NAA Comparison report

Commissioned by the UK Civil Aviation Authority

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Please Note: All information and URLs were checked at the time of submission to the CAA in March 2022.

Endeavours have been made to update where possible, however some potentially time sensitive information (such as application fees) may no longer be accurate. External content may have moved and no longer be accessible using the URLs provided.

Contents

1 Introduction

This report was written for the UK Civil Aviation Authority to improve understanding of how the regulatory regime for General Aviation (GA) in the UK compares to those in several other ICAO contracting states[1]:

- USA - Federal Aviation Administration (FAA)
- Australia - Civil Aviation Safety Authority
- South Africa - South African Civil Aviation Authority (SACAA)
- New Zealand - Civil Aviation Authority of New Zealand (CAA NZ)
- France - Direction générale de l'aviation civile (DGAC)
- Ireland - Irish Aviation Authority (IAA)

The focus was on regulatory safety policy and administration that is applicable to GA, primarily pilot licensing and airworthiness. An overview of the respective national aviation authorities (NAAs) in terms of size, funding, statutory basis and responsibilities was also included. Aerodrome and airspace policy were not within scope and nor was the report a review of GA's wider social and economic operating environment in the respective states. Safety policy is only one of several factors that may influence this environment – others might include national aerodrome and airspace policy, the price of fuel, weather, geography and demographics.

Approximately 20 working days were spent reviewing the relevant areas and writing the report. This was primarily a desktop exercise based on documentation available in the public domain. Whilst this yielded a large amount of information, it did not necessarily capture factors such as attitudes, culture and working practices, all of which could significantly impact the nature of the regulatory regime for GA and the relationship between an NAA and its respective GA community. Some attempts to understand this dimension were made by reading industry publications, researching publicly available discourse and a degree of the author's personal experience[2].

Given the scope of the review and relatively short timescale, there is some inconsistency in the depth of review between different subjects. The report should therefore be regarded as a starting point for discussion around further work and areas that the UK CAA may wish to investigate in greater detail when considering future UK policy.

Every effort was made to ensure the accuracy of statements in this report, however it is possible that the author may on occasion have not fully understood a foreign requirement and therefore not accurately described how it is applied in practice.

2 Definition of GA

It was not considered necessary to have a hard definition for the purposes of the report. The author considered 'all civil aviation operations that are not commercial air transport' to be a reasonable working definition. For aircraft, the focus was on requirements up to an MTOW of 5700 kgs, except for policy that relates to such aircraft being used for commercial air transport.

[1] Canada was also approached for comment on several questions

[2] The author holds/has held pilot licences issued by the UK, USA, Ireland and a South African foreign licence validation

For pilots, non-commercial licences were the focus. In the pilot population data, some adjustment was made to account for the fact that commercial licence holders often work in a 'GA type' environment such as instruction, agriculture or are employed to fly on private operations.

3 GA accident rates

The report did not look at comparative safety outcomes in detail, except to note possible 'outliers' in outcomes and how they might relate to the relevant regulatory requirements.

In 2019/20 a review was conducted by Geoffrey Podger and Tony Rapson regarding the UK approach to reactional aviation safety[3]. As part of this review, national GA fatal accident rates with aircraft up to 5700 kgs MTOW between 2008 and 2019 were established:

Fatal accidents per 100,000 hours	
Australia	1.86
New Zealand	1.4
UK	1.2
USA	0.91

The author would advise caution in attributing much significance to these figures – for example the suggestion that Australian GA has twice the fatal accident rate of the USA would need further analysis to ensure this was a 'like with like' comparison.

Such data is very sensitive to hours flow (which are often estimated) and the inclusion or exclusion of aircraft such as ultralights and paramotors also tends to have an impact, since they often have higher accident rates than heavier and certified aircraft. Depending on the timeframe, other reports[4] have placed Australia as being historically similar to the other three states. Broadly all four systems seem to deliver acceptable safety outcomes.

Making comparisons between equivalent aircraft categories and operational regimes in each state is potentially more enlightening. Such comparisons have not really been examined as part of this report – doing so should form part of any further work undertaken by the CAA.

4 Overview of states

The USA is by far the largest GA state, with an estimated 200,000 GA pilots and possibly as many as aircraft. Ireland is the smallest with around 1,500 GA pilots and 550 aircraft. In comparison there are thought to be around 30,000 GA pilots in the UK (of all aircraft categories) and 18,000 GA aircraft.

The figures below (including the UK) should be taken as advisory only – there is no single definition of a GA pilot or aircraft. Each state reports the fleet differently and sometimes estimates have been made based on typical aircraft to pilot ratios and the size of communities such as paragliding or

[3] https://publicapps.caa.co.uk/docs/33/GA%20Safety%20Review.pdf p8
[4] https://www.bitre.gov.au/publications/2017/cr_001 p61

paramotoring, which some states count (typically the ones that regulate the activity) and others that do not. Where possible, all aircraft categories up to 5700 kgs MTOW were included.

Numbers of GA Pilots and Aircraft		
State	**GA pilots**	**GA aircraft**
UK	30,000	18,000
USA	250,000[5]	250,000[6]
France	60,000	22,000
Ireland	1,500[7]	560
Australia	25,000	14,000
New Zealand	7,000[8]	4,000
South Africa	12,000	12,000[9]

National Aviation Authorities			
State	**NAA**	**Employees in safety regulation[10]**	**Funding[11]**
UK	CAA	585	User fees, S12/16 Funding, CAAi consultancy
USA	FAA	7,000	Airport and Airway Trust Fund (various aviation taxes), Federal Budget
France	DGAC	1,100 (DSAC)	ANSP charges, user fees (DSAC)
Ireland	IAA	117	ANSP charges, user fees
Australia	CASA	c.400	Aviation taxes (fuel), user fees
New Zealand	CAA NZ	c.200	Aviation taxes (passenger levy), user fees
South Africa	SA CAA	233	Aviation taxes (passenger levy, fuel), user fees

[5] It was difficult to establish a confident estimate. According to public FAA figures, there are around 165,000 active private and sport pilot holders, with 121,000 flight instructors (required to hold a commercial licence), a significant portion of these will be active in GA. There are also 20,000 glider pilots. Figures supplied by the FAA for the report suggest the total active pilot population is more than one million, however this may include RPAS and student pilots. Typically, the number of GA pilots is greater than commercial ones (even if the latter fly more), suggesting there could be far more pilots active in GA than the public figures initially suggested.

[6] The US does not normally specifically count aircraft up to 5,700 kgs, but the FAA supplied a figure for the report.

[7] The number of Private Pilots under the IAA system has risen by around 40% since 2018 from a relatively stable level of around 1,100 in 2016. This may be due to some UK resident pilots wishing to obtain an EASA licence and choosing an English-speaking NAA for their state of licence issue. The number of private pilots resident in Ireland is probably less.

[8] Estimate from various sources – the NZ CAA quote a higher figure, but this may include inactive licence holders.

[9] A large proportion of these are likely GA types that might be used for commercial air transport.

[10] Employment Figures are generally taken from the respective Annual Reports or other equivalent documents.

[11] Funding information is largely based on 2019 reporting. The UK CAA may receive funding from Department for Transport under S12 and S16 of the Civil Aviation Act 1982. The UK CAA also receives a small amount of enroute ANSP charges and fees from Space Regulation – see Annual Report 2021-22 for more detail.

There is variation amongst the NAAs in terms of remit. CASA, NZ CAA and SA CAA are closest to the UK CAA in terms of organisational structure and mandate[12]. All three are solely the regulator and do not incorporate other functions such as national Air Navigation Service Provider (ANSP). They typically have some sort of statutory company (or equivalent) status and report to their respective Departments of Transport.

The FAA and DGAC are better described as umbrella organisations which have a range of safety, airspace and infrastructure responsibilities. In the UK, many of the equivalent functions are either performed by other agencies (such as the DfT or NERL) or are private sector functions, such as aerodrome ATC or provision of airspace and flight procedure design services. The IAA is also a combined ANSP and regulator, but the Irish Government is currently in the process of splitting these functions. Once this split is complete, the IAA will move closer to the CAA model.

The report is not a detailed study of organisational structures. However, the differing remits and sources of funding should be considered when making comparisons between NAAs. When making manpower comparisons, it seemed reasonable to compare the numbers employed in a safety regulation role, since this discounts others such as air traffic controllers or corporate service functions.

Australia is probably closest to the UK when considering both the nature and remit of the regulator and the approximate size of the GA community. France's GA community also has similarities with the UK, but the organisational structure of the DGAC is different.

4.1 Ireland

GA community

The Irish GA community is clearly small compared to the UK, although has similarities in composition. For example, the glider and microlight communities appear to be similarly organised. Representative bodies and their engagement with the regulator also appear similar, albeit on a less formal basis. The Irish Microlight Association and Irish Light Aviation Society resemble their UK equivalents in basic purpose and structure.

A search of the Irish aircraft register suggests there currently around 566 aircraft with an MTOW of 5700kgs or less[13]. There are around 1,500 GA pilots[14].

Regulatory Framework

Most Irish regulatory policy is governed by the EASA Implementing Rules. A small volume of national regulation remains for areas of aviation not exclusively covered by European regulation. There is limited policy activity outside of the EASA sphere, however recent examples include the introduction of national equivalents to the EASA PPL and LAPL and consideration of whether to use the 600 kg MTOW 'opt-out' from the EASA Basic Regulation for certain GA aircraft.

Many of the Irish national regulations resemble those of the UK, for example there are various statutory instruments in the style of the UK Air Navigation Order. There do not appear to be any significant areas of regulatory policy that Ireland approaches differently to the UK.

[12] As far as safety regulation is concerned, there may be variation in the roles regarding consumer protection and economic regulation.

[13] https://www.iaa.ie/commercial-aviation/aircraft-registration-2/latest-register-and-monthly-changes-1

[14] 2020 Annual Report

The IAA

The IAA was established under the Irish Aviation Act 1993, as a statutory company under Irish law. Currently the IAA functions as both aviation regulator and national ANSP. In 2021 the Irish Government announced plans for the ANSP and regulatory functions of the IAA to split. 'AirNav Ireland' will become the national ANSP and the safety regulatory functions will merge with the Commission For Aviation Regulation, which currently deals with economic regulation, slots and consumer protection issues.

The IAA currently receives no state funding. Revenues are generated through charges and fees raised from its airline customers and regulatory clients in respect of its operational and regulatory activities. Historically the IAA ANSP has been profitable and pays dividends to the Irish Government – in 2019 (ie pre COVID) the IAA made a post-tax profit of €27.8m[15]. This is largely from enroute ATC charges, (particularly trans-Atlantic traffic) and is around 80% of income. The ANSP branch of the IAA is therefore closer to NERL than the UK CAA in terms of revenue generation. Of the IAA's turnover in 2019, 12% of this was generated by safety regulation activity. It is not clear what the implication of the ANSP/Safety Regulation split may be on user fees.

The IAA employs around 700 people, with 300 of those being ATCOs. In 2019, 108 people were employed in safety regulation. The IAA does not have a 'GA Unit' constituted in the same way as the UK CAA, however specialists in GA are embedded within the flight operations and airworthiness teams respectively. There is a GA Standards and Policy manager who coordinates GA related issues within the IAA.

The IAA website seems relatively easy to navigate. GA related publications such as safety leaflets and other material appear similar to the UK.

4.2 France

GA Community

France has an extensive GA community both within the EASA and nationally regulated spheres. From reviewing various sources, the author would estimate there are around 50-60,000 GA pilots in France. Ultralight category[16] flying (known as 'ULM') is very popular – there are about 16,000 ULM licence holders[17]. There are also around 7,000 glider pilots[18].

The organisation of France's GA community has similarities with the UK, but the 'lighter' end of GA may be proportionately larger. Like the UK, the GA community has many individual stakeholders and representative groups. These groups mostly co-ordinate through the Conseil national des fédérations aéronautiques et sportives (CNFAS), which is a sort of umbrella organisation for French GA. This includes model aircraft and parachuting and claims to encompass a combined 150,000 participants.

Regulatory Framework

Most French regulatory policy is governed by the EASA Implementing Rules. As one of the major aviation states in Europe, France is active within the EASA rulemaking system. While the UK was still participating at EASA, alignment was often found with DGAC views and policy on GA. Like the UK

[15] IAA 2018-19 Annual Report
[16] The ULM category extends up to 500 kgs MTOW and includes most aircraft categories, other than gliders
[17] Figure quoted from the Federation Francaise d'ULM
[18] Figure from the DGAC

(prior to Brexit), a large portion of the GA community in France is outside the EASA system. A review of French national legislation was not really undertaken due to it being mainly in the French language.

A significant difference in regulatory policy between France and UK is around the treatment of ultralight and microlight aircraft. The ULM category is lightly regulated, for example the airworthiness regime for ULM is declarative and not formally controlled. That is not to imply an absence of technical standards, merely that they are not formalised or enforced in the same way as elsewhere. The licensing of ULM pilots also appears to be relatively informal compared to other states, with training largely on an 'as required' basis by instructors who can then recommend a licence application.

The philosophy of the ULM category explains why the French have only taken partial advantage of the 600 kg 'opt out' from the EASA Basic Regulation. The ULM limit has been raised to 500 kgs (by 50 kg from the previous 450 kg), which according to the Federation Francaise d'ULM[19], will keep the French microlight aircraft true to the historic concept of a lightweight and low inertia machine, the design and operation of which is lightly regulated.

The DGAC

The DGAC was founded in 1946, with the current structure and remit dating from the 1970s. It comes under the French Ministry for Ecological Transition[20], which incorporates responsibility for Transport policy. The DGAC is comprised of several different administrations incorporating safety oversight (DSAC), national ANSP (DSNA) and a range of other areas such as security, economic regulation and environmental policy.

The DGAC incorporates a much wider remit than other national authorities, for example the General Secretariat of the DGAC includes various economic and infrastructure roles, including research and the national school of civil aviation (ENAC). Around 80% of income comes from the ANSP function. The rest generally comes from user fees. France Aviation Civile Services offers international consultancy in a similar way to CAAi.

The DSAC is the safety oversight administration of the DGAC, broadly equivalent to CAA SARG. Some central functions of the DSAC are based in Paris, but much of the routine oversight and administration is dealt with by seven regional directorates across mainland France. There are also two offices for French overseas territories. The DSNA functions as the national ANSP, with ATM safety being overseen by the DSAC. The DGAC can therefore be considered a sort of umbrella organisation for various state aviation functions in France.

The DGAC does not have a 'GA Unit' in the UK sense, but there is cross functional 'Mission' of the DGAC devoted to Light, General and Helicopter Aviation - Mission de l'aviation légère, général et des hélicoptères (MALGH). The MALGH is promoted in DGAC literature as being an initial point of contact for all GA related matters and representative associations[21], which will then coordinate across the various constituent bodies of the DGAC. It manages consultation with GA, participates in rulemaking and manages a safety promotion budget[22] which is awarded to French aeroclubs.

[19] https://ffplum.fr/images/Actus/Microlight2019.pdf
[20] Ministère de la Transition écologique et solidaire
[21] https://www.ecologie.gouv.fr/sites/default/files/Plaquette_DGAC_GB.pdf - p20
[22] €2 million in 2019

The MALGH is based in Paris. Notably it is part of the DGAC's central management structure and not just within the DSAC, so can deal with other areas such as airspace issues or the broader promotion of GA. It reports to the Director of Civil Aviation, so has a similar level of organisational seniority compared to the heads of the main DGAC administrations.

Routine safety oversight of GA is conducted by the DSAC, although senior DSAC staff participate in GA related rulemaking activity where necessary. The DSAC also maintains a direct relationship with the CFNAS to co-ordinate and promote GA safety. The DSAC publishes an annual report on its activities[23] – in 2019 this included the results of a recent user satisfaction survey.

The MALGH arrangement effectively makes the facilitation and oversight of GA functionally separate from each other, which the author observed could bring both advantages and disadvantages.

As the only non-English speaking NAA in the review, it was harder to assess the presentation of written communications from the DGAC, such as the website and GA guidance material. What could be found seemed reasonably well presented and easy to navigate.

4.3 Australia

GA Community

Australia has an extensive GA community; there are around 12,000 GA pilots holding licenses issued by CASA[24] and there is possibly that number again with certificates issued by the various recreational bodies empowered to do so under delegated authority. For example, there are around 9,000 'Recreational Pilots Certificate' holders issued by Recreational Aviation Australia[25]. Sport and recreational aviation are popular in Australia, with each discipline having its own representative body.

Overall, there are probably around 25,000 GA pilots of all categories in Australia. CASA estimates there are around 40,000 'participants' in sport aviation activity every year[26], which would also include hang gliding and skydiving. CASA estimate there to be around 14,000 aircraft likely to be in general aviation use[27]. Although Australia may have slightly less GA aircraft and pilots than the UK, a 2017 report[28] into GA activity appears to estimate that around 50% more GA flight hours take place than in the UK.

Regulatory Framework

The main pieces of legislation governing aviation in Australia are the Civil Aviation Act 1988, the Civil Aviation Regulations 1988 and Civil Aviation Safety Regulations 1998. The Civil Aviation Act appears similar to the UK equivalent. The 1988 regulations are essentially an older suite of regulations and since the late the 1990s, Australia has been transitioning its legal framework across to the 1998 regulations. The founding regulation of the CASR was passed in 1998, but it was not until the late 2010s that the process was completed, nearly 25 years after it was first commenced.

The rulemaking activity since 1998 appears to have similarities with the JAR/EASA programme in Europe. Many areas appear to have taken longer than anticipated and have been revisited on

[23] https://www.ecologie.gouv.fr/sites/default/files/rapport_securite_aerienne_2019_en_light.pdf
[24] Figures from CASA Annual Reports
[25] RAAus is one of the major 'self-administering' recreational aviation bodies in Australia
[26] Figures from CASA website
[27] CASA does not state an exact figure, due to some aircraft being involved in both CAT and non-CAT activities
[28] https://www.bitre.gov.au/sites/default/files/2019-11/cr_001_0.pdf (p56)

multiple occasions. Patience with the process amongst stakeholders has often worn thin, with the available public commentary featuring familiar complaints of confusion over parallel legal structures and shifting goalposts.

Much of the Australian regulations have a similar structure to that of the United States CFR Title 14[29] regulations, indeed the 1998 regulations specifically state that they are intended to be harmonised with the structure (not necessary the substantive requirements) of the US regulations, so consist of a series of numbered 'Parts', such as 'Part-91'.

During the 2000s Australia appears to have adopted some requirements similar to EASA, such as the 'CAMO' concept in continued airworthiness. This trend has not been consistent though, and many areas still owe more to the US system – for example Australia uses the US Part-91 model of a combined operations and rules of the air chapter and appears to be adopting a US Part-43 style maintenance regime for GA aircraft.

Notably Australia employs a 'self-administration' model (Part-149) for various sectors of sport aviation – sporting bodies involved in activities such as light sport aircraft, gliding or parachuting effectively regulate their respective activities under an overarching approval from CASA to do so. Whilst in practice this has similarities with forms of delegated authority elsewhere, the model in Australia seems to be more formal and comprehensive. New Zealand also has a similar arrangement.

CASA

CASA was established in 1995 and has a similar statutory basis and remit to the UK CAA. Funding is via user fees and charges, aviation fuel taxation and government funding. According to the 2018-19 annual report[30], 67% of income came from aviation fuel taxation, 24% from government and 9% from other sources (presumably such as user fees). CASA is required to recover the direct costs of rendering services such as issuing a licence or certificate[31]. Like many NAAs, CASA received greater central funding during the Covid-19 pandemic.

CASA has approximately 850 employees, around half of which are employed in an aviation safety role. CASA has nine offices throughout Australia. There is a General, Recreational and Sport Aviation Branch, which covers oversight and engagement with a variety of GA areas, including Australia's nine self-administering organisations.

There is some public discourse available from the 2000s suggesting that an overly adversarial relationship between CASA and the aviation industry (including GA) had developed during this period. This appears to have become a concern for the Australian government and in 2013 an independent report was commissioned into aviation safety regulation[32]. Various recommendations were made to improve CASA's relationship with industry, along with expediting the completion of the 1998 regulatory transition programme.

[29] These are often referred to as the 'Federal Air Regulations' (FARs). Title 14 refers to the section within the US Code of Federal Regulations (CFR) that cover aviation

[30] https://www.casa.gov.au/sites/default/files/2021-06/annual-report-2018-2019.pdf

[31] https://www.casa.gov.au/about-us/reporting-and-accountability/service-standards-fees-and-statistics/service-standards-and-fees

[32] https://www.infrastructure.gov.au/sites/default/files/documents/ASRR_Report_May_2014.pdf

Changes following the 2013/4 review included the formation of an Aviation Industry Consultative Committee, conduct of an annual user satisfaction survey by CASA, publication of service delivery statistics and a renewed emphasis on the quality of written publications to industry.

Consultation with industry on regulatory changes takes place via the 'Aviation Safety Advisory Panel', formed in 2017. Notably this has 20 technical subgroups (with around 165 individuals involved) across various subjects, mostly organised by functional area of regulation. The Panel is chaired independently from CASA. There is also a General Aviation Advisory Group (GAAG) which advises the Minister for Infrastructure and Transport on more strategic GA related matters.

CASA is active in safety promotion, using 9 aviation safety advisors to conduct free seminars throughout Australia, both online and in person. In 2019 CASA also delivered a $140,000 AUD (c.£78,000) sponsorship program for the benefit of GA associations and for related safety activities.

The author was generally impressed with the quality of CASA's GA related publications and in 2016 the format of CASA's 'VFR Guide' was reviewed when developing the CAA's 'Skyway Code'. CASA also issue a series of 'Plain English Guides' to various regulatory subjects. The CASA website seems relatively well presented and easy to navigate. CASA appears to use the same or similar web platform as the UK CAA for written public consultations.

The web platform for the rule directory[33] seemed slightly more complex and less intuitive than the equivalent for New Zealand, mainly because the CASA website redirects to the Australian Federal Register of Legislation, whereas the CAA NZ appear to have produced their own online consolidation of the Civil Aviation Rules.

Other Observations

The Australian Bureau of Infrastructure and Transport Research economics[34] publishes the results of an annual survey of aviation activity in Australia, which includes GA. The main sporting aviation bodies contribute statistics to this study such as membership numbers, registered aircraft and hours of activity conducted. This appears to be similar to the approach used by the FAA to monitor the level of GA activity – ie it is generated from industry surveys rather than internal data that the NAA may accumulate through oversight.

Overall, Australia has similarities with the UK situation. The challenges faced by the Australian GA community, common complaints regarding regulation and the experiences of conducting a long-term programme of regulatory change all struck the author as familiar. The approaches in Australia for dealing with these challenges (and the extent to which they have been successful) may be worthy of further scrutiny.

4.4 New Zealand

GA community

New Zealand has a notably high number of private pilots per capita. The exact number was not established, but from reviewing various sources, 7000[35] appears to be a reasonable estimate. Even if

[33] https://www.legislation.gov.au/Details/F2021C01233/Html/Volume_1#_Toc89843065
[34] https://www.bitre.gov.au/
[35] The CAA NZ quoted a higher number, but it seemed suspiciously high and may have been all lifetime licences known to exist, as opposed to those that are known to be active

the number were less than that, with a population of around 5m people, NZ would still have one of the highest (if not the highest) number of GA pilots per capita in the world.

The composition and nature of the GA community in New Zealand appears similar to Australia. New Zealand also uses the Part-149 recreational aviation organisation model. Each sector is represented by relevant associations. The New Zealand Aviation Federation is the umbrella organisation representing GA in NZ and seems to be the main vehicle for higher level engagement and lobbying with the CAA and Department of Transport.

Regulatory Framework

The Civil Aviation Act 1990 is the main governing legislation for civil aviation in New Zealand. It is quite an extensive piece of legislation and in some areas appears closer to the UK Air Navigation Order in content. The Civil Aviation Rules[36] are made under the Act and follow a US 14 CFR style and structure. Unsurprisingly, there are similarities with the Australian regulations.

CAA NZ

The CAA NZ is a crown entity established in 1992. It reports to the Minister of Transport. It is similar in constitution and remit to the SA CAA and CASA. Airways New Zealand is the national ANSP and was separated from the NZ Government in 1990s. The CAA NZ also incorporates the Aviation Security Service, which operates security screening and other functions at New Zealand's major public airports. This differs from the other independent regulators, as most simply regulate security standards.

Most of the CAA's income is from passenger taxes and security charges[37]. A small amount comes from central government, which has increased during Covid.

New Zealand has a director of GA overseeing a small team which is responsible for recreational aviation, helicopter and agricultural operations. Overall, the organisation employs around 1,200 people, but many of those work in frontline security roles. There are around 200 personnel working in aviation safety regulation.

The overall presentation of the CAA NZ's website, GA related publications and navigation of the rule directory all struck the author as being well presented, simple to navigate and understand. Currently NZ does not appear to have online functionality for the processing of applications and other interactions.

4.5 South Africa

GA Community

There were around 5,000 South African PPL holders in 2021[38], out of a total pilot population of around 12,600 holding ICAO licenses. This does not include pilots holding other recreational licences, such as microlights or gliders, so the overall GA pilot population may be to double that figure. As with the other non-European states, the distinction between GA and commercial air transport is not always as clear in South Africa; light aircraft are frequently used for non-scheduled commercial air transport and various aerial work applications (such as agriculture).

[36] https://www.aviation.govt.nz/rules/
[37] https://www.aviation.govt.nz/assets/publications/annual-reports/caa-annual-report-2019.pdf p61
[38] http://www.caa.co.za/Corporate%20Publications/CAA%20Annual%20Report%202020-2021.pdf p42

There are around 8,000 non-type certified aircraft (equivalent to a 'permit' aircraft in the UK) registered in South Africa[39], out of a total of 14,600 registered aircraft. A precise number of aircraft with an MTOW of less than 5700 kgs MTOW was not established, however around 12,000 'GA type' aircraft is probably a reasonable estimate.

South African GA is mostly organised around the Aeroclub of South Africa[40], an umbrella organisation covering branches of sport and recreational aviation such as gliders, balloons and microlights. It also includes the Experimental Aircraft Association of South Africa, which facilitates the amateur building of aircraft.

Regulatory Framework

The Civil Aviation Act 2009 is the main governing regulation in South Africa. The Civil Aviation Regulations (CAR) 2011[41] sit under the Act. The SA CAR have a similar structure to US 14 CFR, although perhaps less so than the Australian or New Zealand regulations. They are generally easy to follow and understand, if unusually detailed and specific in a few places. Complementing the regulations are Technical Standards, which expand on the relevant requirements.

South African CAA

The South African Civil Aviation Authority (SA CAA) was formed in 1998 as a Schedule 3A public entity, as defined under the South African Public Finance Management Act. The structure and remit are similar to CASA, CAA NZ and the UK CAA.

Funding is by a mixture of the airline passenger 'safety charge'[42], fuel levy and central government. Pre-Covid, the government funding was primarily for accident investigation, which is a small unit within the SA CAA and not a separate entity as it is in most other states. Whilst the SA CAA does charge user fees, historically this has amounted to around 16% of income, with approximately 76% from the passenger safety charge[43]. There are around 570 employees, 233 of which work in aviation safety.

The SA CAA has a GA Unit[44] of around 15 personnel. The unit covers both operations and airworthiness. It has responsibility for overseeing South African Part-149 Aviation Recreational Organisations (such as the Microlight and Sport Aircraft Association of South Africa), corporate operators (similar to Part-NCC) and operations with non-type certificated aircraft (permit aircraft in UK terminology) and a variety of other GA activities, such as air displays.

Notably the South African CAA appears concerned about the country's GA accident rate and in 2020 launched a safety strategy[45] which focuses on strengthening training standards and pilot education. It was not determined whether South Africa's GA accident rate was significantly higher than other states – factors such as GA definition, operating environments and fleet profile make it difficult to generalise and the data was not readily available to calculate an hours-based accident rate. The SA CAA does publish estimates of hours flown by the aviation industry in its Annual Report, although it was not clear how these are established.

[39] Annual Report 2020-21, p33
[40] https://www.aeroclub.org.za/
[41] https://caa.mylexisnexis.co.za/
[42] Currently around 23 ZAR or just over £1 per flight
[43] ~~http://www.caa.co.za/Pages/About%20Us/Funding.aspx~~
[44] GAD Structure
[45] GA Safety Strategy

The SA CAA's website and format of publications appeared somewhat dated compared to CASA and CAA NZ, but it was easy to navigate and most information could be found quickly. The system for hosting the Civil Aviation Regulations was also straightforward to use. South Africa does not have an online licensing portal as such, although they recently launched a credit card style of licence with bar or QR code from which individual pilot information can be read.

4.6 United States

GA community

The USA almost needs no introduction – with as many as 200,000 GA pilots and a similar number of aircraft, the US is by far the largest GA state in the world. Although amateur built and non-certified aircraft are a growing segment, US GA is still dominated by certified legacy types such as the Cessna 172 and Piper PA28, decades after they first entered production.

AOPA[46] and the Experimental Aircraft Association[47] are the largest representative bodies for GA. They both have membership figures in the hundreds of thousands. The sporting segments such as gliding and ballooning are also represented in a similar manner to elsewhere.

Regulatory Framework

The Federal Aviation Act 1958 created and empowered the FAA to regulate aviation in the United States. The main instrument for doing so is Title 14 of the US Code of Federal Regulations[48] – Aeronautics and Space, sometimes referred to as 'the FARs' (Federal Aviation Regulations). 14 CFR has its origins in the 1950s and 60s and has largely grown organically since then. The other three non-European states use a similar regulation numbering system to the US, with some differences such as Part 66 (Licensing of engineers) and Part-149 (Aviation recreational organisations) that do not exist in the US system.

The FAA

The FAA was established in 1958. It is an agency of the Department of Transportation. It has an overarching remit to manage America's aviation system. It employs around 45,000 people[49] (including 14,000 air traffic controllers). Within the FAA sit five 'lines of business', including the Air Traffic Organisation (national ANSP) and Aviation Safety.

Much the FAA's administration of safety regulation is done through the Flight Standards District Office (FSDO) system, of which there are around 80 throughout the US. FSDOs administer almost all certificates and approvals for personnel and organisations, except for scheduled airlines and other large entities. The FAA's 2022 Budget[50] request suggests around 7,500 people are employed in an aviation safety role.

The FAA does not have a 'GA Unit' as such, although there is a central GA Office as part of the Flight Standards Service (within the Safety business line), which oversees GA activity through the FSDO network. It is hard to estimate how many people in the FAA work in GA directly or otherwise, but it is likely to be in the thousands.

[46] www.aopa.org
[47] www.eaa.org
[48] https://www.ecfr.gov/current/title-14
[49] Figure from FAA website
[50] https://www.transportation.gov/sites/dot.gov/files/2021-05/FAA-FY-2022-Congressional-Justification.pdf

The FAA applies very few user fees, for example there is no fee for the issue of private pilot's licence. Those fees that do exist, such as for aircraft registration, are so low as to be considered nominal. The FAA's operations and development of the US aviation system are funded by a combination of the Airport and Airway Trust Fund[51] (AAFT) and central government funding. Certain elements of the FAA's funding and powers must be periodically authorised by an act of Congress, such as the FAA Reauthorisation Act of 2018.

The FAA monitors activity in the aviation industry via user surveys[52] rather than aggregation of available data.

5 Pilot Licensing Regimes

5.1 ICAO Private Pilot's Licence

All the NAAs issue a Private Pilot's Licence (PPL) in accordance with ICAO Annex 1 (Personnel Licensing) requirements. There is some variation in the process between the different states, however the basic requirements for initial licence issue are all similar.

Practical Flight Training and Examination

All require the applicant for a PPL to have gained between 40 and 50 hours of flight training (40 is the ICAO minimum) for the grant of a PPL. The FAA is the lowest at 40, with New Zealand requiring 50. EASA and the UK require 45 hours. These differences may not be significant since the average hours for completion of a PPL in most states is thought to be more than 50. When determining the number of hours needed for completion of a PPL course, student aptitude, weather conditions and the intensity within which the hours are flown are more significant than regulatory requirements.

The practical syllabus content is similar across all NAAs, although the CAA may wish to review individual content and exercises in more detail to ensure best practice is reflected.

All NAAs use a similar approach to administering the practical flight test – examiners are authorised by the NAA and fees vary depending on local supply and demand. A basic search of flight schools and examiner fees in the different states suggested that the range was between the equivalents of £200 and £400. The US and Irish examiner fees appear to be the most expensive (the US varies considerably by region) and South Africa probably the cheapest. Due to the requirement to conduct formal oral questioning of the candidate and review the applicant's licence application, the FAA practical test will often take more of the examiner's time than in other states.

Theoretical Knowledge Examination

ICAO Annex 1 sets the framework for theoretical knowledge requirements. The subjects required to be covered are common to all states, but the number of individual exam papers varies.

The following table gives an overview of how the TK examinations are organised and associated costs. Note all meet ICAO Annex 1 requirements.

[51] https://www.faa.gov/about/budget/aatf
[52] https://www.faa.gov/data_research/aviation_data_statistics/general_aviation/

FAA	Single exam of 60 questions (3 possible answers per Q), 2h30 for completion, 70% pass. $175 (£130) typical exam fee (paid to the exam administration contractor via the flight school/test centre). Most US flight schools can administer the online test. Test pass valid for 24 months.
CASA	Single exam of around 60 questions (3-5 answers per Q), 3h30, 70% pass mark. $191.66 AUS ($126.66 to the invigilator, $65 to CASA) (approx. £100 total).
DGAC	Two exams, normally taken together with a total of 120 questions (48 common, 72 aircraft category specific) 3h10, 75% pass mark. Tests taken at regional test centres with computer-based testing, €60 pays for up to four attempts at the exam. France condenses the Part-FCL syllabus into fewer questions than the UK and Ireland (as they are permitted to do under EASA rules).
CAA NZ	Six exam papers, can be taken online at various test centres, including many flight schools. 87 NZD (£43 per paper), approx. £258 in total (price taken from a sample of flight school websites).
CAA SA	Eight exam papers; taken online at test centres. Some flight schools are approved to do so. Total exams fees appear to be around 3000 ZAR (£145) – seems to vary slightly with external test centres. The basic SA CAA fee is 120 ZAR (£6) per exam paper.
IAA	Nine exam papers (similar structure to UK), taken at test centres in either Dublin or Cork, €160 for complete PPL set.
UK CAA	Nine exam papers. Can be taken at any ATO/DTO set up on the online exam system. £10 fee goes to the CAA for each exam (£90 total). Many ATOs charge a fee of around £25-£50 a paper to cover invigilator time.

TK exam delivery

All the NAAs have some sort of computer-based exam system. There is variation in the cost of taking PPL exams and whether that money goes to the NAA, the flight school or a third-party administrator. The DGAC and IAA appear to collect fees directly via regional exam centres. In the other states it is normally possible to take the exams at the host flight training organisation, which is more convenient for the candidate.

The IAA is probably the most limited – there are only two test locations and a small number of dates each month on which PPL exams can be taken. This may reflect the size of the market – it is not surprising that the states with a larger volume of pilots have more extensive exam systems.

The UK PPL online exam system is conceptually similar to other platforms that allow candidates to take exams at their training organisation. Whilst the UK system has received criticism for technical IT or implementation issues, it should ultimately deliver a similar level service to other systems.

Some states use third party exam administration systems, for example NZ appears to use 'Aspeq Assessment' for the platform and management of TK exams for licences. The IAA use a variation on LPLUS TestStudio. The FAA have used computer-based exam delivery systems since the 1980s and currently use PSI Services to deliver exams.

The CAA may wish to investigate whether any of the software systems or service provision used in other states would provide advantages over that currently used.

TK Exam papers

Within the EASA system, the number of exam papers (as opposed to subject areas) is not set by regulation. The DGAC and several other Member States condense the required subject areas into a smaller number of exams. Like the UK, the IAA has a separate paper for each subject.

The subject areas and learning objectives for the PPL are set by Part-FCL and associated AMC, so the level of learning required by a PPL student under all EASA states (and the UK) should be the same. It may be worth the CAA reviewing the TK questions of other EASA NAAs in more detail, to verify parity in practice.

The balance between a smaller number of longer exam papers vs. a larger number of shorter ones has been subject to debate in the past. It may not be an urgent consideration, however if the PPL TK syllabus or administration procedures are up for review again, the CAA may wish to consider the merits of consolidating exam papers at the same time as reviewing the technical content. However, the manner of delivery and the user experience for taking the exams is probably more significant than the number of individual papers.

When considering the future theoretical knowledge requirements for the UK PPL, there may merit in reviewing the technical content for the non-EASA states covered in this review. For example, the publicly available FAA questions are very similar (and sometimes the same) as those in the actual question bank.

It should be noted that whilst the FAA Theoretical Knowledge requirements at Private level are less extensive than under EASA, more emphasis is placed on oral examination by the examiner prior to the flight test.

In terms of the amount of theoretical knowledge required to pass the written exam, the FAA is probably the 'easiest', with the EASA and UK Part-FCL the most extensive. The other NAAs fall somewhere between the two. Note this is the subjective impression of the author based on practical experience and a brief review of the Australian and New Zealand requirements.

PPL application and fees

NAA	**Application Fee**[53]	**Approx. in £**[54]	**Application Method**
FAA	Free	-	Online via IACRA system / temporary certificate printed by examiner after successful flight test

[53] Fees taken from publicly available schemes and forms
[54] Conversions calculated on 3rd Feb 2022

CASA	$60 AUS	£32	Online via MyCASA or PDF form emailed or posted
DGAC	Pilot training card - €21 + €80 for PPL issue	£85	Online via SIGEBEL or may still be possible to email to a regional DSAC office.
NZ CAA	$230 NZ	£113	Application form emailed / posted to NZ Licensing.
SA CAA	580 ZAR for Student License, 750 ZAR for PPL	£65	Application form posted / emailed to SA CAA Licensing. South African now issue a credit card style licence with a readable bar code.
IAA	€250	£210	Application form emailed / posted to IAA Licensing. The IAA are currently developing the 'MySRS' system – which will may allow personnel to apply online in the future.
CAA	£196	-	Online via eLicensing. Traditional forms recently withdrawn.

Notes: Where an NAA issues some form of card or licence to trainee pilots, this is included. All licences are believed to be valid for life, except SA, which valid for 10 years before the licence document needs to be reissued.

5.2 The licence application process and systems

FAA

The FAA uses the online Integrated Airman Certification and Rating Application[55] ('IACRA') system to administer applications for most certificates and ratings. IACRA was introduced in 2003 and initially criticised as being slow and with a poor user interface[56]. It has gradually gained acceptance and currently seems to function well.

Of all the NAA systems, IACRA is probably the most integrated process for managing license applications and aircrew related data. This is not surprising given that the FAA has by far the largest pilot population and was probably first in the world to adopt an online licensing system.

The FAA encourage applicants to commence the IACRA application as soon as their instructor considers them ready for practical test. Most of the application is filled out prior to the practical test taking place. The IACRA application pulls together all the requirements (written exam, required flight

[55] https://iacra.faa.gov/IACRA/Default.aspx
[56] The author can attest to this, having first used it in 2007

hours etc) and is normally completed under the supervision of an instructor who is familiar with the applicant's training details.

On the day of the practical flight test, the examiner will spend some time checking the IACRA application and ensuring certain documents are present, such as the certificate confirming that the written exam has been passed. If the practical test is passed, this is recorded in IACRA and the licence application process begins. There is no requirement to send any physical documents or other supporting evidence to the FAA, unless specifically requested. The examiner will likely check the applicant's logbook during the administration of the test.

Compared to the UK, there is more of a role assigned to the flight examiner in terms of verifying that the applicant meets all the requirements for licence issue, rather than just assessing that the required standard is demonstrated during the flight test.

It is standard procedure to issue a Temporary Airman Certificate after a successful practical test for a licence or rating. This is done via the IACRA portal by the examiner during the post-test administration. Successful applicants can exercise full privileges as soon as the examiner has printed the certificate. The FAA then aim to issue a permanent certificate within 60-90 days (this is an historical figure, not necessary a service standard).

At the time of writing in early February, the FAA website states they are processing applications received in early December. A temporary certificate may be issued for up to 120 days. Historically there have been periods, for example during US Government 'shutdowns', where short term exemptions have been issued to allow temporary certificates to be valid for longer than 120 days.

DSAC

The DSAC use the online 'SIGEBEL' system – *Système Informatique de GEstion des Brevets et Licences*[57] to process licence applications. Once on the system, pilots can use other services as well such as uploading evidence of rating revalidation.

The user interface appears similar to that of the UK CAA 'eLicensing' system, although a side-by-side comparison of functionality was not undertaken. It appears to still be possible to apply by post or email to relevant DSAC regional office. The administrative process for EASA Part-FCL licences is appears similar to that in the UK. A standard turnaround time was not determined.

CASA

CASA use an online system called 'MyCASA'[58]. Currently it is still possible to apply using forms emailed to CASA, according to the CASA Annual Report 20-21, 32% of pilot licence applications were processed through the online system.

CASA publish monthly service delivery results. For the PPL, the target is 10 days. A review of 2021 suggests on average 75% of PPL applications are achieved in this period, with the average application taking 8 days[59].

Others

[57] https://www.ecologie.gouv.fr/mon-espace-pilote-sigebel
[58] https://my.casa.gov.au/
[59] https://www.casa.gov.au/about-us/reporting-and-accountability/service-standards-fees-and-statistics/service-delivery-statistics

NZ, SA and Ireland do not appear to have online application systems as such – applications are by email, post or in person.

New Zealand specifies a 10-day turnaround time for licence applications and according to the latest Annual Report, has achieved 100% compliance with this standard.

South Africa has a detailed 37-page service standard document listing turnaround times[60] for various applications. Pilot licences are specified as being 5 days if the applicant applies in person or 7 days if applying by post. Actual performance standards could not be determined, although some anecdotal evidence of difficulties during Covid was found via online GA community forums.

A published service standard could not be identified for Ireland, but subjectively the IAA licensing department seems efficient. Pre-covid a large proportion of applicants used the public counter service, similar to that available in the UK.

5.3 Approval of flight training organisations

The EASA Aircrew Regulation introduced the requirement for training towards a PPL and associated ratings to be conducted at an 'Approved Training Organisation' (ATO).

At the time, the ATO requirement was unpopular with the UK GA community, since it imposed a greater compliance burden on many GA flying schools. Previously it had only been necessary for flying schools training at PPL level to register as a training facility with the CAA.

Stakeholder feedback regarding the ATO requirement led to the adoption of the 'Declared Training Organisation' (DTO) concept at EASA, which is a sort of halfway house between the 'Registered Facility' arrangement and the ATO requirement. An applicant wishing to establish a flight training organisation for PPL level flying can simply 'declare' the nature of their organisation to the CAA. The CAA will review the declaration and follow up with the applicant if there are any non-compliances found and/or may audit against the DTO requirements in the future. There is no requirement for approval to commence training – the applicant is entitled to commence as soon as they have made a declaration in the approved manner to the CAA.

Outside of the EASA system, most other NAAs have adopted a 'Part-141' approval concept, like the FAA. Australia and South Africa require all training towards licences be conducted under a Part-141 organisation, whereas in the US and NZ it is optional at PPL level.

FAA

The FAA allows training towards licences and ratings without organisational approval. It is possible to apply for approval under Part-141, which allows certain licences and ratings to be achieved with less flight experience, provided the candidate follows the approved training course. The Part-141 approval process is managed regionally by the Flight Standards District Offices (FSDO).

IAA

EASA requirements (ie ATO and DTO) apply for Part-FCL training. For microlight aircraft, registration with the IAA is required – this appears similar to the pre-EASA Registered Training Facility (RTF) arrangement. The IAA charge €1000 for an ATO application and €350 for an RTF (the DTO is not in the scheme of charges but may be the same as the RTF). These are annual fees.

[60] Service Charter – Aviation Safety Operations

DGAC

EASA requirements apply for Part-FCL training. Fees for ATO approval by the DSAC were not established.

CASA

Australia requires training for PPL and higher licences to be conducted under a flight training certificate. This is issued under CASR Part 141. The application has similarities with the EASA / UK Aircrew Regulation process for ATOs. The application form seems relatively straightforward and appears to guide the applicant through the different sections step by step.

The 100-page manual[61] issued to inspectors to assess flight training certificate applications (which gives a range of compliance guidance) is publicly available to download for free. A template ATO[62] manual is also available. There does not appear to a fixed application fee - applications are reviewed at the CASA hourly rate of $160 AUD (£85).

CAA NZ

Training by independent instructors appears to be permitted at PPL level. NZ also has a Part-141 framework. Approval for Part-141 flight schools is charged at the hourly rate of $284 (£141).

SA CAA

South Africa requires training to be conducted at an ATO approved under Part-141. The requirements appear similar to that under the UK / EASA Aircrew Regulation. There is an application fee of 5,180 ZAR (£250) plus application review at the SA CAA hourly charge of 900 ZAR (£45).

UK CAA

Aircrew Regulation ATO/DTO requirements apply, initial ATO application at PPL level is £543 + £181/hour if additional approval review is required. £181 annual fee. The DTO declaration fee is £181 or £56 if the DTO has previously been an ATO (there is no longer a requirement to be an ATO to conduct PPL training).

Considerations

The UK CAA fees for training organisations are high in comparison to the other states, except for Ireland. For ATOs wishing to conduct commercial training or type ratings, the difference between the UK/Ireland and elsewhere becomes even greater.

However, since the introduction of the 'Declared Training Organisation' (DTO), there has been a significant reduction in the regulatory fees associated with setting up a flying school for PPL[63] level training.

It should be noted that nearly all licences and ratings in the FAA system can be obtained without the involvement of any registered or approved organisation, including commercial, instrument and instructor ratings. Although many flight schools choose to operate under Part-141 and promote the approval to customers, a large proportion of training also takes place outside of the Part-141 framework.

[61] CASR Part-141 Technical Assessor Handbook
[62] CASR Template Manual
[63] Also includes NPPL(A)/SSEA, LAPL and associated ratings

5.4 Revalidation[64] and other recurrent training requirements

ICAO Annex 1 does not specify in detail how the privileges to fly different classes of aircraft should be maintained. There is significant variation between the NAAs in terms of revalidation and/or recurrent training requirements. This review will largely focus on the arrangements for class ratings attached to the PPL.

Summary of requirements for class rating 'revalidation'	
FAA	Class ratings generally valid indefinitely (there are exceptions to this / type ratings are different). All privileges maintained by taking a biennial flight review in any aircraft the pilot is rated on.
CASA	Biennial flight review, specific to rating (so each rating needs to be reviewed separately).
DGAC	Part-FCL requirements apply.
CAA NZ	Flight review requirement similar to FAA.
CAA SA	According to SA Part-61, a PPL(A) holder must complete a 'revalidation check' 12 months after initial licence issue and subsequently every 24 months. Some other ratings (such as IR) must also be revalidated separately.
IAA	Part-FCL requirements apply. National licence versions are the same as the respective Part-FCL equivalents (ie National LAPL etc).
UK CAA	Part-FCL requirements apply. National licences are similar. Note the pre-JAR UK '5-13' experience requirement did not require flight with an instructor, only flight experience.

The FAA has the least restrictive requirements – for aircraft subject to class rating (for example 'Single Engine Land'), the only requirement is that the licence holder has completed a flight review within the last two years on any aircraft category that they are rated on – so in theory a flight review could be conducted in a helicopter and that would fulfil the requirement for operating an aeroplane.

There are exceptions to this with more complex aircraft subject to type rating or some aircraft with special recurrent training requirements.

If a pilot goes out of flight review validity, the only requirement is for the pilot to successfully complete another flight review. The flight review is not a test as such, but the instructor may decline to certify a flight review if they believe that the pilot is unsafe or should conduct further training. A Flight Review must consist of at least one hour of flight time and one hour of ground instruction – the content is not specified in detail and can be varied according to pilot and instructor preferences.

[64] The term 'revalidation' and/or 'renewal' and the distinction between the two is not universally used by NAAs. In this context it is used to indicate the general concept of how a pilot maintains/extends privileges to fly a particular class or type of aircraft.

For the FAA Instrument Rating, the currency requirement is to have conducted six instrument approaches in the last six months under IFR. If a pilot goes out of currency, they can re-establish by conducting simulated approaches with a safety pilot, however if the 6-month requirement has not been met for a further six months, the pilot must take an instrument proficiency check (IPC) with an instrument rated instructor. The IPC is similar in content to a Part-FCL IR proficiency check.

CASA and CAA NZ appear to be similar to the FAA for PPL and class ratings, although CASA requires a flight review by individual rating.

The SA CAA requirement appears more formal and is designated as a 'revalidation check'. Notably the requirement is initially one year after licence issue and then reverts to biennial thereafter.

As far as the author is aware, none of the NAAs outside of the EASA system have any formal experience requirements for maintaining privileges of class ratings – the flight review / competency check must be taken regardless of hours flown. 'Rolling validity' is generally not used, except for the FAA Instrument Rating.

5.5 Instrument Rating

The FAA Instrument rating is popular with GA pilots. Around 20% of private certificate holders in the US are thought to hold an Instrument Rating[65] – the exact equivalent figure in the UK is not known, however it is probably less than 10% when considering historical data.

Whilst the US operating environment may encourage more private IFR flight, a common reason stated for the increased uptake of the FAA IR is the comparatively lower theoretical knowledge requirements and a single written exam. The practical training requirements are similar.

Australia is the only non-EASA state that appears to have a form of specific instrument rating for GA pilots – the 'Private Instrument Rating' is a modular concept that starts with enroute IFR privileges and approaches can then be added by further endorsement. It may have been the inspiration for the European 'Enroute Instrument Rating' developed in the 2010s. It is not known how popular the Australian PIR is with pilots. South Africa and New Zealand offer the standard ICAO IR only. Ireland and France apply the relevant EASA provisions, which would include the Basic Instrument Rating.

The UK should look again at the subject of the ICAO IR for PPL holders – the FAA IR seems more accessible to GA pilots yet is still ICAO compliant. When reviewing the theoretical knowledge requirements, the CAA should review a cross section of states, including those in this review.

5.6 Sub-ICAO licences (including medicals)

All the NAAs issue licenses not in compliance with ICAO Annex 1 standards. This typically includes those for ultralight/microlight aircraft (that are outside the ICAO system) and medicals that do not meet Annex 1 standards. Such licenses are limited to the airspace of the relevant state, although agreements separate from ICAO do exist to allow some international travel.

There is large variation in the requirements between different states. For microlight aircraft, Ireland is probably closest to the UK system, albeit does not have a medical declaration option.

[65] This is a commonly quoted figure. The author checked the approximate accuracy by comparing the number of private certificate holders, commercial and ATP against the total number of IR holders and discounting the latter two categories – if anything 20% may be a low estimate. Holding an IR is much more common amongst GA pilots in the US.

Ireland

The IAA issue a PPL (Microlights) with either weight shift or three axis control systems ratings. This differs slightly from the UK which issues a Microlight rating that is then added to the NPPL (Aeroplanes). In practice the training requirements are similar to the UK. An Irish PPL(M) requires 30 hrs of flight training, the UK requirement is 25 hrs.

Ireland also requires a licence for foot-launched powered paragliders and similar aircraft, regardless of weight. This contrasts with the UK in which such aircraft when below 70 kgs do not require any form of licence or registration.

The IAA also issue licences that are essentially national equivalents of the EASA PPL and LAPL – they have the same syllabus but are issued under the Irish national legal system. This appears to be a way of dealing with legal interface issues between the EASA and non-EASA systems, rather than a new or different area of licensing policy.

Ireland requires a class 2 or LAPL medical for all flying. There is no medical declaration system in Ireland, so all pilots must hold either the EASA Class 2 or LAPL medical.

France

The French issue sub-ICAO licenses in the 'ULM' category – ULM encompasses aircraft that in the UK would be considered microlights (both flex wing and three axis), powered paragliders/parachutes, very light helicopters, gyroplanes and light balloons not subject to EASA regulation.

Historically the French ULM category has been one of the lightest regulatory frameworks in Europe for ultralight/microlight aircraft. There do not appear to be any minimum hours for the issue of a ULM licence, just training and competence as required / judged by the instructor in the relevant category of aircraft. The medical requirement appears similar to the pre-2016 UK NPPL GP medical – no medical exam as such but a certificate / sign off from a medical doctor (can be a GP) that they do not find any medical history reason to prevent flying[66].

The French ULM category currently extends up to 500 kgs – France only makes partial use of the EASA Basic Regulation 'opt-out' for aircraft up to 600 kgs. The French ULM category has a relatively high accident rate compared to similar categories in the UK and elsewhere[67] – however direct comparison is difficult since the ULM is a diverse collection of the aircraft types (for example it includes paramotors) so assumptions should not be made about why the accident rate appears to be high.

USA

The FAA issue the 'Sport Pilot' license in addition to the PPL. The Sport Licence was introduced in 2004 at the same time as the LSA category of aircraft and allows flight in aircraft up to 600 kgs MTOW. With the UK microlight category raised to 600 kgs, the Sport Licence is not dissimilar to a UK NPPL(A) with a Microlight Class Rating. The Sport Pilot Licence requires a minimum of 20 hours training.

[66] Some sources claimed no medical at all is required, the GP sign off may be a French ULM association member requirement rather than a legal one

[67] https://www.easa.europa.eu/sites/default/files/dfu/03%20-%20Final%20Report%2026%20Nov%2010.pdf

The license does have not formal ratings, but the different categories of aircraft within the LSA weight bracket must be logbook endorsed after appropriate training – these include airplane, weight-shift control, powered parachute, gyroplane, glider and lighter than air aircraft (small balloons).

The Sport Pilot license does not require a medical, just a valid US Driver's License. It is necessary to possess an actual driver's license, as well as meeting the associated medical standard.

The Sport licence is held by around 6,660[68] pilots, compared to around 160,000 ICAO PPL holders in the USA. Given that the Sport Pilot licence was introduced 18 years ago, this suggests that the uptake has been low compared to the conventional PPL. It is notable that despite the rise of LSA category aircraft, the GA fleet in the USA is still dominated by older legacy types such as the Cessna 152, 172 and Piper PA28. This may be down to a range of factors, such as the lower cost of maintenance and fuel in the USA compared to elsewhere.

The US also has the 'Recreational License', which was originally intended to be a 'steppingstone' licence, with various limitations compared to the standard PPL such as how far you can fly from the airport and with how many passengers may be carried. It appears to have fallen into disuse – statistics from the FAA suggest that in 2020 there were thought to be 105 active recreational pilot certificate holders in the US.

There is also has an unlicensed ultralight category – single seat aircraft with an empty weight of not more than 115 kgs do not require any pilot license to fly.

The standard medical for an FAA PPL is 'Class 3', a slightly less onerous standard than ICAO Class 2. There is sometimes debate about the ICAO status of the FAA class 3, although it is not radically different from the class 2 standard. Pre-JAR the UK also had a class 3 medical for PPLs in national legislation.

In 2017 the FAA introduced 'BasicMed' as an alternative to the traditional class 3 medical. This did not affect Sport Pilots operating on a driver's licence. Under BasicMed pilots still require a consultation with a licensed physician (rather than an AME) every four years and are limited to aircraft of 2730kgs MTOW and six passengers. Flight under IFR is permitted, although all operations are limited to an altitude of 18,000 ft. Individuals with mental health, neurological or cardiovascular issues still require an FAA 'Special Issuance' before flight. BasicMed requires that a medical certificate has been held at some point in the past (and not previously revoked or denied), so a new pilot is still required to obtain a medical certificate initially. Pilots are also required to take an online course every two years covering pilot health.

Australia

In Australia there are two non-ICAO licence options for aeroplanes:

- Recreational Pilots Licence (RPL) – allows flight of aircraft up to 1500 kgs MTOW; and
- Recreational Pilots Certificate (RPC) – allows flight up to 600 kgs MTOW.

The RPC is issued by Recreational Aviation Australia (RAAus)[69], a Part-149 'Aviation Recreational Organisation'. A medical declaration against the driver's license medical standard is required. This

[68] FAA estimated active airman statistics, December 2020
[69] https://www.raa.asn.au/

appears to be similar in standard to that of the UK Pilot Medical Declaration (PMD) and does not require any involvement from a medical professional.

The RPC requires 20 hours. The RPL requires 25 hours of flying instruction and is broadly similar to the LAPL(A) or UK NPPL(A) with SSEA[70] rating. The RPC appears closer to an NPPL(A) with microlight rating or a US Sport pilot licence.

For the PPL or RPL (as opposed to the RPC and RAAus declaration), there is the 'Basic' class 2 medical (below the ICAO Class 2 standard), based on the commercial driver's licence, and the Recreational Aviation Medical Practitioners Certificate, which is issued by a GP but equivalent to the private driver's licence standard, albeit with some disqualifying conditions that may be applied.

New Zealand

New Zealand issues the Microlight Certificate via the Recreational Aircraft Association of New Zealand[71], approved under the NZ Part-149 regime. The NZ Microlight Certificate requires 25hrs for the 'Intermediate' Certificate, which allows the holder to fly within 10 NM of the point of departure. With 40 hrs of instruction this restriction is lifted to 50 NM and becomes completely unrestricted with 45hrs. New Zealand has higher minimum flight training hours for microlights than other states.

The medical requirement for a microlight certificate is a declaration via a GP. Since April 2021 it has also been possible to fly on a PPL with a 'DL9 medical', essentially a commercial driver medical standard as you would need for trucks or buses.

South Africa

South Africa issues the 'National Pilot's Licence', to which ratings for three axis microlight, weight shift control microlight, light sport aircraft, gyroplane, hang glider or paraglider can be added. 25 hours flying instruction (35 for LSA) is required for the issue of a NPL in the desired category.

Notably South Africa appears to have separate LSA and three axis microlight categories for rating purposes, but this might just be a legacy of the LSA class being added later. A 'class 4' medical is required – this is a lower requirement than an ICAO class 2, however still requires examination by an AME. The class 4 is valid for five years if under the age of 40 and three years when over 40. South Africa does not have a medical declaration provision.

Reflections on sub-ICAO licences

The convergence between LSA type aircraft and traditional microlights is reflected in pilot licensing policy. The US, Australia, New Zealand and South Africa all issue some form of licence that potentially allows flight in aircraft up to 600kgs, whether that is branded as a 'microlight' licence or something else. 20-25 hours is a common minimum training requirement, with only NZ requiring significantly more. There is variation within the states as to how distinct the different aircraft/rating categories are and the requirements for moving between them. South Africa has a more granular system and more formal requirements by aircraft type and characteristics.

The IAA consulted in 2021 on whether to raise the microlight definition to 600 kgs and take advantage of the EASA Basic Regulation 'opt-out' for aircraft up to this weight. It is not clear what

[70] Simple Single Engine Aeroplane
[71] https://raanz.org.nz/wiki/pmwiki.php

the outcome of this will be, but if they do bring 600 kg aircraft under national regulation, it will probably be on a similar basis to the UK.

The French system stands apart from the others as it has a less formal training structure. The French have limited the ULM category to 500kgs, so many common LSA types with an MTOW between 500 and 600 kgs would fall under EASA regulations and need a Part-FCL PPL or LAPL to fly.

Medical requirements vary. Australia is probably closest to the UK in allowing a medical declaration for flight in LSA aircraft. Most others require some sort of GP sign off (not necessarily an examination) against the driver's licence standard. The US Basic Med requirements do seem complex and particularly for pilots below the age of 40 (for whom the class 3 is valid for five years), offers little reduction in interaction with a medical professional. That said, the author was impressed by the emphasis placed in the Basic Med policy on educating pilots regarding health issues.

The UK medical declaration is the most permissive out of all the states, since it extends well above the LSA MTOW limit and does not require any interaction with a medical professional.

6 Airworthiness

The UK has inherited the EASA framework for airworthiness. EASA Part-M was heavily criticised by the GA community when first applied in the mid-2000s. However, since the launch of EASA's GA Roadmap there have been many improvements, such as CS-STAN and Part-ML. There is a strategic choice to be made as to whether to continue alignment with EASA or adopt practice from elsewhere.

6.1 Maintenance of certified aircraft

This section will focus on maintenance and continued airworthiness requirements for certified GA aircraft, primarily up to 2730 kgs and not involved in commercial air transport.

A 'line by line' comparison of some details, such as the exact content of the NAA prescribed minimum inspection criteria has not been conducted – the focus is on higher level requirements such as organisational approval, responsibility for the maintenance schedule and policy around component overhaul, repairs and changes. France and Ireland will not be addressed since it is assumed they apply Part-ML in the same manner as the UK.

The US, NZ, SA and Australia (currently in transition) follow the same approximate structure of placing the basic maintenance requirements in a subpart to Part-91 (Operating Rules) and then the detail of maintenance procedures in Part-43.

FAA

The FAA requirements for private operations are contained in 14 CFR Part-91, Subpart E. Maintenance procedures, such as content of the Annual Inspection and use of FAA Form 337 for repairs and modifications are contained in Part-43. It is not clear why the 'high level' requirements are in Part-91 but the detail in Part-43 (rather than in a single regulation), but the arrangement is so longstanding that it likely makes no difference to stakeholders.

The FAA system has a reputation for being less complex than EASA. Some of this perception may be explained by the comparative ages of the two systems, however the FAA requirements for maintenance and continued airworthiness do appear more straightforward in several ways:

- There is little necessity for organisational approvals in GA maintenance – independent engineers or certifying staff can be used in most instances;

- The framework for 'continued airworthiness' does not use concepts such as the Airworthiness Review Certificate (ARC) or CAMO – so long as the aircraft retains a current annual inspection, remains in conformity with the type certificate and all applicable AD/limitations are complied with, the CofA remains valid;
- The repair and modification approval system appears easier to navigate[72]; and
- The licensing regime for aircraft mechanics is less complex.

FAA Part-91/43 vs Part-ML

For private operations under Part-91, aircraft must have an annual inspection. The necessary requirements for this are specified Part-43. If operating 'for hire'[73], including provision of the aircraft for instruction[74], the aircraft must have had either an annual or 100-hour inspection in the prior 100 hours.

Under Part-ML the 100-hour inspection is always required, regardless of operation. The earlier UK regime of the 'Light Aircraft Maintenance Programme' (LAMP) specified an inspection cycle of 50hrs, 150hrs and annual[75].

The FAA allow most maintenance and continuing airworthiness tasks/management on GA aircraft to be conducted by licensed engineers, without the need for approved organisations. For example, an FAA Airframe & Powerplant (A&P) mechanic with an inspection authorisation (IA) may sign off the annual on a GA aircraft, regardless of operational category.

Part-ML allows maintenance by independent certifying staff for non-commercial operations, but for commercial operations within the scope of Part-ML (for example commercial flight training organisations), a contract with a Part-CAO or CAMO organisation is required. The contracted organisation must also approve the maintenance programme, although it does not necessarily have to exceed the minimum inspection requirements specified by ML.

The Minimum Inspection Programme, which underpins the Aircraft Maintenance Programme (AMP) concept in ML, appears similar to the mandatory annual inspection items under Part-43. There is no FAA requirement for the maintenance programme to be approved, provided the requirements of Part-43 and/or mandatory airworthiness items are complied with.

During the development of Part-ML, there was clearly a view that some sort of organisational involvement was necessary for aircraft involved in commercial operations. The FAA does not apply such a requirement for Part-91 operations, including commercial operations (such as flight training) that may take place under Part-91.

Neither Part-43 or ML mandate the adherence to specified time between overhaul (TBO) periods unless life limited or specified as an airworthiness limitation.

[72] This is a subjective view since it is very hard to generalise in this area – it depends on the mod/repair being considered

[73] In this context 'for hire' might include renumerated flight instruction, when the student is not the owner/operator of the aircraft

[74] If an instructor/flight school is providing an aircraft for training, the requirement applies. However, it would not apply in the case of owners receiving training in their own aircraft

[75] There is sometimes a debate about the merits of 100/Annual vs 50/150/Annual, it depends on the utilisation rate of the aircraft as to which results in more maintenance activity being conducted.

New Zealand

The requirements are contained in NZ Part-91, sub-part G and NZ Part-43. For operations under Part-91, it is a requirement for aircraft to be maintained in accordance with a maintenance programme acceptable to the CAA NZ.

NZ publish an Advisory Circular (AC91-14[76]) which specifies acceptable means of compliance for developing a light aircraft programme up to 2730 kgs. A 'line by line' examination was not conducted, however it appears similar to ML requirements. The specified inspection intervals are 50hrs, 100hrs and Annual. The format of the AC is not dissimilar to the UK LAMP/LAMS document. Operation of components beyond TBO is permitted in some circumstances, requirements are described in AC43-5[77].

Aircraft are required to have a 'review of airworthiness' every 24 months or 12 months if operated operated for hire and reward. This may be completed by an individual with an inspection authorisation under NZ Part-66.

A Part-145 organisation is required for maintenance of aircraft above 5700 kgs when used for commercial air transport or adventure aviation (other than balloons).

Australia

Australia is in the process of transitioning from the Civil Aviation Regulations 1988 maintenance rules to a new version of Part-43 under the CASR 1998. The proposed Part-43 would take Australia much closer to the US and the other non-European states in terms of how the maintenance requirements are structured. It is essentially proposed to adopt the US Part-43, albeit with adaptation due to Australia having a Part-66 engineer licensing system. No significant difference from the FAA requirements could be identified.

The consultation material and public responses to the proposal for a Part-43 style system are available on the CASA website[78] – a selection of responses were reviewed. The adoption of US style requirements split opinion approximately 50/50 between support and those who either opposed or expressed no definite view. Supporters applauded the move towards simplicity and adoption of a well-understood system. Detractors (many of them maintenance organisations) expressed dismay at the apparent liberalisation of requirements and removal of the need for organisational approvals. Some criticisms of the proposals included:

- US Part-43 is an old regulation that the US system has grown up and matured with – deploying it in Australia may not generate the same outcomes;
- The US enforcement culture is different, and the FAA devote more resource to enforcement[79], which CASA would be unable to match;
- After migrating towards EASA style requirements in the past, it is 'U turn' by CASA; and
- It represents a lowering of standards and quality assurance.

CASA states they are "preparing new methods for oversight of Part 43 that will be more focussed on product-based safety outcomes and less reliant on organisation documentation and systems".

[76] https://www.aviation.govt.nz/rules/advisory-circulars/show/AC91-14
[77] https://www.aviation.govt.nz/rules/advisory-circulars/show/AC43-5
[78] https://consultation.casa.gov.au/regulatory-program/cd1812ss/
[79] It is not clear to what extent this is really the case.

Should the UK consider migrating towards FAA requirements in this area, it would be worth exploring the Australian experience and rationale. It may also be worth discussing with the FAA how they regard their own regulations at this time and the extent to which they remain satisfied with them.

South Africa

The requirements are contained in SA Part-91, subpart 9 and Part-43 of the Civil Aviation Regulations 2011. Aircraft must be maintained in accordance with a maintenance programme, as specified in SA-CATS 43[80] (essentially a technical regulation made under Part-43).

Part-43 requires that a maintenance programme is approved by the CAA, but CATS 43 includes a schedule for aircraft up to 5700 kgs MTOW that is considered approved, assuming no deviations. It appears similar to the others in substantive content and specifies 100 hrs and Annual inspections.

SA Part-43.02.2 appears to require most maintenance activity for certified aircraft to be conducted under the oversight of an Approved Maintenance Organisation (AMO), approved under SA Part-145. A detailed review of Part-145 requirements has not been undertaken, but anecdotally from researching the subject 'one-man' AMOs appear to be common in South Africa.

There does not appear to be a policy on component overhaul times other than manufacture recommendations must be followed.

Modifications and repairs

Some general research was conducted rather than a 'line-by-line' analysis of approval procedures for each state. Procedures tend to be similar on paper throughout the NAAs, although the UK/EASA requirements often involve a Part-21 design approval holder (or direct CAA/EASA approval) for changes, whereas other systems may designate/authorise individuals to conduct tasks such as reviewing and approving technical data for modifications or repairs.

It is often claimed by stakeholders that the FAA system is more straightforward to navigate. The author does not disagree with this belief, but it may partially come from a lack of understanding by aircraft owners/operators and airworthiness organisations of how the EASA process can be best deployed. For example, EASA CS-STAN[81] has made common mods and repairs more straightforward than before, but stakeholder knowledge of this may have lagged.

The breadth of the GA market and associated expertise is also much greater in the USA – this naturally facilitates the process of obtaining modifications (particularly those not subject to STC) and is likely to make them more cost effective. The US system is also more established, with more community knowledge of how to comply in practice. There may be merit in exploring the use of individual authorisations within the UK system to facilitate the acceptance of modifications not subject to STC or CS-STAN.

It is also noted that from around 2015, the UK effectively accepted FAA STCs on non-Part-21 (non-EASA at the time) aircraft without further showing. Having left the EASA system, the UK CAA should re-examine this issue.

[80] http://www.caa.co.za/Legal%20Documents/SACATS_2011.pdf
[81] EASA CS-STAN

6.2 Special airworthiness regimes

The term 'special airworthiness' refers in this context to policies and procedures for aircraft not subject to type certification under the ICAO framework. This broadly covers aircraft that have been modified from their original design for an experimental or practical purpose, microlight/LSA aircraft, amateur built aircraft and vintage/ex-military.

The applicable terminology varies considerably between the NAAs – an obvious example being the use of the term 'experimental'. In some states the 'experimental category' is used to designate a variety of aircraft not eligible for an ICAO certificate of airworthiness, whereas in others it refers to a specific category for flight testing of prototype aircraft. In the UK, the 'permit to fly' is used for nearly all aircraft outside the scope of the retained EU regulations which do not hold a certificate of airworthiness. The UK 'Experimental Category' is a specific regime for flight testing of prototype designs and is not a type of airworthiness certificate as such.

The US, Australia and New Zealand use the terms 'Restricted', 'Limited' and/or 'Experimental' when describing aircraft not holding a standard ICAO Certificate of Airworthiness. South Africa uses the term 'Authority to Fly' for all such aircraft. France and Ireland use EASA terminology for aircraft within the scope of European Regulations. For non-EASA aircraft Ireland uses the term 'permit to fly' and the French 'Restricted Certificate of airworthiness'[82]

Light Sport aircraft – FAA

The FAA deputed the 'Light Sport Aircraft'[83] (LSA) regime in 2004. The concept involved designing and manufacturing to consensus design and production standards for aircraft up to 600 kgs MTOW.

Formal type certification/approval is not required for LSA aircraft – the manufacturer presents a statement of compliance to the consensus standard. Manufacturers are not required to have an FAA production approval, but the standards include some production control requirements, such as a quality system. Aircraft are inspected by an FAA representative or airworthiness designee prior to issue of an individual certificate of airworthiness. LSA aircraft may be used for private flights, glider towing and flight training (including on a renumerated basis).

After several years of operation, the FAA assessed safety and compliance in the LSA segment. Adequate demonstration of compliance standards was identified as an issue, particularly with designs originating from outside the USA. As a result, the FAA strengthened oversight of the LSA category and introduced more inspections. The FAA appears to have allowed the sector to get itself 'up and running' in the mid-2000s with a relatively limited burden of compliance and then revisited with a stricter approach a few years later.

The FAA are currently in the advanced stages of developing revised rules for LSA and aircraft of similarly low MTOW. This may result in the adoption of the 'Light Personal Aircraft' (LPA) concept. This is part of the FAA's 'Modernization of Special Airworthiness Certification'[84] work. This will likely include some changes and to the LSA category. A formal notice of proposed rulemaking may be published later in 2022, possibly at AirVenture in late July[85]. The UK should review the FAA proposals when they become available.

[82] Certificat de Navigabilité Restreint d'Aéronef (CNRA)
[83] https://www.faa.gov/aircraft/gen_av/light_sport/
[84] EAA Article
[85] This has since been delayed, possibly to mid-2023

Despite the obvious advantages of the LSA sector, factory built LSA aircraft remain a relatively niche segment of US GA – the 2019 AOPA 'State of General Aviation'[86] report suggest that there are around 2,600 active factory LSAs in the US. In comparison there are around 130,000 conventional single engine piston aircraft.

An obvious explanation for the lack of uptake is the relatively high cost of new aircraft (including LSA), compared to conventional used aircraft – the average age of the America 'legacy' GA fleet is around 35-40 years old. The LSA category may not be particularly suited to the American GA consumer – relatively cheap fuel and infrastructure supports operations of legacy GA types, while elsewhere there has been more growth in 'grass roots' flying using smaller and lighter aircraft.

LSA and Microlight – Australia and New Zealand

Australia appears to have adopted the US LSA model shortly after its introduction. The model of regulations and oversight of the category is very similar. Australia also publishes a list of acceptable design codes for LSAs, including BCAR Section S.

Most LSAs in Australia are registered with RAAus. RAAus has a total of 3200 aircraft registered across Australia. This figure does include non-LSA aircraft, however information reviewed suggests around 2,000-2,500 are aircraft manufactured under the LSA framework. This would be a much higher proportion of the GA fleet compared to the USA.

The New Zealand LSA requirements are like the US and Australia, but they do require a production (not design) organisation approval for aircraft manufactured within New Zealand. New Zealand continues to use the term 'microlight', particularly for pilot licensing. The definition of a microlight and LSA are potentially the same in terms of MTOW, an LSA is essentially one that meets the LSA technical criteria. Both LSAs and microlights can be flown by microlight certificate holders.

LSA and Microlight – South Africa

South Africa does recognise the LSA category, but it does not exist as a discrete set of airworthiness requirements in the same way as the US. Factory built LSA aircraft fall under SA Part-24 'Airworthiness for non-type certified aircraft'. This includes provision for production aircraft, as well as amateur built and vintage. Part-24 allows a variety of internationally recognised design codes for small aircraft, including BCAR Section S.

The South African system appears closer to the UK model for regulating factory-built microlights – for example the term 'type approval' is used in a similar sense to the UK. The Microlight and Sport Aircraft Association of South Africa[87] is approved as an Aviation Recreational Organisation under SA Part-149 to support the airworthiness of non-type certificated (NTC) production aircraft up to the MTOW limit of the LSA category.

NTC aircraft are issued an 'authority to fly' (ATF), which is similar to the UK permit to fly. Production NTC aircraft are permitted to be used in commercial operations such as flight training, aerial survey, or crop spraying.

French ULM

France does not have an LSA category in national regulation – instead they have extended the limit of the French ULM/microlight category to 500 kgs MTOW. So LSA aircraft with a 600 kg MTOW must

[86] https://download.aopa.org/hr/Report_on_General_Aviation_Trends.pdf
[87] https://www.webo.directory/misasa/home.php

be certified under EASA. A detailed analysis of the French airworthiness system for ULM was not conducted, however it is essentially a declarative system that has little active involvement from the DGAC in terms of setting or overseeing design or production standards.

Microlights in Ireland

Ireland uses a similar microlight airworthiness system to that established in the UK. It is not yet clear whether they intend to take advantage of the EASA Basic Regulation 'opt-out', which would allow alignment with the revised 600 kg microlight category.

Amateur built aircraft

A detailed review of the airworthiness standards for amateur built aircraft was not conducted. The following is more a review of the roles that NAAs and other bodies fulfil in oversight of the aircraft construction process.

Airworthiness oversight of amateur built aircraft in the UK is essentially delegated to the LAA and BMAA (depending on the aircraft). The LAA and BMAA supervise the building (and sometimes design) of amateur built light aircraft as an end-to-end process, culminating in the recommendation for a permit to fly to be issued. Except for Ireland, which essentially follows the UK model, the extent of formal delegation to the LAA/BMAA in this area appears greater than in other states.

The French use a restricted certificate of airworthiness for amateur built aircraft. Oversight of amateur building is subcontracted by the DGAC to OSAC[88] (Organisme Secur Aviation Civile). Build projects are supervised in stages by OSAC inspectors and an annual airworthiness review must also be carried out on the aircraft. OSAC essentially recommend to the DSAC when satisfied the aircraft is eligible for a restricted CofA. There is a French Association for amateur builders (Federation RSA[89]), but their role does not appear formalised in regulation.

Amateur built aircraft in the USA are operated under the 'Experimental Category'. The main resource for amateur construction in the US is the Experimental Aircraft Association[90] (EAA). The EAA provide a network of 'technical counsellors' who support and supervise builds throughout the country. Whilst the FAA recognise the EAA's expertise and role in supporting safe outcomes in the segment, the EAA does not carry a formal delegation in the UK sense.

It is the FAA (usually via airworthiness designees) that completes the final inspection of the aircraft and determines whether the applicable requirements for the issue of an experimental certificate have been met. Stage inspections of the build by the FAA are possible, but not routine.

The use of the term 'experimental' is perhaps a misnomer – most amateur built aircraft in the US are built from kits of established design. Once an aircraft is issued a certificate, it enters a two-stage flight test programme, conducted by the builder. Notably amateur built aircraft are permitted to fly IFR in the US without further showing, provided they meet the Part-91 instrument equipage requirements.

Australia and NZ use a similar process to that of the Americans, with the Sport Aircraft Association of Australia[91] (or NZ) performing a similar role to that of the EAA. At the end of the build an 'authorised

[88] https://www.osac.aero/
[89] https://www.rsafrance.com/
[90] www.eaa.org
[91] https://saaa.asn.au/

person'[92] (AP) (or inspector in the case of NZ) inspects the aircraft and issues the initial certificate of airworthiness for flight testing. Until 1995 the CAA NZ directly oversaw the end-to-end build, including inspection of facilities and multiple stage inspections.

The South African process is similar to NZ and Australia, however stage inspections by an 'authorised person' appointed by the SA CAA appear to be a requirement. The EAA of South Africa[93] does hold an approval under SA Part-149, but this appears to be more a formalisation of their technical role and standards in the process rather than full delegation of responsibility in this area.

6.3 Vintage and ex-military aircraft (including commercial operations)

Ireland uses a similar model to that of the UK via the Light Aircraft Society for supporting the airworthiness of light aircraft without a type certificate holder. Operation of high-performance vintage and ex-military aircraft in Ireland is limited.

In the US, vintage and ex-military aircraft are typically operated in either the FAA restricted or experimental categories. The FAA issue such certificates on the recommendation of appointed airworthiness designees. Policy varies depending on the aircraft. Commercial operations are not normally permitted, other than type specific training.

Some ex-military aircraft are permitted to carry paying passengers under the 'Living History Flight Experience' exemption, first issued by the FAA in 1996. The exemption is conditional on various additional pilot training and oversight requirements.

The FAA 'Living History' policy was originally intended for non-profit organisations that maintain aircraft of historical significance, mainly those from WW2. However, in the 2000s the FAA allowed some expansion to commercial organisations with younger and higher performance aircraft. New applications were suspended for several years in 2011 while the FAA reviewed the operational and airworthiness requirements. The upshot of this review was a more defined scope and adoption of requirements similar to 14 CFR Part-135 (Commuter and on demand operations) certification for operators[94].

In Australia and New Zealand, the airworthiness of vintage and ex-military aircraft is delegated via Part-149 to the respective warbird associations. Such operations are quite a specialised area of policy, so the CAA may wish to further review this area in consultation with industry to determine whether there is anything to be gained from moving closer to the Australian/New Zealand requirements.

Passenger flights in vintage and ex-military aircraft are permitted under the 'Adventurous Aviation'[95] provisions in both Australia and New Zealand. Operators are issued an Adventure Aviation Certificate, not unlike an A to A AOC. South Africa also has a similar policy for such flights[96]. A detailed analysis of requirements and scope was not conducted, although the operational controls appear similar to that in the UK under SSAC. Like the UK regime, emphasis is placed on explaining the risks to participants.

[92] Authorised by CASA
[93] http://eaa.org.za/
[94] Living History Flight Experience Enhanced Oversight Document Information
[95] https://www.casa.gov.au/aircraft/sport-aviation/adventure-flight-safety-explained
[96] http://www.caa.co.za/GA_TGM/TGM%20for%20a%20Part%2096%20Approval%20Process%20220720.pdf

6.4 Licensing of Engineers

Ireland and the DGAC follow the EASA Part-66 system for engineering licensing. Australia, NZ and South Africa all have a similar Part-66 section within their equivalent regulations. The detail varies, with Australia probably closest to EASA Part-66 in terms of terminology and structure.

The FAA system is contained in 14 CFR Part-65, subpart D. The FAA model of engineer licensing stands apart from the others in terms of structure. Whilst all the other states require a variety of ratings such as A, B1, B3 etc, depending on the size and nature of the aircraft being maintained, the FAA requirements are much simpler with essentially an 'Airframe' rating and a 'Powerplant rating' (often referred to as FAA 'A&P' when combined). There is no requirement to add specific type ratings to the licence beyond that.

To certify the completion of tasks such as an Annual Inspection, an FAA 'inspection authorisation' is required on top of the basic A&P rating. The FAA also have the concept of a 'repairman certificate', which is specifically for individuals working under a Part-145 maintenance organisation but not holding an independent A&P rating.

The simplicity of the FAA system is partly due to age – the requirements have been in place for decades, whereas EASA Part-66 is a younger regulation with the almost inevitable additional specificity. It is not clear whether the difference has any influence on outcomes – certainly the EASA system (and those other states that have adopted similar requirements) places far more emphasis on training and certification for specific tasks or aircraft. This clearly involves more cost, since the applicant must pass more exams and have additional ratings added to the basic licence. The FAA system relies on a high-level requirement for engineers to be familiar and competent with the tasks they are undertaking.

Application Fees

The full breakdown of fees in this area would be complex. The fee for issue of a basic Part-66 or equivalent licence was taken as an indicative comparison:

UK CAA	£350 (basic Part-66)
FAA	Free
SA CAA	880 ZAR (£45)
CASA	$65 AUD (£37)
CAA NZ	$299 NZD (£160) (includes one category)
DGAC	Not determined
IAA	€234

The UK charges are high compared to other states. For example, it struck the author that to add airworthiness review privileges under Part-ML to a Part-66 licence (perhaps similar to an FAA Inspection Authorisation) is £924 under the current scheme of charges.

7 Delegation

7.1 FAA

The FAA generally do not delegate authority to organisations in the manner used in the UK or those states that have an Australian Part-149 concept. There are FAA delegations available to commercial organisations, but this is not at a system level and largely relates to airworthiness certification tasks.

The FAA mainly delegates authority to individuals – for example there are many FAA 'designees' in the airworthiness system with the power to issue, approval or authorise various functions on behalf of the FAA. FAA pilot licensing examiners also have the delegated authority to issue temporary certificates and privileges, after verifying that an applicant has met the applicable requirements. The FAA report that there over 8,200 designees (including flight examiners).

In a wider sense, the FAA recognise the role of the US EAA in the supervision of the amateur construction of light aircraft and other experimental types, insofar as the system of relatively light regulation would probably not function adequately without EAA involvement. But the EAA does not hold delegated authority in the sense that the LAA does, even if its influence on the process may be similar.

7.2 DGAC

The French Federation of ULM largely takes responsibility for standards in ULM flying – for example administers written tests and instructors. As far as could be determined, the ULM licence itself is still issued by the DSAC in the same way as PPL. With less formal requirements (for example no formal skills test to be reported to the NAA), there is less to meaningfully delegate.

The DGAC delegates/sub-contracts some engineering oversight to OSAC[97] (such as inspections on light aircraft), but that seems to be more on a more commercial basis.

7.3 Australia, NZ and South Africa

All three use the Part-149 framework for delegating various functions (or at least recognising the role of) to aviation recreational organisations. Part-149 essentially requires organisations to have an internal structure with an accountable manager position (or similar) and provisions for internal reporting and oversight of activities. It can be adapted depending on the scope of the organisation. The South African use of Part-149 seems less extensive, for example the issuing of licences and Authorities to Fly remains a CAA role.

Most of the recreational aviation organisations in Australia and New Zealand hold Part-149 approval to one degree or another. Almost full oversight of a particular segment can be delegated – for example aircraft within scope of Recreational Aviation Australia (RAAus) activities are registered with the organisation rather than the state. Pilots carry a certificate issued by RAAus rather than CASA. In some ways this has similarities with the pre-EASA BGA arrangement in the UK, although the BGA had no formal delegation of authority and gliding was essentially 'self-regulating'.

It is not clear what the practical implications would be of using a Part-149 approach compared to the current suite of delegations in the UK such as A8-26. Historically the UK has focused on the delegation of airworthiness oversight, although the BMAA take practical responsibility for most microlight pilot licensing issues as well. A joint CAA and community review could be undertaken to establish what the benefits might be.

One area of delegation used in Australia and New Zealand is the airworthiness of vintage and ex-military aircraft via the respective warbird associations. This appears to be long established in the respective states. Unlike the LAA in the UK, this delegation includes high performance types such as the Spitfire or P-51 Mustang.

[97] https://www.osac.aero/

The CAA did investigate such an arrangement with the Historic Aircraft Association in the UK, but the author's personal recollection of the exercise is that it would be quite an extensive project to make a reality. It would be necessary to conduct a thorough assessment of the costs, benefits, risks, industry views and the extent to which it would improve practical outcomes.

8 Administration and service delivery

It was difficult to get a sense of application volumes for licences and approvals. Not all the NAAs report statistics and there is no standardisation amongst those that do. As an example, the DSAC reports that in 2019 it processed 3,878 initial applications for PPL, LAPL and ULM licences[98]. CAA NZ reported around 6,734 licensing transactions in total (presumably of all categories, including ratings) in the 2018/19 financial year[99]. CASA appear to have issued around 4,000 initial pilot licences in the same period.

It seems reasonable to assume that application volumes are in proportion to the size of the community served, however clearly the more complex a system is (for example requiring more specific ratings, approvals etc) the greater the associated administrative burden will be.

The UK CAA's general approach to administering applications and service delivery does not appear significantly different to elsewhere. Where target turnaround times are published, they tend to be similar to the UK equivalents. The processing structures within the NAAs were not reviewed in detail, but the impression formed was that the UK CAA use a more centralised model than most other states. Licensing and airworthiness applications being processed within their respective departments seemed to be more the norm elsewhere, or regionally in the case with the FAA and DSAC.

Subjectively some application forms (for example CASA) seem more straightforward than the UK[100], however some of the UK complexity can be attributed to the JAR/EASA/post-EASA transitions and conversions. The FAA system may offer more reliable 'end-to-end' processing outcomes and prevention of incorrect or incomplete applications – this would have to be further investigated. The FAA's granting privileges in the field via examiners and airworthiness designees can clearly mitigate service delivery issues, even if it does place more time and onus on field designees to ensure that applications are correct.

The author did form a view that service delivery issues in other states are not perceived to be an issue to the degree they often are in the UK. There is no single obvious reason for this. Historically CAA performance has tended to go through periods of stability until hit by some external influence such as the introduction of Part-FCL or Brexit. The extent to which lessons can be learnt from elsewhere is not clear, but it is worth further discussion.

9 Concluding remarks

The report was commissioned in the context of the CAA's consultations (CAP1985 and CAP2146) regarding opportunities presented from leaving the EASA system. To that end, the author offers the following general remarks and observations about the current UK policy framework and making international comparisons:

[98] https://www.ecologie.gouv.fr/sites/default/files/rapport_securite_aerienne_2019_en_light.pdf p9
[99] https://www.aviation.govt.nz/assets/publications/annual-reports/caa-annual-report-2019.pdf p52
[100] Examples will be provided separately

1. The author believes that in general, the policy framework for UK GA in the nationally regulated sphere (that not subject to the retained EU law) compares favourably to most other states.
2. The ex-EASA sphere is a more complex question – it is not fair to judge the requirements inherited from EASA in the same way, since the UK did not have direct control over them. However, it should not be forgotten that there were many positive examples of UK influence at EASA, as well as outcomes from the system that were alleviations or liberalisations compared to the pre-EASA UK requirements. We now face the question of what to keep and what to dispose of.
3. The detail of safety outcomes has not really been addressed as part of this report. Overall accident data was available for the US, Australia, New Zealand and the UK – this suggests that all four are broadly 'acceptable' and certainly at a system level, there is no evidence that some of the lesser requirements in the US system have any impact on safety outcomes. The only state in the review that expressed concern about the GA accident rate was South Africa. There was not time to establish whether their accident rate was significantly out of line with the others, but a very 'face value' assessment suggests that it may be a bit higher.
4. When assessing individual areas of safety outcomes, it is important to ensure comparisons are fair and compare 'like with like'. It is not always possible to determine the effect of regulation on safety as opposed to other factors such as operating environment, attitudes or safety culture, but attempts should be made to do so in future work. It is important to focus on safety outcomes and challenge points of view based on historical familiarity or a belief that a standard is 'better' because it is higher or appears to give a higher degree of safety assurance.
5. In the Spring of 2021, the Department for Transport published a General Aviation Roadmap document. The Roadmap identified "establishing an international network for sharing best practice within aviation and GA" as a future priority. It is important that such sharing of best practice extends to the working policy level.
6. To achieve the underlying aspiration for improving the regulation of UK GA, the CAA and DfT need to make international comparisons and engagement part of the normal policy development process. It is only with a routine approach that comparisons will become more consistent and understood. Policy specialists in the CAA should maintain a good working knowledge of other regimes identified as being of interest.
7. The CAA needs to both lead and reflect international best practice in the regulation of GA. This will involve striking a balance between adopting practice from elsewhere and developing policy appropriate for the UK. This may not be a straightforward balance to strike in practice.
8. As an overarching principle, where the UK applies a more complex or onerous standard of regulation to that found in another major aviation state, this should have a strong justification. When the CAA consults publicly on changes, it should be the norm to include international comparisons, including any such justifications for applying a higher standard than found elsewhere.

9. The FAA obviously looms large in this discussion – the USA is by the far the largest GA state in the world and appears to be an environment in which GA thrives more than anywhere. The FAA regulate the largest GA community and with safety outcomes similar or slightly better than other states. With that in mind, where a state appears to apply a higher or more onerous standard than the FAA, the question must be asked as to whether this is really justified, particularly when considering a wider system context and not necessarily on individual merits or flaws.
10. Importing individual regulations directly from another system will not guarantee the same set of outcomes or experiences for stakeholders. A longer term and routine effort by the CAA to understand other systems will help navigate these issues and identify where it is appropriate (and where not) to adopt requirements or approaches from other states.
11. Subjectively there does seem to be less confusion about regulation in the non-European states – stability and longevity will tend to increase understanding and acceptance of requirements by stakeholders.
12. Some of the states reviewed clearly benefit from having a single and stable legislative basis that has remained largely unchanged for a long period of time. From the experience of the EASA/UK and Australia, trying to transition legal frameworks will likely cause confusion and upheaval, even if some changes may constitute improvements.
13. Poor experiences of service delivery tend to crowd out the positive outcomes on the policy front. It is in this area of service delivery that the CAA may compare less favourably with other states, even if that may be partly explained by factors outside the CAA's control.
14. The UK is a high charge environment compared to other states. This report is not a detailed examination of funding models, but the UK relies on user fees (and a very specific list of fees) more than most other states. Most transaction fees in the UK are higher than elsewhere by some margin, except for Ireland.
15. It is always important to look at the cost of compliance burdens overall since they are often far more significant than direct regulatory fees. International comparisons can often assist with this. Systems that require more approvals and evidence of compliance will generally impose more cost (time or otherwise) on stakeholders, particularly when requirements are first introduced. The EASA system did not adequately assess this reality at the outset in the 2000s and has spent the last 10 years unpicking it in the GA context. The author suspects this lesson has been well learnt by all those involved, however nonetheless it is worth remembering as the UK commences on its own rulemaking path.

10 Areas for further work

1. The fact that the UK is a comparatively high charge environment is well known. The author is not aware of the scope for this to change – it is as much a question of Government policy as it is for the CAA.
2. In the ICAO flight crew licensing area, a move towards FAA-like requirements (including the IR) should be considered. There is broad stakeholder appetite for simplification and the FAA system is established and well understood.

3. National flight crew licensing policy, such as UK provisions for flying microlight / LSA aircraft is broadly in line with practice elsewhere. It is more common to have a single licence that deals with aircraft up to approximately 600 kgs, which is slightly different from the UK NPPL(A) model. The French regime is the only one with significantly less regulation than the UK, but the author is sceptical that a move in this direction would be advisable or desired by the GA community.
4. The UK medical declaration process is more permissive than other states and should only be changed if there is compelling safety evidence to do so. This is one area in which the recent FAA BasicMed system strikes the author as overly complex – although the emphasis on pilot education around medical issues should be applauded and possibly considered in UK policy.
5. It may be worth further reviewing the FAA pilot licence application process (and others were appropriate) end-to-end to see if it offers any advantages in efficiency or increased compliance of applications (including the use of temporary licences).
6. There is a choice to be had regarding maintenance regulations – Part-ML has certainly brought the UK and EASA systems closer to FAA requirements, but there are still elements within ML (such as Part-CAO) that are not found in the US. The CASA decision to essentially adopt FAA Part-43 wholesale is notable and should not be ignored as a policy option in the UK.
7. Certification standards for GA aircraft outside the ICAO framework are generally in line with practice elsewhere, however the need for organisational approvals in the design and production of microlights/LSAs is not reflected in the US or Australia. The need for such approvals in the UK could be reviewed. The UK should also review the latest proposed ruleset for 'Special Airworthiness Certification' in the USA when it is published later in 2023.
8. The system for amateur construction of aircraft in the UK is well understood and seems generally accepted by stakeholders. Whilst the UK approach is different to elsewhere, the author sees no compelling reason to change, unless the GA community wishes to advocate for that.
9. The FAA are somewhat the outlier when it comes to the licensing of engineers, the US model is undoubtably simple compared to Part-66, however the industry appetite and practicalities for Part-66 changes would have to be considered in any reform work.
10. Policy and requirements around airworthiness for experimental, large vintage and ex-military aircraft is complex and beyond the detail of this report to really examine, no significant disparities with other states were identified though – again the US proposals would be worth reviewing when available.
11. The UK was relatively 'late to the party' in 2014 in allowing the paying public to fly in historic and ex-military aircraft, however the policy and requirements for such flights in the UK now appear similar to regimes elsewhere such as 'Adventure Aviation' or the FAA requirements (the comparative costs of approval have not been assessed).
12. The Australian and NZ delegation of airworthiness for ex-military aircraft could be revisited, but as with all delegation initiatives, common understanding of risks and benefits must be established between the CAA and the relevant community.

13. The ‘Part-149’ model of delegation to organisations is worthy of further scrutiny – but this should be outcome focused and in consultation with the GA community to establish what the practical advantages might be compared to existing structures. The Part-149 approach may be more ‘elegant’ than individual delegations and approvals, but it may not be worth a legislative and compliance reorganisation if there is little practical difference in outcomes.
14. The FAA use of individual delegations of authority should be further investigated, particularly in airworthiness.
15. The author is not aware of the likely format of UK legislation in the coming years; however, it is notable that South Africa, Australia and New Zealand use a similar basic structure and style to that of US 14 CFR (the FARs), which will already be familiar to many GA stakeholders in the UK. The UK may wish to consider such a style in the future.
16. The practice of using surveys to gather activity data and user satisfaction should be further investigated.

11 Resources and Source Material

11.1 General

- UK Approach to Recreational General Aviation Safety
- MITRE Report – CAA International Structures (2014)
- Regulatory Options for the European Light Aircraft (ELA1) (2010)
- CAA Scheme of Charges

11.2 Ireland

- IAA website
- Irish Light Aviation Society
- National Microlight Association of Ireland
- IAA Annual Report and Accounts (2019/20)
- Irish Aircraft Register
- IRISH AVIATION AUTHORITY (FEES) ORDER, 2015

11.3 France

- DGAC website
- DSAC online payment portal
- Federation Francais d’ULM
- FFPLUM – 2019 Microlight Regulation
- Federation RSA
- DSAC Activity Report 2019
- French Civil Aviation Authority – Building Tomorrow Sky
- Conseil national des fédérations aéronautiques et sportives

11.4 South Africa

- SA CAA website
- SA CAA Fees, Charges and Levies
- SA CAA Annual Reports 2018/19 and 2020/21
- SA CAA Service Charter – Aviation Safety Operations
- Civil Aviation Regulations 2011

- General Aviation Safety Strategy (South Africa)
- The utilization of Non-Type Certified Aircraft (NTCA) in South Africa
- Aeroclub of South Africa
- The Microlight & Sport Aircraft Association of South Africa
- Experimental Aircraft Association of South Africa

11.5 New Zealand

- CAA NZ website
- Civil Aviation Rules
- Fees, levies and charges
- CAA NZ Annual Reports 2018-2019 and 2020-2021
- CAA NZ Statement of Performance Expectations 2021-2022
- Flying New Zealand
- NZ Warbirds Association
- The Recreational Aircraft Association of New Zealand

11.6 Australia

- CASA website
- Civil Aviation (Fees) Regulations 1995
- CASA Annual Report 2020-21
- AOPA Australia
- Recreational Aviation Australia
- Sport Aircraft Association of Australia
- CASA Submission to the Senate Rural and Regional Affairs and Transport Legislation Committee's Inquiry into the current state of Australia's general aviation industry. (2021)
- BITRE Australian Aircraft Activity (2020)
- Bureau of Infrastructure and Transport Research Economics (BITRE) General Aviation Study (2017)
- Aviation Safety Review (2014)
- Federal Register of Legislation (CASR)

11.7 USA

- FAA website
- US Civil Airmen Statistics
- FAA Budget Estimates 2022
- FAA Aviation Safety Workforce Plan
- AOPA
- Experimental Aircraft Association
- State of General Aviation 2019 (AOPA)
- Title 14 CFR

12 NAA Network Questions

To enhance the report and provide general background, use was made of the 'NAA Network'. The Network consists of the USA, Australia, New Zealand and Canada. A series of questions were put to the group to improve understanding of how each state approaches the regulation of GA. Inevitably there was variation in how the questions were interpreted, but all answers offered insight into the different states.

12.1 Do you use a particular definition of GA for the purposes of defining, counting or regulating GA activities?

USA

The following regulated operations are considered GA activities:

- Title 14 Code of Federal Regulations (14 CFR) part 91: General operating and Flight Rules
- 14 CFR part 125: Certification and Operations: Airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more (but not for hire)
- 14 CFR part 133: Rotorcraft External Load Operations
- 14 CFR part 135: Operating Requirements: Commuter and on Demand Operations and Rules Governing Persons on Board Such Aircraft
- 14 CFR part 137: Agricultural Aircraft Operations

Aircraft operating under 14 CFR part 121 (Operating Requirements: Domestic, Flag, and Supplemental Operations) are excluded from the GA population/consideration.

Canada

Canada does not define GA in the Aeronautics Act or the Canadian Aviation Regulations. The scope of TCCA's General Aviation Safety Program is all recreational aircraft including aeroplanes, balloons, gliders, gyroplanes, helicopters, ultra-light aeroplanes that are: 1) not operated under CAR Part 7 (Commercial Air Services), 2) not a large aeroplane, a turbo-jet-powered aeroplane, or a turbine-powered pressurized aeroplane certificated for more than six passenger seats (CAR 604 - Private Operators). The scope of the GASP includes aircraft operated under CAR 406 (Flight Training Units).

Australia

The term 'general aviation' is not defined in the aviation legislation. Australia currently classifies General Aviation (GA) as covering a range of operations that are not commercial air transport services. This includes aerial work (such as agriculture, photography, surveying, search and rescue), instructional flying and recreational flying.

New Zealand

NZ has not defined General Aviation is primary legislation. However, in a way similar to Australia, we consider general aviation include a range of operations (private and commercial) other than those specified in Civil Aviation Rule Part 121 (Air Operations Large Aeroplanes),

and to include both recreational and commercial smaller aircraft operations. The types of operation considered general aviation include recreational flying, tourist flight operations, adventure aviation, agricultural operations, etc).

12.2 How Many GA pilots (of all aircraft categories) are thought to be active in your state?

USA

All totals are from our Active Pilots Summary. Active Pilot Total - 1,197,530, Commercial Pilot Total - 119,680, Flight Instructor Total - 122,880, Sport Pilot Total - 6,843, Recreational Pilot Total - 80. Due to the nature of the FAA's regulatory system and data collection, it is not possible to identify commercial pilot certificate holders who operate regularly in a GA environment.

Canada

Statistics before the COVID pandemic show around 30,000 GA pilots in Canada including all categories of aircraft – aeroplane, helicopter, gyroplane, ultra-light aeroplane, glider and balloon.

Australia

CASA does not track pilot licencing in relation to General Aviation (GA) activity/participation. Annual Pilot Licencing reported by CASA is based on pilot licences issued under CASR Part 61 who have a current medical at the end of each financial year. The pilots are counted only once in each licence category (aeroplane, helicopter, glider, and other), against the highest licence level of privileges their medical certificate permits them to use. The report we run annually reflects the number of pilots who are likely active, but not necessarily exercising the full privileges of their licence.

Pilot Licence data as of 31 March 2022 is attached in the worksheet titled 'Pilot data'. Note, a pilot is counted only once regardless of the number of categories of licences held; therefore, the total does not equal the sum of the licence categories above it.

New Zealand

Please see https://www.aviation.govt.nz/licensing-and-certification/operators/activity-statistics/ which provides information on the number of pilot licences, aircraft on the NZ register, etc.

12.3 How many GA aircraft are thought to be active in your state?

USA

Number of active U.S.-registered aircraft 12,500 lbs (5700 kgs) or less: 256,279 (out of 287,771 total aircraft).

Canada

As of 2021: 36,780 Canadian registered aircraft.

Australia

There are 14,889 aircraft 5700kg MTOW or less.

New Zealand

Please see https://www.aviation.govt.nz/licensing-and-certification/operators/activity-statistics/ which provides information on the number of pilot licences, aircraft on the NZ register, etc.

12.4 Approximately how many people work in a safety regulation role in your NAA?

USA

The FAA Aviation Safety Workforce Plan for 2021 to 2030, reported to Congress the following employee staffing levels: Flight Standards-5140, Aircraft Certification-1354. The Staffing Tool is used to forecast workforce needs based upon growth for the next 10 years. On average, planned hires and estimated losses equate to hiring 507 employees each year with 357 losses due to attrition.

The FAA Aviation Safety Workforce Plan can be found here: https://www.faa.gov/about/plansreports/aviation-safety-workforce-plan

Canada

1,411 employees: 601 in HQ and 810 regional.

Australia

As of the 27th of April 2022, in the Technical Aviation Divisions/Branches at CASA, there are 486 operative staff members. This includes all staff in 'Regulatory Oversight', 'National Operations and Standards' and 'Guidance, Transformation and Safety Systems' Divisions and 'Sport and Recreation' Branch. In the Regulatory Oversight Division there are 265 operative staff members. These staff members are directly involved in Australian safety regulation. These figures do not include staff from 'Corporate Services Division', 'Finance Branch', 'Legal, International and Regulatory Affairs Division' or the remainder of the 'Stakeholder Engagement Division.

New Zealand

The oversight functions of the CAA NZ and all corporate functions employ in c.250 FTEs. Of that there are two key operational groups who undertake much of the oversight of the NZ civil Aviation system. These two groups --- the Aviation Safety Group, and the Aeronautical Services and Infrastructure Group --- employ approximately 150FTEs. In addition, there are approximately 30 FTEs working in policy, legislative design, rules design, regulatory intervention design, operational policy and guidance, and international relations; and 15 FTEs working in intelligence and data analysis functions.

12.5 Within safety regulation, approximately how many people are dedicated to GA related regulation and how are these people organised?

USA

The FAA's Flight Standards Service has approximately 2,700 aviation professionals dedicated to GA related operations. Flight Standards Service is comprised of 4 functional offices, 3 of which deal with GA. They are the Office of General Aviation Safety Assurance, the Office of Safety Standards and the Office of Foundational Business. For a visual representation of the

Flight Standards Service, a current organizational chart can be found here: https://www.faa.gov/headquartersoffices/avs/fs-organization-chart

Canada

In HQ, 3 persons are dedicated in GA operations in General Flight Standards and working on the General Aviation Safety Program. Other departments within Flight Standards have employees working on GA operations. Their roles may not be exclusive to GA. Regional offices have also inspectors working on GA operations.

Australia

CASA personnel may be involved in both GA and non-GA activities, so we cannot provide an accurate answer regarding GA regulatory staff in this regard. The general aviation sector is a strong focus for CASA and both our Board and the government are looking to us identify opportunities to refine the regulatory framework in a way that supports productivity, innovation and competitiveness in the sector while maintaining safety. We have been developing a GA workplan that will help build a consolidated picture of all the activity we already have underway for general aviation and to help us prioritise where more effort needs to be focussed.

New Zealand

At CAA NZ, out groups are functionally organised: that is the operational groups undertake certification (organisations, products and services), licensing (people), or monitoring and inspections functions. There is no separation of roles by sector (i.e. general aviation or regular transport passenger operations, etc).

12.6 How does your NAA engage with the GA community?

USA

Every aviation professional in the Flight Standards Service has the ability to engage with the GA community.

The Safety Outreach Branch maintains the FAA Safety Team (FAASTeam), which has at least 1 FAASTeam member in each of the Flight Standards District Offices (FSDO) in the Office of General Aviation Safety Assurance. Each FAASTeam member interacts with a network of volunteer FAASTeam members who help promote GA safety in their geographic districts. The Safety Outreach Branch maintains the FAA Safety website (https://www.faasafety.gov) which provides a large catalogue of online aviation safety education courses, and incentives for taking those courses.

The FAA sponsors or participates in several major GA industry safety committees, such as the US Helicopter Safety Team and the General Aviation Joint Safety Committee. The FAA participates with large delegations to major aviation events such as InfoShare Conferences, EAA AirVenture (Oshkosh), Sun N' Fun Aerospace Expo, National Business Aviation Association, and Helicopter Association International's Heli-Expo.

Canada

TC engage primarily with the GA community through the General Aviation Safety Program (GASP). The primary mandate of the GASP is to reduce the total number of fatal accidents in general aviation and to broaden Transport Canada Civil Aviation's (TCCA) engagement with the general aviation community. This will be accomplished by but not limited to:
a) Engaging with general aviation organizations and associations and industry to find shared solutions to general aviation safety challenges;
b) Motivating behavior change to promote a stronger safety culture;
c) Promoting general aviation safety through promotional tools and educational materials, (i.e. posters, Take 5's, videos, website, social media, newsletters, magazines, etc.);
d) Establishing and maintaining a national program for the development and delivery of General Aviation Safety Seminars;
e) Developing and providing risk mitigation strategies (i.e. safety enhancements, best practice guidelines, etc.); and,
f) Encouraging a collaborative approach and maintain a visible presence with, and within, the general aviation community.

Australia

We engage in a range of ways, through formal consultation mechanisms, technical working groups, and more broadly through safety education seminars and programs. Information about each of these are available on our website: https://www.casa.gov.au/rules/changing-rules/consultation-industry-and-public; https://www.casa.gov.au/about-us/who-we-work/aviation-safety-advisory-panel, https://www.casa.gov.au/resources-and-education/education-and-training/aviation-safety-advisors. We also engage in many other ways such as through industry events and conferences, and one on one engagement as well as through industry bodies.

New Zealand

The CAA NZ uses a variety of engagement mechanisms (formal and informal) to engage with aviation sector. In 2005, the CAA estabished the Aviation Community Advisory Group to provide advice on a variety of issues (e.g., rules development, critical issues associated with the sector, etc). Please see: https://www.aviation.govt.nz/about-us/who-we-work-with/aviation-community-advisory-group/

12.7 Are any areas of GA regulation in your state covered by delegated authority to organisations or individuals? If so, has the model used proved effective?

USA

The FAA has delegated pilot and mechanic testing and examining authority to a large population of designees/designated examiners. The Designee Program Branch provides standardization guidance for all GA designees. Each designee is assigned to an FAA Flight Standards Office for oversight.
This arrangement has been proven to be effective. A few benefits include:
1. Allows the FAA to prioritize and focus on investigations, oversight, and surveillance;

2. Allows for timely service to GA stakeholders;
3. Allows for increased GA safety promotion.

Using designees for routine certification tasks also allows the FAA to focus its limited resources on safety critical certification issues, as well as new and novel technologies. The FAA may delegate to a qualified private person a matter related to issuing certificates, or related to the examination, testing, and inspection necessary to issue a certificate on behalf of the FAA. Certification of Aircraft include such functions involved with Engineering design, Manufacturing, Operations, and Maintenance. Certification of People include such functions as Medical Examinations, Pilots, Mechanics. Parachute Riggers, Dispatchers, and Knowledge Testing centers.

More information on FAA designees and delegated organizations (ODA) can be found on our web site: https://www.faa.gov/other_visit/aviation_industry/designees_delegations/ https://www.faa.gov/other_visit/aviation_industry/designees_delegations/delegated_organizations/

Canada

TCCA currently issues delegated authority to Pilot examiners for conducting GA Flight tests. (e.g. PPL, CPL, IFR, Multi engine), Authorized Persons for issuing temporary licensing privileges, Authorized examination Invigilators for invigilating Recreational types of examinations (currently also starting to authorize the invigilation of Commercial and IFR examinations) and Language assessors (for determining language levels). All of these programs have proven to be very effective.

Australia

Part 149 of the Civil Aviation Safety Regulations (CASR) and the associated Part 149 Manual of Standards facilities approved self-administering organisations being certificated to perform specified aviation administration functions.

New Zealand

Please see: https://www.aviation.govt.nz/rules/rule-part/show/149 NZ has a CAR Rule Part 149 Aviation Recreation Organisations Certification. The CAA is currently undertaking work with respect to how well organisations certificated under this Rule are discharging their responsibilities.

12.8 What fees are your GA community charged for licences/approvals?

USA

There is currently no fee associated with the application process or issuance of an airman certificate. There is a $2.00 fee for the replacement of the airman certificate. Generally, the FAA does not charge fees for services provided within the United States. However, designees may charge fees.

Canada

Fees for licensing application can range between $35-$100 CDN. Fees for services are published in our Canadian Aviation Regulations under CAR 104.01: https://lois-

laws.justice.gc.ca/eng/regulations/SOR-96-433/FullText.html#s-104.01 These fees have not been updated for nearly 25 years. TCCA is currently going through a Cost Recovery Project to update these fees.

Australia

CASA have more than 260 regulatory service fees and two types of charges - fixed fees (for pilot licences etc) and hourly rate charge ($160 for all technical services and $190 for services that only a senior officer with specific experience or qualification can provide - for applications for things such as an air operator's certificate) - see Civil Aviation Fees Regulations 1995 https://www.legislation.gov.au/Details/F2021C01184

New Zealand

Please see: https://www.aviation.govt.nz/about-us/what-we-do/how-we-are-funded/fees-levies-and-charges/

12.9 Is your NAA obliged by the state to recover the cost of processing applications or approvals from applicants?

USA

The FAA is authorized to charge user fees for airman and air agency services "provided to any entity obtaining services outside the United States." The authority for charging user fees is based on statutory language contained in Title 49 of the United States Code (49 U.S.C.) § 45301. Specific user fees allowed to be charged are specified in part 187 appendix A and Advisory Circular (AC) 187-1, Flight Standards Service Schedule of Charges Outside the United States. Any new user fees must first be approved by Congress and then established through the rulemaking process.

Established in 1970, the Airport and Airway Trust Fund, also known as the Aviation Trust Fund, helps finance the Federal Aviation Administration's (FAA) investments in the airport and airway system, such as construction and safety improvements at airports and technological upgrades to the air traffic control system, as well as FAA operations, such as providing air traffic control and conducting safety inspections.

For more information on FAA funding and budget, please visit this web page: https://www.faa.gov/about/budget/aatf

Canada

Fees for services are published in our Canadian Aviation Regulations under CAR 104.01: https://lois-laws.justice.gc.ca/eng/regulations/SOR-96-433/FullText.html#s-104.01 These fees have not been updated for nearly 25 years. TCCA is currently going through a Cost Recovery Project to update these fees.

Australia

Yes. Under the Australian Government Charging Framework, CASA is required to recover cost from industry. See attached link for more information: https://www.finance.gov.au/sites/default/files/2021-03/RMG-

302%20Australian%20Government%20Charging%20Framework_0_0.pdf and also the Civil Aviation Fees Regulations 1995.

New Zealand

In New Zealand, agencies like the CAA recover the majority of their operational costs from the sector they regulate. In our case, all oversight costs are recovered from the sector. The Authority is theoretically required to neither over or under-recover its operating costs (that is its levies, fees and charges are matched to its actual cost of operation).

12.10 Does your NAA have and/or publish any service levels for turnaround of applications for licences or approvals?

USA

For Airmen Certification, the temporary airman certificate that is issued to the applicant is valid for 120-day period. That information is printed on the actual temporary airman certificate, and the FAA publishes information on processing timelines on our web site: https://www.faa.gov/licenses_certificates/airmen_certification/

Canada

TCCA typically has a service level of 40 working days for any sort of licensing application. Some service levels are longer such as issuance of Air Operator Certificates. These levels are published here: https://tc.canada.ca/en/corporate-services/transparency/aviation-service-standards

Australia

Yes. The interim page can be found on the CASA web - Service delivery statistics | Civil Aviation Safety Authority (casa.gov.au). Table: Previous 12 months table, taken from the average performance from 1 Apr 2021 – 31 March 2022. Refer worksheet title ' Published Service Delivery'.

New Zealand

The Authority is required to issue a Service Charter by our primary legislation. Please see: https://www.aviation.govt.nz/about-us/what-we-do/service-charter/