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AIRCRAFT CARRIER INTEROPERABILITY IN THE INDO-PACIFIC

AIM

1. This paper is an exploration of interoperability options for the Royal Navy's Queen Elizabeth Class (QEC) Aircraft Carriers and UK F-35B with allies in the Indo-Pacific. Experience has shown that preparing for multi-national air wing operations is a complex multifaceted process that can take years to implement. It requires backing at the highest levels to seek bi-lateral agreements and to unlock resource, but there are significant military and diplomatic opportunities to be seized.

INTRODUCTION

2. Having proven full interoperability¹ with the USMC F-35B during Op FORTIS in 2021, further opportunities exist with an increased number of nations procuring the Short Take-off & Vertical Landing (STOVL) variant of the F-35 for operations at sea. Initially limited to the UK, USMC and Italy, Japan has now committed to buy 42 F-35B² and both Republic of Korea (ROK) and Spain are in the assessment phases of their own carrier aviation programs. Whilst there are obvious synergies with continuing to expand the number of interoperable NATO allies, this paper will focus on the opportunities in the Indo-Pacific, where operational capability benefits exist alongside both UK foreign policy objectives and the potential to enhance procurement relationships.

3. This paper will briefly describe the UK decision to operate the STOVL F-35B and the link to the nascent Asian national programs with a focus on the more advanced Japanese program. The opportunities and necessary steps to enable interoperability with Japan and/or ROK will be discussed, using experience and legacy benefits from operating USMC F-35B as the model. Finally, recommendations will be made on bilateral agreements to be sought with associated timelines where possible. Detailed costs will not be discussed but rough order of magnitude (RoM) figures will be offered where known.

DISCUSSION

4. The UK Carrier Enabled Power Projection (CEPP) program has continually evolved. The flexible design of the QEC allowed multiple defense reviews over 2 decades to re-assess the capability requirements of the air wing, ultimately settling on the STOVL F-35B as its core. The program is nearing Full Operating Capability (FOC), with the commissioning of 809 Naval Air Squadron in Apr 23, allowing simultaneous deployment of two Squadrons to be achieved in 2025³. Although the decision to procure F-35B over the F-35C was greeted negatively by most Naval Aviators and Officers for capability reasons, in the decade 2025-2035 it presents interoperability opportunities that would otherwise have not existed.

5. The CEPP program has been slow to deliver. The two QEC ships themselves fell some 5 years behind originally planned in service dates (2017 vice 2012 for HMS *Queen Elizabeth*)⁴, and the delivery schedule for F-35B as the instrument of carrier combat power has been slower still. This has left Carrier

¹ In maritime aviation, degrees of interoperability range from 'Cross-decking', generally limited to deck training and refueling, to full interoperability meaning that 100% combat capability can be provided. The latter requires expensive and detailed integration.

² United States. Defence & Security Cooperation Agency. July 2020. <https://www.dsca.mil/press-media/major-arms-sales/japan-f-35-joint-strike-fighter-aircraft-0>

³ United Kingdom. UK Parliament, written questions, answers and statements. <https://questions-statements.parliament.uk/written-questions/detail/2022-09-06/48238>. Accessed 22 Jan 2023.

⁴ United Kingdom. House of Commons Defence Committee. Future Carrier and Joint Combat Aircraft Programmes. Second Report of Session 2005-6. 9.

<https://publications.parliament.uk/pa/cm200506/cmselect/cmdfence/554/554.pdf>

Strike Group (CSG) force generation (FGen) and early deployments managing with low airframe and trained personnel numbers, ultimately leading the UK to seek agreement with the USMC to deploy an F-35B Squadron alongside an under strength 617 Squadron in *Queen Elizabeth* for her inaugural deployment in 2021.

6. In 2025, the UK will have the opportunity to deploy, for the first time, the FOC UKCSG. In F-35B airframe numbers this should equal 24. The QEC are designed to operate 30, with a surge to 36 (for a total of 40 aircraft including rotary wing)⁵, thus at FOC there remains spare capacity. Using Indo-Pacific deployments in the 2025+ timeframe, the UK has opportunities to:

- a. Test the surge capability of the QEC with allied participation.
- b. Contribute to allies FGen of carrier aviation capabilities.
- c. Deepen interoperability, using routine operating model deployments to the Indo-Pacific⁶.
- d. Start to develop a credible, multi-national agile-basing capability.
- e. Contribute to UK Gov foreign policy objectives in the Indo-Pacific region.

JAPANESE SEA-BASED F-35 PROGRAM

7. Japan's F-35 program of record is 147 aircraft, of which 42 will be F-35B STOVL variant⁷ for operations from the Japanese Maritime Self Defense Force's (JMSDF) 2 Izumo Class ships. Having already taken delivery of a number of F-35A, Japan's first 6 F-35B will be delivered to their Main Operating Base (MOB) at Nyutabaru, Kyushu in 2025.

8. JMSDF Ships *Izumo* and *Kaga* have begun a phased capability insertion schedule. Initial modifications to the *Izumo* have focused on the essentials for fixed-wing aviation; heat resistant flight deck coatings, deck marking and lighting. Further modifications will include re-shaping the flight deck, increasing aviation fuel capacity, changes to magazine spaces for air launched weapons and mission planning space modifications to support F-35 flight operations. *Izumo* is due to be complete in 2026 and *Kaga* in 2027⁸, notably a year after aircraft delivery and after a notional 2025/6 UKCSG deployment.

9. Japan enjoys a close relationship with the US. The USN and USMC's Forward Deployed Naval Force (FDNF) is permanently based in Japan, which includes an Amphibious Ready Group with an F-35B capable America Class LHA at Sasebo and 2 Squadrons of 16 F-35Bs at Iwakuni. The USMC has already conducted the initial round of F-35B flight trials in the JMSDF Ship *Izumo*⁹. With the assets permanently based in Japan, it is highly likely that the Japanese Air Self Defense Force (JASDF) will also

⁵ Queen Elizabeth Class User Requirements Document.

⁶ Routine Operating Model continues to evolve but supports an Indo-Pacific CSG deployment every third year from 2025 onward.

⁷ Lockheed Martin, Joint Program Office, "Japan", <https://www.f35.com/f35/global-enterprise/japan.html> accessed 30 Jan 2023.

⁸ Inaba, Y, F-35B Upgrades near completion aboard Japanese warship *Kaga*. United States Naval Institute, December 22. <https://news.usni.org/2022/12/29/f-35b-upgrades-near-completion-aboard-japanese-warship-kaga>

⁹ United States. Marines.mil, "News". Marine Corps F-35B Conduct First Landing Aboard JS *Izumo*. October 2021. <https://www.marines.mil/News/News-Display/Article/2810746/marine-corps-f-35b-conduct-first-landing-aboard-js-izumo/>

seek assistance from the USN and USMC in operationalizing the air component of their future carrier-based weapons system which is a consideration for the UK when engaging with Japan.

10. A first FOC UKCSG deployment with 24 F-35B should take place in late 2025 or early 2026. The UK should seek to synchronize an element of the deployment with the FGen of Japan's F-35B capability. This could take many forms depending on the level of readiness in the JASDF. A spectrum of operations from trials at the low end, through cross-decking, to embarked and sustained operating from the QEC could be possible although the latter is unlikely this early in the life of the Japanese program. The objective would be to enhance bi-lateral military relations with Japanese forces and to make a first demonstration of broad allied interoperability in the Indo-Pacific. The USMC and USN could also be involved again and ultimately a Tri-lateral arrangement might be a preferred route to success.

11. Logically, reciprocal cross-decking of UK aircraft to JMSDF and USN ships, would capitalize on the presence of UK force elements in the region. The totality of the activity described above would commence the development of an agile sea basing capability with UK, US and Japanese F-35B able to conduct sustained combat operations from one-another's shipping, compensating for any reduction in ship availability¹⁰ in an Indo-Pacific conflict.

12. Fuller interoperability for extended periods could be considered for future deployments, similar to the USMC contribution to the CSG21 deployment in *Queen Elizabeth*. This would necessarily require far more detailed coordination. In many areas, latent interoperability will already exist following the modifications made to the QEC for USMC ops. The areas of greatest concern, are sovereign information system connectivity, weapon storage and handling safety, supply chain/interoperability of aircraft spares and Special Access Program (SAP) level security. These issues cannot be discussed in detail here, however, using the blue-print of USMC participation in Op FORTIS, all can be overcome with the time that is available and sufficient backing. A bi-lateral Ministerial Letter of Intent should be sought to solidify the plans but background work should commence using existing authorities wherever possible.

a. The material costs of this integration would need a more detailed assessment; however, information system integration and weapon safety analysis are estimated at RoM hundreds of thousands. SAP Security and supply chain compatibility, although complex, should be a matter of process and policy.

KOREAN F-35 PROGRAM

13. Korea's decision to construct an aircraft carrier and procure the F-35B has yet to be taken. ROK Navy CVX program would see the construction of a 30,000-ton vessel in a similar capability category as the USN *America* class, capable of operating circa 20 F-35B. Already an F-35 customer, there is little doubt that the Foreign Military Sales case would be approved by the US Government should ROK decide to take this route. The program received no funding in the latest budget proposal¹¹ and therefore it is a long way from reaching fruition.

14. The Director FGen and Joint Commitments Strategic Steering Group (JCSSG) should track the progress of this program, looking for opportunities to assist ROK with operationalizing the capability, cultivating the possibility of deeper integration in the future. The benefits to be realized would be similar to those with a Japanese partnership. Whether an overarching agreement that includes ROK and Japan can

¹⁰ For replenishment, maintenance, repair or attrition.

¹¹ Lee, J, South Korea zeros F-35B CVX program in favor of funding North Korean deterrence strategy. <https://news.usni.org/2022/09/01/south-korea-zeros-f-35b-cvx-carrier-program-in-favor-of-funding-north-korean-deterrence-strategy>

be reached will depend upon challenges presented by complex relations between ROK and Japan, and so bi-lateral agreements should be the first step.

UK DEFENCE ENGAGEMENT OPPORTUNITIES

15. Japan and the UK recently signed a Reciprocal Access Agreement (RAA) in Jan 23¹² and Comprehensive Economic Partnership Agreement (CEPA) Oct 2020¹³. The RAA is both significant and timely for a potential carrier aviation interoperability endeavor. It sets out conditions for cooperation between the two nations and serves as a status of forces agreement. Naval and Air Staff can capitalize on the recency of the RAA signing as an opening to begin discussion on carrier interoperability.

16. Since 2018, the UK Government has hosted the ‘Future Forum’ series of international Defence & Security events aboard the Royal Navy’s aircraft Carriers. Atlantic Future Forum events were held twice in New York and once at Annapolis in *HMS Queen Elizabeth*. The first Pacific Future Forum event was held in *HMS Prince of Wales*, albeit in the UK following the inability of *Queen Elizabeth* to host it deployed due to COVID-19 protocol. An Indo-Pacific deployment would provide an opportunity to host an event in the region itself. As well as strengthening defence, security, technology and trading relationships it would also be an opportunity to showcase the interoperability between the UK and Asian partners, contributing to the Global Britain narrative.

17. As another method of showcasing this new interoperability endeavor, the conduct of port visits in the region with JASDF aircraft and personnel embarked could be considered. These will need to be carefully selected ports fully cognizant of Japanese bi-lateral relations with the selected nations.

DEEPENING PROCUREMENT TIES

18. The UK and Japan have recently committed¹⁴ (with Italy) to the development of a 6th generation fighter aircraft under the Global Combat Air Program. The development phase of this programme will commence in 2024 or 2025¹⁵. Whilst not directly linked, the UK and Japan demonstrating 5th generation combat air interoperability at sea in this time frame will necessarily enhance defence ties between the two nations, create relationships and go some way to developing cultural understanding which will be critical to the cultivation of a healthy program to deliver in the 2035-2040 timeframe.

CONCLUSION

19. The presence of multiple F-35B aircraft carriers in the Indo-Pacific is a coincidental benefit not envisaged at the time of UK CV aircraft selection. Similarly, the UK did not anticipate regular CSG deployments to the Indo-Pacific at the inception of the CVF program. However, in pursuit of new Global Britain foreign policy objectives and following exit from the European Union, the UK is pursuing diplomatic, economic and military relationships beyond its normal sphere of influence of the past 70 years.

¹² Japan, Ministry of Foreign Affairs. Signing of Japan UK Reciprocal Access Agreement. (January 2023) https://www.mofa.go.jp/erp/we/gb/page1e_000556.html. Accessed 30 Jan 2023.

¹³ United Kingdom. “Guidance, Trade with Japan” <https://www.gov.uk/guidance/summary-of-the-uk-japan-comprehensive-economic-partnership-agreement>. Accessed January 2023.

¹⁴ Barrie, D, Koshina, Y, Italy, Japan & UK launch a new combat aircraft programme. Institute for International Strategic Studies (December 2022) <https://www.iiss.org/blogs/analysis/2022/12/italy-japan-and-the-uk-launch-a-new-combat-aircraft-programme>

¹⁵ Peruzzi, L, The UK, Italy & Japan jointly announced the formation of the global combat air programme (December 2022). <https://euro-sd.com/2022/12/articles/28700/the-uk-italy-and-japan-jointly-announced-the-formation-of-the-global-combat-air-programme/>.

20. Aircraft carriers are iconic symbols of national power. Their deployment makes news, provides a platform for showcasing UK industry and provides unique backdrops for ministerial and senior defence level engagement. Militarily, multiple decks from which F-35B from multiple nations can operate can provide flexibility and redundancy when it comes to agile basing in the Indo-pacific region, a key concept in a key area of great power geo-politics in the coming decades. A regular demonstration of this interoperability will contribute to the perpetual conventional deterrence narrative required to deter regional competitors.

RECOMMENDATIONS

21. Director FGen is requested to note and forward the following recommendations:

- a. Assistant Chief of Naval Staff (ACNS) should assess the likely level of Japanese willingness to participate in such an endeavor and seek the necessary bi-lateral agreements.
 - i. Early planning activity to align programs at working group level should commence as soon as possible to meet a Q425 left-hand marker.
- b. Fleet Commander should direct UKCSG and Navy Commitments to incorporate dwell time in the vicinity of Japan to enable interoperability objectives during the next Indo-Pacific deployment. Plans should be tracked by the Carrier Strike MDT.
- c. The JCSSG, ACNS and Director FGen should monitor the status of the ROK CVX program for similar opportunities in the medium term and for subsequent Indo-Pacific deployments of the UKCSG.

FGen COS CS

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