Civil Aviation Authority

Reforming the microlight aeroplane category
Implementation and key decisions

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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.2018/1139[1] (hereafter UK Basic Regulation or BR) to bring the factory-built aeroplanes[2] 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 CAP1985[8], 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

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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 associations[11] 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.

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[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 floatplanes[14]), and the VS0 at the MTOM[15] 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*.

higher MTOM/VS0 limit as it is for microlights with three-axis controls. The Microlight Class Rating provision in Schedule 8 of the Order retains the differences training requirements based on pilot experience with those control systems.

b) Microlights can only be Non-Part-21 aircraft

2.14 The new definition contains a limitation that microlight aeroplanes can only be non-Part-21 aeroplanes, i.e. that the type or variant has not, and never was, issued a Part-21 certificate or declaration. The second subparagraph of BR article 2(8) reads:

> 'However, as regards the categories of aircraft referred to in the first subparagraph Member States may not take such a decision concerning aircraft in respect of which a certificate has been issued, or has been deemed to have been issued, in accordance with Regulation (EC) No 216/2008 or with this Regulation, or in respect of which a declaration has been made in accordance with this Regulation.'

2.15 This paragraph stipulates that aeroplanes eligible to be included in this definition must not possess a certificate issued in accordance with any EU Basic Regulation (the one currently in force or its predecessor). The purpose of this is to prevent the confusion caused by existing Part-21 types or variants transferring into the scope of national regulation.

2.16 In practice, this means that the type or variant must never have been issued an European Aviation Safety Agency (EASA) or CAA *Form 52 Statement of Conformity*,[16] or an equivalent certificate or declaration which has been accepted by EASA/CAA (such as an EASA Permit to Fly).

2.17 Note that factory-built aircraft can be distinguished by variant as well as type. It is possible (and is in fact quite common) for manufacturers to certify different variants of the same type to different certification and design/production standards, be they national or Part-21. It is also possible to design and produce an aircraft to Part-21 standards, but simply not to issue a certificate or declaration to this effect.

2.18 This information can be found in the aircraft's Type Approval Data Sheet or Airworthiness Approval Note. If the variant has been certified or declared to Part-21, then it is categorised as a 'Part-21 aircraft', and therefore it cannot be a classed as a microlight. If it is not certified or declared as such, then it is a 'Non-Part-21 aircraft' and therefore it can be a microlight, provided it meets UK certification and design/production standards as described in Chapter 4 below.

2.19 The BR also allows manufacturers to choose to produce and certify to Part-21 types that might otherwise be nationally regulated. Article 2(9) reads:

[16] In accordance with the UK Reg (EU) No.748/2012 covering initial airworthiness, Annex I (Part 21), section 21.A.130 and Appendix VIII.

> 'An exemption decision taken by a Member State pursuant to paragraph 8 shall not prevent an organisation with a principal place of business in the territory of that Member State *from deciding to carry out its design and production activities in respect of aircraft covered by that decision in accordance with this Regulation* and with the delegated and implementing acts adopted on the basis thereof. Where such an organisation takes such a decision it shall inform the Member State concerned thereof. In such cases, the exemption decision taken by the Member State pursuant to paragraph 8 *shall not apply to those design and production activities or to the aircraft designed and produced as a result of those activities*.' [emphasis added]

2.20 A type produced and certified in this way therefore cannot be a microlight under the Order.

c) Reflects permit to fly limitations

2.21 All microlight aeroplanes including those at the new weight and stalling speed limits, operate on a national Permit to Fly.[17] This imposes restrictions on commercial operations under article 42 of the Order, although we do allow non-ab initio flying training/self-fly hire in type approved and type accepted microlights under our General Permissions ORS4 nos.1314 and 1393 respectively.

2.22 The permit to fly status also imposes restrictions on where microlights can be flown. Unlike aircraft that have a Certificate of Airworthiness compliant with the International Civil Aviation Organisation (ICAO), national Permit to Fly aircraft do not have the automatic right of overflight to other countries. Some European countries do allow UK microlights to visit for a certain maximum duration on a standing basis, but others require prior overflight permission. Owners should check with the national aviation authority of the countries they intend to visit.[18]

2.23 Note that this overflight permission only applies to the *aircraft* itself. Pilots would need to determine whether their licence and/or class rating permits them to exercise their privileges in other countries, or whether they need prior permission from the national aviation authority.[19]

d) Preventing unintentional capture of non-microlight types

2.24 It is also important to prevent the microlight category from unintentionally capturing *any* non-Part-21 aeroplane that meets the higher MTOM/VS0 description.

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[17] See CAA CAP482: British Civil Airworthiness Requirements, Section S: Small Light Aeroplanes, Issue 7, 19 Dec 2018, para.1.2.

[18] See for example the European Microlight Federation guide to help with this: *MLA Flying in Europe* http://emf.aero.

[19] The associations have useful links to assist with this. In addition to the above footnote, see also for example www.bmaa.org/flying-abroad or www.aopa.co.uk/go-flying/flying-abroad.html

2.25 There are over 400 mainly historic airframes on the UK register that would meet that description but *should not* be classed as microlights (eg Piper Cubs, Luscombes, Piper Vagabonds and Jodel D11s). Doing so automatically could create significant consequences for their pilots/owners including:

- the administrative burden of re-classifying the airframes so their classification matches their legal definition;
- issuing new Permits to Fly for all those airframes; and
- the adverse effect on those pilots who are flying those airframes on the Simple Single-Engine Aeroplane (SSEA) class rating, given our decision described in Chapter 5 below.

2.26 We have therefore advised the DfT to include a new feature in the microlight aeroplane definition to control this. This states that microlight aeroplanes of the higher MTOM/VS0 description *must also be* of an 'approved design' which is defined later in the definition. The relevant paragraphs read as follows:

> '(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.
>
> […]
>
> (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.'

2.27 The definition of an 'approved design' used here specifies a link to the provision in ANO article 40 which states that:

> '(1) Subject to paragraph (2), the CAA or a person approved by the CAA for that purpose must issue for any non-Part-21 aircraft registered in the United Kingdom a national permit to fly if it is satisfied that the aircraft is fit to fly having regard to the airworthiness of the aircraft and the conditions to be attached to the permit.'

2.28 We did consider a more prescriptive and simpler wording, however that would have risked being legally interpreted as being in being in excess of our statutory powers. Instead, using article 40 allows us to clarify outside the ANO in policy

material (such as this document and elsewhere) that in practice, 'having regard to the airworthiness of the aircraft' means that the aircraft must be eligible to be certified against a design certification basis accepted by us (see Chapter 4 below). As a result, if the type meets the higher MTOM/VS0 description in sub-paragraph (3) but has not been certificated against an accepted microlight certification basis, then it cannot be defined as a microlight aeroplane.

2.29 While this feature guards against capturing all those sub-600kg non-microlight types described above, it creates two consequences. First, it unintentionally *excludes* the fleet of about 200+ existing microlight airframes that were *never certified against a microlight certification code*.[20] We therefore advised the DfT to retain in the existing two-seat MTOM/VS0 limits (including provision for a BPRS), hence the wording at sub-paragraph (2) of the definition:

> '(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.'

2.30 Note that we have revised the MTOM for BPRS-equipped two-seat landplanes in sub-paragraph (iii) from 472.5kg to 475kg. This is to align with the two-seat aircraft weight limits set out in the table at BR Annex I, paragraph (e), calculated from the sum of the entries in the second and last columns.

Flight testing provision

2.31 The second consequence of the 'approved design' feature is that it potentially *excludes* aircraft that are not yet certified against a microlight certification code but are being test flown to assess their compliance with one. We therefore advised the DfT to create sub-paragraph (5) which provides that aircraft in the following circumstances can also to be termed microlights:

> '(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).'

[20] These were former Group A aircraft that were caught by the microlight definition when it was introduced in 2005.

e) Allowing existing types or variants to be modified to the revised limits

2.32 A crucial feedback from the general aviation community, both in the working group and the public consultation was the call for a mechanism allowing *existing* microlights to be upgraded to the higher MTOM and/or stalling speed limits. There was also a call to allow a process whereby *existing aeroplanes* that could meet the microlight certification standard to be reclassified as such.

2.33 In the consultation, the view that the existing microlight weight limits are unrealistic for many modern types that are capable of operating at a higher weight was in fact the second most cited reason for supporting the change to the microlight category.[21]

2.34 We wanted to respond to this call, as long as the type concerned is:

- certified against a recognised microlight certification code to ensure a common verification basis of the other technical characteristics, and/or
- proved (either by the type approval holder or the LAA/BMAA for type accepted platforms) to be technically capable of complying with all the microlight certification code requirements, including the strength and performance requirements, at the revised maximum weight and meeting the stalling speed limits. This is an essential safety measure.

2.35 We have therefore advised the DfT to include in the Order's definition that an aircraft can be subsequently modified to have the higher MTOM/VS0, so that the relevant paragraphs read as follows:

> '(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.' [emphasis added]

[21] See CAP1920 (note 13 above), pp.11-12.

2.36 Owners/pilots of microlights at the previous microlight MTOM/VS0 limits should note that this *these legal changes introduced are not an authorisation for those aircraft to be flown above that type or variant's certified limits*. If the type or variant is proven to be technically capable of flying at the higher limits (by the type approval holder or the BMAA/LAA), then a modification would be undertaken to amend its certified limits and data sheets accordingly, and instructions to do this are set out in Chapter 4 below.

2.37 We appreciate that all this creates a definition that is more complex than the one it replaced. However we took every effort with the DfT in close consultation with the general aviation community working group to use a microlight definition wording that is legally workable (ie within the CAA's statutory powers) and as simple as possible so that it maximises flexibility while minimising unintended consequences and disruption.

Chapter 3

Single-Seat Deregulated Aeroplanes

Overview and explanation

3.1 As described above, single-seat microlights are now allowed to have an MTOM up to 600kg (650kg for amphibians or floatplanes), but we are not intending to raise the allowable weight limit for single-seat microlights that are exempt from airworthiness regulation, i.e. Single-Seat Deregulated aeroplanes (SSDRs).

3.2 We created the SSDR concept in 2016 after analysis and consultation concluded that single-seat microlights pose an acceptable third-party risk sufficient to make airworthiness regulation unnecessary. Article 33(2)(f) was therefore introduced into ANO 2016, exempting single-seat microlight aeroplanes not undertaking commercial operations from having to possess a certificate of airworthiness (or permit to fly). These SSDRs are currently limited to 300kg for landplanes (315kg with a BPRS; 330kg for amphibians or floatplanes; and 390kg for amateur-builds issued a Permit-to-Fly prior to Jan 2003). This was done not by article 33 itself but by virtue of the single-seat aircraft MTOM/VS0 limits in the microlight aeroplane definition.

3.3 As described above, taking up the article 2(8) provision allows single-seat landplanes to conceivably weigh as much as 600kg (650kg for amphibians or floatplanes). However, allowing SSDRs to weigh this much would have safety risk implications, requiring a new analysis of the SSDR exemption as well as public consultation, which we considered to be beyond the scope of this project.

Amendments to the Order

3.4 We concluded that minor changes to the Order were necessary to maintain the SSDR weight limits, and to allow holders of the Microlight Class Rating to continue to exercise their privileges in them.

3.5 We thought that the simplest approach to this was to introduce into the Order a new Schedule 1 definition for ‘Single-Seat Deregulated Aeroplanes’ and revise article 33(2)(f) to reflect this. The new definition is drafted as follows and employs the single-seat weight limits that were previously in the microlight aeroplane definition:

> ‘“Single-seat deregulated aeroplane” means a non-Part 21 aeroplane, other than an unmanned aircraft, which is designed to carry not more than one person and which has—
>
> (a) a maximum take-off mass not exceeding—

(i) 300kg for a landplane, (or 390kg for a landplane of which at least 51% was built by an amateur, or non-profit making association of amateurs ("the association"), for the amateur or the association's own purposes and without any commercial objective, in respect of which a permit to fly issued by the CAA was in force prior to 1st January 2003); or

(ii) 330kg for an amphibian or floatplane; or

(ii) 315kg for a landplane equipped with an airframe mounted total recovery parachute system; and

(b) a stalling speed, or minimum steady flight speed in the landing configuration, at the maximum take-off mass not exceeding 35 knots calibrated airspeed.'

3.6 Consequently, article 33(2)(f) of the Order alleviating the need for such aircraft to hold a certificate of airworthiness (or permit to fly) has been amended to read:

'(f) a single-seat deregulated aeroplane which is flying on a non-commercial flight.'

3.7 Changing the approach from an indirect exemption in article 33 to a full definition will result in a clearer understanding of the SSDR concept, while opening the possibility of *regulated* single-seat microlights up to 600/650kg.

3.8 Note that we have used the term 'aeroplane' in this definition. Although some may question whether certain sub-categories of microlights (such as weight-shift craft or powered parachutes) are aeroplanes, the Order has always regarded all microlights to be a category of (powered) aeroplanes[22] and, since the microlight definition was introduced in 2005, referred to them as 'microlight aeroplanes.'

3.9 This SSDR term is also referred to as sub-paragraph (c) of the new microlight aeroplane definition as described above. This is important because although SSDRs are unregulated from an airworthiness perspective, they still have flight crew licensing requirements as a sub-category of microlights, and holders of a licence endorsed with the Microlight Class Rating or Single Engine Piston Rating can exercise the privileges as pilot in command of them, subject to differences training.

[22] See for example, Schedule 4, Part 1 of the Order referring to the classification of aircraft.

Chapter 4

Airworthiness Implications

Overview

4.1 Having explained the amendments to the Order and why we have not revised the SSDR weight limits, the next two chapters examine how these changes will impact manufacturers, owners and pilots.

Certification standards

4.2 As can be seen in the previous chapter, we have made certification against a microlight certification code an integral component to determining whether an aircraft in the new MTOM/VS0 limits can be legally classified as a microlight aeroplane, as distinct from other sub-600kg Non-Part-21 aeroplanes. This applies to factory-built as well as amateur-built (including 'kit-built'[23]) aircraft.

4.3 Remember that microlights *can only be* Non-Part-21 aeroplanes, as we described in Chapter 2 above. If the type or variant already holds a certificate or declaration in accordance with a Basic Regulation, or it holds an EASA Permit to Fly, then the aircraft cannot be classed as a microlight aeroplane.

BCAR Section S

4.4 The main certification code for microlight aeroplanes in the UK is British Civil Airworthiness Requirements (BCAR) Section S 'Small Light Aeroplanes', set out in CAP482.[24] This details both the technical requirements themselves (such as flight characteristics, structure, strength, design and construction, powerplant, propellers and other equipment) including all the operating/performance limitations (such as MTOM, empty mass, maximum payload, VS0 and other critical speeds) as well as acceptable means of compliance and interpretive material for those areas.

4.5 We have been revising BCAR Section S to reflect the higher MTOM/VS0 limits in the microlight aeroplane definition and the implications this has on all the other technical requirements. We will be publicly consulting on and then publishing a new edition of CAP482 shortly.

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[23] Kit-built aircraft where at least 51% of the build is performed by an amateur or non-profit association of amateurs, for their own purposes and without any commercial objective. Aircraft kits are evaluated to determine if the completed aircraft is capable of meeting this rule. See CAA CAP659 Amateur Built Aircraft, especially Appendix 4, 'Evaluation of Amateur Built Aircraft for Compliance with the 51% Rule'.

[24] CAA CAP482: British Civil Airworthiness Requirements, Section S: Small Light Aeroplanes, Issue 7, 19 Dec 2018.

Other certification codes including CS-LSA

4.6 Minded by the fact that many microlights are manufactured outside the UK, and to facilitate UK access to those products, our revision of BCAR Section S has sought to improve compatibility with other certification bases. We have been working with manufacturers and distributors to maximise commonality with equivalent national ultralight certification codes in major European manufacturing markets.

4.7 We have also sought commonality with the EASA Certification Standard for Light Sport Aeroplanes (CS-LSA),[25] which itself draws heavily from the equivalent standard used for light sport aeroplanes in the United States market. Many existing types and variants that would be microlight aeroplanes under the new ANO definition have already been certified to CS-LSA.

Certifying and importing new types or variants into the UK

4.8 Despite the effort to incorporate common elements, some key differences will remain between BCAR Section S and the other certification bases. Manufacturers looking to certify a new factory-built microlight aeroplane type or variant in the UK must apply to the CAA as they do currently for type approval against a certification basis, either BCAR Section S, CS-LSA, CS-VLA or a national ultralight code. The CAA will review the design and agree with the manufacturer Special Conditions (additions) to create a bridging standard between the certification basis used and BCAR Section S.

4.9 For amateur-built microlights, applicants would follow a similar process, and work with the LAA or BMAA towards Type Acceptance.

4.10 Individuals intending to import a microlight aeroplane into the UK will need to check that the type or variant has been approved or accepted in the UK and that it meets a recognised microlight aeroplane certification basis (either BCAR Section S or another code with Special Conditions). The aircraft would then need to be added to the UK register.[26] Note also that if the type or variant has been accepted as an amateur/kit-built aircraft, it cannot automatically be accepted also as a factory-built or vice versa. A similar process must be followed.

Design & production standards

4.11 Factory-built microlights operating in the UK market must also comply with BCAR Section A, and organisations looking to provide microlight aeroplanes into the UK market must hold an approval under Chapter A8-1.[27] Although considerably less

[25] See EASA website, Easy Access Rules for Light Sport Aeroplanes (CS-LSA), (accessed May 2021).

[26] See CAA website: How to Register an Aircraft.

[27] See CAA CAP553: British Civil Airworthiness Requirements, Section A: Airworthiness Procedures where the CAA has Primary Responsibility for Type Approval of the Product, Issue 8, 15 Dec 2017.

onerous than EASA Part-21, these do set minimum standards to ensure an acceptable level of safety which is also highly regarded internationally.

4.12 Manufacturers accessing the UK market will require A8-1 approval themselves, but any EASA or national design and production approvals will be credited in the application. Please contact us for applications for A8-1 approval.

4.13 We are developing a list of known differences between BCAR A8-1 and national design and production codes in other jurisdictions.

Modifying existing microlights to the revised limits

4.14 As stated in Chapter 2 above, the Order has been amended so that existing microlight aeroplanes that are proved to be technically capable of meeting all of the applicable design requirements at the higher MTOM and/or VS0 can be modified to take advantage of the change of definition.

4.15 Owners of factory-built individual airframes will need to check with the type approval holder (or its UK representative) whether such a modification has been undertaken. Owners of amateur-built aeroplanes (or other aeroplanes already administered by the LAA or BMAA) would have to contact the LAA or BMAA for this. The type or variant will need to demonstrate that it meets the revised version of BCAR Section S. In either case, a new Type Approval Data Sheet, Airworthiness Approval Note or Homebuilt Aircraft Data Sheet would be issued bearing the revised MTOM and VS0, as well as other relevant changes to technical specifications such as other operating weight limits.

4.16 Please note that the MTOM/VS0 upgrade can *only* be done as a result of a modification by the manufacturer or through the LAA/BMAA. Existing types or variants that have not been modified must continue to operate at the limits set out in the Type Approval Data Sheet, Airworthiness Approval Note, or Homebuilt Aircraft Data Sheet (even if the owner thinks the type can fly at the higher limits) until the modification has been undertaken and a new note or data sheet issued. As for registration, if there was just a change of MTOM then no amendment would be required. However, it would be necessary if the aircraft has been reclassified.

4.17 As indicated in Chapter 2 above, the Order no longer lists additional weight limits for non-SSDR microlight aeroplanes with a BPRS. This means that the presence or absence of the ballistic parachute is at the owner's choice, provided the configuration has been approved under the revised certification requirements. The Type Approval holder (factory-built aircraft) or the LAA/BMAA (amateur-built aircraft) would need to arrange for a modification that can be applied to individual aircraft to allow this change. The aircraft may need assessing against the revised version of BCAR Section S.

Other considerations: continuing airworthiness and insurance

Continuing airworthiness

4.18 As with other microlight aeroplanes, aircraft up to the new weight limit must be managed, maintained and issued with certificates in accordance with all paragraphs in BCAR Section A, Chapter A3-7.[28] This includes but is not limited to Certificates of Validity for the Permit to Fly issued as set out in paragraph 11 of that document, continuing airworthiness tasks in paragraph 14, and the aircraft scheduled maintenance programme as set out in paragraph 15.

Insurance

4.19 Modifying a microlight to the higher weight limit might have implications for insurance. If the aircraft has been so modified, it is the owner's responsibility to notify their insurer and confirm that the aircraft holds the appropriate amount of insurance cover including Risks of War and Terrorism cover that insurers may require, depending on their interpretation of the Insurance Regulation EU (UK) no.785/2004.

[28] See note 27 above.

Chapter 5

Flight Crew Licensing Implications

Overview

5.1 We have sought to implement these changes to the microlight market with minimal revisions to the flight crew licensing requirements, to allow as seamless as possible a transition for pilots/owners.

5.2 It was necessary to make some minor amendments to the requirements for the Microlight Class Rating described in Schedule 8, Part 2, Chapter 2 of the Order to require differences training for pilots who have no experience in the larger aircraft.

What is required to fly a 600kg microlight

5.3 Under the amendments to the Order described above, holders of a pilot licence issued in accordance with the ANO, such as the National Private Pilot's Licence (NPPL) or Private Pilot's Licence (PPL), endorsed with a valid Microlight Class Rating will be able to exercise the privileges of their rating in all microlights within the full scope of that new definition, ie landplanes up to 600kg; amphibians/floatplanes up to 650kg, all subject to appropriate differences training.[29]

5.4 Similarly, Licence holders with a UK Part-FCL[30] licence such as a Private Pilot Licence (Aeroplanes) with a valid Single Engine Piston (SEP) Class Rating or a sub-ICAO Light Aircraft Pilot Licence (Aeroplanes) can take advantage of the provisions in articles 150(6) and 155(2) of the Order to be able to operate all microlight aeroplanes, also subject to appropriate differences training depending on their experience.[31]

Microlight Class Rating revisions

5.5 Further to the existing Microlight Class Rating requirements, holders are required to undertake differences training when moving between the different microlight aeroplane control systems (three-axis or weight-shift controls) or for more than

[29] For information on how to obtain that licence and rating in the first instance, see the British Microlight Aircraft Association website: www.bmaa.org/information-library/pilot-licensing/the-nppl

[30] Licences and ratings specified in Annex I of the Aircrew Licensing Regulation: UK Reg (EU) No.1178/2011.

[31] Information on obtaining a Part-FCL Private Pilot Licence (Aeroplanes) or Light Aircraft Pilot Licence (Aeroplanes) can be found on the CAA website: www.caa.co.uk/General-aviation/Pilot-licences/Aeroplanes/Private-pilot-licences-for-aeroplanes/

one engine. The difference training is required due to the different handling characteristics of aeroplanes and the safety risks arising from these differences.

5.6 Our view is that similar handling considerations are present when progressing to larger microlight aeroplanes. In revising the legal requirements for differences training for the Microlight Class Rating, we have sought to acknowledge the pilot's previous experience and have included a requirement around the pilot's training and experience in handling the different weight ranges 'moving in both directions' to determine whether differences training is necessary.

5.7 Therefore, microlight rating holders who have no experience flying aircraft above the existing weight limit should be required to undertake differences training. The converse also applies: those seeking to fly 600/650kg microlights who only have experience of flying larger aeroplanes will similarly need differences training.

5.8 Similarly, increasing the weight limit for microlights also increases the likelihood of exposure to a range of 'non-standard' aeroplane configurations, such as tailwheel, Electronic Flight Information Systems (EFIS: 'glass cockpits'), autopilots, electric engines, variable pitch propeller or maximum continuous cruising speed in excess of 140 knots will require appropriate familiarisation or differences training. So, we have introduced those additional configurations as new differences training experience criteria.

5.9 Licence holders with a valid Microlight and/or SEP Class Rating must maintain the privileges of their rating by meeting amongst other things the experience requirements in the period preceding revalidation or completing a flight test for renewal. These requirements in the Order remain unchanged.

5.10 Also unchanged is that holders of licences issued in accordance with the ANO and those issued in accordance with UK Part-FCL having a valid SEP Class Rating can count flight experience amassed in microlight aeroplanes including opted-out aeroplanes with three-axis controls towards meeting the revalidation requirements of their class rating.

5.11 Revalidation requirements for SEP Class Ratings endorsed in a licence issued in accordance with the ANO are set out in Schedule 8, Part 3, Chapter 1 of the Order are remain unchanged, which in-turn refers to UK Part-FCL FCL.740.A(b)(1)(ii).

5.12 In March 2020, EASA published an Acceptable Means of Compliance allowing SEP Class Rating holders to include flight time in non-EASA aircraft (with three-axis controls), however refresher training cannot be conducted in such aircraft.[32]

[32] See: www.caa.co.uk/General-aviation/Pilot-licences/EASA-requirements/EASA-pilot-licence-recency-and-revalidation-requirements/ See also EASA AMC and GM to Part-FCL – Issue 1, Amendment 9, 18 March 2020, 'AMC1 FCL.140.A; FCL.140.S; FCL.740.A(b)(1)(ii) Recency and revalidation requirements'; and Explanatory Note to ED Decision 2020/005/R, p.6.

This AMC has been adopted by the CAA so is still applicable to UK Part-FCL licence holders.

Flying Schools and Instructors

5.13 As part of implementation of this project, we have been working with the BMAA and LAA on revising the Microlight Syllabus to reflect the larger aircraft, including guidance for the provision of differences training.

5.14 With the new microlight definition in force, holders of the Flight Instructor Certificate (Microlight) and Flight Instructor's Certificate (Restricted)(Microlight) will be able to exercise the privileges of their rating in all microlights up to the new weight/stalling speed limits, subject to appropriate differences training. UK Part-FCL SEP flight instructors, once they have received differences training to act as pilot in commend of a microlight on their licence further to articles 150(6) and 155(2) of the Order, can also teach on microlights towards the NPPL(A) Microlight Class Rating using the Microlight Syllabus. For more information on instructing and flying schools, please contact the BMAA or LAA.

SSEA Class Rating

5.15 Extending the microlight category to 600kg (650kg for amphibians or floatplanes) results in an intersection with the fleet of aeroplanes within the privileges of the SSEA Class Rating endorsed in an NPPL(A). Under Schedule 8 of the Order, the SSEA Class Rating restricts the holder from acting as pilot-in-command of a microlight aeroplane even though it is now within the weight range covered by the rating.

5.16 We have chosen not to revise this restriction in the SSEA Class Rating. Doing so would itself have unintended consequences such as raising the question why the similar restriction against Self-Launching Motor Gliders was not also removed. Undertaking such an amendment would require a more detailed review of that rating which was considered beyond the scope of this project.

5.17 Another reason we have not changed the SSEA Class Rating is that a wider review of all UK light aircraft pilot licensing is imminent. The desire to consolidate the various pilot licences and legislation was highlighted as a priority area in the results of our recent Post-EU Exit GA Challenge consultation CAP1985 and its outcome published in CAP2146.[33] Until this is completed in the next few years, SSEA Class Rating holders wishing to fly microlights will have to obtain a Microlight Class Rating. However, between these legal changes to microlights happening now and the more streamlined licensing system when it comes, the result will be a better light aircraft landscape for all concerned.

[33] See note 8 above.

Chapter 6
Sailplanes and Helicopters

Sailplanes

6.1 Article 2(8)(c) of the BR offers member states the option of moving sailplanes from Part-21 to national regulation. It reads as follows:

> 'sailplanes, other than unmanned sailplanes, and powered sailplanes, other than unmanned powered sailplanes, which have no more than two seats and a MTOM, as recorded by the Member State, of no more than 600 kg.'

6.2 After careful consideration and the public consultation, we concluded that the unintended consequences of transferring into ANO regulation this group of sailplanes outweighed the benefits.

6.3 First, the effect of current regulation that we described in Chapter 1 for aeroplanes does not apply to sailplanes. There were also no strong views either way in the responses towards including this category in the scope of the opt-out. Of the total of 850 comments we received about opting out, only four mentioned sailplanes with any emphasis.

6.4 The second reason is to avoid creating a more complicated regulatory split within the UK sailplane fleet. If the UK moved the regulation of sailplanes up to 600kg from Part-21 into the Order, new designs certified domestically and those imported from EU member states that have themselves opted-out would be caught by the 'Non-Part-21 Glider' definition in Schedule 1 of the Order. This means that they would be deregulated in terms of registration[34], airworthiness[35] and flight crew licensing[36] under rules which historically apply to the fleet as defined in BR Annex I. In so doing, this move would immediately create a large fleet of modern, sub-600kg deregulated sailplanes. This would be in addition to the fleet of sailplanes produced under Part-21, to which the UK gliding community have worked since 2008 to introduce and comply with these regulations across all three areas.

6.5 A confusing 'split fleet' situation would ensue, whereby new types that are ostensibly similar would have fundamentally different regulatory treatments just because of their state of certification. Additionally, there is not a compelling case

[34] Article 24(2) of the Order provides that Non-Part-21 Gliders involved in non-public transport or non-commercial air transport operations over the UK only do not require aircraft registration.

[35] Article 33(2)(a) of the Order provides that Non-Part-21 Gliders non-public transport or non-commercial air transport operations are not required to hold a certificate of airworthiness or permit to fly.

[36] Article146 of the Order provides that Non-Part-21 Gliders involved in non-public transport operations do not require a flight crew licence.

for amending the Order's provisions described above to regulate non-Part-21 sailplanes would be regulated as this would be in opposition to the core principles of better regulation.

6.6 Finally, any benefits from an opt-out for sailplanes could be realised through other regulatory measures that are more targeted than the opt-out provision. We will keep this situation under review.

Helicopters

6.7 Similarly, BR article 2(8)(b) offers the possibility of moving the regulation of helicopters to ANO regulation in the same way. It reads as follows:

> 'helicopters, other than unmanned helicopters, which have no more than two seats and a MTOM, as recorded by the Member State, of no more than 600 kg for helicopters not intended to be operated on water or 650 kg for helicopters intended to be operated on water.'

6.8 After careful consideration, we have decided not to take up this provision at this time. First, as with sailplanes, we did not receive a notable response in the consultation supporting such a move. Similarly, although we have received some queries from the helicopter manufacturing community, these have been very few in number; and we have not received any significant representations equivalent to what we experienced for aeroplanes.

6.9 Second, a superficial review of the current ANO and UK Part-21 regulatory framework for helicopters does not reveal any barrier constraining the development of a GA light helicopter market that such a challenge project would address. Unlike microlights have done for aeroplanes as described in Chapter 1 above, we have not identified an equivalent pre-existing national construct that would benefit from a regulatory consolidation of light helicopters. The closest certification basis is BCAR Section VLH – Very Light Helicopters[37] which covers amateur-built helicopters up to 750kg MTOM, so for example this would have to be significantly amended to cover factory-built machines.

6.10 Finally, our other time and resource commitments preclude us from executing any focused, detailed and balanced cost-benefit and impact assessment of the general aviation light helicopter market to appropriate government standards that would be prerequisite to such a project. However we would be receptive to considering anyone else approaching us with such an assessment

6.11 We will review this decision in 2022, and if any new information, supporting data or economic analysis comes to light, and our time and resources allow, we will reconsider this view.

[37] CAA CAP750: BCAR Section VLH – Very Light Helicopters, Issue 1, Nov 2004.

APPENDIX A

Abbreviations

ANO	Air Navigation Order 2016
AOPA	Aircraft Owners & Pilots Association
BCAR	British Civil Airworthiness Requirements
BGA	British Gliding Association
BMAA	British Microlight Aircraft Association
BPRS	Ballistic Parachute Recovery System (also known as an Airframe-Mounted Parachute Total Recovery System)
BR	(EASA) Basic Regulation: UK Reg (EU) No.2018/1139
CS-LSA	Certification Standard – Light Sport Aeroplane
CS-VLA	Certification Standard – Very Light Aeroplane
DfT	Department of Transport
EASA	European Aviation Safety Agency
EFIS	Electronic Flight Information Systems
EU	European Union
FCL	Flight Crew Licensing
ICAO	International Civil Aviation Organisation
LAA	Light Aircraft Association
LSA	Light Sport Aeroplane
MTOM	Maximum Take-Off Mass
NPPL(A)	National Private Pilot Licence (Aeroplanes)
ORS	Official Record Series
Part-21	Annex I of the Initial Airworthiness Regulation: UK Reg (EU) No.748/2012
Part-FCL	Annex I of the Aircrew Regulation: UK Reg (EU) No.1178/2011
PPL(A)	Private Pilot Licence (Aeroplanes)
SEP	Single Engine Piston
SSDR	Single-Seat Deregulated aeroplane
SSEA	Simple Single-Engine Aeroplane
VS0	Stalling speed, or minimum steady flight speed, in the landing configuration at the maximum take-off mass.