purpose of minimising exposure, the landing or take-off at a HEMS operating site located in		

A: Rule	B: Summary of comments	C: Reason for change, remarks
a congested environment is conducted over water.		
OPS.GEN.430 Emergency Locator Transmitter (ELT)	1. Disproportionate approach toward light aircraft operated for non-commercial purposes. It is the opinion of the UK CAA that portable ELT devices i.e. (ELT(S)) or (ELT(AP)) are the most appropriate device for use in light aircraft. However, there are few products on the market that are approved to EUROCAE Document ED-62 specifications. Those operating non-complex aircraft on non-commercial flights should not be required to carry approved ELT equipment all the time but have available the option of carrying an alternative non-approved survival locator beacon instead. This is in line with the policy for other items of survival equipment such as life-jackets, which do not need to be approved. New text is proposed. 2. The requirement should account for specific operations. Proposal is to reduce the scope to "operated in areas designated by Member States as those in which search and rescue would be especially difficult".	1. & 2. The requirements are in line with ICAO Annex 6 Part II. 3. & 4. The proposal is taken into account for NCO. PLB use is allowed.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	3. It is proposed that a GPS-based personal locator beacon (PLB) is made mandatory for GA pilots rather than an automatic ELT. At least PLB shall be AMC. 4. A hand-held emergency locator beacon is a sensible precaution when flying over hostile terrain, particularly water, but it is neither necessary nor justified when flying over populated areas. It should be at the pilot's discretion what equipment to carry on any given flight.	
HELICOPTERS	1. Several arguments against the automatic ELT are summarised below: i) Automatic ELT gives priority to the aircraft and not the passengers: 'Body or, Life Jacket worn' location device are the preferred solution, ii) Automatic ELT are not efficient in case of ditching. As the vast majority of controlled ditchings are reportedly survivable, survivors have to be rapidly located and recovered. This is not possible when automatic ELT has sunk with the aircraft. iii) Automatic ELT are not efficient in case of forced landing. Antennae under the fuselage are often ripped off. The impact forces experienced during a survivable light aircraft accident are thought to be below that required to activate an automatic ELT when	1. 2. & 3. The possibility to use PLBs is taken into account for NCO. 4. Not accepted. The introduction of PLBs will contribute to give a certain degree of harmonisation of the requirements for different aircraft categories.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	compliant with ED-62 specifications. iv) GPS equipped PLB are more efficient than conventional ELT technology. v) Fixed automatic ELT are expensive to install and maintain. The installation of a fixed ELT must be conducted as a minor modification approved in accordance with the Part M airworthiness standards. An automatic ELT would cost around €5 000 to install. A PLB can be purchased for around €300. Installation is not easy. vi) There is no current UK CAA requirement for private non-commercial aircraft to be fitted with ELT. The UK CAA regulations only require a PLB or an ELT to be carried for flights longer than 10 minutes from land. 2. It is proposed that a GPS based personal locator beacon (PLB) is made mandatory for GA pilots rather than an automatic ELT. At least PLB shall be AMC. 3. A hand-held ELB is a sensible precaution when flying over hostile terrain, particularly water, but it is neither necessary nor justified when flying over populated areas. It should be the pilot's discretion what equipment to carry on any given flight 4. Since the implications for survival after ditching are similar, irrespective of the class of aircraft flown, the disparities between the	

A: Rule	B: Summary of comments	C: Reason for change, remarks
	ICAO standards for aeroplanes and helicopters seem unjustified. If mandatory ELT fitment becomes law, the fixed wing requirements should apply to helicopters, including the pre July 1 2008 certificate of airworthiness provision.	
AEROPLANES		
(a) Aeroplanes first issued with an individual certificate of airworthiness before and including 1 July 2008 shall be equipped with an Emergency Locator Transmitter (ELT) of any type.	1. The ELT rule does not include the frequency requirement, asking for 121.5 and 406 MHz capability. This, however, is included in AMC OPS.GEN.430 No.2, which is not acceptable. 2. Type shall be defined otherwise there will be different regulations in the Member States. 3. It should possible to satisfy the ELT requirement by carrying a PLB (personal locator beacon) approved by Cospass-Sarsat and coded for aviation use. 4 If an ELT "of any type" is acceptable, is the aircraft "equipped" if an ELT(S) is carried by the pilot?	1. The frequencies have been included in the rule. 2. Types are defined in AMC. 3. The possibility to carry PLBs as an alternative to ELTs is addressed for NCO. 4. As long as the ELT(S) and its installation is approved, the aircraft is considered equipped.
(b) Aeroplanes first issued with an individual certificate of airworthiness after 1 July 2008 shall be equipped with an automatic ELT.	1. For small airplanes used in non-commercial operations, this results in an undue installation cost burden. Propose to drop this requirement for small airplanes	1. The requirements are in line with ICAO Annex 6 Part II. Flexibility is introduced allowing the use of PLBs on small aeroplanes.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	(e.g. up to 2 000 kg MTOW) used in non-commercial operations. 2. The requirement in Annex 10 Vol V about the remote control in the cockpit for ELT (in order to switch between OFF, ARM and ON) should be clarified in this paragraph or in an AMC.	2. This ELT function is already included in the following documents: ETSO 2C91A (121.5 Mhz) 2C126 (406Mhz) paragraph 2.5 and EUROCAE ED-62 and future ED62(a) reference.
OPS.GEN.435 Survival equipment – Motor-powered aircraft		
ALL AIRCRAFT		
(a) Aircraft operated across areas in which search and rescue would be especially difficult shall be equipped with the following:	'across areas in which SAR would be especially difficult' is open to interpretation, and therefore lacks legal certainty. Proposal: specify 'over areas designated by Member States as especially difficult for SAR'.	The requirement is in line with ICAO and the area will be specified by the States.
(1) Signalling equipment to make distress signals;.	If you fly over the Alps you have to be equipped with signalling equipment. This will interfere with security regulations. If a pilot carries a signal device to his/her aircraft he/she will have problems with the police.	The requirement is in line with ICAO and no conflict with safety regulations has been identified.
(2) At least one ELT (S); and		
(3) Additional survival equipment for the route to be flown taking account of the number of		

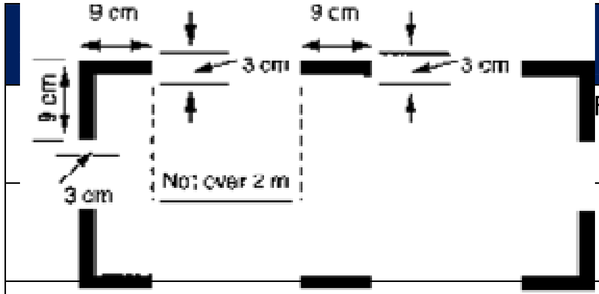
A: Rule	B: Summary of comments	C: Reason for change, remarks
persons on board.		
AEROPLANES		
(b) Notwithstanding (a)(3), in the case of aeroplanes, the additional survival equipment specified in (a)(3) need not be carried when the aeroplane:		
(1) remains within a distance from an area where search and rescue is not especially difficult, that corresponds to:		
(i) 120 minutes at the one engine inoperative cruising speed for aeroplanes capable of continuing the flight to an aerodrome with the critical power unit(s) becoming inoperative at any point along the route or planned diversion routes; or		
(ii) 30 minutes at cruising speed for all other aeroplanes;		
or,		
(2) remains within a distance no greater than that corresponding to 90 minutes at cruising speed from an area suitable for	The applicability of this paragraph to CMPA only is confusing as there is an "or" between (a) and (b).	This has been clarified in the redrafted requirements.

A: Rule	B: Summary of comments	C: Reason for change, remarks
making an emergency landing; in the case of a complex motor-powered aircraft certificated in accordance with the applicable airworthiness code issued by the Agency.		
OPS.GEN.440 High altitude flights – Oxygen	1. Editorial change: should be amended to read "High altitude flights - Supplemental oxygen". -.	1. The title of the paragraph has been changed in line with CAT.IDE and NCC.IDE for consistency.
ALL AIRCRAFT		
(b) Aircraft flying above altitudes at which the pressure altitude in the passenger compartments is above 10 000 ft (feet) shall carry enough breathing oxygen to supply:	1. Not an OPS requirement. To be moved to Part-21. 2. Editorial change. Suggestion: "When an aircraft is operated such that the pressure altitude of the passenger compartment is above 10 000 ft, enough breathing oxygen should be carried to supply. 3. Should be 12 500 ft for harmonisation with most 3rd country rules.	1. Part-21 does not contain a requirement for oxygen equipment and it needs to be addressed in this rule. 2. Editorial change: improvement of the wording for consistency within the requirement. 3. The proposed requirements are in line with ICAO Annex 6 Part II.
(1) in the case of non-pressurised aircraft:		
(i) all crew members and at least 10% of the passengers for any period in excess of 30 minutes when the	1. Sailplanes and powered sailplanes should be exempt from the requirement to have available and use oxygen for short flights	1. No change – This was already addressed by the current NPA.

A: Rule	B: Summary of comments	C: Reason for change, remarks
pressure altitude in the passenger compartments will be between 10 000 ft and 13 000 ft; and	between 10 000 and 13 000 ft of less than 30 min. 2. Gliders and single-engine airplanes in non-commercial operations should not be required any oxygen supply up to an altitude of 12 000 ft. 3. Should be 12 500 ft and 14 000 ft respectively.	2. Not accepted as this is a general safety issue not depending on the aircraft type or class. 3. Current proposal is in line with ICAO.
(ii) all crew members and passengers for any period that the pressure altitude in passenger compartments will be above 13 000 ft.	(a)(1)(iii) to be added: "The PIC engaged in parachute operations and high altitude aerial work decides on the use of oxygen for his own supply and for the supply of the occupants"	This is beyond the scope of NCO.
(2) in the case of pressurised aeroplanes:		
(i) all crew members and a proportion of the passengers, for any period when, in the event of loss of pressurisation and taking into account the circumstances of the flight, the pressure altitude in the passenger compartment would be above 10 000 ft; and	Proportion of passengers to be clearly defined.	Proportion is defined
(ii) all the occupants of the passenger compartment for no less than 10 minutes, in the case of aeroplanes operated at pressure altitudes above 25 000 ft, or operated below that altitude, but under	Editorial change.	Accepted.

A: Rule	B: Summary of comments	C: Reason for change, remarks
conditions that will not allow them to descend safely to a pressure altitude of 13 000 ft within four minutes; and		
(3) in the case of pressurised helicopters, all crew members and a proportion of the passengers, for any period when, in the event of loss of pressurisation and taking into account the circumstances of the flight, the pressure altitude in the passenger compartment would be above 10 000 ft.	1. Editorial change. 2. Alleviation, approved by NAA, for short periods up to 16 000 ft shall be possible, based on the kind of work and the training of the crew flying in mountainous areas. 3. Should be 12 500 ft in order to harmonise with most 3rd country rules. 4. 10 000 ft rigid limit is not acceptable. Operations up to 13 000 ft for up to 30 min without the need for supplemental oxygen should be allowed (in line with ICAO). JAR-OPS 3.385 to be inserted. 5. Providing oxygen for passengers should only be applicable to CAT operations, and is already covered by OPS.CAT.440 and table 2 OPS.CAT.440. 6. Proportion of passengers to be clearly defined.	1. - 6. Requirement for pressurised helicopters has been withdrawn - in line with the change made for Part-CAT and Part-NCC.
(b) When engaged in performing duties essential to the safe operation of an aircraft in flight, flight crew members shall use breathing oxygen continuously whenever the circumstances prevail for which its supply has been specified in (a).	"[...] continuously [...]" might exclude use of electronic pulse demand systems, which are used in GA and gliders.	Text modified for sailplanes.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(c) Aircraft operated at altitudes for which the oxygen supply is required in accordance with (a) shall be equipped with oxygen storage and dispensing apparatus.	1. Portable systems should not be excluded. Such systems are used in GA and gliders. 2. Not an OPS requirement. To be moved to Part-21.	1. Portable oxygen is not explicitly excluded by the proposed rule. 2. There is no requirement in Part-21 to mandate oxygen equipment and it needs to be addressed in this rule.
PRESSURISED AEROPLANES		
(d) Pressurised aeroplanes operated at flight altitudes above 25 000 ft, or pressurised aeroplanes used in commercial air transport, shall, in addition, be equipped with a device to provide a warning indication to the flight crew of any loss of pressurisation.		
OPS.GEN.445 Operations in icing conditions at night		
Aircraft flying in expected or actual icing conditions at night shall be equipped with a means to illuminate or detect the formation of ice. Such illumination shall not cause glare or reflection that would handicap flight crew members in the performance of their duties.		
OPS.GEN.450 Marking of break-in points	Not an OPS requirement; keep design requirements within appropriate documents	This requirement is in line with ICAO and does not impose on any aircraft to have break-in areas.
If areas of the aircraft's fuselage suitable for break-in by rescue crews in an emergency are marked, such		



	B: Summary of comments	C: Reason for change, remarks
Figure 1 of		
OPS.GEN.455 First-aid kits		
(a) Aeroplanes shall be equipped with first-aid kits in accordance with Table 1 of OPS.GEN.455.	1. Powered sailplanes shall be excluded. 2. Exemption shall be allowed for ferry flights where one FAK should be enough. 3. Delete this requirement of a "first-aid kit" on non-commercial and non-complex aeroplanes operations, and at least on non-commercial, non-complex aeroplanes below 2 000 kg MTOW. 4. Requirement shall not apply to aircraft where each occupant is forced to stay in their seats (e.g. single pilot/person). Installation of a first-aid kit in safe manner does require sufficient space, which is not easily available in smaller aircraft and a minor change is required. Recommendation: no requirement for a first-aid kit for small airplanes and single seat aircraft.	1. Powered sailplanes are addressed under NCO.IDE.S. 2. The ICAO requirement specifies it is applicable on all flights. 3. & 4.The requirement is in line with ICAO.

<table>
<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Reason for change, remarks</th></tr>
<tr><td>Table 1 of OPS.GEN.455</td><td></td><td></td></tr>
<tr><td><table>
<tr><th>Number of passenger seats installed</th><th>Number of first-aid kits required</th></tr>
<tr><td>0 to 99</td><td>1</td></tr>
<tr><td>100 to 199</td><td>2</td></tr>
<tr><td>200 to 299</td><td>3</td></tr>
<tr><td>300 and more</td><td>4</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>(b) Balloons.
(1) Balloons shall be equipped with one first-aid kit.
(2) In the case of balloons with a maximum passenger capacity of more than 11, a second first-aid kit shall be carried in the retrieval vehicle.</td><td></td><td></td></tr>
<tr><td>(c) The first-aid kits shall be readily accessible for use.</td><td></td><td></td></tr>
<tr><td>(d) First-aid kits shall be maintained.</td><td></td><td></td></tr>
</table>

A: Rule	B: Summary of comments	C: Reason for change, remarks
OPS.GEN.460 Airborne Collision Avoidance System (ACAS) II		Not transposed, beyond the scope of Part-NCO.
ALL AIRCRAFT		
(a) Whenever Airborne Collision Avoidance System (ACAS) II is installed, it shall be used in normal conditions during flight in a mode that enables Resolution Advisories (RAs) to be produced for the pilot flying when undue proximity to another aircraft is detected.		
(b) When an RA is produced by ACAS II, the pilot flying shall immediately take the corrective action indicated by the RA, even if this is in conflict with an Air Traffic Control (ATC) instruction. The aircraft shall be promptly returned to the terms of the ATC instructions or clearance when the situation is resolved.		
(c) prescribed ACAS ATC communications are specified. (d) when the conflict is resolved the aeroplane is promptly returned to the terms of the ATC instructions or clearance.		
AEROPLANES		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(c) Turbine-powered aeroplanes shall be equipped with an ACAS with a minimum performance level of at least ACAS II, when having:		
(1) for non-commercial operations a maximum certificated take-off mass exceeding 15 000 kg (kilograms) or a maximum passenger seating configuration of more than 30; or		
(2) for commercial operations a maximum certificated take-off mass exceeding 5 700 kg or a maximum passenger seating configuration of more than 19.		
OPS.GEN.465.A Terrain Awareness Warning System (TAWS) - Aeroplanes	Small airplanes designed and certified to different regulations i.e. CAR-3 (preceding FAR/CS 23) were only limited to a MTOW of 12 500 lbs with no limitation on the number of seats. It is therefore unreasonable to mandate airplanes designed and certified to these earlier regulations that may have a seating capacity of one more than is required in the modern regulations to also comply with the latest regulatory requirements, purely based on the number of seats.	The criterion of the number of seats is in line with ICAO Annex 6.
(a) Turbine-powered aeroplanes with a maximum certificated take-off mass exceeding 5 700 kg, or maximum passenger seating configuration of more than nine, shall be equipped with a TAWS that meets the requirements for Class A	1. The more than nine criterion is challenge. Why not more than 19? 2. This rule requires a higher standard of TAWS equipment than is required by ICAO Annex 6 Part II. The requirement in OPS.GEN	1.&2. The applicability criteria are in line with ICAO Annex 6.

A: Rule	B: Summary of comments	C: Reason for change, remarks
equipment.	should be Class B TAWS as the basic standard applicable to non-CAT operations. Class A TAWS is restricted to OPS.CAT and therefore the requirement should be moved to Subpart B.	
(b) Reciprocating-engined-powered aeroplanes with a maximum certificated take-off mass exceeding 5 700 kg, or a maximum passenger seating configuration of more than nine and used in commercial air transport, shall be equipped with a TAWS that meets the requirement for Class B equipment.		
(c) A TAWS shall provide, automatically, a timely and distinctive warning to the pilot flying, of:		The specifications on TAWS functions are included in the Class A & B definitions and therefore paragraph (c) is proposed to be removed.
(1) sink rate;		
(2) ground proximity;		
(3) altitude loss after take-off or go-around;		
(4) incorrect landing configuration; and		
(5) downward glide-slope deviation.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
OPS.GEN.470.A Means for emergency evacuation - Aeroplanes		Not transposed, beyond the scope of Part-NCO.
(a) Aeroplanes with passenger emergency exit sill heights of more than 1.83 metres (six feet) above the ground and aeroplanes with a separate emergency exit for the flight crew of more than 1.83 metres (six feet) above the ground, shall have a means to enable passengers and crew at each exit, to reach the ground safely in an emergency		
(b) Notwithstanding, such means need not be provided at over-wing exits if the designated place on the aeroplane structure at which the escape route terminates is less than 1.83 metres (six) from the ground, with the aeroplane on the ground, the landing gear extended and the flaps in the take-off or landing position, whichever flap position is higher from the ground.		
(1) after the collapse of, or failure to extend of, one or more legs of the landing gear, for aeroplanes type certificated after 31 March 2000; and		
(2) when the aeroplane has its landing gear extended, for all other aeroplanes.		
(d) Assisting means for emergency evacuation that deploy automatically shall be armed during all		

A: Rule	B: Summary of comments	C: Reason for change, remarks
phases of flight, including taxiing.		
OPS.GEN.475 Emergency lighting – Aeroplanes and helicopters	The requirement should be moved to OPS.CAT. There is no requirement for emergency lighting in ICAO Annex 6 Part II or Part III Section III.	Not transposed, beyond the scope of Part-NCO.
AEROPLANES		
(a) Aeroplanes with a maximum passenger seating configuration of more than nine shall be equipped with an emergency lighting system with an independent power supply to facilitate the evacuation of the aeroplane.		
(b) For aeroplanes with a maximum passenger seating configuration of more than 19, the emergency lighting system shall include:		
(1) sources of general cabin illumination;		
(2) internal lighting in floor level emergency exit areas;		
(3) illuminated emergency exit marking and locating signs;		
(4) in the case of aeroplanes for which the application for the type certificate or equivalent document was filed before 1 May		

A: Rule	B: Summary of comments	C: Reason for change, remarks
1972, when flying by night, exterior emergency lighting at all over-wing exits and at exits where descent assist means are required;		
(5) in the case of aeroplanes for which the application for the type certificate or equivalent document was filed after 30 April 1972, when flying by night, exterior emergency lighting at all passenger emergency exits; and		
(6) in the case of aeroplanes for which the type certificate was first issued after 31 December 1957, floor proximity emergency escape path marking systems in the passenger compartments.		
(c) For aeroplanes with a maximum passenger seating configuration of 19 or less and issued with a type certificate in accordance with the European Aviation Safety Agency's (hereinafter referred to as the Agency) airworthiness codes, the emergency lighting system shall include (a)(2)(i)(b)(1), b)(2)(a)(2)(ii) and b)(3)(a)(2)(iii).		
(d) For aeroplanes with a maximum passenger seating configuration of 19 or less and not issued with a type certificate in accordance with the applicable airworthiness codes, the emergency		

A: Rule	B: Summary of comments	C: Reason for change, remarks
lighting system shall include (a)(2)(i).		
HELICOPTERS		
(e) Helicopters with a maximum passenger seating configuration of more than 19 shall be equipped with:		
(1) an emergency lighting system having an independent power supply to provide a source of general cabin illumination to facilitate the evacuation of the helicopter; and		
(2) illuminated emergency exit marking and locating signs.		
(f) Helicopters operating over water in commercial air transport operations shall be equipped with emergency exit illumination.		
OPS.GEN.480 Seat belts and harnesses	1. It is not clear why the previously single rule for seats, safety belts and harnesses has been divided between a number of rules (GEN.405, GEN.480 GEN.545, CAT.406 and CAT.482); it might be more appropriate to put all of the elements concerned with seats into a single rule in GEN.480. 2. The below requirements are design requirements that should not be included in	1. For clarification of presentation of the requirements: - provisions on seat belts and harnesses have been moved into a dedicated requirement for restraint systems and child restraint devices. - a dedicated rule for the hand fire extinguisher has been created,

A: Rule	B: Summary of comments	C: Reason for change, remarks
	OPS rules. 3. Our comment is to highlight the different terms used between "safety belt with shoulder harness", "safety harness", "safety belt with diagonal shoulder strap" since it may cause confusion. Our understanding is that a "safety belt with shoulder harness" equals a "safety belt with diagonal shoulder strap" because the word "harness" is singular (plural is harnesses). Clarification that "safety belt with shoulder harness" and "safety belt with diagonal shoulder strap" have only one band on the torso should be part of an AMC or GM. This AMC or GM should also provide some more clarification on what a "safety harness" is compared to the two other terms.	incorporating OPS.GEN.405 (a)(1) and (b). 2. Proposed rules are in line with ICAO Annex 6 requirements and consistent with CAT.IDE and NCC.IDE. 3. For consistency, with CAT.IDE and NCC.IDE, only the term "harness" is no longer used in favour of "upper torso restraint system".
ALL AIRCRAFT EXCEPT BALLOONS		
(a) All aircraft, excluding balloons, used in commercial operations and complex motor-powered aircraft shall be equipped with.		
(1) a safety belt with shoulder harness incorporating a device which will automatically restrain the occupant's torso in the event of rapid deceleration on each flight crew seat; and	The wording "safety belt with shoulder harness", "safety harness", "safety belt with diagonal shoulder strap" is very confusing. It is not clear whether "safety belt with shoulder harness" = "safety belt with diagonal shoulder strap".	The text has been updated to refer to "UTR".

A: Rule	B: Summary of comments	C: Reason for change, remarks
(2) a safety harness on the seats for the minimum required cabin crew of all aircraft with a maximum passenger seating configuration of more than 19, which were first issued with an individual certificate of airworthiness after 31 December 1980.		
(b) Safety belts with shoulder harnesses shall have a single point release.	A performance objective is suggested: “Safety belts with shoulder harnesses shall be easy to release” with an associated AMC for the single point release feature. This will avoid unnecessary cost of replacing existing approved seat belts.	The comment will be taken into account for future rulemaking task OPS.065 Review of equipment requirements.
HELICOPTERS		
(c) Helicopters used in commercial operations and complex motor-powered helicopters first issued with an individual certificate of airworthiness after 31 July 1999, shall be equipped with a safety belt with diagonal shoulder strap or safety harness for each passenger over the age of 24 months.	Our comment is to highlight the different terms used between "safety belt with shoulder harness", "safety harness", "safety belt with diagonal shoulder strap" since it may cause confusion. Our understanding is that a "safety belt with shoulder harness" equals a "safety belt with diagonal shoulder strap" because the word harness is singular (plural is harnesses). Clarification that "safety belt with shoulder harness" and "safety belt with diagonal shoulder strap" have only one band on the torso should be part of an AMC or GM. This AMC or GM should also provide some more clarification	For clarification of presentation of the requirements provisions on seat belts and harnesses have been moved into a dedicated requirement for restraint systems and child restraint devices. Proposed rules are in line with ICAO Annex 6 requirements. For consistency, with CAT.IDE, only the term “harness” is no longer used in favour of “upper torso restraint system”..

A: Rule	B: Summary of comments	C: Reason for change, remarks
	on what a "safety harness" is compared to the two other terms.	
OPS.GEN.485.A Crash axes and crowbars - Aeroplanes		This rule has been withdrawn as it is not part of ICAO Annex 6.
(a) Aeroplanes with a maximum certificated take-off mass exceeding 5 700 kg, or with a maximum passenger seating configuration of more than nine, shall be equipped with one crash axe or crowbar located on the flight deck.		
(b) When the aeroplane has a maximum passenger seating configuration of more than 200, an additional crash axe or crowbar shall be carried and located in or near the most rearward galley area.		
OPS.GEN.490 Flight data recorder - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
AEROPLANES		
(a) Aeroplanes: (1) with a maximum certificated take-off mass exceeding 5 700 kg and first issued with an individual certificate of airworthiness after 1 January 2005; and		
(2) with a maximum certificated take-off mass exceeding 27 000 kg and first issued with		

A: Rule	B: Summary of comments	C: Reason for change, remarks
an individual certificate of airworthiness after 31 December 1988,		
shall be equipped with a flight data recorder (FDR) that uses a digital method of recording and storing data and for which a method of readily retrieving that data from the storage medium is available.		
(b) The FDR for aeroplanes shall be capable of retaining data recorded during at least the last 25 hours.		
HELICOPTERS		
(c) Helicopters:		
(1) with a maximum certificated take-off mass exceeding 3 175 kg and first issued with an individual certificate of airworthiness after 1 January 2005;		
(2) with a maximum certificated take-off mass exceeding 7 000 kg and first issued with an individual certificate of airworthiness after 1 August 1999 up to and including 31 December 2004; and		
(3) with a maximum certificated take-off mass exceeding 7 000 kg and first issued with an individual certificate of airworthiness after		

A: Rule	B: Summary of comments	C: Reason for change, remarks
31 December 1988 up to and including 31 July 1999,		
shall be equipped with an FDR which uses a digital method of recording and storing data and has a method of retrieving that data from the storage medium available.		
(d) The FDR for helicopters shall be capable of retaining data recorded during at least:		
(1) the last eight hours, for helicopters referred to in (c)(1) and (c)(2);		
(2) the last five hours, for helicopters referred to in (c)(3); and		
(3) the last 10 hours, for helicopters with a maximum certificated take-off mass exceeding 3 175 kg and first issued with an individual certificate of airworthiness after 31 December 2009.		
AEROPLANES AND HELICOPTERS		
(e) Data shall be obtained from aircraft sources which enable accurate correlation with information displayed to the flight crew.		
(f) The FDR shall automatically start to record the data prior to the aircraft being capable of moving		

A: Rule	B: Summary of comments	C: Reason for change, remarks
under its own power and shall stop automatically after the aircraft is incapable of moving under its own power.		
(g) The FDR shall have a device to assist in locating it in water.		
OPS.GEN.495 Cockpit voice recorder - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
AEROPLANES		
(a) Aeroplanes with a maximum certificated take-off mass exceeding 27 000 kg and first issued with an individual certificate of airworthiness after 31 December 1986, shall be equipped with a Cockpit Voice Recorder (CVR).		
(b) The CVR shall be capable of retaining data recorded during at least:		
(1) the preceding two hours, for aeroplanes when the individual certificate of airworthiness has been issued after 1 January 2003; or (2) the preceding 30 minutes, for all other aeroplanes.		
HELICOPTERS		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(c) Helicopters with a maximum certificated take-off mass exceeding 7 000 kg and first issued with an individual certificate of airworthiness after 31 December 1986, shall be equipped with a CVR.		
(d) The CVR shall be capable of retaining data recorded during at least:		
(1) the preceding one hour, for helicopters when first issued with an individual certificate of airworthiness after 31 July 1999; or		
(2) the preceding 30 minutes, for all other helicopters.		
AEROPLANES AND HELICOPTERS		
(d) The CVR shall start to record automatically prior to the aircraft moving under its own power and shall continue to record until the termination of the flight when the aircraft is no longer capable of moving under its own power.		
(f) The CVR shall have a device to assist in locating it in water.		
OPS.GEN.500 Data link recording - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(a) Aeroplanes and helicopters first issued with an individual certificate of airworthiness on or after 8 April 2012, which have the capability to operate data link communications and are required to be equipped with a cockpit voice recorder, shall be equipped with a means of recording the following, where applicable:		
(1) data link communication messages related to air traffic services communications to and from the aircraft;		
(2) information that enables correlation to any associated records related to data link communications and stored separately from the aircraft;		
(3) information on the time and priority of data link communications messages, taking into account the system's architecture.		
(b) The recorder shall use a digital method of recording and storing data and information and a method for retrieving that data. The recording method shall be such as to allow the data to match the data recorded on the ground.		
(c) The recorder shall be capable of retaining data recorded during at least the preceding two hours of operation.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(d) The recorder shall have a device to assist in locating it in water.		
(e) The recorder shall start to record automatically prior to the aeroplane or helicopter moving under its own power and shall continue to record until the termination of the flight when the aeroplane or helicopter is no longer capable of moving under its own power.		
OPS.GEN.505 Preservation of FDR and CVR recordings - Aeroplanes and Helicopters		
(a) The pilot-in-command shall be responsible for ensuring that during flight, means installed on board for recording FDR, CVR and data link data are not:		
(1) disabled;		
(2) switched off; or		
(3) intentionally erased in the event of an accident or an incident which is subject to mandatory reporting.		
(b) In order to preserve the data recorded for investigating an accident or incident which is subject to mandatory reporting:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(1) the CVR may be switched off during flight by the pilot-in-command, if he/she believes that the recorded data would otherwise be erased automatically;		
(2) recorders shall be de-activated upon completion of the flight; and		
(3) the recorders shall not be re-activated without the investigating authority's agreement.		
(c) The operator shall preserve the original recorded data referred to in (b) for a period of 60 days, unless otherwise directed by the investigating authority.		
(d) Operational checks and evaluations of recordings from the FDR and CVR systems shall be conducted to ensure the continued serviceability of the recorders.		
(e) The operator shall make available any flight recorder recording that has been preserved, if so determined by the competent authority.		
OPS.GEN.510 Use of FDR and CVR recordings - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
Without prejudice to national criminal law:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(a) Cockpit Voice Recorder (CVR) recordings shall not be used for purposes other than for the investigation of an accident or incident which is subject to mandatory reporting, except with the consent of all crew members concerned; and		
(b) Flight Data Recorder (FDR) recordings shall not be used for purposes other than for the investigation of an accident or incident which is subject to mandatory reporting, except when such records are:		
(1) used by the operator for airworthiness or maintenance purposes only;		
(2) de-identified; or		
(3) disclosed under secure procedures.		
OPS.GEN.515 Microphones - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
AEROPLANES		
(a) Flight crew members on flight deck duty of complex motor-powered aeroplanes shall communicate through boom or throat microphones or equivalent, when flying below the transition level/altitude.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
HELICOPTERS		
(b) Flight crew members on flight deck duty of complex motor-powered helicopters and helicopters used in commercial operations shall wear a headset with boom microphone or equivalent and use it as the primary device for all communications.		
OPS.GEN.520 Flight crew interphone system		
(a) Aircraft operated by more than one flight crew member shall be equipped with a flight crew interphone system, including headsets and microphones for use by all flight crew members.	1. This rule inadvertently makes intercom systems necessary in two-seater training sailplanes and powered sailplanes. They are not necessary in those environments due low noise levels. 2. Interphone may be needed in single crew powered aircraft, regardless of use if cockpit noise requires it. Passenger(s) or student(s) use interphone systems as required to achieve the flight objectives. 3. Crews of aircraft certified with overhead loudspeaker(s) shall not be forced to use headsets. However, they may use additional headsets if available.	1.&2.&3. The rule has been modified in line with JAR-OPS 0.685. Sailplanes are addresses under NCO.IDE.S where interphone is not required.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(b) When a radio communication system is required, and in addition to (a), the aircraft shall be equipped with a transmit button on the flight controls at each pilot's station.	1. Some microlight aircraft used for training use handheld radios and are not designed for two pilot operation. They should also be exempted.	1. Microlight aircraft fall under Annex II of the Basic Regulation and are not covered by this regulation.
OPS.GEN.525 Communication equipment	This rule is not compliant with ICAO Annex 6 Part II Chapter 2.5.1.4; areas in which radios should be carried.	Text has been aligned with ICAO Annex 6 Part II.
(a) Aircraft operated under Visual Flight Rules (VFR) as a controlled flight, under Instrument Flight Rules (IFR) or at night shall be provided with radio communication equipment. Such equipment shall be capable of conducting two-way communication with those aeronautical stations and on those frequencies prescribed by the appropriate authority.	1. Communication equipment is not required for VFR flight when not controlled: clarification required. 2. There is no justification to require two-way radio communication for VFR night flights. If the VFR night flight takes place in areas where communication is not required 3. INDIV: This proposal is not appropriate for Sailplanes and Powered Sailplanes when other than VFR as permitted in the UK at present. Currently there is no requirement for them to have a radio when IFR in class G airspace. Some sailplanes are still fitted with radios that operate only on the UK glider frequencies and are not capable of transmitting or receiving on 121.500 MHz. Many UK glider pilots do not have a flight operator's radio licence and are restricted to the UK dedicated glider frequencies. Sailplanes should be exempt unless operating as a controlled flight.	1. The reference to "controlled flight" is replaced by "when required by airspace requirements". 2. The requirement for communication equipment at night is in line with ICAO Annex 6. 3. The Agency is of the opinion that there are no IFR flights with sailplanes but is also aware that cloud flying will be performed. The requirement is anyway simplified and re-drafted for sailplanes and will reflect this. The terminology has been changed to address cloud flying in IMC for sailplanes.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(b) The radio communication equipment required in (a) shall provide for communication on the aeronautical emergency frequency.		
OPS.GEN.530 Pressure-altitude-reporting transponder		
Aircraft shall be equipped with a pressure-altitude-reporting Secondary Surveillance Radar (SSR) transponder when required by the airspace requirements.	1. A pressure-altitude SSR transponder shall be required for all aeroplanes and helicopters to enable ACAS-equipped aircraft to generate resolution advisories. 2. It should be added that the air traffic provider can grant exemptions depending on the traffic situation for aircraft not fitted with such a transponder. 3. Now a pressure-altitude-reporting transponder is prescribed for all flights, irrespective of the conditions of flight, when required by the airspace requirements - OPS.GEN.525.	1.-3. The requirement for the SSR transponder is in line with ICAO and ensures ACAS capability regardless of the transponder-carriage rules applying to the airspace in which either aircraft is flying.
OPS.GEN.535 Navigation equipment		
(a) An aircraft shall be provided with navigation equipment which will enable it to proceed in accordance with:	This unconditional requirement on navigation equipment is not consistent with the communication equipment requirement.	The requirement is alleviated for flight under VFR accomplished by visual reference to landmarks.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(1) the flight plan; and		
(2) the applicable airspace requirements.		
(b) The number of navigation equipment shall be such that in the event of failure of one item of equipment during the flight, the remaining equipment will enable the aircraft to comply with (a).	1. It should not be a requirement that the aircraft can always continue according to the original plan in case of equipment malfunction. It should be sufficient that the pilot has planned for an alternative course of action since otherwise equipment duplication will often be required when this is not necessary. 2. OPS.GEN.535 (a) should be clarified so that having a magnetic compass as required for sailplanes and powered sailplanes according to OPS.GEN.410 (a)(1) does not require a secondary instrument for the same purpose	1. The wording has been modified in line with ICAO. 2. Requirements for sailplanes have been addressed and clarified in NCO.IDE.S.
(c) In Instrument Flight Rules (IFR) flights, an aircraft shall be provided with navigation equipment that provides guidance to a point from which a visual landing can be performed. This equipment shall be capable of providing guidance for each aerodrome at which it is intended to land in IFR and for any designated alternate aerodromes.	1. This rule prevents aircraft from conducting a part of their flight in IMC, even if there is no intention to perform an instrument approach, without such equipment. It is proposed to return to ICAO text. 2. Shall not be applicable to sailplane cloud flying activity.	1. & 2.Accepted.

A: Rule	B: Summary of comments	C: Reason for change, remarks
OPS.GEN.540.A Electronic navigation data management - Complex motor-powered aeroplanes		Not transposed, beyond the scope of Part-NCO.
(a) An operator shall only use electronic navigation data products which support a navigation application that meets standards of integrity which are adequate for the intended use of the data.		
(b) When the electronic navigation data products support a navigation application needed for an operation requiring a specific approval as per OPS.SPA, the operator shall demonstrate to the competent authority that the process applied and the delivered products meet standards of integrity which are adequate for the intended use of the data.		
(c) An operator shall continuously monitor both the process and the products,		
(d) An operator shall ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.		
OPS.GEN.545 Cabin Crew Seats		
Each seat for the minimum required cabin crew member shall be forward or rearward facing within 15°		Not transposed, beyond the scope of Part-NCO.

A: Rule	B: Summary of comments	C: Reason for change, remarks
of the longitudinal axis of the aircraft.		
OPS.GEN.550 Minimum equipment for flight		
(a) A flight of a complex motor-powered aircraft or an aircraft involved in commercial operations shall not be commenced when any of the aircraft instruments, items of equipment or functions are inoperative, except if:		The intent of this rule is to implement the Essential Requirement in 2.a.3 (iii) of Annex IV to the Basic Regulation, where it is required that : "the pilot in command must be satisfied that: (i) the aircraft is airworthy as specified in point 6; […] (iii) instruments and equipment as specified in point 5 required for the execution of that flight are installed in the aircraft and are operative, unless waived by the applicable Minimum Equipment List (MEL) or equivalent document, that may be established on a voluntary basis in NCO. […]" The point 5 mentioned above is the paragraph providing the Essential Requirements for instruments, data and equipment. Therefore the purpose of this proposed

A: Rule	B: Summary of comments	C: Reason for change, remarks
		rule is to clarify which are the legal means of releasing an aircraft with inoperative instruments, items of equipment or functions that are required by NCO.IDE.
(1) such the aircraft instrument, item of equipment or function is part of the operator minimum equipment list (MEL); or		
(2) the aircraft has been subject to a permit to fly issued by the competent authority or organisations approved in accordance with Part-21; or		
(3) the aircraft instrument, item of equipment or function is not required for the safe operation of the aircraft.		
(b) The MEL shall not deviate from Airworthiness Directives or Safety Directives issued or adopted by the Agency when these Directives exclude the MEL alleviation.		
(c) Any instrument or item of equipment that has been installed in an aircraft and becomes inoperative shall not be removed thereof, unless:		
(1) it is replaced by an operative instrument or equipment; or		
(2) it is specifically permitted by the MEL; or		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(3) the aircraft has been subject to a permit to fly issued by the competent authority or approved organisations.		
Section V - Manuals, Logs and Records		This text is moved to NCO.GEN.135 (documents, manuals and information to be carried), which is the resulting text after addressing the comments.
OPS.GEN.600 Documents and information to be carried on all aircraft	1. IA: Request possibility for docs in electronic format. 2. IA, IS: Sailplanes should be exempt from carrying any documents/information, except the AFM and instead make them available at least for daily inspection. 3IA, IS: Carrying all documents listed has no safety impact (except for the aeronautical charts).	1. GM1-NCO.GEN.135 clarifies that the electronic format is allowed. 2. Alleviations are introduced to allow carriage in the retrieve vehicle. 3. Such documents prove that the aircraft complies with the relevant safety requirements and would be of use in case of an incident or accident.
(a) On any aircraft, the following documents shall be carried on each flight:	1. IA: Split into (a) for A and H and (b) for sailplane/powered sailplane with (b) listing only ARC, 3rd Party Liability Insurance Cert, Aeronautical charts – proportionality. 2. [IA: Change "carried" to "available". 3. IA, INDIV, IND: Change to "originals or copies of" - for safe storage and to avoid being destroyed. OPS.GEN.615 implies this would be acceptable. 4. IA, IND: Delete original or copy – implies	1. NCO.GEN.135 applies to all aircraft, the provision is considered as being a minimum that can be applied to NCO operators. 2. It is considered that if the documents are carried, they are available. 3&4. Text revised to allow copies for most documents.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	this option is not available for other documents.	
(1) the Aircraft Flight Manual or equivalent documents;	1. MS: Add "which shall contain the performance data of the relevant aircraft" – extra information is in the interest of safety. 2. IA: Add "the original or copy of" for Part-NCO.	1. GM1-NCO.GEN.135(3) refers to "information required for the operation of the aircraft within the terms of its certificate of airworthiness", which includes performance data in accordance with ICAO. 2. Paragraph amended accordingly.
(2) the Certificate of Airworthiness;	1. IA, INDIV: Except for sailplanes, which should carry original or exact copy of the Airworthiness Review Certificate instead of the CoA – the only way to assure awareness of validity of the CoA. 2. IA: Clarification required – is the carriage of the ARC covered by the carriage of CofA? 3. IS: Add or Permit to Fly issued by the CA or organisations approved in accordance with Part-21, as applicable. 4. IA, INDIV: Add the original or copy of – not necessary and no room on sailplanes and it avoids the risk of them being destroyed. 5. INDIV: Delete CofA to be carried on board, as thise can be checked online on the ground.	1. The CofA is an ICAO requirement and cannot be "replaced" by the ARC. 2. The ARC is covered by the carriage of CofA as it specifies the changes made to the CofA. The CofA is not valid unless accompanied by an Airworthiness Review Certificate. 3. Part-21 details in which case a Permit to Fly is required. If so, this will be carried instead of the CofA. 4. It is considered that for NCO operators, the original of the CofA is needed in accordance with ICAO Annex 6 Part II. 5. The paragraph complies with ICAO Annex 6.

A: Rule	B: Summary of comments	C: Reason for change, remarks
(3) the Certificate of Registration;	1. IA, INDIV: Except for sailplanes – no safety need to carry, and avoids the risk of them being destroyed. 2. IA, INDIV: Add the original or copy of.	1&2. ICAO text implies that the original of the CofR is meant to be carried on board.
(4) the original or copy of the Noise Certificate, if applicable;	1. IA: Except for sailplanes – no safety need.	1. The new rule text suggests "a documentation attesting noise certification, if applicable".
(5) the original or copy of the third party liability Insurance Certificate;		
(6) the journey log book for the aircraft;	1. IA, INDIV: Except for sailplanes – no safety need to carry. 2. IA: The rule has no relevance to light general aviation and sailplanes.	1. The amended text suggests "the journey log, or equivalent, for the aircraft". 2. It is considered necessary for NCO operators to carry this document on board.
(7) current and suitable aeronautical charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;		
(8) procedures and visual signals for use by intercepting and intercepted aircraft which shall be easily accessible to the flight crew; and	1. IA: Clarification required – does it mean pictograms? – to reduce stress in an emergency. 4. IA: IND: Delete subparagraph (8) – this requirement is not justified.	1. Part of the procedures and visual signals may include pictograms but text may also be included. The format will be a decision by the operator/owner. 2. The requirement for carrying intercept instructions is in accordance with ICAO

A: Rule	B: Summary of comments	C: Reason for change, remarks
		Annex 2 Rules of the Air.
(9) any other documentation which may be pertinent to the flight or is required by the States concerned with the flight.	1. IA: ambiguous requirement: no alternative text suggested. 2. IA: Detail to be added – for level playing field.	1. This paragraph is deleted for Part-NCO
(b) On non-commercial flights with sailplanes, other than complex motor-powered aeroplanes and helicopters taking off and landing at the same aerodrome/operating site and remaining within 50 nautical miles (nm) of that aerodrome/operating site, the documents and information referred to in OPS.GEN.600(a)(1) - (6) may be retained at the aerodrome/operating site.		This paragraph is not transposed and is replaced by (b) in NCO.GEN.135
(c) On non-commercial flights with balloons, the documents referred to in OPS.GEN.600(a)(1) - (6) may be carried in the retrieve vehicle.		This paragraph is not transposed and is replaced by (c) in NCO.GEN.135
OPS.GEN.605 Documents and information to be carried on non-commercial flights with complex motor-powered aircraft and aircraft used in commercial operations	1. IND: It should be possible to have certain documents and information available in electronic format e.g. an electronic flight bag (EFB). 2. INDIV: It should be possible to have certain documents and information (e.g. OFP, NOTAM, Met) available in a laptop. 3. IND: Title to be amended to exclude	This text is not transposed as it is considered not to be applicable to NCO operators.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	sailplanes and otCMPA, as most of these documents are not available and these types of A/C are only occasionally used in commercial operations.	
(a) In addition to OPS.GEN.600(a), on flights with complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations, the following documents and information shall be carried on each flight:	IA: Add new (9) "Information according to (a) 2, 3, 4, 6, 7, 8, shall be easily accessible to the flight crew".	
(1) the Aircraft Radio Licence;	1. MS, INDIV: Move to OPS.GEN.600(a) and add "if applicable" – required for all a/craft whenever a radio station is available" (ICAO). 2. IA: Delete requirement for aircraft radio licence, as some countries no longer issue a separate A/C radio licence.	
(2) the Aircraft Technical Log in accordance with Part-M;	1. MS: Add "M.A.306" for clarification. 2. MS: Delete aircraft tech log, as it does not increase safety.	
(3) details of the filed Air Traffic Service (ATS) flight plan, if applicable;		
(4) information concerning search and rescue services for the area of the intended flight;		
(5) a certified true copy of the operator certificate if the aircraft is used in		

A: Rule	B: Summary of comments	C: Reason for change, remarks
commercial operations and a copy of the declaration if the aircraft is used in non-commercial operations;		
(6) portions of the operations manual relevant to the duties of the crew;		
(7) the Minimum Equipment List (MEL) or equivalent document; and		
(8) the following operational flight information:		
(i) the operational flight plan, if applicable;		
(ii) appropriate notice to airmen (NOTAM)/aeronautical information service (AIS) briefing documentation;		
(iii) appropriate meteorological information;		
(iv) notification of special categories of passenger and special loads including dangerous goods, if applicable; and		
(v) mass and balance documentation; if applicable.		
(b) Notwithstanding paragraphs OPS.GEN.600(a) and OPS.GEN.605(a),		

A: Rule	B: Summary of comments	C: Reason for change, remarks
(1) on commercial flights other than commercial air transport remaining within 50 nm of the aerodrome/operating site of departure and returning to the aerodrome/operating site of departure on the same day;		
(2) on commercial flights with sailplanes taking off and landing at the same aerodrome/operating site and remaining within 50 nm of that aerodrome/operating site; or		
(3) on commercial air transport flights by day and over routes navigated by reference to visual landmarks, with:		
(i) other than complex motor-powered aeroplanes taking off and landing at the same aerodrome/operating site; or		
(ii) other than complex motor-powered helicopters and helicopters having a maximum passenger seating configuration of 9 or less engaged in flight operations conducted within a local area specified in the operations manual;		
the documents and information referred to in paragraphs OPS.GEN.600(a)(1) - (6) and		

A: Rule	B: Summary of comments	C: Reason for change, remarks
OPS.GEN.605(a)(1), (5) and (8)(ii)-(iii) may be retained at the aerodrome/operating site.		
(c) On commercial flights with balloons, the documents referred to in paragraph OPS.GEN.600(a)(1) - (6) and OPS.GEN.605(a)(1), (5) and (8)(ii)-(iii) may be carried in the retrieve vehicle.		
OPS.GEN.610 Journey log book		This text is moved to NCO.GEN.150 (Journey Log) which is the resultant text after addressing the comments
Particulars of the aircraft, its crew and each journey shall be retained for each flight or series of flights in the form of a journey log book.	1. INDIV: The rule has no relevance to light general aviation and sailplanes. 2. IND: OPS.GEN.610 is redundant with journey log books being listed in OPS.GEN.600. 3. IA: Reduce the amount of paperwork. Electronic/digital journey log books should be allowed. 4. IND: Maintain JAR-OPS term "Journey Log". 5. IND: asked if the journey log book replaced the old flight journey book? 6. INDIV: Change to allow all the information to be recorded and retained on the ground e.g. for sailplanes, the club launch point.	1. There is no justification to the comment. 2. OPS.GEN.600 refers to the carriage of documents whereas OPS.GEN.610 requires particulars to be retained. 3. The term "or equivalent" is added to text and the related AMC allows forms other than paper. 4. Title amended. 5. The old flight journey book was probably the journey log book referred to in ICAO Annex 6. 6. An alleviation is introduced for local flights, and for sailplanes and balloons for which the documents may be carried in the retrieve vehicle.

A: Rule	B: Summary of comments	C: Reason for change, remarks
OPS.GEN.615 Production of documentation and records		
The pilot-in command shall make available within a reasonable time of being requested to do so by the competent authority, the documentation required to be carried on board.	1. IND, INDIV: requested amendment to text documents requested, "were to be available not later than the start of the flight." 2. IND: It should be possible to hold information electronically.	Not applicable for NCO operators
Section VI – Security		
OPS.GEN.700 Disruptive Passenger Behaviour		
When deemed necessary, the pilot-in-command shall take appropriate measures to reduce the risk to flight safety emanating from potentially disruptive passengers hindering crew members from performing their duties or not complying with crew member instructions.	IS: "potentially disruptive passenger" has a different meaning than "disruptive passenger" according to Reg.3 00.	Text is not transposed as this item is transferred to the CION under Regulation 300/2008 and is therefore beyond the scope of the EASA rules.
OPS.GEN.705 Reporting acts of unlawful interference		
Following an act of unlawful interference on board an aircraft, the pilot-in-command or, if unable, the operator shall submit, without delay, a report to the competent authority in the State of the operator in	IS, IA, MS: The text should stick to the wording of EU-OPS "in his/her absence" and not "unable".	This requirement is now moved to NCO.GEN.105 and has been amended to adapt it to NCO operations.

A: Rule	B: Summary of comments	C: Reason for change, remarks
compliance with its national civil aviation security programme, and shall inform the designated local authority.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Subpart A - General operating and flight rules – AMC/GM		
Section I - General requirements		
GM OPS.GEN.015 Pilot-in-command responsibilities and authority		
GENERAL In accordance with paragraph 1.c. of Annex IV to Regulation (EC) No 216/2008 (Essential requirements for air operations), the pilot-in-command must be responsible for the operation and safety of the aircraft and for the safety of all crew members, passengers and cargo on board. This would include the following:	Clarification requested of the responsibility between boarding of crew and first movement of A/C and taxiing, and the responsibility starting when “entering the aircraft” or “after closing doors”.	This clarification is already covered in 1 below as the PIC’s responsibility starts as soon as s/he arrives on board.
1. The safety of all crew members, passengers and cargo on board, as soon as he/she arrives on board, until he/she leaves the aircraft at the end of the flight;		
2. The operation and safety of the aircraft:		
a. from the moment it is first ready to move for the purpose of flight until the moment it comes to rest at the end of the flight and the engine(s) used as primary propulsion unit(s) is/are shut down, for aeroplanes;	MS: request re-alignment with EU-OPS 1.085 and edit 2.a. “… move, for the purpose of flight under its own power, for the purpose of ground repositioning or taxiing prior to take off…”.	“to move” includes taxiing or ground positioning.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. when the rotors are turning, for helicopters;	IS: request to edit: "when the rotors start turning for the purpose of flight until the rotors come to a complete stop after flight."	The suggested text is accepted as it clarifies the most critical time of the move of the helicopter.
c. from the moment the launch procedure is started until the aircraft comes to rest at the end of the flight, for sailplanes; and		
d. from the moment the inflating of the envelope is started until the envelope is deflated, for balloons.		
AMC1 OPS.GEN.015(a)(5) Pilot-in-command responsibilities and authority		This AMC is not transposed. It is considered not applicable for NCO operations.
ADMISSION TO THE COCKPIT/PILOT COMPARTMENT		
The pilot-in-command should ensure that:		
1. in the interests of safety, admission to the cockpit/pilot compartment does not cause distraction and/or interfere with the flight operation; and		
2. all persons carried in the cockpit/pilot compartment are made familiar with the relevant restrictions and safety procedures.		
AMC2 OPS.GEN.015(a)(5) Pilot-in-command responsibilities and authority		This AMC is not transposed. It is considered out of the

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		scope of NCO operations.
ADMISSION TO COCKPIT/PILOT COMPARTMENT – COMMERCIAL AIR TRANSPORT		
1. Only the following persons may be admitted to or carried in the cockpit/pilot compartment:		
a. An operating crew member;		
b. A representative of the competent authority, if it is required for the performance of his/her official duties;		
c. A person authorised by the operator;		
d. Passengers, in the case of balloons with no separate pilot compartment.		
2. In the case of other than complex motor-powered aircraft, persons admitted to or carried in the cockpit/pilot compartment may be carried in a pilot seat.		
GM OPS.GEN.015(b) Pilot-in-command responsibilities and authority		This GM is not transposed. It is considered not applicable for NCO operations.
AUTHORITY TO REFUSE CARRIAGE OR DISEMBARK		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
This may include: 1. special categories of passengers; or 2. persons that appear to be under the influence of alcohol or drugs.	IS (GA): Request to insert a definition or a list of "special categories of passengers".	Not applicable to NCO operations.
AMC-OPS.GEN.015(c) Pilot-in-command responsibilities and authority	IS: Contradiction with Regulation (EC) No 1107/2006.	Regulation (EC) No 1107/2006 is only applicable to 'Commercial Passenger Air Services'.
REPORTING OF HAZARDOUS FLIGHT CONDITIONS		
1. These reports should include any detail which may be pertinent to the safety of other aircraft.		
2. Such reports should be made whenever any of the following conditions are encountered or observed: a. severe turbulence; b. severe icing; c. severe mountain wave; d. thunderstorms, with or without hail, which are obscured, embedded, widespread or in squall lines; e. heavy dust storm or heavy sandstorm; f. volcanic ash cloud; g. unusual and/or increasing volcanic activity or a volcanic eruption.	1. IS, IA: Points mentioned under 2 should be reported immediately in addition to 3. 2. Clarify that the points under 2. also have to be reported to air traffic services;	1. The elements in points 2 and 3 are independent from each other, there is no hierarchy in the priority. 2. It is not considered necessary as GM1-NCO.GEN.105 requires the PIC to report hazardous conditions to the appropriate ATS unit as soon as possible.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
3. When other meteorological conditions not listed above, e.g. wind shear, are encountered which, in the opinion of the pilot-in-command, may affect the safety or markedly affect the efficiency of other aircraft operations, the pilot-in-command should advise the appropriate air traffic services unit as soon as practicable.	IA: There should be a precise definition of 'pilot in command'.	The definition of PIC is provided in Annex I to the Regulation on Air operations.
AMC OPS.GEN.015(d) Pilot-in-command responsibilities and authority MITIGATING MEASURES		This AMC is not transposed. It is considered not relevant for NCO operations.
The use of additional crew members and controlled rest during flight are considered to be adequate mitigating measures.	1. Consider the reduced level of mitigation of a controlled rest during flight as a mitigation measure. 2. MS: request to redraft and align with comments made to OPS.GEN.015 (d) and state here that the GM applies "in respect of fatigue only".	Not applicable to NCO operations.
GM OPS.GEN.015(d) Pilot-in-command responsibilities and authority MITIGATING MEASURES – CONTROLLED REST	It should be clarified, that the mentioned mitigation measure only refers to fatigue.	This GM is not transposed. It is considered not applicable to NCO operations.
1. This Guidance Material (GM) addresses controlled rest taken by the minimum certificated flight crew. It is not related to planned in flight rest by members of an augmented crew.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. Although flight crew members should stay alert at all times during flight, unexpected fatigue can occur as a result of sleep disturbance and circadian disruption. To cover for this unexpected fatigue, and to regain a high level of alertness, a controlled rest procedure in the cockpit, organised by the pilot-in-command may be used, if workload permits. 'Controlled rest' means a period of time 'off task' that may include actual sleep. The use of controlled rest has been shown to significantly increase the levels of alertness during the later phases of flight, particularly after the top of descent, and is considered to be good use of Crew Resource Management (CRM) principles. Controlled rest should be used in conjunction with other on board fatigue management countermeasures such as physical exercise, bright cockpit illumination at appropriate times, balanced eating and drinking, and intellectual activity.		
3. Controlled rest taken in this way should not be considered to be part of a rest period for the purposes of calculating flight time limitations, nor used to justify any duty period. Controlled rest may be used to manage both sudden unexpected fatigue and fatigue which is expected to become more severe during higher workload periods later in the flight. Controlled rest is not related to fatigue management which is planned before flight.		
4. Controlled rest periods should be agreed according to individual needs and the accepted principles of CRM; where the involvement of the cabin crew is required, consideration should be given to their workload.		
5. When applying controlled rest procedures, the pilot-in-command should ensure that: a. the other flight crew member/s is/are adequately briefed to carry out the duties of the resting flight crew member; b. one flight crew member is fully able to exercise control of the aircraft at all times; and		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
c. any system intervention which would normally require a cross-check according to multi-crew principles is avoided until the resting flight crew member resumes his/her duties.		
6. Controlled rest procedures should satisfy the following criteria:		
a. Only one flight crew member at a time should take rest at his/her station; the harness should be used and the seat positioned to minimise unintentional interference with the controls;		
b. The rest period should be no longer than 45 minutes (in order to limit any actual sleep to approximately 30 minutes) to limit deep sleep and associated long recovery time (sleep inertia);		
c. After this 45-minute period, there should be a recovery period of 20 minutes during which sole control of the aircraft should not be entrusted to the flight crew member during his/her recovery period;		
d. In the case of two-crew operations, means should be established to ensure that the non-resting flight crew member remains alert. This may include: i. appropriate alarm systems; ii. on board systems to monitor flight crew activity; and iii. frequent cabin crew checks. In this case, the pilot-in-command should inform the senior cabin crew member of the intention of the flight crew member to take controlled rest, and of the time of the end of that rest; frequent contact should be established between the non-resting flight crew member and the cabin crew by communication means, and the cabin crew should check that the resting flight crew member is alert at the end of the period;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
e. There should be a minimum of 20 minutes between two subsequent controlled rest periods in order to overcome the effects of sleep inertia and allow for adequate briefing;		
f. If necessary, a flight crew member may take more than one rest period, if time permits, on longer sectors, subject to the restrictions above;		
g. Controlled rest periods should terminate at least 30 minutes before the top of descent.		
AMC-OPS.GEN.015(e)(3) Pilot-in-command responsibilities and authority		This AMC is now a GM
PROTECTIVE CLOTHING - BALLOONS		
Protective clothing should include: 1. long sleeves and trousers made out of natural fibres; 2. stout footwear; and 3. gloves.	IS: Protective clothing requirements for crew are excessive.	Noted. They are necessary for safety reasons as it could have an impact on the safe operation of a balloon.
AMC1 OPS.GEN.020(a) Crew responsibilities		This AMC and the related IR are not transposed since they are not applicable to NCO operations.
FATIGUE RISK MANAGEMENT		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. In accordance with paragraph 7.f. of Annex IV to Regulation (EC) No 216/2008 (Essential requirements for air operations), no crew member must allow their task achievement/decision making to deteriorate to the extent that flight safety is endangered because of the effects of fatigue. Before commencing a flight, a crew member should take the following factors into account, as relevant, to assess the risk of personal fatigue:		
a. Fatigue accumulated over a period of time and time since last rest; b. Sleep deprivation (i.e. arising from interruption of the normal sleep/wake cycle); c. Activity carried out prior to a flight, including physical activity;		
d. Number or series of flights (sectors) planned or accomplished; e. Duration of the planned flight activity; f. The time of day/night at which the flight is scheduled to begin and time flown at night; g. The pattern of working and sleeping relative to the circadian rhythm (24-hour physiological cycle); h. Number and direction of time zones crossed; i. Operational characteristics of the planned flight (e.g. weather conditions, familiarity with the route/destination, single/multi-pilot operation, service limitations of the aircraft, crew complement, such as reduced number of crew members, etc.).		
2. Crew members should make optimum use of the opportunities and facilities for rest provided and plan and use their rest periods appropriately.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC2 OPS.GEN.020(a) Crew responsibilities REPORTING OF ANY OCCURRENCE RELATED TO THE SAFETY OF THE AIRCRAFT AND ITS OCCUPANTS		This AMC and the related IR have not been transposed since they are not applicable to NCO operations.
Whenever a crew member makes use of the applicable reporting systems, a copy of the report should be communicated to the pilot-in-command.		
GM OPS.GEN.020(a) Crew responsibilities		This AMC and the related IR have not been transposed since they are not applicable to NCO operations.
GENERAL		
In accordance with paragraph 7.g. of Annex IV to Regulation (EC) No 216/2008 (Essential requirements for air operations), a crew member must not perform allocated duties on board an aircraft when under the influence of psychoactive substances or alcohol or when unfit due to injury, fatigue, medication, sickness or other similar causes. This should be understood as including the following:		
1. Effects of deep water diving and blood donation, and allowing for a certain time period between these activities and returning to flying;	MS: Extra guidance requested for crews to include a minimum length during which flying should not occur after deep-water-diving and blood donation (24 hrs).	

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. Without prejudice to more restrictive national regulations, the consumption of alcohol while on duty or less than 8 hours prior to the commencement of duties, and commencing a flight duty period with a blood alcohol level in excess of 0.2 per mille.		
AMC OPS.GEN.030 Transport of dangerous goods		
EXEMPTION AND APPROVAL PROCEDURES OF THE TECHNICAL INSTRUCTIONS	Amendment is required to clarify that the title does not mean 'approval of the Technical Instructions'	This entire section has become Guidance Material (GM1-NCO.GEN.140(a)).
1. The Technical Instructions provide that in certain circumstances dangerous goods, which are normally forbidden on an aircraft, may be carried. These circumstances include cases of extreme urgency or when other forms of transport are inappropriate or when full compliance with the prescribed requirements is contrary to the public interest. In these circumstances all the States concerned may grant exemptions from the provisions of the Technical Instructions provided that every effort is made to achieve an overall level of safety which is equivalent to that provided by the Technical Instructions. Although exemptions are most likely to be granted for the carriage of dangerous goods which are not permitted in normal circumstances, they may also be granted in other circumstances, such as when the packaging to be used is not provided for by the appropriate packing method or the quantity in the packaging is greater than that permitted. The Instructions also make provision for some dangerous goods to be carried when an approval has been granted only by the State of Origin, providing specific conditions which are laid down in the Technical Instructions are met.	The Technical Instructions do not provide specific conditions for the granting of approvals and so the text should be deleted.	Part I, chapter 1 of the TI (scope and applicability) allows Member States to grant exemptions from the provisions of the TI.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. The States concerned are those of origin, transit, overflight and destination of the consignment and that of the operator.	1. Additional text as per TGL 44 IEM 1.1165(b) required referring to the State of overflight's ability to grant an exemption on the basis of an equivalent level of safety only. 2. Suggest that State of diversion is added	1. Text has been aligned with the text of the Technical Instructions and NPA-OPS 70 (JAR-OPS). 2. State of diversion is not added since this is not required by the Technical Instructions.
3. The Technical Instructions provide that exemptions and approvals are granted by the "appropriate national authority", which is intended to be the authority responsible for the particular aspect against which the exemption or approval is being sought. The operator should ensure all relevant conditions on an exemption or approval are met.	1. Suggest additional text to explain who can apply for an exemption. 2. Suggest that the term 'competent authority' is used instead of 'appropriate national authority', to align with other EASA text.	1. Text aligned with the text of the Technical Instructions and NPA-OPS 70 (JAR-OPS). 2. Accepted.
4. The exemption or approval referred to above is in addition to the approval required by OPS.SPA.001.DG.		This text is aligned with the text of the Technical Instructions and NPA-OPS 70 (JAR-OPS).
AMC OPS.GEN.030(b) Transport of dangerous goods		This AMC is not transposed, since otherwise all of the text from the ICAO Technical Instructions would be required.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
GENERAL		
1. Dangerous goods required to be on board an aircraft in accordance with airworthiness and operational requirements are those which are for: a. the airworthiness of the aircraft; b. the safe operation of the aircraft; or c. the health of passengers or crew.		
Such dangerous goods include, but are not limited to: i. batteries; ii. fire extinguishers; iii. first-aid kits; iv. insecticides/air fresheners; v. life-saving appliances; and vi. portable oxygen supplies.		
2. Articles and substances for specialised purposes are those connected with certain specialised aerial tasks or medical service operations. They should be carried in accordance with procedures and instructions contained in the operations manual and in accordance with officially recognised standards or national legislation. These procedures should be based on the ICAO Technical Instructions where possible but, as a minimum, they should mitigate the risks associated with their carriage.		
AMC OPS.GEN.030(d)(1) Dangerous goods incident and accident reporting		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
GENERAL		
1. Any type of dangerous goods incident or accident should be reported, irrespective of whether the dangerous goods are contained in cargo, mail, passengers' baggage or crew baggage.	MS: request to delete first sentence as it is already required in the IR.	The deleted text is duplication with the rule. The additional text clarifies the category of dangerous goods according to the T.I.
2. The first report should be dispatched within 72 hours of the event. It may be sent by any means, including e-mail, telephone or fax. This report should include the details that are known at that time, under the headings identified in paragraph 3. If necessary, a subsequent report should be made as soon as possible giving all the details that were not known at the time the first report was sent. If a report has been made verbally, written confirmation should be sent as soon as possible.	MS: It is proposed that 72 hours is too long a period in some circumstances, such as when there has been no contact with other emergency response services. Request to add that the operator should take immediate action where this is required.	This paragraph is maintained as such. 72 hours is the maximum deadline when a report should be dispatched. Of course it is expected that the PIC will report immediately, when possible.
3. The first and any subsequent report should be as precise as possible and contain such of the following data that are relevant:		
a. Date of the incident or accident or the finding of undeclared or misdeclared dangerous goods; b. Location, the flight number and flight date; c. Description of the goods and the reference number of the air waybill, pouch, baggage tag, ticket, etc; d. Proper shipping name (including the technical name, if appropriate) and UN/ID number, when known;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
e. Class or division and any subsidiary risk; f. Type of packaging, and the packaging specification marking on it; g. Quantity; h. Name and address of the shipper, passenger, etc; i. Any other relevant details;		
j. Suspected cause of the incident or accident; k. Action taken; l. Any other reporting action taken; and m. Name, title, address and telephone number of the person making the report.		
4. Copies of relevant documents and any photographs taken should be attached to a report.	Amend text to say that any documents and photographs should be attached to 'the report' rather than 'a report'.	The amended text takes into account the comment.
5. A dangerous goods accident or incident may also constitute an aircraft accident, serious incident or incident. The criteria for reporting both types of occurrence should be met.		
6. Dangerous Goods Reporting Form:	MS: It is proposed that the content of the form has to be mentioned and that it be made clear that the form is an example, otherwise it would appear that other formats, including electronic	The new rule text takes into account the comment.

<table>
<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Reason for change, remarks</th></tr>
<tr><td></td><td>forms, would not be possible.</td><td></td></tr>
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<table>
<tr><td colspan="4">DANGEROUS GOODS OCCURRENCE REPORT</td><td colspan="2">DGOR No:</td></tr>
<tr><td colspan="2">1. Operator:</td><td colspan="2">2. Date of Occurrence:</td><td colspan="2">3. Local time of occurrence:</td></tr>
<tr><td colspan="3">4. Flight date:</td><td colspan="3">5. Flight No:</td></tr>
<tr><td colspan="3">6. Departure aerodrome:</td><td colspan="3">7. Destination aerodrome:</td></tr>
<tr><td colspan="3">8. Aircraft type:</td><td colspan="3">9. Aircraft registration:</td></tr>
<tr><td colspan="3">10. Location of occurrence:</td><td colspan="3">11. Origin of the goods:</td></tr>
<tr><td colspan="6">12. Description of the occurrence, including details of injury, damage, etc.
(if necessary continue on the reverse of this form):</td></tr>
<tr><td colspan="5">13. Proper shipping name (including the technical name):</td><td>14. UN/ID No (when known):</td></tr>
<tr><td>15.Class/Division (when known):</td><td colspan="2">16. Subsidiary risk(s):</td><td colspan="2">17. Packing group:</td><td>18 Category (Class 7 only):</td></tr>
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A: Rule	B: Summary of comments	C: Reason for change, remarks

19. Type of packaging:	20.Packaging specification marking:	21. No of packages:	22. Quantity (or transport index, if applicable):
23. Reference No of Airway Bill:			
24. Reference No of courier pouch, baggage tag, or passenger ticket:			
25. Name and address of shipper, agent, passenger, etc.:			
26. Other relevant information (including suspected cause, any action taken):			
27. Name and title of person making report:	28. Telephone No:		
29. Company:	30. Reporters ref:		
31. Address:	32. Signature:		
	33. Date:		
Description of the occurrence (continuation)			

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Notes for completion of the form:		
1. Any type of dangerous goods occurrence must be reported, irrespective of whether the dangerous goods are contained in cargo, mail or baggage.		
2. A dangerous goods accident is an occurrence associated with and related to the transport of dangerous goods which results in fatal or serious injury to a person or major property damage. For this purpose serious injury is an injury which is sustained by a person in an accident and which: a. requires hospitalisation for more than 48 hours, commencing within 7 days from the date the injury was received; or b. results in a fracture of any bones (except simple fractures of fingers, toes or nose); or c. involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or d. involves injury to any internal organ; or e. involves second or third degree burns, or any burns affecting more than 5 % of the body surface; or f. involves verified exposure to infectious substances or injurious radiation. A dangerous goods accident may also be an aircraft accident; in which case the normal procedure for reporting of air accidents must be followed.		
3. A dangerous goods incident is an occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods, not necessarily occurring on board an aircraft, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
occurrence relating to the transport of dangerous goods which seriously jeopardises the aircraft or its occupants is also deemed to constitute a dangerous goods incident.		
4. This form should also be used to report any occasion when undeclared or misdeclared dangerous goods are discovered in cargo, mail or unaccompanied baggage or when accompanied baggage contains dangerous goods which passengers or crew are not permitted to take on aircraft.		
5. An initial report, which may be made by any means, must be dispatched within 72 hours of the occurrence, to the competent authority of the State (a) of the operator; and (b) in which the incident occurred, unless exceptional circumstances prevent this. This occurrence report form, duly completed, must be sent as soon as possible, even if all the information is not available.		
6. Copies of all relevant documents and any photographs should be attached to this report.		
7. Any further information, or any information not included in the initial report, must be sent as soon as possible to authorities identified in paragraph 5.		
8. Providing it is safe to do so, all dangerous goods, packagings, documents, etc., relating to the occurrence must be retained until after the initial report has been sent to the authorities identified in paragraph 5 and they have indicated whether or not these should continue to be retained.		
AMC OPS.GEN.030(d)(2) Dangerous goods incident and accident reporting		This AMC is not transposed as it is already covered in GM1-NCO.GEN.155(e).

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
REPORTING OF UNDECLARED OR MISDECLARED GOODS		
An operator should also report the finding of undeclared or misdeclared dangerous goods. The first report should be dispatched within 72 hours of the discovery and include the details that are known at that time. If necessary, a subsequent report must be made as soon as possible giving whatever additional information has been established.		
GM OPS.GEN.030 Transport of dangerous goods		
GENERAL		
1. The requirements to transport dangerous goods by air in accordance with the 2007-2008 Edition of the Technical Instructions for the Safe Transport of Dangerous Goods by Air published by decision of the Council of the International Civil Aviation Organization. (ICAO Doc 9284-AN/905.) is irrespective of whether an approval to carry dangerous goods in accordance with OPS.SPA.001.DG is held.	MS, IS (GA): Amend due to reference to an out-of-date edition of the ICAO Technical Instructions.	It is proposed to make a dynamic reference to the Technical Instructions by introducing a definition in Annex I to the Regulation on Air operations and therefore it is not necessary to refer to a specific edition of the Technical Instructions here.
2. Dangerous goods referred to in OPS.GEN.030(b) are those mentioned in Part 1 of the ICAO Technical Instructions.		This paragraph is not needed it does not bring any complementary information to the rule.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
3. Baggage separated from its owner includes lost or improperly routed baggage which is carried by an operator for the purpose of returning it to its owner.		This paragraph is not transposed as it is already covered by NCO.GEN.140, which refers to the T.I.
Section II - Operational procedures		
AMC1 OPS.GEN.100 Ice and other contaminants	The agreed text of NPA-OPS 50 should be included in the AMC	This JAA material is followed up in rulemaking task MDM.045.
FLIGHT IN EXPECTED OR ACTUAL ICING CONDITIONS		
1. In accordance with paragraph 2.a.5 of Annex IV to Regulation (EC) No 216/2008 (Essential requirements for air operations), in case of flight into known or expected icing conditions, the aircraft must be certified, equipped and/or treated to operate safely in such conditions. The procedures to be established by the operator should take account of the design, the equipment, the configuration of the aircraft and the necessary training. For these reasons, different aircraft types operated by the same company may require the development of different procedures. In every case the relevant limitations are those which are defined in the Aircraft Flight Manual (AFM) and other documents produced by the manufacturer.	MS: request to delete reference to BR and insert reference to GEN.OPS.445 regarding additional conditions at night.	It is considered appropriate for NCO operators to keep the reference to the ER.
2. The operator should ensure that the procedures take account of the following:		The Review Group suggest to remove this provision as it is seen as being a CAT-related provision.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. The equipment and instruments which must be serviceable for flight in icing conditions;		
b. The limitations on flight in icing conditions for each phase of flight. These limitations may be imposed by the aircraft's de-icing or anti-icing equipment or the necessary performance corrections which have to be made;		
c. The criteria the flight crew should use to assess the effect of icing on the performance and/or controllability of the aircraft;		
d. The means by which the flight crew detects, by visual cues or the use of the aircraft's ice detection system, that the flight is entering icing conditions; and		
e. The action to be taken by the flight crew in a deteriorating situation (which may develop rapidly) resulting in an adverse affect on the performance and/or controllability of the aircraft, due to: i. the failure of the aircraft's anti-icing or de-icing equipment to control a build-up of ice; and/or ii. ice build-up on unprotected areas.		
3. Training for dispatch and flight in expected or actual icing conditions. The content of the operations manual should reflect the training, both conversion and recurrent, which flight crew, cabin crew and all other relevant operational personnel require in order to comply with the procedures for dispatch and flight in icing conditions:		The review group suggest to remove this provision as it is seen as being a CAT-related provision.
a. For the flight crew, the training should include: i. instruction in how to recognise, from weather reports or forecasts		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
which are available before flight commences or during flight, the risks of encountering icing conditions along the planned route and on how to modify, as necessary, the departure and in-flight routes or profiles; ii. instruction in the operational and performance limitations or margins; iii. the use of in-flight ice detection, anti-icing and de-icing systems in both normal and abnormal operation; and iv. instruction in the differing intensities and forms of ice accretion and the consequent action which should be taken.		
b. For the cabin crew, the training should include;		
i. awareness of the conditions likely to produce surface contamination; and	MS: request to re-align with ACJ to EU-OPS 1.346 4.2.a., b. and here to 3.b.i. add "… and the effects of such contamination", and to 3.b.ii. add "…the need to inform the flight crew of any observed surface contamination";	
ii. the need to inform the flight crew of significant ice accretion.		
AMC2 OPS.GEN.100 Ice and other contaminants		This GM is not transposed as it will be included in a leaflet, rather than as regulatory material.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
DE-ICING/ANTI-ICING		
1. De-icing and/or anti-icing procedures should take into account manufacturer's recommendations, including those that are type-specific and cover: a. contamination checks, including detection of clear ice and under-wing frost. Limits on the thickness/area of contamination published in the AFM or other manufacturers' documentation should be followed; b. procedures to be followed if de-icing and/or anti-icing procedures are interrupted or unsuccessful; c. post treatment checks; d. pre take-off checks; e. pre take-off contamination checks; f. the recording of any incidents relating to de-icing and/or anti-icing; and g. the responsibilities of all personnel involved in de-icing and/or anti-icing.		
2. Operator's procedures should ensure that:		
a. when aircraft surfaces are contaminated by ice, frost, slush or snow, they are de-iced prior to take-off; according to the prevailing conditions. Removal of contaminants may be performed with mechanical tools, fluids (including hot water), infra-red heat or forced air, taking account of aircraft type-specific requirements;		
b. account is taken of the wing skin temperature versus Outside Air Temperature (OAT), as this may affect: i. the need to carry out aircraft de-icing and/or anti-icing; and/or		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
ii. the performance of the de-icing/anti-icing fluids;		
c. when freezing precipitation occurs or there is a risk of freezing precipitation occurring which would contaminate the surfaces at the time of take-off, aircraft surfaces should be anti-iced. If both de-icing and anti-icing are required, the procedure may be performed in a one or two-step process, depending upon weather conditions, available equipment, available fluids and the desired hold-over time (HoT). One-step de-icing/anti-icing means that de-icing and anti-icing are carried out at the same time, using a mixture of de-icing/anti-icing fluid and water. Two-step de-icing/anti-icing means that de-icing and anti-icing are carried out in two separate steps. The aircraft is first de-iced using heated water only or a heated mixture of de-icing/anti-icing fluid and water. After completion of the de-icing operation a layer of a mixture of de-icing/anti-icing fluid and water, or of de-icing/anti-icing fluid only, is to be sprayed over the aircraft surfaces. The second step will be applied before the first step fluid freezes, typically within three minutes and, if necessary, area by area;		
d. when an aircraft is anti-iced and a longer HoT is needed/desired, the use of a less diluted Type II or Type IV fluid should be considered;		
e. all restrictions relative to OAT and fluid application (including, but not necessarily limited to, temperature and pressure) published by the fluid manufacturer and/or aircraft manufacturer, are followed and procedures, limitations and recommendations to prevent the formation of fluid residues are followed;		
f.during conditions conducive to aircraft icing on the ground or after de-icing and/or anti-icing, an aircraft is not dispatched for departure unless it has been given a contamination check or a post treatment check by a trained		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
and qualified person. This check should cover all treated surfaces of the aircraft and be performed from points offering sufficient accessibility to these parts. To ensure that there is no clear ice on suspect areas, it may be necessary to make a physical check (e.g. tactile);		
g. the required entry is made in the technical log;		
h. the pilot-in-command continually monitors the environmental situation after the performed treatment. Prior to take-off he/she performs a pre-take-off check, which is an assessment of whether the applied HoT is still appropriate. This pre-take-off check includes, but is not limited to, factors such as precipitation, wind and OAT;		
i. if any doubt exists as to whether a deposit may adversely affect the aircraft's performance and/or controllability characteristics, the pilot-in-command should arrange for a pre-take-off contamination check to be performed in order to verify that the aircraft's surfaces are free of contamination. Special methods and/or equipment may be necessary to perform this check, especially at night time or in extremely adverse weather conditions. If this check cannot be performed just before take-off, re-treatment should be applied;		
j. when re-treatment is necessary, any residue of the previous treatment should be removed and a completely new de-icing/anti-icing treatment should be applied; and		
k. when a Ground Ice Detection System (GIDS) is used to perform an aircraft surfaces check prior to and/or after a treatment, the use of GIDS by suitably trained personnel should be part of the procedure.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
3. Special operational considerations:		
a. When using thickened de-icing/anti-icing fluids, the operator should consider a two-step de-icing/anti-icing procedure, the first step preferably with hot water and/or un-thickened fluids;		
b. The use of de-icing/anti-icing fluids should be in accordance with the aircraft manufacturer's documentation. This is particularly true for thickened fluids to assure sufficient flow-off during take-off;		
c. The operator should comply with any type-specific operational requirement(s), such as an aircraft mass decrease and/or a take-off speed increase associated with a fluid application;		
d. The operator should take into account any flight handling procedures (stick force, rotation speed and rate, take-off speed, aircraft attitude etc.) laid down by the aircraft manufacturer when associated with a fluid application;		
e. The limitations or handling procedures resulting from subparagraphs c and/or d above should be part of the flight crew pre-take-off briefing.		
4. Communications:		
a. Before aircraft treatment. When the aircraft is to be treated with the flight crew on board, the flight and personnel involved in the operation should confirm the fluid to be used, the extent of treatment required and any aircraft type-specific procedure(s) to be used. Any other information needed to apply the HoT tables should be exchanged;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. Anti-icing code. The operator's procedures should include an anti-icing code, which indicates the treatment the aircraft has received. This code provides the flight crew with the minimum details necessary to estimate a HoT and confirms that the aircraft is free of contamination;		
c. After Treatment. Before reconfiguring or moving the aircraft, the flight crew should receive a confirmation from the personnel involved in the operation that all de-icing and/or anti-icing operations are complete and that all personnel and equipment are clear of the aircraft.		
5. Hold-over protection. The operator should publish in the operations manual, when required, the HoTs in the form of a table or a diagram, to account for the various types of ground icing conditions and the different types and concentrations of fluids used. However, the times of protection shown in these tables are to be used as guidelines only and are normally used in conjunction with the pre-take-off check.		
6. Training. The operator's initial and recurrent de-icing and/or anti-icing training programmes (including communication training) for flight crew and those of its personnel involved in the operation who are involved in de-icing and/or anti-icing should include additional training if any of the following is introduced: a. A new method, procedure and/or technique; b. A new type of fluid and/or equipment; c. A new type of aircraft.		
7. Contracting. When the operator contracts training on de-icing/anti-icing, the operator should ensure that the contractor complies with the operator's training/qualification procedures, together with any specific procedures in respect of:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. de-icing and/or anti-icing methods and procedures; b. fluids to be used, including precautions for storage and preparation for use; c. specific aircraft requirements (e.g. no-spray areas, propeller/engine de-icing, APU operation etc.); and d. checking and communications procedures.		
8. Special maintenance considerations:		
a. General. The operator should take proper account of the possible side-effects of fluid use. Such effects may include, but are not necessarily limited to, dried and/or re-hydrated residues, corrosion and the removal of lubricants;		
b. Special considerations regarding residues of dried fluids. The operator should establish procedures to prevent or detect and remove residues of dried fluid. If necessary the operator should establish appropriate inspection intervals based on the recommendations of the airframe manufacturers and/or the operator's own experience:		
i. Dried fluid residues. Dried fluid residues could occur when surfaces have been treated and the aircraft has not subsequently been flown and has not been subject to precipitation. The fluid may then have dried on the surfaces;		
ii. Re-hydrated fluid residues. Repetitive application of thickened de-icing/anti-icing fluids may lead to the subsequent formation/build up of a dried residue in aerodynamically quiet areas, such as cavities and gaps. This residue may re-hydrate if exposed to high humidity		

A: Rule	B: Summary of comments	C: Reason for change, remarks
conditions, precipitation, washing, etc., and increase to many times its original size/volume. This residue will freeze if exposed to conditions at or below zero degrees Celsius. This may cause moving parts, such as elevators, ailerons, and flap actuating mechanisms to stiffen or jam in-flight. Re-hydrated residues may also form on exterior surfaces, which can reduce lift, increase drag and stall speed. Re-hydrated residues may also collect inside control surface structures and cause clogging of drain holes or imbalances to flight controls. Residues may also collect in hidden areas, such as around flight control hinges, pulleys, grommets, on cables and in gaps;		
iii. Operators are strongly recommended to obtain information about the fluid dry-out and re-hydration characteristics from the fluid manufacturers and to select products with optimised characteristics;		
iv. Additional information should be obtained from fluid manufacturers for handling, storage, application and testing of their products.		
GM1 OPS.GEN.100 Ice and other contaminants		This GM is not transposed as it will be included in a leaflet, rather than as regulatory material.
TERMINOLOGY		
Terminology. Terms used in the context of de-icing/anti-icing should be given the following meaning:		
1. Anti-icing fluid. Anti-icing fluid includes, but is not limited to, the following: a. Type I fluid if heated to min 60 °C at the nozzle;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. Mixture of water and Type I fluid if heated to min 60 °C at the nozzle; c. Type II fluid; d. Mixture of water and Type II fluid; e. Type III fluid; f. Mixture of water and Type III fluid; g. Type IV fluid; h. Mixture of water and Type IV fluid.		
On uncontaminated aircraft surfaces Type II, III and IV anti-icing fluids are normally applied unheated.		
2. Clear ice. A coating of ice, generally clear and smooth, but with some air pockets. It forms on exposed objects, the temperatures of which are at, below or slightly above the freezing temperature, by the freezing of super-cooled drizzle, droplets or raindrops.		
3. Conditions conducive to aircraft icing on the ground (e.g. freezing fog, freezing precipitation, frost, rain or high humidity (on cold soaked wings), snow or mixed rain and snow).		
4. Contamination. Contamination, in this context, is understood as being all forms of frozen or semi-frozen moisture, such as frost, snow, slush or ice.		
5. Contamination check. Check of aircraft for contamination to establish the need for de-icing.		
6. De-icing fluid. Such fluid includes, but is not limited to, the following: a. Heated water;		

A: Rule	B: Summary of comments	C: Reason for change, remarks
b. Type I fluid; c. Mixture of water and Type I fluid; d. Type II fluid; e. Mixture of water and Type II fluid; f. Type III fluid; g. Mixture of water and Type III fluid; h. Type IV fluid; i. Mixture of water and Type IV fluid.		
De-icing fluid is normally applied heated to ensure maximum efficiency.		
7. De-icing/anti-icing. This is the combination of de-icing and anti-icing performed in either one or two steps.		
8. Ground Ice Detection System (GIDS). System used during aircraft ground operations to inform the personnel involved in the operation and/or the flight crew about the presence of frost, ice, snow or slush on the aircraft surfaces.		
9. Lowest Operational Use Temperature (LOUT). The lowest temperature at which a fluid has been tested and certified as acceptable in accordance with the appropriate aerodynamic acceptance test whilst still maintaining a freezing point buffer of not less than: a. 10°C for a Type I de-icing/anti-icing fluid; or b. 7°C for Type II, III or IV de-icing/anti-icing fluids.		
10. Post-treatment check. An external check of the aircraft after de-icing and/or anti-icing treatment accomplished from suitably elevated observation points		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
(e.g. from the de-icing/anti-icing equipment itself or other elevated equipment) to ensure that the aircraft is free from any frost, ice, snow, or slush.		
11. Pre-take-off check. An assessment normally performed from within the flight deck, to validate the applied HoT.		
12. Pre-take-off contamination check. A check of the treated surfaces for contamination, performed when the HoT has been exceeded or if any doubt exists regarding the continued effectiveness of the applied anti-icing treatment. It is normally accomplished externally, just before commencement of the take-off run.		
GM2 OPS.GEN.100 Ice and other contaminants		This GM is not transposed as it will be included in a leaflet, rather than as regulatory material.
ANTI-ICING CODES		
1. The following are examples of anti-icing codes:		
a. "Type I" at (start time) – To be used if anti-icing treatment has been performed with a Type I fluid;		
b. "Type II/100" at (start time) – To be used if anti-icing treatment has been performed with undiluted Type II fluid;		
c. "Type II/75" at (start time) – To be used if anti-icing treatment has been performed with a mixture of 75 % Type II fluid and 25 % water;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
d. “Type IV/50” at (start time) – To be used if anti-icing treatment has been performed with a mixture of 50 % Type IV fluid and 50 % water.		
2. When a two-step de-icing/anti-icing operation has been carried out, the anti-icing code should be determined by the second step fluid. Fluid brand names may be included, if desired.		
GM3 OPS.GEN.100 Ice and other contaminants		This GM is not transposed as it will be included in a leaflet, rather than as regulatory material.
DE-ICING/ANTI-ICING		
Further guidance material on this issue is given in the International Civil Aviation Organization (ICAO) Manual of Aircraft Ground De-icing/Anti-icing Operations (Doc 9640) (hereinafter referred to as the ICAO Manual of Aircraft Ground De-icing/Anti-icing Operations).		
1. General:		
a. Any deposit of frost, ice, snow or slush on the external surfaces of an aircraft may drastically affect its flying qualities because of reduced aerodynamic lift, increased drag, modified stability and control characteristics. Furthermore, freezing deposits may cause moving parts, such as elevators, ailerons, flap actuating mechanism etc., to jam and create a potentially hazardous condition. Propeller/engine/Auxiliary Power Unit (APU)/systems performance may deteriorate due to the presence of frozen contaminants to blades, intakes and components. Also, engine operation may be seriously affected by the ingestion of snow or ice,		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
thereby causing engine stall or compressor damage. In addition, ice/frost may form on certain external surfaces (e.g. wing upper and lower surfaces, etc.) due to the effects of cold fuel/structures, even in ambient temperatures well above zero degrees centigrade;		
b. Procedures established by the operator for de-icing and/or anti-icing are intended to ensure that the aircraft is clear of contamination so that degradation of aerodynamic characteristics or mechanical interference will not occur and, following anti-icing, to maintain the airframe in that condition during the appropriate HoT;		
c. Under certain meteorological conditions, de-icing and/or anti-icing procedures may be ineffective in provided sufficient protection for continued operations. Examples of these conditions are freezing rain, ice pellets and hail, heavy snow, high wind velocity, fast dropping OAT or any time when freezing precipitation with high water content is present. No HoT guidelines exist for these conditions;		
d. Material for establishing operational procedures can be found, for example, in: i. ICAO Annex 3, Meteorological Service for International Air Navigation; ii. ICAO Manual of Aircraft Ground De-icing/Anti-icing Operations; iii. ISO 11075 Aircraft -- De-icing/anti-icing fluids -- ISO type I ; iv. ISO 11076 Aircraft -- De-icing/anti-icing methods with fluids2; v. ISO 11077 Aerospace -- Self propelled de-icing/anti-icing vehicles -- Functional requirements2; vi. ISO 11078 Aircraft - De-icing/anti-icing fluids -- ISO types II, III and		

A: Rule	B: Summary of comments	C: Reason for change, remarks
IV2; vii. AEA ”Recommendations for de-icing/anti-icing of aircraft on the ground”; viii. AEA “Training recommendations and background information for de-icing/anti-icing of aircraft on the ground”; ix. EUROCAE ED-104A Minimum Operational Performance Specification for Ground Ice Detection Systems; x. SAE AS5681 Minimum Operational Performance Specification for Remote On-Ground Ice Detection Systems; xi. SAE ARP4737 Aircraft - De-icing/anti-icing methods; xii. SAE AMS1424 De-icing/anti-Icing Fluid, Aircraft, SAE Type I; xiii. SAE AMS1428 Fluid, Aircraft De-icing/anti-Icing, Non-Newtonian, (Pseudoplastic), SAE Types II, III, and IV; xiv. SAE ARP1971 Aircraft De-icing Vehicle - Self-Propelled, Large and Small Capacity; xv. SAE ARP5149 Training Programme Guidelines for De-icing/anti-icing of Aircraft on Ground; and xvi. ARP5646 Quality Program Guidelines for De-icing/anti-icing of Aircraft on the Ground.		
2. Fluids:		
a. Type I fluid: Due to its properties, Type I fluid forms a thin, liquid-wetting film on surfaces to which it is applied which, under certain weather conditions, gives a very limited HoT. With this type of fluid, increasing the concentration of fluid in the fluid/water mix does not provide any		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
extension in HoT;		
b. Type II and Type IV fluids contain thickeners which enable the fluid to form a thicker liquid-wetting film on surfaces to which it is applied. Generally, this fluid provides a longer HoT than Type I fluids in similar conditions. With this type of fluid, the HoT can be extended by increasing the ratio of fluid in the fluid/water mix;		
c. Type III fluid is a thickened fluid especially intended for use on aircrafts with low rotation speeds;		
d. Fluids used for de-icing and/or anti-icing should be acceptable to the operator and the aircraft manufacturer. These fluids normally conform to specifications such as SAE AMS1424, SAE AMS1428 or equivalent. Use of non-conforming fluids is not recommended due to their characteristics being unknown. The anti-icing and aerodynamic properties of thickened fluids may be seriously degraded by, for example, inappropriate storage, treatment, application, application equipment and age.		
3. Hold-over protection:		
a. Hold-over protection is achieved by a layer of anti-icing fluid remaining on and protecting aircraft surfaces for a period of time. With a one-step de-icing/anti-icing procedure, the HoT begins at the commencement of de-icing/anti-icing. With a two-step procedure, the HoT begins at the commencement of the second (anti-icing) step. The hold-over protection runs out: i. at the commencement of the take-off roll (due to aerodynamic shedding of fluid); or		

A: Rule	B: Summary of comments	C: Reason for change, remarks
ii. when frozen deposits start to form or accumulate on treated aircraft surfaces, thereby indicating the loss of effectiveness of the fluid;		
b. The duration of hold-over protection may vary depending on the influence of factors other than those specified in the HoT tables. Guidance should be provided by the operator to take account of such factors which may include: i. atmospheric conditions, e.g. exact type and rate of precipitation, wind direction and velocity, relative humidity and solar radiation; and ii. the aircraft and its surroundings, such as aircraft component inclination angle, contour and surface roughness, surface temperature, operation in close proximity to other aircrafts (jet or propeller blast) and ground equipment and structures;		
c. HoTs are not meant to imply that flight is safe in the prevailing conditions if the specified HoT has not been exceeded. Certain meteorological conditions, such as freezing drizzle or freezing rain, may be beyond the certification envelope of the aircraft;		
d. References to usable HoT tables may be found in the AEA "Recommendations for de-icing/anti-icing of aircraft on the ground".		
AMC OPS.GEN.110 Carriage of persons		This provision is not transposed as it is considered not to be applicable for Part-NCO
SEATS WHICH PERMIT DIRECT ACCESS TO EMERGENCY EXITS		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Persons who are allocated seats which permit direct access to emergency exits should appear to be reasonably fit, strong and able to assist the rapid evacuation of the aircraft in an emergency after an appropriate briefing by the crew.		
GM1 OPS.GEN.110 Carriage of persons		This provision is not transposed as it is not applicable to Part-NCO
GENERAL – COMMERCIAL OPERATIONS OTHER THAN COMMERCIAL AIR TRANSPORT		
The carriage of operational personnel indispensable to the performance of a task and carried on a flight taking place immediately before, during or immediately after and directly associated with a specialised task, is not considered Commercial Air Transport. Except for parachute operations, the number of persons carried should not exceed six, excluding crew members.		
GM OPS.GEN.110 Carriage of persons		
MEANING OF DIRECT ACCESS	IS (BA): “direct access” is not used in OPS.GEN.110 – request to delete this GM;	This GM is not transposed as the term “direct access” is no longer used in the rule.
‘Direct access’ means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.		
AMC1 OPS.GEN.115 Passenger briefing		This AMC is now a GM to NCO.OP.135

A: Rule	B: Summary of comments	C: Reason for change, remarks
SAFETY AND EMERGENCY EQUIPMENT		
Relevant safety and emergency equipment includes: 1. seat belts or harnesses; 2. life jackets; 3. oxygen equipment; 4. passenger emergency briefing cards; and 5. other emergency equipment.	1. MS: Request to upgrade to IR. 2. MS: request to delete "relevant" – some equipment may not be present depending on operations/aircraft.	1. The IR is considered to be sufficient and the elements are now in a GM for guidance. 2. Accepted.
AMC2 OPS.GEN.115 Passenger briefing		This provision is not transposed as it is beyond the scope of Part-NCO
MOTOR-POWERED AIRCRAFT – COMMERCIAL AIR TRANSPORT		
1. Before take-off, passengers should be given a demonstration on: a. the use of safety belts and/or safety harnesses, including how to fasten and unfasten safety belts and/or safety harnesses; b. the location and use of oxygen equipment, if required; c. the location and use of life jackets, if required; and d. for helicopters, the location and use of life-rafts and survival suits, if required.		
2. Passengers should be given a briefing, if applicable, on the following items:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
a. Before take-off: i. smoking regulations; ii. back of the seat to be in the upright position and tray table stowed before take-off and landing; iii. location of emergency exits; iv. extinguishing all smoking materials whenever oxygen is being used; v. location and use of floor proximity escape path markings; vi. stowage of hand baggage; vii. restrictions on the use of portable electronic devices; and viii. location and contents of the safety briefing card.		
b. After take-off: i. smoking regulations; ii. use of safety belts and/or safety harnesses; and iii. safety benefits of having seat belts fastened when seated irrespective of seat belt sign illumination.		
c. Before landing: i. smoking regulations; ii. use of safety belts and/or safety harnesses; iii. back of the seat to be in the upright position and tray table stowed before take-off and landing; iv. re-stowage of hand baggage; and		

A: Rule	B: Summary of comments	C: Reason for change, remarks
v. restrictions on the use of portable electronic devices.		
d. After landing: i. smoking regulations; and ii. use of safety belts and/or safety harnesses.		
3. The briefing may be conducted verbally, through the use of audio-visual equipment, or a combination of both.		
4. In addition to paragraph 3.a.6. of Annex IV to Regulation (EC) No 216/2008 (Essential requirements for air operations), passengers should also be instructed in the use and location of the required survival equipment.		
AMC3 OPS.GEN.115 Passenger briefing		This provision is not transposed as it is beyond the scope of Part-NCO
PASSENGER SAFETY TRAINING – MOTOR-POWERED AIRCRAFT WHERE NO CABIN CREW IS REQUIRED TO BE CARRIED – COMMERCIAL AIR TRANSPORT		
1. An operator should establish a training programme for passengers covering safety and emergency procedures, including AMC1 CAT OPS.GEN.115 1. and 2. for a given type of aircraft.		
2. Passengers who have been trained according to this programme and have flown on the aircraft type within the last 90 days may be carried on board without receiving a briefing/demonstration as required by AMC1 CAT OPS.GEN.115.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC4 OPS.GEN.115.B Passenger briefing		This AMC is now a GM to NCO.OP.135 Passenger briefing - Balloons
GENERAL - BALLOONS		
1. Before and after take-off and landing, passengers should be given a briefing, relevant to the phase of flight, on the following items:		
a. The use of safety and emergency equipment, such as: i. landing hand-holds; and ii. the items mentioned in AMC1 OPS.GEN.115, where applicable. b. Wearing of suitable clothing; c. Smoking regulations; d. Stowage of baggage; e. The importance to remain inside the basket at all times; f. The landing positions to be assumed to minimise the effect of the impact upon an emergency landing.		
2. Before take-off, passengers should be given a demonstration on AMC4 OPS.GEN.115.B 1.a. and 1.f.		
AMC OPS.GEN.120.B Securing of passenger cabin and galleys		This provision is not transposed as it is considered not to be applicable to Part-NCO

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
CARRIAGE AND STOWAGE OF HAND BAGGAGE - BALLOONS		
1. Only the following items should be considered for carriage as hand baggage during a balloon flight, provided they can be stowed so that they do not pose any hazard during flight or when carrying out emergency procedures: a. Camera equipment; b. Binoculars.		
2. In the few minutes preceding the landing and on indication by the pilot-in-command, passengers should stow cameras, binoculars, etc. preferably in their adapted bag/case. Passengers should not keep bulky objects attached around the neck by straps.		
AMC OPS.GEN.125 Portable electronic devices		This provision is not transposed as it is beyond the scope of Part-NCO
GENERAL – COMMERCIAL AIR TRANSPORT		
1. Scope:		
This AMC addresses Portable Electronic Devices (PEDs), which are not approved equipment permanently installed in the aircraft.		
Systems and equipment approved and installed in the aircraft will need to satisfy applicable certification requirements and related operating restrictions. Similarly, this AMC does not apply to permitted medical equipment which meets applicable requirements.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. Restrictions on use of PEDs by passengers:		
If an operator permits passengers to use PEDs on board its aircraft, procedures should be in place to control their use. It is the responsibility of the operator to ensure that all aircraft crew and ground agents are trained to enforce the restrictions on this equipment consistent with these procedures. These procedures should ensure the following:		
a. Cell phones and other transmitting devices are not used and are switched off from the time at the start of the flight when the passengers have boarded and all doors have been closed until the end of the flight when a passenger door has been opened.		
The pilot-in-command may permit the use of cell phones when the aircraft is stationary during prolonged departure delays provided that sufficient time is available to check the cabin before the flight proceeds. Similarly, after landing, the pilot-in-command may authorise cell phone use in the event of a prolonged delay for a parking/gate position (even though doors are closed and the engines are running).		
This paragraph does not apply to a PED where the sole means of transmission is identified as a low power transmitting device compliant with the “Bluetooth” Standard.		
This paragraph may not apply to systems installed in the aircraft for the use of cell phones in-flight;		
b. PEDs that are not transmitting devices are disconnected from any in-seat electrical power supply, switched off and stowed during taxiing, take-off, approach and landing, and during abnormal or emergency conditions.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
This restriction does not apply to permitted medical equipment.		
This restriction applies to equipment carried on by the passenger or loaned to the passenger by the aircraft operator.		
In the case of a PED where the sole means of transmission is identified as a low power “Bluetooth” transmitter, it may be considered to be a non-intentional transmitter and may be used during non-critical phases of flight as allowed by this paragraph;		
c. Necessary announcements are made both prior to and during boarding of the aircraft so that passengers may be reminded of the restrictions applicable to cell phones and other transmitting devices before fastening their seat belts;		
d. Cabin crew monitor passenger use of equipment during the flight and, where necessary, ensure suspect equipment is switched off. The cabin crew should be particularly alert to passenger misuse of equipment which has a built-in cell phone. Furthermore, if turbulence is encountered and the crew determine that loose items could present a hazard, instructions will be given that these should be stowed;		
e. Appropriate flight crew to cabin crew co-ordination exists to deal with interference or other PED safety related problems;		
f. Crew are aware of the proper means to switch off in-seat power supplies used for PEDs;		
g. Check-in and ground handling staff, as well as flight and cabin crews, are aware of the safety issues and restrictions concerning PEDs;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
h. Occurrences are reported to the responsible authority of suspected or confirmed interference which has potential safety implications. Where possible, to assist follow-up technical investigation, reports should describe the offending device, identify the brand name and model number, its location in the aircraft at the time of the occurrence, interference symptoms, and the results of actions taken by the crew.		
The co-operation of the device owner should be sought by obtaining contact details.		
3. Restrictions on the use of PEDs by cabin crew:		
PEDs provided to assist cabin crew in their duties should be switched off and stowed during taxiing, take-off, approach and landing, unless tests have been performed which confirm that these PEDs are not a source of unacceptable interference or other safety hazard.		
Cabin crew should observe the same restrictions for cell phone usage as applicable to passengers.		
4. Restrictions on use of PEDs by flight crew:		
PEDs provided to assist the flight crew in their duties will need to be used in compliance with the procedures and conditions stated in the operations manual of the aircraft operator. Such equipment will need to be switched off and stowed during all phases of flight unless: a. tests have been performed which confirm that these PEDs are not a source of unacceptable interference or distraction;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. the PEDs do not pose a loose-item risk or other hazard, and c. the conditions for their use in-flight are stated in the operations manual.		
Flight and cabin crews should avoid using cell phones and other transmitting devices during critical pre-flight procedures (e.g. when loading route information into navigation systems or when monitoring fuel loading). Otherwise, flight crews and other persons involved in dispatching the aircraft will need to observe the same restrictions as passengers.		
This restriction does not preclude use of a cell phone by the flight crew to deal with an emergency although reliance should not be predicated on a cell phone for this purpose.		
5. Other precautions: a. Except for items which do not pose a loose item risk, PEDs, together with any accessories such as spare batteries or cables, carried on board an aircraft for crew or passenger use, should be provided with suitable stowage facilities. b. Where in-seat electrical power supplies are available for passenger use, information cards giving safety instructions should be provided.		
GM OPS.GEN.125 Portable electronic devices		The corresponding GM1 has been – compared to the GM in the NPA version – shortened and limited to explanatory information about the reasons for interferences and recommendations to the operator. The newly proposed GM does not

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		anymore contain out-dated information. A new AMC / GM on portable electronic devices will be developed in a forthcoming rulemaking task.
GENERAL - COMMERCIAL AIR TRANSPORT		
1. General:		
The use of PEDs on board aircraft by crew members and passengers presents a source of uncontrolled electro-magnetic radiation with the risk of adverse interference effects to aircraft systems. Given that a civil aircraft flying at high altitude and high speed in busy airspace is in an obviously hazardous environment, and given that many of the onboard systems are safety devices intended to reduce the risks of that environment to tolerable levels, then anything that degrades the effectiveness of those systems will increase the exposure of the aircraft to the hazards. Consequently, the aircraft operator needs to take measures that will reduce the risks to acceptable limits.		
PEDs fall into two main categories; non-intentional transmitters and intentional transmitters. The first category includes, but is not limited to, computing equipment, cameras, radio receivers, audio and video reproducers, electronic games and toys, together with portable, non-transmitting devices intended to assist crew members in their duties. Intentional transmitters are transmitting devices such as remote control equipment (which may include some toys), two-way radios, cell phones and satellite phones. In periods between transmissions, an intentional transmitter may radiate interference as a non-intentional transmitter.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. Non-intentional transmitting PEDs:		
PEDs that are non-intentional transmitters will radiate emissions from internal oscillators and processor clocks, some types of motor, and power supply converters. The radio frequencies involved may fall in the bands used for aeronautical radio services, and emission levels may be sufficient to affect aircraft radio receivers through their antennas. Use of a PED on the flight deck presents a particular risk to those navigation systems having antenna systems located in the radome.		
3. Intentional transmitting PEDs:		
PEDs that are intentional transmitters may induce interference directly into aircraft equipment, wiring or components with sufficient power to adversely affect the proper functioning of aircraft systems. Many aircraft have non-metallic floors and internal doors that present no barrier to prevent the transmission from penetrating to the avionics equipment bays and to the flight deck. Tests have shown that demonstrated susceptibility levels of aircraft equipment, particularly equipment qualified to earlier standards can easily be exceeded.		
a. Cell phones:		
The rapid growth in cell phone usage has presented the most significant risk to aircraft safety from PED interference. Cell phones are both non-intentional and intentional transmitting PEDs, operating on spot channel frequencies in the bands of approximately 415 MHz, 900 MHz or 1800 MHz. (Some regions of the world use slightly different bands). Most use digital modulation but analogue types are still in use. Their maximum transmitted power is in the range of typically one to five watts. The actual power transmitted at a particular time is controlled by the cellular network and may vary from 20 mW to maximum rated power of the cell phone depending on quality of the link between the cell phone and the network. Even in standby mode, a		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
cell phone transmits periodically to register and re-register with the cellular network and to maintain contact with a base station.		
The transmitted power and precise radio frequency of an operating cell phone is dependent on the traffic on the network, the distance of the cell phone from the nearest base station, and any obstacles or attenuation in the signal path. An aircraft on the ground at an airport is likely to be in close proximity to a base station resulting in a strong link between that station and an onboard cell phone. Under these circumstances, the cell phone would seek a free channel in the assigned communication band and its output power would be set by the network to a low level sufficient to maintain the link. Interference levels would, as a result, be low and probably harmless but this cannot be guaranteed. Closing of the aircraft doors increases attenuation in the signal path, and as the aircraft increases its distance from the base station, the output power setting of the cell phone is increased, eventually to its maximum rating. The risk of interference is then at its greatest. At altitude, the cell phone will transmit periodically attempting to register with the cellular network. The quality of the link is likely to be poor and the cell phone will radiate maximum power in these circumstances. Furthermore, since it is likely to be in line-of-sight range of multiple base stations, some degradation of the network operation may result and actual communication may not be possible.		
The effect of this type of functioning is that, when the aircraft is on the ground near a base station, the interference risk can be low but not negligible, and it will increase as the aircraft taxies and then climbs away from the network base stations.		
The simultaneous use in an aircraft of several cell phones will result in transmissions at different radio frequencies leading to a more complex interference environment.		
b. Private Mobile Radios (PMRs):		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Private mobile radios conforming to the PMR 446 standard are now available to the general public for use as two-way radios without the need of a licence. These radios operate in the 446 MHz band and with sufficient power when transmitting to present an unacceptable interference risk in aircraft. Similarly, other types of two-way radios including those operating in the citizens' band present an unacceptable interference risk.		
c. Wireless Area Networks:		
Wireless Local Area Network (WLAN) is an evolving technology offering wireless data communications, replacing Ethernet cables, for computing information exchange with a range of about 100 metres.		
Standards are being developed for WLAN such as the IEEE 802.11 and some future PEDs are likely to have this capability. WLAN uses radio transmissions of low power in the 2.4 GHz band with consideration being given to use of the 5 GHz band. WLAN transmissions do not need to be licensed.		
Similarly, Wireless Personal Area Network (WPAN) is an emerging technology offering wireless data and audio communications, with a range of about 10 metres. "Bluetooth" is the name given to one example of a WPAN technology. WPAN also uses unlicensed, very low power radio transmissions in the 2.4 GHz band. Bluetooth will be incorporated into many classes of PED and passengers are likely to bring them on board aircraft expecting to use such devices during the flight. Studies have been completed which show that the interference risk in aircraft from PEDs with a Bluetooth transmitter is sufficiently low to permit their use during non-critical phases of flight i.e. Bluetooth devices need be subject only to the general restrictions applied to non-intentional transmitters.		
4. In-seat Power Supplies:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Many aircraft now offer an electrical supply at each passenger seat primarily for the purpose of operating laptop computers. These computers have safety devices to protect against over-charging of their re-chargeable batteries. Other types of PED might not have such protection and might be fitted (possibly incorrectly) with standard, non-chargeable batteries. Overcharging of batteries, or attempts to charge standard batteries, could cause them to fail in a dangerous manner with fire, smoke and fumes risks. It is the responsibility of the aircraft operator to ensure that PEDs connected to the in-seat supply do not present any additional hazard to persons on board the aircraft or to the aircraft itself. Safeguards include issuing passengers with information cards giving safety instructions for using the in-seat supplies and the restrictions for charging or handling batteries. The availability of a means to terminate and isolate such electrical supplies together with appropriate cabin crew procedures will be required as a condition of approval and use of in-seat power supplies.		
5. Interference levels and effects:		
a. Aircraft Equipment Qualification:		
To qualify for approval, equipment to be installed in aircraft has to demonstrate that it is not susceptible to prescribed levels of radiated interference irrespective of the source, and that it will not radiate unacceptable interference. The levels were originally set to ensure equipment could co-exist in the aircraft without mutual interference. For example, for an equipment susceptibility test prior to 1985, the maximum field strength of radiated interference was set at only 0.1 volts per metre. The risk of an uncontrolled interference source within the aircraft was not addressed by earlier standards. Recognising the inadequacy of the earlier standards, the tests have become progressively more severe primarily to protect against external threats such as broadcast transmitters, radars, and satellite uplinks. For critical equipment, the susceptibility tests now involve field strengths of 200 volts per metre or more.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
However, even the latest standards permit a low level of immunity for some equipment. Many aircraft, including newly manufactured aircraft, still have systems and equipment qualified to earlier standards.		
b. Interference Levels:		
Studies have confirmed that the levels and radio frequencies of radiated interference from non-intentional transmitters are such that aircraft radio receivers can be affected. Over the years, many reports have been received by the authorities concerning such interference.		
For an intentional transmitter such as a cell phone, an obvious risk is recognised even though the cell phone is not transmitting in the aeronautical frequency band. Applying fundamental principles, the maximum field strength E in volts per metre of the transmission at a distance D from a cell phone transmitting P Watts of radio frequency power in a free, unobstructed space, can be estimated using the equation;		
E = 7 √P divided by the distance D		
(The strengths of electric and magnetic fields that exist in close proximity to the transmitting antenna (i.e. distances less than one wavelength and known as the near field) are not considered in this simple explanation.)		
Thus, for a two watt cell phone, the maximum field strength in free space at one metre distance is approximately 10 volts per metre, and at 100 metres distance, approximately 0.1 volts per metre.		
However, in the confines of a metallic aircraft fuselage, complex propagation paths arise due to reflections from the metallic structure which can lead to signal cancellation or re-enforcement at different locations in the aircraft. Although the free space equation does not give reliable results under these conditions, tests have		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
shown that the field strength of the interfering cell phone transmission, at maximum power, will exceed by a significant margin the levels used in susceptibility tests for avionic equipment qualified to earlier standards. Similarly, these tests have shown that interference levels would vary by relatively small changes of location of a cell phone and that persons obstructing the transmission path reduce the interference.		
c. Effects:		
Reports of interference are increasing but it has been difficult to positively confirm in all cases that a PED has been the actual cause of a problem. This is due to the difficulty in replicating the conditions that existed at the time of the occurrence due to the multiple factors involved (e.g. geographical location of the aircraft, system operating modes, interference frequency and intensity, source location in the aircraft, and path attenuation). Cell phones have been positively identified as the cause of degraded communications and of false baggage compartment smoke warnings. Cell phones have been strongly implicated in other spurious cockpit/pilot compartment warnings, corrupted instrument displays, and pressurisation system malfunctions.		
Although the total number of reports is relatively low considering the aircraft flight hours involved, the potential severity of the effects of interference means that the problem cannot be ignored.		
As a general conclusion, interference can result in: i. malfunctioning of multiple systems; ii. false warnings of unsafe conditions; iii. increased work load for the flight crew and the possibility of invoking emergency drills; iv. reduced crew confidence in protection systems which may then be ignored		

A: Rule	B: Summary of comments	C: Reason for change, remarks
during a genuine warning; v. distraction of the flight crew from their normal duties; vi. noise in the flight crew headphones; and/or vii. hidden failures of safety systems with loss of protection.		
6. Recommendations:		
a. Aircraft operators should consider installing detectors in their aircraft, which together with suitable procedures can assist the cabin crew to detect unauthorised transmissions from commonly used types of cell phone.		
b. Aircraft operators should seek the assistance of airport operators for the display of safety notices at aircraft boarding points reminding passengers to switch off cell phones and other transmitting devices.		
AMC OPS.GEN.135.A Taxiing of aeroplanes		This AMC is not transposed as the content is already addressed in the IR.
QUALIFIED PERSONNEL		
A qualified person is either a flight crew member or a person designated by the operator that is: 1. competent to taxi; 2. qualified to use the radio telephone if radio communications are required; 3. has received instruction from a competent person on operational procedures, aerodrome layout, and where appropriate, information on routes, signs, marking, lights, ATC signals and instructions, phraseology and procedures; and		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
4. able to conform to the operational standards required for safe aircraft movement at the aerodrome.		
GM OPS.GEN.140.H Rotor engagement		
QUALIFIED PERSONNEL		
The intent of this paragraph is to ensure that the pilot remains at the controls when the rotors are turning under power whilst not preventing ground runs being conducted by qualified personnel other than flight crew. The operator should ensure that the qualification of personnel, other than flight crew, which are authorised to conduct ground runs, is described in the appropriate manual.		
AMC1 OPS.GEN.145 Use of aerodromes/operating sites		This AMC is not transposed as it is considered not to be applicable to Part-NCO
USE OF OPERATING SITES		
1. The pilot-in-command should have available from a pre-survey or other publication, for each operating site to be used, diagrams or ground and aerial photographs, depiction (pictorial) and description of: a. the overall dimensions of the operating site; b. location and height of relevant obstacles to approach and take-off profiles, and in the manoeuvring area; c. approach and take-off flight paths; d. surface condition (blowing dust/snow/sand);		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
e. provision of control of third parties on the ground (if applicable); f. lighting (if applicable); g. procedure for activating operating site in accordance with national regulations (if applicable); h. other useful information, for example appropriate Air Traffic Services (ATS) agency and frequency; and i. site suitability with reference to available aircraft performance.		
2. For sites which are not pre-surveyed, the pilot-in-command should make, from the air and, in the case of balloons, also prior to take-off from the ground, a judgement on the suitability of a site. At least AMC OPS.GEN.145 1.a. to 1.e. inclusive and 1.i. should be considered.		
AMC2 OPS.GEN.145 Use of aerodromes/operating sites		This AMC has been taken for balloons, it was amended and put into a GM in GM1-NCO.OP.100
USE OF OPERATING SITES – COMMERCIAL AIR TRANSPORT		
1. When defining adequate operating sites for use for the type(s) of aircraft and operation(s) concerned, an operator should take account of the following:		
a. An adequate site is a site which the operator considers to be satisfactory, taking account of the applicable performance requirements and site characteristics;		
b. The operator should have in place a procedure for the survey of sites by a competent person. Such a procedure should take account for possible		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
changes to the site characteristics which may have taken place since last surveyed;		
c. Sites which are pre-surveyed should be specifically indicated in the operator's operations manual. The operations manual should contain diagrams or/and ground and aerial photographs, and depiction (pictorial) and description of: i. the overall dimensions of the site; ii. location and height of relevant obstacles to approach and take-off profiles, and in the manoeuvring area; iii. approach and take-off flight paths; iv. surface condition (blowing dust/snow/sand); v. adequacy with reference to aircraft performance; vi. provision of control of third parties on the ground (if applicable); vii. procedure for activating site with land owner or controlling authority; viii. other useful information, for example appropriate Air Traffic Services (ATS) agency and frequency; and ix. lighting (if applicable).		
2. For sites which are not pre-surveyed, the operator should have in place a procedure which enables the pilot to make, from the air or, in the case of balloons, also prior to take-off, from the ground, a judgement on the suitability of a site. As a minimum, the items listed in 1.c.i. to vi. inclusive, should be considered.		
3. Operations to non pre-surveyed sites by night should not be conducted, unless the operator is approved to do so in accordance with Part OPS.SPA.001.HEMS.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
AMC3 OPS.GEN.145.H Use of aerodromes/operating sites		This AMC is not transposed as it is beyond the scope of Part-NCO
HELICOPTERS – USE OF HELIDECKS – COMMERCIAL AIR TRANSPORT		
1. The content of the operations manual relating to the use of aerodromes should contain the listing of helideck limitations in a Helideck Limitations List (HLL) and a pictorial representation (template) of each helideck showing all necessary information of a permanent nature. The HLL will show, and be amended as necessary to indicate, the most recent status of each helideck concerning non-compliance with International Civil Aviation Organization (ICAO) Annex 14 Volume 2, limitations, warnings, cautions or other comments of operational importance. An example of a typical template is shown in figure 1.		
2. In order to ensure that the safety of flights is not compromised, the operator should obtain relevant information and details for compilation of the HLL, and the pictorial representation, from the owner/operator of the helideck.		
3. When listing helidecks, if more than one name of the helideck exists, the most common name should be used; other names should also be included. After renaming a helideck, the old name should be included in the HLL for the ensuing six months.		
4. All helideck limitations should be included in the HLL. Helidecks without limitations should also be listed. With complex installations and combinations of installations (e.g. co-locations), a separate listing in the HLL, accompanied by diagrams where necessary, may be required.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
5. Each helideck should be assessed (based on limitations, warnings, cautions or comments) to determine its acceptability with respect to the following which, as a minimum, should cover the factors listed below:		
a. The physical characteristics of the helideck;		
b. The preservation of obstacle protected surfaces is the most basic safeguard for all flights. These surfaces are: i. the minimum 210° Obstacle Free Surface (OFS); ii. the 150° Limited Obstacle Surface (LOS); and iii. the minimum 180° falling "5:1" - gradient with respect to significant obstacles. If this is infringed or if an adjacent installation or vessel infringes the obstacle clearance surfaces or criteria related to a helideck, an assessment should be made to determine any possible negative effect which may lead to operating restrictions;		
c. Marking and lighting: i. Adequate perimeter lighting; ii. Adequate floodlighting; iii. Status lights (note: for night and day operations e.g. Aldis Lamp); iv. Dominant obstacle paint schemes and lighting; v. Helideck markings; vi. General installation lighting levels. Any limited authorisation in this respect should be annotated "daylight only operations" on the HLL;		

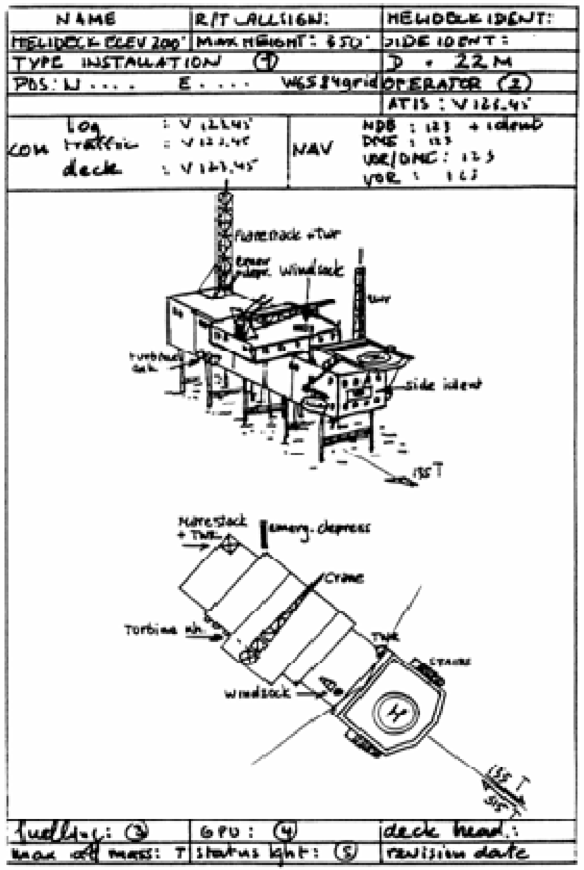
A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
d. Deck surface: i. Surface friction; ii. Helideck net; iii. Drainage system; iv. Deck edge netting; v. Tie down system; vi. Cleaning of all contaminants;		
e. Environment: i. Foreign Object Damage; ii. Physical turbulence generators; iii. Bird control, iv. Air quality degradation due to exhaust emissions, hot gas vents or cold gas vents; v. Adjacent helidecks may need to be included in air quality assessment;		
f.Rescue and fire fighting: i. Primary and complementary media types, quantities, capacity and systems personal protective equipment and clothing, breathing apparatus; ii. Crash box;		
g. Communications & navigation:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
i. Aeronautical Radio(s); ii. R/T call sign to match helideck name and side identification which should be simple and unique; iii. NDB or equivalent (as appropriate); iv. Radio log; v. Light signal (e.g. Aldis Lamp);		
h. Fuelling facilities; i. Additional operational and handling equipment: i. Windsock; ii. Wind recording; iii. Deck motion recording and reporting where applicable; iv. Passenger briefing system; v. Chocks; vi. Tie downs; vii. Weighing scales.		
j.Personnel: Trained helideck staff (e.g. Helicopter Landing Officer/Helicopter Deck Assistant and fire fighters etc.).		
6. For helidecks about which there is incomplete information, 'limited' use information may be issued by the operator prior to the first helicopter visit. During subsequent operations and before fully used, information should be gathered and the following procedures should apply:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. Pictorial (static) representation: i. Templates (see Figure 1) should be available, to be filled out during flight preparation on the basis of the information given by the helideck owner/operator and flight crew observations; ii. Where possible, suitably annotated photographs may be used until the HLL and template has been completed; iii. Until the HLL and template has been completed, operational restrictions (e.g. performance, routing etc.) may be applied; iv. Any previous inspection reports should be obtained by the operator; v. An inspection of the helideck should be carried out to verify the content of the completed HLL and template, following which the helideck may be fully used for operations;		
b. With reference to the above, the HLL should contain at least the following: i. HLL revision date and number; ii. Generic list of helideck motion limitations; iii. Name of helideck; iv. 'D'-value of the helideck; v. Limitations, warnings, cautions and comments;		
c. The template should contain at least the following (see example below):		
i. Installation/Vessel name; ii. R/T call sign;		

A: Rule	B: Summary of comments	C: Reason for change, remarks
iii. Helideck Identification Marking; iv. Side Panel Identification Marking; v. Helideck elevation; vi. Maximum installation/vessel height; vii. 'D' Value;		
viii. Type of installation/vessel; A. Fixed manned B. Fixed unmanned C. Ship type (e.g. diving support vessel) D. Semi-submersible E. Jack-up		
ix. Name of owner/operator; x. Geographical position; xi. Com/Nav Frequencies and Ident;		
xii. General drawing preferably looking into the helideck with annotations showing location of derrick, masts, cranes, flare stack, turbine and gas exhausts, side identification panels, windsock etc.;		
xiii. Plan view drawing, chart orientation from the general drawing, to show the above. The plan view will also show the 210 degree bisector orientation in degrees true;		
xiv. Type of fuelling:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
A. Pressure and Gravity B. Pressure only C. Gravity only D. None		
xv. Type and nature of fire fighting equipment; xvi. Availability of GPU; xvii. Deck heading; xviii. Maximum allowable mass; xix. Status light (Yes/No); xx. Revision date of publication.		
Figure 1 – Helideck Template		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
 1. Fixed manned; fixed unmanned; small ship; large ship; semi-submersible; jack-up. 2. NAM, AMOCO etc. 3. Pressure/gravity; pressure; gravity; no. 4. Yes; no; 28V DC. 5. Yes; no.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC4 OPS.GEN.145 Use of aerodromes/operating sites		This AMC is not transposed as it is beyond the scope of Part-NCO
USE OF OPERATING SITES – COMMERCIAL OPERATIONS OTHER THAN COMMERCIAL AIR TRANSPORT		
When using operating sites, the operator should take account of AMC2 OPS.GEN.145.		
GM1 OPS.GEN.145 Use of aerodromes/operating sites		This GM is not transposed as the content is addressed in Annex I – Definitions.
ADEQUATE AERODROME		
At the expected time of use, the adequate aerodrome should be available and equipped with necessary ancillary services such as ATS, sufficient lighting, communications, weather reporting, navaids and emergency services.		
GM2 OPS.GEN.145 Use of aerodromes/operating sites		This GM is not transposed as it is considered not to be relevant for Part-NCO
PUBLICATIONS		
'Other publication' mentioned in AMC OPS.GEN 145 refers to publication means, such as: 1. (Military) Aeronautical Information Publication;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. Visual Flight Rules (VFR) Guides; 3. commercially available aeronautical publications (e.g. Jeppesen, AERAD, Fugawi); and 4. non-commercially available publications.		
GM3 OPS.GEN.145 Use of aerodromes/operating sites		This GM is not transposed as it is beyond the scope of Part-NCO
GUIDANCE DOCUMENTS – COMMERCIAL AIR TRANSPORT		
Guidance on standards and criteria for the design of aerodromes are contained in: 1. ICAO Annex 14 Aerodromes ; and 2. ICAO Heliport Manual (Doc 9261-AN/903).		
AMC OPS.GEN.147(c)(1) Visual Flight Rules (VFR) Operating minima		This AMC is not transposed. The related requirement is deleted because this subject is covered by Part-SERA
ADVISORY SPEEDS IN REDUCED VISIBILITY		
When flight with a visibility of less than 5 km is permitted, the forward visibility should not be less than the distance travelled by the helicopter in 30 seconds so as to allow adequate opportunity to see and avoid obstacles (see table below).		

A: Rule	B: Summary of comments	C: Reason for change, remarks
Visibility (m) / **Advisory speed (kts)** 800 / 50 1 500 / 100 2 000 / 120		
AMC1 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima		
SPECIFYING AERODROME MINIMA		
An acceptable method of specifying aerodrome operating minima may be through the use of commercially available information.	1. Request to clarify if looking at a Jeppesen approach plate is sufficient.	1. This provision was changed into a GM and the comment is therefore no longer relevant.
AMC2 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima		Reviewed by Review Group 04 and agreed to delete.
AERODROME MINIMA - GENERAL		
1. The aerodrome operating minima should not be lower than the values given in AMC3 OPS.GEN.150 3. and AMC4 OPS.GEN.150.		
2. All approaches should be flown as Stabilised Approaches (SAp). Different procedures may be used for a particular approach to a particular runway.	1. It is not clear that sections 2 and 3 of AMC2 OPS.GEN.150 can stand without a requirement.	The text to which the comment refers to has not been transposed.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
3. All non-precision approaches should be flown using the Continuous Descent Final Approach (CDFA) technique. Different procedures may be used for a particular approach to a particular runway. When calculating the minima in accordance with AMC4 OPS.GEN.150, the applicable minimum Runway Visual Range (RVR) should be increased by 200 metres (m) for Category A/B aeroplanes and by 400 m for Category C/D aeroplanes for approaches not flown using the CDFA technique, provided the resulting RVR/Converted Meteorological Visibility (CMV) value does not exceed 5000 m. SAp or CDFA should be used as soon as facilities are improved to allow these techniques.	1. Request that the RVR is not increased to 200/400 m when CDFA is not applied. No safety case for the increase.	The text to which the comment refers to has not been transposed.
AMC3 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima		
AERODROME MINIMA – TAKE-OFF MINIMA	1. Upgrade this AMC to an IR. 2. Move certain AMCs to Part SPA.	1. After assessment the Agency proposes to keep this content as AMC. 2. Accepted. Low visibility take-off (LVTO) minima have been moved to SPA.LVO.
1. General:	1. (GA): Non-commercial operations should be allowed to use LVTO minima without LVTO approval.	1. Not accepted in the interest of safety
a. Take-off minima should be expressed as visibility or RVR limits, taking into account all relevant factors for each aerodrome planned to be used and aircraft characteristics. Depending on the obstacle situation on departure and/or forced landing, additional conditions (e.g. ceiling) should be	1. Edit to align with the intention of EU/JAR-OPS - last sentence should be replaced with: "Depending on the obstacle situation on	1. EU-OPS is not applicable to Part-NCO. However, the comment is taken into consideration.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
specified;	departure and/or forced landing, where there is a specific need to see and avoid obstacles on departure and/or for a forced landing, additional conditions (e.g. ceiling) should be specified".	
b. The pilot-in-command should not commence take-off unless the weather conditions at the aerodrome of departure are equal to or better than applicable minima for landing at that aerodrome unless a suitable take-off alternate aerodrome is available;	1. Request to clarify if non-commercial helicopter operations require a take-off alternate aerodrome, as this is not required in OPS.GEN.155 – request to align AMC and IR material consistently. 2. Request to add "… unless a suitable take-off alternate aerodrome/operating site…" to cater for helicopter operations.	1&2. A take-off alternate aerodrome is not required for NCO helicopter operations. However, to comply with this rule, the PIC should not commence a take-off unless the weather conditions at the aerodrome of departure are equal to or better than applicable minima for landing at that aerodrome.
c. When the reported meteorological visibility is below that required for take-off and RVR is not reported, a take-off should only be commenced if the pilot-in-command can determine that the visibility along the take-off runway/area is equal to or better than the required minimum;		
d. When no reported meteorological visibility or RVR is available, a take-off should only be commenced if the pilot-in-command can determine that the RVR/visibility along the take-off runway/area is equal to or better than the	1. Pilot assessment of RVR: text clarification required concerning required RVR for initial take-off run can be	1. Rule text is considered to be sufficiently clear.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
required minimum.	replaced by pilot assessment.	
2. Visual reference: a. The take-off minima should be selected to ensure sufficient guidance to control the aircraft in the event of both a discontinued take-off in adverse circumstances and a continued take-off after failure of the critical power unit; b. For night operations, ground lighting should be available to illuminate the runway/Final Approach and Take-Off Area (FATO) and any obstacles.	1. Suggestion to replace "discontinued take-off" with "rejected take-off".	1. Accepted, text revised accordingly.
3. Required RVR/visibility:		This paragraph is not transposed as it is considered not to be relevant for NCO operators.
a. Aeroplanes:		
i. For multi-engined aeroplanes whose performance is such that, in the event of a critical power unit failure at any point during take-off, the aeroplane can either stop or continue the take-off to a height of 1 500 ft above the aerodrome while clearing obstacles by the required margins, the take-off minima specified by an operator should be expressed as RVR/visibility values not lower than those given in Table 1a, except as provided in 3.a.iv.		
Table 1a of AMC3 OPS.GEN.150 RVR/visibility for take-off		This table is not transposed as it is not considered applicable to

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		NCO operations.
(table below)		

TAKE-OFF RVR/VISIBILITY

Facilities	RVR/Visibility (Note 2)			
	Category A, B and C aeroplanes		Category D aeroplanes	
	Without LVTO approval in accordance with OPS.SPA.001.LVO	With LVTO approval in accordance with OPS.SPA.001.LVO	Without LVTO approval in accordance with OPS.SPA.001.LVO	With LVTO approval in accordance with OPS.SPA.001.LVO
Nil (Day only)	500 m	500 m	500 m	500 m
Runway edge lighting and/or centreline lighting	400 m (Note 1)	250 m (Note 1)	400 m (Note 1)	300 m (Note 1)
Runway edge and centreline lighting	400 m	200 m	400 m	250 m
Runway edge and centreline lighting	400 m	150 m (Note 3)	400 m	200 m (Note 3)

A: Rule					B: Summary of comments	C: Reason for change, remarks
and multiple RVR information						
Note 1: For night operations at least runway edge and runway end lights are required. Note 2: The reported RVR/visibility value representative of the initial part of the take-off run can be replaced by pilot assessment.						
Note 3: The required RVR value should be achieved for all of the relevant RVR reporting points with the exception given in Note 2 of Table 1a.						
ii. For multi-engined aeroplanes whose performance is such that they cannot comply with the performance conditions in 3.a.i., in the event of a critical power unit failure, there may be a need to re-land immediately and to see and avoid obstacles in the take-off area. Such aeroplanes may be operated to the following take-off minima provided they are able to comply with the applicable obstacle clearance criteria, assuming engine failure at the height specified. The take-off minima specified by an operator must be based upon the height from which the One-Engine-Inoperative (OEI) net take-off flight path can be constructed. The RVR minima used may not be lower than either of the values given in Table 1a or 2a, unless an approval in accordance with OPS.SPA.001.LVO is obtained;						
Table 2 a of AM C3 OPS.GEN.150 Ass umed engi ne failur e h eight a bove the runway versus RVR/visibility						This table is not transposed as it is not considered applicable to NCO operations.

A: Rule	B: Summary of comments	C: Reason for change, remarks

TAKE-OFF RVR/VISIBILITY

Assumed engine failure height above the take-off runway	**RVR/Visibility (Note 2)**	
	Without LVTO approval in accordance with OPS.SPA.001.LVO	**With LVTO approval in accordance with OPS.SPA.001.LVO**
< 50 ft	400 m	200 m
51 – 100 ft	400 m	300 m
101 – 150 ft	400 m	400 m
151 – 200 ft	500 m	500 m
201 – 300 ft	1 000 m	1 000 m
> 300 ft	1 500 m (Note 1)	1 500 m (Note 1)

Note 1: 1 500 m is also applicable if no positive take-off flight path can be constructed.

Note 2: The reported RVR/visibility value representative of the initial part of the take-off run can be replaced by pilot assessment.

iii. When reported RVR or meteorological visibility is not available, the pilot-in-command should not commence take-off unless he/she can determine that the actual conditions meet the applicable take-off

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
minima.		
iv. Operators approved in accordance with OPS.SPA.001.LVO may reduce the take-off minima to:	1. Should be transferred to SPA.LVO.	The table is not transposed. However, the comment is taken into consideration and point iv is moved to SPA.LVO.
A. 125 m RVR (Category A, B and C aeroplanes) or 150 m RVR (Category D aeroplanes) provided the following criteria are met:		
1. Low visibility procedures are in force;		
2. High intensity runway centreline lights, spaced 15 m or less, and high intensity edge lights, spaced 60 m or less, are in operation;		
3. Flight crew members have satisfactorily completed training in a flight simulator;	MS: request to replace "flight simulator" with "FSTD" throughout the rules, for greater consistency.	1. Accepted, text revised accordingly in SPA.LVO.
4. A 90 m visual segment is available from the cockpit at the start of the take-off run;		
5. The required RVR value has been achieved for all of the relevant RVR reporting points.	1. In light of suggested changes to Note 2 of Table 1, request to amend text here and add "…reporting points	1. The current text is maintained in SPA.LVO in the interest of safety.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
	with the exception that the reported RVR/visibility value representative of the initial part of the take-off run can be replaced by pilot assessment".	
B. less than 125 m (Category A, B and C aeroplanes) or 150 m (Category D aeroplanes) but not lower than 75 m, provided runway protection and facilities equivalent to Category III landing operations are available, when using either:		
1. an approved lateral guidance system; or		
2. an approved Head Up Display/Head Up Landing System (HUD/HUDLS) for take-off.		
b. Helicopters:		
i. For Performance Class 1 operations, an operator should specify an RVR and Visibility (RVR/VIS) as take-off minima in accordance with Table 1h;		
Table 1h of AMC3 OPS.GEN.150 RVR/visibility for take-off		This table is not transposed as it is not considered applicable to NCO operations.
TAKE-OFF RVR/VISIBILITY		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
(table below)		

Onshore aerodromes with Instrument Flight Rules (IFR) departure procedures	RVR/Visibility	
	Without LVTO approval in accordance with OPS.SPA.001.LVO	With LVTO approval in accordance with OPS.SPA.001.LVO
No lighting and no markings (day only)	400 m or the rejected take-off distance, whichever is the greater	250 m or the rejected take-off distance, whichever is the greater
No markings (night)	800 m	800 m
Runway edge/FATO lighting and centreline marking	400 m	200 m
Runway edge/FATO lighting, centreline marking and RVR information	400 m	150 m
Offshore helideck		
Two-pilot operations	400 m (Note 1)	250 m (Note 1)
Single-pilot operations	500 m (Note 1)	500 m (Note 1)

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Note 1: The take-off flight path must be free of obstacles.		
ii. For Performance Class 2 operations onshore, the pilot-in-command should operate to take-off minima of 800 m RVR/VIS and remain clear of cloud during the take-off manoeuvre until reaching Performance Class 1 capabilities;		
iii. For Performance Class 2 operations offshore, the pilot-in-command should operate to minima not less that that for Performance Class 1 and remain clear of cloud during the take-off manoeuvre until reaching Performance Class 1 capabilities. (Refer to Note 1 of Table 1h of AMC 3 OPS.GEN.150);		
iv. Table 1 of AMC11 OPS.GEN.150, for converting reported meteorological visibility to RVR, should not be used for calculating take-off minima.		
AMC4 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima	1. Suggestion to upgrade this AMC to an IR.	Accepted. The content has been upgraded to NCO.OP.111.
AERODROME MINIMA – NON-PRECISION, CATEGORY I AND APPROACHES WITH VERTICAL GUIDANCE		
1. A Non-Precision Approach (NPA) operation is an instrument approach using any of the facilities described in Table 1 of AMC4 OPS.GEN.150, with a Minimum Descent Height (MDH) or Decision Height (DH) not lower than 250 ft and an RVR/CMV of not less than 750 m for aeroplanes and 600 m for helicopters.		
2. A Category I approach operation is a precision instrument approach and landing using Instrument Landing System (ILS), Microwave Landing System (MLS), GPS		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Landing System (GLS) (Global Navigation Satellite System (GNSS)/Ground-Based Augmentation System (GBAS)) or Precision Approach Radar (PAR) with a DH not lower than 200 ft and an RVR of not less than 550 m for aeroplanes and 500 m for helicopters.		
3. An approach Procedure with Vertical Guidance (APV) is an instrument approach which utilises lateral and vertical guidance, but does not meet the requirements established for precision approach and landing operations, with a DH not lower than 250 ft and an RVR of not less than 600 m.	1. Request to address DH for APV, request to allow an APV LPV down to 200 ft. 2. As the approach classification is currently under review in ICAO, request to permit LPV (APV SBAS) with DH 200 ft. Definition should be changed to: "An Approach Procedure with Vertical guidance (APV) is an instrument approach which uses lateral and vertical guidance using SBAS or Barometric VNAV with a DH not lower than 200 ft and an RVR of not less than 550 m for aeroplanes and 500 m for helicopters".	1/, 2/ APV are defined in Annex I. The minimum DH is 250 ft. LPV flown to the CAT I minima are considered as CAT I operations.
4. The DH to be used for an approach should be the highest of: a. the minimum height to which the approach aid can be used without the required visual reference; b. the Obstacle Clearance Height (OCH) for the category of aircraft;		

<table>
<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Re ason for ch ange, remarks</th></tr>
<tr><td>c. the published approach procedure DH, where applicable;
d. 200 ft for Category I approach operations;
e. the system minimum in Table 1 of AMC4 OPS.GEN.150; or
f. the lowest decision height specified in the AFM or equivalent document, if stated.</td><td></td><td></td></tr>
<tr><td>5. The MDH for an approach should be the highest of:
a. The OCH for the category of aircraft;
b. The system minimum in Table 1 of AMC4 OPS.GEN.150; or
c. The minimum descent height specified in the AFM, if stated.</td><td>1. Text misses the visual reference as it is mentioned for all other types of approach operations.</td><td>This AMC – no IR – only deals with NPA, APV and CAT I operations.</td></tr>
<tr><td>Table 1 of AMC4 OPS.GEN.150 System minima vs facilities</td><td></td><td></td></tr>
<tr><td>SYSTEM MINIMA<table><tr><th rowspan="2">Facility</th><th colspan="2">Lowest DH/MDH</th></tr><tr><th>Aeroplanes</th><th>Helicopters</th></tr><tr><td>Localizer with or without DME</td><td>250 ft</td><td>250 ft</td></tr><tr><td>SRA (terminating at ½ nm)</td><td>250 ft</td><td>250 ft</td></tr><tr><td>SRA (terminating at 1 nm)</td><td>300 ft</td><td>300 ft</td></tr></table></td><td>1. Request to amend LNAV/VNAV minima to 250 ft, as for VOR/DME.
2. Request to insert figures as for aeroplanes, for helicopters, under RNAV/LNAV and NDB/DME.</td><td>1/ Values amended and updated with GNSS approaches.
2/ Accepted. System minima for aeroplane and helicopter operations are aligned.</td></tr>
</table>

A: Rule	B: Summary of comments	C: Reason for change, remarks
<table><tr><td>SRA (terminating at 2 nm or more)</td><td>350 ft</td><td>350 ft</td></tr><tr><td>RNAV/LNAV</td><td>300 ft</td><td>n/a</td></tr><tr><td>VOR</td><td>300 ft</td><td>300 ft</td></tr><tr><td>VOR/DME</td><td>250 ft</td><td>250 ft</td></tr><tr><td>NDB</td><td>350 ft</td><td>300 ft</td></tr><tr><td>NDB/DME</td><td>300 ft</td><td>n/a</td></tr><tr><td>VDF (QDM & QCH)</td><td>350 ft</td><td>300 ft</td></tr></table>		
AMC5 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima		This AMC is not transposed as it is considered not to be relevant for NCO operators.
AERODROME MINIMA – CRITERIA FOR ESTABLISHING RVR/CMV		
1. In order to qualify for the lowest allowable values of RVR/CMV detailed in Table 3 of AMC6 OPS.GEN.150.A (applicable to each approach grouping), the instrument approach should meet at least the following facility requirements and associated conditions:		
a. Instrument approaches with designated vertical profile up to and including 4.5 degrees for Category A and B aeroplanes and 3.77 degrees for Category C and D aeroplanes, where the facilities are: i. ILS/MLS/GLS/PAR; or		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
ii. APV; and iii where the final approach track is offset by not more than 15 degrees for Category A and B aeroplanes and by not more than 5 degrees for Category C and D aeroplanes;		
b. Instrument approaches flown using the CDFA technique with a nominal vertical profile, up to and including 4.5 degrees for Category A and B aeroplanes and 3.77 degrees for Category C and D aeroplanes, where the facilities are NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME, VDF, SRA or RNAV/LNAV, with a final approach segment of at least 3 Nautical Miles (nm), which also fulfil the following criteria:		
i. The final approach track is offset by not more than 15 degrees for Category A and B aeroplanes and by not more than 5 degrees for Category C and D aeroplanes;		
ii. The Final Approach Fix (FAF), or another appropriate fix where descent is initiated is available, or distance to THR is available by FMS/RNAV or DME;		
iii. If the Missed Approach Point (MAPt) is determined by timing, the distance from FAF to THR is < 8 nm.		
c. Instrument approaches where the facilities are NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME, VDF, SRA or RNAV/LNAV, not fulfilling the criteria in 1.b. of AMC 5 OPS.GEN.150, or with an MDH ≥ 1 200 ft.		
2. The missed approach, after an approach has been flown using the CDFA technique, should be executed when reaching the Decision Altitude/Height (DA/H) or the MAPt, whichever occurs first. The lateral part of the missed approach procedure should be flown via the MAPt unless otherwise stated on		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
the approach chart.		
AMC6 OPS.GEN.150.A Instrument Flight Rules (IFR) operating minima	1. Request to publish all requirements of MDH/DH/RVR as IR.	1. The balance between IR and AMC is considered to be proportionate. It is considered more appropriate for NCO operators to change this AMC into a GM.
AERODROME MINIMA – DETERMINATION OF RVR/CMV/VISIBILITY MINIMA FOR CATEGORY I APPROACH PROCEDURES WITH VERTICAL GUIDANCE AND NON-PRECISION APPROACH OPERATIONS – AEROPLANES		
1. The minimum RVR/CMV/visibility should be the highest of the values derived from Table 2 of AMC6 OPS.GEN.150.A (RVR/CMV vs DH/MDH) and Table 3 of AMC6 OPS.GEN.150.A (Minimum and maximum applicable RVR/CMV for all instrument approaches down to Category I minima (lower and upper cut-off limits), but not greater than the maximum values shown in Table 3 of AMC6 A OPS.GEN.150, where applicable.	IS (GA): request that current practices be permitted to continue, of non-commercial single-pilot ops, landing with RVR of 550 m without autopilot, providing TDZ/centreline lighting is available.	The proposed text is suggested by the members of the review group. It intends to simplify the method for determining the RVR/CMV/Visibility minima for NCO operators.
2. The values in Table 2 of AMC6 OPS.GEN.150.A (RVR/CMV vs DH/MDH) are derived from the following formula:		Proposed amendment suggested by the members of the Review Group
Required RVR/visibility (m) = [(DH/MDH (ft) x 0.3048)/tanα] - length of approach lights (m)		

A: Rule	B: Summary of comments	C: Reason for change, remarks
Note 1: α is the calculation angle, being a default value of 3.00 degrees increasing in steps of 0.10 degrees for each line in Table 2 of AMC6 OPS.GEN.150.A up to 3.77 degrees and then remains constant.		
Note 2: The values derived from the above formula have been rounded to the nearest 50 m up to a value of 800 m RVR and thereafter to the nearest 100 m.		
Note 3: The DH/MDH intervals in Table 2 of AMC6 OPS.GEN.150.A have been selected to avoid anomalies caused by the rounding of the calculated Obstacle Clearance Altitude (OCA)/H. The height intervals are 10 feet up to a DH/MDH of 300 feet, 20 feet up to a DH/MDH of 760 feet and then 50 feet for DH/MDH above 760 feet.		
3. The formula may be used with the actual approach slope and/or the actual length of the approach lights for a particular runway. This formula may also be used to calculate the applicable RVR for special (one-off) approach operations in accordance with AMC8 A OPS.GEN.150 4. The formula may also be used to calculate the applicable RVR value for approaches with approach slopes greater than 4.5 degrees.		
4. If the approach is flown with a level flight segment at or above MDA/H, 200 m should be added for Category A and B aeroplanes and 400 m for Category C and D aeroplanes to the minimum RVR/CMV value resulting from the application of Table 2 of AMC6 OPS.GEN.150.A (RVR/CMV vs DH/MDH) and Table 3 of AMC6 OPS.GEN.150.A (Minimum and maximum applicable RVR/CMV for all instrument approaches down to Category I minima (lower and upper cut-off limits). The added value corresponds to the time/distance required to establish the aeroplane on the final descent.	1. Request to harmonize item 4 with AMC2 150 item 3 and amend text: "… (lower and upper cut-off limits) provided the resulting RVR/CMV value does not exceed 5 000 m".	Accepted.
5. An RVR of less than 750 m as indicated in Table 2 of AMC6 OPS.GEN.150.A (RVR/CMV vs DH/MDH) may be used:	1. Request to correct (5)(a) to "…DH is not less than 200ft…".	Accepted.

A: Rule	B: Summary of comments	C: Reason for change, remarks
a. for Category I approach operations to runways with Full Approach Light System (FALS), Runway Touchdown Zone Lights (RTZL) and Runway Centreline Lights (RCLL), provided that the DH is not more than 200 ft;		
b. for Category I approach operations to runways without RTZL and RCLL when using an approved HUDLS, or equivalent approved system, or when conducting a coupled approach or flight-director-flown approach to a DH equal to or greater than 200 ft. The ILS must not be promulgated as a restricted facility. The equivalent system could for instance be an approved HUD which is not certificated as a landing system, but is able to provide adequate guidance cues. Other devices may also be suitable, such as Enhanced/Synthetic Vision Systems (E/SVS) or other hybrids of such devices; or		
c. for APV approach operations to runways with FALS, RTZL and RCLL when using an approved HUD.		
6. RVR values lower than those given in Table 2 of AMC6 OPS.GEN.150.A (RVR/CMV vs DH/MDH) may be used for HUDLS and auto-land operations in accordance with Part OPS.SPA.LVO.		
7. The visual aids comprise standard runway day markings and approach and runway lighting (runway edge lights, threshold lights, runway end lights and in some cases also touch-down zone and/or RCLL). The approach light configurations acceptable are classified and listed in Table 1 of AMC6 OPS.GEN.150.A (Approach light systems).		
8. Notwithstanding the requirements in AMC6 OPS.GEN.150.A 7. RVR values relevant to a Basic Approach Lighting System (BALS) may be used on runways where the approach lights are restricted in length below 210 m due to terrain or water, but where at least one cross-bar is available.		

<table>
<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Reason for change, remarks</th></tr>
<tr><td>9. For night operations or for any operation where credit for runway and approach lights is required, the lights must be on and serviceable except as provided for in Table 1 of AMC12 OPS.GEN.150.</td><td></td><td></td></tr>
<tr><td>Table 1 of AMC6 OPS.GEN.150.A Approach light systems</td><td></td><td></td></tr>
<tr><td>
<table>
<tr><th>CLASS OF FACILITY</th><th>LENGTH, CONFIGURATION AND INTENSITY OF APPROACH LIGHTS</th></tr>
<tr><td>Full Approach Landing System (FALS)</td><td>ICAO: Precision Approach Category I Lighting System (HIALS ≥ 720 m) Distance Coded Centreline, Barrette Centreline

FAA: ALSF1, ALSF2, SSALR, MALSR, high or medium intens☐ty and/or flashing lights, 720 m or more</td></tr>
<tr><td>Intermediate Approach Light System (IALS)</td><td>ICAO: Simple Approach Lighting System (HIALS 420 – 719 m) Single Source, Barrette

FAA: MALSF, MALS, SALS/SALSF, SSALF, SSALS, high or medium intensity and/or flashing lights, 420 – 719 m</td></tr>
</table>
</td><td></td><td>This table is not transposed.</td></tr>
</table>

A: Rule		B: Summary of comments	C: Reason for change, remarks
Basic Approach Light System (BALS)	Any other Approach Lighting System (HIALS, MIALS or ALS 210-419 m) FAA: ODALS, high or medium intensity or flashing lights 210 - 419 m		
No Approach Light System (NALS)	Any other Approach Lighting System (HIALS, MIALS or ALS <210 m) or No Approach Lights		
Table 2 of AMC6 OPS.GEN.150.A RVR/CMV vs DH/MDH			This table is not transposed.

DH or MDH	CLASS OF LIGHTING FACILITY			
	FALS	**IALS**	**BALS**	**NALS**
ft	**m**			
200 – 210	550	750	1 000	1 200
211 – 220	550	800	1 000	1 200
221 – 230	550	800	1 000	1 200
231 – 240	550	800	1 000	1 200
241 – 250	550	800	1 000	1 300

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks

251 – 260	600	800	1 100	1 300
261 – 280	600	900	1 100	1 300
281 – 300	650	900	1 200	1 400
301 – 320	700	1 000	1 200	1 400
321 – 340	800	1 100	1 300	1 500
341 – 360	900	1 200	1 400	1 600
361 – 380	1 000	1 300	1 500	1 700
381 – 400	1 100	1 400	1 600	1 800
401 – 420	1 200	1 500	1 700	1 900
421 – 440	1 300	1 600	1 800	2 000
441 – 460	1 400	1 700	1 800	2 100
461 – 480	1 500	1 800	1 900	2 200
481 – 500	1 500	1 800	2 000	2 300
501 – 521	1 600	1 900	2 100	2 400
521 – 540	1 700	2 000	2 200	2 400
541 – 560	1 800	2 100	2 300	2 500

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks

561 – 580	1 900	2 200	2 400	2 600
581 – 600	2 000	2 300	2 500	2 700
601 – 620	2 100	2 400	2 600	2 800
621 – 640	2 200	2 500	2 700	2 900
641 – 660	2 300	2 600	2 800	3 000
661 – 680	2 400	2 700	2 900	3 100
681– 700	2 500	2 800	3 000	3 200
701 – 720	2 600	2 900	3 100	3 300
721 – 740	2 700	3 000	3 200	3 400
741 – 760	2 700	3 000	3 300	3 500
761 – 800	2 900	3 200	3 400	3 600
801 – 850	3 100	3 400	3 600	3 800
851 – 900	3 300	3 600	3 800	4 000
901 – 950	3 600	3 900	4 100	4 300
951 – 1 000	3 800	4 100	4 300	4 500
1 001 – 1 100	4 100	4 400	4 600	4 900
1 101 – 1 200	4 600	4 900	5 000	5 000

A: Rule	B: Summary of comments	C: Reason for change, remarks
1 201 and above | 5 000 | 5 000 | 5 000 | 5 000		
Table 3 of AMC6 OPS.GEN.150. A Minimum and maximum applicable RVR/CMV for all instrument approaches down to Category I minima (lower and upper cut-off limits):		This table is not transposed.

		1 201 and above	5 000	5 000	5 000	5 000

FACILITY/CONDITIONS	RVR/CMV (m)	AEROPLANE CATEGORY			
		A	**B**	**C**	**D**
ILS, MLS, GLS, PAR and APV	Min	According to Table 2 of AMC6A OPS.GEN.150			
	Max	1 500	1 500	2 400	2 400
NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME, VDF, SRA, RNAV/LNAV with a procedure which fulfils the criteria in AMC5 OPS.GEN.150 1.b.	Min	750	750	750	750
	Max	1 500	1 500	2 400	2 400
For NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME,	☐in	1 0☐0	1 000	1 200	1 200

A: Rule			B: Summary of comments	C: Re ason for ch ange, remarks
	Max	According to Table 2 of AMC6 OPS.GEN.150.A if flown using the CDFA technique, otherwise an add-on of 200/400 m applies to the values in Table 2 of AMC6 OPS.GEN.150.A but not to result in a va□ue exceeding 5000 m		
10. For single-pilot operations, the minimum RVR/visibility for all approaches should be calculated in accordance with OPS.GEN.150 and its AMC material:				
a. An RVR of less than 800 m as indicated in Table 2 of AMC6 OPS.GEN.150.A may be used for Category I approaches provided any of the following is used at least down to the applicable DH:				
i. A suitable autopilot, coupled to an ILS or MLS which is not promulgated as restricted; or				
ii. An approved HUDLS (including, where appropriate, EVS), or equivalent approved system;				
b. Where RTZL and/or RCLL are not available, the minimum RVR/CMV should not be less than 600 m;				
c. An RVR of less than 800 m as indicated in Table 2 of AMC6 OPS.GEN.150.A may be used for APV operations to runways with FALS, RTZL and RCLL when using an approved HUDLS, or equivalent approved system, or when conducting a coupled approach to a DH equal to or greater than 250 ft.				

A: Rule	B: Summary of comments	C: Reason for change, remarks
AMC7 OPS.GEN.150.H Instrument Flight Rules (IFR) operating minima		This AMC is not transposed. GM3 above covers both aeroplanes and helicopters
AERODROME MINIMA – DETERMINATION OF RVR/CMV/VISIBILITY MINIMA FOR CATEGORY I, APPROACH PROCEDURES WITH VERTICAL GUIDANCE AND NON-PRECISION APPROACH OPERATIONS – HELICOPTERS		
1. For non-precision approaches by helicopters operated in Performance Class 1 or 2, the minima given in Table 1 of AMC7 OPS.GEN.150.H should apply:		
Table 1 of AMC7 OPS.GEN.150.H Onshore non-precision approach minima		

ONSHORE NON-PRECISION APPROACH MINIMA (Notes 5, 6 and 7)

MDH (ft)	Facilities/RVR (m)			
	Full (Note 1)	Intermediate (Note 2)	Basic (Note 3)	Nil (Note 4)
250 – 299	600	800	1 000	1 000
300 – 449	800	1 000	1 000	1 000
450 and above	1 000	1 000	1 000	1 000

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Note 1: Full facilities comprise FATO/runway markings, 720 m or more of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.		
Note 2: Intermediate facilities comprise FATO/runway markings, 420 - 719 m of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.		
Note 3: Basic facilities comprise FATO/runway markings, <420 m of HI/MI approach lights, any length of LI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.		
Note 4: Nil approach light facilities comprise FATO/runway markings, FATO/runway edge lights, threshold lights, FATO/runway end lights or no lights at all.		
Note 5: The tables are only applicable to conventional approaches with a nominal descent slope of not greater than 4 degrees. Greater descent slopes will usually require that visual glide slope guidance (e.g. PAPI) is also visible at the MDH.		
Note 6: The above figures are either reported RVR or CMV.		
Note 7: The MDH mentioned in Table 1 of AMC7 OPS.GEN.150.H refers to the initial calculation of MDH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, e.g. conversion to MDA.		
a. Where the missed approach point is within ½ nm of the landing threshold, the approach minima given for full facilities may be used regardless of the length of approach lighting available. However, FATO/runway edge lights, threshold lights, end lights and FATO/runway markings are still required;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. For night operations, ground lighting must be available to illuminate the FATO/runway and any obstacles;		
c. For single-pilot operations, the minimum RVR is 800 m or the minima in Table 1 of AMC7 OPS.GEN.150.H, whichever is higher.		
2. For Category I approaches by helicopters operated in Performance Class 1 or 2, the minima given in Table 2 of AMC7 OPS.GEN.150.H should apply:		
Table 2 of AMC 7 O PS.GEN.150.H Ons hore precis ion appr oach mi nima – Category I		

ONSHORE PRECISION APPROACH MINIMA – CATEGORY I (Notes 5, 6 and 7)

MDH (ft)	Facilities/RVR (m)			
	Full (Note 1)	Intermediate (Note 2)	Basic (Note 3)	Nil (Note 4)
200	500	600	700	1 000
201 – 250	550	650	750	1 000
251 – 300	600	700	800	1 000
301 and above	750	800	900	1 000

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Note 1: Full facilities comprise FATO/runway markings, 720 m or more of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.		
Note 2: Intermediate facilities comprise FATO/runway markings, 420 - 719 m of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.		
Note 3: Basic facilities comprise FATO/runway markings, <420 m of HI/MI approach lights, any length of LI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.		
Note 4: Nil approach light facilities comprise FATO/runway markings, FATO/runway edge lights, threshold lights, FATO/runway end lights or no lights at all.		
Note 5: The above figures are either the reported RVR or CMV.		
Note 6: The table is applicable to conventional approaches with a glide slope up to and including 4 degrees.		
Note 7: The MDH mentioned in Table 2 of AMC 7 OPS.GEN.150.H refers to the initial calculation of MDH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, e.g. conversion to DA.		
a. For night operations, ground lighting must be available to illuminate the FATO/runway and any obstacles;		
b. For-single pilot operations, the minimum RVR should be calculated based on OPS.GEN.150 and its AMC material. An RVR of less than 800 m should not be used except when using a suitable autopilot coupled to an ILS or		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
MLS, in which case normal minima apply. The DH applied should not be less than 1.25 times the minimum use height for the autopilot.		
AMC8 OPS.GEN150.A Instrument Flight Rules (IFR) operating minima		
AERODROME MINIMA – CIRCLING – AEROPLANES	1. Should be an IR not an AMC.	Accepted. In the interest of safety is was decided to upgrade this AMC to the IR level, NCO.OP.112.
1. The MDH for circling should be the highest of: a. the published circling OCH for the aeroplane category; b. the minimum circling height derived from Table 1 of AMC8 OPS.GEN.150.A; or c. the DH/MDH of the preceding instrument approach procedure.		
2. The MDA for circling should be calculated by adding the published aerodrome elevation to the MDH, as determined by AMC8 OPS.GEN.150.A 1.		
3. The minimum visibility for circling should be the higher of:		
a. the circling visibility for the aeroplane category, if published;		
b. the minimum visibility derived from Table 1 of AMC8 OPS.GEN.150.A; or		

A: Rule	B: Summary of comments	C: Reason for change, remarks
c. the RVR/CMV derived from Tables 2 and 3 of AMC6 OPS.GEN.150.A for the preceding instrument approach procedure.		
4. Notwithstanding the requirements in AMC8 OPS.GEN.150.A 3. above and limited to locations where there is a clear public interest to maintain current operations, the visibility may not be increased above the values derived from Table 1 of AMC8 OPS.GEN.150.A, taking into account the operator's experience, training programme and flight crew qualification.		
Table 1 of AMC8 OPS.GEN.150.A Minimum visibility and MDH for circling vs. aeroplane category		

	AEROPLANE CATEGORY			
	A	**B**	**C**	**D**
MDH (ft)	400	500	600	700
Minimum meteorological visibility (m)	1 500	1 600	2 400	3 600

A: Rule	B: Summary of comments	C: Reason for change, remarks
5. Circling with prescribed tracks is an accepted procedure within the meaning of this paragraph.		In consultation with the Review Group members, this paragraph is not transposed as it is considered not to be necessary for NCO operations.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC9 OPS.GEN.150.H Instrument Flight Rules (IFR) operating minima		In the interest of safety is was decided to upgrade this AMC to the IR level, NCO.OP.113.
AERODROME MINIMA – ONSHORE CIRCLING – HELICOPTERS		
1. Circling is the term used to describe the visual phase of an instrument approach, to bring an aircraft into position for landing on a FATO/runway which is not suitably located for a straight in approach.		
2. For circling the specified MDH should not be less than 250 ft, and the meteorological visibility not less than 800 m.		
3. Visual manoeuvring (circling) with prescribed tracks is an accepted procedure within the meaning of this paragraph.		
AMC10 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima		
AERODROME MINIMA – VISUAL APPROACH An RVR of less than 800 m should not be used for a visual approach.		Editorial change made.
AMC11 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima		For NCO operations, it is considered more appropriate to change this AMC into a GM.
AERODROME MINIMA – CONVERSION OF REPORTED METEOROLOGICAL VISIBILITY		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
TO RVR/CMV		
1. A conversion from meteorological visibility to RVR/CMV should not be used for calculating take-off minima, Category II or III minima or when reported RVR is available. If the RVR is reported as being above the maximum value assessed by the aerodrome operator, e.g. "RVR more than 1 500 m", it is not considered to be a reported value for the purpose of this paragraph.		
2. For all other circumstances, Table 1 of AMC11 OPS.GEN.150 should be used.		
Table 1 of AMC11 OPS.GEN.150 Conversion of meteorological visibility to RVR/CMV		

Lighting elements in operation	**RVR/CMV = reported meteorological visibility x**	
	Day	**Night**
HI approach and runway lighting	1.5	2.0
Any type of lighting installation other than above	1.0	1.5
No lighting	1.0	n/a

AMC12 OPS.GEN.150 Instrument Flight Rules (IFR) operating minima		This AMC is changed into a GM because it is considered more appropriate for NCO

A: Rule	B: Summary of comments	C: Reason for change, remarks
		operations.
AERODROME MINIMA – EFFECT ON LANDING MINIMA OF TEMPORARILY FAILED OR DOWNGRADED GROUND EQUIPMENT		
1. These instructions are intended for use both pre-flight and in-flight. It is however not expected that the pilot-in-command would consult such instructions after passing the outer marker or equivalent position. If failures of ground aids are announced at such a late stage, the approach could be continued at the pilot-in-command's discretion. If failures are announced before such a late stage in the approach, their effect on the approach should be considered as described in Table 1 of AMC12 OPS.GEN.150, and the approach may have to be abandoned to allow this to happen.	MS: request to align with OPS.GEN.200 and amend text to "outer marker or equivalent position 000 ft above the aerodrome".	Paragraph not transposed. New text proposed in consultation with the members of the Review Group.
2. Conditions applicable to Tables 1 of AMC12 OPS.GEN.150: a. Multiple failures of runway/ FATO lights other than indicated in Table 1 of AMC12 OPS.GEN.150 may not be acceptable; b. Deficiencies of approach and runway/FATO lights are treated separately; c. Category II or III operations. A combination of deficiencies in FATO/runway lights and RVR assessment equipment is not permitted; d. Failures other than ILS affect RVR only and not DH.	1. IS: request to clarify if the rule applies when only one of the listed items fails, or all. 2. Request to replace ILS with XLS, and to define XLS in the cover regulation. 3. IS (BA): request that CAT II and CAT III ops be handled in Subpart SPA.	This paragraph is not transposed. New text proposed in consultation with the members of the Review Group.
Table 1 of AMC12 OPS.GEN.150 Failed or downgraded equipment - effect on landing minima		Table not transposed.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks

FAILED OR DOWNGRADED EQUIPMENT	EFFECT ON LANDING MINIMA	
	Category I	APV & Non-Precision
ILS Standby Transmitter	No effect	
Outer Marker	No effect if replaced by equivalent position	APV – not applicable NPA with FAF: no effect unless used as FAF. If the FAF cannot be identified (e.g. no method available for timing of descent), non-precision operations cannot be conducted
Middle Marker	No effect	No effect unless used as MAPt
RVR Assessment Systems	On runways equipped with 2 or more RVR Assessment Units; one may be inoperative	No effect
Approach lights	Not permitted	Minima as for

A: Rule	B: Summary of comments	C: Reason for change, remarks

		NALS
Approach lights except the last 210 m	Not permitted	Minima as for BALS
Approach lights except the last 420 m	No effect	Minima as for IALS
Standby power for approach lights	No effect	
Edge lights, threshold lights and runway end lights	Day – no effect Night – not permitted	
Centreline lights	No effect if F/D, HUDLS or auto-land otherwise RVR 750 m	No effect
Centreline lights spacing increased to 30 m	No effect	
Touch Down Zone lights	No effect if F/D, HUDLS or auto-land otherwise RVR 750 m	No effect
Taxiway light	No effect	

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
system		
GM1 OPS.GEN.150.A Instrument Flight Rules (IFR) operating minima		
AERODROME MINIMA – AEROPLANE CATEGORIES	1. Request to upgrade this AMC to an IR.	For Part-NCO, it is considered appropriate to keep this GM as it is and not upgraded to IR.
1. The criteria taken into consideration for the classification of aeroplanes by categories is the indicated air speed at threshold (V_{AT}) which is equal to the stalling speed (V_{SO}) multiplied by 1.3 or V_{S1G} multiplied by 1.23 in the landing configuration at the maximum certificated landing mass. If both V_{SO} and V_{S1G} are available, the higher resulting V_{AT} should be used. The aeroplane categories corresponding to V_{AT} values are in the Table 1 of GM1 OPS.GEN.150.A.		
Table 1 o f GM1 OPS.GEN.150. A Aero plane categ ories corres ponding to VAT values		

<table>
<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Reason for change, remarks</th></tr>
<tr><td><table><tr><th>AEROPLANE CATEGORY</th><th>V_{AT}</th></tr><tr><td>A</td><td>Less than 91 kts</td></tr><tr><td>B</td><td>91 – 120 kts</td></tr><tr><td>C</td><td>121 – 140 kts</td></tr><tr><td>D</td><td>141 – 165 kts</td></tr><tr><td>E</td><td>166 – 210 kts</td></tr></table></td><td></td><td></td></tr>
<tr><td>2. The landing configuration which is to be taken into consideration should be defined by the operator or by the aeroplane manufacturer.</td><td></td><td></td></tr>
<tr><td>3. Permanent change of category (maximum landing mass):
a. An operator may impose a permanent, lower, landing mass, and use this mass for determining the VAT;
b. The category defined for a given aeroplane should be a permanent value and thus independent of the changing conditions of day-to-day operations;
c. The category should be stated in the operations manual, where required.</td><td>The category for a given aeroplane at a given aerodrome should be a permanent value thus independent of changing conditions of day to day operations in and out of that aerodrome.</td><td>This is not supported in the interest of safety.

Point c is not transposed to fit NCO operations.</td></tr>
<tr><td>GM2 OPS.GEN.150.A Instrument Flight Rules (IFR) operating minima</td><td></td><td></td></tr>
</table>

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AERODROME MINIMA - CONTINUOUS DESCENT FINAL APPROACH (CDFA) – AEROPLANES		The NPA text confused APV operations with non-precision approach operations flown with the CDFA technique. The amended text provides a clear distinction between these operations.
1. Introduction:		
a. Controlled Flight Into Terrain (CFIT) is a major causal category of accident and hull loss in commercial aviation. Most CFIT accidents occur in the final approach segment of non-precision approaches; the use of stabilised-approach criteria on a continuous descent with a constant, pre-determined vertical path is seen as a major improvement in safety during the conduct of such approaches. Operators should ensure that the following techniques are adopted as widely as possible, for all approaches;		
b. The elimination of level flight segments at MDA close to the ground during approaches, and the avoidance of major changes in attitude and power/thrust close to the runway which can destabilise approaches, are seen as ways to reduce operational risks significantly;		
c. For completeness this guidance also includes criteria which should be considered to ensure the stability of an approach (in terms of the aeroplanes energy and approach-path control);		
d. The term CDFA has been selected to cover a technique for any type of non-precision approach;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
e. Non-precision approaches operated other than using a constant pre-determined vertical path or when the facility requirements and associated conditions do not meet the conditions specified in 2.d., RVR penalties apply. However, this should not preclude an operator from applying CDFA technique to such approaches. Those operations should be classified as special letdown procedures, since it has been shown that such operations, flown without additional training, may lead to inappropriately steep descent to the MDA/H, with continued descent below the MDA/H in an attempt to gain (adequate) visual reference;		
f. The advantages of CDFA are as follows:		
i. The technique enhances safe approach operations by the utilisation of standard operating practices;		
ii. The profile reduces the probability of infringement of obstacle-clearance along the final approach segment and allows the use of MDA as DA;	?	
iii. The technique is similar to that used when flying an ILS approach, including when executing the missed approach and the associated go-around manoeuvre;		
iv. The aeroplane attitude may enable better acquisition of visual cues;		
v. The technique may reduce pilot workload;		
vi. The Approach profile is fuel efficient;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
vii. The Approach profile affords reduced noise levels;		
viii. The technique affords procedural integration with APV approach operations;		
ix. When used and the approach is flown in a stabilised manner is the safest approach technique for all approach operations.		
2. CDFA:		
a. Continuous Descent Final Approach. A specific technique for flying the final approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre should begin for the type of aircraft flown;		
b. An approach is only suitable for application of CDFA technique when it is flown along a pre-determined vertical approach slope which follows a:		
i. Designated Vertical Profile: A continuous vertical approach profile which forms part of the approach procedure design. APV is considered to be an approach with a designated vertical profile; or a		
ii. Nominal Vertical Profile: A vertical profile not forming part of the approach procedure design, but which can be flown as a continuous descent. The nominal vertical profile information may be published or displayed (on the approach chart) to the pilot by depicting the nominal slope or range/distance vs height. Approaches with a		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
nominal vertical profile are considered to be: A. NDB, NDB/DME; B. VOR, VOR/DME; C. LLZ, LLZ/DME; D. VDF, SRA or E. RNAV/LNAV;		
c. Stabilised Approach (SAp). An approach which is flown in a controlled and appropriate manner in terms of configuration, energy and control of the flight path from a pre-determined point or altitude/height down to a point 50 feet above the threshold or the point where the flare manoeuvre is initiated if higher:		
i. The control of the descent path is not the only consideration when using the CDFA technique. Control of the aeroplane’s configuration and energy is also vital to the safe conduct of an approach;		
ii. The control of the flight path, described above as one of the requirements for conducting an SAp, should not be confused with the path requirements for using the CDFA technique. The pre-determined path requirements for conducting an SAp are established by the operator and published in the operations manual part B; guidance for conducting SAp operations is given in 5.;		
iii. The predetermined approach slope requirements for applying the CDFA technique are established by the following: A. The instrument-procedure design when the approach has a designated vertical profile;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
B. The published 'nominal' slope information when the approach has a nominal vertical profile; C. The designated final-approach segment minimum of 3 nm, and maximum, when using timing techniques, of 8 nm;		
iv. A Stabilised Approach will never have any level segment of flight at DA/H (or MDA/H as applicable). This enhances safety by mandating a prompt go-around manoeuvre at DA/H (or MDA/H);		
v. An approach using the CDFA technique will always be flown as an SAp, since this is a requirement for applying CDFA; however, an SAp does not have to be flown using the CDFA technique, for example a visual approach;		
d. Approach with a designated vertical profile using the CDFA technique: i. The optimum angle for the approach slope is 3 degrees, and the gradient should preferably not exceed 6.5 percent which equates to a slope of 3.77 degrees, (400 ft/nm) for procedures intended for conventional aeroplane types/classes and/or operations. In any case, conventional approach slopes should be limited to 4.5 degrees for Category A and B aeroplanes and 3.77 degrees for Category C and D aeroplanes, which are the upper limits for applying the CDFA technique. A 4.5 degree approach slope is the upper limit for certification of conventional aeroplanes; ii. The approach is to be flown utilising operational flight techniques and on board navigation system(s) and navigation aids to ensure it can be flown on the desired vertical path and track in a stabilised manner, without significant vertical path changes during the final-segment descent to the runway. APV is included;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
iii. The approach is flown to a DA/H; iv. No MAPt is published for these procedures;		
e. Approach with a nominal vertical profile using the CDFA technique:		
i. The optimum angle for the approach slope is 3 degrees, and the gradient should preferably not exceed 6.5 percent which equates to a slope of 3.77 degrees, (400 ft/nm) for procedures intended for conventional aeroplane types / class and / or operations. In any case, conventional approaches should be limited to 4.5 degrees for Category A and B aeroplanes and 3.77 degrees for Category C and D aeroplanes, which are the upper limits for applying CDFA technique. A 4.5 degree approach slope is the upper limit for certification of conventional aeroplanes;		
ii. The approach procedure should meet at least the following facility requirements and associated conditions. NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME, VDF, SRA, RNAV/LNAV) and fulfil the following criteria: A. The final approach track off-set ≤ 5 degrees except for Category A and B aeroplanes, where the approach-track off-set is ≤ 15 degrees; and B. A FAF, or another appropriate fix where descent initiated is available; and C. The distance from the FAF to the Threshold (THR) is less than or equal to 8 nm in the case of timing; or D. The distance to the THR is available by FMS/RNAV or DME; or E. The minimum final-segment of the designated constant angle		

A: Rule	B: Summary of comments	C: Reason for change, remarks
approach path should not be less than 3 nm from the THR unless approved by the authority;		
iii. CDFA may also be applied utilising the following: A. RNAV/LNAV with altitude/height cross checks against positions or distances from the THR; or B. Height crosscheck compared with DME distance values;		
iv. The approach is flown to a DA/H;		
v. The approach is flown as an SAp.		
Generally, an MAPt is published for these procedures.		
3. Operational procedures:		
a. An MAPt should be specified to apply CDFA with a nominal vertical profile as for any non-precision approach;		
b. The flight techniques associated with CDFA employ the use of a predetermined approach slope. The approach, in addition, is flown in a stabilised manner, in terms of configuration, energy and control of the flight path. The approach should be flown to a DA/H at which the decision to land or go-around is made immediately. This approach technique should be used when conducting: i. all NPAs meeting the specified CDFA criteria in 2.d.; and		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
ii. all approaches categorised as APV;		
c. The flight techniques and operational procedures prescribed above should always be applied; in particular with regard to control of the descent path and the stability of the aeroplane on the approach prior to reaching MDA/H. Level flight at MDA/H should be avoided as far as practicable. In addition appropriate procedures and training should be established and implemented to facilitate the applicable elements of 4., 5. and 6. Particular emphasis should be placed on 4.h., 5.a. to g. and 8.d.;		
d. In cases where the CDFA technique is not used with high MDA/H, it may be appropriate to make an early descent to MDA/H with appropriate safeguards to include the above training requirements, as applicable, and the application of a significantly higher RVR/Visibility;		
e. For circling approaches (Visual Manoeuvring), all the applicable criteria with respect to the stability of the final descent path to the runway should apply. In particular, the control of the desired final nominal descent path to the threshold should be conducted to facilitate the techniques described in 4. and 5.:		
i. Stabilisation during the final straight-in segment for a circling approach should ideally be accomplished by 1000 ft above aerodrome elevation for turbo-jet aeroplanes;		
ii. For a circling approach where the landing runway threshold and appropriate visual landing aids may be visually acquired from a point on the designated or published procedure (prescribed tracks), stabilisation should be achieved not later than 500 ft above aerodrome elevation. It is however recommended that the aeroplane		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
be stabilised when passing 1000 ft above aerodrome elevation;		
iii. When a low-level final turning manoeuvre is required in order to align the aeroplane visually with the landing runway, a height of 300 ft above the runway threshold elevation, or aerodrome elevation as appropriate, should be considered as the lowest height for approach stabilisation with wings level;		
iv. Dependent upon aeroplane type/class the operator may specify an appropriately higher minimum stabilisation height for circling approach operations;		
v. The operator should specify in the operations manual the procedures and instructions for conducting circling approaches, including at least: A. the minimum required visual reference; B. the corresponding actions for each segment of the circling manoeuvre; C. the relevant go-around actions if the required visual reference is lost; and D. the visual reference requirements for any operations with a prescribed track circling manoeuvre to include the MDA/H and any published MAPt;		
f. Visual approach. All the applicable criteria with respect to the stability of the final descent path to the runway should apply to the operation of visual approaches. In particular, the control of the desired final nominal descent path to the threshold should be conducted to facilitate the		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
appropriate techniques and procedures described in 6. and 7.:		
i. Stabilisation during the final straight-in segment for a visual approach should ideally be accomplished by 500 ft above runway threshold elevation for turbo-jet aeroplanes;		
ii. When a low level final turning manoeuvre is required in order to align the aeroplane with the landing runway, a minimum height of 300 ft above the runway threshold elevation (or aerodrome elevation as appropriate) should be considered as the lowest height for visual approach stabilisation with wings level;		
iii. Dependent upon aeroplane type/class, the operator may specify an appropriately higher minimum stabilisation height for visual approach operations;		
iv. The operator should specify in the operations manual the procedures and instructions for conducting visual approaches to include at least: A. the minimum required visual reference; B. the corresponding actions if the required visual reference is lost during a visual approach manoeuvre; and C. the appropriate go-around actions;		
g. The control of the descent path using the CDFA technique ensures that the descent path to the runway threshold is flown using either: i. a variable descent rate or flight path angle to maintain the desired path, which may be verified by appropriate crosschecks; ii. a pre-computed constant rate of descent from the FAF, or other		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
appropriate fix which is able to define a descent point and/or from the final approach segment step-down fix; or iii. vertical guidance, including APV;		
The above techniques also support a common method for the implementation of flight-director-guided or auto-coupled RNAV/VNAV or GLS approaches;		
h. The manoeuvre associated with the vertical profile of the missed approach should be initiated not later than reaching the MAPt or the DA/H specified for the approach, whichever occurs first. The lateral part of the missed approach procedure must be flown via the MAPt unless otherwise stated on the approach chart;		
i. In case the CDFA technique is not used the approach should be flown to an altitude/height at or above the MDA/H where a level flight segment at or above MDA/H may be flown to the MAPt;		
j. In case the CDFA technique is not used when flying an approach, an operator should implement procedures to ensure that early descent to the MDA/H will not result in a subsequent flight below MDA/H without adequate visual reference. These procedures could include: i. awareness of radio altimeter information with reference to the approach profile; ii. enhanced Ground Proximity Warning System and/or Terrain Awareness information; iii. limitation of rate of descent; iv. limitation of the number of repeated approaches; v. safeguards against too early descents with prolonged flight at		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
MDA/H; and vi. specification of visual requirements for the descent from the MDA/H.		
4. Flight techniques:		
a. The CDFA technique can be used on almost any published non-precision approach when the control of the descent path is aided by either: i. a recommended descent rate, based on estimated ground speed, which may be provided on the approach chart; or ii. the descent path as depicted on the chart;		
b. In order to facilitate the requirement of 4.a.ii., the operator should either provide charts which depict the appropriate cross check altitudes/heights with the corresponding appropriate range information, or such information should be calculated and provided to the flight crew in an appropriate and usable format;		
c. For approaches flown coupled to a designated descent path using computed electronic glide-slope guidance (normally a 3 degree path), the descent path should be appropriately coded in the flight management system data base and the specified navigational accuracy (RNP) should be determined and maintained throughout the operation of the approach;		
d. With an actual or estimated ground speed, a nominal vertical profile and required descent rate, the approach should be flown by crossing the FAF configured and on-speed. The tabulated or required descent rate is established and flown to not less than the DA/H, observing any step-down crossing altitudes if applicable;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
e. To assure the appropriate descent path is flown, the pilot not flying should announce crossing altitudes as published fixes and other designated points are crossed, giving the appropriate altitude or height for the appropriate range as depicted on the chart. The pilot flying should promptly adjust the rate of descent as appropriate;		
f. With the required visual reference requirements established, the aeroplane should be in position to continue descent through the DA/H or MDA/H with little or no adjustment to attitude or thrust/power;		
g. When applying CDFA on an approach with a nominal vertical profile to a DA/H, it may be necessary to apply an add-on to the published minima (vertical profile only) to ensure sufficient obstacle clearance. The add-on, if applicable, should be published in the operations manual – (Aerodrome Operating Minima). However, the resulting procedure minimum will still be referred to as the DA/H for the approach;		
h. Operators should establish a procedure to ensure that an appropriate callout (automatic or oral) is made when the aeroplane is approaching DA/H. If the required visual references are not established at DA/H, the missed approach procedure is to be executed promptly. Visual contact with the ground alone is not sufficient for continuation of the approach. With certain combinations of DA/H, RVR and approach slope, the required visual references may not be achieved at the DA/H in spite of the RVR being at or above the minimum required for the conduct of the approach. The safety benefits of CDFA are negated if prompt go-around action is not initiated;		
i. The following bracketing conditions in relation to angle of bank, rate of descent and thrust/power management are considered to be suitable for most aeroplane types/class to ensure the predetermined vertical path		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
approach is conducted in a stabilised manner:		
i. Bank angle: As prescribed in the operations manual, should generally be less than 30 degrees;		
ii. Rate of descent (ROD): The target ROD should not exceed 1000 fpm). The ROD should deviate by no more than + 300 fpm from the target ROD. Prolonged rates of descent which differ from the target ROD by more than 300 fpm indicate that the vertical path is not being maintained in a stabilised manner. The ROD should not exceed 1200 fpm, except under exceptional circumstances which have been anticipated and briefed prior to commencing the approach; for example, a strong tailwind. Zero rate of descent may be used when the descent path needs to be regained from below the profile. The target ROD may need to be initiated prior to reaching the required descent point (typically 0.3 nm before the descent point, dependent upon ground speed, which may vary for each type/class of aeroplane). (Refer to 4.i.iii.);		
iii. Thrust/power management: The limits of thrust/power and the appropriate range should be specified in the operations manual Part B or equivalent documents;		
j. Transient corrections/overshoots: The above-specified range of corrections should normally be used to make occasional momentary adjustments in order to maintain the desired path and energy of the aeroplane. Frequent or sustained overshoots should require the approach to be abandoned and a go-around initiated. A correction philosophy should be applied similar to that described in 5.;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
k. The relevant elements of 4. should, in addition, be applied to approaches not flown using the CDFA technique; the procedures thus developed, thereby ensure a controlled flight path to MDA/H. Dependent upon the number of step down fixes and the aeroplane type/class, the aeroplane should be appropriately configured to ensure safe control of the flight path prior to the final descent to MDA/H.		
5. Stabilisation of energy/speed and configuration of the aeroplane on the approach:		
a. The control of the descent path is not the only consideration. Control of the aeroplane's configuration and energy is also vital to the safe conduct of an approach;		
b. The approach should be considered to be fully stabilised when the aeroplane is: i. tracking on the required approach path and profile; ii. in the required configuration and attitude; iii. flying with the required rate of descent and speed; and iv. flying with the appropriate thrust/power and trim;		
c. The following flight path control criteria should be met and maintained when the aeroplane passes the gates described in 6. and 7.;		
d. The aeroplane is considered established on the required approach path at the appropriate energy for stable flight using the CDFA technique when: i. it is tracking on the required approach path with the correct track set, approach aids tuned and identified as appropriate to the		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
approach type flown and on the required vertical profile; and ii. it is at the appropriate attitude and speed for the required target ROD with the appropriate thrust/power and trim;		
e. It is recommended to compensate for strong wind/gusts on approach by speed increments given in the operations manual. To detect windshear and magnitude of winds aloft, all available aeroplane equipment such as FMS, INS, etc. should be used;		
f. It is recommended that stabilisation during any straight-in approach without visual reference to the ground should be achieved at the latest when passing 1 000 ft above runway threshold elevation. For approaches with a designated vertical profile applying CDFA, a later stabilisation in speed may be acceptable if higher than normal approach speeds are required by ATC procedures or allowed by the operations manual. Stabilisation should, however, be achieved not later than 500 ft above runway threshold elevation;		
g. For approaches where the pilot has visual reference with the ground, stabilisation should be achieved not later than 500 ft above aerodrome elevation. However, it is recommended that the aeroplane should be stabilised when passing 1000 ft above runway threshold elevation;		
h. The relevant elements of 5. should, in addition, be applied to approaches not flown using the CDFA technique; the procedures thus developed ensure that a controlled and stable path to MDA/H is achieved. Dependent upon the number of step down fixes and the aeroplane type/class, the aeroplane should be appropriately configured to ensure safe and stable flight prior to the final descent to MDA/H.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
6. Visual reference and path-control below MDA/H when not using the CDFA technique. In addition to the requirements stated in OPS.GEN.150 and its AMC material the pilot should have attained a combination of visual cues to safely control the aeroplane in roll and pitch to maintain the final approach path to landing. This should be included in the standard operating procedures and reflected in the operations manual.		
7. Operational procedures and instructions for using the CDFA technique or not:		
a. The operator should establish procedures and instructions for flying approaches using the CDFA technique and not. These procedures should be included in the operations manual and should include the duties of the flight crew during the conduct of such operations: i. The operator should publish in the operations manual the requirements stated in 4. and 5., as appropriate to the aeroplane type or class to be operated; ii. The checklists should be completed as early as practicable and preferably before commencing final descent towards the DA/H;		
b. The operator's manuals should at least specify the maximum ROD for each aeroplane type/class operated and the required visual reference to continue the approach below: i. the DA/H, when applying CDFA; ii. the MDA/H, when not applying CDFA;		
c. The operator should establish procedures which prohibit level flight at MDA/H without the flight crew having obtained the required visual references. It is not the intention to prohibit level flight at MDA/H when conducting a circling approach, which does not come within the definition		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
of the CDFA technique;		
d. The operator should provide the flight crew with unambiguous details of the technique used (CDFA or not). The corresponding relevant minima should include: i. type of decision, whether DA/H or MDA/H; ii. MAPt as applicable; and iii. appropriate RVR/Visibility for the approach classification and aeroplane category;		
e. Specific types/class of aeroplane, in particular certain Performance Class B and Class C aeroplanes, may be unable to comply fully with the requirements of this guidance relating to the operation of CDFA. This problem arises because some aeroplanes must not be configured fully into the landing configuration until required visual references are obtained for landing, because of inadequate missed approach performance engine out. For such aeroplanes, the operator should either: i. obtain approval from the authority for an appropriate modification to the stipulated procedures and flight techniques prescribed herein; or ii. increase the required minimum RVR to ensure the aeroplane will be operated safely during the configuration change on the final approach path to landing.		
8. Training:		
a. The operator should ensure that, prior to using the CDFA technique or not (as appropriate), each flight crew member undertakes the appropriate		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
training and checking as required by Part OR.OPS.FC. Such training should cover the techniques and procedures appropriate to the operation which are stipulated in 4. and 5. The operator's proficiency check, if applicable, should include at least one approach to a landing or go-around as appropriate using the CDFA technique or not. The approach should be operated to the lowest appropriate DA/H or MDA/H as appropriate; and, if conducted in a simulator, the approach should be operated to the lowest approved RVR. The approach is not in addition to any manoeuvre currently required by either Part-FCL or Part-OPS. The requirement may be fulfilled by undertaking any currently required approach (engine out or otherwise) other than a precision approach, whilst using the CDFA technique;		
b. The policy for the establishment of constant predetermined vertical path and approach stability are to be enforced both during initial and recurrent pilot training and checking. The relevant training procedures and instructions should be documented in the operations manual;		
c. The training should emphasise the need to establish and facilitate joint crew procedures and CRM to enable accurate descent path control and the requirement to establish the aeroplane in a stable condition as required by the operator's operational procedures. If barometric vertical navigation is used, the crews should be trained in the errors associated with these systems;		
d. During training, emphasis should be placed on the flight crew's need to:		
i. maintain situational awareness at all times, in particular with reference to the required vertical and horizontal profile;		
ii. ensure good communication channels throughout the approach;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
iii. ensure accurate descent-path control particularly during any manually-flown descent phase. The non-operating/non-handling pilot should facilitate good flight path control by: A. communicating any altitude/height crosschecks prior to the actual passing of the range/altitude or height crosscheck; B. prompting, as appropriate, changes to the target ROD; and C. monitoring flight path control below DA/MDA.		
iv. understand the actions to be taken if the MAPt is reached prior to the MDA/H;		
v. ensure that the decision to go-around must, at the latest, have been taken upon reaching the DA/H or MDA/H;		
vi. ensure that prompt go-around action is taken immediately when reaching DA/H if the required visual reference has not been obtained as there may be no obstacle protection if the go-around manoeuvre is delayed;		
vii. understand the significance of using the CDFA technique to a DA/H with an associated MAPt and the implications of early go-around manoeuvres; and		
viii. understand the possible loss of the required visual reference (due to pitch-change/climb) when not using the CDFA technique for aeroplane types/classes which require a late change of configuration and/or speed to ensure the aeroplane is in the appropriate landing configuration;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
e. Additional specific training when not using the CDFA technique with level flight at or above MDA/H:		
i. The training should detail: A. the need to facilitate CRM; with appropriate flight crew communication in particular; B. the additional known safety risks associated with the 'dive-and-drive' approach philosophy which may be associated with non-CDFA; C. the use of DA/H during approaches flown using the CDFA technique; D. the significance of the MDA/H and the MAPt where appropriate; E. the actions to be taken at the MAPt and the need to ensure that the aeroplane remains in a stable condition and on the nominal and appropriate vertical profile until the landing; F. the reasons for increased RVR/Visibility minima when compared to the application of CDFA; G. the possible increased obstacle infringement risk when undertaking level flight at MDA/H without the required visual references; H. the need to accomplish a prompt go-around manoeuvre if the required visual reference is lost; I. the increased risk of an unstable final approach and an associated unsafe landing if a rushed approach is attempted either from: 1. inappropriate and close-in acquisition of the required		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
visual reference; or 2. unstable aeroplane energy and or flight path control; and J. The increased risk of CFIT (see introduction).		
9. Approaches requiring level flights: a. The procedures which are flown with level flight at/or above MDA/H should be listed in the operations manual; b. Operators should classify aerodromes where there are approaches which require level flight at/or above MDA/H as being B and C categorised. Such aerodrome categorisation will depend upon the operator's experience, operational exposure, training programme(s) and flight crew qualification(s).		
GM3 OPS.GEN.150.A Instrument Flight Rules (IFR) operating minima		
AERODROME MINIMA – CIRCLING – AEROPLANES		
1. Terminology: XLS = ILS/MLS/GLS etc.	Request to include PAR, as it is otherwise referred to alongside XLS throughout the NPA.	Accepted.
2. Visual manoeuvring (circling). The purpose of this guidance material is to provide operators with supplemental information regarding the application of aerodrome operating minima in relation to circling approaches.		
3. Conduct of flight – General: a. The MDH and OCH included in the procedure are referenced to aerodrome		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
elevation; b. The MDA is referenced to mean sea level; c. For these procedures, the applicable visibility is the meteorological VIS.		
4. Instrument approach followed by visual manoeuvring (circling) without prescribed tracks:		
a. When the aeroplane is on the initial instrument approach, before visual reference is stabilised, but not below MDA/H - the aeroplane should follow the corresponding instrument approach procedure until the appropriate instrument MAPt is reached;		
b. At the beginning of the level flight phase at or above the MDA/H, the instrument approach track determined by radio navigation aids, RNAV, RNP or XLS should be maintained until: i. the pilot estimates that, in all probability, visual contact with the runway of intended landing or the runway environment will be maintained during the entire circling procedure; ii. the pilot estimates that the aeroplane is within the circling area before commencing circling; and iii. the pilot is able to determine the aeroplane's position in relation to the runway of intended landing with the aid of the appropriate external references;		
c. When reaching the published instrument MAPt and the conditions stipulated in 4.b., are unable to be established by the pilot, a missed approach should be carried out in accordance with that instrument approach procedure;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
d. After the aeroplane has left the track of the initial (letdown) instrument approach, the flight phase outbound from the runway should be limited to an appropriate distance, which is required to align the aeroplane onto the final approach. Such manoeuvres should be conducted to enable the aeroplane: i. to attain a controlled and stable descent path to the intended landing runway; and ii. remain within the circling area and in such way that visual contact with the runway of intended landing or runway environment is maintained at all times;		
e. Flight manoeuvres should be carried out at an altitude/height that is not less than the circling MDA/H;		
f. Descent below MDA/H should not be initiated until the threshold of the runway to be used has been appropriately identified and the aeroplane is in a position to continue with a normal rate of descent and land within the touchdown zone.	The following text should be added for clarification: "The aeroplane must be is in a position to continue clear of all obstructions along the line of flight, with a normal rate of descent and land within the touchdown zone. The stabilised approach criteria of should be observed, in particular the suggested 1 000 ft and 500 ft minimums for stabilisation. Caution should be exercised when flying outside of the defined areas of coverage of any	For Part-NCO, the text is considered sufficient.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
	visual approach aids such as PAPIS, as obstacle clearance may be reduced.”	
5. Instrument approach followed by a visual manoeuvring (circling) with prescribed track:		
a. The aeroplane should remain on the initial instrument approach or letdown procedure until one of the following is reached: i. The prescribed divergence point to commence circling on the prescribed track; or ii. The appropriate initial instrument MAPt;		
b. The aeroplane should be established on the instrument approach track determined by the radio navigation aids, RNAV, RNP, or XLS in level flight at or above the MDA/H at or by the circling manoeuvre divergence point;		
c. If the divergence point is reached before the required visual reference is acquired, a missed approach should be initiated not later than the initial instrument approach MAPt and completed in accordance with the initial instrument approach procedure;		
d. When commencing the prescribed track-circling manoeuvre at the published divergence point, the subsequent manoeuvres should be conducted to comply with the published routing and promulgated heights/altitudes;		
e. Unless otherwise specified, once the aeroplane is established on the prescribed track(s), the promulgated visual reference should not be required to be maintained unless:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
i. required by the State; or ii. the Circling MAPt (if published) is reached;		
f. If the prescribed track-circling manoeuvre has a published MAPt and the required visual reference has not been obtained a missed approach should be executed in accordance with 6.b. and 6.c.;		
g. Subsequent further descent below MDA/H should only commence when the required visual reference is obtained;		
h. Unless otherwise specified in the procedure, final descent should not be initiated from MDA/H until the threshold of the intended landing runway has been appropriately identified and the aeroplane is in a position to continue with a normal rate of descent and land within the touchdown zone.		
6. Missed approach:		
a. Missed approach during instrument approach prior to circling: i. If the decision to carry out a missed approach is taken when the aeroplane is positioned on the instrument approach track defined by radio-navigation aids RNAV, RNP, or XLS, and before commencing the circling manoeuvre, the published missed approach for the instrument approach should be followed; ii. If the instrument approach procedure is carried out with the aid of an XLS or an SAp, the MAPt associated with an XLS procedure without glide path (GP-out procedure) or the SAp, where applicable, should be used;		

A: Rule	B: Summary of comments	C: Reason for change, remarks
b. If a prescribed missed approach is published for the circling manoeuvre, this overrides the manoeuvres prescribed below;		
c. If visual reference is lost while circling to land after the aeroplane has departed from the initial instrument approach track, the missed approach specified for that particular instrument approach should be followed. It is expected that the pilot will make an initial climbing turn toward the intended landing runway and continue overhead the aerodrome where the pilot will establish the aeroplane in a climb on the instrument missed approach track;		
d. The aeroplane should not leave the visual manoeuvring (circling) area, which is obstacle protected, unless: i. established on the appropriate missed approach track; or ii. at Minimum Sector Altitude (MSA);	Request to replace "missed approach segment track" with "missed approach segment".	Text revised accordingly.
e. All turns should (see Note 1 below) be made in the same direction and the aeroplane should remain within the circling protected area while climbing to either:		
i. the altitude assigned to any published circling missed approach manoeuvre if applicable; ii. the altitude assigned to the missed approach of the initial instrument approach; iii. the Minimum Sector Altitude (MSA); iv. the Minimum Holding Altitude (MHA) applicable for transition to a holding facility or fix, or continue to climb to a Minimum Safe Altitude; or		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
v. as directed by ATS/Control (C).		
Note 1: When the go-around is commenced on the "downwind" leg of the circling manoeuvre, an "S" turn may be undertaken to align the aeroplane on the initial instrument approach missed approach path, provided the aeroplane remains within the protected circling area.		
Note 2: The pilot-in-command should be responsible for ensuring adequate terrain clearance during the above-stipulated manoeuvres, particularly during the execution of a missed approach initiated by ATS;		
f. In as much as the circling manoeuvre may be accomplished in more than one direction, different patterns will be required to establish the aeroplane on the prescribed missed approach course depending on its position at the time visual reference is lost. In particular, all turns are to be in the prescribed direction if this is restricted, e.g. to the west/east (left or right hand) to remain within the protected circling area;		
g. If a missed approach procedure is promulgated for the runway (XX) onto which the aeroplane is conducting a circling approach and the aeroplane has commenced a manoeuvre to align with the runway; the missed approach for this direction may be accomplished. The ATS should be informed of the intention to fly the promulgated missed approach procedure for runway XX;		
h. When the option described in 6.g. is undertaken the pilot-in-command should whenever possible advise at the earliest opportunity, the ATS/C of the intended go-around procedure. This dialogue should, if possible occur during the initial approach phase and include the intended missed approach to be flown and the level off altitude;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
i. In addition to 6.h., the pilot-in-command should advise ATS/C when any go-around has commenced, the height/altitude the aeroplane is climbing to and the position the aeroplane is proceeding towards and or heading the aeroplane is established on.		
GM4 OPS.GEN.150.H Instrument Flight Rules (IFR) operating minima		This GM is now GM7-NCO.OP.110
AERODROME MINIMA - ONSHORE AERODROME DEPARTURE PROCEDURES – HELICOPTERS		
The cloud base and visibility should be such as to allow the helicopter to be clear of cloud at Take-off Decision Point (TDP), and for the pilot flying to remain in sight of the surface until reaching the minimum speed for flight in instrument meteorological conditions given in the AFM.		
GM OPS.GEN.150(b) Instrument Flight Rules (IFR) operating minima		This GM is not transposed since the increment is not mentioned anymore in the rule text.
INCREMENTS IMPOSED BY THE COMPETENT AUTHORITY		
Additional increments to the published minima may be imposed by the competent authorities to take into account special operations, such as downwind approaches and single-pilot operations.		
AMC OPS.GEN.155.H Selection of alternate aerodromes		This provision is not transposed as it is considered not relevant for

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		NCO operations.
OFFSHORE ALTERNATES - HELICOPTERS		
1. Suitable offshore alternates may be selected and specified subject to the following: a. The offshore alternate should only be used after passing a PNR. Prior to a PNR, onshore alternates should be used; b. Mechanical reliability of critical control systems and critical components should be considered and taken into account when determining the suitability of the alternate; c. OEI performance capability should be attainable prior to arrival at the alternate; d. To the extent possible, deck availability should be guaranteed; and e. Weather information must be reliable and accurate.		
2. Offshore alternates should not be used when it is possible to carry enough fuel to have an onshore alternate. Offshore alternates should not be used in a hostile environment.		
3. The landing technique specified in the AFM following control system failure may preclude the nomination of certain helidecks as alternate aerodromes.		
GM1 OPS.GEN.155.A(a)(3) Selection of alternate aerodromes		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
ISOLATED AERODROME – AEROPLANES The destination aerodrome could be considered as an isolated aerodrome if the fuel required to the nearest adequate destination alternate aerodrome is more than:	IS: Request to provide correct GM number and put the definition of "Isolated Aerodrome" in the Cover Regulation.	This text has been upgraded to the IR level and aligned with the text in Part-NCC.
1. for aeroplanes with reciprocating engines, fuel to fly for 45 minutes plus 15 % of the flight time planned to be spent at cruising level or two hours, whichever is less; or		
2. for aeroplanes with turbine engines, fuel to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel.		
GM2 OPS.GEN.155.H Selection of alternate aerodromes		This GM is not transposed as it is beyond the scope of Part-NCO
OFFSHORE ALTERNATES – HELICOPTERS – COMMERCIAL AIR TRANSPORT		
1. The procedures contained in AMC OPS.CAT.155.H(a)(1) are weather-critical. Consequently, meteorological data conforming to the standards contained in the Regional Air Navigation Plan and ICAO Annex 3 Meteorological Service for International Air Navigation has been specified. As the following meteorological data is point specific, caution should be exercised when associating it with nearby aerodromes (or helidecks).		
2. Meteorological Reports (METARs):		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. Routine and special meteorological observations at offshore installations should be made during periods and at a frequency agreed between the meteorological authority and the operator concerned. They should comply with the requirements contained in the meteorological section of the ICAO Regional Air Navigation Plan , and should conform to the standards and recommended practices, including the desirable accuracy of observations, promulgated in ICAO Annex 3 Meteorological Service for International Air Navigation.		
b. Routine and selected special reports are exchanged between meteorological offices in the METAR or SPECI code forms prescribed by the World Meteorological Organisation.		
3. Aerodrome Forecasts (TAFS):		
a. The aerodrome forecast consists of a concise statement of the mean or average meteorological conditions expected at an aerodrome or operating site during a specified period of validity, which is normally not less than nine hours, or more than 24 hours in duration. The forecast includes surface wind, visibility, weather and cloud, and expected changes of one or more of these elements during the period. Additional elements may be included as agreed between the meteorological authority and the operators concerned. Where these forecasts relate to offshore installations, barometric pressure and temperature should be included to facilitate the planning of helicopter landing and take-off performance.		
b. Aerodrome forecasts are most commonly exchanged in the TAF code form, and the detailed description of an aerodrome forecast is promulgated in the ICAO Regional Air Navigation Plan and also in ICAO Annex 3 Meteorological Service for International Air Navigation, together with the		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
operationally desirable accuracy elements. In particular, the observed cloud height should remain within ±30% of the forecast value in 70% of cases, and the observed visibility should remain within ±30% of the forecast value in 80% 0f cases.		
4. Landing Forecasts (TRENDS):		
a. The landing forecast consists of a concise statement of the mean or average meteorological conditions expected at an aerodrome or operating site during the two-hour period immediately following the time of issue. It contains surface wind, visibility, significant weather and cloud elements, and other significant information, such as barometric pressure and temperature, as may be agreed between the meteorological authority and the operators concerned.		
b. The detailed description of the landing forecast is promulgated in the ICAO Regional Air Navigation Plan and also in ICAO Annex 3 Meteorological Service for International Air Navigation, together with the operationally desirable accuracy of the forecast elements. In particular, the value of the observed cloud height and visibility elements should remain within +/-30% of the forecast values in 90% of the cases.		
c. Landing forecasts most commonly take the form of routine or special selected meteorological reports in the METAR code, to which either the code words "NOSIG", i.e. no significant change expected; "BECMG" (becoming), or "TEMPO" (temporarily), followed by the expected change, are added. The two-hour period of validity commences at the time of the meteorological report.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
5. When operating off shore, any spare payload capacity should be used to carry additional fuel if it would facilitate the use of an onshore alternate.		
AMC OPS.GEN.165.A Noise abatement		This AMC is not transposed as it is considered not to be relevant for NCO operators.
NOISE ABATEMENT PROCEDURES - AEROPLANES		
1. The operator's noise abatement procedures for departure and arrival/approach for each aircraft type, which should be designed to be simple and safe to operate with no significant increase in crew workload during critical phases of flight.		
2. A pilot-in-command should follow noise abatement procedures whenever they would not have a detrimental effect on aircraft safety.		
GM OPS.GEN.165.A Noise abatement		This GM is not transposed as it is beyond the scope of Part-NCO.
NOISE ABATEMENT PROCEDURES - COMPLEX MOTOR-POWERED AEROPLANES – COMMERCIAL AIR TRANSPORT		
1. For each aeroplane type only two departure procedures should be defined, in accordance with Part I Section 7 of ICAO PANS-OPS Volume 1 (Doc 8168-OPS/611) , as follows: a. Noise Abatement Departure Procedure one (NADP 1) designed to meet the		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
close-in noise abatement objective; b. Noise Abatement Departure Procedure two (NADP 2) designed to meet the distant noise abatement objective; c. In addition, each NADP climb profile can only have one sequence of actions.		
2. This GM addresses only the vertical profile of the departure procedure. Lateral track has to comply with the Standard Instrument Departure (SID).		
3. "Climb profile" means the vertical path of the NADP as it results from the pilot's actions (engine power reduction, acceleration, slats/flaps retraction).		
4. "Sequence of actions" means the order and the timing in which these pilot's actions are done.		
5. Example: For a given aeroplane type, when establishing the distant NADP, an operator should choose either to reduce power first and then accelerate, or to accelerate first and then wait until slats/flaps are retracted before reducing power. The two methods constitute two different sequences of actions.		
For an aeroplane type, each of the two departure climb profiles may be defined by: a. one sequence of actions (one for close-in, one for distant); b. two Above Aerodrome Level (AAL) altitudes/heights: c. the altitude of the first pilot's action (generally power reduction with or without acceleration). This altitude should not be less than 800 ft AAL; or d. the altitude of the end of the noise abatement procedure. This altitude		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
should usually not be more than 3 000 ft AAL.		
These two altitudes may be runway specific when the aeroplane Flight Management System (FMS) has the relevant function which permits the crew to change thrust reduction and/or acceleration altitude/height.		
If the aeroplane is not FMS equipped or the FMS is not fitted with the relevant function, two fixed heights should be defined and used for each of the two NADPs.		
AMC OPS.GEN.170 Minimum terrain clearance altitudes	Request to delete this AMC since it might lead to confusion.	This AMC is not transposed.
GENERAL Commercially available information specifying minimum terrain clearance altitudes may be used.		
AMC OPS.GEN.175 Minimum flight altitudes		This AMC is not transposed as it is beyond the scope of Part-NCO.
COMMERCIAL OPERATIONS OTHER THAN COMMERCIAL AIR TRANSPORT		
1. When specifying minimum flight altitudes, the operator should take account of AMC OPS.CAT.170.		
2. When specifying minimum altitudes for operations that can only be performed below the minimum altitudes, it should be taken into account that the aircraft:		

A: Rule	B: Summary of comments	C: Reason for change, remarks
a. should not be flown over congested areas; and b. should not expose persons or property on the surface to risk of injury or damage.		
3. Due consideration should be given to environmental factors, such as noise exposure.		
4. Procedures should be developed based on a risk assessment in accordance with OPS.COM.270 giving due regard to factors, such as: a. type of operation; b. terrain to be overflown; c. obstacle situation; d. weather conditions, visibility, wind, turbulence; e. lighting conditions; f. crew experience; g. crew familiarity with the area; h. crew training; i. aircraft performance; j. number of persons on board; and k. any attached or underslung equipment or load.		
5. Following the risk assessment, the Operations Manual (OM) should include Standard Operating Procedures (SOPs), such as: a. method of operational control of such operations; b. crew minimum experience;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
c. flight planning; d. pre-survey of the route and/or take-off/landing site; e. weather limitations; f. minimum altitudes; g. performance; h. (safe) forced landing areas; i. navigation; and j. personal protective equipment.		
GM OPS.GEN.175 Minimum flight altitudes		Text not transposed - the content is covered by Part-SERA.
DESCENDING BELOW SPECIFIED MINIMUM FLIGHT ALTITUDES		
1. The operator may have to obtain permission from the authority of the State in which it intends to conduct operations involving flights below minimum altitudes.		
2. The State overflown may specify procedures for certain commercial operations (e.g. helicopter operations or photo-flights) or flight instruction (e.g. training of emergency landings) which allow the operator or the approved training organisation to descend below the specified minimum flight altitudes.		
AMC OPS.GEN.180.H Routes and areas of operation		This AMC is not transposed as it is beyond the scope of Part-NCO

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
HELICOPTER COASTAL TRANSIT OPERATIONS – COMMERCIAL AIR TRANSPORT For helicopters operated in Performance Class 3 and conducting coastal transit operations, the width of the coastal corridor and the equipment carried, should be consistent with the conditions prevailing at the time.		Beyond the scope of Part-NCO
GM OPS.GEN.180.H Routes and areas of operation		This GM is not transposed as it is beyond the scope of Part-NCO
HELICOPTER COASTAL TRANSIT OPERATIONS – COMMERCIAL AIR TRANSPORT		
1. A helicopter operating overwater in Performance Class 3 has to have certain equipment fitted. This equipment varies with the distance from land that the helicopter is expected to operate. The aim of this guidance material is to discuss that distance, bring into focus what fit is required and to clarify the operator's responsibility, when a decision is made to conduct coastal transit operations.		
2. In the case of operations north of 45N or south of 45S, the coastal corridor facility may or may not be available in a particular state, as it is related to the State definition of open sea area as described in the definition of hostile environment.		
3. Where the term coastal transit is used, it means the conduct of operations overwater within the coastal corridor in conditions where there is reasonable expectation that; the flight can be conducted safely in the conditions prevailing; and, following an engine failure, a safe forced landing and successful evacuation can be achieved; and survival of the crew and passengers can be assured until rescue is effected.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
4. Coastal corridor is a variable distance from the coastline to a maximum distance corresponding to three minutes flying at normal cruising speed.		
5. Establishing the width of the coastal corridor:		
a. The distance from land of coastal transit, is defined the boundary of a corridor that extends from the land, to a maximum distance of up to three minutes at normal cruising speed (approximately five to six nm). Land in this context includes sustainable ice and, where the coastal region includes islands, the surrounding waters may be included in the corridor and aggregated with the coast and each other. Coastal transit need not be applied to inland waterways, estuary crossing or river transit: i. In some areas, the formation of ice is such that it can be possible to land, or force land, without hazard to the helicopter or occupants. The operator may regard the definition of the "land" extends to these areas. ii. In view of the fact that such featureless and flat white surfaces could present a hazard and could lead to white-out conditions, the definition of land does not extend to flights over ice fields in OPS.CAT.410(b)(2)(ii) and OPS.CAT.418.H.		
b. The width of the corridor is variable from not safe to conduct operations in the conditions prevailing, to the maximum of three minutes wide. A number of factors will, on the day, indicate if it can be used - and how wide it can be. These factors will include but not be restricted to: i. the meteorological conditions prevailing in the corridor; ii. the instrument fit of the aircraft;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
iii. the certification of the aircraft - particularly with regard to floats; iv. the sea state; v. the temperature of the water; vi. the time to rescue; and vii. the survival equipment carried.		
These can be broadly divided into the following three functional groups: A. Those which meet the requirement for safe flying – i. and ii; B. Those which meet the requirement for a safe forced landing and evacuation – i., ii., iii. and iv; C. Those which meet the requirement for survival following a forced landing and successful evacuation – i., iv., v., vi. and vi;		
6. Requirement for safe flying: a. It is generally recognised that when flying out of sight of land in certain meteorological conditions, such as occur in high pressure weather patterns (goldfish bowl - no horizon, light winds and low visibility), the absence of a basic panel (and training) can lead to disorientation. In addition, lack of depth perception in these conditions demands the use of a radio altimeter with an audio voice warning as an added safety benefit - particularly when autorotation to the surface of the water may be required. b. In these conditions a helicopter, without the required instruments and radio altimeter, should be confined to a corridor in which a pilot can maintain reference using the visual cues on the land.		
7. Requirement for a safe forced landing and evacuation:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. Weather and sea state both affect the outcome of an autorotation following an engine failure. It is recognised that the measurement of sea state is problematical and when assessing such conditions, good judgement has to be exercised by the operator and the commander.		
b. Where floats have been certificated only for emergency use (and not for ditching), operations should be limited to those sea states which meet the requirement for such use - where a safe evacuation is possible.		
(Ditching certification requires compliance with a comprehensive number of requirements relating to rotorcraft water entry, flotation and trim, occupant egress and occupant survival. Emergency flotation systems, generally fitted to smaller CS-27 rotorcraft, are approved against a broad requirement that the equipment should perform its intended function and not hazard the rotorcraft or its occupants. In practice, the most significant difference between ditching and emergency flotation systems is substantiation of the water entry phase. Ditching requirements call for water entry procedures and techniques to be established and promulgated in the AFM. The fuselage/flotation equipment should thereafter be shown to be able to withstand loads under defined water entry conditions which relate to these procedures. For emergency flotation equipment, there is no requirement to define the water entry technique and no specific conditions defined for the structural substantiation.)		
8. Requirements for survival:		
a. Survival of crew members and passengers, following a successful autorotation and evacuation, is dependant on the clothing worn, the equipment carried and worn, the temperature of the sea and the sea state (see GM OPS.CAT.H.426). Search and rescue response/capability		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
consistent with the anticipated exposure should be available before the conditions in the corridor can be considered non-hostile.		
b. Coastal Transit can be conducted (including north of 45N and south of 45S - when the definition of open sea areas allows) provided the requirements of GM OPS.GEN.180.H 7. and 8. are met and the conditions for a non-hostile coastal corridor are satisfied.		
AMC1 OPS.GEN.185 Meteorological conditions		
CONTINUATION OF A FLIGHT In the case of in-flight re-planning, continuation of a flight refers to the point from which a revised flight plan applies.	MS: request to place this as a GM.	Accepted.
AMC2 OPS.GEN.185 Meteorological conditions		
EVALUATION OF METEOROLOGICAL CONDITIONS		
Pilots should carefully evaluate the available meteorological information relevant to the proposed flight, such as applicable surface observations, temperatures aloft, terminal and area forecasts, AIRMETs, SIGMETs, and pilot reports. The ultimate decision whether, when, and where to make the flight rests with the pilot-in-command. A pilot also should continue to re-evaluate changing weather conditions.	Request to add "…winds aloft";	Accepted. Text amended.
AMC3 OPS.GEN.185 Meteorological conditions		This AMC is not transposed as it is beyond the scope of Part-NCO

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
GENERAL – COMMERCIAL AIR TRANSPORT		
In addition to AMC 1 and 2 OPS.GEN.185, a flight according to Instrument Flight Rules (IFR) should only be continued beyond: 1. the decision point when using the reduced contingency fuel procedure; or 2. the pre-determined point when using the pre-determined point procedure,		
when available information indicates that the expected weather conditions at the time of arrival at the destination and/or required alternate aerodromes are at, or above, the applicable aerodrome operating minima.		
AMC OPS.GEN.190.B Take-off conditions		This AMC is deleted as it is considered not to be relevant for NCO operations.
FACILITIES AT THE TAKE-OFF SITE – BALLOONS At the take-off site an anemometer should be provided by the operator.		
AMC OPS.GEN.195 Approach and landing conditions		
LANDING DISTANCE/FATO SUITABILITY The in-flight determination of the landing distance/FATO suitability should be based on the latest available report, preferably not more than 30 minutes before the expected landing time.	Request to clarify what “suitability” means.	NCO.OP.195 addresses the need to ensure that a safe approach and landing would not be prevented. The AMC links back to that requirement. Deleted text is not needed because the

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		AMC already states that the latest available report should be taken into account.
AMC OPS.GEN.200 Commencement and continuation of approach		This text has not been transposed as the content is sufficiently covered in the IR.
GENERAL		
1. The RVR should not be less than the applicable minima.		
2. Where RVR is not available, RVR values may be derived by converting the reported visibility (CMV) in accordance with AMC11 OPS.GEN.150.		
3. If the MDA/H is above 500 ft above the aerodrome, the operator should establish an altitude/height, below which the approach should not be continued if the RVR/CMV is less than the applicable minima. This altitude/height should be at or above MDA/H + 500 ft but not above the FAF altitude/height.		
4. The touchdown zone RVR is always prevailing over the other RVR values. If reported and relevant, the mid point and stop end RVR are also controlling. The minimum RVR should be at least: a. 125 m for the mid-point; or b. the RVR required for the touchdown zone; and c. 75 m for the stop-end.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
For aeroplanes equipped with a rollout guidance or control system, the minimum RVR value for the mid-point is 75 m. 'Relevant' means that part of the runway used during the high speed phase of the landing down to a speed of approximately 60 knots.		
AMC1 OPS.GEN.205 Fuel and oil supply	Request to review the objective requirement of the AMC and the prescriptive requirement of the rule.	This complements the IR; therefore it was moved from AMC to the IR.
FUEL PLANNING – NON-COMMERCIAL OPERATIONS		
1. In computing the fuel and oil required, the following should be considered: a. Meteorological conditions forecast; b. Expected air traffic control routings and traffic delays; c. For IFR flight, one instrument approach at the destination aerodrome, including a missed approach; d. The procedures for loss of pressurisation, where applicable, or failure of one power-unit while en route; e. Any other conditions that may delay the landing of the aircraft or increase fuel and/or oil consumption.		
2. Nothing precludes amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that the all requirements can be complied with from the point where the flight is re-planned.		
AMC2 OPS.GEN.205.B Fuel and oil supply		This AMC is not transposed as it is beyond the scope of

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		Part-NCO
FUEL PLANNING – BALLOONS – COMMERCIAL AIR TRANSPORT		
In addition to AMC2 B OPS.GEN.205, for flights conducted in accordance with visual flight rules, reserve fuel (gas or ballast) should not be less than to allow: 1. 45 minutes flight in mountainous areas; or 2. One-hour flight if the take-off is at night.		
AMC3 OPS.GEN.205 Fuel and oil supply		
RESERVE FUEL - COMMERCIAL OPERATIONS OTHER THAN COMMERCIAL AIR TRANSPORT		
1. Notwithstanding AMC3 OPS.GEN.205.A and AMC4 OPS.GEN.205.H for flights remaining within 25 NM of the aerodrome/operating site of departure and with operating flight crew on board only, reserve fuel should not be less than: a. for aeroplanes, 20 minutes fuel at normal cruising altitude; and b. for helicopters, 10 minutes fuel at best range speed.		
2. The operator should demonstrate to the competent authority that the amount of reserve fuel in accordance with 1 is essential for carrying out a specialised task.		
3. The operator should specify in the OM: a. the type of activity where such reduced reserve fuel may be used;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. methods of reading and calculating the remaining fuel; and c. SOPs.		
4. Refuelling facilities should be available at the aerodrome/operating site.		
5. Refuelling should be performed between each flight.		
AMC4 OPS.GEN.205 Fuel and oil supply		
REFUELLING/DEFUELLING PROCEDURES - COMMERCIAL OPERATIONS OTHER THAN COMMERCIAL AIR TRANSPORT		
1. The operator should establish refuelling/defuelling procedures specifying: a. the fuelling sites and equipment that may be used for fuelling the aircraft; b. the fuel quality for fuelling the aircraft; c. fire precautions and preparedness; d. the transport and storage of fuel in the operators care according to established standards; e. fuelling with engines/rotors running, if applicable; and f. in-flight refuelling, if applicable.		
2. These procedures should take into account the minimisation of fire hazards and adequate protection of the natural environment.		
AMC OPS.GEN.210 Refuelling with passengers embarking, on board or	MS: Request to put this	This AMC is not transposed since refuelling with

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
disembarking	material in the IR.	passengers embarking on board or disembarking is not allowed in NCO operations.
GENERAL		
1. Whenever applicable, the following precautions should be taken:		
a. Fire fighting facilities of the appropriate scale should be positioned so as to be immediately available in the event of a fire, when using operating sites;		
b. For aeroplanes: i. One qualified person should remain at a specified location during fuelling operations with passengers on board. This qualified person should be capable of handling emergency procedures concerning fire protection and fire-fighting, handling communications and initiating and directing an evacuation; ii. A two-way communication should be established and should remain available by the aeroplane's inter-communication system or other suitable means between the personnel involved in the operation supervising the refuelling and the pilot-in-command or other qualified personnel on board the aeroplane iii. Crew, staff and passengers should be warned that re/defuelling will take place; iv. 'Fasten Seat Belts' signs should be off;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
v. 'NO SMOKING' signs should be on, together with interior lighting to enable emergency exits to be identified; vi. Passengers should be instructed to unfasten their seat belts and refrain from smoking; vii. Sufficient qualified personnel or the minimum required number of cabin crew, as applicable, should be on board and be prepared for an immediate emergency evacuation; viii. If the presence of fuel vapour is detected inside the aeroplane, or any other hazard arises during re/defuelling, fuelling should be stopped immediately; ix. The ground area beneath the exits intended for emergency evacuation and slide deployment areas should be kept clear; x. Provision should be made for a safe and rapid evacuation;		
c. For helicopters: i. Door(s) on the refuelling side of the helicopter should remain closed; ii. Door(s) on the non-refuelling side of the helicopter should remain open, weather permitting; iii. Sufficient personnel should be immediately available to move passengers clear of the helicopter in the event of a fire. iv. Sufficient qualified personnel should be on board and be prepared for an immediate emergency evacuation; v. If the presence of fuel vapour is detected inside the helicopter, or any other hazard arises during re/defuelling, fuelling should be stopped immediately; vi. The ground area beneath the exits intended for emergency		

A: Rule	B: Summary of comments	C: Reason for change, remarks
evacuation and slide deployment areas should be kept clear; vii. Provision should be made for a safe and rapid evacuation.		
2. When re/defuelling with passengers on board, ground servicing activities and work inside the aircraft, such as catering and cleaning, should be conducted in such a manner that they do not create a hazard and that the aisles and emergency doors are unobstructed.		
3. The deployment of integral aircraft stairs or the opening of emergency exits as a prerequisite to refuelling is not necessarily required.		
GM1 OPS.GEN.210 Refuelling with passengers embarking, on board or disembarking		This GM is not transposed since refuelling with passengers embarking on board or disembarking is not allowed in NCO operations.
REFUELLING/DEFUELLING WITH WIDE-CUT FUEL		
1. 'Wide-cut fuel' (designated JET B, JP-4 or AVTAG) is an aviation turbine fuel that falls between gasoline and kerosene in the distillation range and consequently, compared to kerosene (JET A or JET A1), it has the properties of higher volatility (vapour pressure), lower flash point and lower freezing point.		
2. Wherever possible, an operator should avoid the use of wide-cut fuel types. If a situation arises such that only wide-cut fuels are available for refuelling/defuelling, operators should be aware that mixtures of wide-cut fuels and kerosene turbine fuels can result in the air/fuel mixture in the tank being in the combustible range at ambient temperatures. The extra precautions set out		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
below are advisable to avoid arcing in the tank due to electrostatic discharge. The risk of this type of arcing can be minimised by the use of a static dissipation additive in the fuel. When this additive is present in the proportions stated in the fuel specification, the normal fuelling precautions set out below are considered adequate.		
3. Wide-cut fuel is considered to be "involved" when it is being supplied or when it is already present in aircraft fuel tanks.		
4. When wide-cut fuel has been used, this should be recorded in the technical log. The next two uplifts of fuel should be treated as though they too involved the use of wide-cut fuel.		
5. When refuelling/defuelling with turbine fuels not containing a static dissipater, and where wide-cut fuels are involved, a substantial reduction on fuelling flow rate is advisable. Reduced flow rate, as recommended by fuel suppliers and/or aeroplane manufacturers, has the following benefits: a. It allows more time for any static charge build-up in the fuelling equipment to dissipate before the fuel enters the tank; b. It reduces any charge which may build up due to splashing; c. Until the fuel inlet point is immersed, it reduces misting in the tank and consequently the extension of the flammable range of the fuel.		
6. The flow rate reduction necessary is dependent upon the fuelling equipment in use and the type of filtration employed on the aeroplane fuelling distribution system. It is difficult, therefore, to quote precise flow rates. Reduction in flow rate is advisable whether pressure fuelling or over-wing fuelling is employed.		
7. With over-wing fuelling, splashing should be avoided by making sure that the delivery nozzle extends as far as practicable into the tank. Caution should be		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
exercised to avoid damaging bag tanks with the nozzle.		
GM2 OPS.GEN.210 Refuelling with passengers embarking, on board or disembarking		This GM is not transposed since refuelling with passengers embarking on board or disembarking is not allowed in NCO operations.
REFUELLING/DEFUELLING PROCEDURES - COMMERCIAL OPERATIONS OTHER THAN COMMERCIAL AIR TRANSPORT		
The OM should contain procedures, including the following:		
1. Fuel quality: a. Documentation of fuel received; b. Sampling; c. Fuel grade; d. Installation, storage and dispensing processes; e. Labelling; f. Checking and testing, as appropriate, of fuel specification, age and contamination.		
2. Fuelling while the engines are running: a. Safety precautions; b. One pilot at the controls.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
3. Transport and storage of fuel: a. Operators fuel installation; b. Mobile storage (drums, cans, tanks); c. Transportation in, on or under the aircraft (dangerous goods).		
4. Fuelling safety: a. Electrical bonding; b. Public protection; c. Control of access to storage areas; d. Fire safety in fuel farm and storage areas; e. Fire safety in mobile fuellers, fuelling pits, and fuelling cabinets; f. Training of fuelling personnel in fire safety; g. Fire code.		
5. Environment: a. Precautionary measures; b. Fuel spills; c. Clean up; d. Reporting;		
GM3 OPS.GEN.210 Refuelling with passengers embarking, on board or disembarking	Request to delete this GM since Annex 14 does not address flight operations, but design of aerodromes.	This GM is not transposed since refuelling with passengers embarking on board or disembarking is not allowed in NCO

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		operations.
AIRCRAFT REFUELLING PROVISIONS AND GUIDANCE ON SAFE REFUELLING PRACTICES Provisions concerning aircraft refuelling are contained in Volume I (Aerodrome Design and Operations) of the ICAO Annex 14 (Aerodromes) , and guidance on safe refuelling practices is contained in Parts 1 and 8 of the ICAO Airport Services Manual (Doc 9137).		
GM OPS.GEN.220.B Operational limitations - balloons		
BALLOON NIGHT FLIGHT		Sub-title is amended.
The risk of collision with overhead lines is considerable and cannot be overstated. The risk is considerably increased during night flights in conditions of failing light and visibility when there is increasing pressure to land. A number of incidents have occurred in the late evening in just such conditions, and may have been avoided had an earlier landing been planned. It is intended by the rule that night landings for this reason shall not be allowed.		
Section III – Aircraft performance and operating limitations		
AMC1 OPS.GEN.305 Weighing		
1. New aircraft that have been weighed at the factory may be placed into operation without reweighing if the mass and balance records have been	IA: Proposal to extend to 5 years the necessity of aircraft	Time limit not transposed

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
adjusted for alterations or modifications to the aircraft. Aircraft transferred from one community operator to another do not have to be weighed prior to use by the receiving operator, unless more than 4 years have elapsed since the last weighing.	weighing to be in line with maintenance requirements.	for NCO.
2. The mass and centre of gravity (CG) of an aircraft should be revised whenever the cumulative changes to the dry operating mass exceed ± 0.5 % of the maximum landing mass or for aeroplanes the cumulative change in CG position exceeds 0.5 % of the mean aerodynamic chord. This may be done by weighing the aircraft or by calculation.		
AMC2 OPS.GEN.305.A Weighing		This AMC is not transposed as it is beyond the scope of Part-NCO
FLEET MASS AND CG POSITION FOR AEROPLANES USED IN COMMERCIAL AIR TRANSPORT		
1. For a group of aeroplanes of the same model and configuration, an average dry operating mass and CG position may be used as the fleet mass and CG position, provided that:		
a. the dry operating mass of an individual aeroplane does not differ by more than ±0.5 % of the maximum structural landing mass from the established dry operating fleet mass; or		
b. the CG position of an individual aeroplane does not differ by more than ±0.5 % of the mean aerodynamic chord from the fleet CG.		
2. The operator should verify that, after an equipment or configuration change or after weighing, the aeroplane falls within the tolerances above.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
3. To obtain fleet values, the operator should weigh, in the period between two fleet mass evaluations, a certain number of aeroplanes as specified in the Table below. "n" is the number of aeroplanes in the fleet using fleet values. Those aeroplanes in the fleet which have not been weighed for the longest time should be selected first.		
Table 1 of AMC2 OPS.GEN.305.A Weighing		
(table below)		
4. The interval between two fleet mass evaluations should not exceed 48 months.		
5. The fleet values should be updated at least at the end of each fleet mass evaluation.		
6. Aeroplanes which have not been weighed since the last fleet mass evaluation can be kept in a fleet operated with fleet values, provided that the individual values are revised by calculation and stay within the tolerances above. If these individual values no longer fall within the tolerances, the operator should determine new fleet values or operate aeroplanes not falling within the limits with their individual values.		

Number of aeroplanes in the fleet	Minimum number of weighings
2 or 3	n
4 to 9	(n + 3)/2
10 or more	(n + 51)/10

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
7. If an individual aeroplane dry operating mass is within the fleet mass tolerance but its CG position exceeds the tolerance, the aeroplane may be operated under the applicable dry operating fleet mass but with an individual CG position.		
8. Aeroplanes for which no mean aerodynamic chord has been published should be operated with their individual mass and CG position values. They may be operated under the dry operating fleet mass and CG position, provided that this can be justified by a study.		
GM OPS.GEN.305.A Weighing		This GM is deleted as it is considered not to be relevant for NCO operations.
MAXIMUM STRUCTURAL LANDING MASS AEROPLANE		
Maximum Structural Landing Mass is the maximum permissible total aeroplane mass upon landing under normal circumstances.		
AMC OPS.GEN.310(a)(1) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
DRY OPERATING MASS To calculate the dry operating mass and the associated CG of the aircraft, the operator should take into account the mass of all operating items and crew members, and the influence of their position on the aircraft CG. This should be done by weighing or using the standard masses of 85 kg for flight and technical crew members and 75 kg for cabin crew members, including hand baggage. Account shall be taken of any		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
additional baggage. On flights where crew masses, including hand baggage, are expected to exceed the standard crew masses, the actual mass of the crew should be determined by weighing.		
AMC1 OPS.GEN.310(a)(2) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
TRAFFIC LOAD Traffic load should be determined by actual weighing or using standard masses for passengers, persons other than crew members and baggage.		
AMC2 OPS.GEN.310(a)(2) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
MASS VALUES FOR PASSENGERS/PERSONS OTHER THAN CREW MEMBERS[1] AND BAGGAGE		
1. When		

1 Persons other than crew members are usually involved in commercial operations other than commercial air transport (e.g. aerial photographer) and should be considered as passengers for this AMC.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. the number of passenger seats available is: i. less than 10 for aeroplanes; or ii. less than 6 for helicopters; or		
b. the number of passengers is less than 11 for balloons, passenger mass may be calculated on the basis of a statement by, or on behalf of, each passenger, adding to it a predetermined mass to account for hand baggage and clothing. The predetermined mass for hand baggage and clothing should be established by the operator on the basis of studies relevant to his particular operation. In any case, it should not be less than: i. 4 kg for clothing; and ii. 6 kg for hand baggage.		
The passengers' stated mass and the mass of passengers' clothing and hand baggage should be checked prior to boarding and adjusted, if necessary.		
2. When determining the actual mass by weighing, passengers' personal belongings and hand baggage should be included. Such weighing should be conducted immediately prior to boarding the aircraft.		
3. When using standard mass values, the standard mass values in Tables 1 and 2 below should be used. The standard masses include hand baggage and, for helicopters, the mass of any infant below 24 months carried by an adult on one passenger seat. Infants occupying separate passenger seats are considered as children.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Table 1 of AMC2 OPS.GEN.310(a)(2) Mass and balance system - Mass values for passengers – 20 seats or more		

Passenger seats	20 and more		30 and more
	Male	Female	'All adult'
All flights except holiday charters	88 kg	70 kg	84 kg
Holiday charters*	83 kg	69 kg	76 kg
Children	35 kg	35 kg	35 kg

* Holiday charter means a charter flight that is part of a holiday travel package. On such flights the entire passenger capacity is hired by one or more charterer(s) for the carriage of passengers who are travelling, all or in part by air, on a round- or circle-trip basis for holiday purposes. The holiday charter mass values apply provided that not more than 5 % of passenger seats installed in the aircraft are used for the non revenue carriage of certain passengers. Categories of passengers such as company personnel, tour operators' staff, representatives of the press, authority officials etc. can be included within the 5% without negating the use of holiday charter mass values.

Table 2 of AMC2 OPS.GEN.310(a)(2) Mass and balance system - Mass values for passengers – 19 seats or less

Passenger seats	1 – 5	6 – 9	10 – 19

A: Rule	B: Summary of comments	C: Reason for change, remarks

Male	104 kg	96 kg	92 kg
Female	86 kg	78 kg	74 kg
Children	35 kg	35 kg	35 kg

On aeroplanes flights with 19 passenger seats or less and all helicopter flights where no hand baggage is carried in the cabin or where hand baggage is accounted for separately, 6 kg may be deducted from the figures in Table 2 above. The following items are not considered hand baggage: an overcoat, an umbrella, a small handbag or purse, reading material or a small camera.

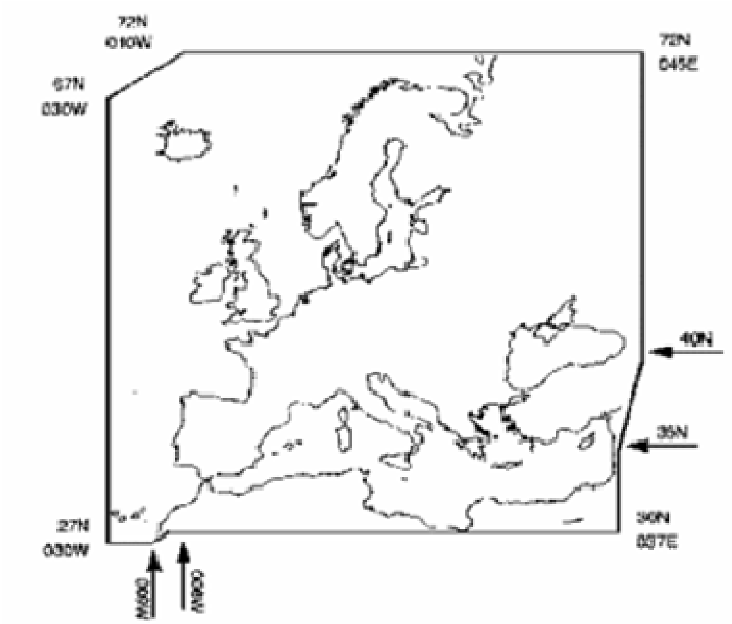
For helicopter operations in which a survival suit is provided to passengers, 3 kg should be added to the passenger mass value.

4. Where the total number of passenger seats available on the aircraft is 20 or more, the standard mass values for checked baggage of Table 3 should be used.

Table 3 of AMC2 OPS.GEN.310(a)(2) Mass and balance system - Mass values for baggage - 20 or more seats

Type of flight	Baggage standard mass
Domestic	11 kg
Within the European region	13 kg
Intercontinental	15 kg

A: Rule	B: Summary of comments	C: Reason for change, remarks
All other — 13 kg Flights within the European region are flights conducted within the following area: – N7200 E04500 – N4000 E04500 – N3500 E03700 – N3000 E03700 – N3000 W00600 – N2700 W00900 – N2700 W03000 – N6700 W03000 – N7200 W01000 – N7200 E04500		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
 Figure 1 - European region		
Domestic flight means a flight with origin and destination within the borders of one State.		
Flights within the European region means flights, other than domestic flights, whose origin and destination are within the area specified above.		
Intercontinental flights are flights beyond the European region with origin and destination in different continents.		
For aircraft with 19 passenger seats or less, the mass of checked baggage should be determined by weighing.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
For aircraft with 19 passenger seats or less used in non-commercial operations, the mass of checked baggage may also be calculated on the basis of a statement by, or on behalf of, each passenger. Where this is impractical, a minimum standard mass value of 13 kg should be used. The mass of checked baggage should be checked prior to loading and increased, if necessary.		
5. The operator should determine the actual mass of passengers or checked baggage by weighing or add adequate mass increments whenever it can be expected that a significant number of passengers, including hand baggage, or checked baggage exceeds the standard masses.		
6. Other standard masses may be used provided they are calculated on the basis of a detailed weighing survey plan and a reliable statistical analysis method is applied. The standard mass values should only be used in circumstances comparable with those under which the survey was conducted. Where these standard masses exceed those in Tables 1 - 3, then such higher values should be used.		
AMC3 OPS.GEN.310(a)(2) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
SPECIAL STANDARD MASSES FOR TRAFFIC LOAD In addition to standard masses for passengers/persons other than crew members and checked baggage, an operator may use standard mass values for other load items. These standard masses should be calculated on the basis of a detailed evaluation of the mass of the items.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC4 OPS.GEN.310(a)(2) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
PROCEDURE FOR ESTABLISHING REVISED STANDARD MASS VALUES FOR PASSENGERS AND BAGGAGE FOR AIRCRAFT USED IN COMMERCIAL AIR TRANSPORT		
1. Passengers		
a. Weight sampling method. The average mass of passengers and their hand baggage should be determined by weighing, taking random samples. The selection of random samples should by nature and extent be representative of the passenger volume, considering the type of operation, the frequency of flights on various routes, in/outbound flights, applicable season and seat capacity of the aircraft.		
i. Sample size. The survey plan should cover the weighing of at least the greatest of:		
A. A number of passengers calculated from a pilot sample, using normal statistical procedures and based on a relative confidence range (accuracy) of 1 % for all adult and 2 % for separate male and female average masses; and		
B. For aircraft: 1. With a passenger seating capacity of 40 or more, a total of 2 000 passengers; or 2. With a passenger seating capacity of less than 40, a total		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
number of 50 multiplied by the passenger seating capacity.		
b. Passenger masses should include the mass of the passengers' belongings which are carried when entering the aircraft. When taking random samples of passenger masses, infants should be weighted together with the accompanying adult.		
c. The location for the weighing of passengers should be selected as close as possible to the aircraft, at a point where a change in the passenger mass by disposing of or by acquiring more personal belongings is unlikely to occur before passengers board the aircraft.		
d. Weighing machines used for passenger weighing should have a capacity of at least 150 kg. The mass should be displayed at minimum graduations of 500 g. The weighing machine should have an accuracy of at least 0,5 % or 200 g whichever is greater.		
e. For each flight included in the survey the mass of the passengers, the corresponding passenger category (i.e. male/female/children) and the flight number should be recorded.		
2. Checked baggage The statistical procedure for determining revised standard baggage mass values based on average baggage masses of the minimum required sample size should comply with paragraph (a) for passengers above. For baggage, the relative confidence range (accuracy) amounts to 1 %. A minimum of 2000 pieces of checked baggage should be weighed.		
3. Determination of revised standard mass values for passengers and checked baggage		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. To ensure that, in preference to the use of actual masses determined by weighing, the use of revised standard mass values for passengers and checked baggage does not adversely affect operational safety, a statistical analysis should be carried out. Such an analysis should generate average mass values for passengers and baggage as well as other data.		
b. On aeroplanes with 20 or more passenger seats, these averages should apply as revised standard male and female mass values.		
c. On smaller aeroplanes, the following increments should be added to the average passenger mass to obtain the revised standard mass values:		
Table 1 of AMC4 OPS.GEN.310(a)(2) Mass and balance system		
Number of passenger seats / **Required mass increment** 1 – 5 / 16 kg 6 – 9 / 8 kg 10 – 19 / 4 kg Alternatively, all adult revised standard (average) mass values may be applied on aeroplanes with 30 or more passenger seats. Revised standard (average) checked baggage mass values are applicable to aircraft with 20 or more passenger seats.		
d. All adult revised standard mass values should be based on a male/female ratio of 80/20 in respect of all flights except holiday charters which are 50/50. A different ratio on specific flights or routes may be used, provided supporting data shows that the alternative male/female ratio covers at		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
least 84 % of the actual male/female ratios on a sample of at least 100 representative flights		
e. The resulting average mass values should be rounded to the nearest whole number in kg. Checked baggage mass values should be rounded to the nearest 0,5 kg figure, as appropriate.		
f. When operating on similar routes or networks, operators may pool their weighing surveys provided that in addition to the joint weighing survey results, results from individual operators participating in the joint survey are separately indicated in order to validate the joint survey results.		
GM1 OPS.GEN.310(a)(2) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
ADJUSTMENT OF STANDARD MASSES FOR AIRCRAFT USED IN COMMERCIAL AIR TRANSPORT When standard mass values are used, AMC2 OPS.GEN.310(a)(2) 5. states that the operator should identify and adjust the passenger and checked baggage masses in cases where significant numbers of passengers or quantities of baggage are suspected of exceeding the standard values. This implies that the operations manual should contain appropriate directives to ensure that:		
1. Check-in, operations and cabin staff and loading personnel report or take appropriate action when a flight is identified as carrying a significant number of passengers whose masses, including hand baggage, are expected to exceed the standard passenger mass, and/or groups of passengers carrying exceptionally heavy baggage (e.g. military personnel or sports teams); and		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. On small aircraft, where the risks of overload and/or CG errors are the greatest, pilots pay special attention to the load and its distribution and make proper adjustments.		
GM2 OPS.GEN.310(a)(2) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
STATISTICAL EVALUATION OF PASSENGERS AND BAGGAGE DATA FOR AIRCRAFT USED IN COMMERCIAL AIR TRANSPORT		
1. Sample size.		
a. For calculating the required sample size it is necessary to make an estimate of the standard deviation on the basis of standard deviations calculated for similar populations or for preliminary surveys. The precision of a sample estimate is calculated for 95% reliability or 'significance', i.e. there is a 95% probability that the true value falls within the specified confidence interval around the estimated value. This standard deviation value is also used for calculating the standard passenger mass.		
b. As a consequence, for the parameters of mass distribution, i.e. mean and standard deviation, three cases have to be distinguished: i. μ, σ = the true values of the average passenger mass and standard deviation, which are unknown and which are to be estimated by weighing passenger samples. ii. μ', σ' = the 'a priori' estimates of the average passenger mass and the standard deviation, i.e. values resulting from an earlier		

A: Rule	**B: Summary of comments**	**C: Re ason for ch ange, remarks**
survey, which are needed to determine the current sample size. iii. x, s = the estimates for the current true values of m and s, calculated from the sample.		
The sample size can then be calculated using the following formula: $$n \geq \frac{(1.96 * \sigma' * 100)^2}{(e'_r * \mu')^2}$$ where: n = number of passengers to be weighed (sample size) e’r = allowed relative confidence range (accuracy) for the estimate of µ by x (see also equation in paragraph 3). The allowed relative confidence range specifies the accuracy to be achieved when estimating the true mean. For example, if it is proposed to estimate the true mean to within ± 1%, then e’r will be 1 in the above formula. 1.96 = value from the Gaussian distribution for 95% significance level of the resulting confidence interval.		
2. Calculation of average mass and standard deviation. If the sample of passengers weighed is drawn at random, then the arithmetic mean of the sample (x) is an unbiased estimate of the true average mass (µ) of the population.		
a. Arithmetic mean of sample where:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
$$\bar{x} = \frac{\sum_{j=1}^{n} x_j}{n}$$ xj = mass values of individual passengers (sampling units).		
b. Standard deviation where: $$s = \sqrt{\frac{\sum_{j=1}^{n} (x_j - \bar{x})^2}{n-1}}$$ xj – = deviation of the individual value from the sample mean.		
3. Checking the accuracy of the sample mean. The accuracy (confidence range) which can be ascribed to the sample mean as an indicator of the true mean is a function of the standard deviation of the sample which has to be checked after the sample has been evaluated. This is done using the formula: $$e_r = \frac{1.96 * s * 100}{\sqrt{n} * \bar{x}} (\%)$$		
whereby er should not exceed 1% for an all adult average mass and not exceed 2% for an average male and/or female mass. The result of this calculation gives the relative accuracy of the estimate of μ at the 95% significance level. This means that with 95% probability, the true average mass μ lies within the interval: $$\bar{x} \pm \frac{1.96 * s}{\sqrt{n}}$$		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
4. Example of determination of the required sample size and average passenger mass. a. Introduction. Standard passenger mass values for mass and balance purposes require passenger weighing programs be carried out. The following example shows the various steps required for establishing the sample size and evaluating the sample data. It is provided primarily for those who are not well versed in statistical computations. All mass figures used throughout the example are entirely fictitious.		
b. Determination of required sample size. For calculating the required sample size, estimates of the standard (average) passenger mass and the standard deviation are needed. The 'a priori' estimates from an earlier survey may be used for this purpose. If such estimates are not available, a small representative sample of about 100 passengers has to be weighed so that the required values can be calculated. The latter has been assumed for the example.		
Step 1: estimated average passenger mass.		
n | x_j (kg) 1 | 79.9 2 | 68.1 3 | 77.9 4 | 74.5 5 | 54.1		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks

6	x 62.2
7	89.3
8	108.7
.	.
85	63.2
86	75.4
$\sum$	6 071.6

Step 2: estimated standard deviation.

n	xj	(xj – x)	(xj – x)2
1	79.9	+9.3	86.49
2	68.1	−2.5	6.25
3	77.9	+7.3	53.29
4	74.5	+3.9	15.21
5	54.1	−16.5	272.25
6	62.2	−8.4	70.56

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<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Re ason for ch ange, remarks</th></tr>
<tr><td>
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<tr><td>7</td><td>89.3</td><td>+18.7</td><td>349.69</td></tr>
<tr><td>8</td><td>108.7</td><td>+38.1</td><td>1 451.61</td></tr>
<tr><td>.</td><td></td><td></td><td>.</td></tr>
<tr><td>85</td><td>63.2</td><td>−7.4</td><td>54.76</td></tr>
<tr><td>86</td><td>75.4</td><td>−4.8</td><td>23.04</td></tr>
<tr><td>$\sum_{j=1}^{86}$</td><td>6 071.6</td><td></td><td>34 683.40</td></tr>
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<tr><td>

$$\mu' = \bar{x} = \frac{\sum x_j}{n} = \frac{6071.6}{86}$$

= 70.6 kg

$$\sigma' = \sqrt{\frac{\sum (x_j - \bar{x})^2}{n-1}}$$

$$\sigma' = \sqrt{\frac{34\,683.40}{86-1}}$$

σ' = 20.20 kg

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Step 3: required sample size.

The required number of passengers to be weighed should be such that the confidence range, e'r, does not exceed 1% as specified in paragraph 3.

$$n \geq \frac{(1.96 * \sigma' * 100)^2}{(e'_r * \mu')^2}$$

$$n \geq \frac{(1.96 * 20.20 * 100)^2}{(1 * 70.6)^2}$$

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A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
$n \geq 3145$ The result shows that at least 3 145 passengers have to be weighed to achieve the required accuracy. If e'r is chosen as 2 % the result would be n ≥ 786.		
Step 4: after having established the required sample size a plan for weighing the passengers is to be worked out.		
c. Determination of the passenger average mass. Step 1: Having collected the required number of passenger mass values, the average passenger mass can be calculated. For the purpose of this example it has been assumed that 3 180 passengers were weighed. The sum of the individual masses amounts to 231 186.2 kg. $n = 3180$ $\sum_{j=1}^{3180} x_j = 231186.2 \text{ kg}$ $\bar{x} = \frac{\sum x_j}{n} = \frac{231186.2}{3180} \text{ kg}$ $\bar{x} = 72.7 \text{ kg}$		
Step 2: calculation of the standard deviation. For calculating the standard deviation the method shown in paragraph 4.2 step 2 should be applied.		

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<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Re ason for ch ange, remarks</th></tr>
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$$\sum (x_j - \bar{x})^2 = 745\,145.20$$

$$s = \sqrt{\frac{\sum (x_j - \bar{x})^2}{n-1}}$$

$$s = \sqrt{\frac{745\,145.20}{3180-1}}$$

s = 15.31 kg

Step 3: calculation of the accuracy of the sample mean.

$$e_r = \frac{1.96 * s * 100}{\sqrt{n} * \bar{x}} \%$$

$$e_r = \frac{1.96 * 15.31 * 100}{\sqrt{3180} * 72.7} \%$$

er = 0.73 %

Step 4: calculation of the confidence range of the sample mean.

$$\bar{x} \pm \frac{1.96 * s}{\sqrt{n}}$$

$$x \pm \frac{1.96 * 15.31}{\sqrt{3180}} \text{ kg}$$

72.7 ± 0.5 kg

The result of this calculation shows that there is a 95% probability of the actual mean for all passengers lying within the range 72.2 kg to

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A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
73.2 kg.		
GM3 OPS.GEN.310(a)(2) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
GUIDANCE ON PASSENGER WEIGHING SURVEYS FOR AIRCRAFT USED IN COMMERCIAL AIR TRANSPORT		
1. Information to the competent authority. An operator should advise the competent authority about the intent of the passenger weighing survey and explain the survey plan in general terms.		
2. Detailed survey plan.		
a. An operator should establish and submit to the competent authority a detailed weighing survey plan that is fully representative of the operation, i.e. the network or route under consideration and the survey should involve the weighing of an adequate number of passengers.		
b. A representative survey plan means a weighing plan specified in terms of weighing locations, dates and flight numbers giving a reasonable reflection of the operator's timetable and/or area of operation.		
c. The minimum number of passengers to be weighed is the highest of the following: i. The number that follows from the means of compliance that the sample should be representative of the total operation to which the		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
results will be applied; this will often prove to be the overriding requirement; or ii. The number that follows from the statistical requirement specifying the accuracy of the resulting mean values which should be at least 2% for male and female standard masses and 1% for all adult standard masses, where applicable. The required sample size can be estimated on the basis of a pilot sample (at least 100 passengers) or from a previous survey. If analysis of the results of the survey indicates that the requirements on the accuracy of the mean values for male or female standard masses or all adult standard masses, as applicable, are not met, an additional number of representative passengers should be weighed in order to satisfy the statistical requirements.		
d. To avoid unrealistically small samples a minimum sample size of 2 000 passengers (males + females) is also required, except for small aircraft where in view of the burden of the large number of flights to be weighed to cover 2 000 passengers, a lesser number is considered acceptable.		
3. Execution of weighing programme. a. At the beginning of the weighing programme it is important to note, and to account for, the data requirements of the weighing survey report (see 6. below). b. As far as is practicable, the weighing programme should be conducted in accordance with the specified survey plan. c. Passengers and all their personal belongings should be weighed as close as possible to the boarding point and the mass, as well as the associated passenger category (male/female/child), should be recorded.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
4. Analysis of results of weighing survey.		
4.1 The data of the weighing survey should be analysed as explained in GM3 OPS.GEN.310(a)(2). To obtain an insight to variations per flight, per route etc. this analysis should be carried out in several stages, i.e. by flight, by route, by area, inbound/outbound, etc. Significant deviations from the weighing survey plan should be explained as well as their possible effect(s) on the results.		
5. Results of the weighing survey.		
a. The results of the weighing survey should be summarised. Conclusions and any proposed deviations from published standard mass values should be justified. The results of a passenger weighing survey are average masses for passengers, including hand baggage, which may lead to proposals to adjust the standard mass values given in AMC2 OPS.GEN.310(a)(2) Tables 1 and 2. These averages, rounded to the nearest whole number may, in principle, be applied as standard mass values for males and females on aircraft with 20 and more passenger seats. Because of variations in actual passenger masses, the total passenger load also varies and statistical analysis indicates that the risk of a significant overload becomes unacceptable for aircraft with less that 20 seats. This is the reason for passenger mass increments on small aircraft.		
b. The average masses of males and females differ by some 15 kg or more and because of uncertainties in the male/female ratio the variation of the total passenger load is greater if all adult standard masses are used than when using separate male and female standard masses. Statistical analysis indicates that the use of all adult standard mass values should be limited to aircrafts with 30 passenger seats or more.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
c. Standard mass values for all adults must be based on the averages for males and females found in the sample, taking into account a reference male/female ratio of 80/20 for all flights except holiday charters where a ratio of 50/50 applies. An operator may, based on the data from his weighing programme, or by proving a different male/female ratio, apply for approval of a different ratio on specific routes or flights.		
6. Weighing survey report The weighing survey report, reflecting the content of paragraphs 1–5 above, should be prepared in a standard format as follows:		
WEIGHING SURVEY REPORT 1 Introduction Objective and brief description of the weighing survey. 2 Weighing survey plan Discussion of the selected flight number, airports, dates, etc. Determination of the minimum number of passengers to be weighed. Survey plan. 3 Analysis and discussion of weighing survey results Significant deviations from survey plan (if any). Variations in means and standard deviations in the network.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Discussion of the (summary of) results. 4 Summary of results and conclusions Main results and conclusions. Proposed deviations from published standard mass values. Attachment 1 Applicable summer and/or winter timetables or flight programmes. Attachment 2 Weighing results per flight (showing individual passenger masses and sex); means and standard deviations per flight, per route, per area and for the total network.		
AMC OPS.GEN.310(a)(3) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
FUEL LOAD The mass of the fuel load should be determined by using its actual relative density or a standard relative density.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
GM OPS.GEN.310(a)(3) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
FUEL DENSITY		
1. If the actual fuel density is not known, the operator may use standard fuel density values for determining the mass of the fuel load. Such standard values should be based on current fuel density measurements for the airports or areas concerned.		
2. Typical fuel density values are: a. Gasoline (piston engine fuel) – 0.71 b. JET A1 (Jet fuel JP 1) – 0.79 c. JET B (Jet fuel JP 4) – 0.76 d. Oil – 0.88		
AMC OPS.GEN.310(a)(4) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
LOADING - STRUCTURAL LIMITS The loading should take into account additional structural limits such as the floor strength limitations, the maximum load per running metre, the maximum mass per cargo compartment, and/or the maximum seating limits as well as in-flight changes in loading (e.g. hoist operations).		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC OPS.GEN.310(a)(7) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
CG LIMITS – OPERATIONAL CG ENVELOPE - COMMERCIAL AIR TRANSPORT Unless seat allocation is applied and the effects of the number of persons per seat row, of cargo in individual cargo compartments and of fuel in individual tanks is accounted for in the balance calculation, operational margins should be applied to the certificated CG envelope. In determining the CG margins, possible deviations from the assumed load distribution should be considered. Passengers should be evenly distributed in the cabin. Operator procedures should fully account for the worst case variation in CG travel during flight caused by passenger/crew movement and fuel consumption/transfer.		
GM OPS.GEN. 310(a)(7) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
CG LIMITS – OPERATINAL CG ENVELOPE - COMMERCIAL AIR TRANSPORT In the Certificate Limitations section of the Aircraft Flight Manual, forward and aft CG limits are specified. These limits ensure that the certification stability and control criteria are met throughout the whole flight and allow the proper trim setting for take-off. An operator should ensure that these limits are observed by defining operational procedures or a CG envelope which compensates for deviations and errors as listed below:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. Deviations of actual CG at empty or operating mass from published values due, for example, to weighing errors, unaccounted modifications and/or equipment variations.		
2. Deviations in fuel distribution in tanks from the applicable schedule.		
3. Deviations in the distribution of baggage and cargo in the various compartments as compared with the assumed load distribution as well as inaccuracies in the actual mass of baggage and cargo.		
4. Deviations in actual passenger seating from the seating distribution assumed when preparing the mass and balance documentation. Large CG errors may occur when 'free seating' (freedom of passengers to select any seat when entering the aircraft) is permitted. Although in most cases reasonably even longitudinal passenger seating can be expected, there is a risk of an extreme forward or aft seat selection causing very large and unacceptable CG errors (assuming that the balance calculation is done on the basis of an assumed even distribution). The largest errors may occur at a load factor of approximately 50% if all passengers are seated in either the forward or aft half of the cabin. Statistical analysis indicates that the risk of such extreme seating adversely affecting the CG is greatest on small aircraft.		
5. Deviations of the actual CG of cargo and passenger load within individual cargo compartments or cabin sections from the normally assumed mid position.		
6. Deviations of the CG caused by gear and flap positions and by application of the prescribed fuel usage procedure (unless already covered by the certified limits).		
7. Deviations caused by in-flight movement of cabin crew, galley equipment and passengers.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC OPS.GEN.310(a)(8) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
DOCUMENTATION - COMPLEX MOTOR-POWERED AIRCRAFT USED IN NON-COMMERCIAL OPERATIONS The mass and balance computation may be available in flight planning documents or separate systems and may include standard load profiles.		
AMC OPS.GEN.310(a)(8) and (b) Mass and balance system - complex motor-powered aircraft used in non-commercial operations and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
DOCUMENTATION - COMMERCIAL OPERATIONS		
1. Mass and balance documentation should contain the following: a. Aircraft registration and type; b. Flight identification number and date; c. Pilot-in-command; d. Person who prepared the information; e. Dry operating mass and corresponding CG of the aircraft; f. Mass of the fuel at take-off and mass of trip fuel; g. Mass of consumables other than fuel; h. Load components including passengers, baggage, freight and ballast;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
i. Take-off Mass, Landing Mass and Zero Fuel Mass; j. Load distribution; k. Applicable aircraft CG positions; and l. The limiting mass and CG values.		
2. For Performance Class B aeroplanes and for helicopters, the CG position may not need to be on the mass and balance documentation, if, for example, the load distribution is in accordance with a pre-calculated balance table or if it can be shown that for the planned operations a correct balance can be ensured, whatever the real load is.		
3. The mass and balance documentation should: a. enable the pilot in command to determine that the load and its distribution are within the mass and balance limits of the aircraft; and b. include advise to the pilot in command whenever a non-standard method has been used for determining the mass of the load.		
3. The information above may be available in flight planning documents or mass and balance systems.		
4. Any last minute change should be brought to the attention of the pilot-in-command and entered in the flight planning documents containing the mass and balance information and mass and balance systems. The operator should specify the maximum last minute change allowed in passenger numbers or hold load. New mass and balance documentation should be prepared if this maximum number is exceeded.		
5. Where mass and balance documentation is generated by a computerised mass and balance system, the operator should verify the integrity of the output data		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
at intervals not exceeding 6 months.		
6. A copy of the final mass and balance documentation may be sent to aircraft via data or may be made available to the pilot-in–command by other means for its acceptance.		
7. The person supervising the loading of the aircraft should confirm by hand signature or equivalent that the load and its distribution are in accordance with the mass and balance documentation given to the pilot in command. The pilot in command should indicate his acceptance by hand signature or equivalent.		
AMC OPS.GEN.315.B(b) Performance - general		This AMC is not transposed as the IR is considered as sufficient
BALLOON TAKE-OFF/LANDING IN CONGESTED AREAS A balloon, when becalmed over a congested area, should land within that congested area such that third parties on the ground, passengers and crew are not endangered.		
GM OPS.GEN.315.B(b) Performance - general		This GM is not transposed as this is an authority requirement
APPROVED OPERATING SITE FOR BALLOONS In approving congested sites for take-off of balloons, the competent authority should consider the following:		
1. availability of performance data to determine the climb-out performance of the balloon, taking into account the take-off area and the prevailing meteorological		

A: Rule	B: Summary of comments	C: Reason for change, remarks
conditions;		
2. the surrounding area should permit a safe forced landing; and		
3. the performance of the balloon should be such that a continuous climb-out to the minimum safe altitude is ensured.		
AMC1 OPS.GEN.320.A(a) Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
TAKE-OFF MASS - COMPLEX MOTOR-POWERED AEROPLANES AND AEROPLANES USED IN COMMERCIAL OPERATIONS The following should be considered for determining the maximum take-off mass:		
1. the pressure altitude at the aerodrome;		
2. the ambient temperature at the aerodrome;		
3. the runway surface condition and the type of runway surface;		
4. the runway slope in the direction of take-off;		
5. not more than 50% of the reported head-wind component or not less than 150% of the reported tailwind component; and		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
6. the loss, if any, of runway length due to alignment of the aeroplane prior to take-off (for performance class A and class C aeroplanes an example is provided in appendix 2 to AMC OPS.CAT.A.316(a)(4)).		
AMC2 OPS.GEN.320.A(a) Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
CONTAMINATED RUNWAY PERFORMANCE DATA Wet and contaminated runway performance data, if made available by the manufacturer, should be taken into account. If such data is not made available, the operator should account for wet and contaminated runway conditions by using the best information available.		
GM1 OPS.GEN.320.A(a) Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
RUNWAY SURFACE CONDITION Operation on runways contaminated with water, slush, snow or ice implies uncertainties with regard to runway friction and contaminant drag and therefore to the achievable performance and control of the aeroplane during take-off or landing, since the actual conditions may not completely match the assumptions on which the performance information is based. In the case of a contaminated runway, the first option for the pilot in command is to wait until the runway is cleared. If this is impracticable, he may consider a take-off or landing, provided that he has applied the applicable performance adjustments, and any further safety measures he/she considers justified under the prevailing conditions. The excess runway length available including the criticality of the overrun area should also be considered.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC1 OPS.GEN.320.A(b) Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations		This GM is not transposed as it is Beyond the scope of Part-NCO
CONTINGENCY PROCEDURES FOR OBSTACLES CLEARANCES WITH ONE ENGINE INOPERATIVE – PERFORMANCE CLASS A AND CLASS C AEROPLANES IN COMMERCIAL AIR TRANSPORT OPERATIONS		
In the case of multi-engined aeroplanes, an operator should establish contingency procedures to provide a safe route, avoiding obstacles, to enable the aeroplane in the case of one engine inoperative to either comply with the en-route requirements or land at either the aerodrome of departure or at a take-off alternate aerodrome.		
GM1 OPS.GEN.320.A(b) Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
CONTINGENCY PROCEDURES FOR OBSTACLES CLEARANCES WITH ONE ENGINE INOPERATIVE – PERFORMANCE CLASS A AEROPLANES IN COMMERCIAL AIR TRANSPORT OPERATIONS		
Engine failure procedures for performance class A aeroplanes. If these procedures are based on an engine failure route that differs from the all engine departure route or SID normal departure, a "deviation point" can be identified where the engine failure route deviates from the normal departure route. Adequate obstacle clearance along the normal departure with failure of the critical engine at the deviation point will normally be available. However, in certain situations the obstacle clearance along the normal departure route may be marginal and should be checked to ensure that, in case of an engine failure after the deviation point, a flight can safely proceed along the normal departure.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC2 OPS.GEN.320.A(b) Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
ADEQUATE MARGIN The adequate margin should be defined in the operations manual.		
GM2 OPS.GEN.320.A(b) Take-off - complex motor-powered aeroplanes used in non-commercial operations and aeroplanes used in commercial operations		This GM is not transposed as it is beyond the scope of Part-NCO
ADEQUATE MARGIN		
1. "An adequate margin" is illustrated by the appropriate examples included in Attachment C to ICAO Annex 6, Part I.		
2. Critical power-unit is the power-unit failure of which gives the most adverse effect on the aircraft characteristics relative to the case under consideration. On some aircraft there may be more than one equally critical power-unit. In this case, the expression "the critical power-unit" means one of those critical power-units (ICAO Annex 8).		
GM OPS.GEN.325 One power-unit inoperative - complex motor-powered aircraft		This GM is not transposed as it is beyond the scope of Part-NCO
HIGH TERRAIN OR OBSTACLE ANALYSIS Further guidance material can be found in the applicable acceptable means of		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
compliances with OPS.CAT.340.A and OPS.CAT.365.H.		
AMC OPS.GEN.330.A Landing - complex motor-powered aeroplanes		This GM is not transposed as it is beyond the scope of Part-NCO
ALLOWANCES These allowances should be stated in the operations manual.		
Section IV - Instruments, data and equipment		
GM OPS.GEN.400(b) Instruments and equipments - General		
APPROVED EQUIPMENT The equipment approval in OPS.GEN.400(b) means that the equipment should have an authorisation or an approval in accordance with Part-21 (e.g. European Technical Standards Order (ETSO) authorisation).		
GM1 OPS.GEN.400(c) Instruments and equipments - General		
NON-APPROVED EQUIPMENT		
1. The provision of this paragraph does not exempt the item of equipment from complying with Part-21 if the instrument or equipment is installed in the aircraft. In this case, the installation should be approved as required in Part-21		

A: Rule	B: Summary of comments	C: Reason for change, remarks
and should comply with the applicable airworthiness codes.		
2. The functionality of non-installed instruments and equipment required by Part-OPS which do not need an equipment approval should be checked against recognised industry standards appropriated for the intended purpose. The operator is responsible for ensuring the maintenance of these instruments and equipment.		
3. The failure of additional non-installed instruments or equipment not required by Part-OPS or the airworthiness codes or any applicable airspace requirements should not adversely affect the airworthiness and/or the safe operation of the aircraft. Examples are the following: a. Instruments supplying additional flight information (e.g. stand-alone Global Positioning System (GPS)); b. Some aerial work equipment (e.g. some mission dedicated radios, wire cutters); c. Non-installed passenger entertainment equipment.		
GM2 OPS.GEN.400(c) Instruments and equipments - General		
LIST OF NON-APPROVED EQUIPMENT		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
The following items are typical examples of equipment which do not need an equipment approval: 1. Electric torch; 2. Accurate time piece; 3. Child restraint devices 4. Chart holder; 5. First aid kits; 6. Megaphones; 7. Survival and signalling equipment; 8. Sea anchors and equipment for mooring.GM OPS.GEN.400(e) Instruments and equipments - General		Megaphones are removed from the list as they are not required by Part NCO.
ACCESSIBILITY AND POSITIONING OF INSTRUMENTS AND EQUIPMENT		
This requirement implies that whenever an instrument is required in an aircraft operated in a multi-crew environment, the instrument needs to be visible from each flight crew station.	This is not sensible guidance in all aircraft – in particular training aircraft with tandem seating. Replication should be an acceptable alternative.	The text now refers to 'single instrument', for clarity.
GM OPS.GEN.405(a)(1) Equipment for all aircraft		
HAND FIRE EXTINGUISHERS		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. In the case of other than complex motor-powered aircraft, a hand fire extinguisher is considered to be necessary due to the development of toxic fumes when light composite materials catch fire.	The GM is not the proper place to give the rational for the provision requiring hand fire extinguisher. Furthermore composite materials can be found in any part of any aircraft. Proposal: delete paragraph 1.	Accepted. Text has been deleted. New text gives a general performance objective for the extinguishing agent.
2. For aerobatic flights, the hand fire extinguishers may become a hazard due to high G-loads.	MS: The GM is not the proper place to give the rational for the provision exempting hand fire extinguisher for aerobatic flights. Proposal: delete paragraph 2 and put a definition of aerobatic flights in OPS.GEN.010 Definitions "Any flights including manoeuvres other than…"	Aerobatic flights are beyond the scope of NCO.IDE.
AMC OPS.GEN.405(a)(2) Equipment for all aircraft		
SEATS FOR MINIMUM REQUIRED CABIN CREW		
Seats for the minimum required cabin crew members should be located close to the emergency exits and where cabin crew members can best assist passengers in the event of an emergency evacuation.		
AMC OPS.GEN.405(a)(4) Equipment for all aircraft	MS, IS: Downgrade some of	Text already

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
	the standards to Guidance Material to allow updates of standards as they evolve.	accommodates future evolution of standards.
RESTRAIN DEVICES FOR PERSON YOUNGER THAN 24 MONTHS - CHILD RESTRAINT DEVICES (CRD)		Text related to commercial operations has not been transposed in NCO.IDE.
1. A child restraint device (CRD) is considered to be acceptable if: a. It is a 'supplementary loop belt' manufactured with the same techniques and the same materials of the approved safety belts; or b. It complies with paragraph (b) below.		
2. Provided the CRD can be installed properly on the respective aircraft seat, the following CRDs are considered "acceptable": a. CRDs approved for use in aircraft by a competent authority on the basis of a technical standard and marked accordingly. b. CRDs approved for use in motor vehicles according to the UN standard ECE R 44, -03 or later series of amendments; or c. CRDs approved for use in motor vehicles and aircraft according to Canadian CMVSS 213/213.1; or d. CRDs approved for use in motor vehicles and aircraft according to US FMVSS No 213 and are manufactured to these standards on or after February 26, 1985. US approved CRDs manufactured after this date must bear the following labels in red letters: i. "THIS CHILD RESTRAINT SYSTEM CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS" and ii. "THIS RESTRAINT IS CERTIFIED FOR USE IN MOTOR VEHICLES AND		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AIRCRAFT". e. CRDs qualified for use in aircraft according to the German "Qualification Procedure for Child Restraint Systems for Use in Aircraft" (TÜV Doc.: TÜV/958-01/2001). f. Devices approved for use in cars, manufactured and tested to standards equivalent to those listed above. The device must be marked with an associated qualification sign, which shows the name of the qualification organisation and a specific identification number, related to the associated qualification project. The qualifying organisation should be a competent and independent organisation that is acceptable to the competent authority.		
3. Location		
a. Forward facing CRDs may be installed on both forward and rearward facing passenger seats but only when fitted in the same direction as the passenger seat on which it is positioned. Rearward facing CRDs can only be installed on forward facing passenger seats. A CRD may not be installed within the radius of action of an airbag, unless it is obvious that the airbag is de-activated or it can be demonstrated that there is no negative impact from the airbag.		
b. A child in a restraint device should be located as near to a floor level exit as feasible.		
c. A child in a restraint device should not hinder evacuation for any passenger.		
d. For complex motor-powered aircraft involved in commercial air transport, a child in a restraint device should neither be located in the row (where rows		1. Not transposed in NCO.IDE – CAT

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
are existing) leading to an emergency exit nor located in a row immediately forward or aft of an emergency exit. A window passenger seat is the preferred location. An aisle passenger seat or a cross aisle passenger seat is not recommended. Other locations may be acceptable provided the access of neighbour passengers to the nearest aisle is not obstructed by the CRD.		requirement.
e. For complex motor-powered aircraft involved in commercial air transport, in general, only one CRD per row segment is recommended. More than one CRD per row segment is allowed if the children are from the same family or travelling group provided the children are accompanied by a responsible person sitting next to them. A row segment is the fraction of a row separated by two aisles or by one aisle and the aircraft fuselage.		
4. Installation		
a. CRDs should only be installed on a suitable aircraft seat with the type of connecting device they are approved or qualified for. E.g., CRDs to be connected by a three point harness only (most rearward facing baby CRDs currently available) should not be attached to an aircraft seat with a lap belt only, a CRD designed to be attached to a vehicle seat by means of rigid bar lower anchorages (ISO-FIX or US equivalent) only, should only be used on aircraft seats that are equipped with such connecting devices and should not be attached by the aircraft seat lap belt. The method of connecting should be the one shown in the manufacturer's instructions provided with each CRD.		
b. All safety and installation instructions must be followed carefully by the responsible person accompanying the infant. For aircraft involved in commercial air transport, cabin crew should prohibit the use of any		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
inadequately installed CRD or not qualified seat.		
c. If a forward facing CRD with a rigid backrest is to be fastened by a lap belt, the restraint device should be fastened when the backrest of the passenger seat on which it rests is in a reclined position. Thereafter, the backrest is to be positioned upright. This procedure ensures better tightening of the CRD on the aircraft seat if the aircraft seat is reclinable.		
d. The buckle of the adult safety belt must be easily accessible for both opening and closing, and must be in line with the seat belt halves (not canted) after tightening.		
e. Forward facing restraint devices with an integral harness must not be installed such that the adult safety belt is secured over the child.		
5. Operation a. Each CRD should remain secured to a passenger seat during all phases of flight, unless it is properly stowed when not in use. b. Where a CRD is adjustable in recline it must be in an upright position for all occasions when passenger restraint devices are required.		
AMC OPS.GEN.410(a)(2) Flight instruments and equipment - VFR flights		
MEANS FOR MEASURING AND DISPLAYING THE TIME		
1. For other than complex motor-powered aircraft not involved in commercial operations, a means of measuring and displaying the time in hours, minutes and seconds may be a wrist watch capable of the same functions.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. For complex motor-powered aircraft, an acceptable means of compliance with OPS.GEN.410(a)(2) should be considered to be a clock displaying hours, minutes and seconds, with a sweep-second pointer or digital presentation.		
AMC OPS.GEN.410(a)(3) Flight instruments and equipment - VFR flights		
CALIBRATION OF THE MEANS FOR MEASURING AND DISPLAYING PRESSURE ALTITUDE		
1. The instrument measuring and displaying pressure altitude should be calibrated in feet (ft), with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight.		“sensitive type” added.
2. In the case of sailplanes and balloons, calibration in metres (m) is acceptable.		
AMC OPS.GEN.410(a)(4) Flight instruments and equipment - VFR flights		
CALIBRATION OF THE INSTRUMENT INDICATING AIR SPEED - SAILPLANES, AEROPLANES AND HELICOPTERS		
The instrument indicating air speed should be calibrated in knots (kt). In the case of sailplanes with a maximum certificated take-off mass below 2 000 kg and aeroplanes other than complex motor-powered aeroplanes with a maximum certificated take-off mass below 2 000 kg, calibration in kilometres (km) per hour is acceptable.		
AMC OPS.GEN.410(d)(1)(i) Flight instruments and equipment - VFR flights		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
MEANS OF INDICATING DRIFT DIRECTION - BALLOONS		
The drift direction may be determined by using a map and reference to visual landmarks.		
ALTIMETERS - AEROPLANES		
The altimeters of aeroplanes operating VFR flights when the aircraft cannot be maintained in a desired attitude without reference to one or more flight instruments, and of IFR flights, should have counter drum-pointer or equivalent presentation.	IND: Exemptions granted by NAA to operate aircraft equipped with counter drum-pointer presentation (e.g. MEP PA23 Aztec, PA34 Seneca, PN68 Partenavia) with operational restrictions to 10 000 ft operating altitude. Aircraft operate in public transport (PT) /commercial air transport (CAT), aerial work (AW) (flight training) and privately. The above cases shall remain acceptable, based on 10 000 ft altitude limitation (similar to RVSM, B-RNAV, etc…). Only when an aeroplane with a three pointer type altimeter flies above 10 000 feet is there any possibility of confusion being caused by	An exception is introduced for unpressurised aeroplanes operating below 10 000 ft.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
	the third pointer (which displays units of tens of thousands of feet). Therefore, the undoubted safety benefit of a counter drum-pointer altimeter only comes into effect when an aircraft flies above 10 000 feet. If an aeroplane is subject to an operational limit whereby it does not fly above 10 000 feet, altimeters other than those with a counter drum-pointer indicator would provide the pilot with an equivalent presentation to that achieved with a counter drum-pointer altimeter. A safety level equivalent to that attained by OPS 1.652(c) would be achieved.	
AMC OPS.GEN.410(b)(4) and OPS.GEN.415(a) Flight instruments and equipment - VFR flights and flight instruments and equipment - VFR night flights and IFR flights		
HEADING INDICATOR - HELICOPTERS		
Stabilised heading should be achieved for VFR flights by a gyroscopic direction indicator, whereas for IFR flights, this should be achieved through a magnetic		

A: Rule	B: Summary of comments	C: Reason for change, remarks
gyroscopic direction indicator.		
AMC OPS.GEN.410 and OPS.GEN.415 Flight instruments and equipment - VFR flights and flight instruments and equipment - VFR night flights and IFR flights		
INTEGRATED INSTRUMENTS		
1. Individual equipment requirements may be met by combinations of instruments or by integrated flight systems or by a combination of parameters on electronic displays, provided that the information so available to each required pilot is not less than the required in the applicable operational requirements, and the equivalent safety of the installation has been shown during type certification approval of the aircraft for the intended type of operation.		
2. The means of measuring and indicating turn and slip, aircraft attitude and stabilised aircraft heading may be met by combinations of instruments or by integrated flight director systems, provided that the safeguards against total failure, inherent in the three separate instruments, are retained.		
AMC OPS.GEN.410(c) and OPS.GEN.415(a) Flight instruments and equipment - VFR flights and flight instruments and equipment - VFR night flights and IFR flights		
MULTI-PILOT OPERATIONS - DUPLICATE INSTRUMENTS - AEROPLANES AND HELICOPTERS		Not transposed, beyond the scope of Part-NCO.
Duplicate instruments include separate displays for each pilot and separate selectors or other associated equipment where appropriate.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC OPS.GEN.415(a)(1) Flight instruments and equipment - VFR night flights and IFR flights		
OUTSIDE AIR TEMPERATURE		
1. The instrument should be calibrated in degrees Celsius.	IND: This part cannot be applicable for third country aircraft, because if you change the OAT-meter from Fahrenheit to Celsius, the aircraft is not airworthy anymore by the originator. "Should" shall be interpreted as "should".	Not accepted. Calibration in degrees Celsius is maintained.
2. A means of indicating outside air temperature may be an air temperature indicator which provides indications that are convertible to outside air temperature.		
AMC OPS.GEN.415.A(a)(3) Flight instruments and equipment - VFR night flights and IFR flights		Not transposed, beyond the scope of Part-NCO.
ALTERNATIVE SOURCE OF STATIC PRESSURE - AEROPLANES		
1. Aeroplanes should have two independent static pressure systems.		
2. However, in the case of propeller driven aeroplanes with a maximum certificated take-off mass of 5 700 kilograms (kg) or less, one static pressure and one alternative source of static pressure may be allowed.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
GM OPS.GEN.415(a)(5) Flight instruments and equipment - VFR night flights and IFR flights		
NAVIGATION LIGHTS		
Specifications for navigation lights are contained in Appendix 1 to International Civil Aviation Organization (ICAO) Annex 6, Part II.		
AMC OPS.GEN.415.H(a)(6) Flight instruments and equipment - VFR night flights and IFR flights		
LANDING LIGHT - HELICOPTERS		
The landing light should be trainable, at least in the vertical plane		
AMC OPS.GEN.415(b) Flight instruments and equipment - VFR night flights and IFR flights		
CHART HOLDER		
An acceptable means of compliance with the chart holder requirement would be to display a pre-composed chart on an Electronic Flight Bag (EFB).		
AMC OPS.GEN.415(d) Flight instruments and equipment - VFR night flights and IFR flights		
BALLOON LIGHTS		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. The position lights should be one steady aviation white position light, and one flashing aviation red position light (or flashing aviation white) with an effective flash frequency of at least 40, but not more than 100, cycles per minute.		
2. Both lights should have 360 degrees horizontal coverage and should be visible for at least 2 miles (approximately 3.22 km) under clear atmospheric conditions.		
3. The white light should be located not more than 20 ft below the basket, trapeze, or other means for carrying occupants. The flashing red or white light should be located not less than seven ft or more than 10 ft below the steady white light.		
4. There should be a means to retract and store the lights.		
AMC OPS.GEN.420(e) Flights over water		
LIFE JACKETS - HELICOPTERS		
The life jacket should be accessible from the seat or berth of the person for whose use it is provided, with a safety belt or harness fastened.		
GM OPS.GEN.420(a)-(e) Flights over water		
LIFE JACKETS - ALL AIRCRAFT		
Seat cushions are not considered to be flotation devices.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
GM OPS.GEN.420(a), (d) and (f) Flights over water		
EQUIPMENT FOR MAKING DISTRESS SIGNALS - SAILPLANES, BALLOONS, AEROPLANES AND HELICOPTERS		
The equipment for making distress signals is described in ICAO Annex 2.		
AMC OPS.GEN.420(a), (d) and (g) Flights over water	1. Not a practical requirement 2. CAT operations shall be excluded. 3. The equipment should be repeated here, it shouldn't be necessary to purchase ICAO documents too. 3. The header of this AMC tailored to helicopters and seaplanes/sailplanes and there is therefore probably an editorial error. This should read AMC OPS GEN 420 (c) (instead of (d)) as paragraph 2 cannot be complied with for aeroplanes other than sailplanes and seaplanes.	This AMC has been deleted for CAT.IDE but maintained for NCC.IDE and NCO.IDE.
RISK ASSESSMENT		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. When conducting the risk assessment, the pilot-in-command should base his/her decision, as far as is practicable, on the implementing rules and AMCs applicable to the operation of aircraft.		
2. The pilot-in-command should, for the determining the risk, take the following operating environment and conditions into account: a. Sea state; b. Sea and air temperatures; c. The distance from land suitable for making an emergency landing; d. The availability of search and rescue facilities.		
AMC OPS.GEN.420(f) Flights over water		
LIFE-SAVING RAFTS - HELICOPTERS		
1. At least 50% of the life rafts carried should be deployable by remote control.		
2. Rafts which are not deployable by remote control and which have a mass of more than 40 kg should be equipped with some means of mechanically assisted deployment.		
AMC OPS.GEN.420(h) Flights over water		
LIFE JACKETS		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
The means of electric illumination should be a survivor locator light.	No such requirements today for small GA-aircraft.	This is an ICAO requirement.
GM OPS.GEN.425.H Ditching - Helicopters		
PERFORMANCE CLASS 2 TAKE-OFF AND LANDING		
Helicopters operated in Performance Class 2 and taking off or landing over water are exposed to a critical power unit failure.		
GM OPS.GEN.430 Emergency Locator Transmitter (ELT)	Add AMC.OPS.GEN.430 (a) & (b) "The ELT installed on aircraft used for aerobatic flights will be deactivated for such flights, unless it can be demonstrated it cannot be triggered by the load factors met during these flights". Justification: There is a risk of false alarms with an active ELT during aerobatic flights.	Aerobatic flights are beyond the scope of NCO.
DEFINITION		
An Emergency Locator Transmitter (ELT) is a generic term describing equipment which broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or may be manually activated.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC1 OPS.GEN.430 Emergency Locator Transmitter (ELT)		
ELT BATTERIES – MOTOR-POWERED AIRCRAFT		
Batteries used in the ELTs should be replaced (or recharged, if the battery is rechargeable) when the equipment has been in use for more than 1 cumulative hour, and also when 50% of their useful life (or for rechargeable, 50% of their useful life of charge), as established by the equipment manufacturer has expired. The new expiry date for the replacement (or recharged) battery should be legibly marked on the outside of the equipment. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.		
AMC2 OPS.GEN.430 Emergency Locator Transmitter (ELT)		
GENERAL – TYPES OF ELT AND GENERAL TECHNICAL SPECIFICATIONS		
1. The ELT required by this provision should be one of the following:		
a. Automatic Fixed (ELT(AF)). An automatically activated ELT which is permanently attached to an aircraft and is designed to aid SAR teams in locating the crash site;		
b. Automatic Portable (ELT(AP)). An automatically activated ELT, which is rigidly attached to an aircraft before a crash, but is readily removable from the aircraft after a crash. It functions as an ELT during the crash sequence. If the ELT does not employ an integral antenna, the aircraft-mounted antenna may be disconnected and an auxiliary antenna (stored		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
on the ELT case) attached to the ELT. The ELT can be tethered to a survivor or a life raft. This type of ELT is intended to aid SAR teams in locating the crash site or survivor(s);		
c. Automatic Deployable (ELT(AD)). An ELT which is rigidly attached to the aircraft before the crash and which is automatically ejected, deployed and activated by an impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided. This type of ELT should float in water and is intended to aid SAR teams in locating the crash site; or		
d. Survival ELT (ELT(S)). An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by a survivor. An ELT(S) may be activated manually or automatically (e.g. by water activation). It should be designed to be tethered to a life raft or a survivor.		
2. To minimize the possibility of damage in the event of crash impact, the automatic ELT should be rigidly fixed to the aircraft structure, as far aft as is practicable, with its antenna and connections arranged so as to maximize the probability of the signal being transmitted after a crash.		
3. Any ELT carried should operate in accordance with the relevant provisions of ICAO Annex 10, Volume III and should be registered with the national agency responsible for initiating search and rescue or other nominated agency.		
4. ELTs should be able to transmit on 121.5 MegaHertz (MHz) and 406 MHz.	MS: The ELT rule does not include the frequency requirement, asking for 121.5 and 406 MHz capability. This, however, is included in AMC OPS.GEN.430 No.2, which is	The frequencies have been moved to IR level.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
	not acceptable.	
AMC OPS.GEN.430.H(b)(2) Emergency Locator Transmitter (ELT)		
ELT(S) - HELICOPTERS		
An ELT(AP) may be used to replace one required ELT(S) provided that it meets the ELT(S) requirements. A water-activated ELT(S) is not an ELT(AP).		
GM OPS.GEN.435 Survival equipment – Motor powered aircraft		
AREAS IN WHICH SEARCH AND RESCUE WOULD BE ESPECIALLY DIFFICULT'		
The expression 'areas in which search and rescue would be especially difficult' should be interpreted, in this context, as meaning:		
1. Areas so designated by the competent authority responsible for managing search and rescue; or		
2. Areas that are largely uninhabited and where: a. The competent authority responsible for managing search and rescue has not published any information to confirm whether search and rescue would be or would not be especially difficult; and b. The competent authority referred to in 1. does not, as a matter of policy, designate areas as being especially difficult for search and rescue.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC OPS.GEN.435(a)(3) Survival equipment– Motor powered aircraft		
ADDITIONAL SURVIVAL EQUIPMENT	The carriage of the knife/ice saw by passenger/crew may conflict with security requirements. Clarify that the knife is part of the aircraft equipment.	The security aspects have been reviewed by the Review Group and the text aligned with CAT.IDE and NCC.IDE.
1. The following additional survival equipment should be carried when required: a. 500 ml of water for each 4, or fraction of 4, persons on board; b. One knife; c. First Aid Equipment; d. One set of Air/Ground codes;		
2. In addition, when polar conditions are expected, the following should be carried: a. A means for melting snow; b. 1 snow shovel and 1 ice saw; c. Sleeping bags for use by 1/3 of all persons on board and space blankets for the remainder or space blankets for all passengers on board; d. 1 Arctic/Polar suit for each crew member carried.	MS: Polar definition need to be provided.	Polar conditions should be determined by the authority responsible for the area.
3. If any item of equipment contained in the above list is already carried on board the aircraft in accordance with another requirement, there is no need for this to be duplicated.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC OPS.GEN.440(a) High altitude flights - Oxygen		
BREATHING OXYGEN		
Breathing oxygen should be provided by a quick-donning mask (See GM OPS.CAT.440(b)(1)).		
AMC OPS.GEN.440(a)(1)(i) High altitude flights – Oxygen		
PASSENGER OXYGEN SUPPLY BETWEEN 10 000 FT AND 13 000 FT		
On routes where the oxygen is necessary to be carried for 10% of the passengers for the flight time between 10 000 ft and 13 000 ft, the oxygen may be provided by:		
1. a plug-in or drop-out oxygen system with sufficient outlets and dispensing units uniformly distributed throughout the cabin so as to provide oxygen to each passenger at his/her own discretion when seated on his/her assigned seat; or	It cannot be required to have a cabin crew in order to use the portable bottles of oxygen for non-commercial operations in non-complex A/C.	Not transposed, beyond the scope of Part-NCO.
2. portable bottles, when a cabin crew member is carried on board such flight.		
AMC OPS.GEN.440.A(a)(2) High altitude flights – Oxygen		
MAXIMUM ALTITUDE WITHOUT A PASSENGER OXYGEN SYSTEM – AEROPLANES		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
For complex motor-powered pressurised aeroplanes and for pressurised aeroplanes used in commercial operations, the maximum altitude up to which an aeroplane can operate without a passenger oxygen system being installed and capable of providing oxygen to each cabin occupant, should be established using an emergency descent profile which takes into account the following conditions:		
1. 17 seconds time delay for pilot's recognition and reaction, including mask donning, for trouble shooting and configuring the aeroplane for the emergency descent (emergency descent data/charts established by the aeroplane manufacturer and published in the Aircraft Flight Manual (AFM), and/or the AFM should be used to ensure uniform application of the option);		
2. Maximum Operational Speed (VMO) or the airspeed approved in the AFM for emergency descent, (emergency descent data/charts established by the aeroplane manufacturer and published in the AFM, and/or AFM should be used to ensure uniform application of the option), whichever is the less;		
3. All engines operative;		
4. The estimated mass of the aeroplane at the top of climb.		
GM OPS.GEN.440 High altitude flights – Oxygen		
GENERAL		
The high altitude flights concept is dealt with in detail in the ICAO Manual of Civil Aviation Medicine.	IND: GM to be deleted taking into account the different approaches of the FAA and	The GM is deleted.

A: Rule	B: Summary of comments	C: Reason for change, remarks
	JAA rules, more "state of the art" that the out-dated ICAO standards on oxygen.	
GM OPS.GEN.440(a)(2)(i) and (a)(3) High altitude flights – Oxygen		
DETERMINATION OF THE PROPORTION OF THE PASSENGERS FOR OXYGEN SUPPLY		
1. The determination of the proportion of the passengers for which oxygen should be supplied depends on the circumstances (e.g. maximum altitude, duration of the flight) of the flight to be undertaken and the performance of the aircraft.		
2. For pressurised aircraft not involved in commercial air transport operations, the requirements in Table 1 of OPS.CAT.440 may be used as guidance material.		
GM OPS.GEN.440(b) High altitude flights – Oxygen		
DUTIES ESSENTIAL TO THE SAFE OPERATION OF AN AIRCRAFT		
Flight duties which are essential to the safe operation of an aircraft include at least the control of aircraft in the flight path and the reaction to any normal, abnormal or emergency conditions.		
AMC OPS.GEN.450 Marking of break-in points		
COLOUR AND CORNERS' MARKING		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. The colour of the markings should be red or yellow and, if necessary, should be outlined in white to contrast with the background.		
2. If the corner markings are more than 2 m apart, intermediate lines 9 centimetres (cm) x 3 cm should be inserted so that there is no more than 2 m between adjacent markings.		
AMC1 OPS.GEN.455 First-aid kits		
OTHER THAN COMPLEX MOTOR-POWERED AIRCRAFT AND BALLOONS		
First-Aid Kits (FAKs) according to DIN 13164 or DIN 13157 are considered to meet the objective of OPS.GEN.455.	1. DIN is a German norm. What about other norms? Proposal: Introduce all other accepted norms in the AMC or international standard. 2. Do not refer to documents not available to the reader.	1. & 2. A first-aid kit that is DIN compliant is one means to fulfil the requirement which has been verified to be compliant with ICAO standards. It would be unpractical to list every existing national standard.
AMC2 OPS.GEN.455 First-aid kits	There is no FAK content listed for balloons.	FAK content for balloons is the same as for other NCO aircraft classes
COMPLEX MOTOR-POWERED AIRCRAFT		Not transposed, beyond the scope of Part-NCO.
1. First-Aid Kits (FAKs) should be equipped with appropriate and sufficient medications and instrumentation. However, these kits should be adapted by the		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
operator according to the characteristics of the operation (scope of operation, flight duration, number and demographics of passengers etc.).		
2. The following should be included in the FAKs:		
a. Equipment: i. Bandages (assorted sizes); ii. Burns dressings (unspecified); iii. Wound dressings (large and small); iv. Adhesive dressings (assorted sizes); v. Adhesive tape; vi. Adhesive wound closures; vii. Safety pins; viii. Scissors; ix. Antiseptic wound cleaner; x. Disposable resuscitation aid; xi. Disposable gloves; xii. IV cannulae (if IV fluids are carried in the FAK, a sufficient supply of IV cannulae should be stored there as well).		
b. Medications: i. Simple analgesic (may include liquid form); ii. Antiemetic; iii. Nasal decongestant;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
iv. Gastrointestinal antacid; v. Anti-diarrhoeal medication (for aircraft carrying more than 9 passengers); vi. Bronchial dilator spray.		
c. Other: i. A list of contents in at least 2 languages (English and one other). This should include information on the effects and side effects of medications carried; ii. First-aid handbook; iii. Medical incident report form; iv. Biohazard disposal bags; v. Ground/Air visual signal code for use by survivors.		
d. An eye irrigator, whilst not required to be carried in the FAK, should, where possible, be available for use on the ground.		
e. For security reasons, items such as scissors should be stored securely.		
AMC OPS.GEN.455(d) First-aid kits		
MAINTENANCE OF FIRST AID KITS		
To be maintained first aid kits should be:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use; and		
2. replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.		
GM1 OPS.GEN.460(a) and (b) Airborne Collision Avoidance System (ACAS) II		Not transposed, beyond the scope of Part-NCO.
GENERAL		
1. The ACAS operational procedures and training programmes established by the operator should take into account GM2 OPS.GEN.460(a) and (b). This guidance material incorporates advice contained in: a. ICAO Annex 10, Volume IV ; b. ICAO PANS-OPS, Volume 1 ; c. ICAO PANS-ATM ; and d. ICAO guidance material "ACAS Performance-Based Training Objectives" (published under Attachment E of state letter AN 7/1.3.7.2-97/77.		
2. Additional guidance material on ACAS may be referred to, including information available from such sources as Eurocontrol.		
GM2 OPS.GEN.460(a) and (b) Airborne Collision Avoidance System (ACAS) II		Not transposed, beyond the scope of Part-NCO.
ACAS FLIGHT CREW TRAINING PROGRAMMES		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. During the implementation of ACAS, several operational issues were identified which had been attributed to deficiencies in flight crew training programmes. As a result, the issue of flight crew training has been discussed within the ICAO, which has developed guidelines for operators to use when designing training programmes.		
2. This guidance material contains performance-based training objectives for ACAS II flight crew training. Information contained in this paper related to Traffic Advisories (TAs) is also applicable to ACAS I and ACAS III users. The training objectives cover five areas: theory of operation; pre-flight operations; general in-flight operations; response to TAs; and response to Resolution Advisories (RAs).		
3. The information provided is valid for TCAS II version 6.04A as well as for version 7 (ACAS II). Where differences arise, these are identified.		
4. The performance based training objectives are further divided into the areas of: academic training; manoeuvre training; initial evaluation and recurrent qualification. Under each of these four areas, the training material has been separated into those items which are considered essential training items and those which are considered desirable. In each area, objectives and acceptable performance criteria are defined.		
5. ACAS Academic Training: a. This training is typically conducted in a classroom environment. The knowledge demonstrations specified in this section may be completed through the successful completion of written tests or through providing correct responses to non-real-time Computer Based Training (CBT) questions. b. Essential items:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
i. Theory of operation. The flight crew member should demonstrate an understanding of ACAS operation and the criteria used for issuing TAs and RAs. This training should address the following topics:		
ii. System operation. Objective: To demonstrate knowledge of how ACAS functions. Criteria: The flight crew member should demonstrate an understanding of the following functions:		
1. Surveillance: a. ACAS interrogates other transponder-equipped aircraft within a nominal range of 14 nautical miles (nm). b. ACAS surveillance range can be reduced in geographic areas with a large number of ground interrogators and/or ACAS II-equipped aircraft. If the operator's ACAS implementation provides for the use of the Mode S extended squitter, the normal surveillance range may be increased beyond the nominal 14 nm. However, this information is not used for collision avoidance purposes.		
2. Collision avoidance: a. TAs can be issued against any transponder-equipped aircraft which responds to the ICAO Mode C interrogations, even if the aircraft does not have altitude reporting capability. b. RAs can be issued only against aircraft that are reporting altitude and in the vertical plane only. c. RAs issued against an ACAS-equipped intruder are co-ordinated to ensure complementary RAs are issued. d. Failure to respond to an RA deprives own aircraft of the collision protection provided by own ACAS.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
e. Additionally, in ACAS-ACAS encounters, it also restricts the choices available to the other aircraft's ACAS and thus renders the other aircraft's ACAS less effective than if own aircraft were not ACAS equipped.		
B. Advisory thresholds. Objective: To demonstrate knowledge of the criteria for issuing TAs and RAs. Criteria: The flight crew member should demonstrate an understanding of the methodology used by ACAS to issue TAs and RAs and the general criteria for the issuance of these advisories, including the following:		
1. ACAS advisories are based on time to Closest Point of Approach (CPA) rather than distance. The time should be short and vertical separation should be small, or projected to be small, before an advisory can be issued. The separation standards provided by air traffic services are different from the miss distances against which ACAS issues alerts;		
2. Thresholds for issuing a TA or an RA vary with altitude. The thresholds are larger at higher altitudes;		
3. A TA occurs from 15 to 48 seconds and an RA from 15 to 35 seconds before the projected CPA;		
4. RAs are chosen to provide the desired vertical miss distance at CPA. As a result, RAs can instruct a climb or descent through the intruder aircraft's altitude.		
C. ACAS limitations. Objective: To verify that the flight crew member is aware of the limitations of ACAS. Criteria: The flight crew member should demonstrate knowledge and understanding of ACAS limitations, including the following:		
1. ACAS will neither track nor display non-transponder-equipped aircraft, nor aircraft not responding to ACAS Mode C interrogations;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. ACAS will automatically fail if the input from the aircraft's barometric altimeter, radio altimeter or transponder is lost. a. In some installations, the loss of information from other on board systems such as an Inertial Reference System (IRS) or Attitude Heading Reference System (AHRS) may result in an ACAS failure. Individual operators should ensure that their flight crews are aware of the types of failure which will result in an ACAS failure. b. ACAS may react in an improper manner when false altitude information is provide to own ACAS or transmitted by another aircraft. Individual operators should ensure that their flight crews are aware of the types of unsafe conditions which can arise. Flight crews should ensure that when they are advised, if their own aircraft is transmitting false altitude reports, an alternative altitude reporting source is selected, or altitude reporting is switched off;		
3. Some aeroplanes within 380 ft above ground level (agl) (nominal value) are deemed to be 'on ground' and will not be displayed. If ACAS is able to determine an aircraft below this altitude is airborne, it will be displayed;		
4. ACAS may not display all proximate transponder-equipped aircraft in areas of high density traffic;		
5. The bearing displayed by ACAS is not sufficiently accurate to support the initiation of horizontal manoeuvres based solely on the traffic display;		
6. ACAS will neither track nor display intruders with a vertical speed in excess of 10 000 ft/min. In addition, the design implementation may result in some short-term errors in the tracked vertical speed of an intruder during periods of high vertical acceleration by the intruder;		
7. Ground Proximity Warning Systems/Ground Collision Avoidance Systems (GPWSs/GCASs) warnings and wind-shear warnings take precedence over ACAS		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
advisories. When either a GPWS/GCAS or wind-shear warning is active, ACAS aural annunciations will be inhibited and ACAS will automatically switch to the 'TA only' mode of operation.		
D. ACAS inhibits. Objective: To verify that the flight crew member is aware of the conditions under which certain functions of ACAS are inhibited. Criteria: The flight crew member should demonstrate knowledge and understanding of the various ACAS inhibits, including the following:		
1. "Increase Descent" RAs are inhibited below 1 450 ft agl;		
2. "Descend" RAs are inhibited below 1 100 ft agl;		
3. All RAs are inhibited below 1 000 ft agl;		
4. All TA aural annunciations are inhibited below 500 ft agl (1 000ft version 6.04A);		
5. Altitude and configuration under which "Climb" and "Increase Climb" RAs are inhibited. ACAS can still issue "Climb" and "Increase Climb" RAs when operating at the aeroplane's certified ceiling. (In some aircraft types, "Climb" or "Increase Climb" RAs are never inhibited.)		
ii. Operating procedures. The flight crew member should demonstrate the knowledge required to operate the ACAS avionics and interpret the information presented by ACAS. This training should address the following:		
A. Use of controls. Objective: To verify that the pilot can properly operate all ACAS and display controls.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Criteria: Demonstrate the proper use of controls including:		
1. Aircraft configuration required to initiate a self-test;		
2. Steps required to initiate a self-test;		
3. Recognising when the self-test was successful and when it was unsuccessful. When the self-test is unsuccessful, recognising the reason for the failure and, if possible, correcting the problem;		
4. Recommended usage of range selection. Low ranges are used in the terminal area and the higher display ranges are used in the en-route environment and in the transition between the terminal and en-route environment;		
5. Recognising that the configuration of the display does not affect the ACAS surveillance volume;		
6. Selection of lower ranges when an advisory is issued, to increase display resolution;		
7. Proper configuration to display the appropriate ACAS information without eliminating the display of other needed information;		
8. If available, recommended usage of the above/below mode selector. The above mode should be used during climb and the below mode should be used during descent;		
9. If available, proper selection of the display of absolute or relative altitude and the limitations of using this display if a barometric correction is not provided to ACAS.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
B. Display interpretation. Objective: To verify that the flight crew member understands the meaning of all information that can be displayed by ACAS. The wide variety of display implementations require the tailoring of some criteria. When the training programme is developed, these criteria should be expanded to cover details for an operator's specific display implementation. Criteria: The flight crew member should demonstrate the ability to properly interpret information displayed by ACAS, including the following:		
1. Other traffic, i.e. traffic within the selected display range that is not proximate traffic, or causing a TA or RA to be issued;		
2. Proximate traffic, i.e. traffic that is within 6 nm and ±1 200 ft;		
3. Non-altitude reporting traffic;		
4. No bearing TAs and RAs;		
5. Off-scale TAs and RAs. The selected range should be changed to 6. TAs. The minimum available display range which allows the traffic to be displayed should be selected, to provide the maximum display resolution;		
7. RAs (traffic display). The minimum available display range of the traffic display which allows the traffic to be displayed should be selected, to provide the maximum display resolution;		
8. RAs (RA display). Flight crew members should demonstrate knowledge of the meaning of the red and green areas or the meaning of pitch or flight path angle cues displayed on the RA display Flight crew members should also demonstrate an understanding of the RA display limitations, i.e. if a vertical speed tape is used and		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
the range of the tape is less than 2 500 ft/min, an increase rate RA cannot be properly displayed;		
9. If appropriate, awareness that navigation displays oriented on "Track-Up" may require a flight crew member to make a mental adjustment for drift angle when assessing the bearing of proximate traffic.		
C. Use of the TA only mode. Objective: To verify that a flight crew member understands the appropriate times to select the TA only mode of operation and the limitations associated with using this mode. Criteria: The flight crew member should demonstrate the following:		
1. Knowledge of the operator's guidance for the use of TA only;		
2. Reasons for using this mode. If TA only is not selected when an airport is conducting simultaneous operations from parallel runways separated by less than 1 200 ft, and to some intersecting runways, RAs can be expected. If for any reason TA only is not selected and an RA is received in these situations, the response should comply with the operator's approved procedures.		
3. All TA aural annunciations are inhibited below 500 ft agl (1 000 ft agl for version 6.04A). As a result, TAs issued below 500 ft agl may not be noticed unless the TA display is included in the routine instrument scan.		
D. Crew co-ordination. Objective: To verify that the flight crew member understands how ACAS advisories will be handled. Criteria: The flight crew member should demonstrate knowledge of the crew procedures that should be used when responding to TAs and RAs, including the following: 1. Task sharing between the pilot flying and the pilot not flying;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
2. Expected call-outs; 3. Communications with Air Traffic Control (ATC).		
E. Phraseology requirements. Objective: To verify that the flight crew member is aware of the requirements for reporting RAs to the controller. Criteria: The flight crew member should demonstrate the following:		
1. The use of the phraseology contained in ICAO PANS-OPS;		
2. An understanding of the procedures contained in ICAO PANS-ATM and ICAO Annex 2;		
3. The understanding that verbal reports should be made promptly to the appropriate ATC unit: a. whenever any manoeuvre has caused the aeroplane to deviate from an air traffic clearance; b. when, subsequent to a manoeuvre that has caused the aeroplane to deviate from an air traffic clearance, the aeroplane has returned to a flight path that complies with the clearance; and/or c. when air traffic issue instructions that, if followed, would cause the crew to manoeuvre the aircraft contrary to an RA with which they are complying.		
F. Reporting requirements. Objective: To verify that the flight crew member is aware of the requirements for reporting RAs to the operator. Criteria: The flight crew member should demonstrate knowledge of where information can be obtained regarding the need for making written reports to various states when an RA is issued. Various states have different reporting requirements and the material available to the flight crew member should be tailored to the operator's operating environment. For operators involved in commercial operations, this responsibility is satisfied by the		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
flight crew member reporting to the operator according to the applicable reporting requirements.		
c. Non-essential items: Advisory thresholds. Objective: To demonstrate knowledge of the criteria for issuing TAs and RAs. Criteria: The flight crew member should demonstrate an understanding of the methodology used by ACAS to issue TAs and RAs and the general criteria for the issuance of these advisories, including the following:		
i. The minimum and maximum altitudes below/above which TAs will not be issued;		
ii. When the vertical separation at CPA is projected to be less than the ACAS-desired separation, a corrective RA which requires a change to the existing vertical speed will be issued. This separation varies from 300 ft at low altitude to a maximum of 700 ft at high altitude;		
iii. When the vertical separation at CPA is projected to be just outside the ACAS-desired separation, a preventive RA which does not require a change to the existing vertical speed will be issued. This separation varies from 600 to 800 ft;		
iv. RA fixed range thresholds vary between 0.2 and 1.1 nm.		
6. ACAS manoeuvre training:		
a. Demonstration of the flight crew member’s ability to use ACAS displayed information to properly respond to TAs and RAs, should be carried out in a flight simulator equipped with an ACAS display and controls similar in appearance and operation to those in the aircraft. If a flight simulator is utilised, CRM should be practised during this training.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. Alternatively, the required demonstrations can be carried out by means of an interactive CBT with an ACAS display and controls similar in appearance and operation to those in the aircraft. This interactive CBT should depict scenarios in which real-time responses should be made. The flight crew member should be informed whether or not the responses made were correct. If the response was incorrect or inappropriate, the CBT should show what the correct response should be.		
c. The scenarios included in the manoeuvre training should include: corrective RAs; initial preventive RAs; maintain rate RAs; altitude crossing RAs; increase rate RAs; RA reversals; weakening RAs; and multi-aircraft encounters. The consequences of failure to respond correctly should be demonstrated by reference to actual incidents such as those publicised in Eurocontrol ACAS II 'safety flash' Bulletins.		
i. TA responses. Objective: To verify that the pilot properly interprets and responds to TAs. Criteria: The pilot should demonstrate the following:		
A. Proper division of responsibilities between the pilot flying and the pilot not flying. The pilot flying should fly the aircraft using any type-specific procedures and be prepared to respond to any RA that might follow. For aircraft without an RA pitch display, the pilot flying should consider the likely magnitude of an appropriate pitch change. The pilot not flying should provide updates on the traffic location shown on the ACAS display, using this information to help visually acquire the intruder;		
B. Proper interpretation of the displayed information. Flight crew members should confirm that the aircraft they have visually acquired is that which has caused the TA to be issued. Use should be made of all information shown on the display, note being taken of the bearing and range of the intruder (amber circle), whether it is above or below (data tag), and its vertical speed direction (trend arrow);		
C. Other available information should be used to assist in visual acquisition, including ATC "party-line" information, traffic flow in use, etc.;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
D. Because of the limitations described, the pilot flying should not manoeuvre the aircraft based solely on the information shown on the ACAS display. No attempt should be made to adjust the current flight path in anticipation of what an RA would advise, except that if own aircraft is approaching its cleared level at a high vertical rate with a TA present, vertical rate should be reduced to less than 1 500 ft/min;		
E. When visual acquisition is attained, and as long as no RA is received, normal right of way rules should be used to maintain or attain safe separation. No unnecessary manoeuvres should be initiated. The limitations of making manoeuvres based solely on visual acquisition, especially at high altitude or at night, or without a definite horizon should be demonstrated as being understood.		
ii. RA responses. Objective: To verify that the pilot properly interprets and responds to RAs. Criteria: The pilot should demonstrate the following:		
A. Proper response to the RA, even if it is in conflict with an ATC instruction and even if the pilot believes that there is no threat present;		
B. Proper task sharing between the pilot flying and the pilot not flying. The pilot flying should respond to a corrective RA with appropriate control inputs. The pilot not flying should monitor the response to the RA and should provide updates on the traffic location by checking the traffic display. Proper Crew Resource Management (CRM) should be used;		
C. Proper interpretation of the displayed information. The pilot should recognise the intruder causing the RA to be issued (red square on display). The pilot should respond appropriately;		
D. For corrective RAs, the response should be initiated in the proper direction within five seconds of the RA being displayed. The change in vertical speed should be accomplished with an acceleration of approximately ¼ g (gravitational acceleration of		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
9.81 m/sec²);		
E. Recognition of the initially displayed RA being modified. Response to the modified RA should be properly accomplished, as follows:		
1. For increase rate RAs, the vertical speed change should be started within two and a half seconds of the RA being displayed. The change in vertical speed should be accomplished with an acceleration of approximately ⅓ g;		
2. For RA reversals, the vertical speed reversal should be started within two and a half seconds of the RA being displayed. The change in vertical speed should be accomplished with an acceleration of approximately ⅓ g;		
3. For RA weakenings, the vertical speed should be modified to initiate a return towards the original clearance;		
4. An acceleration of approximately ¼ g will be achieved if the change in pitch attitude corresponding to a change in vertical speed of 1 500 ft/min is accomplished in approximately five seconds, and of ⅓ g if the change is accomplished in approximately three seconds. The change in pitch attitude required to establish a rate of climb or descent of 1 500 ft/min from level flight will be approximately six degrees when the True Air Speed (TAS) is 150 kt, four degrees at 250 kt, and two degrees at 500 kt. (These angles are derived from the formula: 1000 divided by TAS.)		
F. Recognition of altitude crossing encounters and the proper response to these RAs;		
G. For preventive RAs, the vertical speed needle or pitch attitude indication, should remain outside the red area on the RA display;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
H. For maintain rate RAs, the vertical speed should not be reduced. Pilots should recognise that a maintain rate RA may result in crossing through the intruder's altitude;		
I. When the RA weakens, or when the green 'fly to' indicator changes position, the pilot should initiate a return towards the original clearance, and when "clear of conflict" is annunciated, the pilot should complete the return to the original clearance;		
J. The controller should be informed of the RA as soon as time and workload permit, using the standard phraseology;		
K. When possible, an ATC clearance should be complied with while responding to an RA. For example, if the aircraft can level at the assigned altitude while responding to RA (an "adjust vertical speed" RA (version 7), "reduce climb" or "reduce descent" RA (version 6.04A), it should be done; the horizontal (turn) element of an ATC instruction should be followed;		
L. Knowledge of the ACAS multi-aircraft logic and its limitations, and that ACAS can optimise separations from two aircraft by climbing or descending towards one of them. For example, ACAS only considers intruders which it considers to be a threat when selecting an RA. As such, it is possible for ACAS to issue an RA against one intruder which results in a manoeuvre towards another intruder which is not classified as a threat. If the second intruder becomes a threat, the RA will be modified to provide separation from that intruder.		
7. ACAS initial evaluation:		
a. The flight crew member’s understanding of the academic training items should be assessed by means of a written test or interactive CBT that records correct and incorrect responses to phrased questions.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. The flight crew member's understanding of the manoeuvre training items should be assessed in a flight simulator equipped with an ACAS display and controls similar in appearance and operation to those in the aircraft the flight crew member will fly, and the results assessed by a qualified instructor, inspector, or check airman. The range of scenarios should include: corrective RAs; initial preventive RAs; maintain rate RAs; altitude crossing RAs; increase rate RAs; RA reversals; weakening RAs; and multi-threat encounters. The scenarios should also include demonstrations of the consequences of not responding to RAs, slow or late responses, and manoeuvring opposite to the direction called for by the displayed RA.		
c. Alternatively, exposure to these scenarios can be conducted by means of an interactive CBT with an ACAS display and controls similar in appearance and operation to those in the aircraft the pilot will fly. This interactive CBT should depict scenarios in which real-time responses should be made and a record made of whether or not each response was correct.		
8. ACAS recurrent training:		
a. ACAS recurrent training ensures that flight crew members maintain the appropriate ACAS knowledge and skills. ACAS recurrent training should be integrated into and/or conducted in conjunction with other established recurrent training programmes. An essential item of recurrent training is the discussion of any significant issues and operational concerns that have been identified by the operator. Recurrent training should also address changes to ACAS logic, parameters or procedures and to any unique ACAS characteristics which flight crew members should be made aware of.		
b. It is recommended that operator's recurrent training programmes using flight simulators include encounters with conflicting traffic when these simulators are equipped with ACAS. The full range of likely scenarios may be spread over a two-year		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
period. If a flight simulator, as described above, is not available, use should be made of an interactive CBT that is capable of presenting scenarios to which pilot responses should be made in real-time.		
AMC OPS.GEN.465.A(c) Terrain Awareness Warning System (TAWS) - Aeroplanes		
TAWS WARNING		
The warning referred in OPS.GEN.465.A(c) should be provided by aural signals that may be supplemented by visual signals.		
GM1 OPS.GEN.465.A Terrain Awareness Warning System (TAWS) - Aeroplanes		
TAWS CLASS A AND TAWS CLASS B		
The minimum performance standards for TAWS Class A and TAWS Class B equipment are described in the Agency's ETSO-C151a .		
GM2 OPS.GEN.465.A Terrain Awareness Warning System (TAWS) - Aeroplanes		Transposed in NCO.OP.
GUIDANCE MATERIAL FOR TAWS FLIGHT CREW TRAINING PROGRAMMES		
1. Introduction:		
a. This guidance material contains performance-based training objectives for TAWS flight crew training.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. The training objectives cover five areas: theory of operation; pre-flight operations; general in-flight operations; response to TAWS cautions; and response to TAWS warnings.		
c. The term 'TAWS' in this guidance material means a Ground Proximity Warning System (GPWS) enhanced by a forward-looking terrain avoidance function. Alerts include both cautions and warnings.		
d. The content of this guidance material is intended to assist operators who are producing training programmes. The information it contains has not been tailored to any specific aircraft or TAWS equipment, but highlights features which are typically available where such systems are installed. It is the responsibility of the individual operator to determine the applicability of the content of this guidance material to each aircraft and TAWS equipment installed and their operation. Operators should refer to the AFM and/or Aircraft/Flight Crew Operating Manual A/FCOM, or similar documents, for information applicable to specific configurations. If there should be any conflict between the content of this guidance material and that published in the other documents described above, then information contained in the AFM or A/FCOM will take precedence.		
2. Scope:		
a. The scope of this guidance material is designed to identify training objectives in the areas of: academic training; manoeuvre training; initial evaluation; and recurrent qualification. Under each of these four areas, the training material has been separated into those items which are considered essential training items and those which are considered to be desirable. In each area, objectives and acceptable performance criteria are defined.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. No attempt is made to define how the training programme should be implemented. Instead, objectives are established to define the knowledge that a pilot operating a TAWS is expected to possess and the performance expected from a pilot who has completed TAWS training. However, the guidelines do indicate those areas in which the pilot receiving the training should demonstrate his/her understanding, or performance, using a real-time, interactive training device, ie a flight simulator. Where appropriate notes are included within the performance criteria which amplify or clarify the material addressed by the training objective.		
3. Performance-based training objectives:		
a. TAWS academic training:		
i. This training is typically conducted in a classroom environment. The knowledge demonstrations specified in this section may be completed through the successful completion of written tests or by providing correct responses to non-real-time CBT questions.		
ii. Theory of operation. The pilot should demonstrate an understanding of TAWS operation and the criteria used for issuing cautions and warnings. This training should address system operation. Objective: To demonstrate knowledge of how a TAWS functions. Criteria: The pilot should demonstrate an understanding of the following functions:		
A. Surveillance:		
1. The GPWS computer processes data supplied from an air data computer, a radio altimeter, an Instrument Landing System (ILS)/Microwave Landing		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
System(MLS)/Multi-Mode (MM) receiver, a roll attitude sensor, and flap and gear selector position sensors.		
2. The forward looking terrain avoidance function utilises an accurate source of known aircraft position, such as that which may be provided by a Flight Management System (FMS) or GPS, or an electronic terrain database. The source and scope of the terrain, obstacle and airport data, and features such as the terrain clearance floor, the runway picker, and geometric altitude (where provided), should all be described.		
3. Displays required to deliver TAWS outputs include a loudspeaker for voice announcements, visual alerts (typically amber and red lights), and a terrain awareness display (that may be combined with other displays). In addition, means should be provided for indicating the status of the TAWS and any partial or total failures that may occur.		
B. Terrain avoidance. Outputs from the TAWS computer provide visual and audio synthetic voice cautions and warnings to alert the flight crew about potential conflicts with terrain and obstacles.		
C. Alert thresholds. Objective: To demonstrate knowledge of the criteria for issuing cautions and warnings. Criteria: The pilot should be able to demonstrate an understanding of the methodology used by a TAWS to issue cautions and alerts and the general criteria for the issuance of these alerts, including:		
1. basic GPWS alerting modes specified in the ICAO Standard: Mode 1: excessive sink rate; Mode 2: excessive terrain closure rate;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Mode 3: descent after take-off or go-around; Mode 4: unsafe proximity to terrain; Mode 5: descent below ILS glide slope (caution only); and		
2. an additional, optional alert mode:- Mode 6: radio altitude call-out (information only); TAWS cautions and warnings which alert the flight crew to obstacles and terrain ahead of the aircraft in line with or adjacent to its projected flight path (Forward-Looking Terrain Avoidance (FLTA) and Premature Descent Alert (PDA) functions).		
D. TAWS limitations. Objective: To verify that the pilot is aware of the limitations of TAWS. Criteria: The pilot should demonstrate knowledge and an understanding of TAWS limitations identified by the manufacturer for the equipment model installed, such as:		
1. navigation should not be predicated on the use of the terrain display;		
2. unless geometric altitude data is provided, use of predictive TAWS functions is prohibited when altimeter subscale settings display 'QFE';		
3. nuisance alerts can be issued if the aerodrome of intended landing is not included in the TAWS airport database;		
4. in cold weather operations, corrective procedures should be implemented by the pilot unless the TAWS has in-built compensation, such as geometric altitude data;		
5. loss of input data to the TAWS computer could result in partial or total loss of functionality. Where means exist to inform the flight crew that functionality has		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
	been degraded, this should be known and the consequences understood;		
6.	radio signals not associated with the intended flight profile (eg ILS glide path transmissions from an adjacent runway) may cause false alerts;		
7.	inaccurate or low accuracy aircraft position data could lead to false or non-annunciation of terrain or obstacles ahead of the aircraft; and		
8.	Minimum Equipment List (MEL) restrictions should be applied in the event of the TAWS becoming partially or completely unserviceable. (It should be noted that basic GPWS has no forward-looking capability.)		
E.	TAWS inhibits. Objective: To verify that the pilot is aware of the conditions under which certain functions of a TAWS are inhibited. Criteria: The pilot should demonstrate knowledge and an understanding of the various TAWS inhibits, including the following:		
1. 2. 3. 4. 5.	A means of silencing voice alerts; A means of inhibiting ILS glide path signals (as may be required when executing an ILS back beam approach); A means of inhibiting flap position sensors (as may be required when executing an approach with the flaps not in a normal position for landing); A means of inhibiting the FLTA and PDA functions; A means of selecting or deselecting the display of terrain information, together with appropriate annunciation of the status of each selection.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
b. Operating procedures. The pilot should demonstrate the knowledge required to operate TAWS avionics and to interpret the information presented by a TAWS. This training should address the following topics:		
i. Use of controls. Objective: To verify that the pilot can properly operate all TAWS controls and inhibits. Criteria: The pilot should demonstrate the proper use of controls, including the following:		
A. The means by which, before flight, any equipment self-test functions can be initiated; B. The means by which TAWS information can be selected for display; C. The means by which all TAWS inhibits can be operated and what the consequent annunciations mean with regard to loss of functionality.		
ii. Display interpretation. Objective: To verify that the pilot understands the meaning of all information that can be annunciated or displayed by a TAWS. Criteria: The pilot should demonstrate the ability to properly interpret information annunciated or displayed by a TAWS, including the following:		
A. Knowledge of all visual and aural indications that may be seen or heard; B. Response required on receipt of a caution; C. Response required on receipt of a warning; D. Response required on receipt of a notification that partial or total failure of the TAWS has occurred (including annunciation that the present aircraft position is of low accuracy).		
iii. Use of basic GPWS or use of the FLTA function only. Objective: To verify that the pilot understands what functionality will remain following loss of the GPWS or of the FLTA function. Criteria: The pilot should demonstrate knowledge of the		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
	following:		
A.	How to recognise un-commanded loss of the GPWS function, or how to isolate this function and how to recognise the level of the remaining Controlled Flight Into Terrain (CFIT) protection (essentially, this is the FLTA function);		
B.	How to recognise un-commanded loss of the FLTA function, or how to isolate this function and how to recognise the level of the remaining CFIT protection (essentially, this is the basic GPWS).		
iv.	Crew co-ordination. Objective: To verify that the pilot adequately briefs other flight crew members on how TAWS alerts will be handled. Criteria: The pilot should demonstrate that the pre-flight briefing addresses procedures that will be used in preparation for responding to TAWS cautions and warnings, including the following:		
A.	The action to be taken, and by whom, in the event that a TAWS caution and/or warning is issued;		
B.	How multi-function displays will be used to depict TAWS information at take-off, in the cruise and for the descent, approach, landing (and any go-around). This will be in accordance with procedures specified by the operator, who will recognise that it may be more desirable that other data is displayed at certain phases of flight and that the terrain display has an automatic 'pop-up' mode in the event that an alert is issued.		
v.	Reporting requirements. Objective: To verify that the pilot is aware of the requirements for reporting alerts to the controller and other authorities. Criteria: The pilot should demonstrate knowledge of the following:		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
A.	When, following recovery from a TAWS alert or caution, a transmission of information should be made to the appropriate air traffic control unit;		
B.	The type of written report which is required, how it is to be compiled, and whether any cross reference should be made in the aircraft technical log and/or voyage report (in accordance with procedures specified by the operator), following a flight in which the aircraft flight path has been modified in response to a TAWS alert, or if any part of the equipment appears not to have functioned correctly.		
vi.	Alert thresholds. Objective: To demonstrate knowledge of the criteria for issuing cautions and warnings. Criteria: The pilot should be able to demonstrate an understanding of the methodology used by a TAWS to issue cautions and warnings and the general criteria for the issuance of these alerts, including:		
A.	awareness of the modes associated with basic GPWS, including the input data associated with each; and		
B.	awareness of the visual and aural annunciations that can be issued by TAWS and how to identify which are cautions and which are warnings.		
c.	TAWS manoeuvre training. The pilot should demonstrate the knowledge required to respond correctly to TAWS cautions and warnings. This training should address the following topics:		
i.	Response to cautions:		
A.	Objective: To verify that the pilot properly interprets and responds to cautions. Criteria: The pilot should demonstrate an understanding of the need, without delay:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
1. to initiate action required to correct the condition which has caused the TAWS to issue the caution and to be prepared to respond to a warning, if this should follow; and 2. if a warning does not follow the caution, to notify the controller of the new position, heading and/or altitude/flight level of the aircraft, and what the pilot-in-command intends to do next.		
B. The correct response to a caution might require the pilot: 1. to reduce a rate of descent and/or to initiate a climb; 2. to regain an ILS glide path from below, or to inhibit a glide path signal if an ILS is not being flown; 3. to select more flap, or to inhibit a flap sensor if the landing is being conducted with the intent that the normal flap setting will not be used; 4. to select gear down; and/or 5. to initiate a turn away from the terrain or obstacle ahead and towards an area free of such obstructions if a forward-looking terrain display indicates that this would be a good solution and the entire manoeuvre can be carried out in clear visual conditions.		
ii. Response to warnings. Objective: To verify that the pilot properly interprets and responds to warnings. Criteria: The pilot should demonstrate an understanding of the following:		
A. The need, without delay, to initiate a climb in the manner specified by the operator;		
B. The need, without delay, to maintain the climb until visual verification can be made that the aircraft will clear the terrain or obstacle ahead or until above the appropriate sector safe altitude (if certain about the location of the aircraft with		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
	respect to terrain) even if the TAWS warning stops. If, subsequently, the aircraft climbs up through the sector safe altitude, but the visibility does not allow the flight crew to confirm that the terrain hazard has ended, checks should be made to verify the location of the aircraft and to confirm that the altimeter subscale settings are correct;		
C.	When the workload permits, that the flight crew should notify the air traffic controller of the new position and altitude/flight level, and what the pilot-in-command intends to do next;		
D.	That the manner in which the climb is made should reflect the type of aircraft and the method specified by the aircraft manufacturer (which should be reflected in the operations manual) for performing the escape manoeuvre. Essential aspects will include the need for an increase in pitch attitude, selection of maximum thrust, confirmation that external sources of drag (e.g. spoilers/speed brakes) are retracted, and respect of the stick shaker or other indication of eroded stall margin;		
E.	That TAWS warnings should never be ignored. However, the pilot's response may be limited to that which is appropriate for a caution, only if: 1. the aircraft is being operated by day in clear, visual conditions; and		
ii.	it is immediately clear to the pilot that the aircraft is in no danger in respect of its configuration, proximity to terrain or current flight path.		
d.	TAWS initial evaluation:		
i.	The flight crew member's understanding of the academic training items should be assessed by means of a written test.		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
ii.	The flight crew member's understanding of the manoeuvre training items should be assessed in a flight simulator equipped with TAWS visual and aural displays and inhibit selectors similar in appearance and operation to those in the aircraft which the pilot will fly. The results should be assessed by a synthetic flight instructor, synthetic flight examiner, type rating instructor or type rating examiner.		
iii.	The range of scenarios should be designed to give confidence that proper and timely responses to TAWS cautions and warnings will result in the aircraft avoiding a CFIT accident. To achieve this objective, the pilot should demonstrate taking the correct action to prevent a caution developing into a warning and, separately, the escape manoeuvre needed in response to a warning. These demonstrations should take place when the external visibility is zero, though there is much to be learnt if, initially, the training is given in 'mountainous' or 'hilly' terrain with clear visibility. This training should comprise a sequence of scenarios, rather than be included in Line Orientated Flying Training (LOFT).		
iv.	A record should be made, after the pilot has demonstrated competence, of the scenarios that were practised.		
e.	TAWS recurrent training:		
i.	TAWS recurrent training ensures that pilots maintain the appropriate TAWS knowledge and skills. In particular, it reminds pilots of the need to act promptly in response to cautions and warnings, and of the unusual attitude associated with flying the escape manoeuvre.		
ii.	An essential item of recurrent training is the discussion of any significant issues and operational concerns that have been identified by the operator. Recurrent		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
	training should also address changes to TAWS logic, parameters or procedures and to any unique TAWS characteristics of which pilots should be aware.		
f.	Reporting procedures:		
i.	Verbal reports. Verbal reports should be made promptly to the appropriate air traffic control unit:		
A.	whenever any manoeuvre has caused the aircraft to deviate from an air traffic clearance;		
B.	when, following a manoeuvre which has caused the aircraft to deviate from an air traffic clearance, the aircraft has returned to a flight path which complies with the clearance; and/or		
C.	when an air traffic control unit issues instructions which, if followed, would cause the pilot to manoeuvre the aircraft towards terrain or obstacle or it would appear from the display that a potential CFIT occurrence is likely to result.		
ii.	Written reports. Written reports should be submitted in accordance with the operator's occurrence reporting scheme and they also should be recorded in the aircraft technical log:		
A.	whenever the aircraft flight path has been modified in response to a TAWS alert (false, nuisance or genuine);		
B.	whenever a TAWS alert has been issued and is believed to have been false; and/or		
C.	if it is believed that a TAWS alert should have been issued, but was not.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
iii. Within this guidance material, and with regard to reports:		
A. the term 'false' means that the TAWS issued an alert which could not possibly be justified by the position of the aircraft in respect to terrain and it is probable that a fault or failure in the system (equipment and/or input data) was the cause;		
B. the term 'nuisance' means that the TAWS issued an alert which was appropriate, but was not needed because the flight crew could determine by independent means that the flight path was, at that time, safe;		
C. the term 'genuine' means that the TAWS issued an alert which was both appropriate and necessary; and		
D. the report terms described in GM2 OPS.GEN.A.465 3.f.iii are only meant to be assessed after the occurrence is over, to facilitate subsequent analysis, the adequacy of the equipment and the programmes it contains. The intention is not for the flight crew to attempt to classify an alert into any of these three categories when visual and/or aural cautions or warnings are annunciated.		
AMC OPS.GEN.485.A Crash axes and crowbars - Aeroplanes		Not transposed, beyond the scope of Part-NCO.
POSITION OF CRASH AXES AND CROWBARS FOR AEROPLANES USED IN COMMERCIAL AIR TRANSPORT OPERATIONS		
For aeroplanes used in commercial air transport operations, crash axes and crowbars located in the passenger compartment should be stored in a position not visible to passengers.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
AMC1 OPS.GEN.490.A Flight data recorder - Aeroplanes		Not transposed, beyond the scope of Part-NCO.
LIST OF PARAMETERS TO BE RECORDED FOR AEROPLANES FIRST ISSUED WITH AN INDIVIDUAL CERTIFICATE OF AIRWORTHINESS ON OR AFTER 1 JANUARY 2010		
1. The Flight Data Recorder (FDR) should, with reference to a timescale, record: a. the parameters listed in Table 1 of AMC1 OPS.GEN.490.A; b. the additional parameters listed in Table 2 of AMC1 OPS.GEN.490.A, when the information data source for the parameter is either used by aeroplane systems or is available on the instrument panel for use by the flight crew to operate the aeroplane; and c. any dedicated parameters related to novel or unique design or operational characteristics of the aeroplane, as determined by the competent authority responsible for the type certification or supplemental type certification.		
2. The parameters to be recorded should meet the performance specifications (designated ranges, sampling intervals, accuracy limits and minimum resolution in read-out) as defined in the relevant tables of the European Organisation for Civil Aviation Equipment (EUROCAE) ED-112.		
Table 1 of AMC1 OPS.GEN.490.A		

No.*	Parameter
1a	Time; or
1b	Relative time count
	Global Navigation Satellite System (GNSS) time

A: Rule		B: Summary of comments	C: Reason for change, remarks
1c	synchronisation		
2	Pressure altitude		
3a 3b	Indicated air speed; or Calibrated air speed		
4	Heading (primary flight crew reference) - when true or magnetic heading can be selected, the primary heading reference, a discrete indicating selection, should be recorded		
5	Normal acceleration		
6	Pitch attitude		
7	Roll attitude		
8	Manual radio transmission keying and Cockpit Voice Recorder (CVR)/FDR synchronisation reference.		
9 9a 9b	Engine thrust/power Parameters required to determine propulsive thrust/power on each engine Cockpit thrust/power lever position for aeroplanes with non-mechanically linked cockpit - engine control		
14	Total or Outside Air Temperature (OAT)		

A: Rule		B: Summary of comments	C: Reason for change, remarks
16	Longitudinal acceleration (body axis)		
17	Lateral acceleration		
18 18a 18b 18c	Primary flight control surface and primary flight control pilot input (for multiple or split surfaces, a suitable combination of inputs is acceptable in lieu of recording each surface separately. For aeroplanes which have a flight control break-away capability that allows either pilot to operate the controls independently, record both inputs): pitch axis roll axis yaw axis		
19	Pitch trim surface position		
23	Marker beacon passage		
24	Warnings - in addition to the master warning each "red" warning (including smoke warnings from other compartments) should be recorded when the warning condition cannot be determined from other parameters or from the CVR		
25	Each navigation receiver frequency selection		
27	Air - ground status and, if the sensor is installed, each landing gear		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
38 — Selected barometric setting - to be recorded for the aeroplane in which the parameter is displayed electronically		
44 — Selected flight path (all pilot selectable modes of operation) - to be recorded for the aeroplane in which the parameter is displayed electronically		
45 — Selected decision height - to be recorded for the aeroplane in which the parameter is displayed electronically		
75 — All cockpit flight control input forces (for fly-by-wire flight control systems, where control surface position is a function of the displacement of the control input device only, it is not necessary to record this parameter): 75a — Control wheel 75b — Control column 75c — Rudder pedal cockpit input forces		
* The number in the left hand column reflects the serial number depicted in EUROCAE ED-112.		
Table 2 of AMC1 OPS.GEN.490.A AEROPLANES FOR WHICH THE INFORMATION DATA SOURCE FOR THE PARAMETER IS EITHER USED BY AEROPLANE SYSTEMS OR IS AVAILABLE ON THE INSTRUMENT PANEL FOR USE BY THE FLIGHT CREW TO OPERATE THE AEROPLANE.		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
No.*	Parameter		
10	Flaps: Trailing edge flap position and cockpit control selection		
11	Slats: Leading edge flap (slat) position and cockpit control selection		
12	Thrust reverse status		
13 13a 13b 13c 13d	Ground spoiler and speed brake Ground spoiler position Ground spoiler selection Speed brake position Speed brake selection		
15	Autopilot/autothrottle/Automatic Flight Control System (AFCS) mode and engagement status		
20	Radio altitude. For autoland/Category 3 operations, each radio altimeter should be recorded. It is acceptable to arrange them so that at least one is recorded every second.		
21 21a	Vertical deviation - the approach aid in use should be recorded. For autoland/Category 3 operations, each system should be recorded. It is acceptable to arrange them so that at least one is recorded every second).		

A: Rule			B: Summary of comments	C: Re ason for ch ange, remarks
21b 21c	ILS glide path MLS elevation GNSS approach path/IRNAV vertical deviation			
22 22a 22b 22c	Horizontal deviation - the approach aid in use should be recorded. For auto land/Category 3 operations, each system should be recorded. It is acceptable to arrange them so that at least one is recorded every second). ILS localiser MLS azimuth GNSS approach path/IRNAV lateral deviation			
26	DME 1 and 2 distances			
28 28a 28b 28c	GPWS/TAWS/GCAS status: Selection of terrain display mode, including pop-up display status Terrain alerts, including cautions and warnings and advisories On/off switch position			
29	Angle of attack			
30 30a 30b	Low pressure warning (each system): Hydraulic pressure Pneumatic pressure			

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
31	Ground speed		
32 32a 32b	Landing gear: Landing gear Gear selector position		
33 33a 33b 33c 33d 33e 33f	Navigation data: Drift angle Wind speed Wind direction Latitude Longitude GNSS augmentation in use		
34 34a 34b	Brakes: Left and right brake pressure Left and right brake pedal position		
35 35a 35b 35c 35d	Additional engine parameters (if not already recorded in parameter 9 of Table 1 of AMC1 OPS.GEN.490.A and if the aeroplane is equipped with a suitable data source): Engine Pressure Ratio (EPR) N_1 Indicated vibration level		

A: Rule	B: Summary of comments	C: Reason for change, remarks
35e N_2 35f Exhaust Gas Temperature (EGT) 35g Fuel flow 35h Fuel cut-off lever position N_3		

A: Rule		B: Summary of comments	C: Reason for change, remarks
36 36a 36b 36c 36d 36e	Traffic Alert and Collision Avoidance System (TCAS)/ACAS - a suitable combination of discrete should be recorded to determine the status of system: Combined control Vertical control Up advisory Down advisory Sensitivity level		
37	Wind-shear warning		
38a 38b	Pilot First officer		
39	Selected altitude (All pilot selectable modes of operation) - to be recorded for the aeroplane where the parameter is displayed electronically		
40	Selected speed (All pilot selectable modes of operation) - to be recorded for the aeroplane where the parameter is displayed electronically		
41	Selected Mach (All pilot selectable modes of operation) - to be recorded for the aeroplane where the parameter is displayed electronically		
42	Selected vertical speed (All pilot selectable modes of operation) - to be recorded for the aeroplane where the parameter is displayed electronically		
43	Selected heading (All pilot selectable modes of		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
47	Multi-function/engine/alerts display format		
48	AC electrical bus status - each bus		
49	DC electrical bus status - each bus		
50	Engine bleed valve position		
51	APU bleed valve position		
52	Computer failure - critical flight and engine control system		
53	Engine thrust command		
54	Engine thrust target		
55	Computed centre of gravity		
56	Fuel quantity or fuel quantity in CG trim tank		
57	Head up display in use		
58	Para visual display on		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
59	Operational stall protection, stick shaker and pusher activation		
60	Primary navigation system reference:		
60a	GNSS		
60b	Inertial Navigational System (INS)		
60c	VOR/DME		
60d	MLS		
60e	Loran C		
60f	ILS		
61	Ice detection		
62	Engine warning - each engine vibration		
63	Engine warning - each engine over temperature		
64	Engine warning - each engine oil pressure low		
65	Engine warning - each engine over speed		
66	Yaw trim surface position		
67	Roll trim surface position		
68	Yaw or sideslip angle		
69	De-icing and/or anti-icing systems selection		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
70 Hydraulic pressure - each system 71 Loss of cabin pressure * 72 Cockpit trim control input position pitch - when mechanical means for control inputs are not available, cockpit display trim positions or trim command should be recorded 73 Cockpit trim control input position roll - when mechanical means for control inputs are not available, cockpit display trim positions or trim command should be recorded 74 Cockpit trim control input position yaw - when mechanical means for control inputs are not available, cockpit display trim positions or trim command should be recorded 76 Event marker 77 Date 78 ANP or EPE or EPU		
* The number in the left hand column reflects the serial number depicted in EUROCAE ED-112.		
Table 3 of AMC2 OPS.GEN.490.A		

<table>
<tr><th>A: Rule</th><th>B: Summary of comments</th><th>C: Reason for change, remarks</th></tr>
<tr><td>additional parameters for Aeroplanes equipped with electronic display systems</td><td></td><td></td></tr>
<tr><td>
<table>
<tr><th>No.</th><th>No.*</th><th>Parameter</th></tr>
<tr><td>33</td><td>6</td><td>Selected barometric setting (each pilot’s station)</td></tr>
<tr><td>34</td><td>7</td><td>Selected altitude</td></tr>
<tr><td>35</td><td>8</td><td>Selected speed</td></tr>
<tr><td>36</td><td>9</td><td>Selected mach</td></tr>
<tr><td>37</td><td>10</td><td>Selected vertical speed</td></tr>
<tr><td>38</td><td>11</td><td>Selected heading</td></tr>
<tr><td>39</td><td>12</td><td>Selected flight path</td></tr>
<tr><td>40</td><td>13</td><td>Selected decision height</td></tr>
<tr><td>41</td><td>14</td><td>EFIS display format</td></tr>
<tr><td>42</td><td>15</td><td>Multi-function/engine/alerts display format</td></tr>
</table>
* The number in the centre column reflects the serial numbers depicted in table A1.5 of EUROCAE ED-55.
</td><td></td><td></td></tr>
<tr><td>AMC3 OPS.GEN.490.A Flight data recorder - Aeroplanes</td><td></td><td>Not transposed, beyond the scope of Part-NCO.</td></tr>
</table>

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
LIST OF PARAMETERS TO BE RECORDED FOR AEROPLANES FIRST ISSUED WITH AN INDIVIDUAL CERTIFICATE OF AIRWORTHINESS ON OR AFTER 1 JUNE 1990 UP TO AND INCLUDING 31 MARCH 1998		
1. The flight data recorder should, with reference to a timescale, record the parameters listed in Table 1 of AMC3 OPS.GEN.490.A. 2. When determined by the competent authority responsible for type certification or supplemental type certification, the flight data recorder of aeroplanes having a maximum certificated take-off mass of 27 000 kg does not need to record parameters 14 and 15b of Table 1 of AMC3 OPS.GEN.490.A when any of the following conditions are met: a. The sensor is not readily available; b. Sufficient capacity is not available in the FDR system; c. A change is required in the equipment that generates the data. 3. When determined by the competent authority responsible for type certification or supplemental type certification and agreed by the Agency, the flight data recorder does not need to record parameters 15b 23, 24, 25, 26, 27, 28, 29, 30 and 31 of Table 1 of AMC3 OPS.GEN.490.A, when any of the following conditions are met: a. The sensor is not readily available; b. Sufficient capacity is not available in the FDR system; c. A change is required in the equipment that generates the data; d. For navigational data (NAV frequency selection, DME distance, latitude, longitude, ground speed and drift), the signals are not available in digital form; e. When the above conditions have been met and compliance with this		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC would imply significant modifications to the aeroplane with a severe re-certification effort. 4. When determined by the competent authority responsible for type certification or supplemental type certification and agreed by the Agency, the flight data recorder does not need to record individual parameters that can be derived by calculation from the other recorded parameters.		
Table 1 of AMC3 OPS.GEN.490.A		
Aeroplanes with a maximum certificated take-off mass exceeding 27 000 kg		

No.	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated air speed
4	Heading
5	Normal acceleration
6	Pitch attitude
7	Roll attitude
8	Manual radio transmission keying unless an alternate means to

A: Rule			B: Summary of comments	C: Re ason for ch ange, remarks
	synchronise FDR and CVR recordings is provided			
9	Power on each engine			
10	Trailing edge flap or cockpit control selection			
11	Leading edge flap or cockpit control selection			
12	Thrust reverse position (for turbo-jet aeroplanes only)			
13	Ground spoiler position and/or speed brake selection			
14	Outside air temperature or total air temperature			
15a 15b	Autopilot engagement status Autopilot operating modes, autothrottle and AFCS systems engagement status and operating modes.			
16	Longitudinal acceleration			
17	Lateral acceleration			
18	Primary flight controls - control surface position and/or pilot input (pitch, roll and yaw)			
19	Pitch trim position			
20	Radio altitude			
21	Glide path deviation			
22	Localiser deviation			

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
23 Marker beacon passage 24 Master warning 25 NAV 1 and NAV 2 frequency selection 26 DME 1 and DME 2 distance 27 Landing gear squat switch status 28 Ground proximity warning system 29 Angle of attack 30 Hydraulics, each system (low pressure) 31 Navigation data 32 Landing gear or gear selector position		
AMC4 OPS.GEN.490.A Flight data recorder - Aeroplanes		Not transposed, beyond the scope of Part-NCO.
LIST OF PARAMETERS TO BE RECORDED FOR AEROPLANES FIRST ISSUED WITH AN INDIVIDUAL CERTIFICATE OF AIRWORTHINESS BEFORE 1 JUNE 1990		
1. The flight data recorder should, with reference to a timescale, record the parameters listed in Table 1 of AMC4 OPS.GEN.490.A. 2. When determined by the competent authority responsible for type certification or supplemental type certification and agreed by the Agency, the FDR of aeroplanes with a maximum certificated take-off mass exceeding 27 000 kg		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
that are of a type which was first type certificated after 30 September 1969 does not need to record the parameters 13, 14 and 15b in Table 1 of AMC4 OPS.GEN.490.A, when any of the following conditions are met: a. Sufficient capacity is available on a FDR system; b. The sensor is readily available; c. A change is not required in the equipment that generates the data. 3. When so determined by the competent authority responsible for type certification or supplemental type certification and agreed by the Agency, the FDR does not need to record individual parameters that can be derived by calculation from the other recorded parameters.		
Table 1 of AMC4 OPS.GEN.490.A		
Aeroplanes with a maximum certificated take-off mass exceeding 27 000 Kg		

No.	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated air speed
4	Heading
5	Normal acceleration

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
6	Pitch attitude		
7	Roll attitude		
8	Manual radio transmission keying unless an alternate means to synchronise the FDR and CVR recordings is provided		
9	Power on each engine		
10	Trailing edge flap or cockpit control selection		
11	Leading edge flap or cockpit control selection		
12	Thrust reverse position (for turbo-jet aeroplanes only)		
13	Ground spoiler position and/or speed brake selection		
14	Outside air temperature or total air temperature		
15a 15b	Autopilot engagement status Autopilot operating modes, autothrottle and AFCS, systems engagement status and operating modes.		
16	Longitudinal acceleration		
17	Lateral acceleration		
18	Primary flight controls - control surface position and/or pilot input (pitch, roll and yaw)		
19	Pitch trim position		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
20	Radio altitude		
21	Glide path deviation		
22	Localiser deviation		
23	Marker beacon passage		
24	Master warning		
25	NAV 1 and NAV 2 frequency selection		
26	DME 1 and DME 2 distance		
27	Landing gear squat switch status		
28	Ground proximity warning system		
29	Angle of attack		
30	Hydraulics, each system (low pressure)		
31	Navigation data (latitude, longitude, ground speed and drift angle)		
32	Landing gear or gear selector position		
Appendix 1 to AMC3 and AMC4 OPS.GEN.490.A Flight data recorder - Aeroplanes			Not transposed, beyond the scope of Part-NCO.
PERFORMANCES SPECIFICATIONS FOR THE PARAMETERS TO BE RECORDED FOR AEROPLANES FIRST ISSUED WITH AN INDIVIDUAL CERTIFICATE OF			

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AIRWORTHINESS BEFORE 1 APRIL 1998		
1. The parameters to be recorded should meet the performance specifications (designated ranges, recording intervals and accuracy limits) defined in Table 1 of Appendix 1 to AMC3 and AMC4 OPS.GEN.490.A. 2. FDR systems for which the recorded parameters do not comply with the performance specifications of Table 1 of Appendix 1 to AMC3 and AMC4 OPS.GEN.490.A (i.e. range, sampling intervals, accuracy limits and recommended resolution readout) may be acceptable to the competent authority responsible for the type certification or supplemental type certification. 3. All aeroplanes should record the following additional parameters, when further recording capacity is available: a. Remaining parameters below, as applicable: i. Operational information from electronic display systems, such as EFIS, Electronic Centralised Aircraft Monitor (ECAM) and Engine Indications and Crew Alerting System (EICAS). The following order of priority should be used: A. Parameters selected by the flight crew relating to the desired flight path, e.g. barometric pressure setting, selected altitude, selected air speed, decision height, autoflight system engagement and mode indications if not recorded from another source; B. Display system selection/status, e.g. SECTOR, PLAN, ROSE, NAV, WXR, COMPOSITE, COPY; C. Warnings and alerts;		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
D. The identity of displayed pages for emergency procedures and checklists. ii. Retardation information including brake application for use in the investigation of landing over-runs and rejected take-offs; iii. Additional engine parameters (EPR, N_1 EGT, fuel flow, etc.); b. Any dedicated parameter relating to novel or unique design or operational characteristics of the aeroplane. 4. For the purpose of the alleviations specified in AMC3 OPS.GEN.490.A and AMC4 OPS.GEN.490.A, they should be acceptable only when adding recording of missing parameters to the existing FDR system would require a major upgrade of the system itself. Account should be taken of the following: a. The extent of the modification required; b. The down-time period; c. Equipment software development. 5. The term "capacity available" refers to the space on both the flight data acquisition unit and the flight data recorder not allocated for recording the required parameters, or the parameters recorded for the purpose of accident investigation, as acceptable to the competent authority. 6. A sensor is considered "readily available" when it is already available or can be easily incorporated.		
Table 1 of Appendix 1 to AMC3 and AMC4 OPS.GEN.490.A		
Parameters Performance Specifications		

A: Rule							B: Summary of comments	C: Re ason for ch ange, remarks
No.	Parameter	Range	Sampling interval in seconds	Accuracy limits (sensor input compared to FDR readout)	Recommended resolution in readout	Remarks		
1	Time or relative time count	24 hours	4	±0•125% per hour	1 second	Co-ordinated Universal Time (UTC) preferred where available, otherwise elapsed time		
2	Pressure altitude	-1 000 ft to maximum certificated altitude of aircraft +5 000 ft	1	±100 ft to ±700 ft	5 ft	For altitude record error see EASA ETSO-C124a		
3	Indicated air speed	50 kt to max V_{SO} Max VSO to 1•2 V_d	1	±5% ±3%	1 kt	VSO stalling speed or minimum steady flight speed in the landing configuration		

A: Rule							B: Summary of comments	C: Re ason for ch ange, remarks
						VdF design diving speed		
4	Heading	360º	1	±2º	0•5º			
5	Normal acceleration	-3 g to +6 g	0•125 ±	0•125 ±1% of maximum range excluding a datum error of ±5%	0•004 g			
6	Pitch attitude	±75º	1	±2º	0•5º			
7	Roll attitude	±180º	1	±2º	0•5º			
8	Manual radio transmission keying	Discrete	1	-	-	On-off (one discrete). An FDR/CVR time synchronisation signal complying with 4.2.1 of EUROCAE ED-55 is considered to be an acceptable alternative		

A: Rule							B: Summary of comments	C: Re ason for ch ange, remarks
						means of compliance		
9	Power on each engine	Full range	Each engine each second	±2%	0•2% of full range	Sufficient parameters e.g. EPR/N, or Torque/N_P as appropriate to the particular engine should be recorded to determine power		
10	Trailing edge flap or cockpit control selection	Full range or each discrete position	2	±5% or as pilot's indicator	0•5% of full range			
11	Leading edge flap or cockpit control selection	Full range or each discrete position	2	-	0•5% of full range			
12	Thrust reverser position	Stowed, in transit and reverse	Each reverser each second	±2% unless higher accuracy uniquely	-			

A: Rule							B: Summary of comments	C: Reason for change, remarks
				required				
13	Ground spoiler and/or speed brake selection	Full range or each discrete position	1	±2º	0•2% of full range			
14	Outside air temperatures or total air temperature	Sensor range	2	-	0•3º			
15a	Autopilot engagement status							
15b	Autopilot operating modes, auto-throttle and AFCS systems engagement status and operating modes	A suitable combination of discretes	1		-			
16	Longitudinal acceleration	± 1 g	0•25	±1•5% of maximum range excluding	0•004 g			

A: Rule							B: Summary of comments	C: Re ason for ch ange, remarks
				a datum error of ±5%				
17	Lateral acceleration	±1 g	0•25	±1•5% of maximum range excluding a datum error of ±5%	0•004 g			
18	Primary flight controls, control surface positions and/or pilot input (pitch, roll, yaw)	Full range	1	±2º unless higher accuracy uniquely required	0•2% of full range	For aeroplanes with conventional control systems 'or' applies For aeroplanes with non-mechanical control systems 'and' applies For aeroplanes with split surfaces a suitable combination of inputs is		

A: Rule							B: Summary of comments	C: Reason for change, remarks
						acceptable in lieu of recording each surface separately		
19	Pitch trim position	Full range	1	±3% unless higher accuracy uniquely required	0•3% of full range			
20	Radio altitude	-20 ft to +2 500 ft	1	±2 ft or ±3% whichever is greater below 500 ft and ±5% above 500 ft	1 ft below 500 ft, 1 ft +5% of full range above 500 ft	As installed. Accuracy limits are recommended		
21	Glide path deviation	Signal range	1	±3%	0•3% of full range	As installed. Accuracy limits are recommended		
22	Localiser deviation	Signal range	1	±3%	0•3% of full range	As installed. Accuracy limits are		

A: Rule							B: Summary of comments	C: Re ason for ch ange, remarks
						recommended		
23	Marker beacon passage	Discrete	1	–	–	A single discrete is acceptable for all markers		
24	Master warning	Discrete	1	–	–			
25	NAV 1 and 2 frequency selection	Full range	4	As installed	–			
26	DME 1 and 2 distance	0-200 nm	4	As installed	–	Recording of latitude and longitude from INS or other navigation system is a preferred alternative		
27	Landing gear squat switch status	Discrete	1	–	–			
28	Ground proximity warning system	Discrete	1	–	–			

A: Rule	B: Summary of comments	C: Reason for change, remarks
| | (GPWS) | | | | | | | 29 | Angle of attack | Full range | 0•5 | As installed | 0•3% of full range | | | 30 | Hydraulics | Discrete(s) | 2 | – | – | | | 31 | Navigation data | As installed | 1 | As installed | – | | | 32 | Landing gear or gear selector position | Discrete | 4 | As installed | – | |		
AMC1 OPS.GEN.490.H Flight data recorder - Helicopters		Not transposed, beyond the scope of Part-NCO.
LIST OF PARAMETERS TO BE RECORDED FOR HELICOPTERS FIRST ISSUED WITH AN INDIVIDUAL CERTIFICATE OF AIRWORTHINESS ON OR AFTER 1 JANUARY 2010		
1. The FDR should, with reference to a timescale, record: a. the parameters listed in Table 1 of AMC1 OPS.GEN.490.H; b. the additional parameters listed in Table 2 of AMC1 OPS.GEN.490.H, when the information data source for the parameter is used by helicopter systems or is available on the instrument panel for use by the flight crew to operate the helicopter; and c. any dedicated parameters related to novel or unique design or operational characteristics of the helicopter as determined by the competent authority responsible for type certification or supplemental		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
type certification. 2. The FDR should meet the operational performance requirements and specifications of EUROCAE ED-112 and Attachment B of ICAO Annex 6, Part III . 3. FDR systems for which the recorded parameters do not meet the performance specifications of EUROCAE ED-112 (i.e. range, sampling intervals, accuracy limits and recommended resolution readout) could be acceptable to the competent authority responsible for type certification or supplemental type certification.		
Table 1 of AMC1 OPS.GEN.490.H		

No.*	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated air speed
4	Heading
5	Normal acceleration
6	Pitch attitude
7	Roll attitude
8	Manual radio transmission keying CVR/FDR synchronisation

A: Rule		B: Summary of comments	C: Reason for change, remarks
	reference		
9 9a 9b 9c 9d 9e	Power on each engine Free power turbine speed (N_F) Engine torque Engine gas generator speed (N_G) Cockpit power control position Other parameters to enable engine power to be determined		
10a 10b	Main rotor speed Rotor brake (if installed)		
11 11a 11b 11c 11d 11e 11f	Primary flight controls – Pilot input and/or control output position (if applicable) Collective pitch Longitudinal cyclic pitch Lateral cyclic pitch Tail rotor pedal Controllable stabilator (if applicable) Hydraulic selection		
12	Hydraulics low pressure (each system should be recorded.)		
13	Outside air temperature		
18	Yaw rate or yaw acceleration		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
20 — Longitudinal acceleration (body axis) 21 — Lateral acceleration 25 — Marker beacon passage 26 — Warnings - a discrete should be recorded for the master warning, gearbox low oil pressure and sas failure. other 'red' warnings should be recorded where the warning condition cannot be determined from other parameters or from the cockpit voice recorder. 27 — Each navigation receiver frequency selection 37 — Engine control modes * The number in the left hand column reflects the serial numbers depicted in EUROCAE ED-112		
Table 2 of AMC1 OPS.GEN.490.H		
Helicopters for which the information data source for the parameter is either used by helicopter systems or is available on the instrument panel for use by the flight crew to operate the helicopter		
No.* — Parameter 14 — AFCS mode and engagement status 15 — Stability augmentation system engagement (each system		

A: Rule		B: Summary of comments	C: Reason for change, remarks
	should be recorded)		
16	Main gear box oil pressure		
17 17a 17b 17c	Gear box oil temperature Main gear box oil temperature Intermediate gear box oil temperature Tail rotor gear box oil temperature		
19	Indicated sling load force (if signals readily available)		
22	Radio altitude		
23 23a 23b 23c	Vertical deviation - the approach aid in use should be recorded. ILS glide path MLS elevation GNSS approach path		
24 24a 24b 24c	Horizontal deviation - the approach aid in use should be recorded. ILS localiser MLS azimuth GNSS approach path		
28	DME 1 & 2 distances		

A: Rule		B: Summary of comments	C: Reason for change, remarks
29 29a 29b 29c 29d 29e 29f	Navigation data Drift angle Wind speed Wind direction Latitude Longitude Ground speed		
30	Landing gear or gear selector position		
31	Engine exhaust gas temperature (T_4)		
32	Turbine Inlet Temperature (TIT/ITT)		
33	Fuel contents		
34	Altitude rate (vertical speed) - only necessary when available from cockpit instruments		
35	Ice detection		
36 36a 36b 36c	Helicopter Health and Usage Monitor System (HUMS) - only when information from the HUMS is used by the crew or aircraft system Engine data Chip detector Track timing		

A: Rule		B: Summary of comments	C: Re ason for ch ange, remarks
36d	Exceedance discretes		
36e	Broadband average engine vibration		
38	Selected barometric setting - to be recorded for helicopters where the parameter is displayed electronically		
38a	Pilot		
38b	First officer		
39	Selected altitude (all pilot selectable modes of operation) - to be recorded for the helicopters where the parameter is displayed electronically		
40	Selected speed (all pilot selectable modes of operation) - to be recorded for the helicopters where the parameter is displayed electronically		
41	Not used (selected mach)		
42	Selected vertical speed (all pilot selectable modes of operation) - to be recorded for the helicopters where the parameter is displayed electronically		
43	Selected heading (all pilot selectable modes of operation) - to be recorded for the helicopters where the parameter is displayed electronically		
44	Selected flight path (all pilot selectable modes of operation) - to be recorded for the helicopters where the parameter is displayed electronically		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
45 — Selected decision height (all pilot selectable modes of operation) - to be recorded for the helicopters where the parameter is displayed electronically 46 — EFIS display format 47 — Multi-function/engine/alerts display format 48 — event marker * The number in the left hand column reflects the serial numbers depicted in EUROCAE ED-112		
AMC2 OPS.GEN.490.H Flight data recorder - Helicopters		Not transposed, beyond the scope of Part-NCO.
LIST OF PARAMETERS TO BE RECORDED FOR HELICOPTERS HAVING A MCTOM EXCEEDING 3 175 KG AND FIRST ISSUED WITH AN INDIVIDUAL CERTIFICATE OF AIRWORTHINESS AFTER 1 JANUARY 2005 AND HELICOPTERS HAVING A MCTOM EXCEEDING 7 000 KG AND FIRST ISSUED WITH AN INDIVIDUAL CERTIFICATE OF AIRWORTHINESS AFTER 31 DECEMBER 1988		
1. The FDR should, with reference to a timescale, record: a. for helicopters with a maximum certificated take-off mass between 3 175 kg and 7 000 kg, the parameters listed in Table 1 of AMC2 OPS.GEN.490.H; b. for helicopters with a maximum certificated take-off mass of more than 7 000 kg, the parameters listed in Table 2 of AMC2 OPS.GEN.490.H; c. any dedicated parameters relating to novel or unique design or		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
operational characteristics of the helicopter; and d. the parameters listed in Table 3 of AMC2 OPS.GEN.490.H, for helicopters equipped with electronic display system. 2. When determined by the competent authority responsible for type certification or supplemental type certification and agreed by the Agency, the FDR of helicopters with a maximum certificated take-off mass of more than 7 000 kg does not need to record parameter 19 of Table 2 of AMC2 OPS.GEN.490.H, if any of the following conditions are met: a. The sensor is not available; b. A change is required in the equipment that generates the data. 3. Individual parameters that can be derived by calculation from the other recorded parameters, need not be recorded, if determined by the competent authority responsible for type certification or supplemental type certification and agreed by the Agency. 4. The parameters to be recorded should meet, as far as is practicable, the performance specifications (designated ranges, sampling intervals, accuracy limits and minimum resolution in read-out) defined in the relevant tables of EUROCAE ED-55. The remarks columns of those tables are considered to be acceptable means of compliance with the parameter specifications. 5. Table 1 of AMC2 OPS.GEN.490.H refers to table A1-4 of EUROCAE ED-55, Table 2 of AMC2 OPS.GEN.490.H refers to table A1-2 of EUROCAE ED-55 and Table 3 of AMC2 OPS.GEN.490.H refers to parameters 6 to 15 of table A1.5 of EUROCAE ED-55. 6. If recording capacity is available, as many of the additional parameters specified in table A1.5 of EUROCAE ED-55 as is possible, should be recorded. 7. For the purpose of this AMC, a sensor is considered to be 'readily available' when it is already available or can be easily incorporated.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
8. The term 'where practicable' used in the remarks column of table A1.5 of EUROCAE ED-55 means that account should be taken of the following: a. Whether the sensor is already available or can be easily incorporated; b. Whether sufficient capacity is available in the flight recorder system; c. For navigational data (nav frequency selection, DME distance, latitude, longitude, groundspeed and drift), whether the signals are available in digital form; d. The extent of modification required; e. The down-time period required; f. Equipment software development.		
Table 1 of AMC2 OPS.GEN.490.H		
Helicopters with a maximum certificated take-off mass exceeding 3 175 kg		

No.	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated air speed
4	Heading
5	Normal acceleration

A: Rule		B: Summary of comments	C: Reason for change, remarks
6	Pitch attitude		
7	Roll attitude		
8	Manual radio transmission keying		
9	Power on each engine (free power turbine speed and engine torque)/cockpit power control position (if applicable)		
10a	Main rotor speed		
10b	Rotor brake (if installed)		
11	Primary flight controls - pilot input and control output position (if applicable)		
11a	Collective pitch		
11b	Longitudinal cyclic pitch		
11c	Lateral cyclic pitch		
11d	Tail rotor pedal		
11e	Controllable stabilator		
11f	Hydraulic selection		
12	Warnings		
13	Outside air temperature		
14	Autopilot engagement status		
15	Stability augmentation system engagement		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Table 2 of AMC2 OPS.GEN.490.H		
Helicopters with a maximum certificated take-off mass exceeding 7 000 kg		

No.	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated airspeed
4	Heading
5	Normal acceleration
6	Pitch attitude
7	Roll attitude
8	Manual radio transmission keying
9	Power on each engine (free power turbine speed and engine torque)/cockpit power control position (if applicable)
10a 10b	Main rotor speed Rotor brake (if installed)
11	Primary flight controls - pilot input and control output position (if applicable)

A: Rule		B: Summary of comments	C: Reason for change, remarks
11a	Collective pitch		
11b	Longitudinal cyclic pitch		
11c	Lateral cyclic pitch		
11d	Tail rotor pedal		
11e	Controllable stabilator		
11f	Hydraulic selection		
12	Hydraulics low pressure		
13	Outside air temperature		
14	AFCS mode and engagement status		
15	Stability augmentation system engagement		
16	Main gear box oil pressure		
17	Main gear box oil temperature		
18	Yaw rate or yaw acceleration		
19	Indicated sling load force (if installed)		
20	Longitudinal acceleration (body axis)		
21	Lateral acceleration		
22	Radio altitude		
23	Vertical beam deviation (ILS glide path or MLS elevation)		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
24 — Horizontal beam deviation (ILS localiser or MLS azimuth) 25 — Marker beacon passage 26 — Warnings 27 — Reserved (Nav receiver frequency selection is recommended) 28 — Reserved (DME distance is recommended) 29 — Reserved (navigation data is recommended) 30 — Landing gear or gear selector position		
Table 3 of AMC2 OPS.GEN.490.H		
Helicopters equipped with electronic display systems		
No. — Parameter 6 — Selected barometric setting (each pilot station) 7 — Selected altitude 8 — Selected speed 9 — Selected mach 10 — Selected vertical speed		

A: Rule	B: Summary of comments	C: Reason for change, remarks
11 — Selected heading 12 — Selected flight path 13 — Selected decision height 14 — EFIS display format 15 — Multi function/engine/alerts display format		
AMC OPS.GEN.495.A Cockpit voice recorder – Aeroplanes		Not transposed, beyond the scope of Part-NCO.
GENERAL		
1. The CVR should, with reference to a timescale, record: a. flight crew members' two-way voice communications by radio, interphone system and public address system, if installed; b. the aural environment of the cockpit, including, where practicable, without interruption, the microphone audio signals; and c. voice or audio signals identifying navigation or approach aids introduced into a headset or speaker.		
2. The operational performance requirements for CVRs should be those laid down in EUROCAE Documents ED56 or ED56A (Minimum Operational Performance Requirements For Cockpit Voice Recorder Systems) dated February 1988 and December 1993 respectively.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC OPS.GEN.495.H Cockpit voice recorder - Helicopters		Not transposed, beyond the scope of Part-NCO.
GENERAL		
1. The CVR should, with reference to a timescale, record: a. flight crew members' two-way voice communications via radio, interphone system and public address system; b. the aural environment of the cockpit, including, where practicable, without interruption, the microphone audio signals; c. voice or audio signals identifying navigation or approach aids introduced into a headset or speaker; and d. for helicopters not equipped with a flight data recorder, the parameters necessary to determine main rotor speed. 2. The operational performance requirements of EUROCAE ED-56/56A should be considered to be acceptable means of compliance.		
AMC OPS.GEN.495 (c) Cockpit voice recorder		Not transposed, beyond the scope of Part-NCO.
RECORDING		
Depending on the availability of electrical power, the CVR should start to record as early as possible during the cockpit checks, prior to the flight until the cockpit checks immediately following engine shutdown at the end of the flight.		

A: Rule	B: Summary of comments	C: Reason for change, remarks
AMC OPS.GEN.490 and OPS.GEN.495 Flight data recorder and cockpit voice recorder		Not transposed, beyond the scope of Part-NCO.
COMBINATION RECORDERS		
1. A combination recorder is a flight recorder that records: a. all voice communications and the aural environment required by the applicable CVR AMC; and b. all parameters and specifications required by the applicable FDR AMC.		
2. When two combination recorders are installed, one should be located near the cockpit, in order to minimise the risk of data loss due to a failure of the wiring that gathers data to the recorder. The other should be located at the rear section of the aeroplane, in order to minimise the risk of data loss due to recorder damage in the case of a crash.		
3. For aeroplanes, compliance with CVR and FDR requirements may be achieved by: a. one combination recorder, if the aeroplane should be equipped with either a CVR or an FDR; b. one combination recorder, if an aeroplane with a maximum certificated take-off mass of 5 700 kg or less should be equipped with both a CVR and an FDR; or c. two combination recorders, if an aeroplane with a maximum certificated take-off mass of more than 5 700 kg should be equipped with both a CVR and an FDR.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC1 OPS.GEN.500 Data link recording - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
GENERAL		
1. Depending on the date of type certification, the aircraft shall be capable of recording the messages as specified in AMC2 OPS.GEN.500.		
2. As a means of compliance with OPS.GEN.500 (a)(2), the operator should enable correlation by providing information which allows an accident investigator to understand what data was provided to the aircraft and by which provider.		
3. The timing information associated with the data link communications messages required to be recorded by OPS.GEN.500 (a)(3) should be capable of being determined from the airborne-based recordings. This timing information should include at least the following: a. The time each message was generated; b. The time any message was available to be displayed by the crew; c. The time each message was actually displayed or recalled from a queue; d. The time of each status change.		
4. The message priority should be recorded when it is defined by the protocol of the data link communication message being recorded.		
5. The expression 'taking into account the system architecture', in OPS.GEN.500 (a)(3), means that the recording of the specified information may be omitted if the existing source systems involved would require a major upgrade. The following should be considered:		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
a. The extent of the modification required; b. The down-time period; c. Equipment software development.		
6. The intention is that new designs of source systems should include this functionality and support the full recording of the required information.		
7. The applications to be recorded should meet the performance specifications defined in the relevant tables of part IV CNS/ATM recorder systems of EUROCAE ED-112.		
8. Depending on the availability of electrical power, the flight recorder should start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.		
AMC2 OPS.GEN.500 Data link recording - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
LIST OF APPLICATIONS		
1. For aeroplanes and helicopters first issued with a type certificate after 31 December 2009, data link communications messages that support the applications in Table 1 of AMC2 OPS.GEN.500 should be recorded.		
Table 1 of AMC2 OPS.GEN.500		
Item No. | Application Type | Application Description | Required Recording		

A: Rule				B: Summary of comments	C: Re ason for ch ange, remarks
			Content		
1	Data link initiation	This includes any application used to log on to, or initiate, a data link service. In Future Air Navigation System (FANS)-1/A and Air Traffic Navigation (ATN), these are ATS Facilities Notification (AFN) and Context Management (CM), respectively.	C		
2	Controller/pilot communication	This includes any application used to exchange requests, clearances, instructions and reports between the flight crew and controllers on the ground. In FANS-1/A and ATN, this includes the Controller Pilot Data Link Communications (CPDLC) application. It also includes applications used for the exchange of Oceanic Clearances (OCL) and Departure Clearances (DCL), as well as data link delivery of taxi clearances.	C		
3	Addressed surveillance (2)	This includes any surveillance application in which the ground sets up contracts for delivery of surveillance data. In FANS-1/A and ATN, this	C		

A: Rule				B: Summary of comments	C: Reason for change, remarks
		includes the Automatic Dependent Surveillance-Contract (ADS-C) application, Controller Access Parameters (CAP) and System Access Parameters (SAP).			
4	Flight information	This includes any application used for delivery of flight information data to specific aeroplanes. This includes Data Link-Automatic Terminal Information Service (D-ATIS), Data Link-Operational Terminal Information Service (D-OTIS), text weather services, Data Link-Flight Information System (D-FIS) and Notice to Airmen (NOTAM) delivery.	C		
		Terminal Weather Information for Pilots (TWIP)	M		
5	Broadcast surveillance (2)	This includes elementary and enhanced surveillance systems, as well as Automatic Dependent Surveillance-Broadcast (ADS-B), Terminal Information Service-Broadcast (TIS-B) and Flight Information System-Broadcast (FIS-B).	M		
6	AOC data	This includes any application	M*		

A: Rule				B: Summary of comments	C: Reason for change, remarks
		transmitting or receiving data used for AOC purposes (in accordance with the ICAO definition of AOC). Such systems may also process AAC messages, but there is no requirement to record AAC messages			
7	Graphics (1)	This includes any application receiving graphical data to be used for operational purposes (i.e. excluding applications that are receiving such things as updates to manuals).	M*		
2. For aeroplanes and helicopters first issued with a type certificate before 1 January 2010, data link communications messages that support the applications in Table 2 of AMC2 OPS.GEN.500 should be recorded:					
Table 2 of AMC2 OPS.GEN.500					
Item No.	Application Type	Application Description	Required Recording Content		
1	Data link initiation	This includes any application used to log on to, or initiate, a data link service. In FANS-1/A and ATN, these are AFN and CM, respectively	C		

A: Rule				B: Summary of comments	C: Re ason for ch ange, remarks
2	Controller/pilot communication	This includes any application used to exchange requests, clearances, instructions and reports between the flight crew and controllers on the ground. In FANS-1/A and ATN, this includes the CPDLC application. It also includes applications used for the exchange of OCL and DCL, as well as data link delivery of taxi clearances.	C		
3	Addressed surveillance (2)	This includes any surveillance application in which the ground sets up contracts for delivery of surveillance data. In FANS-1/A and ATN, this includes the ADS-C application.	C		
		CAP	C*		
		SAP	C*		
4	Flight information	This includes any application used for delivery of flight information data to specific aeroplanes. This includes D-ATIS, D-OTIS, text weather services, D-FIS and NOTAM delivery.	C		
		TWIP	M		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
5 · Broadcast surveillance (2) · This includes elementary and enhanced surveillance systems, as well as ADS-B, TIS-B and FIS-B. · M*		
6 · AOC data · This includes any application transmitting or receiving data used for AOC purposes (in accordance with the ICAO definition of AOC). Such systems may also process AAC messages, but there is no requirement to record AAC messages. · M*		
7 · Graphics (1) · This includes any application receiving graphical data to be used for operational purposes (i.e. excluding applications that are receiving such things as updates to manuals). · M*		
GM OPS.GEN.500 Data link recording - Aeroplanes and Helicopters GENERAL		Not transposed, beyond the scope of Part-NCO.
1. The letters and expressions in Tables 1 and 2 of AMC2 OPS.GEN.500 have the following meaning: a. C: Complete contents recorded b. M: Information that enables correlation with any associated records stored separately from the aeroplane. c. *: Applications that are to be recorded only as far as is practicable, given		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
the architecture of the system. d. F1: Graphics applications may be considered as AOC messages when they are part of a data link communications application service run on an individual basis by the operator itself in the framework of the operational control. e. F2: Where parametric data sent by the aeroplane, such as Mode S, is reported within the message, it should be recorded unless data from the same source is recorded on the FDR.		
2. The definitions of the applications type in Tables 1 and 2 of AMC2 OPS.GEN.500 are described in Table 1 of GM OPS.GEN.500.		
Table 1 of GM OPS.GEN.500		

Item No.	Application Type	Messages	Comments
1	CM		CM is an ATN service
2	AFN		AFN is a FANS 1/A service
3	CPDLC		All implemented up and downlink messages to be recorded
4	ADS-C	FLIPCY	All contract requests and reports recorded
		Position reports	Only used within FANS 1/A. Mainly used in oceanic and remote areas.

A: Rule				B: Summary of comments	C: Reason for change, remarks
5	ADS-B	Surveillance data	Information that enables correlation with any associated records stored separately from the aeroplane.		
6	D-FIS		D-FIS is an ATN service. All implemented up and downlink messages to be recorded		
7	TWIP	TWIP messages	Terminal weather information for pilots		
8	D-ATIS	ATIS messages	EUROCAE ED-89A Data Link Application System Document (DLASD) for the "ATIS" Data Link Service		
9	OCL	OCL messages	EUROCAE ED-106A Data Link Application System Document (DLASD) for "Oceanic Clearance" (OCL) Datalink Service		
10	DCL	DCL messages	EUROCAE ED-85A Data Link Application System Document (DLASD) for "Departure Clearance" Data-Link Service		
11	Graphics	Weather maps & other graphics	Graphics exchanged in the framework of procedures within the operational control, as specified in Part-OR. Information that enables correlation with any associated records stored		

A: Rule				B: Summary of comments	C: Reason for change, remarks
			separately from the aeroplane.		
12	AOC	Aeronautical operational control messages	Messages exchanged in the framework of procedures within the operational control, as specified in Part-OR. Information that enables correlation with any associated records stored separately from the aeroplane. Definition in ED-112.		
13	Surveillance	CAP, SAP	Use definition in ED-93.		

AAC Aeronautical Administrative Communications

ADS-B Automatic Dependent Surveillance - Broadcast

ADS-C Automatic Dependent Surveillance – Contract

AFN Aircraft Flight Notification

AOC Aeronautical Operational Control

ATIS Automatic Terminal Information Service

ATSC Air Traffic Service Communication

CAP Controller Access Parameters

CPDLC Controller Pilot Data Link Communications

CM Configuration/Context Management

D-ATIS Data link ATIS

D-FIS Data link Flight Information Service

DCL Departure Clearance

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
FANS Future Air Navigation System FLIPCY Flight Plan Consistency OCL Oceanic Clearance SAP System Access Parameters TWIP Terminal Weather Information for Pilots		
AMC OPS.GEN.505(d) Preservation of FDR and CVR recordings - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
OPERATIONAL CHECKS AND EVALUATIONS OF RECORDINGS OF REPRESENTATIVE FLIGHT		
Whenever a recorder is required to be carried, the operator should:		
1. save the recordings for the period of operating time as required by OPS.GEN.490, OPS.GEN.495 and OPS.GEN.500, except that, for the purpose of testing ad maintaining recorders, up to one hour of the oldest recorded material at the time of testing may be erased;		
2. keep a document which presents the information necessary to retrieve and convert the stored data into engineering units; and		
3. at all times, preserve a record of at least one representative flight made within the last 12 months which includes a take-off, climb, cruise, descent, approach to landing and landing, together with a means of identifying the record with the flight to which it relates.		
GM OPS.GEN.505(b) and (c) Preservation of FDR and CVR recordings -		Not transposed, beyond

A: Rule	B: Summary of comments	C: Reason for change, remarks
Aeroplanes and Helicopters		the scope of Part-NCO.
REMOVAL OF RECORDERS, INSPECTIONS AND MAINTENANCE		
1. The need for removal of the FDR data from the aircraft will be determined by the investigating authority with due regard to the seriousness of an occurrence and the circumstances, including the impact on the operation.		
2. Procedures for the inspections and maintenance practices of the FDR and CVR systems are given in Attachment A of ICAO Annex 6, Part II and in Annex I-B of EUROCAE ED-112.		
GM OPS.GEN.505(d) Preservation of FDR and CVR recordings - Aeroplanes and Helicopters		Not transposed, beyond the scope of Part-NCO.
OPERATIONAL CHECKS AND EVALUATIONS OF RECORDINGS OF REPRESENTATIVE FLIGHT		
The representative flight may not be possible to be preserved if:		
1. there are technical reasons as to why all the data cannot be preserved; and/or		
2. the aircraft may have been dispatched with unserviceable recording equipment, as permitted by the operators' MEL.		
AMC OPS.GEN.515(b) and OPS.GEN.520(a) Microphones - Aeroplanes and Helicopters and Flight Crew interphone system		Not transposed, beyond the scope of Part-NCO.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
HEADSETS		
1. A headset consists of a communication device which includes two earphones to receive and a microphone to transmit audio signals to the aircraft's communication system. To comply with the minimum performance requirements, the earphones and microphone should match the communication system's characteristics and the cockpit environment. The headset should be adequately adjustable in order to fit the pilot's head. Headset boom microphones should be of the noise cancelling type.		
2. If the intention is to utilise noise cancelling earphones, the operator should ensure that the earphones do not attenuate any aural warnings or sounds necessary for alerting the flight crew on matters related to the safe operation of the aircraft.		
GM OPS.GEN.515(b) and OPS.GEN.520(a) Microphones - Aeroplanes and Helicopters and Flight Crew interphone system		
HEADSETS		
The term 'headset' includes any aviation helmet incorporating headphones and microphone worn by a flight crew member.		
AMC OPS.GEN.520 Flight Crew interphone system		
GENERAL		
The flight crew interphone system should not be of a handheld type.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
GM OPS.GEN.525(b) Communication equipment		
AERONAUTICAL EMERGENCY FREQUENCY		
The aeronautical emergency frequency is 121.5 MHz.		
AMC OPS.GEN.530 Pressure-altitude-reporting transponder		
GENERAL		
1. The SSR transponder of aircraft being operated under European air traffic control should comply with any applicable Single European Sky legislation.		
2. If the Single European Sky legislation is not applicable, the SSR transponder should operate in accordance with the relevant provisions of Volume IV of ICAO Annex 10.		
3. The SSR transponder may have additional capabilities, if so required by the applicable airspace requirements.	IND: This has a double standard. The requirement is for the additional SSR facilities to be carried when required by the airspace. The statement then gives the option of carriage. Incorrect use of the word 'may' creates	Provision has been upgraded to IR level and wording clarified.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
	this problem. The wording should be "The airspace may require additional SSR transponder capabilities."	
AMC OPS.GEN.535(a) Navigation equipment		
VISUAL REFERENCE TO LANDMARKS		
Navigation for flight under visual flight rules may be accomplished by visual reference to landmarks.		
GM OPS.GEN.535(a)(2) Navigation equipment		
APPLICABLE AIRSPACE REQUIREMENTS		
For aircraft being operated under European air traffic control, the applicable airspace requirements include the Single European Sky legislation.		
GM OPS.GEN.535(b) Navigation equipment		
NUMBER OF NAVIGATION EQUIPMENTS		
The requirement in OPS.GEN.535(b) may be met by means other than the duplication of equipment.	The GM is vague and does not offer any guidance. It can be deleted.	Accepted. GM has been deleted.

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
AMC OPS.GEN.540.A(b) Electronic Navigation Data Management - complex motor-powered aeroplanes		Not transposed, beyond the scope of Part-NCO.
NAVIGATION DATA PRODUCTS NEEDED FOR OPERATIONS IN ACCORDANCE WITH OPS.SPA		
1. When an operator of a complex motor-powered aeroplane uses a navigation database which supports an airborne navigation application as a primary means of navigation, the navigation database supplier should hold a Type 2 Letter of Acceptance (LoA), or equivalent.		
2. If this airborne navigation application is needed for an operation requiring a specific approval in accordance with OPS.SPA, the operator's procedures should be based upon the Type 2 LoA acceptance process.		
3. A Type 2 LoA is issued by the Agency in accordance with the Agency's Opinion Nr. 01/2005 on The Acceptance of Navigation Database Suppliers (hereinafter referred to as the Agency's Opinion Nr. 01/2005). The definitions of navigation database, navigation database supplier, data application integrator, Type 1 LoA and Type 2 LoA can be found in the Agency's Opinion Nr. 01/2005.		
4. Equivalent to a Type 2 LoA is the FAA Type 2 LoA, issued in accordance with the Federal Aviation Administration (FAA) Advisory Circular AC 20-153 , and the Transport Canada Civil Aviation (TCCA) 'Acknowledgement Letter of an Aeronautical Data Process' which uses the same basis.		
5. EUROCAE ED-76/Radio Technical Commission for Aeronautics (RTCA) DO-200A Standards for Processing Aeronautical Data contains guidance relating to the processes which the supplier may follow.		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
Section V - Manuals, Logs and Records		
AMC OPS.GEN.600 Documents and information to be carried on all aircraft		This IR has been adapted to fit NCO, purposes and has been downgraded to GM1-NCO.GEN.135
GENERAL		
1. In case of loss or theft of documents the operation may continue until the flight reaches the base or a place where a replacement document can be provided.		
2. The documents and information may be available in a form other than on printed paper. Accessibility, usability and reliability should be assured.		
3. For commercial air transport operations, if the competent authority has issued an English translation of the Noise Certificate, this should be carried as well.		This paragraph is amended to fit NCO operations.
4. The procedures and the visual signals for use by intercepting and intercepted aircraft are those contained in ICAO Annex 2. For non-commercial operators with complex motor-powered aircraft and commercial operators, this may be part of the operations manual.		
5. Any other documents that may be pertinent to the flight or required by the States concerned with the flight may include: a. the ground-air signal codes for search and rescue purposes; b. cargo and/or passenger manifests; and		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
c. forms to comply with reporting requirements.		
AMC OPS.GEN.605 Documents and information to be carried on non-commercial flights with complex motor-powered aircraft and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
INFORMATION SEARCH AND RESCUE SERVICES AND OPERATIONS MANUAL		
1. The information pertinent to the intended flight concerning search and rescue services and should be easily accessible in the cockpit.		
2. Portions of the operations manual relevant to the duties of the crew should be easily accessible to the crew on board the aircraft.		
AMC OPS.GEN.605(a)(7) Documents and information to be carried on non-commercial flights with complex motor-powered aircraft and aircraft used in commercial operations		This AMC is not transposed as it is beyond the scope of Part-NCO
EQUIVALENT DOCUMENT		
For other than complex motor-powered aircraft, the Minimum Equipment List (MEL) may be in the form of an equivalent document as specified in accordance with Part-21.		
AMC OPS.GEN.610 Journey log book		This AMC has been adapted to fit NCO purposes. Title amended: AMC1-NCO.GEN.150

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
		Journey Log
GENERAL		
1. The aircraft journey log book should contain the following items:		
a. aircraft registration; b. date; c. crew member names and duty assignments; d. departure and arrival points and times; e. purpose/nature of the flight; f. incidents, observations (if any); and g. signature of the pilot-in-command.		
2. The journey log may be combined with the aircraft log book as required in M.A.305.		
3. The information or parts thereof may be retained in a form other than on printed paper. In such cases, an acceptable level of accessibility, usability and reliability should be assured.		
GM OPS.GEN.610 Journey log book		This GM is not transposed.
SERIES OF FLIGHTS		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
The term 'series of flights' is used to facilitate a single set of documentation.		
Section VI – Security		The provision on disruptive passenger behaviour is not transposed as most of the provisions related to security are now transferred to the Commission in the context of Regulation (EC) No 300/2008.
GM OPS.GEN.700 Disruptive Passenger Behaviour		Transferred to the Commission in the context of Regulation (EC) No 300/2008.
GENERAL		
1. Operators engaged in the transportation of passengers should take into account that their passengers could obstruct the safe operation of the aircraft. Passenger behaviour may be affected by a variety of factors, including:		
a. limitations on personal 'freedom', such as restrictions on smoking or on the use of mobile phones; b. physical effects, such as from consummation of alcohol, illness, or taking of medication, possibly increased from effects of higher altitude and less available oxygen; c. social or psychological effects, such as from fear of flying, claustrophobia,		

A: Rule	B: Summary of comments	C: Re ason for ch ange, remarks
or reluctance to follow instructions.		
2. The pilot-in-command should consider preventive measures when the possibility of disruptive passenger behaviour is anticipated. Such measures could include, but are not limited to:		
a. communication with the potentially disruptive passenger in an effort to reduce the likelihood of disruptive behaviour; b. reseating a potentially disruptive passenger to an area where there is less risk of passenger interference; c. deny boarding to the potentially disruptive passenger or cancel the flight.		