UK Civil Aviation Authority

Consultation: Legislation for new types of Vertical Take-Off and Landing (VTOL) aircraft

Part E: Flight Operations

UK Regulation (EU) No. 965/2012

CAPP3267E

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Part E: Flight Operations

Summary

In CAP3186, the CAA consulted on the proposed way forward to incorporate new types of VTOL aircraft and new propulsion systems into the UK Regulation (EU) No.965/2012 (Air Operations). The consultation produced a mostly favourable response. Taking into consideration the consultation comments, the CAA has now published the Consultation Response Document (CRD) CAP3240.

Throughout the document, the section headings and the individual regulations that are listed are links to the appropriate current part of UK Regulation (EU) No.965/2012.

The following is a detailed summary of how the proposals are recommended to be applied section by section.

Where we have stated that “the CAA considers that no changes are necessary to this section”, the section enables the use of new types of aircraft and propulsion systems, as there are no mentions of specific aircraft or propulsion types. There is a question at the end of this consultation (Q24) where consultees can add comments if an alternative view is held.

Where we have stated “The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included”, we will add the proposed definitions for new types and classes of aircraft and, make adjustments to include new propulsion systems and/or energy sources as per the “Consultation Response Document”.

For instance,

- Where a regulation or article states, “aeroplanes and helicopters”, when appropriate, we will change this to “aeroplanes, helicopters and Powered-Lift".
- We will also add the term “Critical Failure for Performance [1]” (CFP), to regulations where it states, “critical engine failure”.
- Where appropriate, we will change autorotation to safe controlled forced landing to accommodate approved alternatives.

There are certain areas about which we have been asked for more specific details or on which we would like to consult further. Where this is the case, these sections have two parts - General and Specific regulations.

1 “critical failure for performance (CFP)” means, a failure or a combination of failures that results in the maximum degradation for a given flight phase and performance parameter; the set of critical failures for performance is used to establish the certified minimum performance (CMP)’;’; “certified minimum performance (CMP)” means the set of performance data obtained by considering the effect of single failures and combinations of failures that are not extremely improbable on nominal performance parameters;’

Articles

The CAA proposes to amend the following articles to include new technologies – 1, 2, 5, 6 and 8. The other articles enable new types without change.

The CAA proposes new definitions (as per the previous consultation CAP3186 and Consultation Response Document (CRD) CAP3240) are added and existing ones adjusted to include new technologies.

Annex II (Part-ARO) – Authority Requirements for Air Operations

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

Annex III (Part-ORO) – Organisation Requirements for Air Operations

SUBPART GEN: GENERAL REQUIREMENTS

SECTION 1 – General

The CAA considers that there are no changes necessary to this section.

SECTION 2 - Management

The CAA considers that there are no changes necessary to this section.

SECTION 3 - Additional organisational requirements

The CAA considers that there are no changes necessary to this section.

SUBPART AOC: AOC AIR OPERATOR CERTIFICATION

General

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

Specific regulations

Flight data monitoring - aeroplanes

ORO.AOC.130

Operators of aircraft certified under Initial Airworthiness Special Condition VTOL (SC-VTOL) would, in principle, be subject to the same regulatory standards as existing operators. However, recognising the significant volume of data captured by these new

types of aircraft and the novel nature of the technologies involved, the CAA proposes that all operators of these types that are required to be equipped with a Flight Data Recorder (FDR)[1] should also be required to implement a flight data monitoring (FDM) programme. The FDM programme could be used, among other things, to assist in the application for an 'individual fuel scheme' by recording the exact energy usage and energy remaining for every flight.

Question 1: Do you agree or disagree with the proposal to require all operators of aircraft certified under SC-VTOL that are required to be equipped with a Flight Data Recorder[2] to have a flight data monitoring programme? Please explain your answer.

[2]See section on CAT.IDE requirements below.

SUBPART DEC: DECLARATION

The CAA considers that there are no changes necessary to this subpart.

SUBPART SPO: COMMERCIAL SPECIALISED OPERATIONS

The CAA considers that there are no changes necessary to this subpart.

SUBPART MLR: MANUALS, LOGS AND RECORDS

The CAA considers that there are no changes necessary to this subpart.

SUBPART SEC: SECURITY

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART FC: FLIGHT CREW

SECTION 1 - Common Requirements

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SECTION 2 – Additional Requirements for Commercial Air Transport Operations

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SECTION 3 – Additional Requirements for Commercial Specialised Operations and CAT Operations Referred to in ORO.FC.005(B)(1) AND (2)

The CAA considers that there are no changes necessary to this section.

SUBPART CC: CABIN CREW

The CAA proposes to add new propulsion systems to the regulations.

SUBPART TC: TECHNICAL CREW IN HEMS, HHO OR NVIS OPERATIONS

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART FTL: FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS

The CAA believes that no changes needed as these regulations are all for multi-pilot aeroplane operations and therefore are not applicable to these new technologies. The national requirements for a single-pilot operations of aeroplanes and all helicopter operations are shown in CAP 371 which is being reviewed as to its applicability to Powered-Lift.

APPENDIX I TO ANNEX III (Part-ORO)

Form updated to include new technologies.

Annex IV (Part-CAT) - COMMERCIAL AIR TRANSPORT OPERATIONS

SUBPART A: GENERAL REQUIREMENTS

SECTION 1 - Motor-Powered Aircraft

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART B: OPERATING PROCEDURES

SECTION 1 - Motor-Powered Aircraft

General

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

Specific regulations

Use of aerodromes and operating sites

CAT.OP.MPA.105

'**Operating site**' means a site, other than an aerodrome, selected by the operator or pilot-in-command or commander for landing, take-off and/or external load operations;

The CAA propose to include Powered-Lift in the use of operating sites to maintain equity with helicopters.

Question 2: Do you agree or disagree with the proposal to include Powered-Lift in the use of operating sites equitably with helicopters? Please explain your answer.

Fuel and Energy Schemes

Aeroplane **-** CAT.OP.MPA.180, CAT.OP.MPA.181, CAT.OP.MPA.182, CAT.OP.MPA.185

Helicopter **-** CAT.OP.MPA.190, CAT.OP.MPA.191, CAT.OP.MPA.195

Overview

The CAA proposes to update the Commercial Air Transport fuel schemes to accommodate new and emerging aircraft types, energy sources and propulsion systems. The proposed changes are intended to ensure that regulatory requirements remain proportionate, adopt a performance-based approach where appropriate, and continue to deliver an equivalent level of safety across all types of operation**.**

Operators are initially required to operate in accordance with the Basic Fuel scheme**.** Progression to alternative fuel schemes options are only permitted once sufficient operational evidence has been gathered and approval has been obtained from the CAA.

Summary of the Fuel Schemes

Basic Fuel Scheme

The 'Basic Scheme' is the default prescriptive approach. It is based on established fuel planning methodologies and includes a time-based final reserve requirement.

Basic Fuel Scheme with Variation

The 'Basic Scheme with Variation' permits reductions to certain fuel or energy elements following the collection of appropriate evidence and subject to CAA approval. A time-based final reserve requirement is retained.

Individual Fuel Scheme

The ‘Individual Fuel Scheme’ is a performance-based alternative that allows an operator, subject to CAA approval and supporting evidence, to establish a bespoke fuel or energy scheme tailored to each specific routing.

CAA Proposals

Basic and Basic with Variation Schemes

Electrically powered helicopters

Under schedule 4 Part 1 of the Air Navigation Order (ANO), the CAA classifies aircraft based on their capabilities and not the fuel source powering them. The CAA therefore believes that new types of helicopters that are electrically powered should be subject to the general helicopter regulations.

Powered-Lift

For Powered-Lift, fuel or energy schemes would be proportionately derived from a combination of existing helicopter and aeroplane fuel schemes.

The intended landing mode will be the primary determining factor, particularly in relation to the calculation of final reserve fuel or energy:

- By default, final reserve requirements under the Basic and Basic with Variation schemes would be equitably based on helicopter final reserve requirements if landing vertically.
- Where the aircraft is capable of, and intends to, conduct a fully wing-borne landing, the final reserve would instead be equitably based on fixed-wing aeroplane final reserve requirements.

The CAA anticipates that operations involving landings using vertical thrust will generally require a greater total amount of energy as a final reserve than landings conducted using a wing-borne configuration. However, an operator may apply the wing-borne final reserve requirement where energy is expected to reduce below the vertical landing reserve threshold, and when diverting to a preplanned alternate aerodrome at which a wing-borne landing is permitted.

Individual Fuel Scheme

The CAA considers that the core principles of the Individual Fuel Scheme are generally transferable to Powered-Lift aircraft and helicopters certified under SC-VTOL. Nevertheless, given the unique characteristics of these aircraft types, the policy will be reviewed and, where necessary, adapted to ensure their equitable inclusion within the regulatory framework.

Question 3: Do you agree or disagree with the proposal to update the Commercial Air Transport fuel schemes to equitably accommodate new and emerging aircraft types, energy sources and propulsion systems? Please explain your answer.

Special refuelling or defueling of the aircraft

CAT.OP.MPA.200

Applicability to Special recharging/discharging

The regulations for special recharging will be equitably created from the principles of special refuelling.

Current definition –

"Special refuelling" means:
(i) refuelling with an engine running or rotors turning;
(ii) refuelling with passengers embarking, on board or disembarking;
(iii) refuelling with wide-cut fuel

The proposed new definition[3] –

"Special recharging, discharging or battery swapping" means:
(i) recharging, discharging or battery swapping with rotors turning or with the aircraft in a live state. (When the propulsion system is powered and could start immediately if requested by the pilot)
(ii) recharging, discharging or battery swapping with passengers embarking, on board or disembarking;

[3] under the current rulemaking process the CAA proposes definitions to the DfT who have the responsibility for the final drafting. Therefore, the proposed definition is subject to change.

Just as with special refuelling, the following requirements would then apply –

(a) Special recharging, discharging or battery swapping may only be conducted if the operator has:

(1) performed a risk assessment;
(2) developed procedures;
(3) established and implemented a training programme for personnel involved in such operations.

This provides equity with existing aircraft types as they are the exact same requirements as for special refuelling. They put the onus on the operator to create mitigations for the risks associated with these types of operations. The procedures and the training

programme would be required to be shown in the AOC's Operations manual and approved by the CAA.

Question 4: Do you agree or disagree with the proposed introduction of a definition for "special recharging, discharging or battery swapping", aligned with the existing concept of special refuelling, and with placing responsibility on the operator to manage the associated risks through a risk assessment, procedures, and personnel training? Please explain your answer.

Over water operations

CAT.OP.MPA.137, CAT.OP.MPA.235, PART CAT: Subpart D Instruments, Data, Equipment (IDE)[4]

[4] further details in the section for Part IDE

Electrically powered helicopters

Under schedule 4 Part 1 of the Air Navigation Order (ANO), the CAA classifies aircraft based on their capabilities, and not the fuel source powering them. The CAA therefore believes that new types of helicopters that are electrically powered should be subject to the general helicopter regulations.

Powered-Lift

When ICAO doc. 10103 (Tiltrotor) was created, it pointed operators of this type of aircraft towards the aeroplane Standards and Recommended Practices (SARPs) with the rationale that they would fly higher and faster than helicopters in the cruise. Current proposed designs of these types, defined by the CAA as Powered-Lift, exhibit operational characteristics that align more closely with helicopters than aeroplanes even in cruise. They typically take off and land vertically, fly at low altitudes, and operate over short distances from vertiports or other non-runway sites, including in urban, coastal, and perhaps even offshore environments.

When operating over water, Powered-Lift are expected to face similar risks to those encountered by helicopters. These include limited options for diversion or forced landing, and, given the heights they are being operated at, minimal glide capability following a loss of propulsion or energy, and a higher likelihood that such events would result in a controlled ditching. Passenger safety in these circumstances depends on effective evacuation, flotation, and rescue.

Current fixed-wing overwater requirements are based on assumptions about speed, glide performance and runway diversion that do not reflect Powered-Lift operations. By contrast, existing helicopter over-water regulations are specifically designed to address low-altitude vertical-lift operations and focus on survival following a water landing.

The CAA is therefore consulting on whether helicopter overwater requirements, suitably adapted where necessary, should form the baseline for Powered-Lift overwater operations.

Question 5: Do you agree or disagree that existing helicopter overwater requirements, suitably adapted where necessary, should form the baseline regulatory framework for Powered-Lift and electrically powered helicopter overwater operations? Please explain your answer.

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

SECTION 1 - Aeroplanes

The CAA proposes that references to new technologies are added to the regulations to ensure that new propulsion systems and new energy sources are equitably included.

SECTION 2 – Helicopters

All chapters of this section, general requirements and performance classes 1, 2 and 3 will be amended to ensure that operations, performed by helicopters certified under SC-VTOL, are addressed on an equitable basis.

SECTION 2B – Powered-Lift

The CAA propose to introduce a new section of CAT.POL for Powered-Lift, provisionally designated as Section 2B CAT.POL.PL. This section has been developed primarily by drawing on the existing helicopter provisions in Section 2, reflecting the operational characteristics common to Powered-Lift. Where Powered-Lift are capable of conducting take-off and/or landing in a fully wing-borne configuration, like that of an aeroplane, relevant provisions from Section 1 have been applied to ensure appropriate and proportionate regulatory coverage.

Question 6: Do you agree or disagree with the proposed regulatory framework for Powered-Lift aircraft in Section 2B, including the application of aeroplane-based provisions where aircraft are capable of wing-borne take-off and/or landing? Please explain your answer.

Take-off and landing profiles required for each performance class would be developed by the Type Certificate holder in line with ICAO Doc 10110, approved by the CAA and adopted by operators within their approved Operations Manual.

Question 7: Do you agree or disagree that take-off and landing profiles for Powered-Lift should be developed by the Type Certificate holder and incorporated by operators, in line with ICAO Doc 10110? Please explain your answer.

SUBPART D: INSTRUMENTS, DATA, EQUIPMENT

General

SECTION 1 – Aeroplanes

The CAA proposes that references to new technologies are added to the regulations to ensure that new propulsion systems and new energy sources are equitably included.

SECTION 2 - Helicopters

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included. Any instruments, data, or equipment specifically required by an individual aircraft type that exceed the baseline regulatory requirements would be defined and specified by the relevant Type Certificate holder.

Question 8: Do you agree or disagree with the proposal to adapt Annex IV Subpart D section 2 to equitably accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

SECTION 5 – Powered-Lift

The CAA proposes to introduce a new, dedicated section within Part IDE for Powered-Lift. This section would be derived from the existing requirements applicable to aeroplanes and helicopters, reflecting the dual-mode operational capabilities of Powered-Lift operations.

Requirements that are common to both categories would be applied directly. Where differences exist, the CAA would select the most appropriate provision based on the operational characteristics of Powered-Lift. In cases where neither set of requirements alone is sufficient, a combination of aeroplane and helicopter provisions would be applied to ensure adequate coverage. In addition, any instruments, data or equipment required to support the specific design or operational characteristics of an individual Powered-Lift aircraft type, and which go beyond the baseline regulatory requirements, would be defined by the relevant Type Certificate holder and included within the applicable certification basis.

Question 9: Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements, including the approach to selecting or combining requirements where differences exist, and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

Specific regulations

Flight Data Recorders (FDR) and Lightweight Flight Recorders

FDR

Aeroplane - CAT.IDE.A.190

Helicopter - CAT.IDE.H.190

Lightweight flight Recorder

Aeroplane – CAT.IDE.A.191

Helicopter – CAT.IDE.H.191

Proposed Regulatory Approach

The CAA proposes to consolidate the existing requirements for SC-VTOL, helicopters, and aeroplanes into a single, harmonised framework for Powered-Lift. This approach is intended to ensure an appropriate and proportionate level of flight data recording across emerging and existing aircraft categories, while maintaining safety and regulatory consistency. The current requirements in UK Regulation (EU) no. 965/2012 are linked above. SC-VTOL requires all aircraft certified under it to have a lightweight flight recorder if they are not required to carry a full FDR regardless of their mass. The proposed requirements are outlined below.

Helicopters certified under SC-VTOL

Flight Data Recorder (FDR)

Helicopters certified under SC-VTOL would be subject to the same FDR requirements as conventional helicopters with a maximum certificated take-off mass (MCTOM) greater than 3,175 kg, first registered on or after 1 January 2016.

Lightweight Flight Recorder

All helicopters certified under SC-VTOL that are not required to be equipped with an FDR would be required to carry a lightweight flight recorder.

Question 10: Do you agree or disagree that helicopters certified under SC-VTOL should be subject to the same Flight Data Recorder requirements as other types of helicopter of equivalent mass, with a mandatory lightweight flight recorder for those below the FDR threshold? Please explain your answer.

Powered-Lift

Flight Data Recorder (FDR)

Powered-Lift would be subject to requirements derived from a combination of existing aeroplane and helicopter regulations.

- Powered-Lift aircraft with an MCTOM greater than 3,175 kg would be required to be equipped with an FDR capable of recording at least the preceding 10 hours of flight data.
- Powered-Lift aircraft with an MCTOM greater than 5,700 kg would be required to record at least the preceding 25 hours of flight data.

Lightweight Flight Recorder

Powered-Lift that are not required to carry an FDR would be required to be equipped with a lightweight flight recorder.

Question 11: Do you consider the proposed Flight Data Recorder and data-retention requirements for Powered-Lift aircraft to be appropriate, taking into account their unique design and operational profiles? Please explain your answer.

Annex V (Part SPA) – Specific Approvals

SUBPART A: GENERAL REQUIREMENTS

The CAA considers that there are no changes necessary to this section

SUBPART B: PERFORMANCE-BASED NAVIGATION (PBN) OPERATIONS

The CAA proposes that Powered-Lift comply with the full set of helicopter specific approval requirements for Performance-Based Navigation (PBN), and that they fall within the scope of the helicopter approval requirements for the RNP 0.3 specification.

Question 12: Do you agree or disagree with the proposal that Powered-Lift should comply with all helicopter specific approval requirements for Performance-Based Navigation (PBN), including being subject to the helicopter approval requirements for the RNP 0.3 specification? Please explain your answer.

SUBPART C: OPERATIONS WITH SPECIFIED MINIMUM NAVIGATION PERFORMANCE (MNPS)

The CAA considers that there are no changes necessary to this section.

SUBPART D: OPERATIONS IN AIRSPACE WITH REDUCED VERTICAL SEPARATION MINIMA (RVSM)

The CAA considers that there are no changes necessary to this section.

SUBPART E: LOW VISIBILITY OPERATIONS (LVO)

The CAA considers that there are no changes necessary to this section.

SUBPART F: EXTENDED RANGE OPERATIONS WITH TWO-ENGINED AEROPLANES (ETOPS)

The CAA has a rulemaking task underway to update this to Extended Diversion Time Operations (EDTO) however the regulations are type and power agnostic.

SUBPART G: TRANSPORT OF DANGEROUS GOODS

The CAA will apply these regulations to new aircraft types, but no changes are necessary to accommodate them as the section is technology agnostic.

SUBPART H: HELICOPTER OPERATIONS WITH NIGHT VISION IMAGING SYSTEMS

The CAA considers that existing regulations would apply to helicopters certified under SC-VTOL. It is proposing to amend the regulations so that they also appropriately cover Powered-Lift.

Question 13: Do you agree or disagree that helicopter NVIS regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

SUBPART I: HELICOPTER HOIST OPERATIONS

The CAA considers that these regulations would apply to helicopters certified under SC-VTOL and is proposing to adapt the regulations so that they also appropriately include Powered-Lift.

Question 14: Do you agree or disagree that Helicopter Hoist Operations regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

SUBPART J: HELICOPTER EMERGENCY MEDICAL SERVICE

The CAA considers that these regulations would apply to helicopters certified under SC-VTOL and is proposing to adapt the regulations so that they also appropriately address including Powered-Lift.

Question 15: Do you agree or disagree that Helicopter Emergency Medical Service regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

SUBPART K: HELICOPTER OFFSHORE OPERATIONS

The CAA considers that these regulations would apply to helicopters certified under SC-VTOL and is proposing to adapt the regulations so that they also appropriately include Powered-Lift.

Question 16: Do you agree or disagree that Helicopter Offshore Operations regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

SUBPART L: SINGLE-ENGINED TURBINE AEROPLANE OPERATIONS AT NIGHT OR IN INSTRUMENT METEOROLOGICAL CONDITIONS (SET-IMC)

The CAA considers that these regulations are not appropriate to new types and no changes are being made.

SUBPART M: ELECTRONIC FLIGHT BAGS (EFBs)

The CAA considers that there are no changes necessary to this section

Annex VI (Part NCC) – NON-COMMERCIAL AIR OPERATIONS WITH COMPLEX MOTOR-POWERED AIRCRAFT

SUBPART A: GENERAL REQUIREMENTS

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART B: OPERATIONAL PROCEDURES

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

Fuel Scheme

NCC.OP.130, NCC.OP.131

The CAA proposes to amend the fuel scheme in Part-NCC so that it applies equitably to new aircraft types and emerging propulsion systems. Helicopters certified under SC-VTOL would automatically be incorporated within the existing helicopter fuel requirements, with appropriate and proportionate adjustments where necessary.

For Powered-Lift, the CAA proposes that fuel or energy requirements should be derived proportionately from a combination of existing helicopter and fixed-wing aeroplane fuel and

energy schemes. The intended landing mode would be the primary factor in determining applicable fuel or energy reserves, particularly for the calculation of final reserve fuel or energy. By default, under Part-NCC fuel schemes, final reserve requirements would be equitably aligned with current helicopter final reserve requirements. Where a Powered-Lift aircraft is capable of, and intends to carry out, a fully wing-borne landing, the final reserve requirement would instead be equitably aligned with fixed-wing aeroplane final reserve requirements.

The CAA recognises that operations involving landings using vertical thrust are generally expected to require a greater amount of total energy for final reserves than landings conducted in a wing-borne configuration. However, an operator may apply the wing-borne final reserve requirement where it is anticipated that available energy will reduce below the vertical landing reserve threshold, and the flight diverts to a preplanned alternate aerodrome at which a wing-borne landing is permitted.

Question 17: Do you agree or disagree with the proposal to determine fuel or energy reserve requirements for Powered-Lift primarily on the intended landing mode, with final reserves aligned to helicopter or fixed-wing aeroplane requirements as appropriate? Please explain your answer.

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

SECTION 1 - Aeroplanes

The CAA proposes that references to new technologies are added to the regulations to ensure that new propulsion systems and new energy sources are equitably included.

SECTION 2 - Helicopters

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included. Any instruments, data, or equipment specifically required by an individual aircraft type that exceed the baseline regulatory requirements would be defined and specified by the relevant Type Certificate holder.

Question 18: Do you agree or disagree with the proposal to adapt Annex VI Subpart D section 2 to equitably accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while

maintaining clear accountability with Type Certificate holders for any aircraft specific requirements? Please explain your answer.

SECTION 5 – Powered-Lift

The CAA proposes to introduce a new, dedicated section within Part IDE for Powered-Lift. This section would be derived from the existing requirements applicable to aeroplanes and helicopters, reflecting the dual-mode operational capabilities of Powered-Lift operations.

Requirements that are common to both categories would be applied directly. Where differences exist, the CAA would select the most appropriate provision based on the operational characteristics of Powered-Lift. In cases where neither set of requirements alone is sufficient, a combination of aeroplane and helicopter provisions would be applied to ensure adequate coverage. In addition, any instruments, data or equipment required to support the specific design or operational characteristics of an individual Powered-Lift aircraft type, and which go beyond the baseline regulatory requirements, would be defined by the relevant Type Certificate holder and included within the applicable certification basis.

Question 19: Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements, including the approach to selecting or combining requirements where differences exist and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

Annex VII (Part NCO) NON-COMMERCIAL AIR OPERATIONS WITH OTHER-THAN COMPLEX-MOTOR-POWERED AIRCRAFT

The changes to Part-NCO are ONLY for aircraft certified under SC-VTOL that meet the requirements of the discretion and therefore are not considered Complex Motor-Powered Aircraft (CMPA).

SUBPART A: GENERAL REQUIREMENTS

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART B: OPERATIONAL PROCEDURES

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

Fuel Scheme

NCO.OP.125

The CAA considers that no changes are necessary, but under NCO.OP.125(b)(1) operators will need to consider the final reserve fuel or energy based on the “severity of the hazard to persons or property that could result from an emergency landing after fuel or energy starvation;”

SUBPART C: AIRCRAFT PERFORMANCE AND OPERATING LIMITATIONS

The CAA considers that there are no changes necessary to this section.

SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

SECTION 1 - Aeroplanes

The CAA proposes that references to new technologies are added to the regulations to ensure that new propulsion systems and new energy sources are equitably included.

SECTION 2 – Helicopters

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included. Any instruments, data, or equipment specifically required by an individual aircraft type that exceed the baseline regulatory requirements would be defined and specified by the relevant Type Certificate holder.

Question 20: Do you agree or disagree with the proposal to adapt Annex VII Subpart D section 2 to equitably accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft specific requirements? Please explain your answer.

SECTION 5 – Powered-Lift

The CAA proposes to introduce a new, dedicated section within Part IDE for Powered-Lift. This section would be derived from the existing requirements applicable to aeroplanes and helicopters, reflecting the dual-mode operational capabilities of Powered-Lift operations.

Requirements that are common to both categories would be applied directly. Where differences exist, the CAA would select the most appropriate provision based on the operational characteristics of Powered-Lift. In cases where neither set of requirements alone is sufficient, a combination of aeroplane and helicopter provisions would be applied to ensure adequate coverage.

In addition, any instruments, data or equipment required to support the specific design or operational characteristics of an individual Powered-Lift aircraft type, and which go beyond the baseline regulatory requirements, would be defined by the relevant Type Certificate holder and included within the applicable certification basis.

Question 21: Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements, including the approach to selecting or combining requirements where differences exist and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

SUBPART E: SPECIFIC REQUIREMENTS

SECTION 1 – General

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SECTION 2 – Helicopter and external sling load operations (HESLO)

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SECTION 3 - Human external cargo operations (HEC)

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SECTION 4 - Parachute operations (PAR)

The CAA considers that there are no changes necessary to this section.

SECTION 5 - Aerobatic flights (ABF)

The CAA considers that there are no changes necessary to this section.

SECTION 6 - Maintenance check flights (MCFs)

The CAA considers that there are no changes necessary to this section.

Annex VIII (Part-SPO) Specialised Operations

SUBPART A: GENERAL REQUIREMENTS

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART B: OPERATIONAL PROCEDURES

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

Fuel Scheme

SPO.OP.130, SPO.OP.131

The CAA considers that there are no changes necessary to this section. However, operators will need to consider that under SPO.OP.131(c)(5)(ii) the final reserve fuel or energy needs to consider “the severity of the hazard to persons or property that could result from an emergency landing after fuel or energy starvation;”

SUBPART C - AIRCRAFT PERFORMANCE AND OPERATING LIMITATION

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included.

SUBPART D: INSTRUMENTS, DATA AND EQUIPMENT

SECTION 1 - Aeroplanes

The CAA proposes that references to new technologies are added to the regulations to ensure that new propulsion systems and new energy sources are equitably included.

SECTION 2 - Helicopters

The CAA proposes that references to new technologies are added to the regulations to ensure that new aircraft types, new propulsion systems and new energy sources are equitably included. Any instruments, data, or equipment specifically required by an individual aircraft type that exceed the baseline regulatory requirements would be defined and specified by the relevant Type Certificate holder.

Question 22: Do you agree or disagree with the proposal to adapt Annex VIII Subpart D section 2 to equitably accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft specific requirements? Please explain your answer.

SECTION 5 – Powered-Lift

The CAA proposes to introduce a new, dedicated section within Part IDE for Powered-Lift. This section would be derived from the existing requirements applicable to aeroplanes and helicopters, reflecting the dual-mode operational capabilities of Powered-Lift operations.

Requirements that are common to both categories would be applied directly. Where differences exist, the CAA would select the most appropriate provision based on the operational characteristics of Powered-Lift. In cases where neither set of requirements alone is sufficient, a combination of aeroplane and helicopter provisions would be applied to ensure adequate coverage. In addition, any instruments, data or equipment required to support the specific design or operational characteristics of an individual Powered-Lift aircraft type, and which go beyond the baseline regulatory requirements, would be defined by the relevant Type Certificate holder and included within the applicable certification basis.

Question 23 Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements, including the approach to selecting or combining requirements where differences exist and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

Question 24: Do you agree or disagree with the position that no changes are necessary to the sections identified, on the basis that they are already sufficiently flexible to accommodate new and emerging aircraft types and propulsion systems?

If you do not agree, please specify the relevant section(s), describe the changes you consider necessary, and provide the rationale for your alternative view.

Question 25: Do you have any further concerns with the content of this consultation that have not been addressed through other questions?

ANNEX A

Abbreviations

ABF – Aerobatic Flights

ANO – Air Navigation Order

AOC – Air Operator Certification

ARO – Authority Requirements for Air Operations

CAT – Commercial Air Transport

CFP – Critical Failure for Performance

CMPA – Complex Motor-Powered Aircraft

CRD – Consultation Response Document

DfT – Department for Transport

EDTO – Extended Diversion Time Operations

EFB – Electronic Flight Bags

EU – European Union

FDM – Flight Data Monitoring

FDR – Flight Data Recorder

HEC – Human External Cargo

HEMS – Helicopter Emergency Medical Services

HESLO – Helicopter and External Sling Load Operations

HHO – Helicopter Hoist Operations

ICAO – International Civil Aviation Organisation

IDE – Instruments, Data, Equipment

LVO – Low Visibility Operations

MCF – Maintenance Check Flight

MCTOM – Maximum Certificated Take-off Mass

MNPS – Minimum Navigation Performance Specifications

NVIS – Night Vision Imaging System

ORO – Organisation Requirements for Air Operations

PAR – Parachute Operations

PBN – Performance-Based Navigation

RVSM – Reduced Vertical Separation Minima

SARP – Standards and Recommended Practices

SC VTOL – Special Condition Vertical Take-off and Landing

SET-IMC – Single-Engined Turbine Aeroplanes in Instrument Meteorological Conditions

SPA – Specific Approvals

VTOL – Vertical Take-off and Landing

ANNEX B

Summary of Questions

Question 1: Do you agree or disagree with the proposal to require all operators of aircraft certified under SC-VTOL that are required to be equipped with a Flight Data Recorder to have a flight data monitoring programme? Please explain your answer.

Question 2: Do you agree or disagree with the proposal to include Powered-Lift in the use of operating sites equitably with helicopters? Please explain your answer.

Question 3: Do you agree or disagree with the proposal to update the Commercial Air Transport fuel schemes to equitably accommodate new and emerging aircraft types, energy sources and propulsion systems? Please explain your answer.

Question 4: Do you agree or disagree with the proposed introduction of a definition for "special recharging, discharging or battery swapping", aligned with the existing concept of special refuelling, and with placing responsibility on the operator to manage the associated risks through a risk assessment, procedures, and personnel training? Please explain your answer.

Question 5: Do you agree that existing helicopter overwater requirements, suitably adapted where necessary, should form the baseline regulatory framework for Powered-Lift and electrically powered helicopter overwater operations? Please explain your answer.

Question 6: Do you agree or disagree with the proposed regulatory framework for Powered-Lift aircraft in Section 2B, including the application of aeroplane-based provisions where aircraft are capable of wing-borne take-off and/or landing? Please explain your answer.

Question 7: Do you agree or disagree that take-off and landing profiles for Powered-Lift should be developed by the Type Certificate holder and incorporated by operators, in line with ICAO Doc 10110? Please explain your answer.

Question 8: Do you agree or disagree with the proposal to adapt Annex IV Subpart D section 2 to equitably accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

Question 9: Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements, including the approach to selecting or combining requirements where differences exist, and that this approach provides an appropriate and proportionate framework,

while maintaining clear accountability with Type Certificate holders for any aircraft specific requirements? Please explain your answer.

Question 10: Do you agree or disagree that helicopters certified under SC-VTOL should be subject to the same Flight Data Recorder requirements as other types of helicopter of equivalent mass, with a mandatory lightweight flight recorder for those below the FDR threshold? Please explain your answer.

Question 11: Do you consider the proposed Flight Data Recorder and data-retention requirements for Powered-Lift aircraft to be appropriate, taking into account their unique design and operational profiles. Please explain your answer.

Question 12: Do you agree or disagree with the proposal that Powered-Lift aircraft should comply with all helicopter specific approval requirements for Performance-Based Navigation (PBN), including being subject to the helicopter approval requirements for the RNP 0.3 specification? Please explain your answer.

Question 13: Do you agree or disagree that helicopter NVIS regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

Question 14: Do you agree or disagree that Helicopter Hoist Operations regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

Question 15: Do you agree or disagree that Helicopter Emergency Medical Service regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

Question 16: Do you agree or disagree that Helicopter Hoist Operations regulations apply to helicopters certified under SC-VTOL and with the proposal to amend them to include Powered-Lift? Please explain your answer.

Question 17: Do you agree or disagree with the proposal to determine fuel or energy reserve requirements for Powered-Lift aircraft primarily on the intended landing mode, with final reserves aligned to helicopter or fixed-wing aeroplane requirements as appropriate? Please explain your answer.

Question 18: Do you agree or disagree with the proposal to adapt Annex VI Subpart D section 2 to equitably accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft specific requirements? Please explain your answer.

Question 19: Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements,

including the approach to selecting or combining requirements where differences exist and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

Question 20: Do you agree or disagree with the proposal to adapt Annex VII Subpart D section 2 to equitably to accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft specific requirements? Please explain your answer.

Question 21: Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements, including the approach to selecting or combining requirements where differences exist and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

Question 22: Do you agree or disagree with the proposal to adapt Annex VIII Subpart D section 2 to equitably accommodate new propulsion systems and energy types and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft specific requirements? Please explain your answer.

Question 23: Do you agree or disagree with the proposal to create a dedicated Powered-Lift section derived from existing aeroplane and helicopter requirements, including the approach to selecting or combining requirements where differences exist and that this approach provides an appropriate and proportionate framework, while maintaining clear accountability with Type Certificate holders for any aircraft-specific requirements? Please explain your answer.

Question 24: Do you agree or disagree with the position that no changes are necessary to the sections identified, on the basis that they are already sufficiently flexible to accommodate new and emerging aircraft types and propulsion systems?

If you do not agree, please specify the relevant section(s), describe the changes you consider necessary, and provide the rationale for your alternative view.

Question 25: Do you have any further concerns with the content of this consultation that have not been addressed through other questions?