

RFI Category and Number:

Women in Aviation RFI #6

RFI Question:

WOMEN IN AVIATION (E&I)

In December 2018, the Committee received briefings on the status of women in aviation. During these briefings, concerns about the design of aircraft as a barrier to women's service in aviation emerged.

The Committee requests a **written response** from the **Military Services** on guidance or policies that address how new aircraft procurement accommodates the widest range of Service members, to include:

- a. Does this guidance or policy consider anthropometric factors to ensure aircraft designs accommodate smaller female measurements?
- b. What aircraft (by type and function) currently are not in accordance with these policies?
- c. What are the current limitations associated with having some types of aircraft (e.g., trainers) that do not meet policy requirements?
- d. Are there accommodations that have been/can be made to legacy aircraft in the current inventory that are not in accordance with the policy to better accommodate the widest range of Service members? If so, what are those accommodations? If not, why not?

RFI Response:

- a. Does this guidance or policy consider anthropometric factors to ensure aircraft designs accommodate smaller female measurements?

Yes. In 1993, a DoD Anthropometry Working Group convened as a result of Congressional desire to expand the assignment of women in the military. Out of the working group, a set of seven anthropometric cases for the Joint Primary Aircraft Training System (JPATS) was established to represent close to 95% of the potential male and female population. These seven cases (plus an eighth case developed later for the F-35 program) have then been used as the anthropometric requirement in specification documents on new design aircraft acquisition programs (to include T-6, F-35, H-53K). It was also initially provided to the TH-XX (TH-57 replacement) program as proposed guidance; however, as they were acquiring a COTS designed aircraft, the Program Office instead chose the approach of making the threshold requirement to meet the accommodation level of the aircraft they are replacing (the TH-57), with an objective requirement to meet the most accommodating existing rotary wing platform.

- b. What aircraft (by type and function) currently are not in accordance with these policies?

Any aircraft developed prior to the mid-1990s when the Congressional mandate was put in place to accommodate more females in aviation would not have been held to this policy. NAWCAD Human Systems Engineering has performed evaluations of USN/USMC aircraft and developed Anthropometric Restriction Codes (ARCs) based on reach to critical/primary flight controls and rudder pedals, clearance within the cockpit (head clearance, shin clearance, ejection clearance), ability to attain Design Eye Point/Design Eye Line, and ability to meet certified crewmember weights for ejection and rotary wing aircraft. NAVAIRINST 3710.9E, "Anthropometric Accommodation in Naval Aviation," and its associated manual, NAVAIR M-3710.1 of the same name, both released in February 2017, include the ARCs for specific USN/USMC aircraft.

c. What are the current limitations associated with having some types of aircraft (e.g., trainers) that do not meet policy requirements?

If an aircraft does not accommodate a certain anthropometric range of Service members, then individuals with those anthropometric measurements would not be assigned to that aircraft platform or any follow-on aircraft in that aircraft pipeline (e.g., if a Service member does not meet the ARCs for the T-45, then that Service member would not be assigned to the T-45 or any follow-on fleet aircraft). That Service member could then potentially be assigned to a different aircraft pipeline if he/she meets the ARCs associated with that pipeline.

d. Are there accommodations that have been/can be made to legacy aircraft in the current inventory that are not in accordance with the policy to better accommodate the widest range of Service members? If so, what are those accommodations? If not, why not?

Yes. As an example, the introduction of the SJU-17 (NACES P3I) ejection seat to the F/A-18 and T-45 aircraft improved accommodation for smaller individuals by making it possible for them to sit higher in the aircraft and closer to the aircraft controls. Other accommodations that could be made to legacy aircraft to potentially better accommodate the widest anthropometric range of Service members would be in improvements or enhancements to aircraft seats, pilot flight equipment, or a full or partial cockpit redesign.

Hours Expended Answering this RFI: 5

Office responsible: Warfighting Requirements and Capabilities (OPNAV N9)