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**User's Manual for an Army National Guard  
(ARNG) Armor and Mechanized Infantry Gunnery  
Training Assessment Database**

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**February 1998**

**Reserve Component Training Research Unit**

**U.S. Army Research Institute for the Behavioral and Social Sciences**

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**A Directorate of the U.S. Total Army Personnel Command**

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(ARNG) Armor and Mechanized Infantry Gunnery  
Training Assessment Database**

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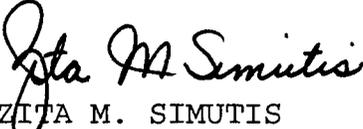
## FOREWORD

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The Army National Guard (ARNG) is seeking to place greater emphasis on the use of training aids, devices, simulators, and simulations (TADSS) to make an order-of-magnitude difference in the effectiveness and efficiency of Abrams Tank and Bradley Fighting Vehicle gunnery training. To this end, Project SIMITAR (Simulation in Training for Advanced Readiness) has developed a TADSS-oriented, time-compressed gunnery training strategy designed to enable yearly conduct of crew- and platoon-level gunnery, as well as company and higher level maneuver, training among ARNG armored and mechanized infantry units. The present user's manual describes the longitudinal database of gunnery-related information developed to support impact assessment of this strategy, as adopted in an ARNG armored brigade.

This research was conducted by the U.S. Army Research Institute for the Behavioral and Social Sciences Reserve Component Training Research Unit (USARI-RCTRU), whose mission is to improve the effectiveness and efficiency of RC training through use of the latest in training technology. The research task supporting this mission, "Train Up: Technology-Based RC Training Strategies," is organized under Science and Technology Objective III.P.02, Unit Training Strategies.

The National Guard Bureau (NGB) sponsored this research under a continuing Memorandum of Understanding initially signed 12 June 1985. A product brief has been presented to Director, Project SIMITAR; Chief, Training Division, NGB.

  
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Technical Director

# USER'S MANUAL FOR AN ARMY NATIONAL GUARD (ARNG) ARMOR AND MECHANIZED INFANTRY GUNNERY TRAINING ASSESSMENT DATABASE

## EXECUTIVE SUMMARY

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### Research Requirement:

Develop a user's manual for the longitudinal database of gunnery-related information used to assess the impact of Project SIMITAR's (Simulation in Training for Advanced Readiness) time-compressed gunnery training strategy for ARNG armored and mechanized infantry units (Smith, in publication).

### Procedure:

This user's manual describes how the SIMITAR database is structured to support longitudinal tracking of live-fire gunnery performance measures and related information necessary for assessing the impact of the SIMITAR gunnery training strategy, as well as other future gunnery training strategies adopted by ARNG armored and mechanized infantry units. The database is configured within a software program known as the Statistical Package for the Social Sciences (SPSS, Version 6.1 for Windows), a comprehensive data management program that also provides a wide array of data examination and statistical analysis capabilities ranging from simple frequency tabulations to complex multivariate routines.

### Findings:

The database contains gunnery performance and related information from seven ARNG armored and mechanized infantry enhanced brigades used to assess impact of the SIMITAR compressed gunnery training strategy. Data are structured according to Year, Brigade, Battalion, Company, and Crew, with measures from earlier years appearing first. The database is currently populated with data for the years 1993-1997, but can be expanded to include additional information depending on user needs. Over 100 gunnery-related measures are currently included.

### Utilization of Findings:

This user's manual will help ARNG database managers use the SIMITAR database as a convenient repository for gunnery performance and related information and as a resource for future gunnery-related strategy impact investigations.

USER'S MANUAL FOR AN ARMY NATIONAL GUARD (ARNG) ARMOR AND  
MECHANIZED INFANTRY GUNNERY TRAINING ASSESSMENT DATABASE

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# User's Manual for an Army National Guard (ARNG) Armor and Mechanized Infantry Gunnery Training Assessment Database

## Background

A successful ARNG gunnery training strategy for armored and mechanized infantry units must thoroughly exploit available and developing technology in the form of training aids, devices, simulators and simulations (TADSS). The successful training strategy must efficiently use the available array of TADSS and specify where in the training continuum each TADSS should be employed. This is a complex and long-term goal that will be completed only when it is possible to specify precise levels of required TADSS proficiencies, the relations between these proficiencies and criterion measures, the substitutability of various TADSS, and preferred mixes and sequences of TADSS-based and operational equipment-based gunnery training.

The first step in this process is to assess the impact of TADSS technologies once they are implemented by ARNG units. This begins with a systematic documentation of TADSS implementation and training usage, continues with identification and measurement of both TADSS-based performance and relevant outcome (criterion) measures, and concludes with specification of any observed relation between the intervention (i.e., the TADSS) and criterion measures (e.g., live-fire gunnery scores). In the best of all worlds, TADSS-based proficiency can be used to predict real world performance and unit combat readiness.

A key to accomplishing this goal is development of a structured database to permit storage, retrieval, and iterative analyses of all gunnery-related data generated within ARNG units as TADSS are implemented and validated. Such a database will support the tracking of historical variables concerning the use of TADSS, gunnery training and qualification data associated with their use, live-fire gunnery performance measures, and other measures essential for assessing the impact of different gunnery training interventions/strategies adopted by ARNG armored and mechanized infantry units.

## Overview of the Database

A database like that described above has been developed to support impact assessment of Project SIMITAR's (Simulation in Training for Advanced Readiness) time-compressed gunnery training strategy for ARNG armored and mechanized infantry units (Smith, in publication). The present user's manual describes this so as to provide sufficient information about its content, structure, and intended purpose to permit researchers and database managers to access it and make use of its information.

### *Configuration of the Database*

The gunnery database is configured within a software program known as the Statistical Package for the Social Sciences (SPSS, Version 6.1 for Windows). SPSS provides a wide array of data examination and statistical manipulation operations which can be applied to categories of

information in the database. These operations range from simple frequency tabulations to complex multivariate routines such as factor analysis and clustering algorithms. Using SPSS, it is possible to re-code existing variables, create new variables by combining old ones, weight selected variables, add new variables, remove old variables, insert new cases or remove old ones, select subsets of the database for statistical analysis, and perform a virtually unlimited variety of operations, including the creation of tables, charts, graphs, and scatter plots. Using a Windows graphical interface, SPSS output can be copied and pasted into most word processing programs.

In order to realize the full potential benefits of the gunnery database, it is recommended that users avail themselves of SPSS's extensive data examination and manipulation capabilities. Its three base manuals (Norusis, 1993; SPSS, Inc., 1993; SPSS, Inc., 1994) contain a total of almost two thousand pages. Moreover, documentation for other specialized statistical procedures account for more than an additional thousand pages. SPSS for Windows works in a graphical environment, uses simple dialog boxes and descriptive menus to do most of the work, and is reasonably user-friendly, given its scope and flexibility. It is, nonetheless, largely inappropriate for those without prior data management experience. This user's manual presupposes prior experience with SPSS or at least prior statistical training and experience with alternative data management/analysis software.

For database users wishing to bypass SPSS (or wishing to use other versions of SPSS in non-PC environments), SPSS Version 6.1 files can be exported in a number of formats, permitting their incorporation into a variety of spreadsheet and database management programs, as well as several other statistical utilities. Export capabilities include ASCII (\*.dat), SPSS Portable Files (\*.por), Excel (\*.xls), Lotus 1-2-3 Rel 3.0 (\*.wk3) and earlier Lotus 1-2-3 releases, SYLK (\*.slk), dBASE IV (\*.dbf) and earlier dBASE releases, as well as formats compatible with earlier PC-based versions of SPSS, such as SPSS/PC+ (\*.sys). Of all these export formats, ASCII is the most generic. (ASCII stands for American Standard Code for Information Interchange.) ASCII export files permit SPSS data to be imported into virtually any text-based program, including most alternative statistical programs. Some or all SPSS data dictionary information may be lost in the translation, however. Details such as value and variable labels may be lost as well.

The principal file in the gunnery database is named MAINDATA.SAV. This file can be thought of as a large grid (rectangular in shape) consisting of columns (variables) and rows (cases). (In this file, a case is equivalent to a crew.) As long as cases are coded properly, they could be entered into the database in any order. Randomized order of cases, however, complicates matters when the database user desires to work with selected parts of the database. For that reason, cases in MAINDATA.SAV are entered in a particular order: Year, Brigade, Battalion, Company, and Crew.

### *Structure of the Database*

*Year.* The oldest data appear first in the file. Thus, all data for all crews in all companies in all battalions collected in 1993 appear before any data from subsequent years.

*Brigade and Battalion.* The database is structured to accommodate data from 8 brigades. (Data from additional brigades can be added later, as brigade numbers 9, 10, 11, and so on.) The first brigade (116 Cavalry Brigade from Idaho, Montana, and Oregon) is a SIMITAR unit. As can be seen below, this brigade contains 2 armor battalions (2-116 AR and 3-116 AR), one mechanized infantry battalion (1-163 IN [Mech]), and a cavalry troop (G/82 CAV). The second brigade and its four subunits serve as a "place-keeper" or "marker" brigade. Currently there are no data for this brigade. It serves as a place-keeper, in case a second experimental (i.e., SIMITAR) unit is subsequently added to the database. The other 6 brigades (numbers 3 through 8) are ARNG Enhanced Armored and Infantry (Mech) Brigades.

Within each calendar year, data for brigades and battalions are always arranged in the order indicated below. The first three entries for each brigade represent full-size battalions, each with several companies. The fourth entry under each brigade represents a company-size cavalry troop. In some brigades these troops are attached to one of the full-size battalions for administrative purposes, but they exist as organizationally separate entities and for that reason are always given their own listing within the gunnery database.

1 = 116 Cavalry Brigade – Idaho, Montana, Oregon

1 = 2-116 AR

2 = 3-116 AR

3 = 1-163 IN (Mech)

4 = G/82 CAV

2 = Reserved for expansion

5 = Reserved for expansion

6 = Reserved for expansion

7 = Reserved for expansion

8 = Reserved for expansion

3 = 256 Infantry Brigade (Mechanized) – Louisiana

9 = 1-156 AR

10 = 2-156 IN (Mech)

11 = 3-156 IN (Mech)

12 = E/256 CAV

4 = 155 Armored Brigade – Mississippi

13 = 1-198 AR

14 = 2-198 AR

15 = 1-155 IN (Mech)

16 = E/98 CAV

5 = 30 Infantry Brigade (Mechanized) – North Carolina  
 17 = 1-252 AR  
 18 = 1-119 IN (Mech)  
 19 = 1-120 IN (Mech)  
 20 = E/196 CAV

6 = 218 Infantry Brigade (Mechanized) – South Carolina  
 21 = 2-263 AR  
 22 = 1-118 IN (Mech)  
 23 = 4-118 IN (Mech)  
 24 = B/202 CAV

7 = 278 Armored Cavalry Regiment – Tennessee  
 25 = 1-278 ACR  
 26 = 2-278 ACR  
 27 = 3-278 ACR  
 28 = Unstaffed

8 = 81 Infantry Brigade (Mechanized) – Washington  
 29 = 1-303 AR  
 30 = 1-161 IN (Mech)  
 31 = 3-161 IN (Mech)  
 32 = E/303 CAV

*Company.* Within battalions, companies appear in alphabetical order; that is, Company A, B, C, D, E (if appropriate), and H (Headquarters).

*Crew.* Within company, crews are assigned a crew number which ranges from 1 up to the number of crews within the particular company. Crew numbers are assigned in order of ascending bumper numbers (i.e., Tank # or Bradley Fighting Vehicle [BFV] #). Bumper numbers are taken directly from vehicles or from live-fire gunnery scoresheets provided by the units. Bumper numbers also reveal how tanks and BFVs are assigned to platoons. Bumper numbers appear in clusters of 4 (e.g., 11, 12, 13, 14, 21, 22, 23, 24). Four vehicles constitute a platoon, and platoons are formed from consecutive numbers, e.g., 11, 12, 13, and 14 would constitute a platoon. Figure 1 presents an abbreviated structure of the database.

1993				
	Brigade #1			
		Battalion # 1		
			Company A	
				Crew # 1 Crew # nth

Figure 1. Abbreviated structure of the database.

To eliminate the possibility of confusion, numeric identification variables are accompanied by several string (alphanumeric) variables for each case (i.e., crew) in the database. Immediately following the "Brigade" variable, database users will find another variable, called "Bdename," which provides the brigade's verbal designation. Following the "Battlion" variable, another string variable identifies the particular battalion. Following the "Tank#" variable, a string variable called "Roster" gives the name and position of each member of the crew, so far as those data were available. (Tanks have four crew members; Bradleys have three crew members.) The full structure of the database is represented in Appendix A.

The first ten variables in the database (Year, Brigade, Bdename, Armech, Battalion, Battname, Company, Crew#, Tank#, and Roster) are illustrated in Table 1, for the first 10 crews from Company A of the first unit in the database (2-116 AR) for the year 1993. This table is for illustration purposes only. The actual database contains many more variables (in the form of

Table 1

Illustration of the First 10 Variables in the Gunnery Database

Yr	Bde	Bdename	Armech	Bn	Battname	Co	Crew#	Tank#	Roster
93	1	116 Cavalry Bde	1	1	2-116 AR	A	1	A11	Pete Turner, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	2	A12	W.O. Goodman, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	3	A13	Henry Bowman, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	4	A14	Carlton Stowers, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	5	A21	Conley Bartlett, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	6	A22	J.B. Swift, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	7	A23	Elmore Lankston, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	8	A24	Clint Tucker, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	9	A34	James Petersen, TC;
93	1	116 Cavalry Bde	1	1	2-116 AR	A	10	A66	Gene Benchley, TC;

additional columns that extend beyond the right-hand margin of Table 1) and many more case records (in the form of additional rows that extend beyond the bottom row of Table 1).

Variable names appear in the first row across the top of the table with each variable having its separate column. Each row in the table represents a different crew. Notice that the string variable "Roster" does not print out in its entirety, either in Table 1 or when viewed on the SPSS output screen. The space reserved within the database for this variable, however, consists of 100 characters, sufficient to record the names and positions of all crew members. This field, for crew #1 in Table 1, appears as "Pete Turner, TC:." This is an abbreviation, however. In the database, this field actually contains the following information: "Pete Turner, TC; Hardin, Gnr; Dillinger, Ldr; Petty, Dvr." If the entire variable field were printed out, however, it would stretch across

most of the available SPSS screen and make it difficult to identify variables that come before and after it in the database. SPSS normally reveals only enough of a long alphanumeric variable to identify its content (the first crew member in this instance, which happens to be the vehicle commander). If a database user desires full details on a crew's composition, he or she can move the cursor to any cell under the "Roster" variable, click on the cell, and view a full listing of all crew members and their crew positions in the edit box at the top of the SPSS screen. Similarly, unabbreviated listings of crew members can be obtained for any desired subset of the database using standard SPSS commands.

As mentioned previously, there are many more variables in the gunnery database than the ones shown in Table 1. These additional variables, if they had been printed, would have appeared to the right of the last variable ("Roster") shown in Table 1. Table 2 illustrates the next nine variables in the database. These measures belong to the same 10 crews listed in Table 1.

Table 2  
Illustration of the Next 9 Variables in the Database

T8A1	RoundsA1	HitsA1	T8A2	RoundsA2	HitsA2	T8A3	RoundsA3	HitsA3
54	3	2	77	4	2	100	4	2
100	2	2	100	4	2	65	4	2
100	2	2	82	2	2	100	4	2
0	2	0	100	4	2	83	4	2
0	3	1	2	3	1	75	6	3
100	2	2	88	3	2	0	1	0
74	2	2	100	3	2	74	4	2
95	2	2	16	1	1	42	4	2
69	2	2	87	3	2	42	4	2
12	1	1	32	3	1	0	4	2

The first variable listed (T8A1) is the score obtained on engagement A1 from tank gunnery Table VIII. The first crew scored 54; the second crew scored 100, and so on. Definitions of any of the variables in the top row of Table 2 can be obtained while working in the database by clicking on the variable's name, choosing "Data" from the main menu at the top of the screen, and "Define Variables - Labels" from the resulting drop down menu. Variable definitions can also be obtained by referring to Appendix B (Data Element Dictionary) in this manual.

The next two variables in Table 2, "RoundsA1" and "HitsA1," are part of a rounds-fired and hits-recorded analysis (first-run data only). On the first engagement, for example, which contains two targets, the first crew listed in Table 2 fired three main-gun rounds and had two hits. The second crew fired two rounds and experienced hits with both rounds. Notice that a perfect score

on this engagement (100) requires that both targets be hit. Moreover, the targets must be hit within a prescribed time limit in order to obtain the maximum score, without incurring other penalties. Some crews in Table 2 have destroyed both targets, yet received less than a perfect score, either from taking too much time or otherwise incurring penalties. Crews hitting 0 or 1 target invariably received low scores. The rounds-fired and hits-recorded (first-run only) data were taken from the official Table VIII scoresheets filled out on the range by certified tank crew evaluators. A similar rounds-fired and hits-recorded (first-run only) analysis was performed for each subsequent Table VIII engagement.

Rounds-fired and hits-recorded data in Table 2 are for main-gun rounds only. Notice that regardless of score on the third Table VIII engagement (T8A3), zero rounds-fired and hits-recorded appear in the next two columns. That is because A3 in Table VIII is a machine gun engagement.

For each crew, additional variables are listed in the columns extending to the right and off the printed page. (It would take a very wide sheet of paper to print out every variable.) One of the advantages of SPSS is that it can accommodate a large number of variables. Using SPSS command syntax, the system has been successfully tested with up to 32,000 variables. With the more common user interface consisting of dialog boxes, the limit is approximately 4,500 variables. (The exact number depends on the length of variable names.)

Appendix B contains a data dictionary which defines all variables in the gunnery database. The order in which variables are defined in Appendix B corresponds to the left-to-right order in which they appear in the database.

### Selecting Subsets of Data for Analysis

When using the gunnery database, it is important to remember that the principal file, MAINDATA.SAV contains many variables, for several brigades, across a number of years (currently 1993 to 1997). In most instances, the user will probably be interested in examining a subset of the database. When this is the case, the user must tell SPSS which cases to select for examination. SPSS is capable of basing any of its many procedures on subsets of cases as specified by the user. Once a subset of cases is specified, the selection criteria remain in effect until the user changes them. The user is free to change the selection criteria at any time. Selection criteria can be based on variable values and ranges (the year 1993, for instance; or the years 1993 through 1995), arithmetic expressions, logical expressions, or even functions.

For example, a database user might be interested in examining Table VIII scores for the 2-116 AR Battalion of the 116 Cavalry Brigade during the year 1993. The user can specify the case selection criteria by using either dialog boxes or SPSS syntax (a simplified programming language where the user either writes short lines of code or opens prepared packages of code within SPSS syntax boxes and runs the self-executing routines).

### Selecting Subsets of Cases with Dialog Boxes

To use the dialog box approach to selecting subsets of cases, the first step is to open SPSS in the Windows environment. The first screen will look something like the one reproduced in Figure 2, an empty grid with the words “SPSS for Windows” across the top of the screen. Your

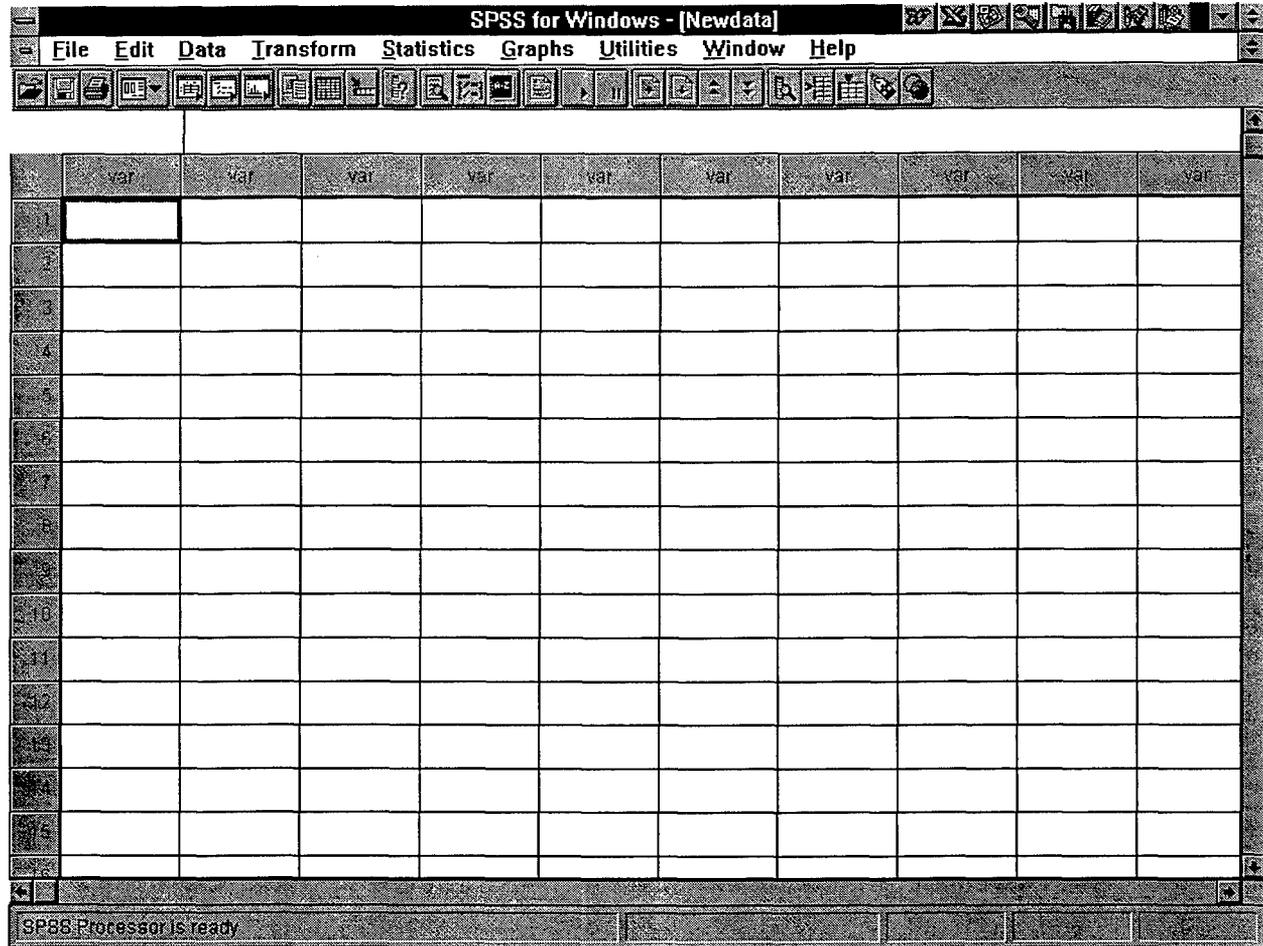


Figure 2. Opening SPSS for Windows is the first step to using the Gunnery Database.

screen may look somewhat different, depending on the what computer system you are using and the names of directories where you store your database files. The two most important features of your screen, however, will be the empty grid that fills most of your display, and the menu bar running across the screen underneath the SPSS for Windows label. The menu bar contains nine selections: File, Edit, Data, Transform, Statistics, Graphs, Utilities, Window, and Help.

Use the first menu item, “File,” to open your MAINDATA.SAV main database file. To accomplish this task, click “File ... Open ... Data.” This opens an Open Data File dialog box. Using the Windows interface, tell SPSS where to find your main database file, and open it. This will bring up a screen that looks like Figure 3.

Locate the third menu item (Data) in the menu bar across the top of the SPSS screen and click on it. This step will produce a drop down menu containing approximately a dozen items. Toward the bottom of the list, find "Select Cases" and click on it. This brings up the Select Cases dialog box (Figure 4). Take a good look at this dialog box. This box is the key to successful specification of selection criteria. Listed down the left side of the Select Cases dialog box are all the variables that have been defined within the database. (In order to see more variables, click on the scroll bar.) On the right side of the dialog box are five radio buttons, each

	year	brigade	bdename	armech	battalion	batname	company	crew#	tank#	job
1	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	1	A11	Je
2	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	2	A12	CH
3	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	3	A13	GA
4	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	4	A14	BO
5	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	5	A21	MA
6	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	6	A22	ST
7	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	7	A23	DR
8	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	8	A24	CL
9	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	9	A34	WA
10	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	A	10	A66	ST
11	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	B	1	B11	SC
12	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	B	2	B12	BR
13	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	B	3	B13	HA
14	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	B	4	B14	TI
15	1993	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	B	5	B21	LA
16	1992	1	116 Cavalry Briga	1	1	2-116 AR (Idaho)	B	6	B22	HA

Figure 3. The main database file (MAINDATA.SAV) opened within SPSS for Windows.

representing a different approach to specifying selection criteria. The default, "All cases," is represented by the first button, which under normal circumstances will be lit, as shown in Figure 4. The second button, which is the one that database users will most often use to select subsets of cases for analysis, is labeled: "If condition is satisfied." Click this button, and notice that the contents of the command push-button underneath the "If condition is satisfied" radio button are now bolded. This push-button is labeled: "If ..."

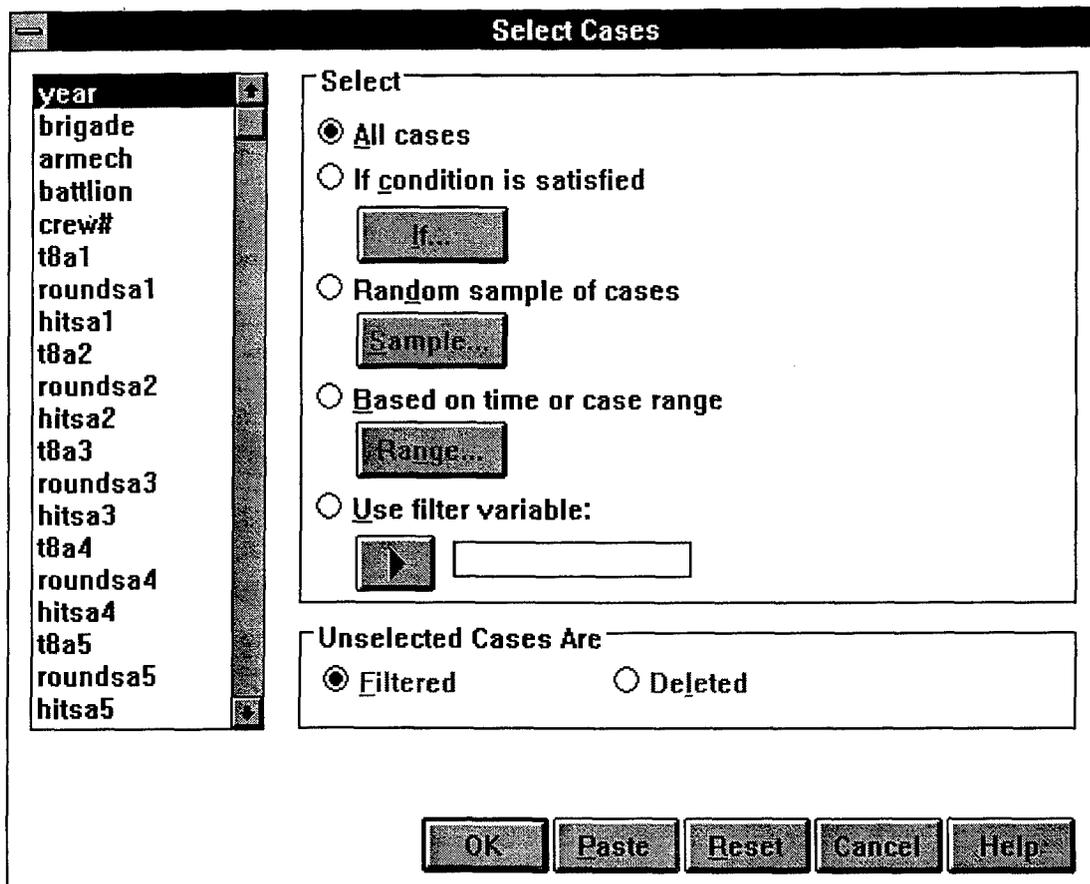


Figure 4. The SPSS Select Cases dialog box.

Click on the If ... push-button. This will bring up the “Select Cases: If” dialog box (Figure 5). In the variables list box, highlight “Year” and move this variable to the edit box by clicking the directional arrow.

Move your cursor to the calculator pad and click the equals symbol (=). Using the calculator keypad, enter the year of interest, 1993, by clicking the digits 1993 so they appear in the edit box.

Add the ampersand symbol (&) by clicking it. Go back to the list of variables and highlight “Battlion.” Move it into the edit box by clicking the directional arrow. Click the equals symbol again. Click the number 1 in the calculator keypad. The edit box now contains the following code: “year = 1993 & battlion =1.” This command instructs SPSS to select for analysis all cases from battlion 1 for the year 1993. All other cases will be excluded. (We already know that battlion 1 is the 2–116 AR battalion of the 116 Cavalry Brigade.)

If you had wanted to include cases from either 1993 or 1994, you would have entered 1994 in addition to 1993, using either the calculator keypad or the keypad on your computer keyboard, and linked the two years with the symbol for “or,” which is the vertical post on the “Select Cases: If” keypad, located between the ampersand (&) and the zero (0). If you make a mistake while entering your selection criteria commands, don’t panic. Entries in the edit box can be edited

easily by clicking anywhere inside the box to activate the insertion point and then moving around inside the box with directional arrow keys. Editing is accomplished exactly as it is in any other text window by deleting unwanted text with the delete or backspace keys and typing in replacement text.

When all your selection criteria specifications are entered, and you've checked them for accuracy, click the Continue command button. After a brief pause, the "Select Cases" dialog box will reappear (Figure 4). This time, however, it will contain your new selection specifications. Check your specifications one last time. If you discover a mistake, go back to the "Select Cases: If" dialog box (by clicking the command push-button containing "If ...") and make corrections in the edit box.

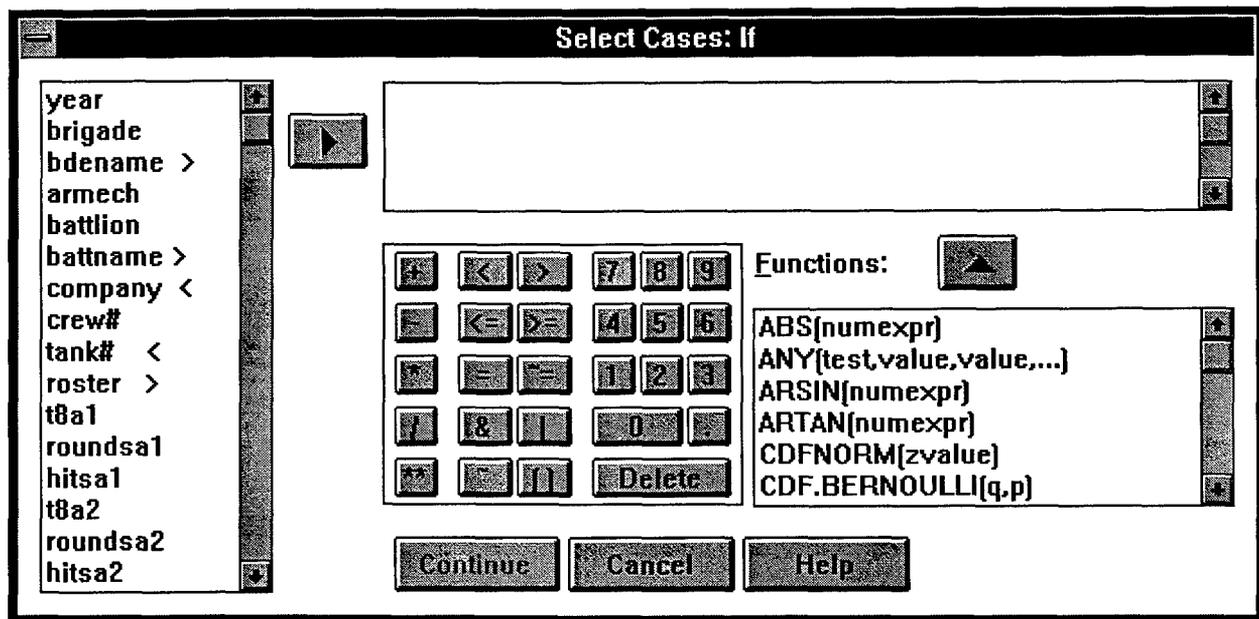


Figure 5. The SPSS Select Cases: If dialog box.

Before continuing, notice the small rectangular box just above the row of command push-buttons. The rectangular box contains two radio buttons, "Filtered" and "Deleted," which describe what happens to the cases that do not meet the selection criteria you have specified for your forthcoming analysis. The default selection is "Filtered," which means that non-selected cases are filtered out of your forthcoming analysis. Under this option, nonqualifying cases are marked as not suitable for the forthcoming analysis but they are still retained in the database. The alternative, "Deleted," means that cases not selected will be deleted (permanently) from your active data file. Unless your file has grown to immense proportions and you need to free up memory space by deleting unselected cases, this is generally a poor choice. If you do select the "Deleted" option, remember that the deletion is permanent for the remainder of your work session. Deleted cases cannot be undeleted. The only way to revive them is to close your active file and then reopen the original MAINDATA.SAV. A major problem can arise if, at the end of a work session, you forget that you've deleted some cases and save your new (truncated) work

file, replacing the original MAINDATA.SAV file. If you make this mistake, you run the risk of permanently losing cases. This is a good reason to keep backups of MAINDATA.SAV.

When you're satisfied that all your specifications are correct, leave the Select Cases dialog box by clicking the "OK" command push-button at the bottom of the dialog box. The main data editor screen reappears (Figure 3), displaying the top left hand corner of MAINDATA.SAV, and your computer begins the process of screening every case in the file to see if it meets your selection criteria. This step may take several seconds, depending on the processing capability of your computer and the size of the database. SPSS will notify you (on the message bar at the bottom of your screen) when the process is complete. When this occurs, scroll down through the cases in MAINDATA.SAV and keep your eye on the SPSS case numbers on the far left of your computer screen. After a while, you will observe that these case numbers will have diagonal slash marks through them, a visual indication that they did not meet your criteria for inclusion.

In the present instance, all cases that qualified for your selection criteria were clustered together and located near the top of the database, whereas all excluded cases were located deeper within the database. This is not always the case, however. Sometimes qualifying cases will be scattered throughout the database. An excellent first step after selecting cases is to run several basic data examination routines, such as "LIST CASES" or "DESCRIPTIVES," in order to ascertain that your selection criteria worked as you think they did.

In the present instance, click on "Statistics" in the menu at the top of your screen, and then select "SUMMARIZE - LIST CASES." Highlight the variables "year," "battlion," and "tab8tot" (Table VIII Total Score), and move these variables to the "Variable(s) Selected" box by clicking the directional arrow. Click the OK command push-button and the output in Figure 6 appears.

YEAR	BATTLION	TAB8TOT
1993	1	306.00
1993	1	729.00
1993	1	884.00
1993	1	368.00
1993	1	577.00
1993	1	342.00
1993	1	639.00
1993	1	582.00
1993	1	695.00
1993	1	469.00
1993	1	695.00
1993	1	840.00
1993	1	567.00
1993	1	802.00
1993	1	935.00
1993	1	626.00
1993	1	718.00

1993	1	666.00
1993	1	510.00
1993	1	791.00
1993	1	877.00
1993	1	753.00
1993	1	658.00
1993	1	891.00
1993	1	935.00
1993	1	546.00
1993	1	796.00
1993	1	642.00
1993	1	661.00
1993	1	844.00
1993	1	416.00
1993	1	837.00

Number of cases read: 32

Number of cases listed: 32

Figure 6. SPSS sample output.

A quick visual inspection reveals that all selected cases were from battalion 1 in the year 1993. This outcome can be verified by returning to the data editor screen (Figure 3) and scrolling through the records at the top of the file, where it is obvious that all cases in the second armor battalion of the 116 Cavalry Brigade for the year 1993 were indeed selected. This inspection verifies that your selection criteria were faithfully executed by SPSS.

Verification is not always this easy, however, especially if eligible cases are scattered throughout the database. LIST CASES, the inspection technique used above, is always a good data check, and in this instance was probably sufficient. But in other instances it is often desirable, in addition to LIST CASES, to run a descriptive or frequency check on one or more variables (or combinations of variables using the SPSS procedure: CROSSTABS) to ensure that only eligible cases have been selected.

If for any reason your selection criteria failed to work as intended, return to the "Select Cases" dialog box (Figure 4), click on "Select All Cases," and then "OK." This step will re-select all cases in the database. At this point you can revise and re-specify your selection criteria until they work in the intended manner.

### *Selecting Subsets of Cases with Syntax Command Language*

A second way to select subsets of cases for analysis is through SPSS syntax command language. In order to illustrate this method of subset selection, let's remove the selection criteria which we imposed above. To do this, click "Data – Select Cases" from the main menu. (Refer to the menu in Figure 3.) This brings up the Select Cases dialog box (Figure 4), with which we are

now familiar. Click the first radio button: "All cases." And then the "OK" push-button at the bottom of the dialog box. Return to the Data Editor and scroll through the file. Note that the diagonal slash marks have disappeared. This indicates that the next SPSS procedure that you run will be applied to all cases in the database.

Now let's use SPSS command syntax to select only those cases from the 2-116 AR Battalion of the 116 Cavalry Brigade for the year 1993, just as we did before with the series of dialog box operations. (Use of SPSS command syntax is explained in detail in: *SPSS Base System Syntax Reference Guide* [SPSS, 1993].) The syntax commands necessary for making this selection are presented in Figure 7.

```
USE ALL.  
COMPUTE filter_$=(year = 1993 & battlion = 1).  
VARIABLE LABEL filter_$ year = 1993 & battlion = 1 (FILTER)'.  
VALUE LABELS filter_$ 0 Not Selected' 1 Selected'.  
FORMAT filter_$ (f1.0).  
FILTER BY filter_$.  
EXECUTE .
```

Figure 7. Example of SPSS command syntax.

The results of running this executable command in SPSS will be identical to the results obtained by going through the series of dialog boxes. The advantage of using syntax commands is that once generated, they can be saved as syntax files and reopened and re-executed any number of times. (This is the same principle as "macros" in word processing applications.) Another advantage of using syntax commands is that their execution is accomplished in a matter of seconds.

To open a syntax file, click "File" from the menu selection at the top of the SPSS screen. From the drop down menu, select "Open" and then choose "SPSS Syntax" from the extension menu. This will take you to the default directory and a listing of all syntax files. (SPSS syntax files always end with the .SPS extension.) The file containing the commands above is one of several included in the library of syntax command language files. This particular file is named 93UNIT1.SPS. Open this file, highlight the contents of the file using the click and drag technique, and locate the right directional arrow icon (>) in the power bar at the top of the screen (immediately underneath the main menu bar). This directional arrow symbolizes: "Run highlighted command syntax." Click the directional arrow icon. The highlighted syntax commands are executed immediately. Return to the Data Editor and note that all cases not falling within the designated unit for the year 1993 now feature a diagonal slash, just as they did earlier when you practiced selecting cases for analysis using dialog boxes.

#### *Library of Syntax Command Language Files*

To facilitate selection of subsets of the database for analysis purposes, a series of command syntax files have been written and included as part of the database. Each syntax file, defined in

the syntax file directory in Figure 8, is designed to select a different subset of cases. Any file can be opened and executed as described above. Please note that the definitions included within the syntax file directory were complete and accurate at the time the user's manual was compiled. Unit reorganizations occur frequently in ARNG units, however, and database users will want to confirm the ongoing accuracy of the file definitions before conducting extensive analyses in the future. Once unit reorganizations occur, it will be necessary to re-define some of the syntax files in order to reflect the latest changes.

<i>Syntax File</i>	<i>Operations</i>
93BDE1.SPS	Selects cases from 116 Cavalry Brigade for 1993
94BDE1.SPS	Selects cases from 116 Cavalry Brigade for 1994
95BDE1.SPS	Selects cases from 116 Cavalry Brigade for 1995
96BDE1.SPS	Selects cases from 116 Cavalry Brigade for 1996
97BDE1.SPS	Selects cases from 116 Cavalry Brigade for 1997
ALLBDE1.SPS	Selects cases from 116 Cavalry Brigade for all available years
93ARBDE1.SPS	Selects cases from armored battalions of the 116 Cavalry Brigade (Battalions 1 and 2) for 1993
94ARBDE1.SPS	Selects cases from armored battalions of the 116 Cavalry Brigade (Battalions 1 and 2) for 1994
95ARBDE1.SPS	Selects cases from armored battalions of the 116 Cavalry Brigade (Battalions 1 and 2) for 1995
96ARBDE1.SPS	Selects cases from armored battalions of the 116 Cavalry Brigade (Battalions 1 and 2) for 1996
97ARBDE1.SPS	Selects cases from armored battalions of the 116 Cavalry Brigade (Battalions 1 and 2) for 1997
ALARBDE1.SPS	Selects cases from armored battalions of the 116 Cavalry Brigade (Battalions 1 and 2) for all available years
97MEBDE1.SPS	Selects cases from 116 Cavalry Brigade Mechanized Infantry Battalion
93ENH.SPS	Selects cases from enhanced brigades (Brigades 3 - 8) for 1993
94ENH.SPS	Selects cases from enhanced brigades (Brigades 3 - 8) for 1994
95ENH.SPS	Selects cases from enhanced brigades (Brigades 3 - 8) for 1995
96ENH.SPS	Selects cases from enhanced brigades (Brigades 3 - 8) for 1996
97ENH.SPS	Selects cases from enhanced brigades (Brigades 3 - 8) for 1997
ALLENH.SPS	Selects cases from enhanced brigades (Brigades 3 - 8) for all available years
93ARENH.SPS	Selects cases from enhanced brigade armored battalions for 1993
94ARENH.SPS	Selects cases from enhanced brigade armored battalions for 1994
95ARENH.SPS	Selects cases from enhanced brigade armored battalions for 1995

96ARENH.SPS	Selects cases from enhanced brigade armored battalions for 1996
97ARENH.SPS	Selects cases from enhanced brigade armored battalions for 1997
ALLARENH.SPS	Selects cases from enhanced brigade armored battalions for 1993-1997
93MEENH.SPS	Selects cases from enhanced brigade mechanized battalions for 1993
94MEENH.SPS	Selects cases from enhanced brigade mechanized battalions for 1994
95MEENH.SPS	Selects cases from enhanced brigade mechanized battalions for 1995
96MEENH.SPS	Selects cases from enhanced brigade mechanized battalions for 1996
97MEENH.SPS	Selects cases from enhanced brigade mechanized battalions for 1997
ALLMEENH.SPS	Selects cases from enhanced brigade mechanized battalions for 1993-1997

Figure 8. Library of syntax command language files.

#### Database Maintenance and Access

Additional data can be added to the gunnery database at any time using the SPSS Data Editor. These data can be for variables already established in the database, but coming from additional crews (such as crews from other enhanced brigades), or they can be new variables for crews already included in the database. SPSS permits insertion of variables at any designated location. Whenever measures are not available for every crew, SPSS inserts a system missing data code, represented by a single dot.

The database is designed to permit entry of data from new training years. The latest year, as the database is currently configured, will always be entered at the end of the MAINDATA.SAV file, using the SPSS Data Editor feature.

Addition or deletion of ARNG units will require reconfiguration of the database. The database designers should be consulted before reconfiguration is attempted. If the database structure is altered, it may be necessary to rewrite the library of syntax command language files.

Inquiries concerning release of the database should be directed to Dr. Joseph Hagman at the U.S. Army Research Institute for the Behavioral and Social Sciences, Reserve Component Training Research Unit, 1910 University Drive, Boise, ID 83725. (Telephone: (208) 334-9390. E-mail: Hagman@ARI.Army-mil) An example of how the database can be used to make training impact assessments can be found in Smith (in publication).

## References

Norusis, M. J. (1993). *SPSS for Windows base system user's guide*. (Release 6.0). Chicago, IL: SPSS, Inc.

Smith, M. D. (in publication). *Assessment of the SIMITAR gunnery training strategy through development of a database of gunnery outcome measures*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

SPSS, Inc. (1993). *SPSS base system syntax reference guide*. (Release 6.0). Chicago, IL: SPSS, Inc.

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## APPENDIX A

### Structure of the Database

The main data matrix (name = MAINDATA.SAV) has the following structure: Crew within Company within Battalion within Brigade within Year.

1993

1 = 116 Cavalry Brigade – Idaho, Montana, Oregon

1 = 2-116 AR

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

2 = 3-116 AR

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

3 = 1-163 IN (Mech)

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

4 = G/82 CAV

A = Platoon A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Platoon B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

2 = Reserved for Expansion

5 = First Expansion Battalion

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

6 = Second Expansion Battalion

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

7 = Third Expansion Battalion

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

8 = Expansion CAV unit

A = Platoon A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Platoon B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

3 = 256 Infantry Brigade (Mechanized) – Louisiana

9 = 1-156 AR

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

10 = 2-156 IN (Mech)

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

11 = 3-156IN (Mech)

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

12 = E/256 CAV

A = Platoon A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Platoon B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

4 = 155 Armored Brigade – Mississippi

13 = 1-198 AR

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

14 = 2-198AR

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

15 = 1-155 IN (Mech)

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

16 = E/98 CAV

A = Platoon A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Platoon B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

5 = 30 Infantry Brigade (Mechanized) – North Carolina

17 = 1-252 AR

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

18 = 1-119 IN (Mech)

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

19 = 2-120 IN (Mech)

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

20 = E/196 CAV

A = Platoon A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Platoon B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

6 = 218 Infantry Brigade (Mechanized) – South Carolina

21 = 2-263 AR

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

22 = 1-118 IN (Mech)

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

23 = 4-118 IN (Mech)

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

24 = B/202 CAV

A = Platoon A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Platoon B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

7 = 278 Armored Cavalry Regiment – Tennessee

25 = 1-278 ACS

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

26 = 2-278 ACS

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

27 = 3-278 ACS

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

28 = Unstaffed

8 = 81 Infantry Brigade (Mechanized) – Washington

29 = 1-303 AR

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

30 = 1-161 IN (Mech)

A = Company A  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E  
01 = Crew # 01  
02 = Crew # 02  
03 = Crew # 03  
0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

31 = 3-161 IN (Mech)

A = Company A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Company B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

C = Company C

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

D = Company D

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

E = Company E

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

H = Headquarters

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

32 = E/303 CAV

A = Platoon A

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

B = Platoon B

01 = Crew # 01

02 = Crew # 02

03 = Crew # 03

0<sub>nth</sub> = Crew # 0<sub>nth</sub>

1994, 1995, 1996, 1997: The Crew within Company within Battalion within Brigade grid above is repeated for each succeeding year represented in the database.

End of Appendix A

## APPENDIX B

### Gunnery Database Data Element Dictionary

Variables are listed in the order in which they occur in the database. Variable names are restricted by SPSS convention to eight (8) spaces and are printed in ALL CAPS to distinguish them from Value Labels and Variable Definitions. Within Print Format and Write Format specification fields, a capital A indicates that the variable is alphanumeric and a capital F indicates that the variable is numeric.

Variable Name	Variable Definition
------------------	------------------------

YEAR	Training Year
Print Format: F4	
Write Format: F4	

Value	Label
-------	-------

1993	Training Year 1993
1994	Training Year 1994
1995	Training Year 1995
1996	Training Year 1996
1997	Training Year 1997

BRIGADE	Brigade
Print Format: F2	
Write Format: F2	

Value	Label
-------	-------

1	116 Cavalry Brigade – Idaho, Montana, Oregon
2	Reserved for Expansion
3	256 Infantry Brigade (Mechanized) – Louisiana
4	155 Armored Brigade – Mississippi
5	30 Infantry Brigade (Mechanized) – North Carolina
6	218 Infantry Brigade (Mechanized) – South Carolina
7	278 Armored Cavalry Regiment – Tennessee
8	81 Infantry Brigade (Mechanized) – Washington

BDENAME      Brigade Name

Label

116 Cavalry Brigade – Idaho, Montana, Oregon  
Reserved for Expansion  
256 Infantry Brigade (Mechanized) – Louisiana  
155 Armored Brigade – Mississippi  
30 Infantry Brigade (Mechanized) – North Carolina  
218 Infantry Brigade (Mechanized) – South Carolina  
278 Armored Cavalry Regiment – Tennessee)  
81 Infantry Brigade (Mechanized) – Washington

Print Format: A40  
Write Format: A40

ARMECH      Armor Vs Mechanized unit designation

Print Format: F1  
Write Format: F1

Value	Label
1	Armor unit
2	Mechanized Infantry unit

BATTLION      Battalion

Print Format: F2  
Write Format: F2

Value	Label
1	2-116 AR
2	3-116 AR
3	1-163 IN (Mech)
4	G/82 CAV
5	Expansion Bn 1
6	Expansion Bn 2
7	Expansion Bn 3
8	Expansion CAV Unit
9	1-156 AR
10	2-156 IN (Mech)
11	3-156 IN (Mech)
12	E/256 CAV
13	1-198 AR

14	2-198 AR
15	1-155 IN (Mech)
16	E/98 CAV
17	1-252 AR
18	1-119 IN (Mech)
19	2-120 IN (Mech)
20	E/196 CAV
21	2-263 AR
22	1-118 IN (Mech)
23	4-118 IN (Mech)
24	B/713 CAV
25	1-278 ACS
26	2-278 ACS
27	3-278 ACS
28	Unstaffed
29	1-303 AR
30	1-161 IN (Mech)
31	3-161 IN (Mech)
32	E/303 CAV

BATTNAME    Battalion Name

Print Format: A40

Write Format: A40

Label

2-116 AR (Idaho)  
3-116 AR (Oregon)  
1-163 IN Mech (Montana)  
G/82 CAV (Idaho)  
1-108 AR (Georgia)  
1-121 IN Mech (Georgia)  
2-121 IN Mech (Georgia)  
E/348 CAV (Georgia)  
1-156 AR (Louisiana)  
2-156 IN Mech (Louisiana)  
3-156 IN Mech (Louisiana)  
E/256 CAV (Louisiana)  
1-198 AR (Mississippi)  
2-198 AR (Mississippi)  
1-155 IN Mech (Mississippi)  
E/98 CAV (Mississippi)  
1-252 AR (North Carolina)  
1-119 IN Mech (North Carolina)  
2-120 IN Mech (North Carolina)

E/196 CAV (North Carolina)  
2-263 AR (South Carolina)  
1-118 IN Mech (South Carolina)  
4-118 IN Mech (South Carolina)  
B/713 CAV (South Carolina)  
1-278 ACS (Tennessee)  
2-278 ACS (Tennessee)  
3-278 ACS (Tennessee)  
Unstaffed (Tennessee)  
1-303 AR (Washington)  
1-161 IN Mech (Washington)  
3-161 IN Mech (Washington)  
E/303 CAV (Washington)

COMPANY      Company

Print Format: A1

Write Format: A1

Label

Company A

Company B

Company C

Company D

Company E

Headquarters

CREW#              Crew # within Company, listed in order of ascending vehicle bumper #

Print Format: F2

Write Format: F2

TANK#              Tank (or BFV for Mech units) bumper #.

Print Format: A8

Write Format: A8

ROSTER              List of crew members, with crew position noted (TC = Tank Commander; Gnr = Gunner; Ldr = Loader; Dvr = Driver).

Print Format: A100

Write Format: A100

T8A1            Tank Table 8 Engagement A1 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUNDSA1      Rounds Fired in Tank Table 8 Engagement A1 [These data taken from  
scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

HITSA1           Hits in Tank Table 8 Engagement A1 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

T8A2            Tank Table 8 Engagement A2 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUNDSA2      Rounds Fired in Tank Table 8 Engagement A2 [These data taken from  
scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

HITSA2           Hits in Tank Table 8 Engagement A2 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

T8A3            Tank Table 8 Engagement A3 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUNDSA3      Rounds Fired in Tank Table 8 Engagement A3 [These data taken from  
scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

HITSA3           Hits in Tank Table 8 Engagement A3 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

T8A4            Tank Table 8 Engagement A4 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUNDSA4      Rounds Fired in Tank Table 8 Engagement A4 [These data taken from  
scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

HITSA4           Hits in Tank Table 8 Engagement A4 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

T8A5            Tank Table 8 Engagement A5 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUNDSA5      Rounds Fired in Tank Table 8 Engagement A5 [These data taken from  
scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

HITSA5           Hits in Tank Table 8 Engagement A5 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

T8A5A           Tank Table 8 Engagement A5A [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUND5A        Rounds Fired in Tank Table 8 Engagement A5A [These data taken from  
scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

HITSA5A Hits in Tank Table 8 Engagement A5A [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

T8A5ALT The data in this field were transferred from either T8A5 or T8A5A, whichever engagement was fired. This variable locates Table VIII data from the fifth day engagement, whether it was the main selection (T8A5) or the alternate (T8A5A), in one field.  
Print Format: F8.2  
Write Format: F8.2

RNDA5ALT Either ROUNDSA5 or ROUNDA5A, whichever engagement was fired.  
Print Format: F8.2  
Write Format: F8.2

HITA5ALT Either HITSA5 or HITSA5A, whichever engagement was fired.  
Print Format: F8.2  
Write Format: F8.2

T8B1S Tank Table 8 Engagement B1S [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUNDB1S Rounds Fired in Tank Table 8 Engagement B1S [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

HITSB1S Hits in Tank Table 8 Engagement B1S [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

T8B2 Tank Table 8 Engagement B2 [These data taken from scoresheets.]  
Print Format: F8.2  
Write Format: F8.2

ROUNDSB2      Rounds Fired in Tank Table 8 Engagement B2 [These data taken from  
scoresheets.]

Print Format: F8.2  
Write Format: F8.2

HITSB2            Hits in Tank Table 8 Engagement B2 [These data taken from scoresheets.]

Print Format: F8.2  
Write Format: F8.2

T8B3              Tank Table 8 Engagement B3 [These data taken from scoresheets.]

Print Format: F8.2  
Write Format: F8.2

ROUNDSB3      Rounds Fired in Tank Table 8 Engagement B3 [These data taken from  
scoresheets.]

Print Format: F8.2  
Write Format: F8.2

HITSB3            Hits in Tank Table 8 Engagement B3 [These data taken from scoresheets.]

Print Format: F8.2  
Write Format: F8.2

T8B4              Tank Table 8 Engagement B4 [These data taken from scoresheets.]

Print Format: F8.2  
Write Format: F8.2

ROUNDSB4      Rounds Fired in Tank Table 8 Engagement B4 [These data taken from  
scoresheets.]

Print Format: F8.2  
Write Format: F8.2

HITSB4            Hits in Tank Table 8 Engagement B4 [These data taken from scoresheets.]

Print Format: F8.2  
Write Format: F8.2

T8B5              Tank Table 8 Engagement B5 [These data taken from scoresheets.]

Print Format: F8.2  
Write Format: F8.2

ROUNDSB5      Rounds Fired in Tank Table 8 Engagement B5 [These data taken from  
scoresheets.]  
    Print Format: F8.2  
    Write Format: F8.2

HITSB5          Hits in Tank Table 8 Engagement B5 [These data taken from scoresheets.]  
    Print Format: F8.2  
    Write Format: F8.2

T8B5A          Tank Table 8 Engagement B5A [These data taken from scoresheets.]  
    Print Format: F8.2  
    Write Format: F8.2

ROUNDB5A      Rounds Fired in Tank Table 8 Engagement B5A [These data taken from  
scoresheets.]  
    Print Format: F8.2  
    Write Format: F8.2

HITSB5A        Hits in Tank Table 8 Engagement B5A [These data taken from scoresheets.]  
    Print Format: F8.2  
    Write Format: F8.2

T8B5ALT        Either T8B5 or T8B5A, whichever engagement was fired. This variable  
locates Table VIII data from the fifth night engagement, whether it was the main selection or the  
alternate, in one field.  
    Print Format: F8.2  
    Write Format: F8.2

RNDB5ALT      Either ROUNDSB5 or ROUNDB5A, whichever engagement was fired.  
    Print Format: F8.2  
    Write Format: F8.2

HITB5ALT      Either HITSB5 or HITSB5A, whichever engagement was fired.  
    Print Format: F8.2  
    Write Format: F8.2

TAB8TOT Tank Table 8 Total [These data taken from scoresheets whenever available, otherwise from rollups.]  
Print Format: F8.2  
Write Format: F8.2

Q1 Tank Table 8 First Run Qualification? Yes or No. [These data taken from scoresheets whenever available, otherwise from rollups.]  
Print Format: A4  
Write Format: A4

Label  
Yes  
No

RECODEQ1 Re-coded Q1 (Q1 re-coded to numeric format.)  
Print Format: F8.2  
Write Format: F8.2  
Value Label

1.00 Yes  
2.00 No

QN Eventual Qualification (Whether crew eventually qualified on Tank Table 8)  
Print Format: A4  
Write Format: A4

Label  
Yes  
No

RECODEQN Recoded QN (QN re-coded to numeric format.)  
Print Format: F8.2  
Write Format: F8.2

Value Label  
1.00 Yes  
2.00 No

ROUNDOTH Tank Table 8 Total of Rounds Fired After Q1 [These data taken from scoresheets.]  
Print Format: F8  
Write Format: F8

COFTHRS      Pre AT Crew COFT Hrs (for the Training Year)  
Print Format: F8.2  
Write Format: F8.2

AFISTHRS     Pre AT Crew AFIST Hours (for the Training Year)  
Print Format: F8.2  
Write Format: F8.2

COFTMAT1    Total Crew COFT Exercises Completed During the Training Year  
Print Format: F8.2  
Write Format: F8.2

COFTMAT2    Next Recommended Exercise in the Advanced COFT Matrix  
Print Format: F8.2  
Write Format: F8.2

COFTMAT3    Total Rounds Fired  
Print Format: F8.2  
Write Format: F8.2

COFTMAT4    Certified? Yes or No  
Print Format: F8.2  
Write Format: F8.2

Value    Label

1.00    Yes  
2.00    No

COFTMAT5    Hit %  
Print Format: F8.2  
Write Format: F8.2

COFTMAT6    Kill %  
Print Format: F8.2  
Write Format: F8.2

COFT8TOT      COFT Table 8 Total Score  
Print Format: F8.2  
Write Format: F8.2

AFIST1          Crew Bumper Number  
Print Format: A8  
Write Format: A8

AFIST2          Group Designation  
Print Format: A2  
Write Format: A2

AFIST3          Date from the AFIST Printout  
Print Format: ADATE10  
Write Format: ADATE10

AFIST4          Table 8 Total Score (Device)  
Print Format: F8.2  
Write Format: F8.2

AFIST5          Rating (from the AFIST Printout)  
Print Format: A9  
Write Format: A9

AFIST81         AFIST Manual Table 8 Engagement 1 (A1)  
Print Format: F8.2  
Write Format: F8.2

AFIST82         AFIST Manual Table 8 Engagement 2 (A3)  
Print Format: F8.2  
Write Format: F8.2

AFIST83         AFIST Manual Table 8 Engagement 3 (A4)  
Print Format: F8.2  
Write Format: F8.2

AFIST84      AFIST Manual Table 8 Engagement 4 (A5)  
Print Format: F8.2  
Write Format: F8.2

AFIST85      AFIST Manual Table 8 Engagement 5 (A5A)  
Print Format: F8.2  
Write Format: F8.2

AFIST86      AFIST Manual Table 8 Engagement 6 (B1S)  
Print Format: F8.2  
Write Format: F8.2

AFIST87      AFIST Manual Table 8 Engagement 7 (B2)  
Print Format: F8.2  
Write Format: F8.2

AFIST88      AFIST Manual Table 8 Engagement 8 (B3)  
Print Format: F8.2  
Write Format: F8.2

AFIST89      AFIST Manual Table 8 Engagement 9 (B4)  
Print Format: F8.2  
Write Format: F8.2

AFIST810     AFIST Manual Table 8 Engagement 10 B5A  
Print Format: F8.2  
Write Format: F8.2

AFIST8TO     AFIST Manual Table 8 Total Score  
Print Format: F8.2  
Write Format: F8.2

BFVT82A      BFV Table 8 Eng 2A  
Print Format: F4  
Write Format: F4

BFVT85A      BFV Table 8 Eng 5A  
Print Format: F4  
Write Format: F4

BFVT86A      BFV Table 8 Eng 6A  
Print Format: F4  
Write Format: F4

BFVT89A      BFV Table 8 Eng 9A  
Print Format: F4  
Write Format: F4

BFVT83A      BFV Table 8 Eng 3A  
Print Format: F4  
Write Format: F4

BFVT84A      BFV Table 8 Eng 4A  
Print Format: F4  
Write Format: F4

BFVT81B      BFV Table 8 Eng 1B  
Print Format: F4  
Write Format: F4

BFVT88B      BFV Table 8 Eng 8B  
Print Format: F4  
Write Format: F4

BFVT82B      BFV Table 8 Eng 2B  
Print Format: F4  
Write Format: F4

BFVT810B     BFV Table 8 Eng 10B  
Print Format: F4  
Write Format: F4

BFVT8TOT      BFV Table 8 Total Score

Print Format: F4

Write Format: F4

BFVT8Q1      BFV Table 8 Q1 Qual?

Print Format: A4

Write Format: A4

Labels

Yes

No

BFVQ1RE      BFV Q1 Qualification Status (Recoded to numeric format.)

Print Format: F8.2

Write Format: F8.2

Value	Label
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1	Yes
---	-----

2	No
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BFVT8QN      BFV Table 8 QNth Qual?

Print Format: A4

Write Format: A4

Label

Yes

No

BFVQNRE      BFV QN Qualification Status (Recoded to numeric format.)

Print Format: F8.2

Write Format: F8.2

Value	Label
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1	Yes
---	-----

2	No
---	----

Q1ROUNDS      Sum of all rounds fired during Q1 qualification attempt (For tank crews only.)

Print Format: F8.2

Write Format: F8.2

TOTROUND    Sum of Q1ROUNDS + ROUNDSOTH (For tank crews only.)  
Print Format: F8.2  
Write Format: F8.2

HITS            The Sum of All Hits on All Q1 Engagements  
Print Format: F8.2  
Write Format: F8.2

ACCURACY    Hits Divided By TOTROUND  
Print Format: F8.2  
Write Format: F8.2

TESTCON      Test Condition  
Print Format: F8.2  
Write Format: F8.2

Value	Label
1	SIMITAR
2	Comparison

SIMYEAR      SIMITAR Year  
Print Format: F8.2  
Write Format: F8.2

Value	Label
1.00	Yes; 1995, 1996, or 1997
2.00	No; 1993 or 1994

End of Database Dictionary