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Senate Foreign Affairs, Defence and Trade References Committee
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PLANNED ACQUISITION OF THE F-35 FIGHTER AIRCRAFT

CONFIDENTIAL SUBMISSION

Attached is my submission to the Senate Foreign Affairs, Defence and Trade References Committee on the above referred matter. This submission complements my public submission also dated 19 February 2016.

Yours faithfully

John Donahoo FIE(Aust)

19 February 2016

Attachment: Submission by John Donahoo

SUBMISSION BY JOHN DONAHOO

PLANNED ACQUISITION OF THE F-35 FIGHTER AIRCRAFT

SUBMISSION

Introduction

This submission complements my public submission and canvases the possible acquisition by Australia of the F35-B STOVL variant. The deficiencies of the F-35 as a primary air defence aircraft have been well documented, but the F-35B variant may have a role as a long-range strike aircraft as outlined below.

Landing Helicopter Docks (LHD)

The acquisition of the two 28,000 tonne LHDs, HMAS Canberra and HMAS Adelaide has given Australia the opportunity to **provide our Navy with organic air combat aircraft cover at large distances** from Australia, **and our Air Force with a long-range strike capability by using land based F35-Bs**. To achieve these two goals, up to 20 F-35Bs would be needed as well as the following modifications to one or both LHDs:

a. Provide Thermion decking to enable the decks to withstand the high temperatures from the F-35B engines.

b. Provide increased Aviation Turbine Fuel (AVTUR) fuel storage from 800 tonnes (1 ML) to about 2000 tonnes (2.5 ML).

c. Provide increased weapons storage.

d. Provide an unspecified upgrade to Air Traffic Control systems.

In the current strategic and financial circumstances, achieving the above two goals in the short term may be near impossible. However, **the long-range strike capability is achievable** with the acquisition of F-35Bs and the use of the existing and proposed RAAF Air to Air Refuelling (AAR) capability. The only upgrade required for the LHDs would be the provision of Thermion decking.

Air to Air Refuelling

The fundamental rule to be followed in AAR is just common sense, and that is if an aerial refuel is unsuccessful, then the receptor aircraft needs to have sufficient fuel reserves available to land somewhere. Accordingly, AAR increases the radius of action of combat aircraft by about 40% and for the F-35B, the radius of action then increases from about 450 nautical miles (nm) to about 700 nm compared to the radius of action of about 850 nm for the F-35A with AAR. However, AAR increases the ferry range of the F-35B with a full load of explosive ordnance to about 1400 nm. Therefore with two LHDs judiciously placed and acting only as emergency recovery runways, the range of the land based F-35B with AAR is then theoretically 1400 + 1400 + 700 = 3500 nm. That is the distance from Darwin to southern China, or to southern India.

The radius of action of 3500 nm of the F-35B may be reduced to about 2500 nm or possibly less due to the following:

a. Inability to place the LHDs in optimum locations.

b. Limits on aircrew flight time.

c. Insufficient AAR capability.

d. Other unknown factors.

Conclusions and Recommendations

The F-35B can increase the long-range strike capability from our shores from a distance of 850 nm to possibly 2500 nm when used in conjunction with existing LHDs and existing and planned AAR. Therefore, Australia should consider the acquisition of up to 20 F35-B aircraft and the provision of Thermion decking to our two LHDs. Moreover, should strategic circumstances change in the future, Australia would then be well placed to provide organic air combat aircraft cover for the Navy by upgrading the existing LHDs as described in the foregoing.

John Donahoo FIE(Aust)