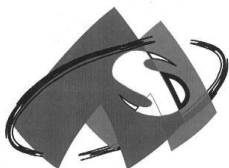


AUSTRALIAN SPORT AVIATION CONFEDERATION



ASAC RESPONSE TO DP 1102AS – Revised Plan for Navigation and Surveillance Equipage in this Decade

21/10/2011

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Submitted via e-mail to: dp1102as@casa.gov.au

Response submitted by the Australian Sport Aviation Confederation (ASAC) – the Confederation of Air Sport Organisations – including the AAC, (Australian Aerobatic Club), ABF (Ballooning), APF (Parachuting), GFA (Gliding), and the HGFA (Hang Gliding). (Contact details below.)

This submission represents the combined views of the ASAC Air Sport Organisations.

ASAC consents to having its name published as a respondent to the Discussion Paper

ASAC is satisfied with CASA's consultation on this issue particularly in view of the opportunity provided ASTRA to make prepublication comments.

ASAC supports the views expressed by ASTRA.

Response prepared by Dr. R. J. (Bob) Hall, Chair of the Technical Committee, ASAC.

1. GENERAL COMMENTS

ASAC is very pleased at the response of CASA to the views, and their justification, expressed in the various responses to the previous DP on this subject (DP 1006AS). However, ASAC remains very concerned, and will insist at every stage, that the development and implementation of these proposals are always strictly dependent on a risk management justification, aimed to ensure that the many potential negative effects on Sport and Recreational Aviation, and GA generally, are minimised

Most importantly, ASAC is particularly pleased and encouraged to see the continuation of the 'general exemption' for aircraft unable to power, at least until developments in avionics make the removal of this exemption justifiable on a risk management and cost benefit basis (see the ASAC response to DP 1006AS for details).

Nevertheless, ASAC wishes to point out that this general exemption is justified on a risk management basis and not simply the 'inability to power' and, as above, ASAC will insist that the imposition of requirements on Sport and Recreational Aviation, and GA generally, must, at every stage, be justified on a risk management basis, and ASAC will not agree – either now in principle, or in future, at implementation – to any mandatory proposals which cannot, or, have not been justified by this risk management basis.

ASAC is pleased at the targeting of the proposals described in the current DP (DP 1102AS), to areas of immediate need, recognising that, for many reasons the 'big bang' approach taken previously, has only delayed the introduction of urgently needed and clearly justifiable proposals, including, specifically, IFR

operations in WA and the earlier introduction of GNSS navigation, with the consequent cost savings and potential to target CFIT accidents, rather than just MAC accidents.

Finally, on a more general note, ASAC is pleased at the manner in which the carefully crafted, industry wide, consensus views prepared by ASTRA have been taken into account – recognising that these are consensus views and not just ‘another’ view from the industry.

2. CONDITIONS FOR FUTURE REMOVAL OF THE ‘GENERAL EXEMPTION’

While the following will be a matter for future discussion, in addition to the overarching requirement for a risk management justification, the following needs to be recognised in the current proposals. (ASAC understands these may be readily agreed, but they need to be explicitly stated at this time for future reference.)

2.1 HGFA Aircraft

In the event that this general exemption is removed for some aircraft, HGFA aircraft must retain this exemption ongoing for the following reasons.

The factors, both relative costs and risk factors, justifying this general exemption today apply more strongly to HGFA operations than for most other aircraft involved. However, and more importantly, operation of these aircraft requires both hands and this makes in flight operation and adjustment to any avionics impossible. (See the HGFA input for more details.)

2.2 ABF Balloons

Sport balloons operated by the ABF should also retain this exemption ongoing because of the relative costs and risk factors involved in the operation of these craft. It seems very unlikely that a risk management and cost benefit argument could be prepared to justify mandatory fitment in these craft.

2.3 Removal of Exemption from Other Than HGFA and ABF Aircraft

Regarding any future proposal to remove the general exemption from other than HGFA and ABF aircraft, ASAC would like to make two fundamental points of principle.

For removal of the general exemption to be acceptable to ASAC, and the ASAC organisations, the avionics package considered must:

1. Most importantly, provide both ‘IN’ and ‘OUT’ functions so that it provides protection, glider to glider, and, GA to GA, not just to TCAS fitted (RPT) aircraft.
2. The package must be capable of being powered by a battery package providing more than adequate flight time between daily recharging.
3. Must be affordable – at a cost similar to a VHF radio – and take account of the frequently very limited panel space available in these aircraft.
4. Servicing of the avionics must be simple and not involve the aircraft in servicing within two systems – ie the airworthiness system of the relevant self-administering organisation and CASA LAME.

2.4 Use of Alternate Technology – Concept of Operation – and the Requirements of Mandatory Avionics

- * Firstly, ASAC is aware that future removal of the general exemption or extension of a mandate to VFR depends on the assumption that low cost avionics will be come available. ASAC believes that this will be the case but, nevertheless, insists that it is critical that CASA should monitor and encourage such developments.
- * Further, In making the risk management justification for removal of the general exemption or application of mandates for VFR operations, CASA must first implement and take full account of alternate, potentially cheaper mitigators – specifically radio alert and alternate means of providing situation awareness leading to conflict resolution.

- * Current proposals focus on an ADS-B OUT Mode S transponder. While these avionics may be the way forward in airspace with surveillance, ASAC believes that the best safety outcomes may require a more flexible approach at this time. Depending on developments with low cost avionics for GA in the US and Europe, ASAC would ask CASA to consider potential alternate approaches and will insist that safety outcomes from less capable (and potentially cheaper) avionics be taken into account when making the risk assessments associated with any risk justification for eventual removal of the general exemption or application of mandates to VFR operations.

2.4.1 Radio Alert.

- * As noted in the ASAC submission to the previous DP, (DP 1006AS), before imposing any new requirement, CASA must make every attempt to make maximum use of radio alert, including the use of AFRU, Unicom and CAGRS units.

Given current concerns expressed at the Regional Aviation Safety Forum, ASAC believes that CASA should take action, now, to ensure improved radio usage in general, and, specifically, pilot recognition of the significance of AFRU, Unicom and CAGRS. It is essential to the safety outcomes achieved, that pilots are aware of which airfields are provided with these additional services, and the fact that the provision of these additional services indicates the potential for RPT operations at these airfields. ASAC believes, firstly, that appropriate pilot T&E is needed to ensure this outcome and, secondly, that CASA should consider requiring that these airfields be marked on charts with a different symbol – as MBZ were in the past.

2.4.2 Alternate ACAS Alert

- * Radio alert works well in terminal airspace of moderate traffic densities because circuit procedures provide simple, accepted triggers for appropriate radio calls and a structured environment leading to simple, effective provision of situational awareness. However, outside this structured airspace, radio alert is not nearly so effective.

- * ACAS or FLARM like devices (including TCAS II) are capable of two modes of operation.

ACAS devices, including TCAS, provide enhanced alert which does not rely on the structured situation in terminal airspace. That is, they do not depend on appropriate triggers for a radio call or any structure in the traffic pattern needed to provide situational awareness. These devices are capable of providing much superior situational awareness, everywhere and anywhere.

This mitigation acts in the ‘considered action’ and ‘avoidance’ phases of conflict resolution and provide much enhanced outcomes.

- * While TCAS provides this alerting function and is used in this mode, TCAS II is designed to be a last action, collision avoidance mechanism, which acts after all other mitigators have failed. In this mode ICAO recommends that TCAS be regarded as a final (last ditch) protection and that the airspace must be ‘safe’ without this mitigator. Hence ICAO recommends that TCAS not be included in risk assessments used as a basis for airspace classification.

Use of this TCAS II or other ACAS device at the ‘considered action’ and ‘avoidance’ phase of conflict resolution is fundamentally different from, and independent of, the ‘last ditch’ action via an RA by TCAS II. It is this ‘last ditch’ mode of action of TCAS II which is the basis and principle behind the ICAO decision that TCAS not be taken account of in airspace classification – rather than all outcomes achieved by ACAS avionics.

Accordingly, ASAC believes that it is clear that the ICAO SARP which recommends that TCAS be not taken into account, clearly does not apply to the use of an ACAS device – including TCAS – for provision of situational awareness throughout the conflict resolution processes. (This ICAO decision is at least in part because the major influences at ICAO are from states where near universal surveillance obviates this usage mode.)

- * The Airspace Risk Model (ARM) can, and should, be programmed to take account of both functions – when available. The ARM can then be used to quantify safety outcomes resulting from these separate mitigator actions of ACAS – improved situational awareness, and the last ditch RA action after all others have failed.

* ASAC understands that in airspace with higher traffic densities and complexity this last moment collision avoidance does provide a useful defence for occasions where all other mitigators fail. However, ASAC points out that in see-and-avoid airspace – Classes E and G – traffic densities and complexity in Australia are not such that aircraft are compelled to mix with other traffic and the opportunity to avoid a conflict early and with a wide margin exists – so that this final resolution by TCAS II may not be justified.

ASAC also considers it likely that development of low cost avionics will more easily deliver a device which is capable of the superior alert without the collision avoidance RA.

- * ASAC insists that before the general exemption is removed, or before any additional requirements are imposed on VFR operations in general – that CASA take account of the safety outcomes achieved by such alternate technology and then decide, on a risk management basis, whether mode C or S transponder, or ADS-B OUT, technology is necessary for VFR operations. In this context CASA should focus on safety outcomes and interoperability rather than specific avionics or separation standards.
- * ASAC hastens to add that, in the end, it will agree to what can be justified on a risk management basis.

3. FORMAL RESPONSE

3.1 General comments regarding Proposal 2 and 9:

The proposals are unacceptable unless:

- a) Any new requirement must be justified on a risk management and cost benefit basis, as required by the White Paper and the AAPS. ASAC is implacably opposed to, and will not accept, the implementation of ANY requirement which has not been so justified.
- b) The ‘general exemption’ applicable to aircraft defined (as now) as ‘unable to continuously power’ is retained at all altitudes – as is now proposed – until development of appropriate avionics enables a risk management justification for the removal of this general exemption.
- c) Independent of b) the general exemption be retained for HGFA weight shift aircraft (hang gliders and micro lights) and sport balloons operated under the ABF.
- d) And that CASA subject the requirement for a Mode S transponder and/or conventional ADS-B OUT unit to a risk management justification in the presence of a mandate for alternate ACAS devices providing an automatic alert and, based on the outcome, consider the imposition of a mandate for an alternate ACAS device in airspace where this is shown to be justified.
- e) In this respect, CASA must closely monitor emerging products internationally and focus on interoperability and safety outcomes rather than on specific separation standards and technologies.

Further justification for these views is provided in the ASAC response to DP 1006AS

3.2 Specific Comments

Proposal 2: Carriage of a transponder in Class D airspace from 1 January 2014.

Subject to the above comments, ASAC believes this proposal is acceptable provided changes are made:

CASA should include procedures which will allow access on a one-off basis, for traffic dependent access for convenience (as now occurs to allow access at Albury into either the Class D zone or to the Class C steps above this zone) and for occasional maintenance and due to stress of weather.

In this respect ASAC supports the comments by AOPA.

Proposal 6: Mandatory TCAS II v 7.1

ASAC has no expertise here and is happy to support the AOPA view.

Proposal 9: Proposal for mandatory ADS-B OUT equipage in all aircraft operating in airspace A, C, D, and E by January 2020 (exemptions to initially apply)

ASAC believes this proposal is unacceptable but may be made acceptable as follows:

ASAC insists that any such mandate must, at all times, be explicitly subject to a risk management justification separately in each airspace classification and altitude – both with respect to the removal of the proposed exemptions and its application to VFR generally.

ASAC understands that this proposal expects that appropriate low cost avionics will become available between now and the proposed implementation date, but ASAC notes that the proposal is not made dependent on this outcome, and, in any case, ASAC insists, as always, that any such proposal to implement must be based on a risk management justification at the time of implementation and that this is the only acceptable way forward.

Should the appropriate avionics be available, the appropriateness of these avionics will be indicated by the risk management justification, and implementation will then be justified. If the proposal is not capable of this justification, implementation would be unacceptable and contrary to the White Paper and the AAPS.

4. CONCLUSION

In making these comments ASAC recognises that this proposal is a very big step forward in a cooperative approach based on a targeted response to identified needs in Australian airspace, one which recognises the potential negative effects on Sport and Recreational Aviation, as well as GA generally, and will enhance safety. CASA is to be congratulated for this approach, which has reversed the absolute positions taken in the past which have only delayed implementation of essential reforms to airspace and consequently delivered poor safety outcomes.

ASAC looks forward with confidence to much improved outcomes, based on a continuation of this enlightened approach.

Bob Hall

Dr. R. J. Hall, Chair of the Technical Committee, ASAC