



Australian Government

Civil Aviation Safety Authority

Discussion Paper (DP)



Mass Increase for Aeroplanes Administered by RAAO

Proposed Maximum Take-Off Weight (MTOW) increase for aeroplanes managed by sport and recreational aviation administration organisations

Who this DP applies to

It is expected that this discussion paper will be of interest to the following persons in the aviation community:

- The owners and operators of aeroplanes being used for personal flying only, presently registered on the CASA administered register, whose owners may elect to have them registered by a recreational aviation self-administering organisation and operate them with a recreational pilot certificate instead of a licence.
- The owners and operators of two-seat light aeroplanes with lower stalling speeds being operated in the flying training role and who may prefer to operate with a recreational aviation administration organisation instead of with CASA.
- Organisations with an interest in the self-administration of certain personal general aviation flight activities including flight training, and in becoming an RAAO.
- Licensed Aircraft Maintenance Engineers and others involved in aircraft maintenance.
- General aviation and recreational aviation flying schools.
- Organisations involved in the design and manufacture of one or two seat light aeroplanes.

Issued as part of the process of public consultation by
CASA's Regulatory Development Management Branch

Document DP 0802OS – September 2008

Foreword

Context of this DP

The Civil Aviation Safety Authority (CASA) invites input from the aviation community concerning a proposed increase in the weight limit presently imposed on aeroplanes administered by Recreational Aviation Administration Organisations (RAAO) such as Recreational Aviation Australia Inc. (RA-Aus) and other administering organisations that will operate to the proposed Civil Aviation Safety Regulation (CASR) Part 149.

This DP examines a range of options and their potential impacts, and seeks public and industry opinion on these options. It does not indicate any preferred option, as CASA seeks public and industry input to assist in deciding a preferred course of action.

Background

RA-Aus has proposed that the present maximum operating weight barrier be raised, for the aeroplanes administered by an RAAO and registered on the RA-Aus register, from the current 544 kg Maximum Take-Off Weight (MTOW) – or 600 kg for aircraft with a certificate of airworthiness as a Light Sport Aircraft (LSA) - to 750 kg in line with the maximum accepted under the Certification Standard - Very Light Aircraft (CS-VLA) [previously known as Joint Aviation Requirements -Very Light Aircraft (JAR-VLA)] of the European Aviation Safety Agency (EASA).

N.B. By way of comparison, gliders and powered sailplanes, which are usually type-certificated, registered by CASA and administered by the Gliding Federation of Australia (GFA) under delegation, are currently limited by their Normal Category certification standards to a MTOW of 850 kg.

How you can help us

CASA is responsible under the Civil Aviation Act 1988, amongst other functions, for developing and promulgating appropriate, clear and concise aviation safety standards. In the performance of this function and the exercise of its powers, CASA must, where appropriate, consult with government, commercial, industrial, consumer and other relevant bodies and organisations.

Civil Aviation Act 1988 Subsection 9(1)(c) and Section 16

“CASA is committed to working cooperatively with the aviation industry to maintain and enhance aviation safety. This is especially important as far as the development of standards and regulatory material is concerned.”

CASA Standards Development and Rule Making Manual, 2.6.1

I must stress that this DP presents options and potential impacts only, for wider public and industry consideration. If CASA decides to proceed on any option, CASA will publish a Notice of Proposed Rule Making (NPRM) and follow the established rule making procedures.



No action will be taken on the options presented in this DP until all responses and submissions have been considered. To ensure clear and relevant safety standards, we need the benefit of your knowledge as an aviator, aviation consumer and/or provider of related products and services by completing the DP Response Form and **returning it to CASA by the closing date of 11 November 2008.**

I would like to thank you in advance for taking time to consider and respond to this DP.

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22 September 2008

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**** YOU CAN RESPOND ONLINE OR BY FAX, POST OR E-MAIL ****

A web-based online response form is offered as an alternative to the printed form in this DP. Online submission is the preferred method of sending your comments to CASA. If you are connected to the Internet, type casa.gov.au/newrules/ors into your web browser and follow the links for this DP.

Abbreviations

AMSL	Above Mean Sea Level
ANO	Air Navigation Order(s)
ASTM	American Society for Testing and Materials
CAR	Civil Aviation Regulation(s) 1988
CAS	Calibrated Airspeed
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulation(s) 1998
CAO	Civil Aviation Order(s)
CPL	Commercial Pilot Licence
CS-VLA	Certification Standard - Very Light Aircraft
CTA	Controlled Airspace
DP	Discussion Paper
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration (USA)
FAR	Federal Aviation Regulation (USA)
ft	Feet
GA	General Aviation
GFA	Gliding Federation of Australia
ICAO	International Civil Aviation Organization
JAR-VLA	Joint Aviation Requirements - Very Light Aircraft
kt	Knot
LAME	Licensed Aircraft Maintenance Engineer
LSA	Light Sport Aircraft
MTOW	Maximum Take-Off Weight
NPRM	Notice of Proposed Rule Making
NFRM	Notice of Final Rule Making
RAAO	Recreational Aviation Administration Organisation
RA-Aus	Recreational Aviation Australia Inc.
PPL	Private Pilot Licence
SCC	Standards Consultative Committee
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

Definitions and Background

The definition that is used for the Maximum Certificated Take-Off Weight of several classes of aeroplane under existing Civil Aviation Regulations (CARs) and Civil Aviation Orders (CAOs) is:

[CAR 2] MTOW Maximum Take-Off Weight in relation to an aircraft means the weight set out in the certificate of airworthiness of, or the flight manual for, the aircraft as the maximum take-off weight.

[CAO 95.32] take-off weight, in relation to an aeroplane, means the total weight of the aeroplane at the time it starts to taxi before taking-off, including the weight of the pilot and of fuel, oil, recovery and personnel parachutes, flotation equipment, items of optional equipment, tools and baggage.

[CASA comment] MTOW is frequently used to define the limits of a certification standard that itself defines an aircraft certification category – for instance the former US FAA ‘CAR 3’ standard had an upper limit of 5700 kg that translated to the current FAR 23 standard for Normal and Utility category general aviation aeroplanes, along with a maximum stall speed in the landing configuration of 61 kt calibrated airspeed (CAS).

[RA-Aus comment] Additionally for the purpose of this document a nominated maximum take-off weight is used as a benchmark for determining which aircraft can be registered by and operated under the jurisdiction of an RAAO.

Historically the aeroplanes that have been eligible for registration and administration by an RAAO have been aeroplanes that were incapable of complying with any existing certification standard, or that have met what was described as a “partial standard” that did not comply with ICAO Annex 8, the internationally accepted airworthiness code.

The current limits for eligibility for an aircraft to be operated by RA-Aus derive from a number of these standards, and so there are a number of different MTOW conditions depending on the standard selected, as follows:

- 300 kg for an amateur-designed single-seat aeroplane or a kit for the construction of the same, with a wing loading not greater than 30 kg per square metre, operated under CAO 95.10.
- 300 kg for a powered parachute accepted for operation under CAO 95.32 from the original provisional issue of British Civil Airworthiness Requirements, Section S (CAP 482) “Small Light Aeroplanes” dated 1984. (BCAR-S).
- 340 kg for a single-seat aeroplane of a type accepted under the former CAO 95.25 (the original “partial standard”) promulgated in 1985.
- 450 kg for a two-seat aeroplane accepted under the former CAO 95.25.
- 450 kg for a weight-shift controlled aeroplane with a stall speed not exceeding 40 kt (again based on BCAR-S) operated under CAO 95.32.

- A range from 450 kg to 480 kg depending on stall speed, based on the CAO 101.55 standard dating from 1990 from the original issue of CAO 95.55 (450 kg at 45 kt stall speed or 480 kg at 42 kt stall speed).
- 544 kg (plus a number of allowances for safety features) for an aeroplane under the current (since 1998) issue of CAO 95.55, for which CASA or another ICAO contracting state has issued a type certificate, certificate of type approval or equivalent document. The maximum is 614 kg for a two-seat seaplane. Stall speed must not exceed 45 kt CAS unless the aeroplane was approved under the amateur-built CAO 101.28 standard, in which case stall speed may be 55 kt or 61 kt CAS if it has a type-certificated engine.
- 600 kg for a landplane (or 650 kg for a seaplane) that meets the criteria of a LSA in accordance with CASR 21.172, with a stall speed not exceeding 45 kt CAS.

There are thus 8 different certification bases, each with its own maximum allowable take-off weight and stall speed. The NPRM for CASR Part 103 (NPRM 0603OS) has proposed to simplify this to just the 600 kg (or 650 kg for seaplanes) and the 45 kt CAS upper limit on stall speed as applicable to LSA. The draft also makes provision for existing aircraft with a faster stall speed to remain acceptable for this style of operation, and to allow individual types that “almost fit”.

In recent times new standards have been developed which have contained more elements in common with traditional light aeroplane standards, including recognition of a type design and a requirement to maintain the aircraft in conformity with that standard. One of the more significant of those is the CS-VLA (formerly JAR-VLA) managed by EASA, which calls for a single-seat or two-seat aeroplane limited to day operations in Visual Flight Rules (VFR) and with a stall speed in the landing configuration of 45 kt CAS. This standard permits a MTOW not in excess of 750 kg. CS-VLA is identified in CASR Part 23 as a basis for type certification in the Normal and Utility categories whilst CAO 101.55 is identified as meeting the criteria for a Primary category certification.

RA-Aus has sought to have CAO 95.55 (and eventually CASR Part 103) allow the operation under its administration of aeroplanes up to the weight and stall speed of CS-VLA (i.e. 750 kg and 45 kt CAS) regardless of their certification basis.

Discussion

1. Objectives

1.1 The objectives of this DP are to:

- explore the ramifications for the industry if a new increased weight cut-off were to be adopted for the administration of recreational aircraft by an RAAO;
- identify the safety risks involved; and
- identify the impacts of an increased weight cut-off, including potential benefits to RA-Aus, other RAAOs, individual participants and others in the aviation industry.

1.2 CASA seeks advice and guidance from the aviation community on the options presented by this proposal.

2. The Consultation Process

2.1 Publication of this DP constitutes the first stage of public/industry consultation on the proposal from RA-Aus to increase the MTOW for single-seat and two-seat recreational aeroplanes operated by an RAAO, whether to 750 kg or some other weight (specifically, 760 kg).

2.1.1 The paper also seeks comments on whether administration of the proposed or existing rules for Normal category aeroplanes (i.e. using CASR Parts 42, 61, 66 and 91) may be a more appropriate mechanism than Part 103, which is proposed to be delegated under CASR Part 149 as a delegation of CASA's functions under the Civil Aviation Act. CASA seeks comment as to whether this style of delegation is still appropriate for aeroplanes that are certificated in the Normal category.

2.2 CASA will consider comments made in response to this DP during the rule-making process prior to publication of any specific change proposals in a subsequent NPRM.

2.3 CASA is committed to working cooperatively with the aviation community to maintain and enhance aviation safety. The Standards Consultative Committee (SCC) is a joint industry/CASA forum that brings together CASA staff and representatives from a diverse range of aviation industry organisations to jointly develop regulatory change material. The SCC examines proposed regulatory changes to determine if they are worth pursuing and assists CASA in establishing and staffing regulatory development projects. CASA and industry experts work together in SCC sub-committees and project teams to develop regulatory proposals (both new regulations and amendments).

2.4 Once responses to this DP have been received, they will be consolidated and considered. The outcomes from the evaluation of comments on the DP may then lead to development of a NPRM. The NPRM, if developed, will be issued conjointly with associated supporting material. If an NPRM is developed and a rule change is agreed, the responses to the NPRM and the form of the final rule will be published in the form of a Notice of Final Rule Making (NFRM) concurrent with the making of the final rule.

What CASA does with your comments

2.5 At the end of this DP response period for public comments, all submissions will be analysed, evaluated and considered. After the comment period closes, all responses will be consolidated, CASA's responses and disposition actions will be documented/prepared and made publicly available in conjunction with the release of an NPRM, if issued.

2.6 CASA is required to register each comment and submission received but will not individually acknowledge a response unless specifically requested. However, the name of every contributor will be published in a consolidated summary of responses in the subsequent NPRM unless a respondent specifically asks CASA not to.

3. Issues for Consideration

3.1 Background

3.1.1 The Australian ultralight movement received official status in 1976 when the aviation authority of the day released Air Navigation Order (ANO) 95.10. This exemption order allowed for the operation of single-seat ultralights which met an empty weight upper limit of 115 kg. The operating conditions for these aircraft included:- no operations above 300 ft, no two-seat trainers, and no operations at Government or licensed aerodromes, over built up areas or sealed roads. As may be expected, the accident rate was very high – there were many minor accidents from a wide range of causes, but the low speed and mass of these aircraft meant that most accidents did not cause serious or fatal injury. However, fatal accidents did occur, and their causes included structural failure, unacceptable handling qualities, maintenance and reliability issues with 2-stroke engines, and plain recklessness in operation. Almost all of these aircraft were self-designed by people with little or no aeronautical engineering background, and used materials and building techniques that led to serious deficiencies in strength, handling and reliability.

3.1.2 The high accident rate led to public concern and recognition of the need for pilot training and aircraft design criteria. As a result, the government of the day encouraged the formation of a national administering body, and in 1983 the participants formed such an organisation (the Australian Ultralight Federation – AUF) to administer these proposed higher standards, which became available in 1985 with acceptance of the first aeroplane designed to meet the new ANO 95.25 and approval of the first ultralight flight instructors.

3.1.3 Since its inception in 1983 the AUF - which later changed its name to Recreational Aviation Australia Inc – (RA-Aus) has been granted a number of increases in the MTOW of the aircraft that it administers. The proponents of each weight increase have argued that they have used the additional weight to adopt systems that enhance safety (four stroke engines and stronger aeroplanes).

3.1.4 With the increases in weight and capability came significant growth in the recreational aviation sector. This growth has been to an extent at the expense of the industry sector that operates traditional type-certificated light General Aviation (GA) aeroplanes. This has led to an intense rivalry between a declining GA industry and a rapidly growing recreational sector, and competing claims for a “level playing field” and for legislative controls on the operating scope of the ultralight movement, at a time when costs were increasing due to many traditional manufacturers cutting or ceasing production over legal liability issues. The growing capabilities of the new breed of aircraft have led not only to a worldwide proliferation of new standards but also to the development of less restrictive rules for pilot licensing. This has seen many pilots leave the traditional GA environment for the sport and recreational sector, though this has not been entirely without consequences in accident rates. While it is hard to assign any causality to the increased accident rate, the integrity, durability and handling qualities of the aircraft have continued to improve as new, more relevant standards have been developed.

3.1.5 There has been a great increase in the operational and technical maturity of the sport and recreational aviation sector in Australia since 1976. Adoption of better training in both pilot and maintainer groups has improved safety levels, while self-administration has enabled organisations like RA-Aus to react quickly to changes in social and economic climate, and provide cost-effective administration of their growing market. With the growth in weight and momentum of the aircraft has come a convergent evolution of standards to be more like the newer developments in GA, particularly at the lighter end of the market. Equally, there has been demand for a greater degree of self-determination from many of those who have operated the more traditional GA aeroplanes, particularly when they have seen the undoubted success of RA-Aus in increasing the scope of their administration of the flying, training and private aircraft hire areas of the aviation industry, coupled with the economic viability of this self-administration.

3.1.6 The development of new aircraft certification standards has led to an increasing range of categories with less obvious distinctions between them. With the large number of small incremental steps in design standards comes increasing difficulty in knowing where to draw the boundaries for their operating regimes, without increasing the complexity of those operating regimes or blurring of the boundaries and demands for privileges that overlook some of the purposes for which the design standards were established.

3.1.7 RA-Aus has claimed that industry demand is driving it to pursue an increase in the MTOW benchmark of aeroplanes that can be accepted under its administration. It is pressing for a decision that it should be allowed to administer any two-seat aeroplanes, that meet the criteria of a 750 kg MTOW and a stall speed not exceeding 45 kt CAS if the owners wish to have them administered by RA-Aus. These criteria in part define the Very Light Aeroplane standard of EASA. Alternatively they seek an arbitrary weight of 760 kg combined with the same 45 kt stall speed, which encompasses a significant additional number of relatively non-complex two-seat aeroplanes.

3.1.8 This DP examines that claim in detail and offers a number of alternative courses of action that might be implemented to address the claim.

3.2 RA-Aus justification for their proposal

3.2.1 *Why 750 kg?* The proposed 750 kg bench mark will allow the existing GA, recreational aircraft up to the size of a Cessna 150 to operate within the RA-Aus administrative system. Maintenance of this type of aircraft is no more complicated or demanding than the aeroplanes that RA-Aus is presently responsible for. Maintenance of the RA-Aus fleet presently does not create a safety problem and RA-Aus has no misgivings that it can safely administer two seat aircraft in this category.

3.2.2 In a pilot skills sense the older GA recreational fleet aircraft are easier to fly than the light weight aircraft that RA-Aus pilots currently operate. RA-Aus is presently introducing a split syllabus which will differentiate between the old traditional ultralight training and the faster current crop of aircraft.

3.2.3 The lifting of the weight limit to 750 kg would offer approximately 1100 current GA aircraft owners of two seat recreational aircraft, an alternative to operating within the existing CASA system.

3.2.4 The proposed change to the MTOW benchmark does not include the alteration of any of the other parameters (conditions) that limits the RAAO administration of small recreational aircraft:

- the stall speed of 45 knots (landing configuration) as presently laid down, will remain; and
- the maximum number of seats remains at two.

Note: The operation of the aircraft must conform to all the requirements laid down in the RA-Aus Operations Manual.

3.2.5 RA-Aus claims that if adopted, the proposal would have a significant positive impact on the industry. RA-Aus has been able to demonstrate that given common sense rules and an attitude of fostering aviation the downturn affecting General Aviation can be reversed.

3.2.6 Presently this sector of General Aviation is flying minimum hours due to the high costs of the GA system. Reducing those costs and getting these aircraft back in the air will actually produce work for the industry, not reduce it. For flying schools either LAME or a RAAus Level 2 maintenance is a requirement. Once again the negative impact would be minimal.

3.2.7 Operationally, the RA-Aus training syllabus is based on the GA Day/VFR syllabus. The pilots are subject to biennial checks and skill wise there is no difference between the pilots operating in either system. While the RA-Aus trained pilots do not have instrument training, the conditions on the flight crew qualification, i.e. Day/VFR only, negates the operational risks:

- Day/VFR Operations only;
- No controlled airspace (CTA) operation unless the pilot holds a current PPL or higher category CASA issued pilot licence;
- Maximum of one passenger;
- Virtually all pilots are current because there is a cost to being in the system; and
- Accidents due to RA-Aus pilots operating in non-VMC are virtually non-existent (two fatal accidents since self-administration commenced).

3.2.8 Owner maintenance and simplified maintenance requirements are nominated as risks by some critics. Once again the conditions on the operation mitigate such risks, be they perceived or real, i.e.:

- Day/VFR Operations only.
- No CTA operation unless aeroplane is factory built and certified to an acceptable standard and is equipped with an engine that is acceptable to CASA. (N.B., The engines acceptable to CASA are all factory built aircraft engines - conversions to auto engines are not accepted) ; or
- Is an Amateur built/Experimental that meets the criteria laid down in 21.24(1) (a) or 21.26(1) (a) of the Civil Aviation Regulations 1998.
- No operations for Amateur Built or Experimental over built up areas unless approved by CASA; and
- The RA-Aus safety record indicates that there is virtually no difference between RA-Aus maintenance and GA maintenance as a causal factor in accidents.

3.3 CASA commentary on RA-Aus claim

3.3.1 The claim by RA-Aus to be permitted to register and administer all aeroplanes with one or two seats, a stall speed not exceeding 45 kt CAS and a MTOW not more than 750 kg confuses the broad description of the CS-VLA (JAR-VLA) certification category with its totality. It is a very different thing to seek coverage of any aeroplane which has CS-VLA as its certification basis and to seek coverage of all aeroplanes that have these three essential characteristics of CS-VLA. A MTOW of 750 kg alone, or 750 kg and the stall speed limit, includes a large number of aeroplanes that are certificated to other design standards and to none. This includes some aircraft that were certificated to the pre-1954 US CAR 3 certification standard as well as to earlier amendments of the current US FAR 23 standard, and many amateur-built aeroplanes that are either fully experimental or that were accepted for special certificates of airworthiness under an Amateur Built Aircraft Approval in accordance with CAO 101.28 before its weight limits were reduced from 1500 kg to 544 kg.

3.3.2 These CAR 3 and FAR 23 aeroplanes, and the aeroplanes that were originally accepted under CAO 101.28 with type-certificated engines, had a stall speed limitation of 61 kt CAS as part of their certification basis. CAO 101.28 aeroplanes with a non-type-certificated engine were limited to a stall speed of 55 kt CAS. Despite the condition in CAO 95.55 to limit these aircraft to the description in paragraph 1.1 of CAO 101.55 (450 kg and 45 kt CAS stall speed) there is some doubt as to whether every single one of those already accepted for RA-Aus registration in their '28-' class is able to meet those limits. Equally, there must remain the same doubt about individual amateur-built aeroplanes that might be included in future, given the difficulty of measuring stall speeds accurately.

3.3.3 In the case of aeroplanes – mostly those built to the older CAR 3 standard – which fall within the weight and stall speed limits of the American Society for Testing and Materials (ASTM) standard adopted by the US FAA for LSA certification, the FAA has permitted those to be removed out of their original certification category and issued an experimental certificate as an LSA. This allows them to be operated in the USA under the new Sport Pilot certificate rules, and maintained by their owners.

3.3.4 The US situation is not the case with the Australian LSA regulations, and to allow the equivalent operational freedom for aeroplanes up to 750 or 760 kg MTOW (25% or 27% higher than the FAA LSA limit of 600 kg) goes well outside the range of comparable rules in advanced aviation countries such as the UK and Canada.

3.3.5 Additionally, no evidence is given to support the contention that these aeroplanes are easier to fly than newer designs that are already able to be registered by RA-Aus. Given their older design with less ergonomic consideration and potentially greater variety of controls to operate, and the preponderance of 'tail dragger' undercarriages including some reputed to be very sensitive, this statement is a broad generalisation that has not been substantiated, though they may be more 'forgiving' in some other handling qualities than newer designs.

3.3.6 The Cessna 150 is listed as being an aeroplane that could be operated (presumably including for flying training) under RA-Aus if the weight were increased to 750 kg. Over the course of 13 different models the MTOW of the Cessna 150 increased from 680 kg to 726 kg and a total of 302 aeroplanes listed on the Australian Civil Aircraft Register as of July 2007 would have the potential to be included. However, by drawing the boundary at 750 kg, 165 examples of the later Cessna 152 model (which is included in the same type certificate) would be excluded, along with the 11 examples of the Beech 77 Skipper and 65 examples of the Piper PA-38 Tomahawk – all of these having a MTOW less than 10 kilograms heavier than the proposed cut-off figure.

3.3.7 In fact, an examination of the CASA maintained Australian Civil Aircraft Register as of July 2007 identifies 1897 single-seat and two-seat aeroplanes of all weights (538 amateur-built and 1359 factory built), of which 60 are already able to be registered by RA-Aus if the owners so chose. It is likely that the total number, and particularly the number of amateur-built aeroplanes, will have increased in the intervening time period.

3.3.8 A further 812 (rather than the 1100 indicated by RA-Aus) would be within the range of 750 kg MTOW and 45 kt stall speed: however as indicated above, these criteria would exclude approximately 270 individual aeroplanes with a stall speed in excess of 45 kt, although they have a MTOW less than 750 kg. (Particularly among the amateur-built experimental aeroplanes, different examples of the same type are quoted as having widely different MTOW values, and stall speeds are very hard to reliably determine.)

3.3.9 Of the remaining 822 two-seat light aeroplanes, 265 have a MTOW in the range from 751 to 760 kg but still have a stall speed less than 45 kt, whilst 557 weigh more than 760 kg at their certificated maximum. All of these aeroplanes are currently within the scope of “private light general aviation” and it becomes increasingly difficult to justify selecting a boundary where the operating and administrative rules for that particular aircraft should obviously be different from the next aircraft.

3.3.10 RA-Aus has not presented any factual basis for its statement that the proposal to permit it to administer these aeroplanes conveys any positive benefit to the aviation industry as a whole, or that they could provide any advantage to the owners or operators over and above other possible aspiring administration schemes that would remove these aircraft from the perceived costs of the CASA bureaucracy.

3.3.11 Neither is there evidence presented, or available elsewhere, that particularly supports a contrary view that self-administration creates a significantly increased risk to the safety of either the travelling public or of persons and property on the ground. In terms of maintenance, there is little to distinguish between the skills required and the consequences of deregulation of the fleet of private general aviation aeroplanes when compared to the already deregulated fleet of current RA-Aus aeroplanes. Indeed, LSA aeroplanes are able to operate in both systems with no obvious distinctions, and this is a hallmark of the freedom of choice that exists for the operators.

3.4 Benefit and impact analysis

3.4.1 This DP seeks input from interested parties as to any benefits or hindrances that might result from the adoption of any of these proposals (or any permutations and combinations thereof). If the proposal progresses to an NPRM, these will need to be identified as justifications for the proposal or factors affecting the implementation of any resulting rule changes.

4. Options

4.1 RA-Aus proposed three principal options for CASA to canvas for comment:

- **Option 1** – maintain the status quo and limit the RAAO operation to 544 kg MTOW and aeroplanes certificated as an LSA with all applicable limitations to the LSA certification;
- **Option 2** – adopt the proposed CASR Part 103 benchmark and limit the aeroplanes that are eligible for RAAO administration to 600 kg MTOW for landplanes and 650 kg MTOW for seaplanes; and
- **Option 3** – increase the RAAO benchmark to two-seat aeroplanes with a 45 kt CAS stall speed in the landing configuration and a maximum of 750 kg MTOW.

4.2 In the light of the foregoing discussion, CASA suggests that a number of other options be considered. These are identified as follows:

- **Option 2a** – permit the RAOs to administer aeroplanes under Part 103 that are certificated to CS-VLA (JAR-VLA) – i.e. the weight and stall speed limits of Option 3 only if the aeroplane is certificated as complying with all the other requirements of CS-VLA;
- **Option 3a** – amend Option 3 by increasing the MTOW upper limit to 760 kg, with the 45 kt stall speed but including aeroplanes certificated to CAR 3/ FAR 23, so as to include the Cessna 152, Piper PA-38 and Beech 77;
- **Option 4** – permit the RAOs to administer any single-seat or two-seat piston engined aeroplane up to the limits of 760 kg and 45 kt CAS stall speed, when used in general and freight-only activities (this title replaces “private operations” in recently adopted CASA policy) and training for those activities, but with a different, more rigorous, administrative regime for aeroplanes in excess of the CASR Part 103 proposed limit of LSA weights and stall speeds.

Note: These might, for instance, be administered by delegation of CASR Parts 42, 61 and 91 rather than by using CASR Part 149 by which CASA might delegate its functions under the Act as it proposes for CASR Part 103.

4.3 The following considerations are noted in relation to all these options other than Option 3 which has been extensively commented on at section 3.3.

4.3.1 **Option 1 - Maintain the status quo.** This option effectively implies no changes to extend the range of aeroplanes that RA-Aus or any other RAAO might administer, either before or after the introduction of the proposed CASR Part 103. It would reduce the scope of aeroplanes that CASR Part 103 proposes to make available for RAAO administration. That would mean that there would be no alternative to CASA administration for aeroplanes that are between 544 kg and 600 kg and are not LSA aircraft.

4.3.2 Given that proposed CASR Part 103 is well advanced in consultation, Option 1 is unlikely to find favor with any respondent group and is not regarded as a viable option. RA-Aus note that this would preclude designers and builders from designing and building aeroplanes of greater weight, strength or capability for people who elect the RA-Aus administration, at least using present technology.

4.3.3 **Option 2 – Adopt/retain the CASR Part 103 proposed 600/650 kg limit.** Option 2 would confirm the current expectation and possibly bring it into being before the proposed CASR Part 103 is introduced. It would retain the boundary that Part 103 proposes to establish for aeroplanes and rotorcraft that are not eligible for a standard airworthiness certificate in the Normal or Utility category, and for gliders and balloons.

4.3.4 RA-Aus has stated:

“An increase to 600 kg MTOW would do little for the industry. While 750 kg aligns with the JAR-VLA standard, 600 kg does not align with anything other than the new LSA. 544 kg originally aligned with a proposed US Sports Plane category which never became a reality. On the other hand JAR-VLA is an existing and accepted standard”.

4.3.5 Recent experience since the FAA adopted the LSA concept in 2004, with the ASTM 600/650 kg standard, suggests that in fact LSA has achieved wider acceptance than CS-VLA. Certainly there are now many designs originating in the USA, and also in Europe, that meet these criteria. In fact, so many that EASA, which had previously rejected the concept, is now investigating whether it too should accept LSA as a benchmark certification standard.

4.3.6 **Option 2a – extend to 750 kg for CS-VLA aeroplanes only.** This option would have very little effect in the immediate term, as most of the aeroplanes that have been designed and certificated to CS-VLA have MTOW values less than 600 kg (and 544 kg is common). However, in future, designers may make greater use of the CS-VLA standard to develop their designs to provide increased weight, range and payload. It already provides for structural strength and durability in excess of that anticipated by older lightweight standards. However, CS-VLA is accepted as a basis for Normal and Utility category certification with limitations to operation under the VFR by day, so it breaks the nexus between CASR Part 103/RA-Aus administration and special airworthiness certificates that do not comply with ICAO Annex 8.

4.3.7 The question being asked with Options 2 and 2a, when delegating the functions under the Civil Aviation Act at the level contemplated by CASR Part 149, is “Which of these potential standards is most appropriate for Australia to adopt?” - if one standard is in fact more appropriate than another.

4.3.8 **Option 3 and its derivatives – various weight increases and stall speed limits, not tied to a certification category.** All of these options accord to RA-Aus (and other RAAOs administering aeroplanes in future) the perceived benefits of self-administration to the owners and operators of aeroplanes that meet a traditional certification basis, and to amateur-builders of aeroplanes in this more capable class, whilst removing them from the CASA regime.

4.3.9 One effect of any of these options may be to transfer more of those costs from the taxpayer to the individual participant who may be seen as the prime beneficiary. It also accords with CASA focusing its attention on the travelling public (who have less control over the operation of aircraft they travel in), and recovering administrative cost burdens from the users of those services. However, it also reduces the total amount of those costs so long as the costs incurred by CASA in oversighting those out-sourced activities are not increased and the provision of those services are not out-sourced for the making of a private profit.

4.3.10 An important question that this raises is what effect administration of operations and maintenance under the RA-Aus umbrella would have on the certification of these aircraft. If RA-Aus administration were to involve a loss of certification status, as occurs with existing aircraft other than LSA that transfer from the CASA register to the RA-Aus register, there may be a disincentive for owners to follow this path. They might perceive this will cause a loss in value of their aircraft and a significant cost should they seek in future to return to CASA administration, or export the aircraft, or if the maintenance standards were different for training aircraft. Currently the major difference between training and non-training aircraft administered by CASA (and by RA-Aus) is the frequency of periodic inspections being based on a 12 month period for non-training use and the sooner of 12 months or 100 hours in service for training aircraft.

4.3.11 **Option 3a – increase to 760 kg MTOW.** This option would have the logical effect of including the Cessna 152 alongside the Cessna 150 which falls under the same type certificate. It would potentially increase by 267 (compared to the number eligible at 750 kg MTOW) the number of airframes currently registered by CASA that could be administered by RA-Aus. The single anomaly would be that it would also let RA-Aus administer 26 Piper Colt aeroplanes besides the types already mentioned, whilst still excluding 50 other PA-20/22 variants and 32 Super Cubs.

4.3.12 **Option – self-administration under general aviation rules.** It has been a premise of CASR Part 103 that this set of operating, maintenance and flight crew certification rules was intended for gliders and balloons, plus aeroplanes that were unable to qualify for a standard airworthiness certificate. Given that CS-VLA is an acceptable certification basis for a certificate of airworthiness in the Normal or Utility category, albeit limited to a relatively light weight and to day-only VFR operations, the proposal put forward by RA-Aus has the potential to challenge this concept by breaking the nexus between recreational self-administration and inability to meet Normal category aeroplane certification.

4.3.13 CASA does not specifically intend to explore GA self-administration in this DP. However, any proposal for self-administration of any aeroplanes that may be subject to self-administration by an industry sector should allow the possibility that they should all be self-administered in the same way as each other. Thus there is a need to consider the option of sport aviation RAAOs taking on the administration of aeroplanes that have both a type certificate and a certificate of airworthiness by the same process of management as those same aeroplane types administered by other GA self-administering organisations. This may well involve the administering organisation holding delegations to manage the operation and maintenance of aircraft that are eligible for a Normal category certificate of airworthiness under CASR Parts 91, 61, 66 and 42 rather than under Part 103.

5. Further Considerations Related to Options

5.1 Certification status

5.1.1 The question arises as to whether an aeroplane that is maintained by its owner, or by a person who is not licensed by CASA to certify for maintenance to the internationally accepted standard, should continue to hold a standard airworthiness certificate.

5.1.2 One possibility that is raised by the existence of the Primary category, and by consideration of other requests for self-administration of personal general aviation activities, is that aeroplanes operating in this regime should be recertified into Primary category under their type certificate, and be granted similar privileges as non-type-certificated aeroplanes.

5.1.3 This would appear to be a more attractive outcome than the alternative suggested in some circles, to create a new purpose for the issue of an experimental certificate so that the maintenance could be performed by a person without formal aircraft maintenance qualifications or licences.

5.1.4 The objection to creating a new purpose for an experimental certificate is that such an aircraft would thereby lose all connection to its original type data and create an administrative situation where each aircraft was treated separately with no standard set of maintenance or operating rules, and thus no readily identifiable means to return the aircraft to standard certification following a period of maintenance by the owner or any other person who is not a Licensed Aircraft Maintenance Engineer (LAME).

5.1.5 Provided that the aircraft was maintained to an approved schedule (including the manufacturer's schedule) within Primary category, a special inspection based on the manufacturer's periodic inspection schedule plus a small number of additional items could be mandated as a basis for a return to Normal category certification.

5.1.6 These aircraft would then potentially lie between the fully certificated ones that were operated and maintained in accordance with ICAO rules that provided full international acceptance under the Chicago Convention, and the more traditional "ultralight" category that are largely unregulated by government agencies beyond limiting where they may be flown.

5.2 Safety impacts – use of common airspace

5.2.1 Some readers may consider there to be a potential safety impact if a larger number of aircraft operating in "common airspace" (i.e. airspace where access is not restricted by regulation) are administered by a self-administering recreational aviation organisation instead of by CASA. Any increase in weight and speed of aeroplanes operating under self-administration would give rise to this question.

5.2.2 However, it is now 12 years since aeroplanes administered by RA-Aus and the Hang Gliding Federation of Australia have had ready access to all Class G airspace below 5000 ft AMSL including uncontrolled licensed (now registered and certificated) aerodromes. In that time there has not been any apparent increase in the number of incidents reported that involved non-compliance with established procedures by aeroplanes not administered by CASA. Indeed, given the growth in the number of these aeroplanes, a strong case could be made that the level of peer pressure to conform to the rules that these organisations are able to exert is greater than the level of regulatory supervision that CASA can provide. Further evidence of the regulatory satisfaction with this situation is the fact that the proposals put forward in the NPRM for CASR Part 103 permit an extension of these privileges to include training to operate in controlled airspace (Class C or D, and E in VMC). Further, the level of support being expressed for the requests coming from several organisations whose members engage in private “general aviation” activity in similar sized and larger/faster aeroplanes gives credence to the belief that, regardless of who the administrator will be, these kinds of aeroplanes will be more likely in the future to be operating under self-administration.

5.3 [AMENDED ON 2 OCTOBER 2008] Impact on pilot training and licensing

5.3.1 [DELETED ON 2 OCTOBER 2008]

5.3.2 As the regulations currently stand, a pilot may gain almost 100% of the hours required to qualify for a private pilot licence (PPL) by recognition of aeronautical experience gained in “Group A ultralight aeroplanes” (CAR 5.84). Of that 40 hours minimum, only the 2 hours instrument flight time is not able to be gained in an aeroplane administered by RA-Aus.

5.3.3 [AMENDED ON 2 OCTOBER 2008] Group A Ultralight aeronautical experience can be used to a limited extent towards meeting the requirements for the grant of an aeroplane CPL. Pilot in command experience gained in these aeroplanes can be used to meet the 100 hours of pilot in command flying hours where the applicant is applying under the 200 hours CPL rules. Note, the experience does not count for commercially trained applicants (i.e. the 150 hour course).

5.3.4 Currently, aeronautical experience gained in an RA-Aus registered aeroplane may count for up to 750 of the 1500 hours of aeronautical experience required to qualify for an Australian Air Transport (aeroplane) Pilot Licence. Additionally, an aeroplane that is used for the pilot’s aeroplane flight review for all levels of licence can be registered with RA-Aus – the only requirement being that the instructor conducting the review must be qualified to conduct a flight review and also to be in command of an RA-Aus aeroplane if this is the one used for the review.

5.3.5 [AMENDED ON 2 OCTOBER 2008] Consideration is being given to how experience in these types of aircraft can be recognised further under the new Part 61 pilot licensing regulations.

5.3.6 [DELETED ON 2 OCTOBER 2008]

5.4 Economic impacts – fairness across sectors and market share

5.4.1 Although CASA has no role to play in economic regulation of the aviation industry beyond considering the financial viability of operators as it affects the safety of their operation, there are many issues CASA will need to consider in the context of weight limits for self-administering organisations. For instance, CASA must be seen to take account of any economic knock-on effects from a decision giving a recreational self-administration organisation additional privileges whilst excluding another market sector from those same privileges. Any such decision could possibly lead to significant disharmony and jealousy.

5.4.2 It must be acknowledged that RA-Aus have expanded their influence significantly into the area of flying training. Since the introduction of the CAO 101.55 airworthiness code in 1990, some GA flying schools have argued that the changes adversely affected the financial viability of their industry. Many of these declined to take up the availability of newer, lighter and less expensive (and arguably less durable) training aeroplanes, whilst others relished the opportunities to compete. Indeed, the initial success of the Skyfox CA-25N Gazelle as a training aeroplane was due to its integration into PPL training schools.

5.4.3 In more recent times, an increasing number of GA flying schools have used the opportunities afforded by self-administration to offer their students parallel options to train either to an RA-Aus pilot certificate or to a PPL, sometimes even using identical aircraft under the two registration and administration systems. Some of these schools have even gained CASA approval to train their students under the RA-Aus syllabus in controlled airspace, particularly where the tower hours were not fully coincident with daylight. If they had not done so, their students may have been unable to plan their training with certainty and the financial advantages to them may have been lost. Most of these schools argue that the financial accessibility of flying through the RA-Aus syllabus has led to an increase in their ongoing training to the PPL and to hire of GA aeroplanes as some students have progressed to four-place aeroplanes.

5.4.4 Many of these schools have found the simplicity of RA-Aus maintenance requirements advantageous, though some GA maintenance organisations have then objected to their own reduction in business as operators have performed their own maintenance. Yet others have used staff with both LAME and RA-Aus maintainer qualifications to be able to work on aeroplanes from both registration regimes

5.5 Other risks – security issues

5.5.1 Those individuals and government agencies who are charged with issues of national security have indicated a potential for greater security risks from the likely increase in both the numbers, and the weight and capability, of aeroplanes whose pilots are perceived as being outside the net of security screening and counter-terrorism measures imposed following a number of well publicised events since 2000. Pilots who fly in the recreational sector of aviation are not necessarily subjected to the security checks that CASA licence holders have imposed on them, merely in order to hold the privilege of taking to the air.

5.5.2 However, pilots operating in the recreational sector are subject to some of these security requirements. The requirements to prevent unauthorised use of aircraft by requiring all powered aircraft to be protected by anti-theft measures apply to ultralight aeroplanes in the same manner as they do to CASA registered ones. Recreational pilots are also required to hold an Aviation Security Identification Card if they seek to access Australia's 143 Security Controlled Airports and RA-Aus is accredited as an agency to issue these cards.

5.5.3 Again, it will be necessary to ensure that, whatever the outcome of this DP, the security requirements must be applied equitably, and equally to all pilots flying the same make and model of aeroplane with essentially the same privileges, if they have the same access to aerodromes where security becomes an issue.

6. Conclusion

6.1 A range of options is presented as to alternative ways in which CASA might approve an increase in the MTOW of aeroplanes that may be administered by an RAAO, and public comment on these alternatives is sought by this DP.

6.2 The options presented include a number of potential weight and/or certification category limitations, and the decision of whether to apply them by amending the limits proposed in CASR Part 103 as sport and recreational aviation activities, or including these aircraft and the recreational administering bodies in the consideration of self-administration for personal general aviation and flying training for that level of activity.

6.3 Respondents are asked to consider which options are least likely to give rise to anomalies which may be inconsistent, either in the general style of aeroplanes that may be encompassed in each proposal or with the privileges and scope of application being considered for other prospective schemes to have the industry self-administer aspects of general aviation.

6.4 Detailed consideration of costs and benefits has not been undertaken in raising these issues for discussion. However, the whole question of self-administration of any sector of the aviation industry is based on the premise that there will be cost savings to the industry and participants, and that there will not be any reduction in the level of safety afforded to either the travelling public or to persons and property on the ground who are not involved in aviation activities.

6.5 While it is CASA policy to make industry more responsible it will only be allowed to occur provided that there are no safety issues that could not be appropriately mitigated, arising from a mass increase for aeroplanes administered by an RAAO. Given this understanding CASA seeks comment from the industry as to which, if any, of the options listed for consideration would provide the greatest benefit for Australian aviation and for society at large – including possible social and economic benefits.

DP Response Form

MASS INCREASE FOR AEROPLANES ADMINISTERED BY RAAO

**Please complete your response by 11 November 2008
and return it by one of the following means:**

Online (preferred method*) casa.gov.au/newrules/ors

Fax 1800 653 897 (free call in Australia)

Post (no stamp required in Australia)

CASA's Regulatory Development Management Branch
Reply Paid 2005, Canberra ACT 2601, Australia

E-mail (use the response format in this DP)

dp0802os@casa.gov.au

* A web-based online response form is offered as an alternative to the printed form in this DP. Online submission is the preferred method of sending your comments to CASA. If you are connected to the Internet, type casa.gov.au/newrules/ors into your web browser and follow the links for this DP.

Your Details

Please provide relevant information below and indicate your acceptance or otherwise of the proposal presented in this DP by ticking [✓] the appropriate boxes.

Your name: _____ ARN* (if known): _____

Organisation: _____ ARN* (if known): _____

Address: _____

*Aviation Reference Number, usually your CASA-issued licence or certificate number

Your telephone number (optional): _____ (to enable the Project Manager to contact you as necessary)

Do you consent to have your name published as a respondent to this DP? YES [] NO []

Signed: Date:

How are you responding to this questionnaire/proposal, i.e. whose views are represented in your response?

- | | | | | | |
|---|---|---|--|--|--------------------------------|
| <input type="checkbox"/> Private individual | <input type="checkbox"/> Aviation industry body/association | <input type="checkbox"/> Staff association/ union | <input type="checkbox"/> Government agency/authority/ department/council | <input type="checkbox"/> Aviation business owner/ service provider | <input type="checkbox"/> Other |
|---|---|---|--|--|--------------------------------|

Please advise your main involvement in aviation:

- | | | | | | |
|--|---|---|---|---|---|
| <input type="checkbox"/> Passenger/ public consumer of aviation services | <input type="checkbox"/> Air crew for passenger-carrying activities | <input type="checkbox"/> Air crew for non-passenger-carrying activities | <input type="checkbox"/> Ground support for passenger-carrying activities | <input type="checkbox"/> Ground support for non-passenger-carrying activities | <input type="checkbox"/> Other (specify below*) |
|--|---|---|---|---|---|

* **Details:** _____

Are you satisfied with CASA's consultation on this issue?

- | | | | | |
|---|------------------------------------|-------------------------------------|---------------------------------------|--|
| <input type="checkbox"/> Very satisfied | <input type="checkbox"/> Satisfied | <input type="checkbox"/> No opinion | <input type="checkbox"/> Dissatisfied | <input type="checkbox"/> Very dissatisfied |
|---|------------------------------------|-------------------------------------|---------------------------------------|--|

**Options for comment
(complete in conjunction with DP Section 4)**

CASA invites you to advise your comments on the subject matter of this DP by indicating the acceptability or otherwise of the future regulatory options outlined in Sections 4.1 and 4.2 of this DP.

Respondents should be careful not to note ‘as acceptable’ options that are in conflict with each other e.g. it is suggested that respondents rate their favoured option ‘as acceptable without any change’ and other like options ‘acceptable but could be improved if changes were made’. Options that are in conflict with the respondent’s preferred option should be marked with one of the ‘not acceptable’ options.

Respondents are advised that two differing proposals both being marked ‘acceptable’ (or ‘unacceptable’) would effectively cancel out each other and would not provide the guidance of public opinion sought by CASA or the respondent.

Please tick [✓] the appropriate boxes and comment below:

Option 1 – maintain the status quo

- proposal is acceptable without any changes
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances
- no opinion

Comments (including an estimate of additional costs/impacts): _____

Option 2 – adopt the proposed CASR Part 103 600/650 kg limit

- proposal is acceptable without any changes
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances
- no opinion

Comments (including an estimate of additional costs/impacts): _____

Option 2a – extend to 750 kg for CS-VLA aeroplanes only

- proposal is acceptable without any changes
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances
- no opinion

Comments (including an estimate of additional costs/impacts): _____

Option 3 – increase the RAAO benchmark to any single-seat or two-seat aeroplanes up to the limits of 750 kg MTOW and 45 kt stall speed

- proposal is acceptable without any changes
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances
- no opinion

Comments (including an estimate of additional costs/impacts): _____

Option 3a – amend Option 3 by increasing the MTOW upper limit to 760 kg

- proposal is acceptable without any changes
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances
- no opinion

Comments (including an estimate of additional costs/impacts): _____

Option 4 – permit the RAAOs to administer any single-seat or two-seat piston engine aeroplane weighing up to 760 kg and a 45 kt stall speed by delegating them to administer CASR Parts 42, 61, 66 and 91 rather than by delegating CASA functions under proposed Part 149 – retaining the Part 149 delegation only for aircraft up to 600/650 kg for landplanes/floatplanes with the same stall speed range

- proposal is acceptable without any changes
- changes would improve it, but it is acceptable (please provide details below)
- changes would make it acceptable (please provide details below)
- not acceptable under any circumstances
- no opinion

Comments (including an estimate of additional costs/impacts): _____

Please forward your response to CASA by
11 November 2008
by one of the following means:

Online (preferred method)

casa.gov.au/newrules/ors

Fax

To: Regulatory Documentation Coordinator
1800 653 897 (free call) or international +612 6217 1691

Post (no stamp required in Australia)

Reply Paid 2005
Regulatory Documentation Coordinator
CASA's Regulatory Development Management Branch
Canberra ACT 2601, Australia

E-mail (use the response format in this DP)

dp0802os@casa.gov.au

Additional information is available from:

Mike Cleaver, Project Leader

Post (no stamp required) Reply Paid 2005

General Aviation Operations Group
Civil Aviation Safety Authority
Canberra ACT 2601, Australia

E-mail mike.cleaver@casa.gov.au

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