

Amendment 4 to ECQB 2022

In 2021 and 2022 major changes were introduced by the EU regulations and related AMC/GM as regards all weather operations and fuel/energy management¹. EASA has had many enquiries from stakeholders about how these will be covered in the theoretical knowledge training and examinations, and requests to make the updates as soon as possible.

EASA is taking a stepped approach in bringing the syllabus and ECQB up to date as regards the provisions on fuel management and all weather operations:

1. Amendment 4 to ECQB 2022 **amends** existing (previously released) questions where they already very closely align to these new provisions. Questions that no longer align to the new provisions have been removed from amendment 4. **No new questions are added.**
 - Amendment 4 affects Subject 033 significantly and has minor impact on Subject 031 Mass & Balance and Subject 070 Operational Procedures.
 - TK Syllabus Comparison Document v4² indicates which areas of the syllabus are affected.
2. At the next opportunity the Syllabus and Learning Objectives will be amended via the rulemaking procedure. This will allow for clarity on exactly what should be covered in the initial theoretical knowledge training, and for a more extensive revision to the ECQB.

It is up to each Authority to determine how and when to implement Amendment 4 to ECQB 2022. There is no specific timeframe or deadline from EASA. Please contact the Authority where you / your students would intend to take their exams in order to find out further information on how amendment 4 is planned to be managed.

1 Fuel Management

The new rules bring in three different fuel schemes for aeroplane operations: the basic fuel scheme, the fuel scheme with variations and the individual fuel scheme. The transition from the current rules to the basic fuel scheme requires little additional effort from the perspective of an air operator. However, the provisions on the fuel scheme with variations and on the individual fuel scheme introduce significant amendments and new approaches. For helicopter operations, there are also some amendments, but they do not use these various fuel schemes.

The Learning Objectives as published in 2020 can be read to address the following, and they have been accommodated in Amendment 4 to ECQB 2022:

- Basic fuel scheme for aeroplanes, and fuel scheme for helicopters,

¹ Information and further links are available via <https://www.easa.europa.eu/en/newsroom-and-events/press-releases/easa-publishes-new-fuelenergy-rules-positive-environmental>

² Available to download from the ECQB page on the EASA website: <https://www.easa.europa.eu/en/domains/aircrew-and-medical/european-central-question-bank-ecqb>

- Fuel scheme with variations for aeroplanes as regards Reduced Contingency Fuel 3%,
 - Fuel scheme with variations for aeroplanes as regards isolated aerodrome operations,
 - Revised definition of “Extra fuel” and the new “Discretionary fuel”.
- (See TK Syllabus Comparison Document v4 for details)

An extensive review of Subject 033 was carried out against the revised fuel schemes as per the Air Operations Regulation (EU) 2021/1296 and associated AMC&GM to Part-CAT with ED Decision 2022/005/R. During the review of the ECQB questions, it was seen that the basis for the calculations as per the previous fuel provisions could continue to be applied, if sufficient editorial clarity is given in the stem as to which fuel scheme to use. No new questions are added, edits are made to existing questions to be clear about the specific fuel provisions that apply, but the related calculations are NOT changed.

Subject 031 and Subject 070 are also slightly affected by the new fuel provisions. For Subject 031 the main impact is due to the changes to the fuel definitions. For Subject 070 the parts of the syllabus on the use of aerodromes and operating sites are affected.

Other aspects of the **fuel scheme with variations** and the **individual fuel scheme** are NOT covered by the ECQB as the LOs cannot be understood to cover those aspects. The future amendments to the syllabus and LOs should specify what is appropriate for initial pilot training. ECQB 2022 amendment 4 does not address these aspects of the new fuel scheme.

Please see the sample questions for 033 Flight Planning at the end of this Update.

2 All Weather Operations

The All Weather Operations provisions as per the Air Operations Regulation (EU) 2021/2237 and associated AMC & GM introduce significant changes³. They introduce new concepts that are not addressed by the current LOs and syllabus, for example “advanced aircraft”; operational credits through “enhanced flight vision systems”. For the theoretical knowledge on which the ECQB is based, the main impact is on Subject 070 Operational Procedures, in particular on all weather operations and aerodrome minima.

EASA has taken the approach to remove questions where they no longer align to the provisions as of 2021/2022. The ECQB content with amendment 4 focuses on those aspects that are basically unchanged by the 2021/2022 rules and AMC/GM. Where the 2021/2022 provisions introduce significant changes, for example on aerodrome operating minima, amendment 4 to ECQB 2022 does not address those details. Please see the TK Syllabus Comparison Document v4 for further information.

Future amendments to the syllabus and LOs should specify the required knowledge for initial pilot training.

To contact the ECQB Team at EASA: ECQB@easa.europa.eu

³ The EASA Community Network contains further information – see <https://www.easa.europa.eu/community/topics/all-weather-operations-0>

3 Sample questions for 033 Flight Planning

The following questions demonstrate the types of changes that have been made to ECQB questions with Amendment 4 to EQB 2022. The changes do NOT affect the value of the correct answer.

Question aligned to pre-2021 provisions	Question aligned to the 2021/2022 provisions
<p>Given the following information, what is the minimum Usable Fuel required for the Commercial Air Transport flight?</p> <p>Estimated taxi time: 18 minutes APU fuel flow: 120 kg/h Taxi fuel flow: 12 kg/min Sum of Trip Fuel and Contingency Fuel: 5810 kg Alternate Fuel: 1520 kg Final Reserve Fuel: 1290 kg Estimated length of time of APU use: 35 minutes</p>	<p>For pre-flight planning purposes, what is the minimum Usable Fuel required for the Commercial Air Transport flight with Performance Class A aeroplanes, given the following information? Assume the Basic Fuel Scheme WITHOUT variations applies.</p> <p>Estimated taxi time: 18 minutes APU fuel flow: 120 kg/h Taxi fuel flow: 12 kg/min Sum of Trip Fuel and Contingency Fuel: 5810 kg Destination Alternate Fuel: 1520 kg Final Reserve Fuel: 1290 kg Extra Fuel: 0 kg Discretionary Fuel: 0 kg Estimated length of time of APU use: 35 minutes</p>
<p>Given the following data, determine the Contingency Fuel for a Commercial Air Transport flight.</p> <p>Trip Fuel: 1800 lb Alternate Fuel: 810 lb Taxi Fuel: 160 lb Reserve Fuel: 460 lb En-route alternate: NOT applicable Fuel to fly 5 minutes at 1500 ft above destination: 70 lb</p>	<p>Given the following data for the pre-flight calculations, determine the Contingency Fuel for a Commercial Air Transport flight with a Performance Class A aeroplane. Assume the Basic Fuel Scheme WITHOUT variations applies.</p> <p>Trip Fuel: 1800 lb Destination Alternate Fuel: 810 lb Taxi Fuel: 160 lb Final Reserve Fuel: 460 lb En-route alternate: NOT applicable Fuel to fly 5 minutes at 1500 ft above destination: 70 lb Extra Fuel: 0 lb Discretionary Fuel: 0 lb</p>
<p>Given the following information, what fuel is required to be on board before engine start for a Commercial Air Transport flight, planned under VFR, to an offshore helideck in a hostile environment?</p> <p>Start-up and Taxi Fuel: 55 kg Trip Fuel: 510 kg Alternate Fuel (from missed approach at the destination to landing at the destination): 200 kg Final reserve fuel flow: 240 kg/h</p>	<p>Given the following information, what fuel is required to be on board before engine start for a Commercial Air Transport flight, planned under VFR, to an offshore helideck in a hostile environment?</p> <p>Start-up and Taxi Fuel: 55 kg Trip Fuel: 510 kg Alternate Fuel (from missed approach at the destination to landing at the destination): 200 kg Extra Fuel: 0 kg Discretionary Fuel: 0 kg Final reserve fuel flow: 240 kg/h</p>

Question aligned to pre-2021 provisions	Question aligned to the 2021/2022 provisions
<p>Given the following information, what is the total fuel required for a VFR Commercial Air Transport flight with a multi-engined piston aircraft?</p> <p>Start-up and Taxi Fuel: 3 gal Climb Fuel: 7 gal Cruise Fuel: 23 gal Alternate Fuel: 3 gal Fuel flow for Final Reserve Fuel: 17 gal/h</p>	<p>For pre-flight planning purposes what is the total fuel required for a VFR Commercial Air Transport flight with a multi-engined piston aircraft with a maximum take-off mass of 5700 kg or less? Assume the Basic Fuel Scheme WITHOUT variations applies.</p> <p>Start-up and Taxi Fuel: 3 gal Climb Fuel: 7 gal Cruise Fuel: 23 gal Destination Alternate Fuel: 3 gal Fuel flow for Final Reserve Fuel: 17 gal/h Extra Fuel: 0 gal Discretionary Fuel: 0 gal</p>
<p>Given the following information for a Commercial Air Transport flight, what is the time (in minutes) needed from the destination to the alternate aerodrome?</p> <p>Missed approach at the destination: 7 minutes Climb to cruise level: 9 minutes Cruise distance: 125 NM Cruise TAS: 135 kt Wind component: 15 kt headwind Anticipated hold at the alternate: 15 minutes Descent to the alternate: 8 minutes Approach to the alternate: 7 minutes</p>	<p>Given the following information for a Commercial Air Transport flight, what is the time (in minutes) needed from the destination to the alternate aerodrome? Assume an operation with a Performance Class A aeroplane applying the Basic Fuel Scheme or with a helicopter (the basic fuel planning provisions are the same).</p> <p>Missed approach at the destination: 7 minutes Climb to cruise level: 9 minutes Cruise distance: 125 NM Cruise TAS: 135 kt Wind component: 15 kt headwind Anticipated hold at the alternate: 15 minutes Descent to the alternate: 8 minutes Approach to the alternate: 7 minutes</p>
<p>Given the following information, calculate the revised estimated Landing Mass at the destination aerodrome.</p> <p>DOM: 8760 lb Traffic load: 3540 lb Remaining Usable Fuel: 2300 lb Remaining Trip Fuel to the destination: 1100 lb Alternate Fuel: 510 lb Final Reserve Fuel: 430 lb</p>	<p>Given the following information, calculate the revised estimated Landing Mass at the destination for the Commercial Air Transport flight with a Performance Class A aeroplane. Assume the Basic Fuel Scheme WITHOUT variations applies.</p> <p>DOM: 8760 lb Traffic load: 3540 lb Remaining Usable Fuel: 2300 lb Remaining Trip Fuel to the destination: 1100 lb Destination Alternate Fuel: 510 lb Final Reserve Fuel: 430 lb Extra fuel: 0 lb Discretionary Fuel: 0 lb</p>

Disclaimer

This update on Amendment 4 to ECQB 2022 is made available for information purposes only. While every care has been taken in preparing the content of this document to avoid errors, EASA makes no warranty as to the accuracy, completeness, or currency of its content. EASA shall not be liable for any kind of damages or other claims or demands incorrect as a result of incorrect, insufficient, or invalid data, or arising out of or in connection with the use, copying or display of the content, to the extent permitted by European and national laws. The information contained in this document should not be construed as legal advice.