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USER'S GUIDE TO ACCESSING THE ANTHROPOMETRIC DATA BASE AT THE CENTER FOR ANTHROPOMETRIC RESEARCH DATA (U)

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FOR THE COMMANDER

CHARLES BATES, JR.

Director, Human Engineering Division Armstrong Aerospace Medical Research Laboratory

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| menu driven system which will a                   | llow the user to  | o find inform       | ation in a                 | variet                             | y of ways. This    |
| document is a guide to users fo                   | r accessing this  | s information       | 1.                         |                                    | , <u> </u>         |
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#### SUMMARY

This document is provided to assist users in accessing the Anthropometric Data Base maintained by the Center for Anthropometric Research Data. The on-line data base was developed to be used in support of human engineering design activities. It contains several hundred measurements of the human body across large population samples from numerous published anthropometric surveys. A relational data base software package is used to manage the survey data and accommodate user queries. Access to the data base is through a menu-driven applications software package. The user may access anthropometric data by measurement title, measurement number, or by common alternate measurement name. Available data includes measurement frequency data and summary statistics (mean, standard deviation, etc.), measurement descriptions, and measurement classification by body region and measurement type. A glossary of anthropometric terms is available in the data base as well as abstracts for the various anthropometric surveys.

#### PREFACE

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# USER'S GUIDE TO ACCESSING THE ANTHROPOMETRIC DATA BASE AT THE CENTER FOR ANTHROPOMETRIC RESEARCH DATA

#### 1. INTRODUCTION

The Center for Anthropometric Research Data (CARD) is operated by AAMRL/HEG at Wright-Patterson AFB, Ohio. The CARD Anthropometric Data Base contains data collected from a variety of anthropometric surveys. Access to the data base is through menu-driven applications software. Data available include survey descriptions, measurement methods, and a glossary of anthropometric terms, as well as summary statistics and frequency data for each measurement. The ability to extract measurement data from a survey meeting specific criteria and using these data as input to a SAS procedure is also available to a limited number of users.

#### 2. GUIDELINES FOR DATA BASE USE

All terminals used to access the menu-driven data base software must be at least VT100 compatible to support the drawing of the menu displays. Menu options may be selected by using the up or down arrow keys or by pressing the keyboard letter of the selection requested.

Each anthropometric measurement in the data base has an assigned number and measurement title. There is a standard table of abbreviations which will be displayed when measurement title input is requested. Measurement titles containing more than one word are separated by dashes (-), not spaces. For example, SITTING HT must be entered as SITTING-HT.

An alternate measurement name table contains common alternate names for measurements. For example, STATURE has an entry in the alternate name table called HEIGHT. Searches for character strings in measurement titles are also available in some menus. This is convenient when the measurement title and number are unknown and the user would like to scan the data base to pin down the actual measurement being sought. Specific measurement data may be accessed using the measurement number, measurement title, or alternate name.

#### 3. EXECUTION OF THE DATA BASE PROGRAM

#### **3.1 PROGRAM EXECUTION BY A FALCON VAX USER**

The program is executed by authorized users logged into their FALCON VAX accounts by entering QUERY.

#### **3.2 PROGRAM EXECUTION BY A NON-FALCON VAX USER**

The account ANTHRO has been set up to accommodate those users of the data base who do not have FALCON VAX accounts. The QUERY software executes automatically and the user is logged out after exiting the QUERY software. The distribution of the account name and password is made at the discretion of AAMRL/HEG.

#### 4. INTRODUCTORY SCREENS

The first screen to appear indicates the initialisation of the data base and the pre-processing of selected anthropometric data. This procedure takes approximately 25-30 seconds.

The following screens display introductory messages to the anthropometric data base. A carriage return entered from the keyboard will advance to the next page.

Loading Data base files...Please wait

#### WELCOME TO THE HARRY G. ARMSTRONG AEROSPACE MEDICAL RESEARCH LABORATORY ANTHROPOMETRIC DATA BASE

This data base is a product of the Center for Anthropometric Research Data (CARD) which is operated and maintained by AAMRL/HEG at Wright-Patterson AFB, Ohio. It is a menu-driven data base which will allow you to access anthropometric data from a collection gathered from around the world. It includes descriptive information regarding the samples themselves, measurement methods, summary statistics, and a glossary of terms. The measurements are organized in many ways for ease of use.

NOTE: This data base is in the process of being developed. Data from many of the surveys listed have not yet been input. The alternate name list is incomplete. Suggestions regarding the data base are welcome.

Press <RETURN> to continue

#### THE FOLLOWING CONVENTIONS ARE USED IN THIS DATA BASE

Each anthropometric measurement has an assigned name and number. The words in the name are separated by dashes, -, not spaces, e.g. ABDOMINAL DEPTH SIT would be ABDOMINAL-DEPTH-SIT.

If you are unclear about a measurement name or number, the measurement may be searched for by using a string of letters or by using common alternate names.

NOTE: A HELP utility is being developed to provide help in use of the data base while in the midst of it. This is not yet available.

Press <RETURN> to continue

#### **CAUTIONS:**

\* Measures from two samples listed under the same name may have been measured slightly differently. Be cautious about drawing conclusions about differences or similarities between samples.

\* Percentile values are not additive. For example, 5th percentile sitting height minus 5th percentile eye-height-sitting will not equal 5th percentile eye-to-top-of-head. To derive measures not listed, the raw data on each person must be used. Also, be cautious about using percentile values if more than one measure is to be used. Some type of "multivariate" method should be used in such cases.

Press <RETURN> to continue

#### 5. MASTER MENU

The master menu for the anthropometric data base presents primary query options available to the user. The option requested is highlighted and selected by letter or by using the up and down arrow keys as input. A carriage return is entered when selection is complete. This is applicable for all menus throughout the data base program.



#### 5.1 LIST SURVEYS

The option LIST SURVEYS displays the survey abstracts available to the user. A specific survey abstract may be selected and displayed. If anthropometric data are not yet available in the data base for the survey selected, the abstract will indicate this by displaying "NOT YET AVAILABLE".

|     |      | DISPLAY SURVEY ABSTRACT           |  |
|-----|------|-----------------------------------|--|
| S   | URVI | EY SURVEY TITLE                   |  |
| (A) | 1    | AIR FORCE WOMEN 1968 NONRATED     |  |
| (B) | 6    | AIR FORCE WOMEN 1968 PILOT SUBSET |  |
| (C) | 2    | AIR FORCE MEN PILOTS 1967         |  |
| (D) | 3    | AIR FORCE MEN 1965 NONRATED       |  |
| (E) | 4    | ARMY MEN 1966                     |  |
| (F) | 5    | ARMY WOMEN 1977                   |  |
| (G) | 7    | ARMY MEN 1977 SUBSET              |  |
| (H) | 8    | ARMY WOMEN 1946                   |  |
| (I) | 9    | LAW ENFORCEMENT OFFICERS 1974     |  |
| (J) | 10   | ARMY AVIATORS 1970                |  |
| (K) | 11   | NAVY ENLISTED PERSONNEL           |  |
| (L) | 12   | AIR FORCE PILOTS 1950             |  |
| (M) | 13   | AIR TRAFFIC CONTROLLERS           |  |
| (N) | 14   | HEALTH EXAMINATION SURVEY         |  |
| (0) | 15   | ARMY AVIATORS 1959                |  |
| (X) | EXI  | Т                                 |  |

#### **1968 SURVEY OF AIR FORCE WOMEN**

A survey of women of the Air Force was made in the spring of 1968 by the Anthropology Branch, Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, and the Anthropology Research Project (then at Antioch College, Yellow Springs, Ohio). A description of the survey and the results are published in "Anthropometry of Air Force Women," by Clauser et al., AMRL-TR-70-5 (AD 743 113), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1972. Data for age (variable 1), 123 body size measurements (variables 2-124), and grip strength (variable 125) were obtained from a sample of 1905 women. Thirteen measurements were repeated on 1513 subjects with the subjects wearing foundation garments (variables 126-138). These are not included in this data base because they are now obsolete. This data is also described along with Volumes II-V of the AMRL Anthropometric Data Bank Library in "The AMRL Anthropometric Data Bank Library: Volumes I-V," by Churchill, Kikta, and Churchill, AMRL-TR-77-1, Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, October 1977.

Press <RETURN> to continue.

#### 5.2 FIND MEASUREMENTS, TITLES, AND NUMBERS

The Measurement menu presents options available for gaining access to measurement data. Items A through C serve to help the user identify the exact measurement title or number. Item D permits the user to extract the statistics for the measurement desired once the title or number is identified without having to back up to the main menu.



(A) FIND MEASUREMENTS BY ALTERNATE NAME OR BY STRING

(B) GET MEASUREMENT TITLE FROM MEASUREMENT NUMBER

(C) GET SURVEYS WHERE A MEASUREMENT WAS TAKEN

- (D) MEASUREMENT DATA STATISTICS
- (X) EXIT

SELECT OPTION BY LETTER OR ARROWS AND PRESS RETURN

#### 5.2.1 FIND MEASUREMENTS BY ALTERNATE NAME OR BY STRING

This option allows the user to input a measurement alternate name or a string of characters to search for a measurement number and title. The software will search the data base for all measurement titles whose alternate name contains the input character string and for all measurement titles containing the input character string.

In this example the string STATURE is entered and all those measurement titles containing the string STATURE are displayed.

| STANDARD ABBRE            | VIATIONS       |
|---------------------------|----------------|
| BRTH - BREADTH            | HT - HEIGHT    |
| CIRC - CIRCUMFERENCE      | LTH - LENGTH   |
| DIAM - DIAMETER           | SIT - SITTING  |
| DIST - DISTANCE           | SKF - SKINFOLD |
| EXT - EXTENSION           | STD - STANDING |
| MEASUREMENT TITLE OR STRI | ING: STATURE   |

#### FIND MEASUREMENTS BY ALTERNATE NAMES OR BY STRING

NUMBER MEASUREMENT TITLE

| STATURE          |
|------------------|
| STATURE-CLOTHED  |
| STATURE-MAXIMUM  |
| STATURE-REPORTED |
|                  |

Press <RETURN> to continue

In the next example the string HEIGHT is entered. Since HEIGHT is an alternate name for STATURE in the data base, the same entries as for STATURE are retrieved from the data base and displayed.



| FIND MEASUREN   | MENTS BY ALTERNATE NAMES OR BY STRING |
|---|---------------------------------------|
| NUMBER  | MEASUREMENT TITLE                     |
| 805   | STATURE                               |
| 806   | STATURE-CLOTHED                       |
| 807   | STATURE-MAXIMUM                       |
| 808   | STATURE-REPORTED                      |
|   |                                       |
|   |                                       |
|   |                                       |
|   |                                       |
|   |                                       |
|   |                                       |
|   |                                       |
|   |                                       |
|   |                                       |
| Press <rf< td=""><td>STURN&gt; to continue</td></rf<> | STURN> to continue                    |
|   |                                       |

#### 5.2.2 GET MEASUREMENT TITLE FROM MEASUREMENT NUMBER

This option requests the input of a measurement number and returns the corresponding standard measurement title from the data base.

#### **RETRIEVE MEASUREMENT TITLE**

INPUT MEASUREMENT NUMBER: 805

MEASUREMENT TITLE: STATURE

Press <RETURN> to continue

#### 5.2.3 GET SURVEYS WHERE A MEASUREMENT WAS TAKEN

This option allows for input of a specific measurement title, number, or alternate name and retrieves and displays those surveys in which the measurement was taken.

| BRTH - BREADTH           | HT - HEIGHT    |
|--------------------------|----------------|
| CIRC - CIRCUMFERENCE     | LTH - LENGTH   |
| DIAM - DIAMETER          | SIT - SITTING  |
| DIST - DISTANCE          | SKF - SKINFOLI |
| EXT - EXTENSION          | STD - STANDING |
| MEASUREMENT TITLE OR NUM | 1BER: 805      |

#### SURVEYS WHERE A MEASUREMENT WAS TAKEN MEASUREMENT NUMBER: 805 MEASUREMENT TITLE: STATURE SURVEY SURVEY TITLE AIR FORCE WOMEN 1968 NONRATED 1 AIR FORCE MEN PILOTS 1967 2 3 AIR FORCE MEN 1965 NONRATED 4 ARMY MEN 1966 5 **ARMY WOMEN 1977** 6 AIR FORCE WOMEN 1968 PILOT SUBSET 7 ARMY MEN 1977 SUBSET Press <RETURN> to continue

# 5.3 LIST MEASUREMENTS BY SURVEY

This option lists active surveys in the data base and allows the user to display the measurement titles and numbers of those measures taken in the selected survey. In the following example survey 1 is selected.

|   |                                 | LIST MEASUREMENTS IN SURVEY  |  |
|---|---------------------------------|--|--|
| 5   | SURVEY                          | SURVEY TITLE   |  |
| (A)<br>(B)<br>(C)<br>(D)<br>(E)<br>(F)<br>(G) | 1<br>6<br>2<br>3<br>4<br>5<br>7 | AIR FORCE WOMEN 1968 NONRATED<br>AIR FORCE WOMEN 1968 PILOT SUBSET<br>AIR FORCE MEN PILOTS 1967<br>AIR FORCE MEN 1965 NONRATED<br>ARMY MEN 1966<br>ARMY WOMEN 1977<br>ARMY MEN 1977 SUBSET |  |
| (X)   | EXIT                            |  |  |

| SURVEY NAME: | AIR FORCE WOMEN 1968 NONRATED |
|--------------|-------------------------------|
| NUMBER       | MEASUREMENT TITLE             |
| 8            | ABDOMINAL-EXT-CIRC            |
| 10           | ABDOMINAL-EXT-DEPTH           |
| 18           | ABDOMINAL-EXT-HT              |
| 23           | ACROMION-HT                   |
| 39           | ACROMION-RADIALE-LTH          |
| 48           | AGE                           |
| 58           | ANKLE-CIRC                    |
| 64           | ANKLE-HT                      |
| 70           | ARM-CIRC-AXILLARY             |
| 72           | ARM-CIRC-BICEPS-RELAXED       |
| 73           | ARM-CIRC-BICEPS-RELAXED-LEFT  |
| 77           | ARM-CIRC-BICEPS-FLEXED        |

#### 5.4 LIST MEASUREMENTS BY BODY REGION

Each measurement has been classified in the data base by body region. This option lists the body region classifications and allows the user to display measurement titles and numbers by body region. This is helpful when trying to determine which measurements are available for a given region in the body. An example from the whole body category is shown.

|     | , LIST I | MEASUREMENTS BY BODY REGION |
|-----|----------|-----------------------------|
| 1   | REGION # | BODY REGION                 |
| (A) | 1        | WHOLE BODY                  |
| (B) | 2        | HEAD & NECK                 |
| (C) | 3        | TORSO                       |
| (D) | 4        | ARM (TOTAL)                 |
| (E) | 5        | UPPER ARM                   |
| (F) | 6        | FOREARM                     |
| (G) | 7        | HAND                        |
| (H) | 8        | LEG (TOTAL)                 |
| (I) | 9        | THIGH                       |
| (J) | 10       | CALF (LOWER LEG)            |
| (K) | 11       | FOOT                        |
| (L) | 12       | MISCELLANEOUS               |
| (X) | EXIT     |                             |

| MEAS            | UREMENTS IN BODY REGION      |
|-----------------|------------------------------|
| BODY REGION:    | WHOLE BODY                   |
| NUMBER          | MEASUREMENT TITLE            |
| 167             | BODY-LTH-SUPINE-KNEES-FLEXED |
| 169             | BOWED-TORSO-HT               |
| 405             | GRIP-REACH-OVERHEAD          |
| 538             | KNEELING-HT                  |
| 654             | OVERHEAD-REACH-SIT           |
| 655             | OVERHEAD-REACH-FORWARD       |
| 758             | SITTING-HT                   |
| 760             | SITTING-HT-RELAXED           |
| 805             | STATURE                      |
| 806             | STATURE-CLOTHED              |
| 807             | STATURE-MAXIMUM              |
| Press RETURN to | continue, "S" to stop        |

#### 5.5 LIST MEASUREMENTS BY TYPE

Each measurement has been classified in the data base by measurement type. Circumferences, arcs, heights, etc. have been grouped together. This option lists the measurement type classifications and allows the user to display the measurement titles and numbers in each class. An example from the arcs category is shown.

|     | LIST MEAS | UREMENTS BY MEASUREMENT TYPE |
|-----|-----------|------------------------------|
|     | TYPE #    | TYPE DESCRIPTION             |
| (A) | 1         | ARCS                         |
| (B) | 2         | BREADTHS                     |
| (C) | 3         | CIRCUMFERENCES               |
| (D) | 4         | DEPTHS                       |
| (E) | 5         | DISTANCES                    |
| (F) | 6         | HEIGHTS                      |
| (G) | 7         | LENGTHS                      |
| (H) | 8         | REACHES                      |
| (I) | 9         | SEATED                       |
| (J) | 10        | SKIN-FOLDS                   |
| (K) | 11        | MISCELLANEOUS                |
| (L) | 12        | CODED VARIABLES              |
| (M) | 13        | STRENGTHS                    |
| (X) | EXIT      |                              |

| MEASUREM | ENT TYPE: ARCS                       |
|----------|--------------------------------------|
| NUMBER   | MEASUREMENT TITLE                    |
| 93       | BACK-ARC-AT-BUST                     |
| 95       | BACK-ARC-AT-WAIST                    |
| 144      | BITRAGION-CORONAL-ARC                |
| 150      | BITRAGION-MENTON-ARC                 |
| 152      | <b>BITRAGION-MINIMUM-FRONTAL-ARC</b> |
| 154      | BITRAGION-NUCHALE-ARC                |
| 156      | <b>BITRAGION-SUBMANDIBULAR-ARC</b>   |
| 158      | BITRAGION-SUBNASALE-ARC              |
| 185      | BUTTOCK-CURVATURE                    |
| 269      | DELTOID-ARC                          |
| 616      | MINIMUM-FRONTAL-ARC                  |
| 702      | SAGITTAL-ARC-INION                   |

#### 5.6 GLOSSARY AND MEASUREMENT DESCRIPTIONS

The Glossary menu presents options which provide the user with descriptive and informative data including anthropometric terms and measurement descriptions available from the data base.



#### 5.6.1 LIST ALL TERMS IN GLOSSARY

This option provides the user with a list of all the terms available in the anthropometric term glossary.

# ANTHROPOMETRIC TERMS ABDOMINAL ABDOMINAL-EXTENSION-LEVEL ABDUCT ACROMIAL ACROMIALE ACROMION ADDUCT ANTERIOR ANTERIOR-SUPERIOR-ILIAC-SPINE ANTERO ANTHROPOMETRY ARM AURICLE AURICULAR AXILLA Press RETURN to continue, "S" to stop

#### 5.6.2 STRING SEARCH FOR TERM IN GLOSSARY

This option allows the user to input a character string and display all those terms in the anthropometric glossary which contain the string.

#### STRING SEARCH FOR TERM IN GLOSSARY

INPUT TERM SEARCH STRING: ACROM

#### STRING SEARCH FOR TERM IN GLOSSARY

ACROMIAL ACROMIALE ACROMION

Press <RETURN> to continue

#### 5.6.3 LOOK UP TERM IN GLOSSARY

This option displays the definition of a requested anthropometric term from the glossary.

#### LOOK UP TERM IN GLOSSARY

#### INPUT ANTHROPOMETRIC TERM: ACROMIALE

#### ANTHROPOMETRIC TERM DEFINITION

TERM: ACROMIALE

LANDMARK TITLE FOR THE MOST LATERAL POINT ON THE ACROMIAL PROCESS OF THE SCAPULA (SHOULDER BLADE). FREQUENTLY INTERCHANGEABLE WITH ACROMION.

Press <RETURN> to continue

# 5.6.4 MEASUREMENT DESCRIPTIONS

Each measurement title has an entry in the data base which describes the measurement. The description may be requested by measurement number, title, or alternate name.

| STANDARD ABBRE              | VIATIONS       |
|-----------------------------|----------------|
| BRTH - BREADTH              | HT - HEIGHT    |
| CIRC - CIRCUMFERENCE        | LTH - LENGTH   |
| DIAM - DIAMETER             | SIT - SITTING  |
| DIST - DISTANCE             | SKF - SKINFOLD |
| EXT - EXTENSION             | STD - STANDING |
| UT MEASUREMENT TITLE OR NUM | BER: STATURE   |

#### MEASUREMENT DESCRIPTION

#### MEASUREMENT TITLE: STATURE

SUBJECT STANDS ERECT, HEAD IN THE FRANKFORT PLANE, HEELS TOGETHER, AND WEIGHT DISTRIBUTED EQUALLY ON BOTH FEET - THE DISTANCE FROM THE FLOOR TO THE TOP OF THE HEAD.

Press <RETURN> to continue

#### 5.6.5 CODED VARIABLE DESCRIPTIONS

Many variables in the data base have been entered using codes. Numbers have been assigned for certain categories of data. This option allows the user to request data by number, title, or alternate name. The codes and their corresponding descriptions will be displayed.

| STANDARD ABBRE              | VIATIONS        |
|-----------------------------|-----------------|
| BRTH - BREADTH              | HT - HEIGHT     |
| CIRC - CIRCUMFERENCE        | LTH - LENGTH    |
| DIAM - DIAMETER             | SIT - SITTING   |
| DIST - DISTANCE             | SKF - SKINFOLI  |
| EXT - EXTENSION             | STD - STANDING  |
| JT MEASUREMENT TITLE OR NUM | BER: BLOOD-TYPE |

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#### CODED VARIABLE DESCRIPTIONS

MEASUREMENT NUMBER: 1003 MEASUREMENT TITLE: BLOOD-TYPE

# CODECODE DESCRIPTION1.A

| 2. | В  |
|----|----|
| 3. | AB |
| 4. | 0  |

Press <RETURN> to continue

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#### 5.7 MEASUREMENT STATISTICS

The Measurement Statistics menu presents options available to the user to retrieve statistical data for a measurement by survey. This menu only appears if a user has special authorisation from AAMRL/HEG to execute SAS procedures. Otherwise the program defaults to displaying only measurement summary statistics.



#### 5.7.1 SUMMARY STATISTICS BY SURVEY

Summary statistics for each measurement by survey have been computed and entered into the data base. These statistics may be requested by measurement number, title, or alternate name.

| STANDARD ABBR        | EVIATIONS      |
|----------------------|----------------|
| BRTH - BREADTH       | HT - HEIGHT    |
| CIRC - CIRCUMFERENCE | LTH - LENGTH   |
| DIAM - DIAMETER      | SIT - SITTING  |
| DIST - DISTANCE      | SKF - SKINFOLD |
| EXT - EXTENSION      | STD - STANDING |
|                      |                |

The summary statistics for each measurement may be displayed in either metric units or English units.

#### MEASUREMENT DATA STATISTICS BY SURVEY

# DATA REQUESTED IN UNIT TYPE:

(A) METRIC UNITS

(B) ENGLISH UNITS

The active anthropometric surveys containing measurement summary statistics for measurements taken in the survey are displayed. The user selects the survey from which the summary statistics are requested. Survey 1 is selected in the following example.

|   |   | LIST MEASUREMENTS IN SURVEY  |
|---|---|--|
|   | SURVEY                                      | SURVEY TITLE   |
| (A)<br>(B)<br>(C)<br>(D)<br>(E)<br>(F)<br>(G) | ) 1<br>6<br>) 2<br>) 3<br>) 4<br>) 5<br>) 7 | AIR FORCE WOMEN 1968 NONRATED<br>AIR FORCE WOMEN 1968 PILOT SUBSET<br>AIR FORCE MEN PILOTS 1967<br>AIR FORCE MEN 1965 NONRATED<br>ARMY MEN 1966<br>ARMY WOMEN 1977<br>ARMY MEN 1977 SUBSET |
| (X)   | ) EXIT                                      |  |

The requested measurement summary statistics are displayed. Frequency data for each measurement are also available, and may be requested by entering a carriage return at the end of the summary statistics display. The frequency data will then be retrieved from the data base and displayed. If an "S" is entered, frequency data will not be displayed.

#### MEASUREMENT SUMMARY STATISTICS

SURVEY NUMBER: 1SURVEY NAME: AIR FORCE WOMEN 1968 NONRATEDMETRIC NUMBER: 805METRIC TITLE: STATURE

| SAMPLE  | SIZE:   | 1905     | MEAN:   | 162.1      | 0 STD DI     | EV: 6.01       |
|---------|---|----------|---------|------------|--------------|----------------|
| COEF. O | F VARIATI   | ON: 3.70 | SKEWN   | ESS: .1    | 6 KURTO      | OSIS:22        |
| STD. ER | ROR OF MI   | EAN: .14 | MINIMU  | M: 144     | 6 MAXIN      | IUM: 183.0     |
| EIVE LO | WECT.   | 144 5    | 1 / 5 5 | 147.0      | 147.0        | 1.477 5        |
| FIVELU  | WEST:   | 144.5    | 145.5   | 147.0      | 147.0        | 147.5          |
| FIVE HI | GHEST:  | 179.5    | 179.6   | 180.0      | 180.7        | 183.0          |
|         |   |          |         |            |              |                |
| PERCEN  | TILES:  |          |         |            |              |                |
| 1ST     | 2ND   | 3RD      | 5TH     | 10TH       | <b>25</b> TH | 50TH           |
| 149.5   | 150.5   | 151.3    | 152.4   | 154.3      | 157.8        | 1 <b>62</b> .0 |
| 75TH    | ባሰጥዝ  | 95TH     | 97TH    | ባደጥዝ       | оотн         |                |
| 10111   | 1000  | 170 1    | 170.0   | 1747       | 170 -        |                |
| 160.2   | 108.8   | 172.1    | 113.0   | 1/4./      | 110.5        |                |
| PF      | RESS <ret< td=""><td>URN&gt; FOR</td><td>FREQ DA</td><td>та, "s" то</td><td>STOP</td><td></td></ret<> | URN> FOR | FREQ DA | та, "s" то | STOP         |                |

| SURVEY | NUMBER: | 1 SU   | RVEY NAM   | E: AIR FOR | CE WOME | EN 1968 NG | ONRATE |
|--------|---------|--------|------------|------------|---------|------------|--------|
| METRIC | NUMBER: | 805 ME | ETRIC TITL | E: STATURI | Ξ       |            |        |
| SAMPLE | SIZE:   | 1905   | MEAN:      | 162.10     | STD     | DEV:       | 6.01   |
|        |         |        |            |            |         |            |        |
|        |         | PE     | RCENTS     |            |         | PEF        | CENTS  |
| VALUE  | CNT     | CELL   | CUM        | VALUE      | CNT     | CELL       | CUM    |
| 145.00 | 1       | .1     | .1         | 151.50     | 11      | .6         | 3.5    |
| 145.50 | 1       | .1     | .1         | 152.00     | 18      | .9         | 4.4    |
| 147.00 | 2       | .1     | .2         | 152.50     | 16      | .8         | 5.2    |
| 147.50 | 2       | .1     | .3         | 153.00     | 22      | 1.2        | 6.4    |
| 148.00 | 4       | .2     | .5         | 153.50     | 20      | 1.0        | 7.5    |
| 148.50 | 1       | .1     | .6         | 154.00     | 25      | 1.3        | 8.8    |
| 149.00 | 5       | .3     | .8         | 154.50     | 25      | 1.3        | 10.1   |
| 149.50 | 7       | .4     | 1.2        | 155.00     | 41      | 2.2        | 12.2   |
| 150.00 | 2       | .1     | 1.3        | 155.50     | 44      | 2.3        | 14.5   |
| 150.50 | 11      | .6     | 1.9        | 156.00     | 47      | 2.5        | 17.0   |
| 151.00 | 19      | 1.0    | 2.9        | 156.50     | 47      | 2.5        | 19.5   |

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#### 5.7.2 BUILD SAS DATA SET

This option allows authorized users to build SAS input command procedures to extract subject measurement data meeting certain criteria from a survey.

The active anthropometric surveys are displayed. The user selects the survey from which the SAS analysis is to be made.

| S      | URVEY    | SURVEY TITLE                      |
|--------|----------|-----------------------------------|
| (A)    | 1        | AIR FORCE WOMEN 1968 NONRATED     |
| (B)    | 6        | AIR FORCE WOMEN 1968 PILOT SUBSET |
| (C)    | 2        | AIR FORCE MEN PILOTS 1967         |
| (D)    | 3        | AIR FORCE MEN 1965 NONRATED       |
| (E)    | 4        | ARMY MEN 1966                     |
| (F)    | 5        | ARMY WOMEN 1977                   |
| (G)    | 7        | ARMY MEN 1977 SUBSET              |
|        |          |                                   |
| ACCESS | 5 DATA F | OR WHICH SURVEY?                  |

.

This display screen supplies information on how to enter criteria input for SAS. The subset of subject data to extract is determined by these criteria.

#### ANALYZE DATA USING SAS DATA SELECTION CRITERIA

Define the subset of subjects you would like data extracted for. A maximum of 30 criterion are allowed. A "+" continues criteria input to the next line. A maximum of 9 input lines is allowed. Only metric data queries are handled. Comparison operators include:

< or LT (less than) <= or LE (less than or equal to)
> or GT (greater than) >= or GE (greater than or equal to)
= or EQ (equal to) NE (not equal to)

Logical operators include:

& or AND (Logical AND) | or OR (logical OR) NOT (Logical NOT)

Parentheses may be used to clarify SAS input criteria. For example, to select subject data where age is over 21 and up to and including 25.5 with stature less that 170.0, your criteria input is:

CRITERIA: (AGE > 21 AND AGE  $\leq 25.5$ ) AND STATURE LT 170.0

Press <RETURN> to continue

Criteria are entered from this screen. A minimum of one selection criterion qualifier must be entered. Valid comparison and logical operators for input are displayed. Criteria measurement variables may be entered by measurement name, title, or alternate name. Criteria are checked for a valid sequence of input by the program but the logic of the command cannot be checked. This can result in the SAS procedure not finding any data which meet the criteria specified. Data values specified in criteria selection must be entered in metric units. Parentheses may be used to further clarify selection criteria and avoid confusion. Criteria may be entered across lines if a '+' is entered on the preceding line.

In the sample display, data are requested for those subjects with ages greater than or equal to 17.5 years and less than or equal to 25 years whose stature is greater than 170.0 cm and less than or equal to 180.0 cm.



A procedure file will be created to run the SAS procedure UNIVARIATE for the data requested. Selection criteria measurement data are automatically analyzed by SAS and the option to analyze up to 10 additional measurement variables is available. These are entered by measurement number, title, or alternate name. In the sample display, the measurements SITTING-HT and measurement number 957 will be analyzed in SAS along with AGE and STATURE as specified in the criteria input. Note that STATURE was entered in both the criteria and additional measurement data screens. While this is not necessary, if it is done it will not be run twice. Duplicate variables will be deleted from the analysis.

#### ANALYZE DATA USING SAS

**REQUESTING DATA FOR WHICH MEASUREMENTS? (MAX 10)** 

MEASUREMENT NUMBER OR TITLE: STATURE MEASUREMENT NUMBER OR TITLE: SITTING-HT MEASUREMENT NUMBER OR TITLE: 957 MEASUREMENT NUMBER OR TITLE: <RETURN> The user will be notified when the SAS procedure has been built. The SAS job will be submitted when exiting the QUERY program. As noted, only the final SAS job created will be submitted. If a mistake is made when creating a SAS job, the job may be recreated by requesting the SAS build option again.



#### 5.7.3 SUBMITTING A CREATED SAS JOB

When the user has selected EXIT from the Master menu, if a SAS procedure had been built the system will commence to submit the SAS job. The user will be prompted as to whether he would like the job submitted. If a 'y' is entered, the SAS job will be initiated and will tie up the user's terminal until the job is complete. At job completion, the option to print the job is given and instructions on how to look at the SAS output files is displayed. If the user chooses not to have the job run automatically, instructions are given on how to run the job at a later time. The job is initiated at QUERY exit as follows:

Would you like your SAS job submitted? (y/n/cr=y): y

SAS job has been submitted . . . please wait

Would you like the results printed out? (y/n/cr=y): n

To look at your SAS run LOG file and/or output file LIS file, use the commands:

TYPE SASPROC.LOG TYPE SASPROC.LIS

To print your results, use the commands:

PRINT SASPROC.LOG PRINT SASPROC.LIS

FILES:

SASPROC.SAS - contains SAS commands SASPROC.LOG - contains information about your SAS job SASPROC.LIS - contains SAS results The SAS files generated include SASPROC.SAS which contains the SAS commands and is the file submitted to the system to run the SAS job. The SAS log file SASPROC.LOG generated gives information on how many observations (subjects) met the specified criteria and the number of measurement variables which were analysed. The log file will also inform you if a measurement was not available in a survey. In the case where the selection criteria were not logical or where there were no subjects who met the specified criteria, the log file will report that sero observations were made. SASPROC.LIS contains the SAS output file for the SAS procedure UNIVARIATE. This file will not exist if there were sero observations made in the SAS job.

Each time a SAS authorised user runs the QUERY data base program, the existing SASPROC.SAS, SASPROC.LOG, and SASPROC.LIS files are deleted. In the case where the user would like to save these files, before QUERY is executed again, the RENAME command may be used to rename these files so they will not be deleted. The format of the RENAME command is:

RENAME infile outfile

For example, if the SAS procedure file contained commands to analyze 1967 AF Flyers data and the user wishes to keep the files for later reference, the following commands would accomplish this:

RENAME SASPROC.SAS AFFLY67.SAS RENAME SASPROC.LOG AFFLY67.LOG RENAME SASPROC.LIS AFFLY67.LIS

The user may then run the data base program and be ensured that SAS job files created previously have been saved.

#### 6.0 ERROR REPORTING

-

In the case that a system error is encountered a message will be broadcast on the terminal specifying a RIM ERROR if the error was detected within the data base, or a FILE ERROR if the error resulted from a file i/o operation. The error number and the routine in which the error was encountered will also be displayed. All error information should be noted and reported to AAMRL/HEG.

# APPENDIX

| 6   | A RDOMINAL DEPTH-SIT          |
|-----|-------------------------------|
| 7   | ABDOMINAL FYT BOTH SIT        |
| 8   | ABDOMINAL-EXT-DRIN-SII        |
| 0   | ADDOMINAL EXT DEDTU           |
| 10  | ADDOMINAL EXT UT              |
| 10  | ADDOMINAL-EXI-HI              |
| 23  | ACROMION-HI                   |
| 25  | ACROMION-HT-SIT               |
| 39  | ACROMION-RADIALE-LITH         |
| 42  | ACROMION-TO-BICEPS-CIRC-LEVEL |
| 48  | AGE                           |
| 58  | ANKLE-CIRC                    |
| 64  | ANKLE-HT                      |
| 70  | ARM-CIRC-AXILLARY             |
| 72  | ARM-CIRC-BICEPS-RELAXED       |
| 73  | ARM-CIRC-BICEPS-RELAXED-LEFT  |
| 77  | ARM-CIRC-BICEPS-FLEXED        |
| 78  | ARM-CIRC-BICEPS-FLEXED-LEFT   |
| 90  | AXILLA-HT                     |
| 91  | AXILLA-TO-WAIST               |
| 93  | BACK-ARC-AT-BUST              |
| 95  | BACK-ARC-AT-WAIST             |
| 103 | BIACROMIAL-BRTH               |
| 110 | BICEPS-SKF                    |
| 122 | BIDELTOID-BRTH                |
| 126 | BIGONIAL-BRTH                 |
| 130 | BIILIOCRISTALE-BRTH           |
| 134 | BIMALLEOLAR-BRTH              |
| 138 | BIOCULAR-BRTH                 |
| 140 | BISPINOUS-BRTH                |
| 142 | BITRAGION-BRTH                |
| 144 | BITRAGION-CORONAL-ARC         |
| 150 | BITRAGION-MENTON-ARC          |
| 152 | BITRAGION-MINIMUM-FRONTAL-ARC |
| 154 | BITRAGION-NUCHALE-ARC         |
| 156 | BITRAGION-SUBMANDIBULAR-ARC   |
| 158 | BITRAGION-SUBNASALE-ARC       |

| 161 | BITROCHANTERION-BRTH         |
|-----|------------------------------|
| 165 | BIZYGOMATIC-BRTH             |
| 167 | BODY-LTH-SUPINE-KNEES-FLEXED |
| 169 | BOWED-TORSO-HT               |
| 172 | BUSTPOINT-TO-BUSTPOINT-BRTH  |
| 185 | BUTTOCK-CURVATURE            |
| 187 | BUTTOCK-HEEL-LTH             |
| 188 | BUTTOCK-HT                   |
| 194 | BUTTOCK-KNEE-LTH             |
| 200 | BUTTOCK-POPLITEAL-I/TH       |
| 207 | CALF-CIRC                    |
| 209 | CALF-CIRC-LEFT               |
| 215 | CALF-HT                      |
| 219 | CERVICALE-HT                 |
| 223 | CHEST-BRTH                   |
| 227 | CHEST-BRTH-BONE              |
| 230 | CHEST-CIRC                   |
| 231 | CHEST-CIRC-AT-SCYE           |
| 232 | CHEST-CIRC-BELOW-BUST        |
| 236 | CHEST-DEPTH                  |
| 237 | CHEST-HT                     |
| 249 | CROTCH-HT                    |
| 251 | CROTCH-LTH-NATURAL-WAIST     |
| 252 | CROTCH-LTH-UMBILICUS         |
| 265 | DACTYLION-HT                 |
| 269 | DELTOID-ARC                  |
| 277 | EAR-BRTH                     |
| 280 | EAR-LTH                      |
| 282 | EAR-LTH-ABOVE-TRAGION        |
| 285 | EAR-PROTRUSION               |
| 286 | EAR-TO-EAR-BRTH              |
| 293 | ELBOW-BRTH-BONE              |
| 297 | ELBOW-BRTH-BONE-LEFT         |
| 303 | ELBOW-CIRC-EXTENDED          |
| 305 | ELBOW-CIRC-FLEXED            |
| 307 | ELBOW-GRIP-LTH               |

| 309         | ELBOW-HT                          |
|-------------|-----------------------------------|
| 312         | ELBOW-REST-HT                     |
| 313         | ELBOW-REST-HT-STD                 |
| 324         | ELBOW-WRIST-LTH                   |
| 326         | EXTERNAL-CANTHUS-TO-OCCIPUT       |
| 327         | EXTERNAL-CANTHUS-TO-VERTEX        |
| 330         | EYE-HT-SIT-EXTERNAL-CANTHUS       |
| 331         | EYE-HT-SIT-INTERNAL-CANTHUS       |
| 340         | FIBULA-HT                         |
| 344         | FINGER-III-DIAMETER               |
| 356         | FOOT-BRTH                         |
| 358         | FOOT-CIRC                         |
| 362         | FOOT-LTH                          |
| 370         | FOREARM-CIRC-EXTENDED             |
| 371         | FOREARM-CIRC-FLEXED               |
| 375         | FOREARM-HAND-LTH                  |
| 377         | FOREARM-TO-FOREARM-BRTH-MINIMUM   |
| 378         | FOREARM-TO-FOREARM-BRTH-NORMAL    |
| 391         | GLABELLA-TO-OCCIPUT               |
| 393         | GLABELLA-TO-TOP-OF-HEAD           |
| 398         | GLUTEAL-FURROW-HT                 |
| 405         | GRIP-REACH-OVERHEAD               |
| 407         | GRIP-STRENGTH                     |
| 411         | HAND-BRTH-AT-METACARPALE          |
| 413         | HAND-BRTH-AT-THUMB                |
| 416         | HAND-CIRC-AT-METACARPALE          |
| 417         | HAND-CIRC-OVER-THUMB              |
| <b>42</b> 0 | HAND-LTH-DISTAL-WRIST-CREASE      |
| 421         | HAND-LTH-NAVICULAR                |
| 422         | HAND-LTH-RADIAL-STYLOID           |
| 424         | HAND-SKF                          |
| 425         | HAND-THICKNESS-AT-METACARPALE-III |
| 427         | HEAD-BRTH                         |
| 428         | HEAD-BRTH-MAXIMUM-FRONTAL         |
| <b>43</b> 0 | HEAD-CIRC                         |
| 433         | HEAD-DIAGONAL-INION-TO-PRONASALE  |

| 435        | HEAD-DIAGONAL-MAXIMUM-FROM-MENTON  |
|------------|------------------------------------|
| 436        | HEAD-DIAGONAL-MAXIMUM-FROM-NUCHALE |
| 437        | HEAD-DIAGONAL-MENTON-TO-OCCIPUT    |
| 441        | HEAD-LTH                           |
| 445        | HEEL-ANKLE-CIRC                    |
| 450        | HEEL-BRTH                          |
| 457        | HIP-BRTH                           |
| 459        | HIP-BRTH-SIT                       |
| 462        | HIP-CIRC                           |
| 464        | HIP-CIRC-SIT                       |
| 466        | HIP-CIRC-7-BELOW-WAIST             |
| 468        | HIP-CIRC-9-BELOW-WAIST             |
| 471        | HIP-DEPTH                          |
| 489        | ILIOCRISTALE-HT                    |
| 492        | INSTEP-CIRC-MID                    |
| 493        | INSTEP-CIRC-VERTICAL               |
| 496        | INSTEP-LTH                         |
| 500        | INTEROCULAR-DIST                   |
| 503        | INTERPUPILLARY-DIST                |
| 506        | INTERSCYE-DIST                     |
| 507        | INTERSCYE-DIST-MAX                 |
| 510        | INTERSCYE-FRONT                    |
| 511        | JUXTANIPPLE-SKF                    |
| 512        | KNEE-BRTH-BONE                     |
| 513        | KNEE-BRTH-BONE-LEFT                |
| 515        | KNEE-CIRC                          |
| 517        | KNEE-CIRC-SIT                      |
| 528        | KNEE-HT-FLEXED-SUPINE              |
| 529        | KNEE-HT-SIT                        |
| 536        | KNEE-TO-KNEE-BRTH                  |
| <b>538</b> | KNEELING-HT                        |
| 540        | KNEELING-LEG-LTH                   |
| 543        | LATERAL-MALLEOLUS-HT               |
| 547        | LIP-LTH                            |
| 549        | LIP-LTH-SMILING                    |
| 552        | LIP-PROTRUSION-TO-OCCIPUT          |

| 555 | LIP-TO-LIP-LTH                       |
|-----|--------------------------------------|
| 576 | MEDIAL-CALF-SKF                      |
| 579 | MEDIAL-MALLEOLUS-HT                  |
| 583 | MENTON-CRINION-LTH                   |
| 586 | MENTON-TO-NASAL-ROOT-DEPRESSION-LTH  |
| 588 | MENTON-TO-OCCIPUT                    |
| 592 | MENTON-TO-SUBNASALE-LTH              |
| 595 | MENTON-TO-TOP-OF-HEAD                |
| 601 | METACARPALE-HT                       |
| 612 | MIDSHOULDER-HT-SIT                   |
| 616 | MINIMUM-FRONTAL-ARC                  |
| 618 | MINIMUM-FRONTAL-BRTH                 |
| 625 | NASAL-ROOT-BRTH                      |
| 631 | NASAL-ROOT-DEPRESSION-TO-OCCIPUT     |
| 633 | NASAL-ROOT-DEPRESSION-TO-TOP-OF-HEAD |
| 636 | NECK-CIRC-BASE                       |
| 637 | NECK-CIRC-BELOW-LARYNX               |
| 639 | NECK-CIRC-OVER-LARYNX                |
| 644 | NECK-LTH-ANTERIOR                    |
| 645 | NECK-LTH-POSTERIOR-INION             |
| 647 | NECK-LTH-POSTERIOR-NUCHALE           |
| 648 | NECK-TO-BUSTPOINT-LTH                |
| 651 | NOSE-BRTH                            |
| 652 | NOSE-PROTRUSION                      |
| 654 | OVERHEAD-REACH-SIT                   |
| 655 | OVERHEAD-REACH-FOREWARD              |
| 656 | PALM-LTH-WRIST-CREASE                |
| 658 | PALM-LENGTH-NAVICULAR                |
| 663 | PATELLA-BOTTOM-HT                    |
| 665 | PATELLA-MID-HT                       |
| 666 | PATELLA-TOP-HT                       |
| 674 | PHILTRUM-LTH                         |
| 678 | POPLITEAL-HT-SIT                     |
| 690 | PRONASALE-TO-OCCIPUT                 |
| 692 | PRONASALE-TO-TOP-OF-HEAD             |
| 698 | RADIALE-STYLION-LTH                  |

| 702 | SAGITTAL-ARC-INION                 |
|-----|------------------------------------|
| 705 | SAGITTAL-ARC-NUCHALE               |
| 732 | SCYE-CIRC-OVER-ACROMION            |
| 735 | SCYE-CIRC-OVER-SHOULDER            |
| 743 | SHOULDER-BRTH-BOWED                |
| 745 | SHOULDER-BRTH-REACHING-OVERHEAD    |
| 747 | SHOULDER-CIRC                      |
| 751 | SHOULDER-ELBOW-LTH                 |
| 754 | SHOULDER-LTH                       |
| 758 | SITTING-HT                         |
| 760 | SITTING-HT-RELAXED                 |
| 764 | SLEEVE-INSEAM-LTH                  |
| 772 | SLEEVE-LTH                         |
| 797 | SLEEVE-OUTSEAM-LTH                 |
| 801 | SPHYRION-HT                        |
| 802 | SPINE-TO-ELBOW-LTH                 |
| 803 | SPINE-TO-SCYE-LTH                  |
| 805 | STATURE                            |
| 806 | STATURE-CLOTHED                    |
| 807 | STATURE-MAXIMUM                    |
| 808 | STATURE-REPORTED                   |
| 814 | STOMION-TO-OCCIPUT                 |
| 815 | STOMION-TO-TOP-OF-HEAD             |
| 821 | STRAP-LTH                          |
| 825 | SUBNASALE-TO-NASAL-ROOT-DEPRESSION |
| 829 | SUBNASALE-TO-OCCIPUT               |
| 830 | SUBNASALE-TO-TOP-OF-HEAD           |
| 833 | SUBSCAPULAR-SKF                    |
| 834 | SUBSCAPULAR-SKF-II                 |
| 837 | SUBSTERNALE-HT                     |
| 841 | SUPRASTERNALE-HT                   |
| 844 | SUPRAILIAC-SKF                     |
| 845 | SUPRAILIAC-SKF-II                  |
| 848 | SUPRAPATELLA-SKF                   |
| 851 | THIGH-CIRC-DISTAL                  |
| 852 | THIGH-CIRC-PROXIMAL                |

| 853 | THIGH-CIRC-PROXIMAL-SIT   |
|-----|---------------------------|
| 856 | THIGH-CLEARANCE           |
| 859 | THIGH-TO-THIGH-BRTH-SIT   |
| 864 | THUMB-LTH                 |
| 867 | THUMB-TIP-REACH           |
| 869 | THUMB-TIP-REACH-EXTENDED  |
| 873 | TIBIALE-HT                |
| 880 | TRAGION-TO-OCCIPUT        |
| 882 | TRAGION-TO-TOP-OF-HEAD    |
| 888 | TRICEPS-SKF               |
| 890 | TRICEPS-SKF-II            |
| 894 | TROCHANTERION-HT          |
| 916 | VERTICAL-TRUNK-CIRC       |
| 917 | VERTICAL-TRUNK-CIRC-SIT   |
| 919 | WAIST-BACK-LTH-NATURAL    |
| 921 | WAIST-BACK-LTH-OMPHALION  |
| 924 | WAIST-BRTH-NATURAL        |
| 928 | WAIST-BRTH-OMPHALION      |
| 931 | WAIST-CIRC-NATURAL        |
| 932 | WAIST-CIRC-OMPHALION      |
| 935 | WAIST-CIRC-OMPHALION-SIT  |
| 939 | WAIST-DEPTH-NATURAL       |
| 943 | WAIST-DEPTH-OMPHALION     |
| 945 | WAIST-FRONT-LTH-NATURAL   |
| 946 | WAIST-FRONT-LTH-OMPHALION |
| 949 | WAIST-HT-NATURAL          |
| 950 | WAIST-HT-OMPHALION        |
| 951 | WAIST-HT-NATURAL-SIT      |
| 957 | WEIGHT                    |
| 958 | WEIGHT-CLOTHED            |
| 960 | WEIGHT-REPORTED           |
| 964 | WRIST-BRTH-BONE           |
| 967 | WRIST-CIRC-MINIMUM        |
| 970 | WRIST-CIRC-STYLION        |
| 973 | WRIST-HT                  |
| 985 | XIPHOID-SKF               |

# NUMBER MEASUREMENT TITLE

| 1001 | MARITAL-STATUS-AFW68           |
|------|--------------------------------|
| 1002 | COMMAND-AFW68                  |
| 1003 | BLOOD-TYPE                     |
| 1004 | RH-FACTOR                      |
| 1005 | HANDEDNESS                     |
| 1006 | BIRTHPLACE-SUBJECT             |
| 1007 | BIRTHPLACE-FATHER              |
| 1008 | BIRTHPLACE-MOTHER              |
| 1009 | YEAR-OF-BIRTH                  |
| 1010 | AGE-AT-MENARCHE-AFW68          |
| 1011 | YEAR-MEASURED                  |
| 1012 | OCCUP-AFW68                    |
| 1013 | RACE-AFW68                     |
| 1014 | RANK-AFW68                     |
| 1015 | AERO-RATING-AFM67              |
| 1016 | AIRCRAFT-AFM67                 |
| 1017 | COMMAND-AFM67                  |
| 1018 | AERO-RATING-AFM65              |
| 1019 | RELIGION                       |
| 1020 | EDUCATION                      |
| 1021 | MARITAL-STATUS-AFM65           |
| 1022 | YEAR-ENTERED-AFM65             |
| 1023 | BOOT-SIZE-LTH-ARM66            |
| 1024 | BOOT-SIZE-WIDTH-ARM66          |
| 1025 | RANK-ARM66                     |
| 1026 | PAY-GRADE-ARM66                |
| 1027 | SERVICE-LTH-ARM66              |
| 1028 | EDUCATION-ARM66                |
| 1029 | MARITAL-STATUS-ARM66           |
| 1030 | BIRTHPLACE-SUBJECT-ARM66       |
| 1031 | BIRTHPLACE-FATHER-ARM66        |
| 1032 | BIRTHPLACE-MOTHER-ARM66        |
| 1033 | <b>RESIDENCE-LONGEST-ARM66</b> |
| 1034 | NATL-EXTRACTION-ARM66          |
| 1035 | TOE-BIGGEST-ARM66              |
| 1036 | GLASSES-ARM66                  |

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| 1037         | RACE-AFM67                      |
|--------------|---------------------------------|
| 1038         | RANK-AFM67                      |
| 1039         | RACE-AFM65                      |
| 1040         | RANK-AFM65                      |
| 1041         | MOS-ARW77                       |
| 1042         | RACE-ARW77                      |
| 1043         | BIRTHDATE-ARW77                 |
| 1044         | SERVICE-LTH-ARW77               |
| 1045         | RANK-ARW77                      |
| 1046         | BIRTHPLACE-ARW77                |
| 1501         | STRENGTH-CENTER-SIT-45-AVG1     |
| 1502         | STRENGTH-CENTER-SIT-45-AVG2     |
| 1503         | STRENGTH-CENTER-SIT-45-PEAK1    |
| 1504         | STRENGTH-CENTER-SIT-45-PEAK2    |
| 1505         | STRENGTH-SIDE-SIT-45-AVG1       |
| 1506         | STRENGTH-SIDE-SIT-45-AVG2       |
| 1507         | STRENGTH-SIDE-SIT-45-PEAK1      |
| 1508         | STRENGTH-SIDE-SIT-45-PEAK2      |
| 1509         | STRENGTH-ONE-HAND-STD-100-AVG1  |
| 1510         | STRENGTH-ONE-HAND-STD-100-AVG2  |
| 1511         | STRENGTH-ONE-HAND-STD-100-PEAK1 |
| 1512         | STRENGTH-ONE-HAND-STD-100-PEAK2 |
| 1513         | STRENGTH-TWO-HAND-SIT-38-AVG1   |
| 1514         | STRENGTH-TWO-HAND-SIT-38-AVG2   |
| 1515         | STRENGTH-TWO-HAND-SIT-38-PEAK1  |
| 1516         | STRENGTH-TWO-HAND-SIT-38-PEAK2  |
| 1517         | STRENGTH-TWO-HAND-SIT-50-AVG1   |
| 1518         | STRENGTH-TWO-HAND-SIT-50-AVG2   |
| 1519         | STRENGTH-TWO-HAND-SIT-50-PEAK1  |
| 1520         | STRENGTH-TWO-HAND-SIT-50-PEAK2  |
| 1521         | STRENGTH-TWO-HAND-STD-38-AVG1   |
| 1522         | STRENGTH-TWO-HAND-STD-38-AVG2   |
| 15 <b>23</b> | STRENGTH-TWO-HAND-STD-38-PEAK1  |
| 1524         | STRENGTH-TWO-HAND-STD-38-PEAK2  |
| 1525         | STRENGTH-TWO-HAND-STD-50-AVG1   |
| 1526         | STRENGTH-TWO-HAND-STD-50-AVG2   |

| NUMBER | MEASUREMENT TITLE               |
|--------|---------------------------------|
| 1527   | STRENGTH-TWO-HAND-STD-50-PEAK1  |
| 1528   | STRENGTH-TWO-HAND-STD-50-PEAK2  |
| 1529   | STRENGTH-TWO-HAND-STD-100-AVG1  |
| 1530   | STRENGTH-TWO-HAND-STD-100-AVG2  |
| 1531   | STRENGTH-TWO-HAND-STD-100-PEAK1 |
| 1532   | STRENGTH-TWO-HAND-STD-100-PEAK2 |
| 1533   | STRENGTH-TWO-HAND-STD-150-AVG1  |
| 1534   | STRENGTH-TWO-HAND-STD-150-AVG2  |
| 1535   | STRENGTH-TWO-HAND-STD-150-PEAK1 |
| 1536   | STRENGTH-TWO-HAND-STD-150-PEAK2 |

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