

SUBMISSION TO THE AVIATION SAFETY REGULATION REVIEW 2014

Dear Sirs

My name is Mike Cleaver. I hold a Commercial Pilot Licence issued in 1984, previously held an ATPL whilst I maintained a current Command Instrument Rating, and have allowed my flight instructor rating to lapse recently. I also fly gliders, balloons and aeroplanes registered by Recreational Aviation Australia, holding instructor ratings at the Senior Instructor and Examiner level for all of these. I also hold maintenance authorisations for gliders and balloons. My total aeronautical experience in all types is approximately 5000 hours, gained over the past 48 years since first gaining gliding and PPL qualifications in the UK through the Air Cadet movement.

I am currently the Secretary of the Australian Region of the Guild of Air Pilots and Air Navigators, and represent them on several aviation industry consultative committees including CASA's Standards Consultative Committee, though this is a personal submission separate from that sent in by the Guild.

From 1984 to 2008 I was employed by CASA and its predecessors, the final 15 years of that being the Sport & Recreational Aviation specialist in Standards Division, as as such was project officer for a number of regulatory Parts that are yet to be finalised – in particular Parts 103 (Sport & Recreational Aviation Operations), Part 149 (Recreational Aviation Administration Organisations) and Part 131 (non-Recreational Ballooning). The latter is a unique development in regulatory thinking in that it contains all aspects of the operation of balloons other than those conducted under the Australian Ballooning Federation – including maintenance, maintenance training, flight crew licensing, balloon operating rules and balloon operator certification rules. This effectively quarantines the rules that apply to balloon from those applicable to all other kinds of aircraft, in order to remove doubt as to what rules apply for these unique aircraft which fly according to a different set of physical principles: buoyancy rather than movement through the air to create lift. This reduces the complexity of both sets of rules whilst maintaining the common principles where they are relevant in common to balloons and other aircraft.

My work in the last 10 years of my career involved consultation with pilots, operators, maintainers and their respective organisations, as well as liaison with other officers within CASA and with legal drafting staff in both CASA and the Attorney-General's Department Office of Legislative Drafting and Publications (OLDP).

The points I wish to raise with the Review Panel are as follows:

- The nature of Aviation Regulation in Australia and elsewhere.
- The inordinate delays in developing the Civil Aviation Safety Regulations.
- Failures of the consultative process.
- Problems generated by the changes in legal drafting style and its incompatibility with safety principles.
- Adoption of space-based Communications, Navigation and Surveillance technology.
- Funding difficulties caused by Government policy and the separation of agencies.
- The model for funding and regulation of Sport and Recreational Aviation.
- Accident investigation methodology and indemnity of investigators.
- Management of locally-owned Certified and Registered aerodromes.

I trust that these views will make sense to the Review panel, and confirm my availability to expand on them should the panel wish any further information or background.

Yours sincerely

Mike Cleaver

The nature of aviation regulation in Australia and elsewhere.

Aviation is a highly complex and technical discipline. It is also international in its application, and a degree of convergence on the rules from one country to another is critical, particularly for international flights. Australia is lucky in being an island continent and a single country – though the different States within Australia are still able to regulate some aspects of intra-state travel and aerodrome planning rules that were not ceded to the Commonwealth in 1937, and this aspect creates some problems for parts of the industry that operate in more than one State. The interaction between State and Commonwealth regulatory enforcement agencies, including State and Commonwealth police, and the aviation industry is not uniform, though dedicated police air wings that are the aviation operations sections of the various forces can assist in having good knowledge of aviation regulation that sometimes the local copper who is obliged to attend an accident scene is sorely lacking.

Australian administrative law has developed since around 1970 into a complex system that would make the British Raj in India proud. There are now so many procedural rules governing not only the enforcement of the regulations but also any attempt to change them, that the task of maintaining an efficient working rule set is fraught with complications – many of them, counter-intuitively, set up to eliminate red tape in government.

Legal practice is largely about semantics – defining and using words in a standard way, challenging meanings and using restricted definitions that make it difficult for the layman to understand subtle differences in the language of the regulations so that words do not mean what they do in ordinary life and normally-synonymous terms cease to be so in law.

Further, the trend in Australian regulation drafting is to develop large and ever-increasing volumes of rules that defy public understanding and greatly complicate the task of the pilot or aviation operator. This is far removed from the original intention of the CASA Regulatory Reform Program to simplify the rules for greater understanding.

Simply put, in Australia we tend to try to make a rule about everything that leaves no room for interpretation or flexibility. This may be as a result of having a written Constitution and a cultural history derived from a penal colony where dissent and larrikinism are normally valued by society.

The rules of other countries are at times far simpler on the face of it to understand – New Zealand in particular has drafted its rules in a simple language and not tried to have a rule for everything, whilst allowing greater interpretation by “wise men” rather than having complex rules that are still intended to be universal in their application – a “one size fits all” approach that has failed badly in practice in Australia resulting in gross over-regulation

of the less complex areas of aviation such as private and personal recreational flying which have little effect on the public at large.

The rule set being adopted by the European Union is an extreme example of this trend, trying as it does to have a single rule set for 27 separate countries.

The inordinate delays in developing the Civil Aviation Safety Regulations.

It was over 20 years ago (1993) that the then Civil Aviation Authority began the current process of simplifying and reviewing the totality of aviation regulation with a project to validate and standardise the existing rules with a view to then simplifying them. The project was never completed, being rolled into the rewriting of the rules in a two-tier format of the Act and the Regulations supported by advisory material such as the Aeronautical Information Publication (which remains almost a fourth tier of legislative requirement rather than a general overview of the requirements for the benefit of pilots and overseas operators and regulators, including ICAO), plus syllabi and physical standards including design and process specifications.

Early work on the Regulatory Reform Program came to a grinding halt after the adoption in 1998 of CASR Parts 21 to 35, Airworthiness Design standards and certification, which harmonised Australia with the already-harmonising rules in Europe and North America. However since that time the rules for certification of Light Sport Aircraft have diverged, with the US Federal Aviation Administration adopting and adapting some very advanced Australian standards, Australia subsequently adopting those rules with modification to suit the Australian physical environment (such as an increased basic stall speed allowance for aeroplanes from 40 to 45 knots and the allowance of features excluded from the US rules).

It was originally intended to make the Sport and Recreational operating rules the next rule set to be developed – starting with simple rules for simple aircraft and then progressively extending the scope of the rules to more complex aircraft and greater inclusion of rules to protect the public as consumers of aviation services, rather than 'consenting adults in private' participants who were deemed to have informed themselves and accepted risk responsibility for themselves.

As time passed by there was a demand for other sections of the proposed rules to gain priority, each requiring more complex rule development and wider scope. New thinking on what the rules should contain or be designed to achieve inevitably led to delays, and these changes in priority meant that at times work that was only days or weeks from completion was abandoned, "parked" for picking up some time in the future when the background conditions had again changed and often with staff changes all corporate knowledge was lost, or so it seemed. By the time I retired from CASA in 2008 only 2 of the original project team for the Sport and Recreational Aviation Operations rules remained, after 12 years of work and virtually no significant changes in outcome since 2001. These rules are still "parked", and the Part 91 General Operating and Flight Rules project has become equally moribund, with no further industry and public consultation in the past 4 years bar a release of a preliminary legislative draft and the closing of industry opportunity to comment 2 years ago. I know work still continues in CASA, with one officer assigned to the project and the original project officer having retired due to ill health after dedicating the last 15 years of his career to the project.

I see a primary reason, besides a desire to include all manner of items in the rule set that could have been undertaken in more manageable chunks, being that the rules have picked up all sorts of previously advisory material that are unsuited to being regulated, and task fatigue in the industry in general, plus a desire to achieve everything in one hit and produce a *magnum opus* that is beyond the ken of any individual, making one size fit all. Of course, one size does NOT fit all, and the only subpart of Part 91 to be made thus far is a set of rules that was not even on the horizon when the project began in 1996, affecting perhaps 400 of Australia's 15000 aircraft that operate in upper airspace under new technology for communications, navigation and surveillance.

The projects have all suffered, first from being consulted to death with no decisions made by management; then being progressed in minute detail for 5 years under a new senior management regime with a changing legislative drafting style that was incompatible with the original aims of the reform project, and finally being issued for comment again to a bewildered industry that could not recognise the original agreed goals in the final product, and finally a re-working by replacement CASA staff and new legislative drafters who first had to re-learn the history of the projects and who were grossly under-resourced for the task. The resulting Flight Crew Licensing rules, passed into law in February 2013 for implementation in December, have now been delayed until September 2014 as a result of three factors: a burdensome and overly-prescriptive new rule set that imposed significant costs on industry; required changes to the rules being delayed whilst the government was in caretaker mode over the 2013 election, so that the more workable amended rules could not be made in time; and an inadequate and late industry education process.

The result is that around one half of proposed CASR Parts including the two major operations and maintenance suites of rules are still not in final form for exposure to the industry and the public, cost considerations have slowed the process, and everyone has lost faith in the final outcome being achievable.

In my "parting message" to colleagues when I retired, I suggested that we would have been far better off adopting the rules in smaller chunks when they were 98+% ready (not 80% as had been suggested by one former senior manager and universally rejected), and following up with a post-implementation review within 12 months when the practicalities had become apparent. I still hold to this view and commend it to the Review Panel.

Failures of the consultative process.

As I indicated above, the consultative process began in 1996 with at least quarterly meetings of CASA and industry team members. However this early enthusiasm continued too long, attempts to resolve all outstanding differences took priority over CASA making a decision and moving forward and rules were consulted to death. Later, consultation slowed to the point that there have not been meetings of some project areas for over 2 years at a time, the Standards Consultative Committee has degenerated to an annual briefing for industry on the progress (not) being achieved, and now industry feel like they have never been considered when the exposure drafts emerge in all their cumbersome framework. The lack of activity has developed a lack of momentum of its own that will be difficult to re-start, and re-start it must if a sound outcome is to be reached by the end of this decade.

Problems generated by the changes in legal drafting style and its incompatibility with safety principles.

The original intent was for the regulations to be expressed in simple plain language, be outcome-based so that the result was what was expressed in the rules and various means of achieving the result published as advisory material, consistent with the drafting style of the mid-1990s.

Subsequently the form of writing the rules changed. The current style requires each offence under the regulations to be addressed by a separate regulation, so that it takes three regulations to impose a requirement on a pilot, an owner and an operator of an aircraft. Each offence provision must contain its separate penalty provision. There are multiple definitions at all levels of the regulations, sometimes with a non-intuitive word being used for a particular meaning and other times the same word being used in different Parts of the regulations, or even different areas within the same Part, to have different applicability and meaning in different places. Attempts to avoid this have led to a large number of different phrases or words being used to imply only slightly-differing shades of meaning. The net result is anything but clear regulation.

In most areas of regulation generally, there is a process called "strict liability" which is intended to remove an obligation to prove criminal intent for minor offences where only a small penalty and no enduring criminality is intended. This is normally applied in the same manner as the "offside" rule in various football codes, where a player is penalised by giving the opposition a free kick or possession of the ball, when a player is unintentionally in a position where they affect play to the detriment of the opposition. In road regulations it is widely applied to parking and moving-traffic offences including excessive speed which do not of themselves constitute endangering the public or other motorists, treated by application of a fixed penalty notice to dismiss the event, and more often than not drivers who infringe in such a manner are undetected and unpunished.

However, when such offences are used by law enforcement agents in an unfair or vindictive manner, or as a means of achieving "detection compliance targets" they are rightly seen as not in the public interest. A further complication is that many strict liability offences are also accompanied by a reversed onus of proof, where an accused is responsible to show that they did NOT do whatever act they are accused of, rather than the more normal assumption of innocence unless and until proven guilty. This is highly unpopular among the aviation fraternity, particularly where it is applied to offences that require a degree of neglect, recklessness or failure to take obvious precautions rather than a simple mistake or omission, and where the prescribed penalty for a quite trivial offence is often significant.

I submit that the application of strict liability in current aviation regulations is grossly and detrimentally over-used, and offences created where the action, whilst not preferred as a means of achieving safe flight, does not actually impose any safety detriment in the situation where it is reported and penalised.

The greatest problem with this is that it militates against the development and application of the open and just culture that has been shown by Human Factors specialists to lead to the improvements in safety outcomes that are so much valued and desired in the aviation industry. The approach is quite simply contrary to safety objectives and modern thinking.

Adoption of space-based Communications, Navigation and Surveillance technology.

The use of satellite technology has emerged since about 1990 as a means of highly precise position-fixing on a global basis, aided by digital electronic capability to rapidly process and transmit information. Application of this technology to aviation is really a no-brainer, and the time-frame for adoption of this on a world-wide scale is consistent with advances in both safety and efficiency. The cost of the equipment, as in most things electronic, is subject to the rule that everything doubles in capacity and halves in price roughly every 18 months.

The currently mandated technology was developed for use in high speed high altitude operations, and for compatibility with surface movement radar developed as a result of the Tenerife accident in the early 1980s. It can be very costly and very demanding of power for smaller lighter aircraft, particularly antique aeroplanes and craft such as gliders and balloons that do not have an onboard electrical generating capacity. Both the range and the repeat frequency of transmissions are excessive for the requirements of general aviation even when operating in terminal areas where the larger heavier aircraft are manoeuvring more slowly and where visual separation is available to the general aviation environment and is often assigned by air traffic control in the more heavily trafficked areas.

This means that affordability and utility would be enhanced if the regulations could encourage the development of a 'lighter' version with less power output and consumption, and a lower capital and operating cost. The technology has been developed using public-band broadcast frequencies and low (0.5 watt) power, with better prediction software for collision alerting, by a company called FLARM in Switzerland, and widely adopted worldwide by gliders using a discrete frequency for each continent. It is readily capable of being switched to both transmit and receive on the 1090MHz frequency used by SSR equipment, and there would be a significant safety benefit in addition to the greater affordability of this equipment which has only slightly lower integrity than the full Mode S protocols and power consumption, if it could be allowed to be developed and used for general aviation. The FAA in the United States has recognised this with its development of a variant of the equipment operating via User Access Terminals on a different frequency but this has the disadvantage that the two types of equipment, though both visible to Air Traffic Control, are not necessarily visible to each other. However, it is urgent that recognition of this potential be given early enough that General Aviation may benefit before the post-2020 date when the equipment capability will be demanded in other than high-density Instrument Flight Rules operations.

Acknowledgement must be given to Airservices Australia for their adoption of this technology as an alternative and in stages of being mandated, though a large part of the timing was dictated by cost implications associated with the need to replace existing previous-generation equipment of very great capital replacement cost.

Funding difficulties caused by Government policy and the separation of agencies.

Many years ago all aviation regulation in Australia was conducted by a single entity called

the Department of Civil Aviation. It was well, even generously, funded by the Commonwealth as a part of vital national infrastructure. With the breakup of this monolith so as to separate the powers of safety investigations from operations and enforcement (necessary to identify safety hazards and unsafe practices emanating from within the bureaucracy and infrastructure), and later the separation of the service provision role that is able to raise capital in ways not open to government and to collect revenue to pay for that infrastructure, came an impoverishment of the regulatory and investigative arms of the service. Government policy has been to reduce its financial contribution and seek cost recovery from those who it licensed to operate both privately and commercially in the aviation environment, and to seek an "efficiency dividend" by way of ever-decreasing cost for ever-increasing regulatory control. (One can well imagine Sir Humphrey asking the Minister whether he wanted the Department to produce more regulations, or better regulations, or to have less people working to produce the same regulations – all of which are not possible according to commercial cost-efficiency principles).

Meanwhile, government has sought to reduce its financial contribution to aviation and to pass on more of the cost and administrative burden to the industry, either by licence fees for commercial operators and service-delivery fees for individual participants, or by reducing its contribution to those organisations that it allows to administer various bits of infrastructure (such as local councils who operate their local aerodrome with decreased or non-existent commonwealth and state assistance) or the co-operative organisations that administer standards and regulatory compliance for the sport and recreational sector in the face of increasing costs to employ staff for tasks that are beyond a volunteer organisation to carry out.

This increasing cost to be a part of the aviation fraternity is doubly worrying as it also disproportionately increases unit costs and put pressure on areas such as the aircraft maintenance industry to train and maintain its workforce, and to manage the upkeep of facilities. Even the availability of fuel in country and remote areas, or even the very existence of a suitable aviation fuel for piston-engined aircraft, can feed back to a reduction in activity in what is still very much an essential service in the more remote parts of Australia where health and emergency services play such an important part in the local communities and in society at large.

The model for funding and regulation of Sport and Recreational Aviation.

Many professional pilots and engineers began their careers (and still today many aspiring professionals get their start) in the Sport and Recreational aviation activities that are largely administered by volunteers or collectives who employ staff to a minimal level and provide efficient service to their members and those members' communities.

Since a Cabinet decision in 1984 (30 years ago) those organisations have been funded out of the aviation budget rather than a community grants-in-aid, with a contribution from the aviation administrative body (nowadays CASA) that initially covered 50% of the costs in their meeting CAA expectations to deliver safety monitoring, peer-reinforced compliance with the rules, setting of relevant standards for safety in the activity, and safety education of their members. Since around 1990 these have been managed through a contract where the payments were made in response to a list of tasks and more recently key performance indicators which, when I was the person in CAA/CASA carrying out the assessment of their effectiveness and recommending approval or otherwise of their operating systems, was

done on an objective view of their costs and outputs to maintain safety and audit their members' activities. However, the value of the CASA financial contribution has steadily declined over the past 15 or 20 years, and in recent years CASA first outsourced some of the oversight and development activities to a commercial organisation based on academia (a commercial offshoot of a University research project that was seeking a way to earn funding for its activities) and to seek to impose at least an equal cost impost on them to adopt safety management systems that may well have been in excess of their actual needs and not cognisant of the fact they had largely developed systems that, though not documented in the modern manner, were for the most part very effective in achieving safe outcomes and administering qualifications, though not able to report to CASA in some of the detail that CASA was seeking. Importantly, they were being asked for information that CASA was not able to provide for the pilots that operated under its umbrella, and being placed under significant pressure to develop costly and intrusive systems in a very tight time-frame under the threat that when Part 149 was created and brought into effect, they may not achieve the requested level of documentation and centralisation of statistical information, and hence not be recognised as capable of administering their traditional activities that were the reason for their existence.

There are some who suggest that the needs of the community would be better served by CASA taking back the responsibility for these kinds of operation. Such people, in my experience, either have an axe to grind against some person or historical event within the organisation, or else seek to go outside the bounds of the co-operative self-administering organisations for personal gain, or to escape the level of rigour that the peer pressure group is able to enforce as the norm. There is, in my view and experience, no way that CASA would have the desire or the capability to provide supervision and surveillance of these activities, and certainly not within anything like the cost or effectiveness of the organisations.

Recent administration by CASA has in some cases been excessively demanding, or more usually a sharp increase from what had been requested of the organisations in the more recent past, and stretched the ability of those organisations to the limit as far as being able to achieve the laid down targets. In at least one case, inactivity by an administering organisation over several years whilst using the pressure of having to respond to CASA's demands has placed extreme pressure on its members and dissatisfaction with the organisation whilst the management continued to ignore both CASA and its members, with highly unsatisfactory outcomes that only escaped CASA attention because they were not killing or maiming anyone.

Nevertheless, the self-administration model of delegated responsibility remains a world leader in effective safety management of recreational aviation, which could if anything be improved only by the regulatory regime working together with the organisations to develop greater trust and understanding.

Accident investigation methodology and indemnity of investigators.

I have long been critical of the inability, through reduced government funding, of the Australian Transport Safety Bureau to investigate significant fatal accidents in sport and recreational aviation, as well as many private general aviation occurrences. This in itself causes a decline in reporting rates of minor incidents, and hence a reduced ability to predict the future accident trend.

When the responsibility for investigation of such occurrences is increasingly thrust upon the organisations themselves, and in the past the capability to adequately determine causes has relied on members whose previous aviation accident investigation experience in the military or in supported sectors of the industry has allowed them to achieve respectable outcomes, there comes a point where a legal issue intervenes.

The Transport Safety Investigations Act, like its predecessors, granted immunity to the staff of the government agencies such as the ATSB against both civil action taken by third parties related to those involved in the accident, and their unwillingness in the case of fatal accidents to publish causality statements in the period before the release of a coroner's inquest statement. Furthermore, the inexperience of many coroners in aviation matters and the ability of legal representatives to influence coronial findings has led to incorrect conclusions, frivolous or inappropriate recommendations, and eventually a reduced level of safety because the initial findings of the investigators could not be acted upon.

It is essential that the indemnity granted to ATSB investigators be extended to those who are either undertaking these tasks on behalf of the ATSB because of their inability to allocate resources to the investigation, or the inability or inaction of government to properly fund those activities. I refer you in this particular instance to the testimony of Mr Drew McKinnie for a more personal account of the difficulties facing the safety industry.

Management of locally-owned Certified and Registered aerodromes.

Around 30 years ago the Commonwealth began to transfer the responsibility for aerodromes in country, regional and remote Australia to local authorities. Initially this was guaranteed by a financial assistance to maintain those community assets, as well as a requirement not to reduce the public amenity value of the infrastructure.

More recently the financial support has been withdrawn, and as the aerodromes reach a stage of requiring maintenance work to retain their serviceability, on occasions there has been incentive to close runways and other facilities, develop other community or commercial development on or in close proximity to the operational parts of the aerodrome, and in many cases to contract an outside organisation to collect user fees – in many cases resulting in a decline in use, actions by pilots to fail to report their presence or to conceal their true identity in order to avoid payment of these fees, and usually a significant loss of revenue to the local council in that the collection agency charged a collection fee at least equal to what it was remitting to the council.

Conversely, some local councils have rejected the fee-collection agencies, decided to provide the facilities on a community-benefit basis, and even encourage aviation activity or allow the local aviation community a significant say in the use and development of the aerodrome and encourage economic activity to their town by promoting and supporting aviation events.

However, not all councils have managed to carry out these activities without significant wastage, because they have not consulted their local aviation communities and have added inappropriate, costly and sometimes dangerous additions to the aerodrome surface.

Further, it seems that these local Councils are now being treated by CASA in a similar

manner to the way the recreational aviation organisations and many commercial aviation operators are treated. Often the only contact these councils have had with CASA is form their local aerodrome inspector, whose qualifications are basically those of surveyors and building inspectors. Most of those are not pilots and have no operational experience of aviation or the needs of aircraft operators.

In recent years many of the older aerodrome inspectors have retired or taken a voluntary redundancy, and in their stead CAS has recruited a number of newer aerodrome inspectors who have not been well trained in aviation matters and who see their role in compliance and enforcement in a far more antagonistic and less personal way than their predecessors. The fault lies entirely in my view in the lack of proper training given to these people, and the fact they have been encouraged at times to offer pronouncements on aviation operations well outside of their formal remit or their level of competence. At times this has almost amounted to intimidation of local Council staff, particularly where a new Council engineer or aerodrome manager, likewise without aviation experience, has taken over an aerodrome and been faced with an antagonistic audit experience coupled with an over-zealous and sometimes inaccurate interpretation of CASA manuals and standards which themselves may have been the product of recent revision with a one-size-fits-all approach that does not distinguish adequately between the level of infrastructure required at a major international airport or one served by high capacity jet public transport services and a small country town with a local aero club, runways able to accommodate the air ambulance and occasionally a business jet, and host once a year to an aviation event that brings people and money to the town.

The upcoming CASA Review of the CASR Part 139 Manual of Standards, as part of the post-implementation review of the regulatory Part, may address some of these concerns but it is important that CASA seeks to educate not only the pilot and maintainer community as to the appropriate standards for the conduct of aviation activity, but also to educate aerodrome operators away from the larger communities – places where the same staff design and build all the town facilities and are not aviation specialists – but also its own staff who are responsible to those communities for the provision and maintenance of a community facility, and are cognisant of the financial pressures on local government in providing such facilities which are often seen as large areas that are grossly under-utilised, rather than a community resource intended to cope with periods of high utilisation is some emergency situations that must be developed as a community asset.

Conclusion

While Australian aviation regulatory agencies in general do a very good job by world standards, there are areas where they could do better both by a less mean-spirited approach by the Commonwealth government, a more long-term assessment of the national and community benefit of aviation, and perhaps a greater emphasis on fostering and supporting aviation activity at all levels as occurs in a number of other countries.

I thank you for your attention and trust you will be able to achieve an improvement in both the economic status of aviation in Australia and the level of co-operation to achieve these goals that will be required of the Commonwealth regulatory agencies.

END