



NZDF Military Type Certification

P-8A Poseidon

WGCDR Andy Gallagher

DDH 2022

Scope

- NZDF Military Type Certification Overview.
 - P-8A Poseidon
 - A little bit about the changes to the NZDF Airworthiness system



NZDF Military Type Certification Overview

- Implicit under ICAO regulations, and hence the Civil Aviation Act 1990, that the NZDF airworthiness regulatory system should be no less effective than the civil system
 - To achieve that the NZDF has recently adopted an EASA style regulation set and created a NZ Defence Aviation Authority.
 - We have adopted EMARs in the form of Defence Aviation Rules (DARs)
 - Our DARs match the ADF Rule set (DASRs) – one rule set for Australasia.

NZDF Military Type Certification Overview

- For Type Certification, the military process is *distinct* from the equivalent civil process.
- Civil certification starts with the Category of the aircraft, which in turn defines the Type Certification Basis (TCB) within a certification specification, e.g. FAR 25.
- The military certification process is defined by the military airworthiness requirements which are determined by specific air system design, roles and missions.
- Thus the TCB is bespoke for each military type introduced to Service for a specific role.
- Often the TCB is set by another nation – when we buy Military Off The Shelf (MOTS).

NZDF Military Type Certification Overview

“Certification”

- The process of recognition that a product, part or appliance, organisation or person complies with the applicable airworthiness requirements followed by the declaration of compliance.

NZDF Military Type Certification Overview

- Military Type Certification processes tend to be complicated by the following considerations:
 - Configuration, Role and Environment (CRE)
 - Unlike civil aircraft, military aircraft tend to be employed in a wide and diverse range of roles and environments.
 - Informed Recognition of Prior Acceptance (IRPA)
 - The civil structures administered by ICAO ensure that contracting States are in a position to strike Bi-Lateral agreements with other States to cover the sharing of the outcomes of a type certification process.
 - This is now also the case for specific Military Airworthiness Authorities
 - Formalised Recognition process in place – AFIC Air Standard AW 2003 & European Defence Agency's EMAD R – Recognition Process

NZDF Military Type Certification Overview

- US International Traffic of Arms Regulations (ITAR) and IP considerations:
 - The ability to pass technical data is closely controlled
 - Makes certification review very difficult for front like equipment like the P-8A

NZDF Military Type Certification Overview

- IRPA Continuation:

IRPA in the military sphere is not so straightforward because:

- Not all military operators use a well-defined structured Airworthiness system;
 - Many military organisations align along service lines not State lines;
 - Many military aircraft are certified on a project by project basis; and
 - Many military aircraft have specific aircraft design standards.
- As a consequence the Military Type Certification process tends to place a significant emphasis on confirming on a case-by-case basis that the type certification process used the first time that the aircraft was certified was appropriate.

NZDF Military Type Certification Overview

- NZDF Type Certification Process

All military type certification (initial service entry and modification) follows the same basic format :

- The NZDF establishes and maintains a Statement of Operating Intent and Usage (SOIU) for the aircraft/modification;
- Part of the SOIU requires a CRE analysis to be developed;
- The SOIU determines what design can be accepted based on previous certification (IRPA) and what design compliance finding is unique to the NZDF;
- The NZDF then determines if the TCB from the original certification can be adopted;
- Then either detailed review of compliance demonstration against the TCB or recognition approach

NZDF P-8A Poseidon

- The first NZDF P-8A Aircraft (NZ4801) arrives 13 Dec 2022.
- All four will be here by May 2023.
- Aircrew are returning from training with the USN – fully qualified
- Maintenance are returning from training with the RAAF – fully qualified
- Certification has leveraged off prior certification by USN, RAF, RAAF enabled by recognition of MAA's



Conclusion

- We are getting far closer to the civil system – but not the CAA rules
- The RNZAF and RAAF approach is the same now
- We have used Baines Simmons (out of the UK) to transition
- We have approved DAR 21 design organisation which has requirements similar to yours
- Our cert process has some differences, but not that many

Future of the RNZAF Engineers

New Fleets

- **P-8A (now)**
 - **C-130J-30 (next year)**
 - **Maritime Helicopter Replacement (sometime soon?)**
 - **757 replacement (in the near future)**
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- **less repairs & less modifications = less design development**
 - **More reviews of external approved data**
 - **More certification reviews of aircraft coming**

= fewer options for growing design engineer experience, but greater need for that experience. Do you have this issues?



Questions