SUBMISSION TO THE INDEPENDENT AVIATION SAFETY REVIEW PANEL
With particular relevance to Gliding activities in Australia

D. J. Llewellyn B.E. [redacted]

About the Author:
I am a professional aeronautical engineer, as well as the holder of a private pilot licence. I have been professionally involved in the Australian aviation industry for almost the whole of my working life, from my Graduation in 1964. I have held an Instrument of Appointment from CASA in the area of aircraft design (CAR 35) since 1974 – I retired from this activity in 2011 – and I still exercise an I of A from CASA in the area of aircraft type certification (CASR 21.009) via Seabird Aviation Australia. I was a member of the steering committee (Program Advisory Panel) for the CASA Review of Regulation 1996; and I was the industry chairman of the working party that developed CASR Part 21 – which has now enabled Australia to have a functional Bilateral Aviation Safety Agreement with the FAA. I made a submission to the Morris enquiry into the CAA, in 1993/94, as the chairman of the Queensland Aircraft Manufacturers Association. My CV is appended to this submission.

I am also a glider pilot, as well as a glider owner; and I hold a GFA glider maintenance authority. I could equally well operate a motor-glider outside the aegis of the GFA, but the benefits offered by GFA make it by far the preferable choice.

My first contact with Gliding occurred in about 1966, when I obtained a glider tug pilot authority, and commenced to tow gliders for the Sydney Technical College Gliding Club (now the Bathurst Soaring Club). I became an instructor for that club, and in the 1970s, the Regional Technical Officer (airworthiness) for the NSW Soaring Association. I designed a fatigue life extension for the L-13 Blanik glider (then the major 2-seat training glider in Australia) in 1979 and gained a supplemental type certificate for it (now STC SVA-542).

Pressure of my professional life caused me to drop out of gliding about 1992; and I have only recently returned to it, as a retirement occupation. Therefore, I may not be fully conversant with the latest developments in the relationship between the GFA and CASA; this may result in some of my remarks being at cross-purposes to those of the GFA management; however I believe I may be able to contribute some overall perspective that may assist the Review Panel.

CASA's Motive:

The fundamental principle of "If it ain't broke, don't fix it" is very apposite to any consideration of proposed changes to the regulation of gliding in Australia. I would suggest that the regulation by the GFA of gliding in Australia, in direct contrast to that of ultra-light aeroplanes by Recreational Aviation Australia, is very far from unsatisfactory, from any reasonable overall safety considerations. Certainly it needs to move with the times; that is an ongoing process, and my personal experience has always been that the GFA makes a genuine effort to work effectively with CASA to do so. The same cannot be said of RAA, and the two should not be tarred with the same brush.

If that is the case, what is CASA's motive for seeking to change the basis of regulation of gliding?

Firstly, CASA was jolted into belated recognition of its lack of adequate surveillance of the RAA, by the Carol Smith Case, which cited CASA as a defendant on the basis of negligence. That case was settled, primarily due to the precedent set in NSW by the judgement in the NSW DC 11 - Noel Campbell V Rodney Victor Hay (which established that flying in small single-engine recreational aircraft is an inherently dangerous recreational activity); however it caused CASA to realise that the RAA had been doing less than a satisfactory job – for at least a decade - in its area of responsibility, with the result that a substantial number of RAA aircraft were – and indeed still are - grounded or allowed to fly only at a reduced MTOW.

There has been, to my knowledge, no such deficiency on the part of GFA; however CASA's knee jerk also affected the GFA, quite unjustifiably in my view.
CASA's sensitivity to the Carol Smith Case (and any similar litigation) flows from CASA's liability under S. 8.2(c) of the Civil Aviation Act 1988:

8 Establishment of CASA

(1) An authority called the Civil Aviation Safety Authority is established by this subsection.
(2) CASA:
(a) is a body corporate with perpetual succession;
(b) shall have a seal; and
(c) may sue and be sued in its corporate name.

This exposure to litigation is diametrically opposite to the position of the FAA, which is protected by the U.S. Tort Claims Act. I am not aware of any other national aviation regulator that is as exposed to litigation as CASA. It is well-recognised within the Australian Aviation Law Association that CASA has the deep pockets in any litigation situation[1]. As a consequence, much of CASA's actions in recent years can be seen to be primarily directed towards reducing its liability. This is, I believe, the root cause of the behaviour that has resulted in the current dissatisfaction of the aviation industry with CASA.

This is the first problem that needs to be fixed.

A secondary cause is arguably the finding of the Morris enquiry, that CASA's function is primarily that of a policeman.

If Morris was correct, then CASA has no business to be both the drafter of legislation and its enforcer. The Police do NOT write the laws of the land; their job is solely enforcement. So it should be with CASA, if Morris's finding is accepted. Nothing will be fixed in Australian aviation until this contradiction is corrected. It may be necessary to separate the function of adjusting the regulations, from that of enforcing them; doing so would itself ease the liability issue caused by S8.2(c) of the Act. One or the other of these actions is necessary.

Returning to the GFA issue:

The GFA and the RAA are established on entirely different bases: The GFA, uniquely in Australia, works under an Instrument of Delegation from CASA (presumably originally under CAR 7 – which has now been superseded by CASR Part 11.260). RAA does NOT work this way; it functions solely under the conditions of the exemptions to the CARs as set out in CAO 95.55.*

**But similarly to the British Gliding Association.*

This difference between the GFA and the RAA is fundamental; but it also affects the potential liability of CASA for the actions of the functionaries under the two systems. I am not a legal expert, but it would seem to me that CASA must have a more direct liability for the actions of delegates, than the vicarious liability it may carry for the activities of the RAA. Therefore, the effect of S8.2(c) of the Civil Aviation Act is to pre-dispose CASA to get rid of its liabilities, especially where they arise from the actions of persons that are not under its direct control.

So it is evident that CASA would wish to shift the GFA into Part 149 of the CASRs, and use this to eliminate the structure of delegated authority by which GFA has successfully functioned for so long.

[1] "The liability of the regulating authority" (Chris Gee, QC – Paper delivered to the Australian Aviation Law Association, 1985). This anticipated the Civil Aviation Act 1988 by three years. One can only wonder whether there may have been a connection.

This has nothing whatever to do with whether or not GFA has been performing adequately; GFA may or may not be adversely affected by the change, but that does not concern CASA; it is only interested in limiting its liability. However the precedents of Noel Campbell V Rodney Victor Hay and a similar unsuccessful case against the Southern Tablelands Gliding Club have practically eliminated CASA's liability for the GFA, at least in NSW – and it can be expected that parallel legislation will apply in other States.

So the most fundamental reason for the change – reduction in CASA's liability- is really invalid.

A second reason for changing from CAO 95.55 to CASR Part 149, is the overall intent to supersede CAR 1988 by CASR 1998 – and in the process, to get rid of the third tier of legislation represented by the CAOs. These were objectives identified by the Program Advisory Panel of the Review of regulations in 1996, and they are still valid; however, it should be possible to make that change whilst retaining the essential basis for GFA's functioning, by moving the delegations from CAR 7 to CASR 11.260.

By this means, the necessary tidy-up of the regulations could be achieved, without destroying GFA's modus operandi.

GFA uses its delegations not to avoid complying with the regulations, but to implement an alternative means of compliance, better suited to the way gliding activities are conducted. This has been long-proven to work well; and it is amenable to voluntary labour. This contrasts with RAA, which has had a history in the past of failing to adequately comply with those regulations from which it is not exempted, as well as the terms of its agreement with CASA - and very possibly failing to fully understand - the evident consequences of those failures. CASA was forced to step in to rectify the situation and a new management team at RAA is scrambling to redress the situation. However, GFA has never been in a similar situation and action that was appropriate in the RAA case is not appropriate in the GFA case. Indeed, there is a strong argument to suggest that the application of measures designed to bring the lowest common denominator of management of disparate recreational flying groups into line with the appropriate regulations to all such groups is likely to be counter-productive.

One can see this by comparing how the two organisations handle airworthiness:
GFA aircraft have always had Certificates of Airworthiness, and Maintenance Releases issued annually against a specified inspection schedule. RAA aircraft have none of these things. GFA aircraft have always had tight control over aircraft weight and balance; RAA aircraft had no control of this until the recent shake-up, and is still wrestling with it. The GFA issues Airworthiness Directives. The RAA does nothing of the sort. The GFA insists on spin training for all glider pilots, because spinning is an inherent behaviour of fixed-wing aircraft. The RAA does its best to avoid the subject – though in fairness, the design standards for Ultralight aircraft have been criminally negligent in this regard; there are no aircraft available to the RAA that are suitable for spin training. The average RAA pilot would have to go to a gliding club to get spin training. (A small percentage do so).

The GFA system relies to a considerable degree on the club structure and peer pressure. This has been a very effective approach for pure gliders, because the clubs have a monopoly on the launching facilities, without which (and a suitable airfield) pure gliding flight cannot occur. The gradual move towards self-launching gliders does alter this, but GFA has addressed that quite sensibly and it does not threaten any real loss of control of safety. Times do change, and the organisations need to change with them. GFA is doing so voluntarily; the RAA is having to be forced to do so by CASA.

The RAA system is largely built around individuals receiving basic training and then operating outside any peer group, subject only to biennial flight reviews.

The GFA system is, by and large, a successful experiment in industry self-regulation. The RAA is equally, a failed experiment in industry self-administration, that needs major surgery. The two are chalk and cheese. Yet CASA is seeking to sweep them both into the same bucket, regardless – or so it appears.

What are the benefits to society from activities such as gliding?

Firstly, the freedom to engage in such activities (in a responsible manner) is seen as a fundamental freedom in most democratic societies. It is being considered only now, in China; authoritarian societies, especially militaristic ones, tend to prohibit any form of private aviation. Of course, Nazi Germany and the USSR both – very successfully - used gliders as the primary training means for their military pilots; the L-13 Blanik was designed for that purpose.

Gliding, by its very nature, is regional-centric rather than heavily-populated-area-centric and that it therefore promotes not only tourism but the development and retention of technical expertise in regional areas. Australia is recognised world-wide as a prime gliding area, with many international visitors every year coming here in the winter months for the Northern Hemisphere and carrying back good reports of this country.

Gliding is a highly-disciplined activity, and requires skill and concentration. Using the energy available in the atmosphere to keep an aircraft aloft, and fly cross-country demands this; glider pilots are contesting with nature; they are not rebelling against authority. I put both my sons through gliding to solo standard, before I let them take a vehicle on the roads, because it taught them how to use a sensitive machine within tight limits and to accept responsibility for their own safety, under circumstances that made this very obvious. As a result, they did not succumb to testosterone when they started driving.

In the 1970s and 1980s, gliding offered the most affordable way for a private individual to learn to fly and to enjoy the splendour of flight. The advent of computer games and of Ultralight aeroplanes changed that, and gliding shrank to a hard core of glider pilots who were mainly focussed on competition flying; and so the cost of gliding increased. There are signs now that this trend has flattened out. It remains to be seen whether CASA's heavy hand will now drive the activity to extinction.

An instructive analogy:

The overall philosophy of aviation regulation is missing two vital aspects – namely a clear definition of an attainable goal; and a comprehension of the mechanism of the dynamic feedback loop that exists between the regulator and the industry.

The Dynamic feedback loop:
There is a parallel between the response of the aviation industry to CASA's regulation of it, and the operation of a piece of machinery driven by an internal-combustion engine, regulated by a centrifugal governor (Watt governor).

The most critical adjustment of the piece of machinery is the tension of the governor spring. Too loose, and the machine will overspeed and destroy itself. Too tight, and the engine will stall and refuse to run at all. So it is between the regulator and the industry - CASA's function under S9 of the Civil Aviation Act 1988 should be, in effect, to adjust the governor spring – i.e. the regulations - so that the aviation industry functions to the best overall advantage of Australia.

The unattainable goal:

However, S9 of the Act lacks this element of balance; it allows CASA to act in only one direction, to increase safety. Perfect safety in aviation requires that no aircraft leaves the ground; thus CASA is

charged with the ultimate task of eliminating Australian aviation. Walter Tye (UK Air Registration Board) explained the need for balance, as far back as 1959. The ICAO safety manual sets finite safety targets (a probability of a catastrophic accident, not of zero, which is unattainable – but of one in 10^8 per flying hour, etc, which is attainable).

However, media sensationalism and its political response always act to drive the balance one way; what is missing is a recognition of the need for moderation in all things, including the drive for safety in aviation. There have been numerous attempts to insert a requirement to "Foster" aviation into the Act; these have always been unsuccessful, both here and in the U.S.A., because this is seen as being incompatible with the function of the safety regulator. It is surely even more incompatible with the vision of CASA's function as seen by Morris. Yet, balance there must be, or much better trains.

All it needs, is for the Act to explicitly specify the ICAO targets, instead of simply demanding "safety" without any constraint. The reference to international agreements in S.11 of the Act is not sufficiently explicit.

A second parallel with a Watt governor can be seen: If the governor on a machine is sluggish or "sticky" in its action – i.e. it acts with a delay, so its response is always lagging behind the action – the machine will "hunt". If the phase lag of the governor exceeds a certain limit, it will aggravate the hunting, so the system becomes dynamically unstable and destroys itself. Imagine what would happen if the cruise control on your car was always ten seconds behind the action.

A practical example of this is given by "free market regulation" of aircraft manufacture; unscrupulous manufacturers will seek a quick buck by compromising safety standards (we're already seeing this with some LSA imports). Other manufacturers will be forced to follow suit, or go out of business. There is a fall in prices, and a corresponding increase in demand, leading to a short-term "boom" in the market. Everybody is happy – for a while; then the accidents start, people become disenchanted, and the market collapses. The unscrupulous manufacturers, if they are smart, walk off with their pockets full. The scrupulous ones, whose products were not unsafe, have gone bankrupt. Spare parts are no longer available, because the manufacturers have been destroyed. The consequences are catastrophic – and completely unnecessary, which I find infuriating.

The introduction of Light Sports Aircraft looks very much like being a classic case of this. Regulation of LSA aircraft is by litigation, after the event, and it has too much phase lag to make for a stable industry. Type certification, however, acts before the event, and it therefore promotes stability – provided what it requires does not stifle the activity altogether. We saw a period of stable growth in Australia following the introduction of CAO 101.55. That has since been overtaken by the excesses of imported LSA aircraft. The need for a proper balance is obvious, and equally that it is lacking.

The regulation of aviation cannot be left to market pressures; it MUST be exercised "up front" in the interests of stability of the industry. A light regulatory hand "up front" is vastly preferable to a belated, heavy-handed response to an obvious problem. CASA's performance in this regard needs to be improved.

Clearly, the people in charge of the regulation of aviation safety in Australia have never studied control loop theory, or comprehended its relevance to aviation safety regulation, or the foregoing would have been clear to them long ago. Instead, they make changes in blind imitation of overseas practice, on the pretext that this is "following world's best practice". It isn't; overseas practice may not be suitable for Australia's industry. Actually, it's often merely a way for the CASA CEO to be seen to be doing something "constructive".

The appointment of the CASA CEO needs better guidelines; an ex-Skygod or an ex-military pilot is not necessarily the best way to select the CASA CEO.

It's surely about time we had a REAL industry regulator for the Australian aviation industry, with proper instructions in the Act, instead of the half-baked, amateur-led mess that is CASA. In the meantime, the GFA manages, unlike CASA, to act in a sufficiently timely manner that gliding is fairly immune to this sort of instability – though its ability to contend with LSA gliders is about to be tested.

D. J. Llewellyn
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