John Lyon [redacted]

**About the author:**
I am a Professional Airplane Pilot, Grade 1 Flight Instructor, CFI (RAAus and previously 'GA'), Chief Pilot (previously) and aviation business and operations manager. I have been flying since 1964 and professionally since 1990.
I am also a professional Certificate Engineer (mechanical and structural) and have many years experience in the design, certification and documentation of many construction industry systems including, but not limited to: attached and free-standing 'shelter' systems (many quite large, mainly in aluminium, many located in large public assembly areas), solar radiation control and shading systems, fire resisting construction systems, thermal and acoustic insulation systems and various acoustic products. My responsibilities have also extended to 'compliance' matters in all regards, which has included supervision of a range of testing including, but not limited to; cyclonic wind resistance, fire resistance ratings, flammability and spread of flame, thermal and acoustic performance. Additionally, my roles have involved the drafting and implementation of 'internal' engineering rules to be applied by the company's clients in the conduct of their business.
I have also been both company and 'industry' representative on many consultative committees including Standards Australia committees. I have also made technical submissions to such bodies on behalf of both the company and the industry representative organisation.

**Objectives of the review:**
Extract from the Minister's speech to The Parliament.

> *"The principal objectives of the review are to investigate:*
> *the structures, effectiveness and processes of all agencies involved in aviation safety;*
> *the relationship and interaction of those agencies with each other, as well as with the Department of Infrastructure and Regional Development (Infrastructure);*
> *the outcomes and direction of the regulatory reform process being undertaken by the Civil Aviation Safety Authority (CASA);*
> *the suitability of Australia's aviation safety related regulations when benchmarked against comparable overseas jurisdictions; and*
> *any other safety related matters."*

**Submission:**
The true purpose of any regulation or set of rule is to achieve two [2] objectives.
These are;

a minimum standard of performance and
the consistent achievement of that performance.

It seems that CASA and its predecessors have forgotten those purposes. That is if they ever knew, understood or appreciated them. If that were not the case the Aviation industry would not have the convoluted and conflicted rules that, in the main, it does and this 'reform' process would not have taken the time it has. This is also born out in the latest attempt at regulatory reform; viz: the proposed Part 61 whose introduction has had to be suspended, which has led to this Ministerial enquiry.

What then is required in any form of regulation or set of rules for the above objectives to be achieved?

1. for all 'players' to know, understand and appreciate the rules,
2. for the rules to be applied universally within the pre-existing legal system and
3. for the rules to conform to the needs of the society and its expectations.

What then is the present case?

**Uncertainty and the Reform Process:**
As stated above, the Civil Aviation industry has a set of rules that are convoluted and conflicted and that have produced confusion and uncertainty throughout the industry for years. Also, as stated above, this last attempt at reform by CASA further demonstrates this situation. This review has been brought about because large numbers of 'operators', both private and commercial, are unsure about the impact of the proposed rules on their operation from both an economic and a compliance aspect.

Much of this uncertainty arises from the discretionary authorities contained within the regulations and the lack of specificity, in many cases, within an individual 'rule'.
Proposed CASR 61.400 (concerning Biennial Flight Reviews) is an example of this uncertainty, both from the point of view of CASA's basic 'intent' and from the arcane nature of the language used.

It is my belief that virtually all (one cannot say 'none') of the people involved in Aviation are 'law abiders' and seek to 'do the right thing'. This uncertainty within the regulatory structure brings about cases of 'accidental non-compliance or unintended criminality' and I suggest is directly opposed to the achievement of consistent regulatory compliance.

For example;
CASR 11.055 deals with "Granting authorisations".
Sub-clause 1(A) states that CASA:

> "may grant the authorisation only if …….. (a) the application meets the criterion".
> Further sub-clauses of CASR 11.055(1)(A) expand on the authority of CASA in this regard, but refer to "other requirements".

What are these "other requirements"?
Why can't such requirements be specified in the rule, as is the case in many, if not most, other sets of Regulations (viz: the BCA and the ADR)?
Also, as most pilots and engineers are not lawyers there is confusion with regard to the use of the term "may". Does it mean "shall"?
Then there is sub-clause (e) which requires that granting the authorisation must;

> "not be likely to have an adverse effect on the safety of air navigation".

Just what does this actually mean?
What is "safety"?
Who decides?

This form of language is common throughout both the 'old' and the 'new / proposed' rules.

Then there is the matter of 'strict liability'.
Why is it necessary to have a notation at the foot of most (nearly all) regulations that states that:

> "an offence against regulation 'XYZ' is an offence of strict liability".

The lawyers will know the answer, but what relevance do such statements have to we 'mere mortals' (pilots, owners, operators, LAMEs and Engineers)? Reality, none; we're just trying to get on with our business or activity in a compliant manner. We just need to know what is required.

**Design Certification and Engineering:**
Additionally, other industry participants find that CASA's changes to the rules has destabilised their function within the industry and induced unreasonable delay. In this instance, I am referring to relatively recent changes to the rules as they relate to Design Engineers; previously known as CAR 35 Engineers.
Such people are fully Degree qualified Engineers whose operations have been negatively impacted upon without there being any real change in the level of 'safety' provided to the travelling public or industry participants.
Under the 'old' arrangements, CAR 35 Engineers could undertake design work for an aircraft and provide their certificate of compliance which provided the authority for the work to be undertaken and completed; just the same as any other professional Design Engineer.
In simplistic terms, based on my understanding of the above 'new' provisions, the changes referred to mean that the onus for the Design Standard itself is effectively transferred to the Aeronautical Design Engineer. No Design Engineer conducting business in other industries is placed in such a position.
Yes, the non-aeronautical Design Engineer has to certify that their design both complies with relevant Standards and that the design is adequate for the proposed purpose.
But, that general statement of 'adequacy' is bounded by 'professional practise'.
The Design Engineer does not become liable for the Design Standard.
He/she is required to apply 'best practise' as it then presently stands.
In cases where the conventional Standards do not apply, the Design Engineer can revert to basic engineering principles and practises or in some very rare cases (such as the Sydney Opera House) seek the input of recognised 'experts' to facilitate the design.
This does not protect the Design Engineer from a claim of negligence, but any claimant has to prove contributory negligence to succeed with a claim. A more detailed explanation and discussion of this aspect can be found in the submission of Mr Dafydd Llewellyn which has already been submitted on a non-confidential basis.

For example: a Structural/Civil Engineer can undertake the design of the structure for a building or other structure (bridge, revetment, culvert etc)and provide certification to the constructor for approval by the relevant, usually, local, authority. The approval process is an audit, as distinct from a 'check'. There are two [2] radically different things.
The local authority's (Council) process is to consider the builder's/constructor's application supported by the Engineer's certificate and be satisfied that the Standards referenced are relevant and that the design considerations

are fully met. This does NOT involve a detailed re-assessment of the detailed calculations that are involved with the design.

Additionally, I think it can be fairly said that the principal outcome of all 'good' engineering is the successful achievement of this nebulous concept called 'safety' or to be more precise, the design and construction of items that provide long term satisfactory service with little to no history of failure. 'Safety' is recognised in all industries as being paramount, but is achieved by the rational application of science and is not invested with any particular industry based mystique.

**Reform process and Regulatory Structure:**
Finally, there is the process of reform in its current evolution and the structure of the 'rules'.
This current 'reform' process has been going on since about 1990; that is some 23 years. As I recall matters 'we' first started talking about 'reform' (ie: change of format to mirror the FARs) in about 1964 and then again in the mid to late 1970's. An examination of the history of this 'current' reform process will reveal that a large number of 'projects' have been commenced with not many being finalised; proposed Parts 121, 135 and 91 spring to mind.
As I recall the situation, the purpose of the change (to mirror the FARs) was to give Australia a set of rules that would be:

1. consistent with overseas rules and best practice,
2. directly comparable with the FAR especially with regard to aircraft certification and
3. clear, concise and unambiguous and I would add, rational.

Throughout the history of this current reform process many of the proposed sets of rules have been criticised and objected to by industry and in the end, not proceeded with. From my recollection many, indeed most, of the objections to various proposals have been based in the same criticisms from industry as is and has been the case in this instance.

A further aspect of the 'reform' process was, in mirroring the FARs, to produce a 'set of rules' such that Australia had a bi-level legislative framework supplemented by Advisory Material. Such is the situation with the American 'rules'. That is an 'Act' and 'Regulations' plus Advisory Circulars. Incidentally that is the situation in most industries in Australia. For instance, in the Building and Construction Industry there are Acts of Parliament with Regulations made under the authority of those Acts; in the case of the Building and Construction Industry the BCA is the 'regulation'. In turn, the BCA is supported by Australian Standards referenced therein and further supported by a large 'library' of other technical papers and documentation. However, the Australian Standards thus referenced are not, of themselves, legislative documents; they are 'an acceptable means of compliance' which though not mandatory still form the basis of compliance, approval and the achievement of a satisfactory standard of construction.
This is also the regulatory situation for Aviation in the United States and I believe Great Briton.

Additionally, in 1996 as a part of the then review process (the PAP) all 'players' came to the decision that the 'two-tier approach' was the preferred model and that it would be the structure adopted going forward. This decision had the agreement of:

The Hon Mr Justice William Fisher AO,QC,BA,LLB (CASA Board Chairman),
The Hon Mr John Sharp (Minister for Transport and Regional Development),
Mr Darryl Williams AM QC (Attorney-General) and
Mr Leroy Keith (CASA Director).

It would appear that this decision has been reversed, but without proper authority.

**SUMMARY:**
Aviation is of critical importance to Australia, not least because of the vast size and population spread of our country. It provides a critical infrastructure facility and to be fully effective needs all its parts working productively.
Regulation is needed, but it needs to serve the industry and the industry's 'clients' (as is the case in all other industries) and provide a framework where compliance and satisfactory performance are co-achieved.
This can be done, but it needs rules, as stated above, that are:

Clear
Concise
Unambiguous and
Rational.

**FOOTNOTE:**

Below is a synoptic diagram of the range of activities provided to the Australian community by General Aviation and indeed also by the larger 'elements' of the industry.
Many of the 'operators' providing these services are located in the more remote parts of our country.
They need to be able to know how to 'comply' without unwarranted administrative load or uncertainty.
This is not being currently achieved.