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Senator Jan Hume
Chair
Senate Economics Legislation Committee
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Dear Senator Hume,

# AusALPA SUBMISSION TO THE SENATE ECONOMICS LEGISLATION COMMITTEE INQUIRY INTO THE SPACE ACTIVITIES AMENDMENT (LAUNCHES AND RETURNS) BILL 2018

The Australian Airline Pilots' Association (AusALPA) represents more than 6,500 professional pilots within Australia on safety and technical matters. We are the Member Association for Australia and a key member of the International Federation of Airline Pilot Associations (IFALPA) which represents over 100,000 pilots in 100 countries. Our membership places a very strong expectation of rational, risk and evidence-based safety behaviour on our government agencies and processes and we regard our participation in the work of the Australia's safety-related agencies as essential to ensuring that our policy makers get the best of independent safety and technical advice.

AusALPA is grateful for the opportunity to make a submission to the Senate Economics Legislation Committee Inquiry into the Space Activities Amendment (Launches and Returns) Bill 2018. We note from the Explanatory Memorandum (EM) that the purpose of the Bill is to amend the *Space Activities Act 1998* to ensure safe industry participation and to encourage investment and innovation in the space industry through legislative simplification.

## Why are Australia's Professional Pilots Interested in this Bill?

There are a number of reasons why professional pilots and others in the aviation industry and community take an interest in the subject matter of the scheme as set out in the Bill. While our members share the concerns of the public at large as to general safety of the supported activities, we are strongly focused on aviation safety, as it is our occupational environment. In particular, we are interested in the extent to which economically-focused legislation and the processes of the responsible agencies integrate and enhance our existing aviation safety regime.

AusALPA believes that both the current and future space activities framework fall well short of our expectations to "integrate and enhance our existing aviation safety regime".

New Interfaces with the Aviation System

The Bill, if enacted, will now significantly change the framework for launches of rockets and other space objects or vehicles from fixed launch site infrastructure to include launches from aircraft in Australian airspace.

Depending upon the status of the launch proponent, either an agency of the State or a private/public entity, and the status of the launch aircraft, as well as the introduction of pilots (at least to the extent that the launch vehicle is manned), the interface with the civil aviation system is largely unavoidable.

Similarly, the anticipated launches and returns within Australian territory will result in objects traversing airspace which could have air traffic in it or planned to be in it at any particular time, or otherwise have complex airspace rules associated with it. While the launch risk mitigators may be relatively tight, the major uncertainties surrounding returns are far from that: the re-entry of the *Tiangong-1* space station earlier this year is a well-known example. Furthermore, while the *Tiangong-1* space station created particular difficulty for those predicting its re-entry flight path, it also revealed some significant limitations of the available tracking devices.

AusALPA can see little evidence in the Bill that these new interfaces with the civil aviation system have been adequately considered or embraced. Apart from introducing a definition of the Chicago Convention, "civil aviation" appears nowhere else in either the Bill or the EM.

Current Civil Aviation Legislation

Item 4 of Schedule 1 to the Bill proposes to insert a new paragraph 3(aa) and 3(b) that say:

> (aa) to establish a system for the regulation of the launch of high power rockets in Australia; and
>
> (b) to ensure that a reasonable balance is achieved between:
>
> (i) the removal of barriers to participation in space activities and the encouragement of innovation and entrepreneurship in the space industry; and
>
> (ii) the safety of space activities, and the risk of damage to persons or property as a result of space activities, regulated by this Act; and

However, rockets, including high power rockets, are currently regulated by the Civil Aviation Safety Authority (CASA) under Part 101 of the *Civil Aviation Safety Regulations 1998* (CASR). As previously mentioned, the Bill makes no acknowledgment of the existence of CASR Part 101, let alone its disposition in the overall context, however limited, of "integrate and enhance our existing aviation safety regime".

Interestingly, while Part 101 has a linkage to the *Space Activities Act 1998* for its definition of a *high power rocket*, the Bill would sever that link by repealing the definition of "*launch vehicle*", relying (according to the EM) upon the proposition that "the ordinary meaning is considered appropriate".

Of course, if the as-yet-undefined "high power rocket" is launched from an aircraft, we remain curious as to which vehicle (the aircraft or the rocket) is considered in law to be the launch vehicle should the payload be lost as a result of an aircraft-rocket separation accident.

In this respect, AusALPA believes that the Bill potentially creates a level of regulatory incongruence between aviation and space agencies that might introduce or exacerbate existing safety issues with the launch of high powered rockets in Australian airspace. It is also unclear to us from the Bill to what extent and by whom the "reasonable balance" in the new paragraph 3(b) between encouragement and safety will be determined for the interface between the ultra-safe civil aviation system and the substantially more risky space system.

We are most concerned that the authority to make that determination rests with individual Ministers or public servants whose very remit within this legislation effectively undermines the objects of the *Civil Aviation Act 1988*.

Certification Standards

Notwithstanding that there may be no specific design standards for high power rockets, there are certainly design standards for aircraft, both civil and military.

AusALPA is disappointed that the Bill fails to acknowledge the existence of the aircraft design standards and further how those design standards will apply or be modified in the creation of "mobile" launch platforms.

Accident Investigation

AusALPA notes that nothing in the *Space Activities Act 1998* or in the Bill prevents the Minister, notwithstanding machinery of government protocols, from appointing the Aviation Transport Safety Bureau (ATSB) as the "investigator" for the purpose of investigating space-related accidents and incidents.

However, the Bill does not include any specific provisions to ensure that neither the Act nor the amended Act create an impediment to the ATSB fulfilling its responsibilities under the *Transport Safety Investigation Act 2003* when an accident or incident involves a "mobile" launch facility that is otherwise classed as a surface or air vehicle.

AusALPA considers it critical that the primary space legislation specifically embraces the role of the ATSB in maintaining aviation safety and ensures that the proposed Part 7 will never be used to frustrate the work of the ATSB. It is our strong view that this protection must be in primary and not subordinate legislation.

The Rules

AusALPA notes that the Bill replaces the power to make regulations with a power to make "rules". We have no transparency of what these rules will contain and therefore no ability to assess their possible implications for flight safety of civil aircraft operations.

One of the consequences of this lack of transparency surrounding the rules is that we do not know the fate of the so-called Flight Safety Code (FSC), which the Legislative Proposals Paper informs us that "stakeholders have affirmed the value of the current FSC, with a suggestion that it be refreshed at some stage in the future". The current document is essentially a risk assessment manual, which reflects its US heritage but which does not appear to contemplate mobile launch platforms and the interface with civil aviation systems.

AusALPA strongly advises the Committee that this document seems pivotal to the risk management of the proposed new space management regime. As such, it should not be left to "be refreshed at some stage in the future", but rather be given far greater priority since it must also, in our strong view, be updated to address the inherent risks that the expanded new space management regime poses to aviation safety during both launch and return.

## The Legislative Proposals Paper

AusALPA notes that the associated March 2017 Legislative Proposals Paper *Reform of the Space Activities Act 1998 and associated framework* made a passing reference at subsection 4.7(v) to "High Altitude" activities. Notwithstanding our differing concepts of "high altitude", at least for atmospheric flight, we are concerned about two aspects of this subsection: one, the presumption that the current administration of Australian airspace ceases at flight level (FL) 600, the upper limit of Class A controlled airspace; and two, the presumption that the airspace between the upper limit of Class A controlled airspace and the lower regulatory limit of the Act of 100km above mean sea level would be administered under the space arrangements by "subordinate instrument" rather than under another portfolio.

The *Airspace Act 2007*

Controlled airspace is just one type of airspace prescribed under the *Airspace Act 2007* and the associated regulations. As best as we are able to determine, nothing in either piece of legislation sets out an upper limit for our sovereign airspace or curtails the authority of CASA to administer it under the current machinery of government arrangements. CASA already administers and AirServices Australia already manages non-controlled airspace – there appears to be no impediment to defining a new class of non-controlled airspace above FL 600 for which no air traffic services are currently provided.

Nonetheless, AusALPA recognises an apparent policy gap in clearly defining the administrative arrangements for the airspace between FL 600 and 100km above mean sea level. Our view is that Australian airspace policy should be seamless and clearly set out in primary legislation. While civil aircraft operations are unlikely to exceed an altitude of Flight Level 600 in the immediate future, there are both defence and emerging civil technologies including potentially hybrid aerospace vehicles that will either primarily utilise or transit this very high altitude airspace. In each of these cases, collision risks arise both within and below that airspace.

The Administration of Very High Altitude Airspace

AusALPA is of the view that the administration of what we would define as "very high altitude" airspace should reside in those portfolios that currently administer lower level airspace, being CASA and the Department of Defence.

On balance, there are probably greater national security considerations for that airspace than there are for civil air operations. In any event, the narrow focus of the proponents of this Bill and their complete absence of demonstrated experience in administering any airspace of relevant note is sufficient to exclude them from consideration as administrators of very high altitude airspace.

Separately, we have advised the Department of Infrastructure, Regional Development and Cities (DIRDC) and, indirectly, the Minister for Infrastructure and Transport in regard to the Australian Airspace Policy Statement (AAPS) that:

> AusALPA … believes that, although Defence may well be the most appropriate agency to administer that very high altitude airspace for many years to come, the AAPS should reflect both the agency to administer that airspace and the necessary coordination and administrative arrangements, including accident investigation, that are required to ensure safety is maintained.

AusALPA, while noting that this issue is absent from the Bill, considers that the Committee should at least be aware of our concerns, if not compelled to form a view in its own right.

## "Public Safety" – Interpretation

AusALPA notes the continued use of the phrase "public safety" as the only safety context in the current Act and the Bill. While pedantically the broad concept of public safety encapsulates aviation safety, we are concerned that for most readers "public safety" is almost entirely a ground-based domain and that those phrases wherever they appear in legislation will be read narrowly.

Given that the Bill is designed to create a framework which is as much about objects with essentially no collision avoidance capability transiting Australian-administered airspace on the way up and potentially less precisely on the way down, AusALPA recommends that the Committee consider whether "aviation safety" should be a separate item specifically included in the range of factors that the Minister must take into account in deciding whether to grant a license, permit or authorisation under all parts of the amended Act.

## Protection of Safety Data and On-board Recordings

AusALPA considers that the Bill is deficient in regard to the protection of safety data and On-board Recordings (OBR). In the event of an accident involving human crewmembers, an appropriate scheme for the protection on data and OBR, such as set out in Part 6 of the *Transport Safety Investigation Act 2003* and in Part IIIB of the *Civil Aviation Act 1988*, is essential.

## Consultative Arrangements

Neither the current nor proposed framework contains any specific reference to consultative arrangements with other agencies or key stakeholders in normal non-emergency circumstances.

Given our experience in airport infrastructure development, airspace protection and network planning scenarios, AusALPA considers the lack of formally prescribed consultation and coordination arrangements to be a major deficiency. This is a particular concern for operational risk management.

We are aware of the Australian Government Space Coordination Committee through the annual State of Space reports. Although DIRDC is a member of the Committee, it is abundantly clear that their interests are seen to be limited to positioning, navigation and timing (PNT) space infrastructure. In the later sections on Commonwealth agency functions, both CASA and AirServices Australia have their functions reasonably described, but again only in the context of PNT space infrastructure.

The 2017 report, which preceded the development of this Bill, included a section on *Aviation safety: administration and regulation of Australian airspace*, which acknowledged CASA's safety regulation and airspace administration role as well as the existence of CASR Part 101. Under a heading of *Future Activities*, the report says:

> CASA will contribute as required to assist DIIS in revising the Space Activities Act recognising that the nature of space related activity is changing to include sub-orbital flights, high altitude surveillance capabilities, high altitude communications systems, low earth orbit balloon and RPAS activity. This emerging issue requires significant work internationally and domestically to define the boundaries of space, particularly given that CASA administration and regulation of airspace has been limited to activities up to 60,000 feet over Australia's area of airspace responsibility.

If indeed CASA did contribute as indicated, AusALPA can only register with the Committee our disappointment at the lack of aviation safety outcomes evident in the Bill.

## Conclusions

From an aviation safety perspective, AusALPA considers the Bill to inadequately address the issues of space objects with essentially no collision avoidance capability transiting Australian-administered airspace.

If the presumed primary risk mitigation is to close the airspace to facilitate launch and return, AusALPA considers that the arrangements to do so should be specified in the primary legislation.

AusALPA is concerned about the potential consequences of the "reasonable balance" between encouragement and safety requirement in the new paragraph 3(b) for the ultra-safe civil aviation system.

AusALPA considers the risks associated with air launches have not been adequately addressed.

AusALPA considers the accident investigation elements, including OBR protection, of the Bill to be deficient, particularly where the ATSB would normally be involved.

AusALPA considers that the administration of Australian airspace between FL 600 and 100km needs to be formally resolved and an administering agency appointed.

AusALPA believes that the Bill should include formal consultation arrangements to properly minimise aviation safety risk.

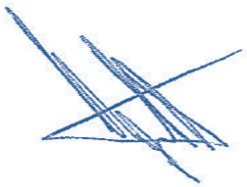
## Recommendations

AusALPA recommends that the Committee consider our concerns about the Bill and its lack of overt consideration of aviation safety in particular.

AusALPA recommends that "aviation safety" be specifically included as a criterion to be considered for Ministerial decision making and in formalising mandatory consultation arrangements.

Thank you for the opportunity to contribute to this important Inquiry.

Yours sincerely,



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