

USAF Scientific Advisory Board

Sustaining Air Force Aging Aircraft into the 21st Century

Terms of Reference

Background

The Air Force will operate its legacy aircraft for decades beyond their originally projected service lives, stressing structures, engines, and other aircraft systems. The Fleet Viability Board (FVB) was formed to assess the technical fitness and the associated availability and cost of continued ownership of Air Force weapon systems. While the Board projects the fitness of all fleet systems (e.g., structures, propulsion, avionics, offensive/defensive, and electro-mechanical subsystems), structures, and propulsion are analyzed at the greatest depth. Addressing structures and engines is a complex task, but other aircraft systems can also be life limiting; pose flight safety risks; and affect aircraft availability, effectiveness, and Operations and Maintenance (O&M) costs. Investments in appropriate modifications/replacements are planned for some aircraft fleets, but deferred for others. For example, the FVB has identified service life issues associated with the landing gear of the A-10, T-38, and F-15 fleets. Some of these fleets have scheduled depot maintenance for their landing gear or plans to replace existing landing gear with new hardware, but others are deferring these investments. There is a need to help the Air Force identify and prioritize investments in other aircraft systems while identifying how such investments can establish a foundation for future adaptations and performance enhancements.

Charter

The study will work closely with the FVB to:

- Identify specific aircraft systems, besides structures and engines that contribute to safety, availability, and effectiveness for aging aircraft.
- Using the FVB's prioritized list of aircraft, determine for all fleets the maintenance status of these aircraft systems, and rank them in terms of priority due to risk across Mission Design Series (MDS).
- Examine commercial practices in airlines, air freight services, and other industries, and evaluate how they can be applied to meet Air Force needs.
- Assess the time and first-order investment required to complete needed modifications of the high priority aircraft systems, and the resulting effect on operational availability of the fleets. Perform a first-order assessment of O&M cost savings and avoidance and military utility of improved capabilities that would result.
- Recommend how the Air Force should proceed to address these modifications by MDS in priority due to mission risk, operational availability, O&M cost.
- Identify technology needs and technology approaches that can be applied or developed to extend life or ease maintenance of these aircraft systems, while facilitating future adaptations and performances enhancements of the aircraft.

Study Products

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