



Submission to Aviation Safety Regulation Review 30 January 2014

This submission is made to the Aviation Safety Regulation Review (ASRR) by the Australian Mooney Pilots Association (AMPA). Background on AMPA is shown at the end of this paper.

As an organisation, AMPA does not have strong views on many aspects of the Civil Aviation Safety Authority (CASA). Some areas, such as the licensing and registration groups, do at least as good a job as their international counterparts and the aviation safety promotion team do a good job of producing educational materials and presenting safety seminars. Some of our members (who are Designated Aviation Medical Examiners) have concerns about the aero-medical group in CASA but we assume that individual DAMEs or their organisation will address these separately.

AMPA's main concern about CASA's activities is the approach taken to airworthiness and maintenance matters as it affects light aircraft (like Mooneys) in private operations. AMPA's comments on such matters are directed to the following of the objectives in the Terms of Reference of the ASRR :

- “the suitability of Australia’s safety related regulations when benchmarked against comparable overseas jurisdictions”; and
- “the outcomes and direction of the regulatory reform process being undertaken by the Civil Aviation Safety Authority”

1) CASA should enunciate an explicit strategy for how they regulate airworthiness matters for small private aircraft and only pursue projects that are consistent with it.

In recent years, CASA have initiated various airworthiness and maintenance projects including:

- a) NPRM 1101CS dated September 2011: Proposed Amendment to Civil Aviation Orders 100.5, 108.56, AD/RAD/43, AD/INST/8 Amdt 4 and AD/INST/9 Amdt 6 - Proposed Performance Standard for Aircraft Pressure Altimetry and Maintenance;
- b) Project CS12/04 dated January 2012: Project to review the engineering assumptions and conditions that allow engines to run beyond the manufacturers recommended overhaul period under the current CASA AD/ENG/4 Amendment 11 - Piston Engine Continuing Airworthiness Requirements; and
- c) DP1205CS dated September 2012: Ageing Aircraft Management Plan - To increase awareness and education in relation to ageing aircraft issues.

Projects of this kind appear on the CASA website from time to time in a random and unpredictable manner. They do not appear to originate from any international precedent, nor do they follow from any published strategy or policy in relation to regulation of private aircraft. Instead, they appear to be the product of “bright ideas” by individuals within CASA’s airworthiness and maintenance groups who appear to have the freedom (and budget) to pursue such ideas. Given that VH-registered aircraft account for a tiny proportion of the worldwide fleet of small private aircraft, we do not believe that it makes any sense for CASA to seek to “lead the world” in defining what is, and is not, required to maintain such aircraft in an airworthy condition.

There is no explicit statement that we are aware of that describes CASA’s strategy for regulating airworthiness matters for small private aircraft. We believe that, at very least, the ASRR should ask CASA to explain the regulatory framework that it applies to small private aircraft and how the above initiatives fit within an overall strategy. If they can do so, then that framework and strategy should be published as it is not obvious to the owners and operators of such aircraft.

Such a strategy should be more than just “motherhood statements” about safety but should include a specific policy framework against which future project initiatives can be judged. We believe that CASA’s primary focus should be on protecting fare-paying passengers and that such a strategy should not include developing uniquely Australian airworthiness & maintenance regulations, programs and practices to apply to private aircraft operations.

2) *CASA should revoke all “uniquely Australian” maintenance requirements that apply to aircraft manufactured in the USA and Europe and rely on the regulators in these countries to determine what maintenance is, and is not, required for such aircraft.*

All too often CASA projects (e.g. NPRM1101CS and the consequent changes to CAO 100.5) result in the creation of uniquely Australian regulations. This particular project now means that IFR aircraft in Australia are required, amongst other things, to regularly have their fuel tanks drained in order to recalibrate the panel fuel gauges. There is no such requirement for repetitive recalibration of such gauges under FAA regulations, as such maintenance is generally done “as required”. Since the method prescribed by CASA does not allow for alternative means of compliance (e.g. validation of tank gauge indications using onboard fuel flow meters) this requirement is, for many owners, a complete waste of time and money.

AMPA had made a submission on this matter that asked CASA whether they had conducted a cost/benefit analysis to determine whether the incremental safety benefit of these additional maintenance requirements outweighed the additional costs of such testing. Since CASA had asserted that inaccurate gauges were “contributing factors to running out of fuel in flight”, the submission had asked whether CASA had evaluated (based on analysis of BASI records) the role that faulty fuel gauges played in past fuel

exhaustion incidents. CASA have not responded to these aspects of the original submission or to subsequent email follow-ups.

AMPA's own review of BASI reports suggested that most fuel exhaustion incidents result from pilot error (i.e. confusion about what fuel is on board and flying without adequate reserves) and could find no reference to faulty or inaccurate fuel gauges being significant causes of such incidents. In the absence of any response from CASA, we can only conclude that this project has resulted in another uniquely Australian maintenance requirement that imposes additional costs on Australian owner/operators for no significant safety benefit.

Another project (e.g. CS 12/04) appeared on the website two years ago and remains there. This project description said that some of the engineering assumptions that permitted aircraft engines to be operated "on condition" were no longer valid but provided no supporting evidence for this assertion. The implications of such a project are very significant for owners of private aircraft (since the majority of engines in private aircraft worldwide are likely to operate "on condition") but there has been nothing further published by CASA since the project was established over two years ago. It has created uncertainty for owners for no good reason.

3) *CASA should not regulate the airworthiness of small private aircraft using the same framework as it uses for airline and commercial operations.*

CASA are in the process of harmonising Australian regulations with those of EASA. Why the EASA framework should have been preferred over that of the FAA is unclear to most in the Industry, so it would be helpful if the ASRR were to ask CASA to publicly explain and justify this decision.

The rewrite of the regulations seeks to cover small private aircraft under the same framework (albeit with exemptions) as that applied to commercial activities e.g.:

- DP1206SS, DP1207SS and DP1208SS dated December 2012: Airworthiness Reviews for Non-RPT Aircraft – Options for Introduction of an Airworthiness Review for Aircraft Not Authorised for Regular Public Transport (RPT) Operations.

Since the majority of small private aircraft were built in the USA, they have maintenance schedules that we designed to be applied within an FAA framework. "Sweeping" such aircraft into a different regulatory framework significantly increases the uncertainty about what maintenance is, and is not, required.

4) *CASA discussion papers are often so poorly written as to discourage the majority of industry participants from reading them, let alone responding.*

We would also suggest that the ARSS should briefly review the discussion papers issued by CASA in relation to these matters (particularly DPs1206-08). They are lengthy, repetitive and wordy. This places unreasonable demands on most aviation industry participants (e.g. type associations like AMPA that rely on voluntary labour and/or

individual owner/operators) to review such turgid documents. In future, we believe that CASA should be required to produce plain English summaries of such documents.

5) *CASA should adopt FAA regulations (and practices) as the basis for regulating airworthiness and maintenance matters for private VH aircraft*

Since the vast majority of light GA aircraft on the Australian register were manufactured in the USA, we believe that Australia should adopt FAA regulations and administer those using organisational structures and methods modelled on those of the FAA.

To take the Mooney aircraft fleet as an example, more than 90% of the worldwide fleet is based in the USA and only about 2% is on the Australian register. There is no justification for Australian registered aircraft requiring more (or less) maintenance than the same aircraft on the US register since there is no evidence that accident rates for small private aircraft are any different in Australia from what they are in the USA.

The FAA and the manufacturer have extensive data on the operational history of those US aircraft which operate in a greater range of environmental conditions (Arctic as well as desert and tropics) than prevail in Australia. The manufacturer and the FAA work together to determine what maintenance owner/operators are required to do out of the many things that any such manufacturer “recommends”. If further testing/maintenance is necessary in future, then we would expect the FAA to conduct the appropriate analysis and to issue an AD to that effect which should then automatically apply to our Australian aircraft. This works for the other 90+% of the fleet and we believe that is the right approach for our Mooney aircraft in Australia.

The relative proportions in the USA and Australia are little different for other popular GA types like Cessna, Piper and Beechcraft. Given the very small amount of data available to CASA (compared to the FAA) it makes no sense for CASA to require any maintenance that is over and above that required by the FAA. Yet there are many “uniquely Australian” maintenance requirements (e.g. the fuel tank calibration referred to above) where CASA does just that.

In the 2003-06 period, CASA had a clear policy that the maintenance required for instruments and avionics in IFR aircraft should be consistent with FAA practice. That policy is explained in Regulatory Impact Statement #312 and Airworthiness Bulletin 02-003 Issue 2. The logic of CASA’s 2003-06 statements on this matter remain sound and CASA should not have deviated from it without explanation or justification.

CASA should introduce the FAA concept of “minor modifications” into Australian regulations and eliminate the present requirement to obtain an Engineering Order (EO) to do minor work.

FAA regulations distinguish between “major modifications” and “minor modifications” and the latter are subject to much less onerous approval processes in the USA. Australian regulations make no such distinction with the result that expensive EOs are required in

order to do very minor work on an aircraft. When one of our members aircraft was transferred from the US to the Australian register, it was required to have an assigned altitude indicator fitted (itself an anachronism that is uniquely Australian) in order to qualify as an IFR aircraft. In order to cut a small hole in an existing metal plate to install this indicator, the LAME was required to obtain an EO at a cost to the owner of \$431. To require an EO for trivial work is a quirk of the Australian regulations that clearly adds to the cost of operating Australian aircraft with no safety benefit and should be abolished.

6) *CASA should be required to publish hard evidence to justify assertions made when initiating new projects.*

In some recent projects, CASA have made assertions to justify their actions without providing any hard evidence to back them up. One example is the case referred to above where CASA documents claim that inaccurate fuel gauges are “contributing factors to running out of fuel in flight”.

Another example is the Ageing Aircraft Management Plan (AAMP) that is described in DP1205CS dated September 2012. AMPA should say at the outset that it has no problem with the educational aspects of this project that encourage LAMEs and owner/operators to “take a closer look” at potential maintenance issues with older aircraft.

However, AMPA did not agree with many of the dramatic assertions made in the discussion paper about the extent of maintenance issues in the Australian small aircraft fleet and their likely causes. For example, the AAMP discussion paper, presentation and E-learning package said that :

- 8,700 aircraft (out of a fleet of 14,000 non-AOC aircraft) are “potentially of concern” due to ageing; and that
- “Australia does have an ageing aircraft problem, and that this problem is primarily associated with General Aviation (GA)”.

The AAMP did not state what methodology had been used to arrive at the numerical estimate and what evidence there was to validate it. Elsewhere the AAMP contradicts its own assertions by (rightly) saying that “there is not the availability of data to accurately determine the extent to which ageing issues affect the GA fleet and individual aircraft”.

AMPA’s response to the AAMP (to which it has, to date, had no response) said that:

1. CASA has not produced any proper analysis (e.g. of BASI records) to demonstrate that air safety is being compromised by the age of General Aviation aircraft on the Australian register, or that current systems of maintenance are failing to identify and rectify problems before incidents occur;
2. AMPA believes that many of the examples that have been attributed to “ageing aircraft” are in fact examples of insufficient and inadequate maintenance. One of the examples presented as part of the AAMP showed a Mooney that appears to have extensive corrosion of the tubular steel frame. This is a known issue that is already

addressed by a long-standing Airworthiness Directive (AD) – applying in both the USA and Australia – that requires regular inspections of the frame in older Mooneys. The focus in this case should have been on whether the operator and LAME had met their obligations under the AD and why the corrosion had not been discovered earlier;

3. the AAMP has proven nothing more than that average GA aircraft in Australia is old and that certain aircraft have been found (usually in the course of regular inspections) to have age-related problems such as corrosion. This, in itself, is not evidence of an ageing aircraft “problem” since such instances are usually examples of the present inspection system working as intended. Ageing is only a “problem” if there are a significant number of aircraft in the GA fleet with undetected issues that would present a threat to air safety; and that
4. there is insufficient data to determine the true extent of ageing “problems” within the GA fleet in Australia and that CASA should put some effort into gathering statistically valid data (as opposed to anecdotal) on the actual condition of a sample of aircraft in the Australian fleet. AMPA evaluated maintenance data (as it related to Mooney aircraft) that were publicly available from CASA’s own website and reported results that were inconsistent with CASA’s assertions. It suggested that CASA should conduct more in-depth analysis of the data at its disposal and publish the results.

AMPA believes that it was irresponsible of CASA to have published such assertions about older aircraft without any hard evidence to back them up. These assertions were picked up in the mainstream press and created an impression in the community that there are age-related “problems” with almost two-thirds of the GA fleet and that older aircraft are potentially unsafe. AMPA does not accept that CASA’s assertions were valid in relation to the Mooney fleet in Australia and suspects that the same is true of the Australian fleet overall.

7) *CASA should adjust its future messaging to recognise that airworthiness is a joint responsibility of the operator and the LAME – not just the former.*

In recent years, CASA have repeated over and over again the mantra that it is operators who are responsible for the continuing airworthiness of their aircraft. While AMPA agrees that operators must be prepared to take responsibility for the airworthiness of their aircraft, it is potentially dangerous for CASA to base regulations on the fiction that they are competent to do this on their own.

The recent papers dated December 2012 entitled “Airworthiness Reviews for Non-RPT Aircraft” (DP1206SS, DP1207SS and DP1208SS) present options that include requiring operators to certify to the continuing airworthiness of their aircraft. This arises as a consequence of “harmonising” Australian regulations with those of EASA and presents owner certification as a cheaper alternative to employing a CAMO (Continuing Airworthiness Maintenance Organisation) to sign off on the work done by LAMEs.

AMPA believes that the regulations (and CASA messaging) should recognise that:

- a) Australian maintenance regulations are complex and the vast majority of private operators do not have the technical or regulatory knowledge to make such decisions on their own;
- b) In practice, LAMEs and operators must work together to ensure that required maintenance is done and that maintenance that is recommended by the manufacturer is done if it is necessary;
- c) there is no apparent safety benefit from requiring that CAMOs become involved with maintenance of small private aircraft. CAMOs are unlikely to have the expertise and resources to properly evaluate maintenance programs and variations thereto for the many small aircraft types on the Australian register; and
- d) requiring the operator to certify the continuing airworthiness of an aircraft would be a bureaucratic exercise that contributed nothing to the safety of small aircraft and may have unintended negative consequences. By diluting their accountability, it could encourage the small minority of unscrupulous LAMEs to do even less to ensure the airworthiness of the aircraft they sign out.

Overall, this is an example of the potential for confusing Australian maintenance regulations still further by inserting EASA concepts into the existing mish-mash of FAA-derived and uniquely Australian regulations. Doing so could actually decrease safety for operators of small private aircraft in Australia. Instead, the way forward should be to simplify the regulations by doing away with uniquely Australian ADs and aligning Australian regulations (for small private aircraft) with those of the country where the vast majority of such aircraft were built – the USA.

Way Forward

AMPA believes that Australia should fundamentally change its approach to regulating small private aircraft. The vast majority of the ca.12,000 light aircraft in Australia operate in the private category. Rather than creating and maintaining a unique body of legislation and regulations for such aircraft, AMPA believes that the legislation should be amended to enable CASA to regulate such aircraft (with regard to airworthiness and maintenance matters) using the legislative framework, procedures and processes modelled closely on those of the FAA.

This is not suggesting that the FAA is a model of efficiency but it does have a system that effectively regulates a fleet of about 220,000 aircraft (roughly 20 times the size of the Australian fleet) and has a proven interface with the manufacturers of most light aircraft. Rather than attempting to invent and maintain a regulatory framework for a fleet that is a small fraction of the size of that in the USA, it makes sense for Australia to follow the FAA approach as being most appropriate to the vast majority of small private aircraft in Australia.

Under such an approach, CASA would do many of the same things that they do at present such as monitoring airworthiness and maintenance issues with the light aircraft fleet. If potential safety issues are identified through such processes, then CASA should raise them

with both the FAA and the aircraft manufacturer. If the FAA agrees, then any resulting AD should then automatically apply to Australian aircraft. However, if the FAA does not agree and does not take action, then we believe CASA's responsibility should end at that point and that they should not act to introduce any uniquely Australian requirement.

AMPA does not support a move to self-regulation for the Australian light aircraft fleet. Our Mooney aircraft are certified aircraft that are quite capable, if properly maintained, of safely operating in commercial use (e.g. charter) and many still do. AMPA believes that Mooney aircraft should be regulated under a system that ensures that they retain all of the rights and privileges (e.g. access to IFR and the full range of airspace) that are available to aircraft that are properly certified and maintained.

Background

AMPA is the type association for owners and operators of Mooney aircraft in Australia. It was established in 1991 and currently has 95 financial members as well as many other people registered on our website. We estimate that AMPA, through its safety education programs, flyins, website (www.mooney.org.au) and quarterly newsletter, reaches about 60-70% of the operators of the Australian Mooney fleet.

AMPA has run a Pilot Safety Program annually (with CASA support) since its inception in 1996 as well as occasional Mooney Maintenance Programs. Many CASA staff have presented on these programs over the years and should be able to vouch for our organisation being strongly committed to aviation safety.

There are about 155 Mooneys on the Australian register (less than 2% of the worldwide population) with aircraft ranging in age from 1960 to 2008 with an average age of over 30 years. The vast majority of these aircraft are used in private operations with very few used for training and charter. Mooney suspended production of new aircraft in 2008 and expects to restart production during 2014.