

Reforming the microlight aeroplane category

Implementation and key decisions

CAP 2163



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Chapter 1

Summary & Background

Summary

- 1.1 We have introduced the necessary legal changes to raise the allowable weight limit and stalling speed of the microlight aeroplane category, and to allow microlight pilots to fly them subject to differences training.
- 1.2 These changes only apply to non-Part-21 aeroplanes that meet an accepted microlight certification standard, and that are certified to fly at the higher limits.
- 1.3 We will shortly be introducing a new edition of the BCAR Section S certification basis to reflect these new limits. In the meantime, aircraft could use other codes deemed by us to be equivalent but with special conditions.
- 1.4 Existing microlights at the previous limits could be modified to these higher limits if they are technically proved to be capable of doing so. Please note that these legal changes we have introduced are not an authorisation for any aeroplane to be flown above its certified limits without going through that process.

Our decision

- 1.5 We have decided to reform the microlight aeroplane market by raising the weight limit and stalling speed for single- and two-seat factory-built light aeroplanes eligible for national regulation under the Air Navigation Order 2016 (hereafter ANO or 'the Order').
- 1.6 This has involved increasing the allowable limit for the Maximum Take-Off Mass (MTOM) to 600kg (650kg for amphibians or floatplanes), and the stalling or minimum steady flight speed in landing configuration (VS0) to 45 knots.
- 1.7 This takes up a provision at Article 2(8) of UK Reg (EU) No.2018/1139¹ (hereafter UK Basic Regulation or BR) to bring the factory-built aeroplanes² described in that article into the scope of the ANO, and proceeds to regulate them as microlights.
- 1.8 We enacted this decision through a formal CAA Official Record Series (ORS) 4 General Exemption which came into force on 19 August 2021.³ On the same date,

¹ Unless otherwise indicated, references to EU regulations throughout this document are to those as retained and amended into UK domestic law under the European Union (Withdrawal) Act 2018.

² Note that this applies to factory-built aeroplanes as amateur-built aircraft are already under ANO regulation by virtue of UK Basic Regulation Annex I, sub-paragraph (c).

³ [CAA ORS4 no.1501 containing General Exemption E 5507](#), 19 August 2021. We took this decision after the

the Department for Transport (DfT) amendment to the ANO to bring these aircraft into the scope of the Order also came into force.⁴ It includes changes that are described in detail in this CAP, including the microlight aeroplane definition, as well as some consequential amendments such as to the Microlight Class Rating revalidation requirements.

Our rationale

- 1.9 We have concluded after considering the evidence and consulting that the ANO approach to regulation represents a less onerous means of ensuring an acceptable level of safety for these factory-built light aeroplanes than the Part-21 rules that cover heavier or commercial aircraft.⁵
- 1.10 This decision also facilitates UK access to such aircraft that are under national regulation in those European countries and that have themselves taken up the article 2(8) provision. To date, nine such states have done this for aeroplanes,⁶ many of which have major manufacturing markets. Further to that, we have been liaising with the relevant organisations in some of those countries to better align airworthiness certification standards, which we will discuss in Chapter 4 below.
- 1.11 Creating a more proportionate treatment is also consistent with a key commitment of the Government's general aviation strategy, set out for example in the Government's recent General Aviation Roadmap.⁷ The decision also carries wider benefits associated with making microlights an integral component of the UK's light aeroplane market. When this initiative is coupled with other work such as reforms to flight crew licensing stemming from CAP1985⁸, theoretically the result could see microlights becoming a more affordable entry point for a phased aeroplane flying career.
- 1.12 There are also environmental benefits. First, this initiative might encourage operators to replace their existing older Part-21 single-engine piston light aeroplanes with more modern microlights which have more efficient and

UK's departure from the EU, therefore it was not necessary for the Government to use the formal process described in the second paragraph of article 2(11) of Regulation (EU) 2018/1139.

⁴ Air Navigation (Amendment) Order 2021, Statutory Instrument 2021 no.879, laid before Parliament 28 July 2021 and came into force 19 August 2021.

⁵ For a brief explanation of the Part-21 versus ANO regulatory regimes, see CAA website: [Aircraft regulatory framework Part-21 and non-UK Part-21 aircraft](#).

⁶ European Aviation Safety Agency (EASA) website, [Opt-out under article 2\(8\) to 2\(11\)](#). See especially [Table: List of Art.2\(8\) of Regulation \(EU\) 2018/1139](#) (all accessed May 2021).

⁷ HM Government, Department for Transport, [General Aviation Roadmap](#), Spring 2021, p.13.

⁸ CAA, [CAP1985: UK General Aviation opportunities after leaving EASA – a consultation](#), Nov 2020. See also [CAP2146: UK General Aviation opportunities after leaving EASA – Consultation Response Document](#), April 2021.

environmentally-friendly power plants.⁹ Moreover, this could even incentivise innovations in low/zero-carbon technologies around this category of aircraft, as witnessed by the recently announced Royal Aeronautical Society 2021/22 Design Competition inviting proposals for electric aircraft themed specifically on this sub-600kg microlight aeroplane category.¹⁰

Process leading to this decision

- 1.13 This decision culminates a three-year review and implementation process in partnership with the general aviation community. We formed a working group encompassing the relevant associations¹¹ as well as key manufacturers and experts, in which we considered the various practical issues.
- 1.14 We then undertook a public consultation of our proposals in autumn 2019,¹² and published CAP1920 detailing the results.¹³ Our consultation returned 1,379 responses, the largest response rate to a general aviation consultation in recent years, of which an overwhelming 91% supported this endeavour, and over three-quarters favoured bringing these aeroplanes into the microlight category.
- 1.15 We then reconvened the working group to implement this, and this publication summarises some key decisions we took. Chapter 2 describes our thinking behind the drafting of the new ANO microlight definition, while Chapter 3 summarises the implications on Single-Seat Deregulated aeroplanes (SSDRs). Then in Chapter 4 we look at airworthiness including aircraft certification and design and production standards, before turning to flight crew licensing in Chapter 5.
- 1.16 We have after careful consideration decided not to take up at this time the BR provision to bring sailplanes and helicopters up to 600kg into ANO regulation. Our rationale for this is set out in Chapter 6, and we will keep that approach under review.

⁹ Many microlights are powered by modern power plants that are considerably more efficient and have a lower carbon footprint than the older ones that power much of the older Part-21 single-engine piston fleet.

¹⁰ 2021/22 Design Competition launched by the Royal Aeronautical Society inviting engineering students, amateur aircraft designers and professionals to submit design proposals for an electric-powered sub-600kg microlight aeroplane. See [RAeS International Light Aircraft Design Contest 2021/22 takes off](#) and [RAeS launches green microlight design competition](#), *Flyer*, 14 June 2021.

¹¹ The associations comprised the British Microlight Aircraft Association (BMAA), the Light Aircraft Association (LAA), the Aircraft Owners & Pilots Association (AOPA), and the British Gliding Association (BGA).

¹² CAA, [CAP1845, Consultation: Bringing new light aircraft between 450-600kg under national regulation](#), October 2019.

¹³ CAA [CAP1920 Bringing new light aircraft between 450-600kg under national regulation: consultation response](#), June 2020.

Chapter 2

ANO Microlight Aeroplane Definition

Overview

- 2.1 Key to reforming the microlight category to reflect the new description is amending the Order's Schedule 1 definition of 'microlight aeroplanes'. We have worked closely with the DfT (which is responsible for the ANO and any amendments to it) as well as our community working group to develop the definition so that it introduces the new limits while minimising any unintended consequences or disruption.
- 2.2 The Order's new Schedule 1 definition of 'microlight aeroplanes' reads as follows:
- '(1) "Microlight aeroplane" means an aircraft described in sub-paragraph (2), (3), (4) or (5).
 - (2) An aircraft is a microlight aeroplane if it is a non-Part 21 aircraft, other than an unmanned aircraft, that is designed to carry not more than two persons, which—
 - (a) has a stalling speed, or maximum steady flight speed in the landing configuration, at the maximum take-off mass not exceeding 35 knots calibrated airspeed; and
 - (b) has a maximum take-off mass not exceeding—
 - (i) 450kg for a two-seat landplane;
 - (ii) 495kg for a two-seat amphibian or floatplane; or
 - (iii) 475kg for a two-seat landplane equipped with an airframe mounted total recovery parachute system.
 - (3) An aircraft is a microlight aeroplane if it is a non-Part 21 aircraft, other than an unmanned aircraft, that is designed to carry not more than two persons, which—
 - (a) is of an approved design;
 - (b) either has, or has been subsequently modified to have, a stalling speed, or minimum steady flight speed in the landing configuration, at the maximum take-off mass not exceeding 45 knots calibrated airspeed; and
 - (c) either has, or has been subsequently modified to have, a maximum take-off mass not exceeding—
 - (i) 600kg for a landplane; or
 - (ii) 650kg for an amphibian or floatplane.
 - (4) An aircraft is a microlight aeroplane if it is a single-seat deregulated aeroplane.

- (5) An aircraft is a microlight aeroplane if it is being flown, or is intended to be flown, for the purpose of a flight test to establish that it complies with the requirements of sub-paragraph (2), (3) or (4).
- (6) For the purposes of sub-paragraph (3)(a), an “approved design” is a design which is approved by the CAA for the purposes of the issue of a permit to fly under article 40.’

2.3 The new wording is markedly different from the old definition, and employs some new terms and features. Therefore this chapter examines and explains how and why we have approached it, and what these changes might mean for the community.

2.4 Our approach has been to ensure the definition meets the following set of criteria:

- a) The revised weight and stalling speed limits can apply to single- and two-seat aeroplanes, while maintaining Single-Seat Deregulated aeroplanes at the existing weight limits;
- b) Microlights can only be Non-Part-21 aircraft;
- c) Reflects the microlight aeroplane Permit to Fly limitations;
- d) Prevents existing *non-microlight aeroplane types or variants* that fit the new MTOM/VS0 description from being *unintentionally captured* by the new microlight definition; and
- e) Allows *existing* types or variants that are technically proved to be capable of fitting the new microlight definition and complying with the appropriate requirements to be certified or reclassified as such.

a) The revised limits can apply to single- and two-seat aeroplanes

2.5 The Order’s previous microlight definition sets MTOM limits for single- and two-seat aeroplanes, both with a VS0 at the MTOM of not more than 35 knots:

- a) Single-seat: landplanes 300kg or 390kg (first permit to fly pre-2003); landplanes with a Ballistic Parachute Recovery System (BPRS) 315kg; amphibians or floatplanes 330kg.
- b) Two-seat: landplanes 450kg; landplanes with a BPRS 472.5kg, amphibians or floatplanes 495kg.

2.6 We wanted to replicate as much as possible the provisions set out in the BR article 2(8), without any ‘gold plating’. This article provides as follows:

‘The CAA may decide to exempt from this Regulation the design, production, maintenance and operation activities in respect of one or more of the following categories of aircraft:

- (a) Aeroplanes, other than unmanned aeroplanes, which have no more than two seats, measurable stall speed or minimum steady flight speed in

landing configuration not exceeding 45 knots calibrated air speed and a maximum take-off mass (MTOM), as recorded by the CAA, of no more than 600kg for aeroplanes not intended to be operated on water or 650kg for aeroplanes intended to be operated on water.'

- 2.7 Therefore the Order's new microlight definition raises the allowable MTOM for *both* single- and two-seat landplanes to 600kg (650kg for amphibians or floatplanes¹⁴), and the VS0 at the MTOM¹⁵ to not more than 45 knots calibrated airspeed.
- 2.8 The BR definition provides that the aeroplanes 'have no more than two seats.' While this limits the aircraft to two seats, article 2(8) *does not prevent single-seaters* from having an MTOM right up to 600/650kg.
- 2.9 We have decided to replicate this in the Order, as restricting the higher MTOM limit *on just two-seaters* would amount to 'gold plating' the national regulation. We have not identified any safety reason why regulated single-seaters should not be restricted from that MTOM limit.
- 2.10 This allowance for single-seat microlights to weigh up to 600/650kg does not apply to Single-Seat Deregulated aeroplanes (SSDRs). We will explain in Chapter 3 why we have decided to keep the SSDR weight limits unchanged and why we have advised the DfT to slightly amend the Order including introducing a new Schedule 1 definition of 'Single Seat Deregulated aeroplanes' to do this, which is reflected in sub-paragraph (c) of the new microlight aeroplane definition.
- 2.11 We have retained the 'designed to carry not more than two persons' requirement from the ANO definition. This has the same effect as the BR wording of 'not more than two seats', but guards against any wider interpretation that could have safety implications, such as an aircraft designed to carry three or more persons but possessing just two seats.
- 2.12 Similarly, for both single- and two-seaters, we have omitted the additional weight allowance for a BPRS (also known as an Airframe-Mounted Total Recovery Parachute System) that was previously present in the definition. There is no allowance for this in the BR article 2(8)(a), and the weight for such systems would be incorporated within the MTOM limits, allowing the type approval or type acceptance holder a more flexible use of available weight.
- 2.13 Finally, unlike some EU states which have taken up the article 2(8) provision, we have not imposed any restrictions on the sub-categories of microlight aeroplanes. It is just as feasible to have weight-shift or powered parachute microlights up to the

¹⁴ BR article 2(8) refers to these aircraft as 'aeroplanes designed to operate on water'. However for the purposes of alignment with the terminology currently used in the Order, both the Order and this document use the phrase 'amphibians or floatplanes'.

¹⁵ Unlike the BR, the Order has for airworthiness reasons long expressed the allowable stalling speed, or minimum steady flight speed, in the landing configuration *at the maximum take-off mass*.