



MILITARY AVIATION AUTHORITY
SWEDEN

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SE MAA, EDA MAC 2023

Management of UH-60 in an EMAR based environment



From delivery to International mission in 62 weeks!



Swedish Air Force UH-60M Blackhawk/HKP16

Management of UH-60 in an EMAR based environment

Overview

- Background
- Military Type Acceptance (MTA),
SE-EMAR 21 Subpart SE
- Aviation Safety dimensions &
SE-EMAR M.A.201 (a) "AMC/GM"
- Takeaways



Background

- Year 2012, New Operational Requirement;
 - Medevac Capabilities to support "Forward Medevac ISAF"
- Fifteen (15) UH-60M/HKP16 purchased.
 - Foreign Military Sales; US Gov. (UHPO) to SE Gov. (FMV)
 - Initially purchased as a gap filler, but is going to be used within SwAF for a long time period (2023<?).
- SwAF UH-60M/HKP16 International missions:
 - SAE ISAF, Medevac, Afghanistan, 2013-2014
 - Op TAKUBA, Support SF, Mali, 2021-2022



Military Type Acceptance – What's MTA?

(SE-EMAR 21 Subpart SE)

- Acceptance of another recognised authority's "active" Type Approval:
 - Validation of the Type Approval made by another authority and is formally not a certification.
 - Manuals, instructions (ICA), "constraints" etc. referred to from the accepted Type Approval becomes valid also in the Swedish military aviation system.
 - Relevant Airworthiness Directives (issued within the recognised system) must be incorporated. If needed SE MAA can issue Mil-AD.

- Feasible for accepting a civil TC as well as accepting a type approval from a system completely different from EMAR/EASA-system e.g. US FMS cases, as long as the DAH (Design Approval Holder):
 - Continued Airworthiness procedures are active.
 - Is under oversight of an authority function in a recognised aviation system.
 - No formal relationship between SE MAA and the DAH. SE MAA does not perform oversight over the DAH.

- Recognition between NMAAs is required (i.a.w. EMAD R).

Example MTA - UH-60M/HKP16

- U.S. Army SRD is delegated NMAA for this product. They issue;
 - Statement of Airworthiness Qualification (SAQ) ~ MTC
 - Airworthiness Release (AWR) ~ CoA
- SE MAA has a recognition with U.S. Army SRD (System Readiness Division)
- Changes can be approved by SRD via new AWR's;
 - U.S. Army UHPO/SRD responsible for configuration control (incl closed interface).
 - SwAF CAMO responsible for configuration management and control of mission equipment with open interface.
 - SE can formally modify without new AWR but we want to keep the relationship with SRD i.a.w. AWR.

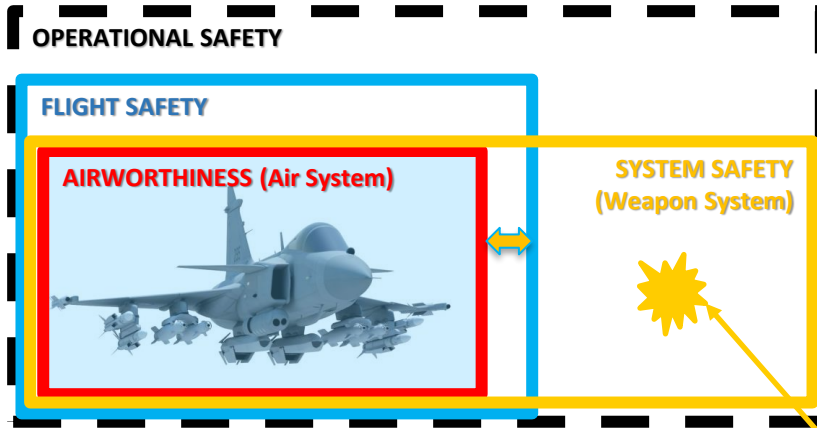


Example MTA - GLOBAL 6000 AEW&C

- Under development by Saab.
 - Bombardier G6000 TC/TCDS by EASA
 - SE MAA MSTC for SE configuration (AEW&C)
- Saab has MDOA/MPOA for the development of the MSTC i.a.w SE-EMAR 21 SUBPART E.
- Saab has a liaison agreement with Bombardier on the type design to get access to relevant type design.



Aviation Safety dimensions



Operational safety
*The absence of unacceptable risks, injury or harm to the health of humans, whether direct or indirect, resulting from damage to equipment or the environment. Operational safety risks arise during the delivery of a service or the conduct of an activity (e.g. operation of an aircraft).
(Ref. ICAO (OPS))*

System safety
*The application of engineering and management principles, criteria, and techniques to achieve acceptable risk within the constraints of operational effectiveness and suitability, time, and cost throughout all phases of the system life-cycle.
(Ref. MIL-STD-882E)*

Airworthiness
*The ability of an aircraft, or other airborne equipment or system, to operate in flight and on ground without significant hazard to aircrew, ground crew, passengers (where relevant) or to other third parties.
(Ref. EMAD 1)*

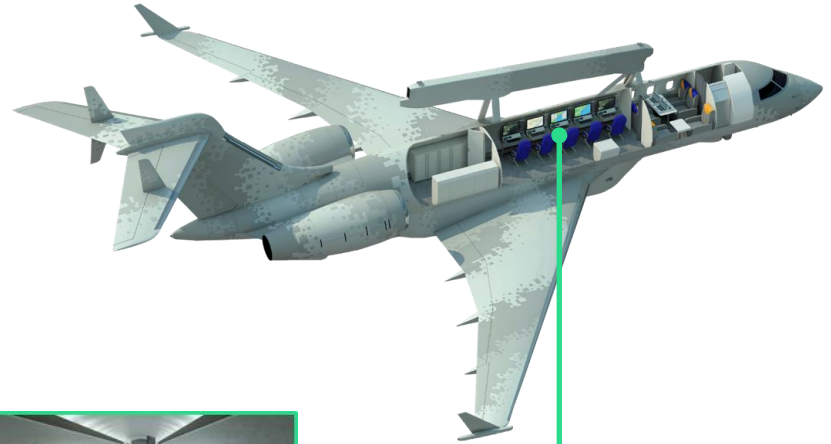
Flight safety
*A collective endeavour to operate in the Air environment safely, it embraces any activity that contributes to the safe operation of military airworthy systems in flight or on the ground.
(Ref. UK MAA02)*

**Part of
Weapon System
Operational
effect**

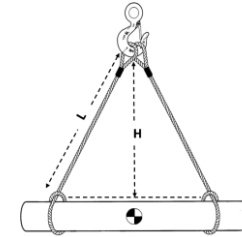
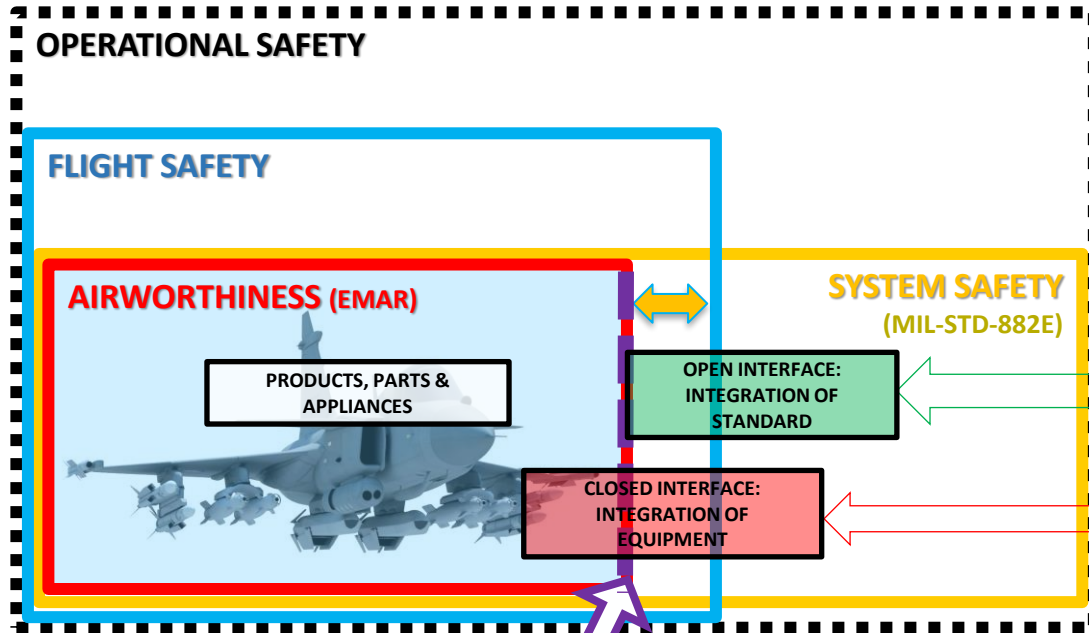
Aviation Safety dimensions (cont)

Is it necessary to apply the same requirements for equipment fixed onboard that are not really aircraft system, not affecting Air System Airworthiness (but affects Weapon System Safety)?

- Tactical computers & Armament management
- Sonars
- Trackers
- Troop Radios
- Optical systems
- Sling loads
- Medical equipment
- Sniper supports
- Etc.



Aviation Safety dimensions (cont)



Standard or specification (e.g. EN10204 or W, kg, m, etc.) e.g.:

- Rack mounted equipment,
- Sling load

Specific equipment e.g.:

- Meteor Serial No:yyy
- Litening Serial No:xxx



EMAR 21 & M.201

EMAR M.A.201.

M.A.201 Responsibilities

(a) The Operating Organisation is accountable for the continuing airworthiness of an aircraft and shall ensure that no flight takes place unless:

1. the aircraft is maintained in an airworthy condition; and
2. any **operational** and **emergency equipment fitted is correctly installed and serviceable** or clearly identified as unserviceable; and
3. the Military Certificate of Airworthiness and the Military Airworthiness Review Certificate (MARC) remain valid; and
4. the maintenance of the aircraft is performed in accordance with the Aircraft Maintenance Programme (AMP) as specified in EMAR M.A.302.

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Serviceable? No EMAR AMC/GM

Serviceable extended to include safe for flight.



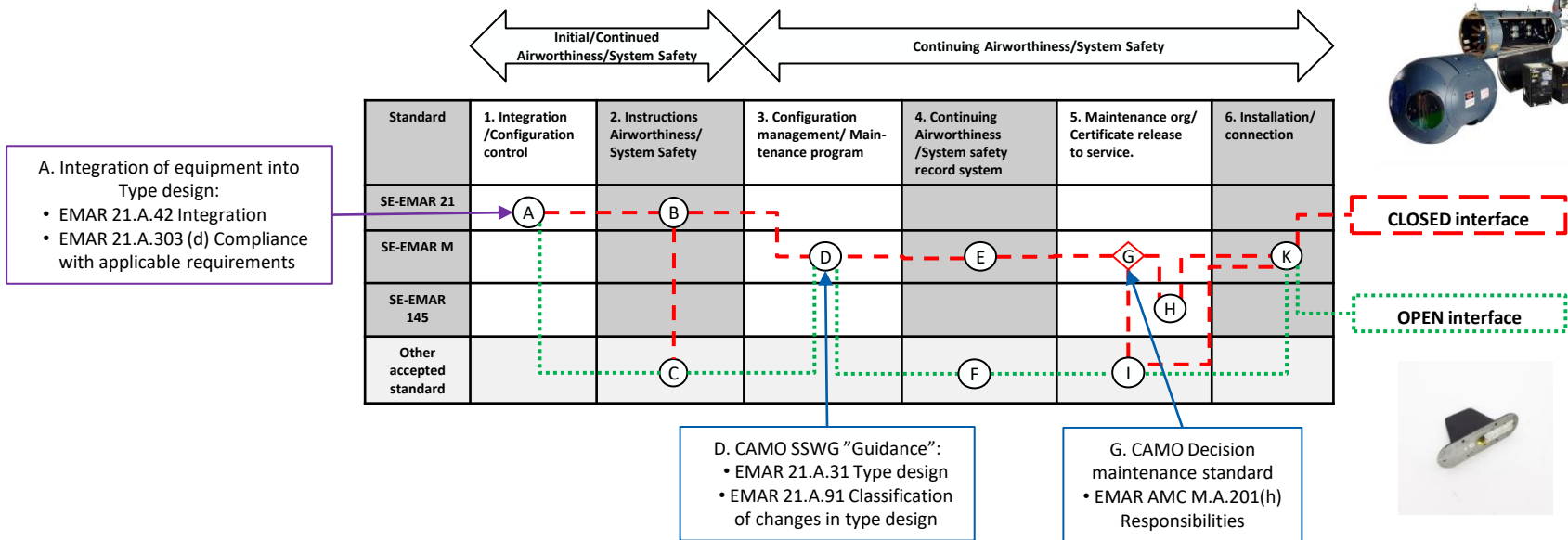
SE-EMAR M.A.201 "AMC/GM"



SE-EMAR M.A.201 "AMC/GM"

Objective:

Set the right standard for operational/mission equipment to reduce certification effort and maintenance requirements.



Takeaways

- Reduced certification effort for quick introduction of Air Systems, can be achieved through requirements based on Military Type Acceptance, SE-EMAR 21 Subpart SE.

https://www.forsvarsmakten.se/siteassets/2-om-forsvarsmakten/dokument/regler-for-militar-luftfart/sarskilda-bestammelser-i-se-emar/rml_tb_emar_21_ipm.pdf

- Adaptable Air/Weapon Systems design can be achieved through integration of operational/mission equipment into open interfaces based on SE-EMAR M.A.201 (a) "AMC/GM".

<https://www.forsvarsmakten.se/siteassets/2-om-forsvarsmakten/dokument/regler-for-militar-luftfart/tillampningsbeslut/tillampningsbeslut-se-emar-m-m.a.201.pdf>

- Enhanced Aviation Safety Dimensions definitions in EMAD 1 could be beneficial in international cooperation. e.g.; Flight safety, System safety weapon system, Operational safety, Safe for flight.

