

ANTHROPOMETRY (ICD 9 M700)

AEROMEDICAL CONCERNS: Individuals with short sitting height may not be able to see over the instrument panel. With short leg length, they may be unable to apply the full range to the foot pedals with sufficient force. With short arm length they may be unable to reach crucial instruments or circuit breakers. Individuals with too long a sitting height often sit in hunched positions or must tilt their head forward to avoid the cabin ceiling; this reduces their range of vision, increases fatigue during long missions, and puts them at greater risk of significant spinal injury during heavy G-loading, e.g., ejection or crash. Excessive leg length, normally present in those with excessive sitting height, may interfere with full range of motion of the foot pedals and increased discomfort. Any combination of the above may exceed the optimal safety envelope developed during the aircraft's design and development as well as become uncomfortable enough to be distracting during flight.

WAIVERS:**Initial Applicants (Class 1A/1W):**

Exceptions to policy for initial flight applicants may be considered if a full cockpit evaluation has been conducted in IAW the established guidelines per the Directorate of Evaluation and Standard (DES), accepted and applied by USAAMA and USAAVNC, in all initial training (OH-58A/C, TH-67) and advanced rotary wing aircraft (OH-58D, UH-60, AH-64, CH-47). Exceptions may include specific aircraft restrictions.

Initial Applicants (Class 2)

Anthropometric measurements are taken and recorded in AEDR for flight surgeons, however, waivers are not necessary.

Initial Applicants (Class 3 and 4)

Require no anthropometric measurements.

Rated Aviation Personnel (Class 2)

Waivers for failure of anthropometric standards for rated personnel are usually recommended provided they have demonstrated full adaptation to the designated aircraft. Waivers may include specific aircraft restrictions.

INFORMATION REQUIRED:

- Complete anthropometric measurements in centimeters with tenth of a centimeter accuracy are required in Block 73 of DD 2808. These may be repeated under the direct supervision of a flight surgeon.
- The average of three such measurements may be submitted for waiver action, if required. An aeromedical summary is required for anyone not meeting anthropometric standards.
- In cockpit evaluations of individuals are best performed in accordance with the Ft.Rucker established guidelines, as described below. A unit instructor pilot or standardization instructor pilot, with the flight surgeon may do the initial evaluation if the total arm reach is equal to or greater 159 cm. If the TAR is less than 159 cm the only accepted in-cockpit evaluation will be completed at Ft. Rucker. All evaluations will be conducted with ALSE vest and helmet. Written results of these evaluations should be submitted with the waiver request.
- Total arm reach less than 164CM-The person is evaluated in the pilot's station as well as the copilot's station to determine if they can safely reach all switches and flight controls and operate controls through full motion. Emphasis is placed on determining that the person can reach those switches and circuit breakers that are necessary for safe flight. This evaluation must be is completed in all Go to War Rotary Wing Aircraft (UH-60, CH-47, AH-64D and OH-58D).
- Total Leg Length (Crotch Height) of less than 75CM is evaluated as above.
- Sitting Height in excess of 95CM- The person is evaluated in the pilot's position of the OH-58A/C to determine if they can safely sit in the Aircraft and reach the flight controls while in a normal sitting position. Check for helmet contact on the overhead greenhouse and make sure the shins are not hitting the instrument panel with full pedal movements.
- The evaluations in the Go to War Aircraft are conducted with a SME of that aircraft when possible.
- After the evaluation is completed, the memo is sent (within the context of an Aeromedical Summary written by the flight surgeon) to the Army Aeromedical Activity with a recommendation for a waiver (or exception to policy) or no waiver (no exception to policy) of the linear anthropometrics standard.
- POC is DAC Jerry Bonham @ (334)255-3259

FOLLOW-UP: Additional in-cockpit evaluations are required before transition to new aircraft. Any failure of initial anthropometric in-cockpit evaluation must be re-evaluated at Ft. Rucker.

DISCUSSION: The cockpits of most aircraft are developed using measurements based upon a normal distribution curve. On several aircraft, the seating is either not adjustable or has limited adjustability, therefore making the distribution curve even narrower. As new anthropometric standards are developed for newer aircraft, modifications to existing standards will be developed.

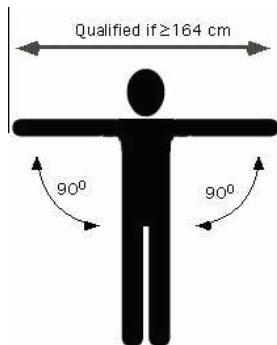
Crotch Height (Leg Length) - The subject must stand completely erect against a wall, heels together, weight evenly distributed, and knees locked. The measurement is taken parallel with the wall from the floor to a point where light contact is made with the perineum in the midline.

Total Arm Reach - The subject must stand erect against a wall, arms outstretched at a 90 degree angle and parallel with the wall. The elbows must be locked. The fingertips of one hand must be in contact with the adjacent wall in the corner of the room. The horizontal distance between fingertips is recorded.

Sitting Height - The subject must sit on a hard, flat surface, facing forward, feet flat on the floor, with buttocks, shoulders, and back of head against the wall. Using a right angle on the head, the distance between the sitting surface and the top of the head is recorded in centimeters.

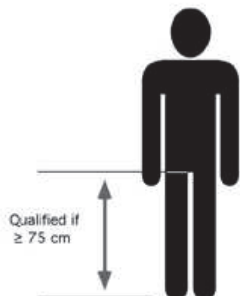
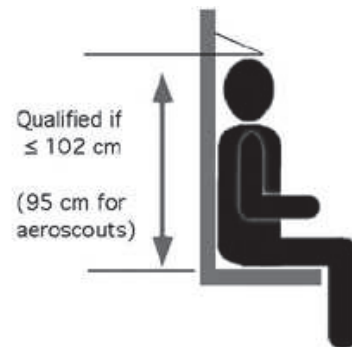
<u>Measurement</u>	<u>Class 1/1A/2/2F</u> Qualified if:	<u>OH-58 Pilot or Aeroscout</u> - Qualified if
CROTCH HEIGHT	≥ 75.0 cm.	≥ 75.0 cm.
TOTAL ARM REACH	≥ 164.0 cm.	≥ 164.0 cm.
SITTING HEIGHT	≤ 102.0 cm.	≤ 95.0 cm.

Anthropometric Diagrams



TOTAL ARM REACH—The aviator candidate must stand erect against a wall, arms outstretched at a 90 degree angle and parallel with the wall. The elbows must be locked with the fingertips of one hand in contact with the adjacent wall in a corner of that room. The horizontal distance between fingertips is recorded in centimeters.

SITTING HEIGHT—The aviator candidate must sit on a hard flat surface, facing outward, feet flat on the floor, with the buttocks, shoulders, and back of head against the wall. Using a straight angle ruler on the head, the distance between the sitting surface and the top of the head is recorded in centimeters.



CROTCH HEIGHT—The aviator candidate must stand completely erect against a wall in bare feet, heels together, weight evenly distributed, and knees locked. The measurement is taken parallel with the wall from the floor to a point where light contact is made with the perineum in the midline. Results are recorded in centimeters.