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Historical Info

Brantley, David, J. (2000). *Field Evaluation of the Sizing and Tariff of the U.S. Marine Corps Interceptor Body Armor*. NATICK/TR-00/014. Natick, MA: U.S. Army Soldier and Biological Chemical Command Soldiers System Center

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA379872&Location=U2&doc=GetTRDoc.pdf>

Abstract: This study was conducted to determine the most accurate initial tariff for the United States Marine Corps Interceptor Body Armor. The approach included determining the actual tariff of the units involved by issuing the Interceptor to individual Marines based on their chest circumference measurements, as well as a fit test and user survey to assess the sizing, design and fit of all sizes of the Interceptor. The unit tariff was compared to the anthropometric tariff based on the 1995 USMC database and a revised tariff was calculated for the Interceptor. The fit test and survey results were used to determine any design and sizing changes needed to improve the fit of the Interceptor. The predicted size was rated acceptable by 84.7% of the participants and was also the best fitting size for 70.4% of the Marines evaluated. The main reasons for someone's predicted size to be rated unacceptable were: 1. the chest/waist circumference was too big and 2. the vest was too long. Once the recommended design changes have been applied, further increases in acceptability can only be achieved by creating additional sizes for the Interceptor based on length in addition to chest circumference.

Churchill, Edmund; Churchill, Thomas; McConville, John T; White, Robert (1977). "Anthropometry of Women of the U.S. Army 1977 Report No. 2 The Basic Univariate Statistics" Natick, MA; US Army Natick Research and Development Command. NATICK/TR-77/024.

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA044806&Location=U2&doc=GetTRDoc.pdf>

Abstract: This report, the second in a series, summarizes the univariate statistics obtained in an anthropometric survey of women in the U.S. Army conducted at Fort Sam Houston, Texas; Fort McClellan, Alabama; Walter Reed Medical Center, the District of Columbia; and Fort Jackson, South Carolina, during the winter of 1976-1977. This survey, carried out to satisfy the need by the U.S. Army for up-to-date data on the body sizes and strength capabilities of the women who now constitute a substantial portion of its personnel, represents the first major anthropometric survey of Army women since 1946. Data for 69 body size measurements were obtained on a sample of 1,331 women who covered wide ranges of age, rank, and military assignment.

Additional data were obtained on subseries of between 200 and 300 women for: (a) other standard body size measurements, (b) workspace measurements, (c) head and face measurements, and (d) static strength measurements. Summary

REFERENCES

statistics and frequency distributions are given here for all these measurements, plus age. Full descriptions of the measurement techniques and the design and conduct of the survey have already appeared in the first of this series of reports. Brief definitions, illustrations of measurements, and outlines of the computational and statistical procedures used in preparing this report are included here.

Churchill, Edmund; McConville, John T; Laubach, Lloyd L.; White, Robert (1971). "Anthropometry of U.S. Army Aviators 1970" Natick, MA; US Army Natick Laboratories. Technical Report 72-52-CE .

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=AD743528&Location=U2&doc=GetTRDoc.pdf>

Abstract: The report describes an anthropometric survey of U. S. Army aviators conducted at Fort Rucker, Alabama in 1970. Data for 85 body size measurements and for several variables describing the socio-military background of the survey subjects were gathered on a sample of 1482 flying personnel. Statistical summaries are presented for each measurement for the entire sample and for five subseries: enlisted men (crew chiefs, mechanics, door gunners), warrant officer and warrant officer candidate trainees, warrant officer rated pilots, commissioned trainees, and commissioned pilots. Summary statistics and percentiles for 80 anthropometric indices and for some 73 anthropometric variables computed from the measured dimensions are given, as is the correlation matrix for the measured variables and age.

Donelson, Sarah, M; Gordon, Claire, C. (1996) 1995 *Matched Anthropometric Database of U.S. Marine Corps Personnel: Summary Statistics*. NATICK/TR-96/036. Natick, MA: U.S. Army Natick Research, Development and Engineering Center

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA316646&Location=U2&doc=GetTRDoc.pdf>

Abstract: Anthropometric databases containing extensive body size and shape information are critical for the proper design and sizing of military clothing, equipment and workstations. The last anthropometric survey of United States Marine Corps males was conducted in 1966. No anthropometric data has been collected on Marine Corps females. Statistical matching procedures were used to create an updated USMC anthropometric database of 76 dimensions for males and females from the 1988 Anthropometric Survey of U.S. Army Personnel (ANSUR). The summary statistics and descriptions of the 76 selected dimensions are presented along with tariffs for 42 clothing items.

Donelson, Sarah M.; Gordon, Claire C.(1996). *Validation of a Statistical Matching Procedure used to create United States Marine Corps Anthropometric Databases*. NATICK/TR-96/035 U.S. Army Natick Research, Development, & Engineering Center.

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA316645&Location=U2&doc=GetTRDoc.pdf>

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Abstract: Anthropometric databases containing extensive body size and shape information are critical for the proper design and sizing of military clothing, equipment and workstations. The last anthropometric survey of United States Marine Corps males was conducted in 1966. No anthropometric data has been collected on Marine Corps females. To update the anthropometric database, the USMC requested that the U.S. Army Natick Research, Development and Engineering Center conduct a validation study to determine if statistical matching could be used to create accurate male and female USMC anthropometric databases using data collected during the 1988 Anthropometric Survey of U.S. Army Personnel (ANSUR). Anthropometric data were collected from a randomly selected sample of male and female USMC personnel. Twelve anthropometric dimensions chosen to describe all major segments of the body were measured on a valid sample of 470 females and 493 male Marines. These data were compared to matched databases derived from ANSUR using several different matching procedures, including truncation based on height for weight standards, demographic (race/age) matching, and demographic plus weight and/or height matching.

Gordon, Claire C.; Churchill, Thomas; Clauser, Charles E.; Bradtmiller, Bruce; McConville, John T.; Tebbetts, Ilse; Walker, Robert A.(1989). "1988 Anthropometric Survey of U.S. Army Personnel: Methods and Summary Statistics" Natick, MA; U.S. Army Natick Research, Development, & Engineering Center. NATICK/TR-89/044
This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA225094&Location=U2&doc=GetTRDoc.pdf>

Abstract: Results of the 1987-1988 anthropometric survey of Army personnel are presented in this report in the form of summary statistics, percentile data and frequency distributions. These anthropometric data are presented for a subset of personnel (1774 men and 2208 women) sampled to match the proportions of age categories and racial/ethnic groups found in the active duty Army of June 1988. Dimensions given in this report include 132 standard measurements made in the course of the survey, 60 derived dimensions calculated largely by adding and subtracting standard measurement data, and 48 head and face dimensions reported in traditional linear terms but collected by means of an automated headboard designed to obtain three-dimensional data. Measurement descriptions, visual indices and a glossary of terms are included to help identify and locate dimensions.) Also appearing in this report are descriptions of the procedures and techniques used in this survey. These include explanations of the complex sampling plan, computer editing procedures, and strategies for minimizing observer error. Tabular material in Appendices A and C are designed to help users understand various practical applications of the dimensional data, and to identify comparable data obtained in previous anthropometric surveys.

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Gordon, Claire C. and Friedl, Karl (1994). "Anthropometry in the U.S. Armed Forces". In: S.J. Ulijaszek and C.G.N. Mascie-Taylor (eds) *Anthropometry. The Individual and the Population*, pp. 178-210. Cambridge, UK: Cambridge University Press.

This report is available at <http://nsrdec.natick.army.mil/LIBRARY/90-99/R94-96.pdf>

Paquette, Steve, P; Gordon, Claire, C; Bradtmiller, Bruce. (2009) *Anthropometric Survey (ANSUR) II Pilot Study: Methods and Summary Statistics*. NATICK/TR-09/014. Yellow Springs, OH. U.S. Army Natick Research, Development and Engineering Center.

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA498172&Location=U2&doc=GetTRDoc.pdf>

Abstract: Virtually every Army materiel system in use was designed and/or sized using a database of anthropometric information that is 20 years old. It was based on the Army Anthropometric Survey (ANSUR), which was conducted in 1988 on only Active Duty Soldiers. However, more than one-half of today's fighting forces are National Guard and Reserve component troops. A pilot study (ANSUR II) was recently undertaken to (1) assess anthropometric change since 1988 within the Active Army; (2) to assess anthropometric differences among Army Active, Reserve, and National Guard components; and (3) to provide guidance on whether a further, more comprehensive survey and an update of the current ANSUR database are needed. This report provides measurement methods and summary statistics for 25 body measurements made on 2811 male and 651 female soldiers in the pilot study. The anthropometric change since 1988 and tests of component differences are presented in a separate technical report. The subjects were weighted by component, sex, age, and racial/ethnic group to match Total Army demographics as of March 2007 in order to provide interim design guidance on Total Army body size distributions as of March 2007.

Paquette, Steve, P; Gordon, Claire, C; Brantley, David, J; Case, Henry; Gaeta, Donna, J.(1997) *A Supplement to the 1995 Matched Anthropometric Databases of U.S. Marine Corps Personnel Summary Statistics*. NATICK/TR-97/015 Natick, MA, U.S. Army Natick Research, Development, and Engineering Center.

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA327698&Location=U2&doc=GetTRDoc.pdf>

Abstract: Anthropometric databases that are representative of the user population are necessary for the design and sizing of clothing, equipment and workspaces. In 1996, a U.S. Marine Corps (USMC) anthropometric database of 76 dimensions for males and females was derived from the large 1988 U.S. Army Anthropometric Survey (ANSUR) database using a statistical matching procedure. The need to include USMC body size information in the Jack human figure model provided the impetus to derive additional anthropometric variables. Summary statistics and the measurement descriptions for the 36 dimensions

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contained herein are provided as a supplement to the initial USMC matching report.

Smith-Lopez, Donna; Bradtmiller, Bruce (December 12, 2005) *JSLIST Tariff Verification Report for the Joint Project Management Office for Individual Protection*. Unpublished contract report

Unpublished data, 2008 MTV Fit Test, collected by HSI, Inc. for MARCORSYSCOM

White, Robert, M; Churchill, Edmund. (1977). *United States Marine Corps Anthropometry*. NATICK/TR-78/021. Natick, MA, U.S. Army Natick Research and Development Command.

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA073824&Location=U2&doc=GetTRDoc.pdf>

Abstract: As a part of the U.S. Armed Forces anthropometric surveys of 1966, a sample of 2008 U.S. Marine Corps men was measured. The sample included 1003 men measured at Camp Lejeune, North Carolina, and 1005 men measured at Camp Pendleton, California. Seventy body measurements were taken on each man. The anthropometric data from this survey are presented and discussed in this report

White, Robert, M; Churchill, Edmund (1971). *The Body Size of Soldiers U.S. Army Anthropometry-1966*. NATICK/TR-72-51-CE. Natick, MA, U.S. Army Natick Labs

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Abstract: As a part of the U. S. Armed Forces anthropometric surveys of 1966, a sample of 6682 Army men was measured, including basic trainees, infantrymen, armored crewmen, and aviation personnel. Seventy body measurements were taken on each man. The anthropometric data from this survey are presented and discussed. These new data represent the first major updating of body size information on U. S. Army personnel since the Army anthropometric survey of 1946. Changes in the body size of Army men between 1946 and 1966 are discussed and the Army data are compared with anthropometric data from other services.

White, Robert, M; Churchill, Edmund (1971). "The Body Size of Soldiers U.S. Army Anthropometry-1966" Natick, MA; US Army Natick Laboratories. Technical Report 72-51-CE

This report is available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=AD743465&Location=U2&doc=GetTRDoc.pdf>

Abstract: As a part of the U. S. Armed Forces anthropometric surveys of 1966, a sample of 6682 Army men was measured, including basic trainees, infantrymen, armored crewmen, and aviation personnel. Seventy body measurements were taken on each man. The anthropometric data from this survey are presented and

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