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**ANALYSIS OF HISTORICAL ARTILLERY
EXPENDITURES
(AHART) STUDY - CY 87**

JUNE 1987



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(AHART) STUDY - CY 87**



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**AN ANALYSIS OF HISTORICAL
ARTILLERY EXPENDITURES
(AHART) STUDY - CY 87**

**STUDY
SUMMARY
CAA-TP-87-6**

THE REASONS FOR PERFORMING THE STUDY were:

(1) To conduct research into the availability of historical field artillery ammunition expenditure data and to assemble the available data into a data base.

(2) To determine if the historical data can be used for meaningful comparisons with a wartime requirements combat simulation process.

THE STUDY AUDIENCES are: analysts responsible for the conduct of wartime requirements combat simulations; decisionmakers who desire to use historical data and information in the process of determining requirements for artillery ammunition; and historians interested in deriving historical information through application of quantitative methods.

THE PRINCIPAL FINDINGS of the work are:

(1) There exists a great amount of available historical data on field artillery ammunition expenditures. The AHART data base, assembled through this study, is now available for use, wider dissemination, and enhancement.

(2) The assembled historical data provides very useful comparisons with the results of the wartime requirements combat simulation process, WARRAMP, and with other combat simulations as well.

THE MAIN ASSUMPTIONS were as follows:

(1) Historical data found in primary sources were accepted as reliable unless accompanying documentation strongly indicated otherwise. The difficulties of assembling such data under wartime conditions is acknowledged.

(2) Historical data in secondary sources not verifiable through primary sources were accepted as reliable if taken from a reasonably well-based source (i.e., government analytical agencies, military historical offices, relevant Department of the Army (DA) Staff activities).

(3) Historical information can be quantified and meaningfully subjected to quantitative analysis.

(4) Factors affecting historical artillery ammunition expenditures apply to current and future artillery ammunition expenditures.

THE PRINCIPAL LIMITATIONS which affect the findings are: the study will be limited to conventional, nondevelopmental field artillery munitions; the majority of data is limited to US data, with some British and French data for WWI; the study variables were limited to those for which historical data is available and those considered applicable to comparison with the specific combat simulation used in the study; and the study is limited to exploratory analysis of the data.

THE SCOPE OF THE STUDY

(1) The study is a pilot effort in assembling, from a multitude of fragments, a single source of data on field artillery ammunition expenditures.

(2) Using BMDP statistical software, an analysis of the data is performed. For each study variable, an evaluation is made of the applicability of the available data for comparison with combat simulation.

(3) A combat simulation process used for determination of wartime ammunition requirements is used as a vehicle for comparison with the historical data. Employing the defined study variables, numerous comparisons are made. Regression analysis is performed to determine the ability of the chosen variables to explain the variability of the historical rates and to determine the order of importance of the variables for continued research.

THE STUDY OBJECTIVES were:

(1) Assemble in data base format a set of historical data points for conventional field artillery expenditures.

(2) Define a set of variables with which to examine historical data and determine the availability of relevant data for each variable.

(3) Determine the capability of the study variables to explain historical rates.

(4) Compare historical rates with the results of the combat simulation process.

(5) Determine priorities for further research/analysis.

THE STUDY EFFORT was an in-house project at the US Army Concepts Analysis Agency. The study was performed as an individual research fellowship.

COMMENTS AND QUESTIONS may be directed to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-RQ, 8120 Woodmont Avenue, Bethesda, Maryland 20814-2797.

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CHAPTER 1

INTRODUCTION

1-1. PROBLEM/BACKGROUND

a. Being able to deter war or win if war occurs is essential to the security of any nation. Readiness to do so requires continuous update of that nation's concept of deterrence and continuous update of the conditions under which combat will be assumed to take place. Requiring commensurate update are the calculations concerning resources in ammunition required to support deterrence or the decision to go to war.

b. A major component of the process of revision and update of these ammunition requirements is the computer combat simulation. Current combat simulations depict the nation's forces as complex, large-scale systems with clearly defined operational and organizational levels, each with varying degrees of detail, and each with varying forms of relationships to one another. The accuracy with which these systems and their relationships are understood and simulated is critical to accurate, meaningful revision and update of ammunition requirements.

c. Under the pressure of constrained fiscal resources for national defense, computer combat simulation has come under increasing scrutiny. This process, which once enjoyed relatively unchallenged credibility, at least among formerly computer-illiterate executives and intermediate action officers, is now challenged in various ways for its fidelity in describing the "actual situation." It is being recognized that as a system of analysis, the combat simulation process has no feedback mechanism; no means of identifying unreasonable results or making adjustments for variations in the conditions under which it can be assumed to operate properly. In an attempt to provide a feedback or control mechanism, means are being sought to "validate" or at least place the combat simulations in a meaningful, explainable context. Among the many possible means of doing so is comparison of the results of combat simulation with actual historical experience.

1-2. PURPOSE OF THE STUDY. It is the purpose of this study to determine if sufficient historical data for field artillery ammunition expenditures is available to warrant assembly into a data base. If such a data base can be assembled AHART seeks to determine if the data base is useful for comparisons with the results of theater-level wartime requirements studies. It is intended that the data base be made available to the analytic community for use in other areas of research and study.

1-3. SCOPE/LIMITATIONS/TIMEFRAME

a. Scope

(1) This study is a pilot effort in assembling from a multitude of small fragments a single source of data on field artillery ammunition expenditures. A data base is constructed around the types

of data available in historical documents. Data base fields are defined to accommodate the available data and then to facilitate comparison with combat simulations. Data analysis is performed on the data base. Then, using the results of the analysis, comparisons are made with a combat simulation process. Not by any means a validation effort, this study seeks only to place the results of a combat simulation in some reasonably defined historical context. The information derived from the study offers a measure of feedback with which analysts and decisionmakers can interpret the results of the combat simulation.

(2) Initially a more ambitious plan was envisioned, aimed at using historical data to forecast artillery expenditures. However, the amount of data available was greater than expected and required additional time and effort to assemble and properly understand. The iterative nature of statistical analysis became very evident. As more was learned about the data, more work in data analysis was called for. This report provides the results of the first iteration, that of collection and data analysis. It is expected that these results will inspire continued research into and use of this data.

b. Limitations

(1) In consideration of the limited time available for this study, this work is limited first to artillery indirect fire weapons and then to data for conventional ammunition requirements. Limiting the study to indirect fire systems immediately eliminates the many direct fire systems for which there is great, if not greater, interest relative to historical data. The limitation to conventional ammunition not only differentiates this data from nuclear and chemical munitions data but also from the many developmental improved conventional and "smart/terminally-guided" munitions.

(2) As an observational study, the work is limited to the availability of data and to the subset of data that is collected. In comparison with designed experiments, the analytical resources are likewise limited.

(3) The preponderance of the data currently in the data base is US data. This is a matter of immediate availability and prioritization of the data collection effort but should not be interpreted as a limitation of the ultimate availability of such data or even a permanent limitation on the AHART data base. Data for allied forces is available with some additional effort. Studies done in Germany, Japan, Israel, and England are available as time and effort permit.

(4) The choice of variables with which to analyze the data is limited to those which relate most directly to the computer simulation used for comparison, WARRAMP, and for which historical data seemed at the outset of the study to be available. The choice of variables should certainly be expanded in future efforts.

(5) Finally, the study is limited to exploratory analysis of the data base. Distributions of observations for each defined study

variable are examined for acceptability for use in comparison with the combat simulation. The ability of the study variables to account for variability in the data is examined providing insight into the additional data collection and subsequent analysis.

c. **Timeframe.** Because of the shift in employment of artillery from a direct to an indirect fire system following the American Civil War, this study limits the timeframe for which data was collected to the 20th century.

1-4. KEY ASSUMPTIONS/CRITICAL TERMS

a. Assumptions

(1) It is assumed that the data included in the data base is reliable. Every effort is made to include the best data available; however, the very conditions under which combat data is recorded and preserved makes completeness and accuracy in reporting extremely difficult. Determining the reliability of data is an art in itself, one true historians seek to develop with experience. Through the use of primary sources and the use of secondary sources whose authors shared the same need for reliable data, an effort is made to increase as much as possible the reliability of this data base.

(2) For the purpose of exploratory analysis, it is assumed that the distribution of each of the variables is normal. It is also assumed that the relationships among the variables are linear. These assumptions are tested during the regression analysis. Means of grouped data are examined for these assumptions and various nonlinear transformations of the data are tested.

b. Critical Terms

(1) Throughout the remainder of the study, the terms "rate" and "RTD" are key to proper understanding of the study. For the purposes of this study, the term "rate" applies to combat simulations. The term "RTD," short for rounds per tube per day applies only to historical data.

(2) A "rate" is the total number of rounds fired by artillery tubes from start to finish of a combat simulation, divided by the number of days that the simulation represents, divided again by the number of tubes placed in the input files of that simulation. This produces the number of rounds fired "on average" by a single tube. This rate is further classified as belonging to one of two possible subsets. They are either operational rates or theater rates. The difference between the two lies in the composition of the tubes used in the denominator of the calculation. If only tubes which were engaged/fired in the simulation are used in the calculation, an "operational rate" is being defined. If the entire number of tubes available to the theater force are included or in some way represented in the calculations, a "theater rate" is defined.

(3) The term RTD has a parallel definition to the term rate but is strictly used in this study to denote historical data for rounds per tube per day fired by a single tube in a single day during actual combat operations. Instead of the duration of the combat operations represented by the simulation, RTD is defined by the number of days for which the historian/logistician has aggregated the data. This is often, but not always, the duration of the battle or the length of the reporting period. Rather than the number of the tubes placed in input files, it is the total number of tubes for which the data was recorded. The distinction between operational and theater subsets remains completely intact. If the number of tubes in the denominator of the historical calculation approximates the total number of tubes in a theater of operations, it is a "theater RTD." If not, an "operational RTD" is defined.

1-5. APPROACH/METHODOLOGY

a. The study is conducted in the following sequence:

(1) Conduct a thorough literature search using Defense Technical Information Center (DTIC) and Defense Logistics Studies Information Exchange (DLSIE) data bases.

(2) Conduct interviews and request data from Department of Defense and US Army analytical, historical, scientific, and technical communities.

(3) Develop a computerized historical data base which uses commonly available microcomputers and is transferrable to mainframe computers.

(4) Develop a series of analytic routines on both micro and mainframe computers specifically for use in analysis of this data. Use commonly available statistical software packages as much as possible.

(5) Define specific variables to be used for analysis of the data base.

(6) Conduct exploratory analysis of the data base to gain insight into the defined variables and to determine the interrelationships of the variables. The exploratory analysis provides an evaluation of their order of importance in explaining the variability in the data. Exploratory analysis will include statistical description of the data, linear regression on each of the variables, multiple linear regression of the variables, and transformations of the data to determine nonlinear properties.

(7) Produce location parameters for the dependent variable, RTD, and plot them together with WARRAMP results. Make some initial comparisons of the historical data with WARRAMP rates.

(8) Present findings that result from the analysis. Include suggestions for the next steps in the process.

b. The Combat Simulation Process

(1) As a vehicle for comparison, the combat simulation process WARRAMP will be used. The acronym represents the words wartime requirements for ammunition, materiel, and petroleum. As its name indicates, WARRAMP is designed to determine requirements not only for ammunition but for major end items of combat equipment and the petroleum stocks necessary to sustain the force. Comparisons made in AHART will concentrate strictly on indirect fire ammunition requirements.

(2) WARRAMP is not a single combat simulation. WARRAMP describes a system of analysis employing two primary combat simulations, a calibration routine to match the two and a series of pre- and post-processing routines. Among the results of this process are expenditure rates for artillery ammunition which are provided to decisionmakers to support budget requests to Congress. A description of WARRAMP relevant to this study is provided in Appendix G.

1-6. ESSENTIAL ELEMENTS OF ANALYSIS (EEA) AND ANSWERS

a. Do available historical documents provide sufficient data, in usable form, for analytical research of theater-level artillery expenditures? As evidenced in the bibliography, numerous analytical efforts have been conducted employing limited amounts of historical data. Due to the great effort required to assemble such data, no comprehensive effort has yet been published. AHART demonstrates that with the necessary effort sufficient usable historical data is available for a comprehensive quantitative analysis of theater-level artillery expenditures. The AHART data base will not yet support acceptable measures of confidence for estimates of theater-level artillery expenditures in the 20th century, but this shortcoming can be resolved with additional time for data collection directed to specific deficiencies identified in the study. In its present form, the AHART data base provides a significant amount of information useful in analysis of combat simulation. Many of the results included in this report can be used immediately by analysts and decisionmakers to make better use of combat simulations.

b. Do the sample of observations for each study variable in the AHART data base support comparisons with artillery expenditure rates resulting from theater-level combat simulations? AHART identifies artillery expenditure rates as a dependent variable and identifies eight independent variables. Criteria for comparison of each study variable with theater-level combat simulations are defined. The AHART data base included data on five of the variables that provided clear comparisons with theater-level rates. Two variables would require only limited directed data collection. The data for the remaining variable was completely inadequate and would require extensive research to acquire. Evaluation of the acceptability of each is found in Chapter 2.

c. Do the relationships among the variables conform to the assumptions of linearity and normality? Residual analysis of the results of multiple linear regression indicates a major departure from the normality assumption for the relationship of the variables to expenditure rates. A square root transformation of the data resulted in a much more normal distribution and will better facilitate analysis requiring adherence to assumptions of normality. Residual analysis also indicated a departure from the assumption of linearity which was likewise overcome best by use of a square root transformation.

d. Do trends and other relationships derived from the historical data base confirm or contradict those found in the combat simulations? The directions of the linear trends for artillery expenditure rates over each of the independent variables were all as experienced in past requirements studies. The slopes were generally less than expected. Overall the rates for each artillery weapon were much lower than expected. The same is true for the artillery weapons grouped as light, medium, and heavy. It was found that among the variables commonly used for analysis of combat simulations none were truly independent of the others. Regression analysis revealed that none of the variables, whether singularly or among the others in multiple correlation analysis, were very highly correlated with expenditure rates. All were significantly correlated but none very highly. Much work remains to be done in examining the cause and effect relationships in the data. The information available from analysis of the AHART data base extends far beyond that which has been included in this report.

e. Do the variables chosen for the study explain the variability of the dependent variable sufficiently for use of this data in prediction or forecasting? At this point no combination of variables used in the study produce an acceptable explanation of the variability of the data - the coefficient of determination, for the best results achieved, is less than .3. Refinement of the variables as well as additional data will be necessary to produce better results. The AHART data base can provide verification for use of rates in modeling or forecasting.

CHAPTER 2**DEFINITION OF DATA FIELDS/DATA DESCRIPTION**

2-1. PURPOSE. The purpose of this chapter is to familiarize the reader with the contents of the data base, to define the field names and the study variables, and to provide a statistical description of the data contained in each. Suggested ways in which the reader can most efficiently master the contents of the data base are presented at the end of the chapter.

2-2. DATA BASE FORMAT

a. To facilitate distribution of the AHART data base and data entry, the DBASEIII Plus software was employed to build and store the data base. Records in the AHART data base are arranged (indexed) first by tube type, then chronologically within like tube types.

b. Documentation for use in accessing the AHART data base on DBASEIII is included in Appendix E.

c. The fields in the data base were chosen for their usefulness in recording data found in source material of varied formats. They are very much dictated by the form of the data available.

d. The variables were chosen for their applicability to the WARRAMP process and for their usefulness in comparing the historical data with the combat simulation methodology. They are by no means the only variables that can be defined for use in analysis of this data. An understanding of these variables and their limitations undoubtedly leads to defining other useful variables for which additional research into historical sources could prove fruitful.

e. The order of presentation of these fields and variables in this chapter is the order in which they appear in the data base in Appendix F. The definitions of selected variables are followed by a histogram of observations of that variable. For those variables which are grouped for purposes of analysis, a descriptive table is provided. Also, the x-axis of the histogram is labeled as the variable is grouped in the quantitative analysis. Analysis of the primary information to be gained from the statistical description of the data, accomplished through use of the BMDP statistical software routines, is provided in brief narrative form together with an evaluation of the acceptability of the sample data for use in comparison with WARRAMP results.

f. A printed version of the data base appears in its entirety as Appendix F.

2-3. THE DATA ENTRY FORM. To define precisely the data being collected, it is instructive to study the AHART data entry form used to enter data into the DBASEIII formatted data base. Figure 2-1 is a copy of the DBASEIII data entry form. Table 2-1 provides additional details of the AHART data fields that are otherwise embedded in the data entry form.

AHART DATA ENTRY FORM
CONCEPTS ANALYSIS AGENCY

BATTLE: XXXXXXXXXXXX ARTYUNIT: XXXXXXXXXXXX

SOURCE: XXXXXXXXXXXXXXXXXXXX START DATE: 99/99/99 # OF DAYS: 999

BLUE UNIT: XXXXXXXXXXXX	UNIT SIZE XXXXXXXX	BLUE OPERATION: XXXXXXXX
TYPE TUBE: XXXXXXXXXXXX	# OF TUBES: 9999999999	TUBE CATEGORY: XXXXXXXX
TYPE ROUND: XXXXXX	AVG RDS PER DAY: 99999999.9	TOTAL ROUNDS: 9999999999
COST PER RD(\$): 9999	AVG COST PER DAY: 9999999.99 (X1000)	TOTAL COST: 99999999.99 (X1000)
WT. PER RD(LBS): 999.9	AVG WT. PER DAY: 9999999.99 (TONS)	TOTAL WT.: 99999999.99 (TONS)
AVG RD/TUBE/DAY: 9999.9		
NOTES: MEMO		

RED UNIT: XXXXXXXXXXXX	RED UNIT SIZE XXXXXXXX	RED OPERATION: XXXXXXXX
TYPE TUBE: XXXXXXXXXXXX	# OF TUBES: 9999999999	
TYPE ROUND: XXXXXX	AVG RDS PER DAY: 9999999999	TOTAL ROUNDS: 999999999999
COST PER RD(\$): 9999	AVG COST PER DAY: 9999999.99 (X1000)	TOTAL COST: 99999999.99 (X1000)
WT. PER RD(LBS): 999.9	AVG WT. PER DAY: 9999999.99 (TONS)	TOTAL WT.: 99999999.99 (TONS)
AVG RD/TUBE/DAY: 9999.9		
NOTES: MEMO		

Figure 2-1. AHART DBASEIII Plus Data Entry Form

Table 2-1. AHART DBASEIII Plus Data Fields

Field name	Field type	Width	Dec	Field name	Field type	Width	Dec
1 SOURCE	Character	20		16 RDWTDAY	Numeric	10	2
2 BAITLE	Character	12		17 TOTALWT	Numeric	12	2
3 UNIT	Character	12		18 RDTUBEDAY	Numeric	6	1
4 SIZE	Character	8		19 ROUND COST	Numeric	4	0
5 DATE	Date	8		20 RDCOSTDAY	Numeric	10	2
6 ARTYUNIT	Character	12		21 TOTALCOST	Numeric	12	2
7 TUBETYPE	Character	11		22 NOTES	Memo	10	
8 TUBECAT	Character	7		23 REDUNIT	Character	12	
9 TUBEQUANT	Numeric	12	0	24 RSIZE	Character	8	
10 TYPERD	Character	6		25 REDOPN	Character	10	
11 RDPERDAY	Numeric	16	1	26 RTYPETUBE	Character	12	
12 ROUNDQUANT	Numeric	8	0	27 RTUBEQUANT	Numeric	10	0
13 DAYSQUANT	Numeric	3	0	28 RTYPERD	Character	6	
14 OPERATION	Character	9		29 RRDPERDAY	Numeric	10	0
15 ROUNDWT	Numeric	5	1	30 RRDQUANT	Numeric	12	0

Field names begin with a letter and may contain letters, digits, and underscores.

2-4. THE SELECTED DATA BASE. The AHART data base contains over 3,600 records. A large portion (2,520 records) contains operational rates of 1-day duration. These records are stripped from the data base prior to analysis. Most of these 1-day rates are accounted for in more aggregate monthly and yearly figures, and those not so accounted for clearly fall outside the definition of theater rates. Of the remaining 1,808 records, 213 contained no data for RTD, the dependent variable, and so were also eliminated prior to analysis. The remaining 787 records become the selected data base.

2-5. SOURCE FIELD

a. Description. The large number of documents and individual data sources required to build and analyze the data base necessitated a method of cataloging to manage them. The catalog then required coding to permit entry into the data base. Space provided in the source field permits entry of the source referenced by a code to the annotated bibliography (Appendix D). The codes are not intentionally cryptic and can be understood with minimal effort.

b. **Construction of Source Codes.** The data source codes are constructed in three parts. First appears the abbreviation for the organization or activity from which the document was received. The second part is an abbreviation for the war for which the data is recorded. An "S" in the second position denotes a study not directly associated with a particular war; ALL denotes data for three or more wars. Third is an arbitrary sequence number for that document distinguishing it from others of the same organization and war.

2-6. BATTLE IDENTIFICATION FIELD. Enough space has been provided to preclude coding or destructive abbreviation of the name of the battle. The term battle is used very broadly and is inclusive of every size operation from company to theater-level war. At times, no more specific reference will be given in an historical document than that the data came from, for example, WWII or the US offensive in Germany. When this occurs, as detailed as possible a reference is made to the theater in which the event occurred.

2-7. UNIT FIELD. The unit's number, its type, and its organizational size are recorded here. This field, together with the battle identification field, provides enough information to pinpoint a particular event in history. It is intended that sufficient information is recorded for further research into additional factors that may influence the specific event. Suffix letters, i.e., "th" or "nd", are not included. Standard abbreviations from Field Manual 101-5-1, Operational Terms and Symbols, are used to identify unit types and sizes.

2-8. SIZE FIELD AND VARIABLE SIZE

a. **Description.** Isolation of the size of the supported unit apart from unit number and type unit permits use of this data as a separate variable for analysis. The variable SIZE is defined to be the number of company sized maneuver units in a force being supported by artillery, as shown in Table 2-2. Regiments are relabeled for size as a brigade-size force which they more correctly are. With the exception of the battalion task force, no other level task force is separately identified. This is primarily a result of the lack of data with which to do so. If such detail is needed, many hours of research in the National Archives may reveal it.

Table 2-2. BMDP Codes and Limits for the Variable SIZE - Selected Data Base

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name
Size	1.0	999.0	1.0	Company
			2.0	2 Companies
			3.0	Battalion
			4.0	Battalion task force
			6.0	2 Battalions
			9.0	Brigade
			18.0	2 Brigades
			27.0	Division
			54.0	2 Divisions
			81.0	Corps
			162.0	2 Corps
			243.0	1 Army
			486.0	2 Army
			729.0	Army group
			900.0	Theater

b. Analysis of the Variable SIZE

(1) All 787 points of the selected data base were clearly defined for size of the supported force. In the distribution of observations for size:

MEDIAN = 1 ARMY
MODE = THEATER

(2) As shown in Figure 2-2, data for theater-size forces composed 51 percent of the data base. Division-size forces (29 percent) and Army-size supported forces (10 percent) make up most of the remaining points, with corps-size supported forces making up 7 percent.

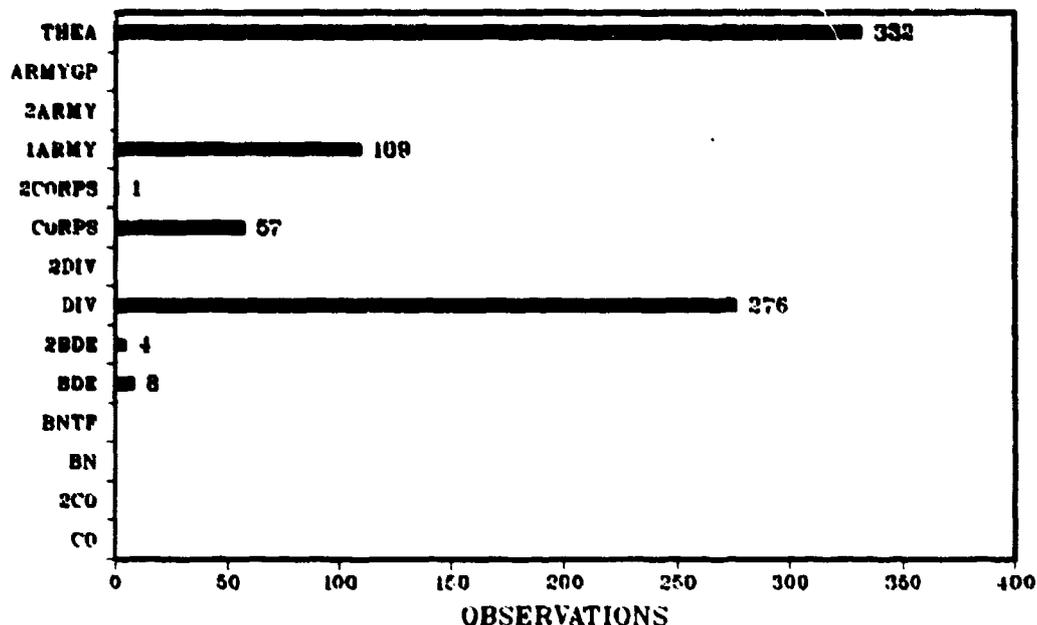


Figure 2-2. Histogram of Observations for SIZE - Selected Data Base

c. Acceptability of the Data for the Variable SIZE

(1) Given that the WARRAMP process is focused on theater-level results, this distribution of data points is very desirable. Since the WARRAMP theater model is also driven by a division-level model, the proportion of division-level historical data is especially pleasing. To conduct comparisons of the individual models in the WARRAMP process, these data points would have to be properly segregated. The theater force points in the data base are directly comparable with the final rates produced by WARRAMP.

(2) Included in the data base are monthly theater-size force data for every month in both the Vietnam War and the Korean War. Theater-level data for the Yom Kippur War of 1973 is available in classified form [WSEG-AI-1]. This distribution of data points is quite acceptable for analysis of the variable SIZE and comparison with the WARRAMP process.

2-9. DATE FIELD AND THE VARIABLE YEAR

a. **Description.** The DATE field in the data base provides the month, day, and year of the start of the battle. Month and day are of little value to this study. YEAR provides a means of determining in each case which war the record refers to. DBASEIII rules call for

month/day/year order. All three are two-digit numbers, the first digit being a zero when necessary. In DBASEIII the year is assumed to be the 20th century. There was no need to modify this structure for the AHART Study. The date can be reordered, separated, and used in almost any other form by the other software packages in the AHART data base management system by use of convenient translation routines inherent in each. Figure 2-3 displays the number of observations in the data base for each year/war. Chapter 3 of this report is completely dedicated to presentation of the historical data over time.

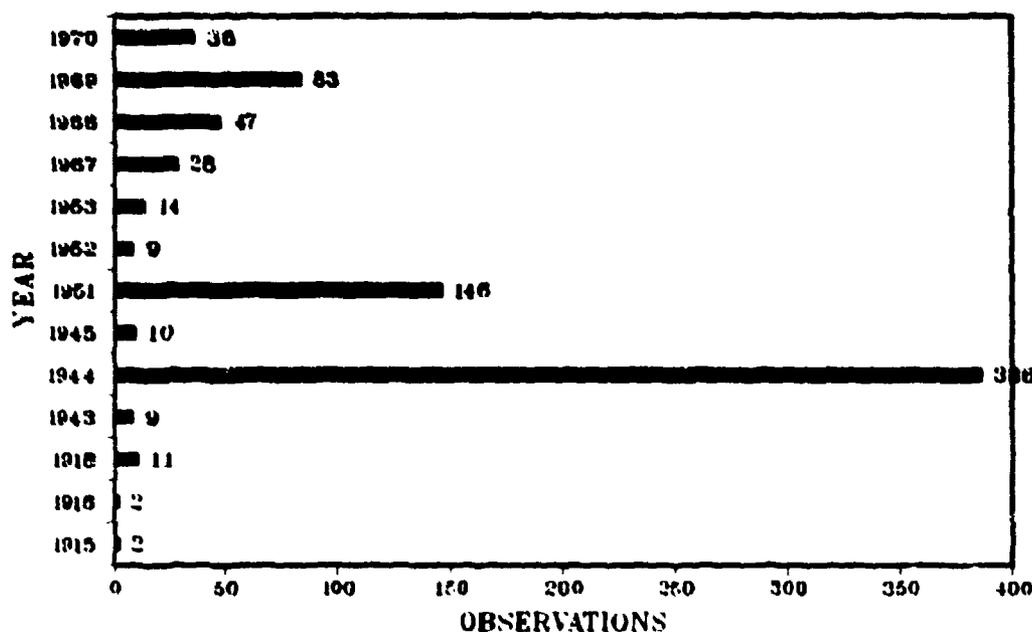


Figure 2-3. Histogram of the Variable YEAR - Selected Data Base

b. Analysis of YEAR

(1) Of the 787 points in the selected data base, all were clearly defined for year. The historical data collected to the present time for YEAR is reasonably well-distributed with the preponderance of records falling into WWII (51 percent) and Korea (22 percent). In the distribution of observations for the variable YEAR:

MEDIAN = 1944
MODE = 1944

(2) While ordnance personnel and logisticians have always attempted to keep records of their inventory, it was not until after WWI that records were maintained with the express purpose of analysis for future planning, and it was not until after the Korean War that data was maintained with the express purpose of quantitative analysis.

As a result, the quantity and quality of the points in the data base are largely a function of availability. Additionally, it is true of all wars that many records were destroyed due to movement, damage, or destruction of unit, depot, or headquarters records facilities, reducing the overall availability of data to a level below that needed to feel that a population statistic can be established for any war.

(3) More data, especially British and French data, is available for WWI expenditures; however, in the time allotted, efforts were concentrated on data for more recent wars.

(4) Histories of WWII are primarily anecdotal with only limited numerical data recorded outside unit histories and after-action reports. The volume of data from these histories and reports is large for division and corps-level events with limited data on army or theater-level numbers. This accounts for the large volume of WWII data at these levels.

(5) For Korea an effort was made by logisticians [CMH-K-1] at consolidating theater-level data, but the effort was incomplete, failing to include many relevant facts such as the number of tubes in theater or differentiating between various types of munitions. While there is less Korean War data than WWII data, the value of each Korean War record is greater to a study of theater-level rates. Larger proportions of the Korean data are directly comparable to theater-level rates.

(6) For Vietnam the data is in excruciating detail, greater detail than is needed in the AHART data base. The detail beyond that in the data base is lost on any comparison to the older data. Data on the 17 days of the Yom Kippur War is in sufficient detail to define all variables in the AHART data base (not included in this report due to its classification level).

c. Acceptability of the Data for YEAR

(1) Current planners will naturally (but not necessarily properly) place greater value on data that is most like current conditions. For the variable YEAR, that translates to data that is most recent.

(2) It is most unfortunate that to maintain the unclassified nature of the report, data from the Yom Kippur War cannot be included. Many place great value of the high tech nature of that war. On the other hand, recent thought is that the short duration of that war and the methods of collecting data (primarily interview with limited access to Israeli documents) reduces what may be presently over-valued data. Trevor Dupuy has stated in his book Elusive Victory that the results of this high tech war were not all that startling and that the quantitative data indicated rates not much different from intense periods of operation in WWII. Were it not classified, it would be desirable to have that data included in the AHART data to possibly support or refute COL Dupuy's statement.

(3) The acceptability of Vietnam data is often not as high even as some WWII data in that most consider Vietnam to be of a markedly different nature. The types of missions fired in Vietnam are considered to be other than conventional set-piece combat, more often being ambushes or harassing fires not directed against a conventional target. On the other hand, the data for the Tet offensive and several other battles could easily be accepted as conventional warfare. The effort to differentiate among them is beyond the scope of AHART for the moment. Some effort is made in this direction using operational intensity as a variable.

(4) Later work with this data can attempt various weighting schemes to give greater value to more recent data. Additional efforts at data collection can concentrate on data from other recent conflicts outside the US experience. Finally, releasing a classified version of this effort will permit use of the most valuable recent data.

2-10. TUBE TYPE (TUBETYPE) FIELD AND THE VARIABLE TUBETYPE

a. Description. Artillery weapons are identified here by their "caliber," in millimeters. This field is used to identify a separate variable in the analysis which is arranged in increasing order of caliber. When the commonly used caliber is in other dimensions, it is converted to millimeters, i.e., a 4.5-inch gun is listed as a 114mm gun. Figure 2-4 displays the distribution of observations present in the data base for each tube type.

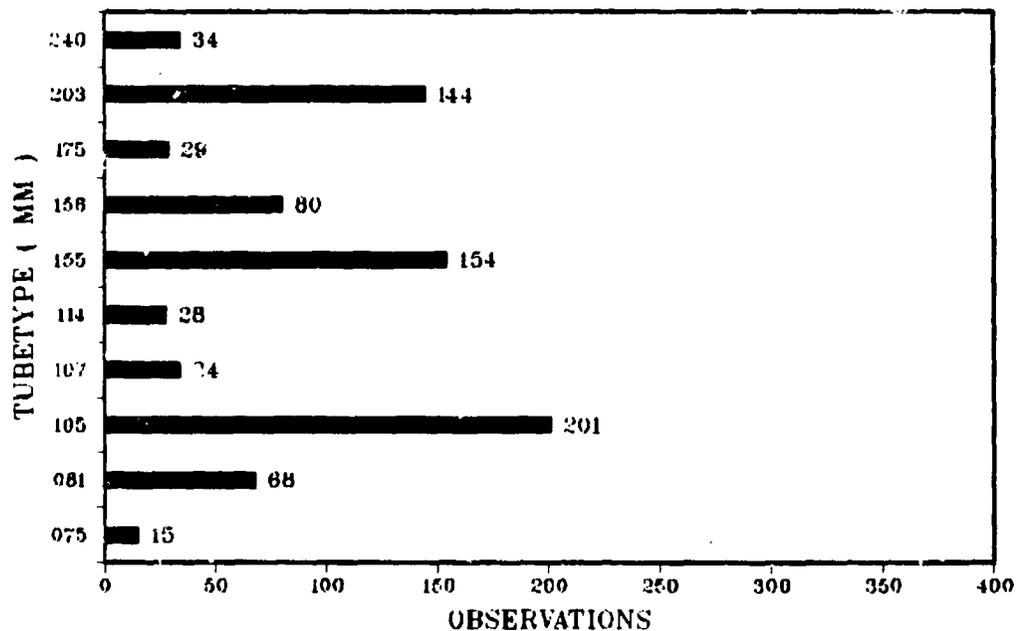


Figure 2-4. Histogram of the Variable TUBETYPE - Selected Data Base

b. Analysis of TUBETYPE

(1) All records for which no tube type is specified have been separated from the AHART data base to the selected data base. As a result, all of the 787 observations can be clearly identified for tube type. The major systems of interest to WARRAMP compose the majority of this data and are fairly evenly distributed--105mm (26 percent), 155mm (20 percent), and 203mm (18 percent).

(2) Records with no tube type specified (unspecified (UNSP)) have been separated from the selected data base to avoid confounding tube types. Through some earlier versions of this analysis, it was found that these samples for which no tube type is specified are aggregate data for several tube types. This is such a large number of samples and they are so commonly found in historical reports that these records are worthy of separate analysis. Such analysis would permit use of this large number of samples in the AHART analysis, or at least allow comparison of the separate analysis with the results of AHART.

(3) The distribution of observations across the increasing caliber of the tube is not to be interpreted as the distribution with which the population of tube types was employed in combat. The distribution of observations among tube types in the selected data base is only the distribution of the available data.

c. Acceptability of the Data for the Variable TUBETYPE

(1) The WARRAMP process accounts for each tube type separately and, therefore, produces a separate rate for each one. The current inventory of conventional artillery tubes in the US arsenal is primarily 105mm, 155mm, and 203mm. In the AHART data base these are likewise the weapons for which there is most data. The distribution among these three tube types is reasonably even.

(2) A fortunate occurrence in the view of the analyst is that in many of the events in this data base, data was available for all three tube types. In the historical data, most of these systems were found together on the same battlefield and so are often sampled under the same conditions, each having an influence on the expenditures of the other. This increases the value of the data beyond simply having a fortunate distribution of tube types.

2-11. TUBE CATEGORY (TUBECAT) FIELD AND THE VARIABLE TUBECAT

a. Description. The same artillery weapons are grouped into three categories--light, medium, and heavy. Table 2-3 presents the regrouped observations. Records containing data on artillery expenditures for which no tube type was specified were labeled as UNSP and placed in a separate file for analysis. UNSP was not used as a tube category.

(1) Light artillery includes all tube types up to and including 120mm.

Table 2-3. BMDP Codes and Limits for the Variable TUBECAT

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name
TUBECAT	30	203	105	Light
			155	Medium
			203	Heavy

(2) Medium artillery includes 122mm to 155mm howitzer tubes, inclusive.

(3) Heavy artillery includes 155mm guns and all other tube types above 155mm.

b. Analysis of the Observations for the Variable TUBECAT. All 787 records remaining in the selected data base could be clearly identified according to one of the tube categories. As shown in Figure 2-5, the light category contains 44 percent of the records. Medium and heavy categories contained 20 percent and 36 percent of the selected data base, respectively. Including 155mm guns in the heavy category greatly increased the proportion of heavy samples in the data base but reduced the proportion of medium samples. The use of the 155mm gun for purposes of very long-range fires is clearly in line with the mission of heavy artillery despite the medium caliber.

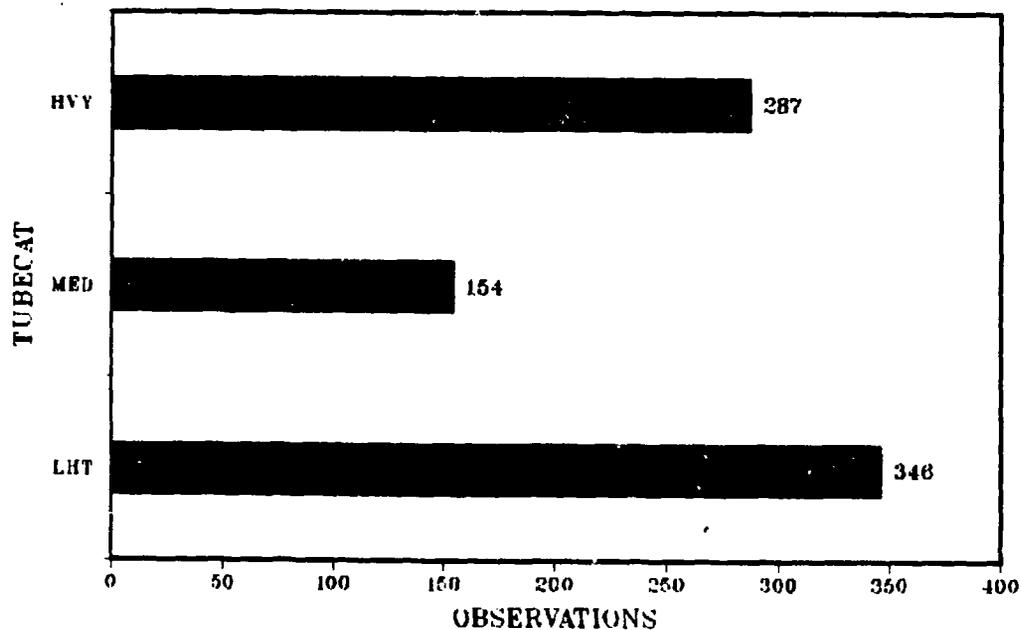


Figure 2-5. Histogram of the Variable TUBECAT - Selected Data Base

c. **Acceptability of the Data for the Variable TUBECAT.** Use of this field permits increased sample sizes and therefore increased confidence for analysis that does not require grouping by tube type. These categories are directly aligned with the major artillery weapons used in the WARRAMP process.

2-12. TUBE QUANTITY (TUBEQUANT) FIELD AND THE VARIABLE TUBEQTY

a. **Description.** This field provides the total number of tubes available to support the operation and is scaled as shown in Table 2-4. In operations below army level, the number available is assumed to be a measure of the number of tubes that actually fired or were poised to fire in support of the operation. At army or theater level, it is assumed that some tubes may for various reasons never reach the battle. At theater level, these numbers include tubes in maintenance or delivered to the theater but not necessarily to a unit in the field. This number then is a measure of the number of tubes that were in the entire army area of operations or within the entire theater during the operation.

Table 2-4. BMDP Codes and Limits for the Variable TUBEQTY

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name	BMDP code/scale	Category name
TUBEQTY	1 0	2000.0	3 0	Platoon	72 0	4 Battalions
			6 0	Battery	78 0	13 Batteries
			12 0	2 Batteries	84 0	14 Batteries
			18.0	Battalion	90 0	5 Battalions
			24.0	4 Batteries	96 0	16 Batteries
			30.0	5 Batteries	114 0	17 Batteries
			36.0	2 Battalions	132 0	7 Battalions
			42.0	7 Batteries	150 0	8 Battalions
			48.0	8 Batteries	168 0	9 Battalions
			54 0	3 Battalions	186 0	10 Battalions
			60 0	10 Batteries	187 0	10 Battalions +
			66 0	11 Batteries		

b. **Rate versus RTD.** The ability to properly interpret this variable is a major key to understanding historical RTD. It is the composition of tubes incorporated in the entry for TUBEQTY that distinguishes theater from operational rates. For operational RTD in the AHART data base, the number of tubes available will be assumed to equal the number of tubes engaged in the battle. For theater RTD, the number of tubes in the entire army or theater area are assumed to be

included. This is occasionally difficult to discern from the historical documents, but most often it can be determined in some way. When a departure from this rule exists, the number is recorded in the data base and the distinction noted in the field provided by DBASE III. A tangential issue concerning the variable TUBEQTY is the use of the recorded number of tubes to define a de facto weighting of any particular event. Because the number of tubes is not equal, each record of TUBEQTY should not be assumed to have equal value. The RTD for a single tube in a single sample should not have the weight of a theater-level number of tubes in a given sample. This has not been done to this point in the AHART analysis.

c. Analysis of the Variable TUBEQTY

(1) Only 395 of the 787 observations in the selected data base included data on the number of tubes used to calculate the RTD. The distribution of these 395 observations varies greatly. As shown in Figure 2-6, tube quantities of six tubes or less make up 31 percent of the sample. Tube quantities below 87 compose 63 percent of the observations. The number 87 is a rough approximation of the number of tubes that would support a corps level operation--a crude line dividing operational samples from those usable for theater-level comparisons.

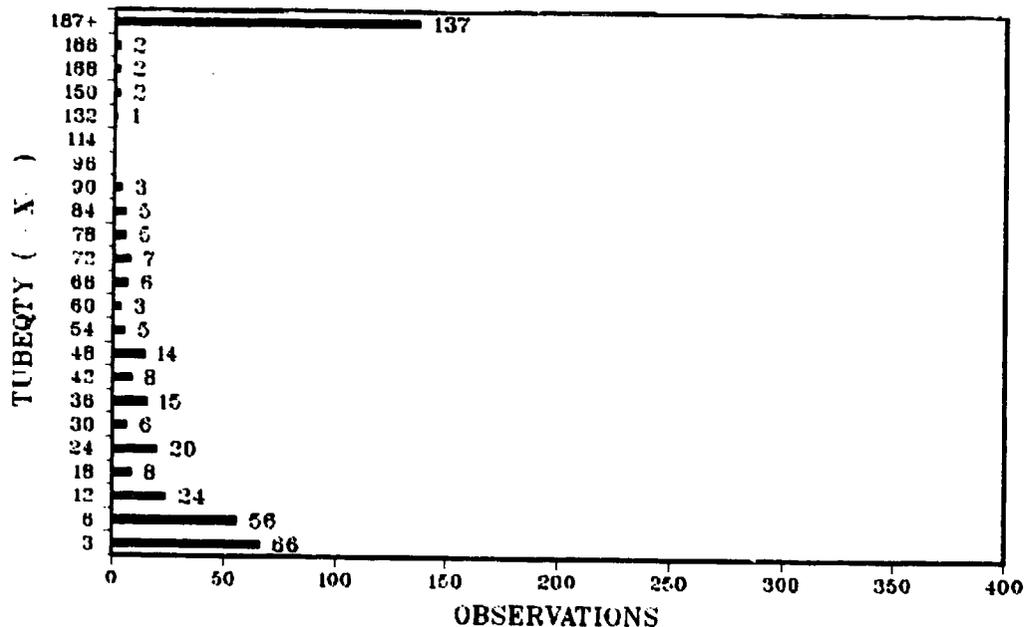


Figure 2-6. Histogram of the Variable TUBEQTY - Selected Data Base

(2) A large number of records in the selected data base does not include data on the number of tubes in the event, meaning that the data for RTD was given directly without providing the denominator value for the calculation.

d. Acceptability for the Observations for the Variable TUBEQTY

(1) The definition of theater rate *vis-a-vis* the operational rate explained in Chapter 1 is essential to understanding the variable TUBEQTY. The interpretation of the historical data explaining each observation for this variable is the major ingredient in classifying each data record as a theater or an operational rate. If, in the historical data, it is clear that all systems in an army area of operation or theater of operation were considered in computing the rounds per tube per day (RTD), then this number is directly comparable with the final results of the WARRAMP process. If it is clear that only those weapons which fired were considered, then that data is not directly comparable to final WARRAMP results but may instead be directly comparable to the division simulation, Combat Sample Generator (COSAGE) results. Fortunately, the field for SIZE of the supported unit can also be used for this purpose; in which case, over 50 percent of the records in the data base can be classified as theater rates.

(2) The definition of tube quantity in the data provided for historical battles requires very close scrutiny to ensure the proper distinction between theater and operational rates. To increase the acceptability of this data base for comparison with WARRAMP rates, a priority should be given to finding additional samples calculated on the basis of all the tubes in a theater of war.

2-13. TYPE ROUND (TYPERD) FIELD AND THE VARIABLE TYPERD

a. This field provides a place to differentiate among the types of munitions fired by a particular artillery tube type. Prior to WWI, metal and high explosives (HE) composed the major ingredients in munitions technology. Historical documents prior to WWII therefore seldom differentiate among types of rounds. Even in WWII and the Korean War data, the type round is very poorly documented.

b. Since the technological advances in munitions of the post-WWII period, it is believed that the type of round fired takes on great significance in determining rates of fire. In addition to the obvious influence of entirely new munitions such as improved conventional munitions (ICM), seek and destroy armor (SADARM,) and terminally guided weapons (TGW), the vast improvements in the traditional metal (fragmentation) and high explosive munitions are considered to be significant. Indeed, the pronounced effect of the newer high technology munitions and improved high explosive munitions, some believe, makes analysis of recent artillery expenditures as different from analysis of pre-Arab-Israeli War data as the analysis of Civil War data is from the analysis of WWI and WWII data.

c. No analysis is attempted on this variable in AHART. The lack of available data prevents any useful analysis in this study. It is a subject worthy of separate investigation. Because of its current importance, TYPERS is maintained in the data base. The variable TYPERS was maintained as a variable in the study because its removal was not worth the time and effort required.

d. No histogram of observations is provided here since all samples fall within two groups--HE and UNSP. When possible, data clearly identified as HE only was recorded as such. Otherwise, the field was labeled as unspecified and was assumed to include firing data for all types of munitions available to that artillery tube type. Some testing with scatter plots and some investigation support this assumption.

2-14. ROUNDS PER DAY (RPERDAY) FIELD. This is the average rounds of the TYPERS, TUBETYPE, TUBECAT, etc., specified in the previous fields that are fired in 1 day by the number of tubes specified in the TUBEQTY field over the period specified in the DURATION field. This must not be confused with the total rounds fired in a day or with the rounds per tube per day. Occasionally, this is the only data provided. From it, rounds per tube per day may have to be computed separately.

2-15. TOTAL ROUNDS (ROUNDQUANT) FIELD. This is the total rounds fired for the whole period specified in the DURATION field for the number, type, and other conditions specified in all previous fields. Again, this may be the only data provided from which rounds per tube per day must be separately calculated.

2-16. DURATION (DAYSQUANT) FIELD AND THE VARIABLE DURATION

a. **Description.** The number of days over which the battle, campaign, war, etc., specified in the OPERATION field, took place becomes the denominator in the calculation of RTD. If a record is otherwise classified as a theater-level rate, this variable assists in further defining the number of days included in the theater rate (15-, 30-, 180-day rate, etc.). This number is closely related to the number of days of actual firing but it is not the same. On occasion, rates have been computed using only "firing days." This is not done in AHART. In AHART, rates were computed over the entire period of the operation whether or not artillery was used on any one particular day. The AHART data presented in Figure 2-7 includes all days of the operation as it is most consistent with the way theater rates are determined.

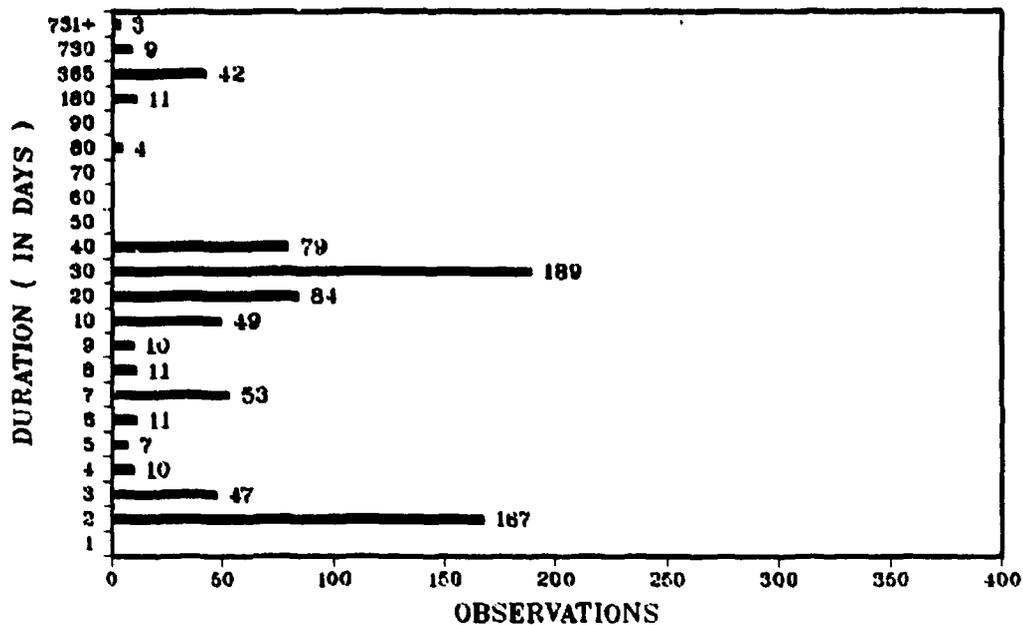


Figure 2-7. Histogram of the Variable DURATION - Selected Data Base

b. **Analysis of Data for the Variable DURATION.** Of the 787 records in the selected data base, only one has no recorded DURATION. Of the 786 records, 268 (34 percent) were for operations of 21 to 40 days (aggregated monthly expenditure rates); 295 (38 percent) were for operations of from 2 to 7 days. In the selected data base, records of 1-day duration were taken out. With only a few trivial exceptions, all records of this duration were duplicate data included elsewhere in more aggregate numbers. The study of the 1-day rates would be a worthwhile separate analysis and could illuminate day-to-day variability, but is only indirectly useful in understanding theater-level rates.

c. **Acceptability of Observations for the Variable DURATION.** Theater rates in WARRAMP are computed in increments of 15 or 30 days up to 180 days. Since only 65 (7 percent) of the records can be compared to 180-day rates, the data base would benefit from additional data of this kind for this comparison. The available data most readily lends itself to comparison with 30- or 45-day rates.

2-17. OPERATION FIELD AND THE VARIABLE OPN

a. **Description.** The operational types used in this study and displayed in Table 2-5 are those defined by Table 7-1, FM 101-10-1, Staff Officers' Field Manual Organizational, Technical, and Logistic Data. The operational types in the field manual are primarily oriented to division- and brigade-level planning, but the definitions are extended to other organizational levels without loss in meaning. The operation specified in the AHART data base is the predominant mission of the unit described in the UNIT field at the level specified in the SIZE field, i.e., battalion attack heavy, or division protracted medium, or army attack light. For campaigns and theater wars for which data on numerous operations were aggregated, the operation is labeled as unspecified (UNSP). The scale on which these operations are placed for the analysis is shown in Table 2-6.

Table 2-5. Levels of Operation

Level of operation	Percent of commitment		Intensity of combat	Commitment of higher headquarters reserves
	Maneuver	Fire support		
Heavy	60 +	100	All-out	Probable
Medium	30 +	50 +	Continuous	Not anticipated
Light	30-	50-	Sporadic	No

Table 2-6. BMDP Codes and Limits for the Variable OPN

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name
OPN	1.0	10.0	1.0	Protracted - light (PROL)
			2.0	Attack - light (ATKL)
			3.0	Defense - light (DEFL)
			4.0	Protracted - med (PROM)
			5.0	Unspecified (UNSP)
			6.0	Attack - medium (ATKM)
			7.0	Defense - medium (DEFM)
			8.0	Protracted - heavy (PROH)
			9.0	Attack - heavy (ATKH)
			10.0	Defense - heavy (DEFH)

b. Analysis of Observations for the Variable OPN

(1) Figure 2-8 displays the distribution of observations of this variable. Only 413 (40 percent) of the 787 records in the selected data base can be clearly identified for a specific operation and operational intensity; 289 (70 percent) of the 413 observations are classified as heavy intensity operations. The attack operations (light, medium, and heavy) together make up 343 (83 percent) of the 413 observations. The remainder are, as previously explained, aggregate data for several types of operations.

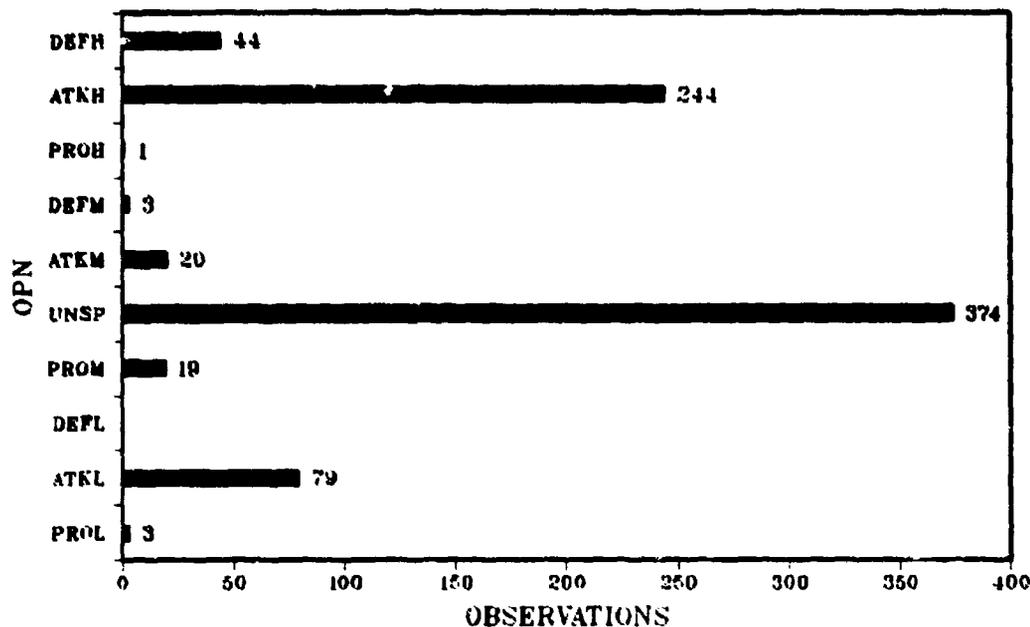


Figure 2-8. Histogram of the variable OPN - Selected Data Base

(2) The unspecified observations were initially taken out of any analysis of the variable OPN. This also eliminated a significant portion of the data base for the multiple linear regression analysis. After separate analysis provided in paragraph 4-3c, it was determined that these observations were clearly composite figures and fit closely the distribution for operations of "medium" intensity. As a result, they were again included in the selected data base and placed on the spectrum of operations where the separate analysis showed them as a group to be; that is between PROM and ATKM.

c. Acceptability of the Observations for OPN

(1) The rates produced by the WARRAMP process are aggregate rates for all types of operations and operational intensities. The unspecified records actually come closer than the other records to the definition of a theater rate. The distribution of observations for each specified operational type is heavily weighted to the attack and the heavy intensity operations.

(2) If it is assumed that the sample distribution of operations and intensities are representative of the distribution of all type operations, then the data would be sufficient. If the distribution is not representative (which it most likely is not), this data must be understood as representing primarily the heavy and the attack operations. Comparisons with theater rates would have to recognize this distributional effect.

2-18. **ROUND WEIGHT (ROUNDWT) FIELD.** The weight of a single round divided into the total weight of rounds in a battle (TOTAL WEIGHT) may be the only means of determining from the data available the total number of rounds to be included in the numerator of the rounds per tube per day calculation.

2-19. **ROUND WEIGHT PER DAY (RDWTDAY) FIELD.** As with the ROUNDS PER DAY field, this is the weight of the rounds fired each day, totaled then averaged over the entire duration of the battle. It is not necessary to calculate this field from others unless desired for reasons outside this study. The field is included to allow for entry of data which may not be provided in any other form.

2-20. **TOTAL WEIGHT (TOTALWT) FIELD.** This is the total weight of the type round, specified previously, fired over the entire duration of the battle. As with other fields, this data may have to be used in the absence of other data to separately calculate rounds per tube per day.

2-21. **ROUND COST (ROUNDWCOST) FIELD.** The cost of a single round divided into the total cost of rounds in a battle (TOTAL COST) may be the only means of determining from the data available the rounds per tube per day. Knowing the dollar value at the time the cost was recorded is usually more difficult than finding the original data.

2-22. **ROUND COST PER DAY (RDCOSTDAY) FIELD.** As with the ROUNDS PER DAY field, this is the cost of the rounds fired each day, totaled then averaged over the entire duration of the battle. It is not necessary to calculate this field from others unless desired for reasons outside this study. The field is included to allow for entry of data which may not be provided in any other form.

2-23. **TOTAL COST (TOTALWCOST) FIELD.** This is the total cost of all like rounds, specified by previous fields, fired over the entire duration of the battle. As with other fields, this data may have to be used in the absence of other data to separately calculate rounds per tube per day.

2-24. ROUND PER TUBE PER DAY (RDTUBEDAY) FIELD AND THE VARIABLE RTD

a. **Description.** By its definition, RTD is a variable that attempts to reduce numerous other data into a single understandable value. This term seeks to reduce total rounds fired by any given number of tubes over any number of days into what a single "average" tube fired in one "average" day of an operation. As such, it is used almost universally in the simulation community to measure artillery expenditures. Its popularity stems from its simplicity compared to dealing with what each tube fires on each day, especially if the number of tubes or the number of days in the comparison differs.

- For purposes of entry into the AHART data base, RTD is the TOTAL RGUNDS fired in a BATTLE divided by the DURATION of the battle, then divided by the TUBEQTY in the battle.
- For this study, RTD is the dependent variable and therefore the single most important number sought after in the historical documents. All other fields in the data base have the express purpose of qualifying the conditions under which the rounds per tube per day were actually fired.
- It must be remembered that while the term round per tube per day places all samples on a common standard, each observation is influenced also by the number of tubes in the sample. The common standard does not imply that each observation is of equal weight.

b. Analysis of Observations for the Variable Round per Tube per Day

(1) As explained in paragraph 2-4, once the records with 1-day DURATION and the records for which TUBETYPE is unspecified were eliminated from the data base (because they were included in more aggregate data and to prevent confounding, respectively), there remained 1,083 records. Of these, 296 were incomplete for the field RDTUBEDAY; therefore, only 787 of the 3,590 records in the AHART data base have been selected for analysis of this variable.

(2) The resulting distribution of RTD becomes a significant result of the study effort. The histogram of observations and relevant location parameters are included in Figure 2-9.

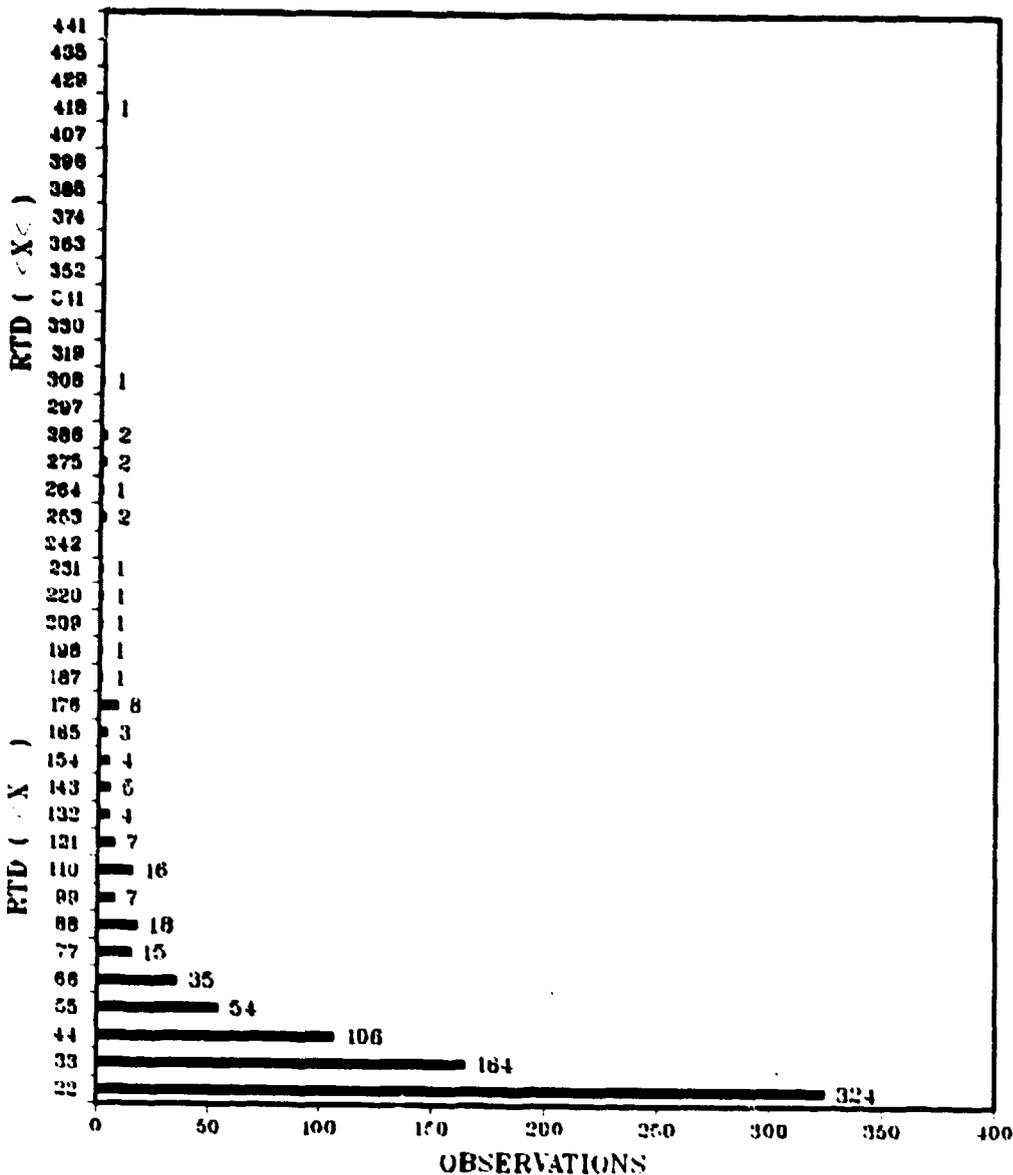


Figure 2-9. Histogram of Observations for the Variable RTD

c. Acceptability of the Data for RTD

(1) The acceptability of the data for this variable is completely dependent on the acceptability of the observations for the other variables. As described earlier, these 787 records include useful theater-level rates for Korea and Vietnam and useful operational rates for WWII, Korea, and Vietnam. Complete sets of data exist for artillery expenditures in the Yom Kippur War [WSEG-AI-1] but are not included in this analysis because of classification. Those records which are specified for OPN are predominantly heavy and attack type operations. Samples among tube types are well-distributed among the relevant types in the WARRAMP (US) arsenal.

(2) The AHART data base cannot yet be accepted as the definitive measure of historical RTD. At this point in the analysis, some useful information can be gained, some preconceptions evaluated but not conclusively proven or refuted. The analysis does, for the first time, make this amount of data available in a form that can be examined for the user's purpose. As such, it is a useful means of becoming well acquainted with the historical data on this subject and provides a start point, which previously did not exist, with which to do more complete work.

2-25. RED FIELD NAMES. With the exception of the BATTLE, DATE, and DURATION fields, which are not repeated, Red field names are the same as those for the Blue force. The field names are preceded with the letter "R."

2-26. RED (OPPOSING) FORCE

a. Non-US forces, not allied with the US, are normally labeled Red; however, the distinction is arbitrary and is primarily for the purpose of defining opposing forces in a particular battle. In any given simulation, any force could be assigned either color. The convention of assigning the color green to Third World countries in simulations is becoming generally accepted.

b. The Red fields are maintained in the data base under the assumption that sufficient data may at some time be available for both sides in any particular battle. Presently there is very little data for Red forces in the data base. In this version of the study, no comparisons are made among nationalities; therefore, the choice of describing a particular nation as Red or Blue is moot.

c. The Red fields of the data base are not included in Appendix F.

d. A relevant West German study (FRG-WWII-1) on Hitler's army is presently being completed that will add greatly to the opposing force data for WWII. Future improvements to the data base should certainly include Czarist Russian, Soviet, and Chinese data.

2-27. LEARNING TO USE THE DATA BASE

a. The AHART data base is available in printed form or on hard or floppy disk through DBASEIII Plus software. The best way to review the data base is on the microcomputer using the DBASEIII software in either the browse or the edit mode.

b. For the purpose of this study, it is most useful to arrange (index) the data base by type of tube, then order the records for each type of tube by date. However, through use of the DBASEIII software, the data base can be arranged in any order.

c. Understanding of the data base can most efficiently be achieved by studying the DBASEIII data entry format of Figure 2-1 printed above or shown on the microcomputer monitor and by using the definitions provided in this chapter.

d. Once familiarity with the data base has been achieved, a study of selected records will be more fruitful. The number of fields in each record (36) precludes printing of the entire record, even on long paper. The most useful fields to select for printing are those used as variables in the study.

e. Only those fields that are used in the analysis are printed in Appendix F. This results in loss of some, but not a significant amount of, information. So little opposing force data has been collected that none is printed here.

f. Appendix F includes Blue force data with the following fields:

SOURCE
BATTLE
UNIT
SIZE
DATE
TUBETYPE

TUBECAT
TUBEQUANT
TYPERD
DAYSQUANT
OPERATION
RDTUBEDAY

CHAPTER 3

DISTRIBUTION OF HISTORICAL ROUNDS PER TUBE PER DAY (RTD) OVER TIME

3-1. PURPOSE. The purpose of this chapter is to present graphic displays of the raw data for the dependent variable (RTD) grouped by selected tube types and tube categories. These plots of the raw data over time increase the reader's intuitive understanding of the data in terms of their volume, magnitude, and location.

3-2. DISTRIBUTION OF RTD OVER TIME FOR THE SELECTED DATA BASE

a. Figure 3-1 presents all 787 points of the raw data for the dependent variable (RTD) in the selected data base plotted over time. The data is clustered by year of major US wars. Many of the data points plot over each other and are therefore not separately identifiable. Events of RTD greater than 200 occurred in WWI, WWII, and Korea. Events greater than 300 RTD occurred only in WWI and WWII. (One-day rates greater than 500 RTD occurred in all wars, but among the points in the selected data base, those rates for duration of 2-plus days, none were greater than 415 RTD.)

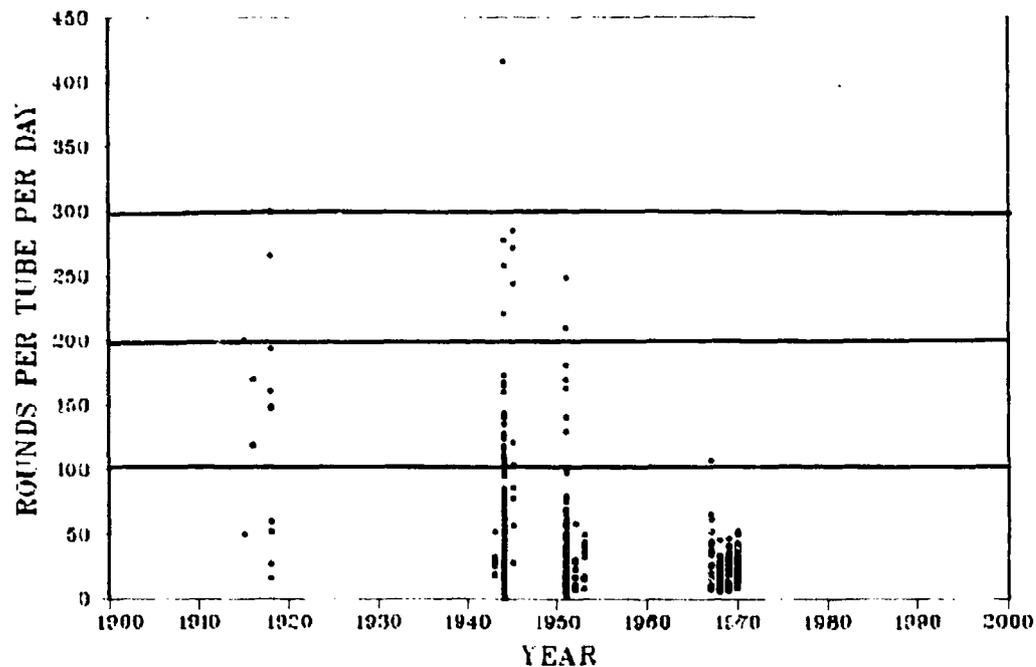


Figure 3-1. Distribution of RTD Over Time - All Tube Types

b. The variability of the data is greatest in WWI and WWII. Historians and logisticians of the WWI period express great surprise at the unprecedented extremes in the volume of fire, attributing it to advances in rapid fire artillery and the nature of the combat. The variability of the data then appears to decrease to a very noticeable near convergence in the Vietnam War.

3-3. RTD GROUPED BY TUBE CATEGORY. Figure 3-2 shows that light tubes account for much of the highest RTD in the data base. Light tubes also account for the extreme variability found among the tubes in the data base. The variability is reduced for medium tubes with a maximum RTD found historically to be less than 180 (Figure 3-3). The variability of the data for heavy tubes is reduced still further with only two events in this historical sample producing RTD greater than 90, and none more than 140 RTD (Figure 3-4). As defined for this study, heavy weapons did not exist prior to WWII. Several very large-caliber weapons such as large railroad guns, coastal defense cannons, naval guns, and siege artillery existed but are not included among field artillery weapons. The 155mm was in use during that time and played both the traditional medium support role and what was later separately identified as the heavy support role. The means of RTD by year and other location variables for RTD grouped by war are examined in Chapter 5.

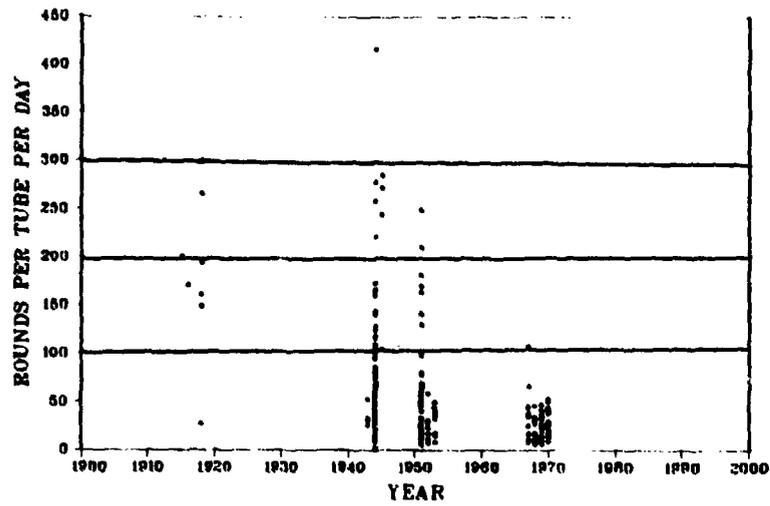


Figure 3-2. Distribution of RTD Over Time - Light Artillery

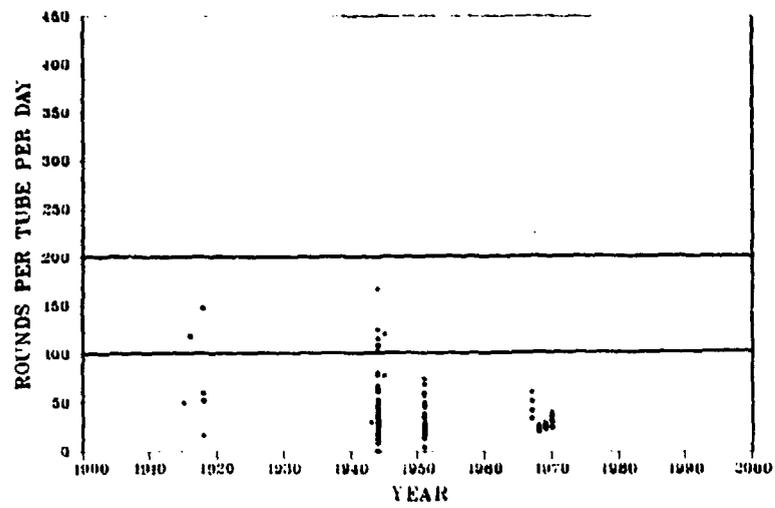


Figure 3-3. Distribution of RTD Over Time - Medium Artillery

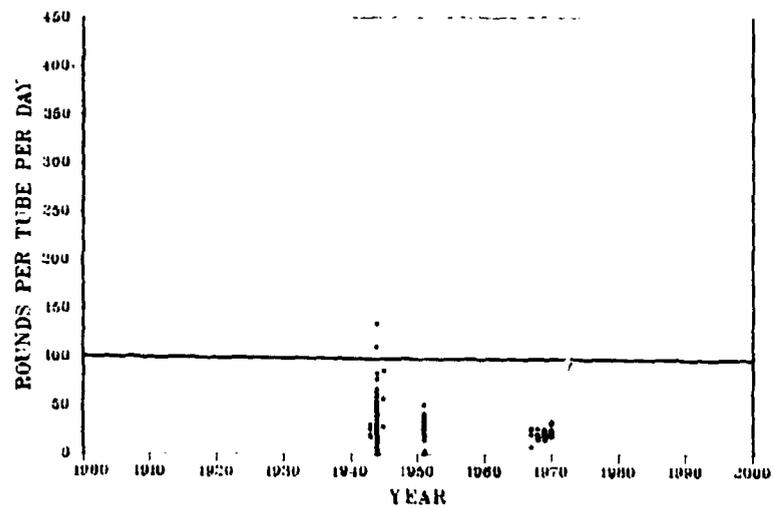


Figure 3-4. Distribution of RTD Over Time - Heavy Artillery

3-4. RTD GROUPED BY TUBE TYPE

a. Separated out as representative of each tube category, the 105mm, 155mm, and the 203mm artillery can be examined distinct from others of their category. As displayed in Figure 3-5, the 105mm is seen as the weapon having the single highest average RTD in the AHART selected data base, this occurring in WWII. Only one sample of the 105mm was found in WWI as it was a new weapon for that period, the 75mm being the primary direct support artillery of the war. The 105mm displays the extremes in variability in WWII and Korea but converges greatly in the Vietnam data. Excluded from the data are the 75mm, 81mm mortar, 107mm mortar, and the 114mm gun (4.5-in gun). The RTD for the other light systems fall within the 105mm experience, making the 105mm a satisfactory representative of all.

b. The plot of the 155mm (Figure 3-6) is identical to that of the medium tube category since this is the only tube type in the medium category for the AHART selected data base.

c. Excluded from the heavy category are the 155mm gun and 175mm and 240mm tubes. It would appear (Figure 3-7) that few points are eliminated, but it is, in fact, the number of points in common that causes the illusion. The 203mm tube type is an excellent representative of the category. As such, it appears to maintain a relatively constant usage across wars and has relatively low variability. It would seem that role of the 203mm tube has remained the same since its inception and that this role produces a relatively constant RTD over the period.

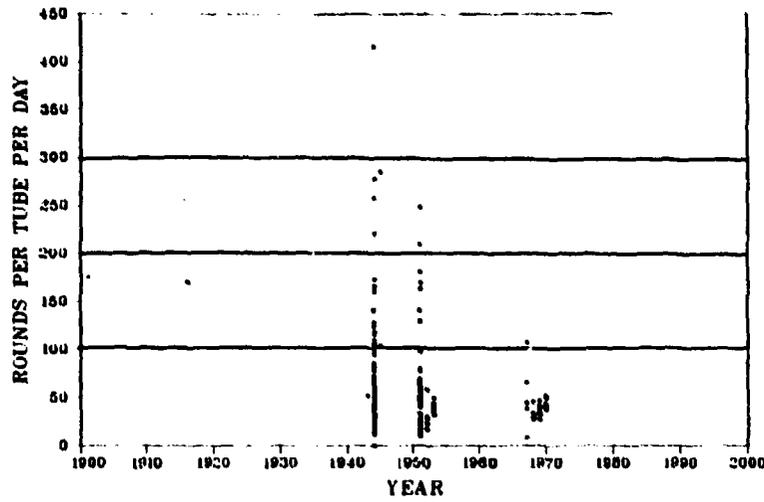


Figure 3-5. Distribution of RTD Over Time - 105mm

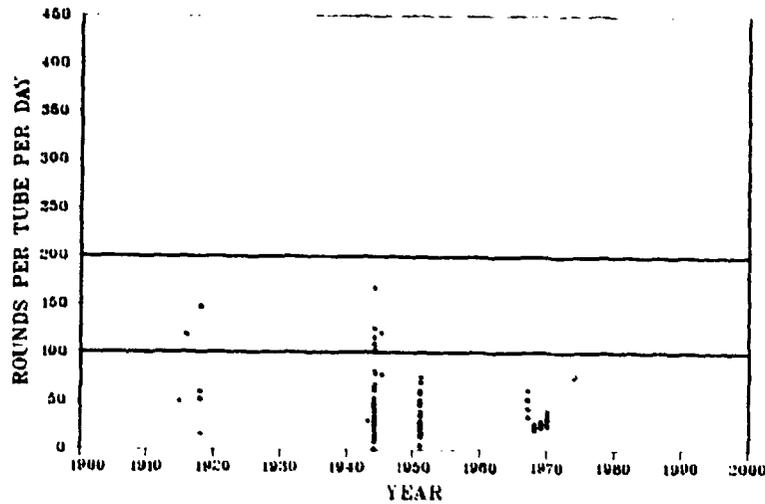


Figure 3-6. Distribution of RTD Over Time - 155mm

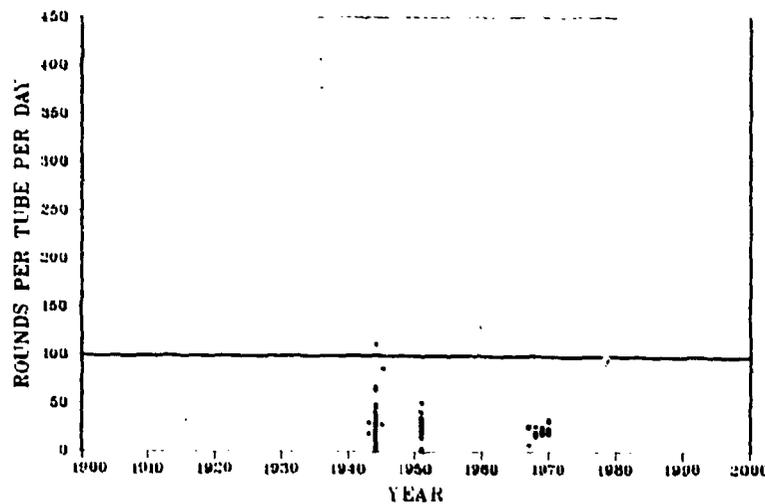


Figure 3-7. Distribution of RTD Over Time - 203mm

CHAPTER 4

EXPLORATORY ANALYSIS OF HISTORICAL RATES

4-1. PURPOSE. The purpose of this chapter is to present an analysis of the relationships among the chosen variables and their relative importance in explaining historical rates. This chapter also provides an analysis of the value of the AHART data base for use in prediction.

4-2. LINEAR TRENDS FOR RTD WITH CHANGES IN SINGLE INDEPENDENT VARIABLES

a. Linear Trend for RTD with Increasing Year

(1) Figure 4-1 repeats the presentation of all selected data points over time (Figure 3-1, Chapter 3), improving the capability to discern points that were plotted over one another. The negative slope of the regression line is as some might expect. It is suggested that as time progresses, and along with it technology, doctrine, target acquisition, etc., fewer rounds are being fired. As the nature of warfare has changed, the overall effect, according to this data, continues downward. (For an explanation of numerical and letter plotted symbols, see the BMDP Guide. Letters simply indicate increasing multiples of points plotted on the same point.)

(2) The synergistic effects of improved target acquisition, improved accuracy, increased dispersion, changed tactics, increased lethality, and improved cover all are somehow imbedded in this result. Each are subjects of closely related individual studies but are beyond the scope of this study to analyze.

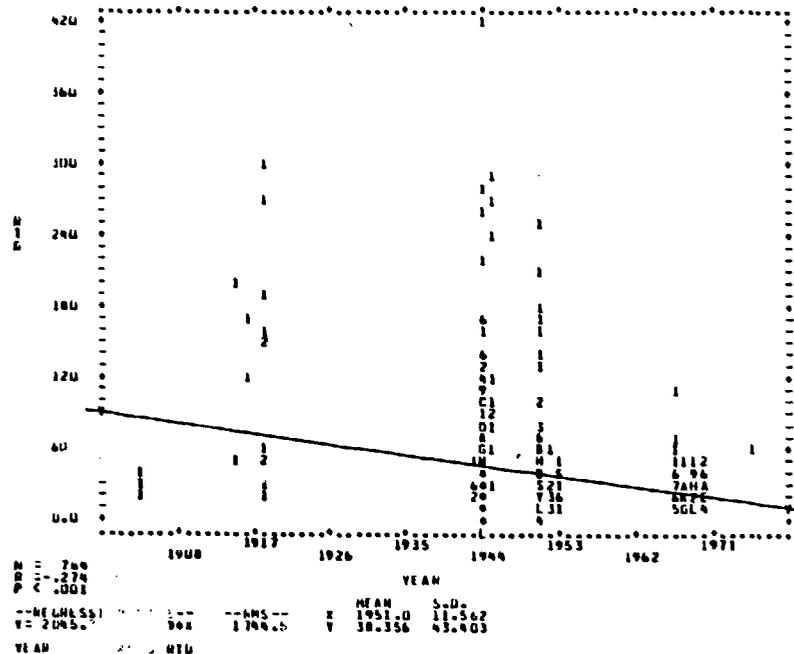


Figure 4-1. Linear Trend for RTD with Increasing Year

(3) There is no readily available means with which to judge the magnitude of the slope. It does not seem severe for a linear trend of a single variable.

(4) It is obvious from the correlation coefficient (R) in Figure 4-2 that the linear regression of this one variable is grossly inadequate to explain the variability of the data. From the appearance of the amount of dispersion in any one year, it is unlikely this or any one variable will explain much of variability. The general trend is nevertheless useful information.

b. Linear Trend for RTD with Increasing Caliber (TUBETYPE)

(1) Figure 4-2a suggests that as the caliber of the weapon increases the RTD decreases. This is as expected, consistent with the traditional role of each weapon system. The 75mm and 105mm tubes are historically the direct support tube types, those weapons which are called on first to support the maneuver units. Increased caliber tubes fire specialized missions and fire in support of the maneuver units only when the direct support weapons cannot handle the volume of fire required. In all but light infantry units, 155mm artillery has recently begun to assume the direct support role. This change, generally after the Korean War, will have an influence on the analysis of this data.

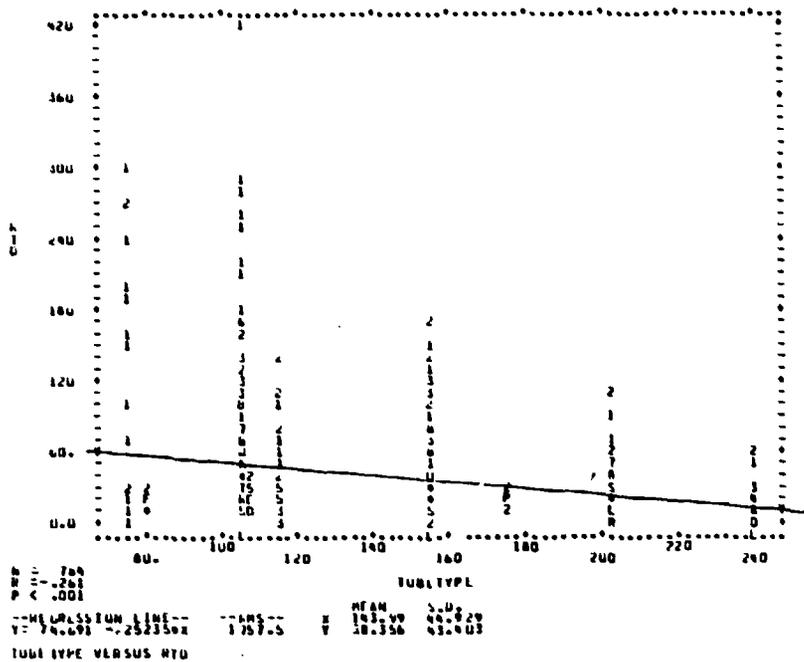


Figure 4-2a. Linear Trend for RTD with Increasing Caliber of Tube Type

(2) The maximum RTD of 420 should not be considered as an outlier. Numerous 1-day RTD (in the AHART data base; not included in the selected data base) are in excess of this number--as high as 827 RTD.

(3) Again the variability of the data is far beyond the ability of this single variable to explain.

(4) Figure 4-2b shows that, when grouped by tube category, the slope of the curve is only slightly less. Use of this different grouping arrangement to present more concise, readable charts and graphs is feasible with little loss or distortion of information.

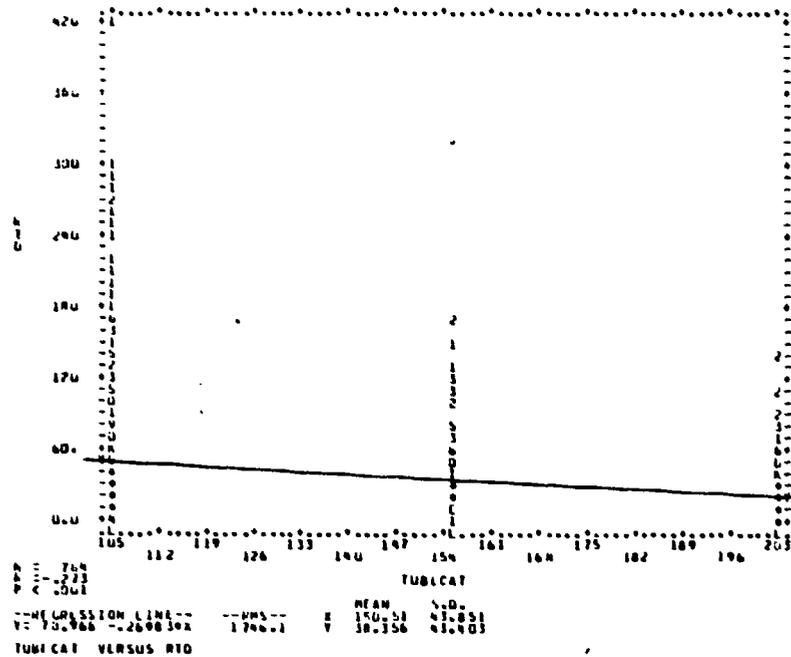


Figure 4-2b. Linear Trend for RTD with Increasing Tube Category

c. Linear Trend for RTD with Increasing Tube Quantity (TUBEQTY)

(1) Figure 4-3 suggests that as the number of tubes considered in an event increases, the RTD decreases. This seems consistent with what is found in the WARRAMP process. In the division-level model, a larger number of tubes must share the same number of generated missions. In computation of the theater rate, the same number of expenditures is divided by all tubes in the theater, many of which rarely fire. Therefore, as the number of tubes in the division-level model increases or as the number of tubes in a theater increases, it is expected that there would be a decrease in the number of rounds each tube would, on the average, fire.

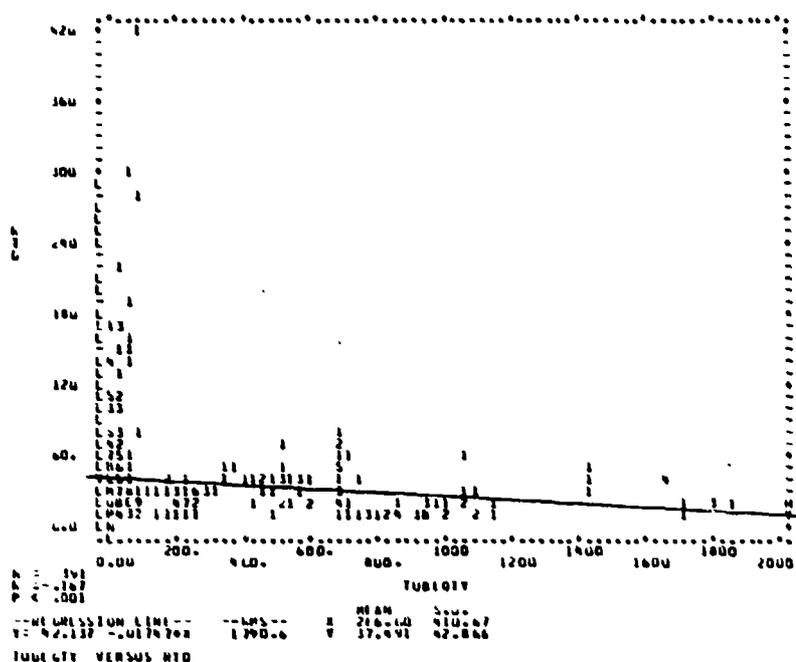


Figure 4-3. Linear Trend for RTD with Increasing Tube Quantity (TUBEQTY)

(2) The large variability is again very poorly explained by this trend alone.

(3) There is a mixing here of samples for operational RTD and theater RTD. The rapid decrease in RTD after a tube quantity of 87 weapons indicates the general dividing line between operational and theater RTD with respect to this variable. The figure is roughly equivalent to the tubes available to a corps-size operation. In future analysis, the data for the two types of rates should be maintained and analyzed separately.

d. Linear Trend for RTD with Increasing Intensity of the Operation (OPN)

(1) Figure 4-4 shows a positive trend for the change of RTD with increased operational intensity. This is as expected. More intense fighting would be expected to produce higher artillery expenditures. The magnitude of the slope, however, is not as great as expected. The RTD in light protracted combat would be expected to be much less than those of a heavy defense of a prepared position.

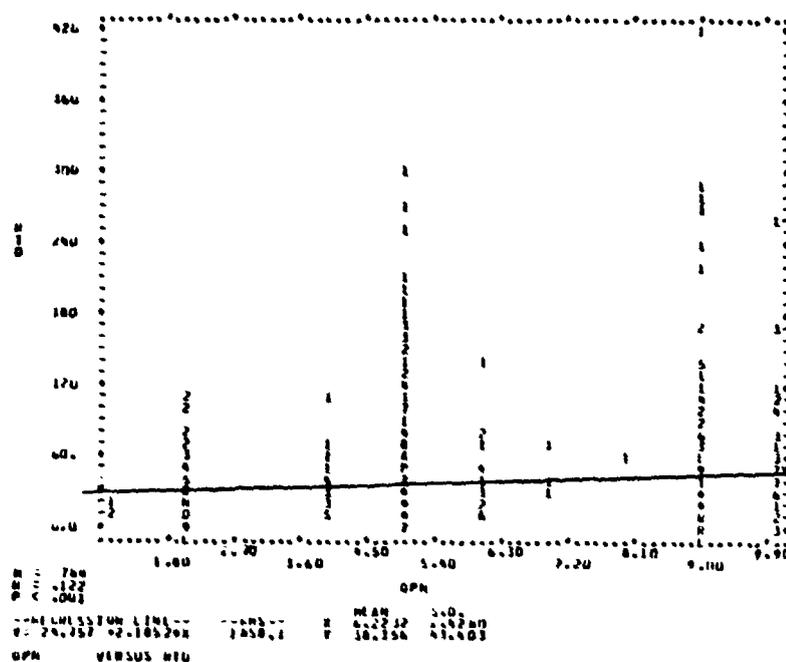


Figure 4-4. Linear Trend for RTD with Increasing Operational Intensity

(2) Several explanations are conceivable. If the expected magnitude of the slope were, in fact, true, the problem could be in the sampling. The AHART data base has a very poor distribution over the spectrum of operational intensities, most points being concentrated in the heavy intensity battles. It is possible, however, that this is a true result. Because of increased movement during more intense battles, or the use of increased harassing fires during lighter, more protracted battles, RTD in higher intensity battles may not be as different as might have been expected.

(3) Between attack operations and defensive operations of the same intensity, it is expected that defensive operations would have a greater RTD. This is the result found in historical data.

(4) The variable OPN is notably different from the other variables examined in that, if increasing scales for the independent variables are used, it is the only one with a positive influence on RTD.

e. Linear Trend for RTD with Increasing Duration of the Operation (DURATION)

(1) Figure 4-5 suggests that as the period of time over which the RTD is computed increases, the RTD decreases. The direction of the trend is as expected, but the slope is considerably less than expected. An increase in the number of days over which RTD is computed increases the likelihood that a number of those days were reduced firing or even nonfiring days. Seldom do units fire continuously for days on end. It has happened, but it is the exception. It would be expected, therefore, that a more rapid decrease in the slope would be closer to the actual events.

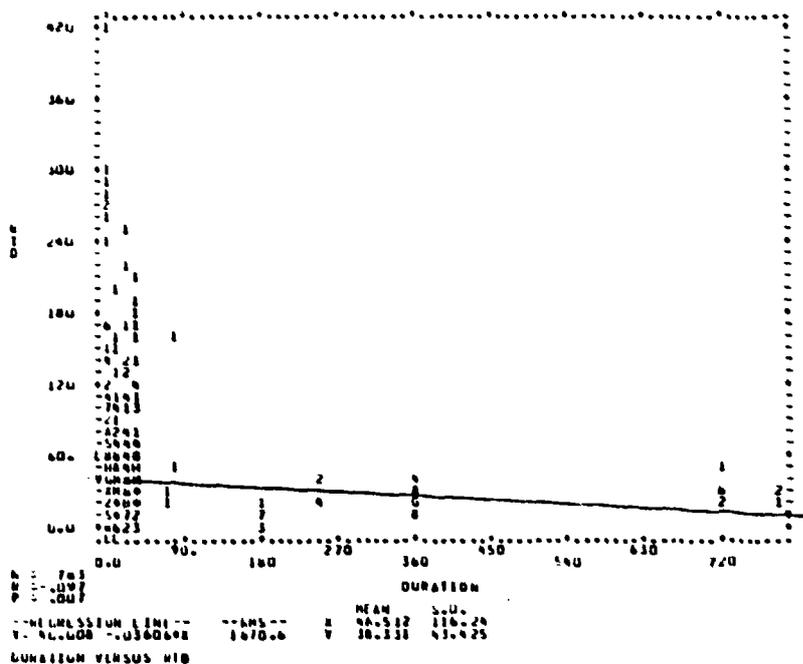


Figure 4-5. Linear Trend for RTD with Increasing Duration

(2) The sample itself may again account for the less than expected slope. The great majority of samples are under 40 days in duration. The magnitude of the slope is, by default, heavily influenced by a few number of points at the 180-day-plus end of the scale. Despite the elimination of the 1-day duration samples, the trend is mostly determined by samples of duration less than 10 days. (Note: those samples of 1-day duration were eliminated when forming the selected data base.)

(3) There is also a larger than desired correlation between DURATION and the variable SIZE (Table 4-1). That is, the larger forces are also those points for which data is aggregated over longer periods of time. Since larger forces also tend to have a greater number of tubes, the influence will be to reduce the RTD for increased durations. Some additional work will be required to isolate these effects.

(4) The less than expected means for RTD may be an additional explanation as to why the slope is lower than expected (Figure 4-5). The trend projected over a long x-axis will produce a reduced slope, with a small mean RTD of 38 on the corresponding y-axis.

(5) DURATION has the least correlation with RTD of the variables included in the analysis, indicating a possible opportunity to redefine or eliminate DURATION as a variable.

f. Linear Trend for RTD with Increasing Size of the Supported Force (SIZE)

(1) Among the variables chosen for this analysis, SIZE has the greatest correlation with RTD, if only by a small amount. The trend, as shown in Figure 4-6, suggests that as the size of the supported force increases, the RTD decreases. This is consistent with the WARRAMP process. As the size of the force increases, the proportion of subordinate units actually engaged in fighting decreases. The artillery supporting the engaged units experiences high single day rates, but the artillery supporting units not engaged do not.

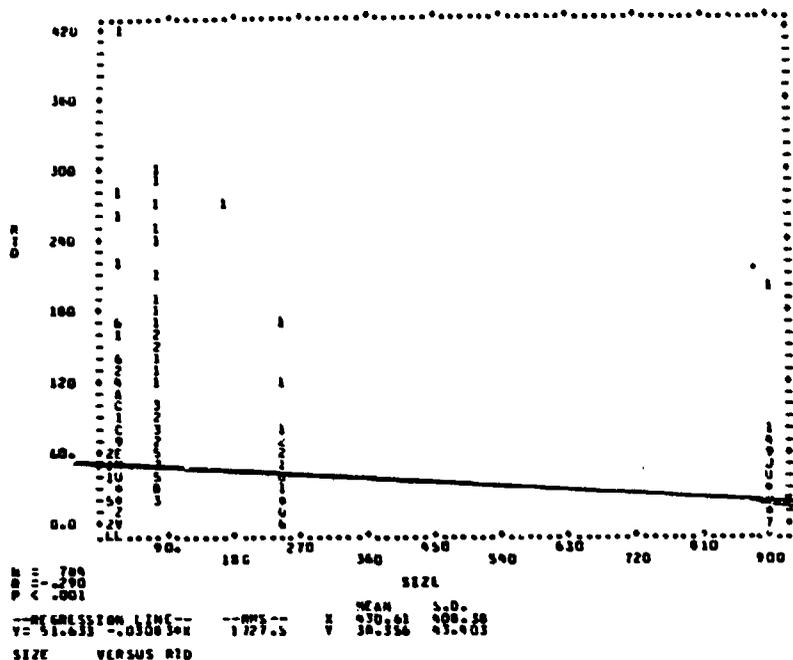


Figure 4-6. Linear Trend for RTD with Increasing Size of Supported Unit

(2) SIZE as a variable offers the most efficient way to isolate rates for which theater rates can be directly compared. Division and corps RTD fall primarily into the scope of operational rates. Army and theater RTD are directly comparable with the WARRAMP process rates.

(3) There were no samples included in the data base for units less than battalion task force size. Subordinate unit actions are of limited value for comparison with theater-level studies.

(4) It is suggested then from this data that WARRAMP rates, being theater rates, should almost always be lower than any of the operational rates to be found in historical data. When comparisons are made between historical and WARRAMP results, the WARRAMP results would be expected to be lower. This, however, is not the case, as Chapter 5 will show.

g. Correlation Among Individual Variables

(1) Within the AHART data base there are over 3,600 data points. Once samples of 1-day duration are eliminated, the selected data base retains 1,080 points. There are 213 records from the 1,080 for which no data for the dependent variable (RTD) was recorded. Upon elimination of these 213 records, there remained 787 records in the selected data base. Of the 787 records in the selected data base, some variables still had missing data and therefore could not be included in the calculations for the simple linear correlation coefficients involving that variable.

(2) Differences found between this matrix (Table 4-1) and the multiple linear correlation matrix (Table 4-2, shown later) are due to the difference in the number of records employed in the calculation and by the difference in the number of variables included in the calculations.

Table 4-1. Simple Correlation Matrix

Variable	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
YEAR	1.0					
TUBETYPE	-.1181	1.0				
TUBEQTY	.2976	-.5914	1.0			
OPN	-.2816	.1223	-.1536	1.0		
DURATION	.1869	-.0281	.0778	-.0400	1.0	
SIZE	.6639	-.2495	.7103	-.2884	.2071	1.0
RTD	-.2741	-.2612	-.1674	.1222	-.0965	-.2901

(3) The matrix demonstrates the lack of true independence among most of the chosen variables. There is a very high correlation between the variable SIZE and both TUBEQTY and YEAR. For a sample size of 394 records (the lowest number of records used in any of the calculations), the correlation is statistically significant if the coefficient is greater than .09, which most are. Only the variable DURATION is relatively uncorrelated with the other variables.

(4) While none of the correlations are very strong, all of the chosen variables are correlated with the dependent variable. The correlation with DURATION is weakest.

4-3. LINEAR TRENDS FOR RTD WITH CHANGES IN TWO SELECTED INDEPENDENT VARIABLES

a. Linear Trend for RTD with Change in Year and Tube Category

(1) Observed as raw data, it appears possible that RTD for WWII is as great as for the data from WWI (Figure 4-1). Reduced to mean RTD for each war, the graphics display a dramatic drop in RTD from WWI to WWII (Figure 4-7). There are decidedly fewer observations for WWI, decreasing the confidence in these figures compared to WWII data; however, narrative accounts and contemporary analysis indicate that very high rates of fire for WWI were possibly the rule rather than the exception. Figure 4-7 demonstrates the change in the mean RTD for each war by tube category.

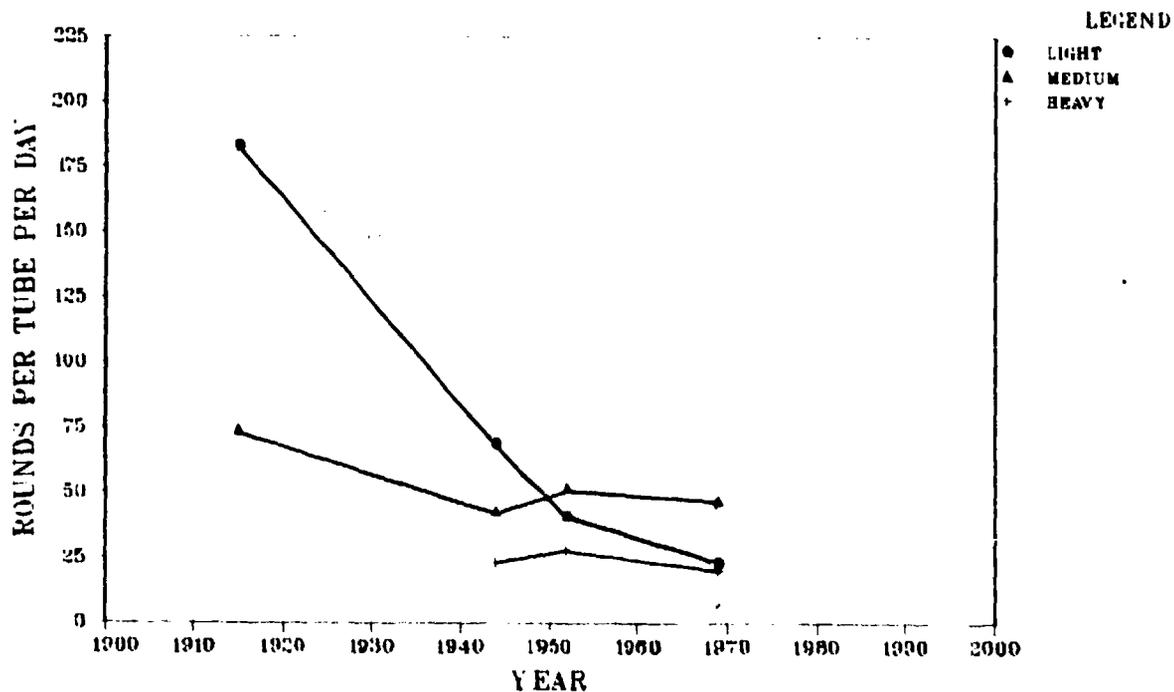


Figure 4-7. RTD for Year by Tube Category

(2) The change in RTD for medium tubes is not as dramatic but is significant.

(3) Following WWII the RTD for light weapons declined and became nearly identical to RTD for heavy tubes in Vietnam.

(4) It is the medium tubes that actually increase and diverge slightly from the others after Korea.

(5) In WWII and Korea, tube types maintained traditional roles, light tubes having less range and providing direct support fires, medium tubes having less range than heavy tubes and more often supporting the fires of the direct support artillery.

(6) Heavy tubes remained in specialized roles and fired long range less accurate missions less often.

(7) By the 1960s, 155mm tubes had achieved greater range capability and were nearly as mobile as light tubes, therefore assuming a greater share of the targets which even in the past would have been better served with greater shell weights.

b. Linear Trend for RTD with Changes in Operational Intensity and Tube Category (Figure 4-8)

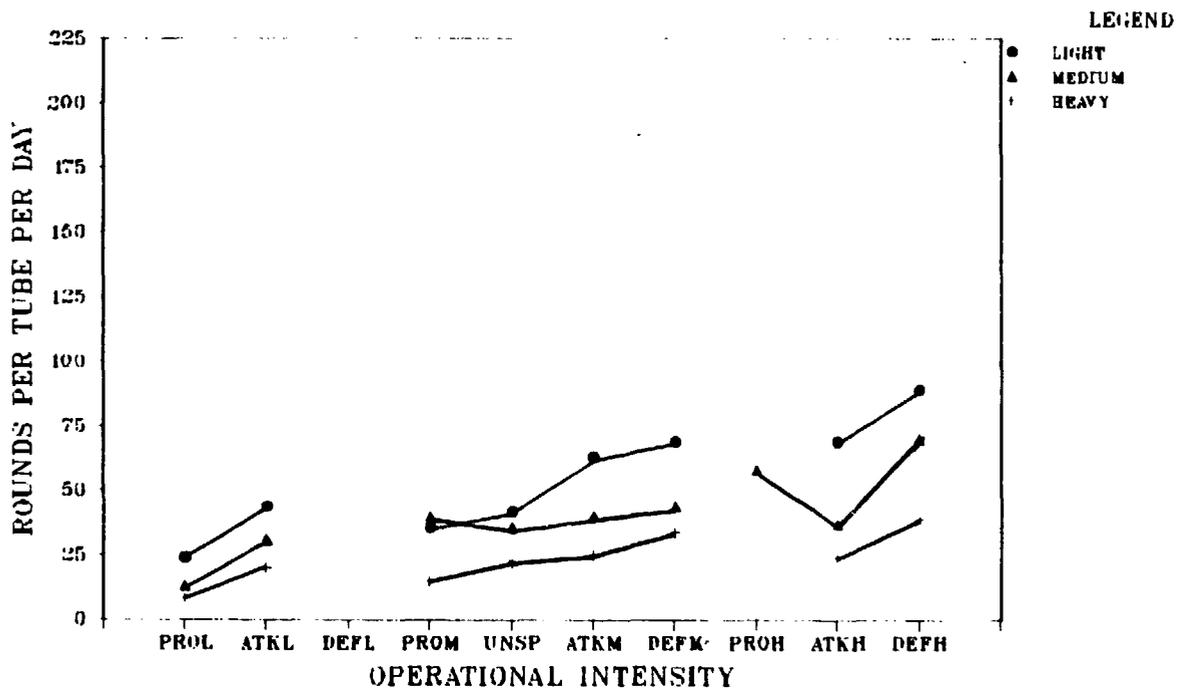


Figure 4-8. RTD For Operational Intensity By Tube Category

(1) With the notable exception of attack heavy (ATKH), RTD continually increases, even if not significantly, from the previous operation for like tube categories. This supports the order chosen for investigating this variable.

(2) As expected, attack rates are greater than protracted combat rates.

(3) Also as expected, expenditure rates are greater for defense operations than for either prolonged or attack operations. This is generally consistent with FM 101-10-1.

(4) From initial versions of this analysis it was found that the large number of unspecified (UNSP) operations in this data base fell generally between protracted medium (PROM) and attack medium (ATKM) and supports its location on the scale of operational intensities. This further supports the assumption that these UNSP operations were data consolidated over disparate types of operations. They are nearly central enough to be considered a measure of the central tendency of the sample.

(5) The decrease in RTD for ATKH, compared to operations both above and below it, is an interesting result in that it is consistent with what has been true in the division model of the WARRAMP process. A conceivable explanation is that the amount of movement required of the force in a deliberate intense attack is great enough to reduce the artillery's ability to support. A continued effort is warranted to acquire data on protracted operations for light and heavy tube types and to confirm this result.

(6) As shown in Chapter 2, the sample for this variable is heavily weighted to attack operations and particularly to heavy attack operations. This fact should not be lost in the aesthetically pleasing results of these graphics. Several of these points are based on sample sizes of less than five events.

c. Linear Trend for RTD with Changes in Duration and Tube Category

(1) Duration of battle can be divided into three general categories--first, battles, which are of the "come as you are" variety or are strictly of short length (less than 10 days long); campaigns which are longer, preconceived, and for which logistic preparations are made; and third, theater operations which are generally longer than 90 days and which may include numerous campaigns and individual battles.

(2) In Figure 4-9 it is the RTD for DURATION greater than 30 days that is most directly comparable to the WARRAMP process. This is so, not because duration of battles determines whether or not the expenditure is a theater-level RTD, but because this is the way historical data is generally found. Historical documents that provide the details needed in this analysis have often been consolidated into monthly, quarterly, semiannual, and annual periods. Seldom are theater-level expenditure data consolidated in less than the 30-day figures. For Korea, monthly theater data is available but lacks the theater tube quantity data needed for determination of RTD. This level of detail exists in sufficient detail only for Vietnam.

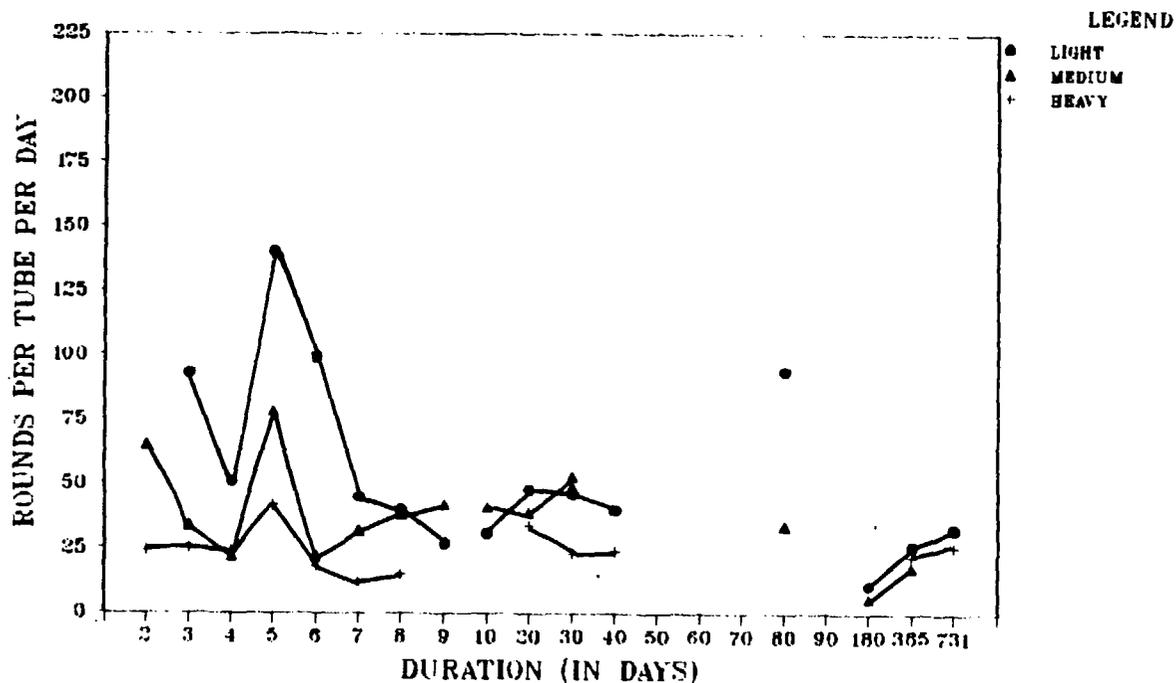


Figure 4-9. RTD For Duration By Tube Category

(3) In the WARRAMP process, theater rates are produced for any number of days, 1 to 180. But for the data in AHART, the three general categories described above roughly approximate each type rate and are therefore useful in the analysis. It may be worthwhile in a revised version of the data base to identify historical data points according to one of these three categories.

(4) With the notable exception of the 5-day RTD (for which there are only five observations), there is a decreasing trend from 2 to 10 days, leveling off for RTD of 20-, 30-, and 40-day duration. The 80-day RTD for light tubes (again with very few samples) leaps dramatically. RTD for light and medium tube categories with duration greater than 180 days is obviously less than their counterparts of less duration. Heavy tube RTD is generally constant.

4-4. MULTIPLE LINEAR REGRESSION ANALYSIS

a. Multiple Correlation Among the Variables

(1) Among the 787 points in the selected data base, 396 had values outside the acceptable limits (smaller or greater than limits defined for each variable). Only 391 complete records remain. It is with these records that the multiple regression analysis is done. It is unfortunate that the difficulty in finding even reasonable approximations for tube quantity eliminates nearly half of the records in the selected data base from this analysis. Future work would be well spent on ameliorating this problem.

(2) For this sample size, the correlation is significant if the absolute value of the correlation coefficient exceeds 0.09, which most do. As shown in Table 4-2, YEAR, TUBETYPE, OPN, and SIZE all have significant linear correlations with RTD. DURATION does not appear to be significantly correlated with RTD.

Table 4-2. Multiple Linear Correlation Matrix

Variable	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
YEAR	1.0					
TUBETYPE	-.135	1.0				
TUBEQTY	.296	-.594	1.0			
OPN	-.136	.106	-.158	1.0		
DURATION	.216	-.113	.076	-.144	1.0	
SIZE	.748	-.439	.709	-.235	.268	1.0
RTD	-.249	-.214	-.167	.169	-.036	-.231

(3) The variables are, however, also significantly correlated with each other. High correlations exist between SIZE and both YEAR and TUBEQTY. With the exception of the correlation between DURATION and both RTD and TUBEQTY, all variables are significantly related to one another. The lack of independence among the variables is a major feature of the data base. With continued analysis and increased study

into individual historical events, more independent variables may be developed.

(4) The variables chosen for this study were those for which historical data seemed accessible in the time allotted and were those which also seemed to be the most commonly used in previous analyses of the WARRAMP process. It would appear that several of the factors analysts most often look for in the analysis of WARRAMP results, i.e., operational intensity, size of the maneuver forces, duration of the battles, may be so dependent on each other that the analysis is at best intricate and possibly redundant. Continued work in the determination of truly independent variables and continued investigation into their relationship with selected dependent variables would seem to be needed. The difficulty experienced in explaining WARRAMP results may stem in part from the lack of independence in the variables commonly used to do so.

(5) None of the coefficients exceeds .80 and therefore suggests no multicollinearity. None of the variables is completely defined by another.

b. All-possible Subset Regression

(1) The order in which the variables appear in the single variable subsets is a first cut at the order of importance of each of the variables for explaining the variability of the data. In Table 4-3 the variables appear in an order slightly different from the order shown in the simple linear regression matrix. The discrepancy may be due to the difference in the number of records used in the analysis. (Only complete records are used in the all-possible subset regression.) Most notably, YEAR is transposed with SIZE, and TUBEQTY is transposed with OPN.

Table 4-3. Results - All-possible Subset Regression for Single Variables

R-square	Variable
.0623	YEAR
.0533	SIZE
.0457	TUBETYPE
.0286	OPN
.0280	TYPEQTY
.0013	DURATION

(2) Table 4-4 presents the best results for each number of variables included. "Best" is defined as the combination of variables having the highest multiple correlation coefficient for the number of variables included. The results of the regression for each variable are provided.

(3) The largest correlation coefficient was achieved with a combination of four variables, each contributing to the explanation of the variability as shown in Table 4-4.

Table 4-4. Coefficient Values from Best All-possible Subset Regression

Variable name	Standardized regression coefficient	T-stat	Contribution RSQ
Intercept	33.3	4.23	
YEAR	-0.185	-3.94	.0308
TUBETYPE	-0.474	-8.55	.1452
TUBEQTY	-0.373	-6.45	.0827
OPN	0.135	2.99	.0177

Squared multiple correlation .2328
 Numerator degrees of freedom 4
 Denominator degrees of freedom 386

(4) The overall correlation coefficient, even for the best combination, demonstrates that no combination of variables offers a very useful explanation of all the variability in the RTD value. The best information to be gained from this number is that more work needs to be done, either in definition of variables or in data collection, or in both, before this data base can be used to make high-confidence predictions. The correlation coefficient is low, compared to scientific experiments, but is not unusual in sociological research work. No attempt at prediction should be made at this point.

(5) The relative rank of the variables in terms of their contribution to the correlation coefficient does offer a suggested priority for further investigation, but the historical data in the data base at the present time does not sufficiently explain enough of the variability of the data to allow prediction.

(6) Analysis of the normalized probability plot (Figure 4-10) for standardized residuals demonstrates some departure from the assumption of normality for plots for this combination of variables. Both tails decay very rapidly. Analysis of the residuals themselves (Figure 4-11) displays a modest, wedge-shaped plot indicating some degree of nonlinearity even in the multiple effects of the variables.

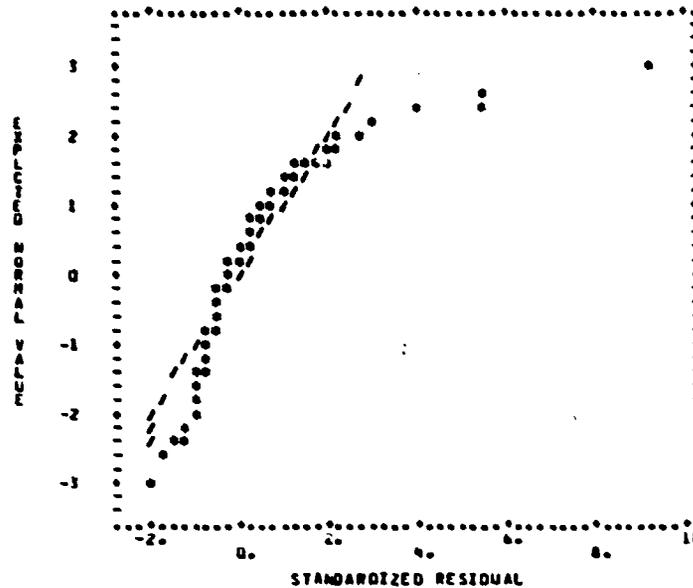


Figure 4-10. Normal Probability Plot for Standardized Residuals of the Best All-possible Subset Regression

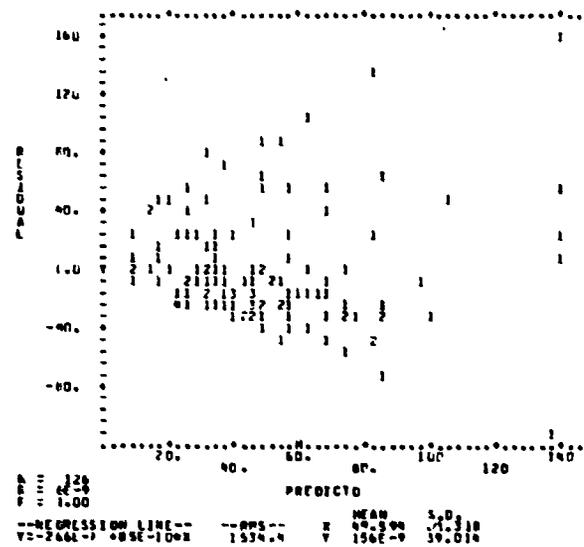


Figure 4-11. Residuals for Best All-possible Subset Regression

c. Stepwise Linear Multiple Regression

(1) Using forward-stepping techniques, four variables entered the regression that were not later eliminated. Table 4-5 shows the small changes to the correlation coefficient produced by each variable. The overall coefficient of determination, as in the all-possible subset regression, again demonstrates the inadequacy of the AHART data base for explaining the variability of the data and therefore its inadequacy for use in high-confidence prediction for individual cases.

(2) The resulting regression coefficients and their correlation are presented in Table 4-6. Except for OPN, all variables included have an effect of decreasing RTD. The correlations between TUBEQTY and the other variables are much greater than desirable.

Table 4-5. Summary Table - Stepwise Linear Multiple Regression

Step no	Variable entered	Multiple		Change in RSQ
		R	RSQ	
1	YEAR	.2496	.0623	.0623
2	TUBETYPE	.3531	.1247	.0624
3	TUBEQTY	.4638	.2151	.0904
4	OPN	.4825	.2328	.0177

Table 4-6. Coefficient Values from Stepwise Regression

Step	Y-INTCPT	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
0	37.5	-.9232	-.1929	-.0175	2.7443	-.0663	-.0244
1	1836.9	-.9232*	-.2275	-.0107	2.2366	.0334	-.0106
2	2214.8	-1.0491*	-.2275*	-.0405	2.6210	-.0072	-.0422
3	1538.1	-.7332*	-.4250*	-.0405*	2.1963	-.0338	-.0085
4	1429.0	-.6839*	-.4280*	-.0389*	2.1963*	-.0048	-.0029

NOTES:

1. Regression coefficients for variables in the equation are indicated by an asterisk.
2. The remaining coefficients are those which would be obtained if that variable were entered in the next step.

(3) The following plots (Figures 4-12 and 4-13) demonstrate the same results found in the all-possible subset regression; that is, some amount of departure from the linearity and/or normality assumption and a definite wedge-shaped plot of residuals indicating a change in the variability of the data with increasing magnitude of the dependent variable (RTD). Therefore, an investigation of some nonlinear relationships is indicated.

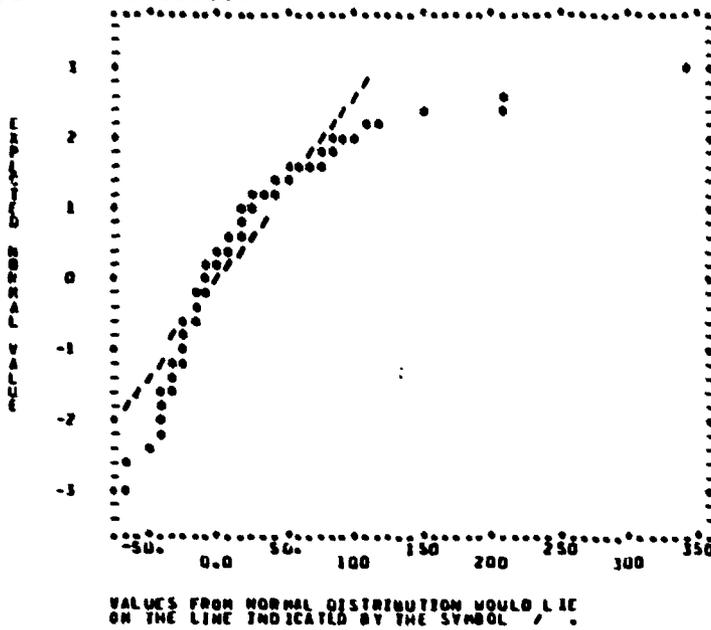


Figure 4-12. Normal Probability Plot for Standardized Residuals of the Stepwise Linear Multiple Regression

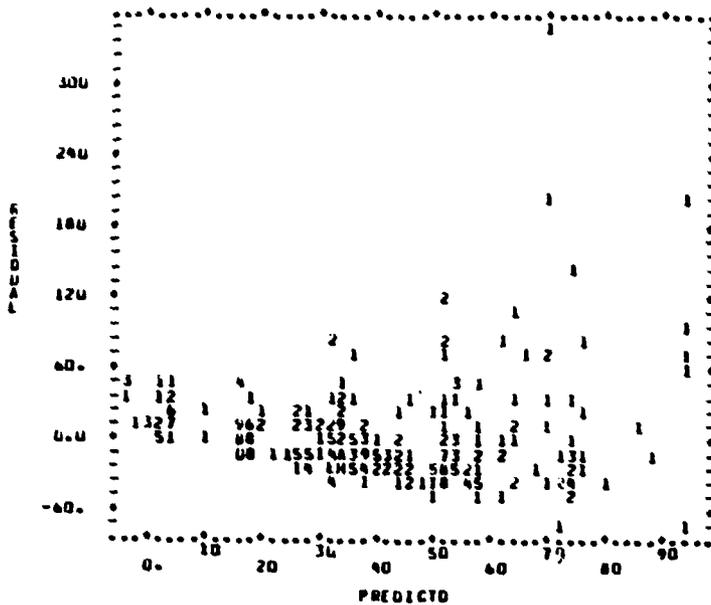


Figure 4-13. Residuals for Stepwise Linear Multiple Regression

d. Multiple Linear Regression on Nonlinear Transformations

(1) From the linear regression that was conducted, no combination of variables seemed adequate to explain the variability of the data. Several transforms of the data were attempted. Only one improved the overall correlation coefficients, then only slightly. Tables 4-7 and 4-8 present the results of a square root transformation of the data and application of the multiple linear regression techniques used on the transformed data.

Table 4-7. Summary Table - Stepwise Linear Multiple Regression, Square Root Transform

Step no	Variable entered	Multiple		Change in RSQ
		R	RSQ	
1	TUBETYPE	.3338	.1115	.1115
2	TUBEQTY	.4968	.2468	.1353
3	OPN	.5067	.2567	.0099

Table 4-8. Regression Coefficients from Stepwise Regression, Square Root Transformation

Step	Y-INTCPT	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
0	1.3782*	-.0041	-.0031	-.0001	0.176	0.011	-.0001
1	1.8182*	-.0060	-.0031*	-.0005	0.237	0.004	-.0003
2	2.3054*	-.0023	-.0056*	-.0005*	0.16*	0.004	-.0001
3	2.2057*	-.0020	-.0056*	-.0005*	0.167*	0.007	0.000

NOTES:

1. Regression coefficients for variables in the equation are indicated by an asterisk.
2. The remaining coefficients are those which would be obtained if that variable were entered in the next step.

(2) The residuals shown in Figures 4-14 and 4-15 demonstrate a superior adherence to assumptions of both normality and linearity. The regression coefficients, however, demonstrate that no significant improvement is made in the ability of these variables to explain the variability.

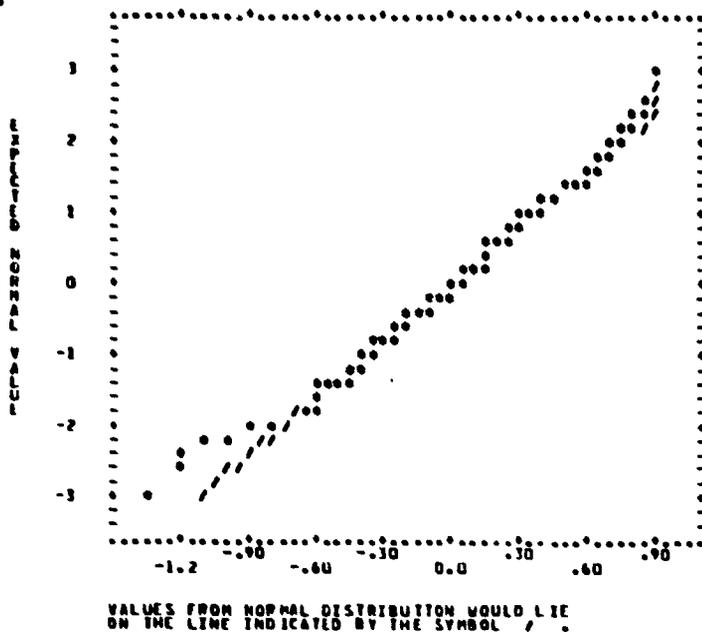


Figure 4-14. Normal Probability Plot for Standardized Residuals of the Stepwise Linear Multiple Regression, Square Root Transformation

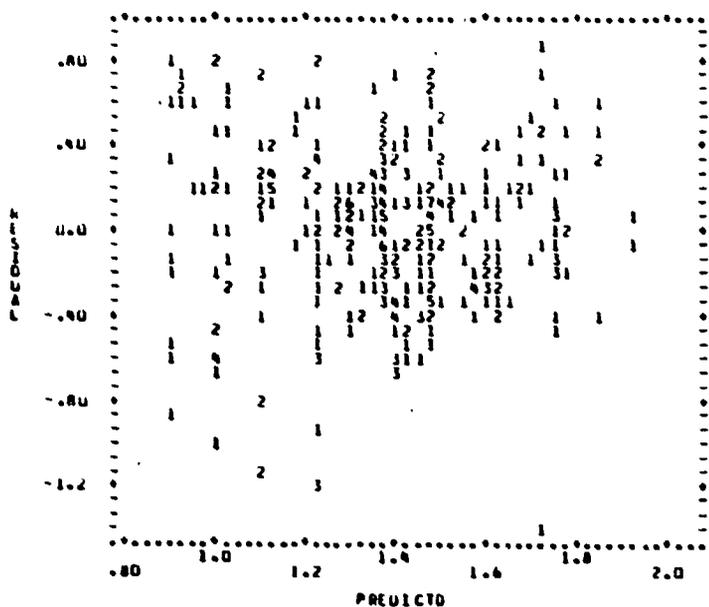


Figure 4-15. Residuals - Stepwise Linear Multiple Regression, Square Root Transformation

(3) The evidence becomes stronger that the variables included in the AHART data base, while useful in numerous other ways, are not yet ready for use in predicting RTD for individual events. It would appear that transformation of data to improve the usefulness of linear techniques in understanding the data provides no additional information and is not worthy of continued effort. Numerous other transformations, i.e., power, reciprocal, arcsine, were attempted with no better results; the need for improvement lies in the definition of the variables and the data itself.

CHAPTER 5

COMPARISON OF HISTORICAL RATES WITH WARRAMP RATES

5-1. PURPOSE

a. The purpose of this chapter is to present the results of comparisons made between selected WARRAMP rates and the RTD determined using historical data.

b. The definitions of rates and applicability of the data in this data base to comparisons with WARRAMP results are discussed in Chapters 1 and 2.

c. The WARRAMP results in this chapter are not identified with the specific requirements study from which they were taken and have been modified considerably to maintain the unclassified nature of the report without changing the nature of the comparison. Actual numbers are taken from among the Wartime Requirements Studies, FY 90 and FY 93 series, and can be obtained by authorized individuals or activities through the US Army Concepts Analysis Agency.

d. A follow-on study of this data conducted at CAA is planned in classified form.

5-2. ADDITIONAL CONSIDERATIONS AFFECTING COMPARISONS

a. Comparisons of this nature are subject to tremendous abuse. The presentation out of context and the occasional selective use of only favorable findings have created, in some circles, an attitude of mistrust and, in the extreme, a rejection of the use of historical data to compare with combat simulations. The list of additional considerations is presented here as a reminder to those who would misuse this data and to provide a broader perspective with which to judge the results of this study.

b. The very existence of the field of quantitative analysis attests to the belief that no single historical event is ever likely to match the precise conditions required for highly confident comparisons with a current or future situation. The procedures established to assemble data from many historical events, to draw conclusions, and to isolate comparable attributes are well established. But even these procedures can never duplicate a given situation with sufficient precision to overcome the objections of the cynic or the uninformed critic. For those, however, who respect the capabilities of such analysis and are able to accept its limitations as well as its strengths for what they are, no more and no less, a great deal of useful information is available.

c. Along these lines it is necessary to enumerate, without proceeding far into topics worthy of separate studies, the major attributes of the WARRAMP process which cannot be accounted for with the historical data in the AHART data base. Recall that only a limited

number of relevant factors affecting the WARRAMP process were chosen as variables in AHART. Additional historical data is available to examine additional variables, including some of the considerations listed below in Table 5-1.

Table 5-1. Considerations Affecting Comparisons

The WARRAMP process:

- Has an unconstrained supply of ammunition
- Has undegraded command, control, and communications (C3)
- Has state-of-the-art target acquisition capabilities
- Has state-of-the-art weapon and munition technology
- Always simulates theater densities of weapons and equipment

(1) **Constrained versus Unconstrained Ammunition.** In the WARRAMP process, no constraint is imposed on the availability of rounds that can be fired. The stated purpose of the process is to determine how many rounds would be needed if the combatants had all the ammunition they could use. However, in historical events there are numerous physical constraints in production, transportation, and loss due to accident or enemy action. As a result of these physical constraints, commanders often impose artificial constraints by imposing ammunition rationing. On occasion, historical events can be classified as practically unconstrained (i.e., at least one side had all the ammunition it could use effectively), but the preponderance of historical events occurs under conditions of rationing.

(2) **Undegraded versus Degraded Communications.** The WARRAMP process does not model the effects of degraded command, control, and communications (C3). There is no electronic jamming, no terrain interference or masking, and no loss of control due to destruction of headquarters units. Additionally, the processing of intelligence, once collected in WARRAMP, is in like manner undegraded. The intention of the WARRAMP process is to make no attempt to represent the variation of such effects, by default then assuming them to ultimately be of equal effect on both sides. This may be very objectionable to some, and may be at great variance from reality. The effects of undegraded communications and its effect on the use of intelligence is a major departure from historical experience.

(3) Improved Target Acquisition. A concentrated effort has been made over the last decade to improve the Army's target acquisition capabilities. Indeed, new technology has given commanders hope of reducing what has been one of their greatest weaknesses--the inability to acquire real-time intelligence and the resulting inability to target enemy maneuver and artillery units on a real-time basis. This new capability is reflected directly in current WARRAMP requirements studies. Real-time target acquisition and intelligence are expected to have significant effects on almost all factors influencing artillery expenditures. No historical data is available with which to measure or compare this influence. Even the recent Arab-Israeli Wars do not employ these systems sufficiently to permit comparisons with WARRAMP requirements studies for FY 93 and beyond.

(4) Improved Weapon and Munitions Technology. The range, accuracy, and reliability of artillery tubes have all improved markedly in this century. The most recent advances have never been tried outside test range conditions. In the arena of munition improvements, some analysts believe we have entered into a new age of artillery as different from 20th century historical experience as Napoleonic Wars and the American Civil War experience is from WWI and post-WWI historical experience. Artillery, formerly only an area fire weapon able to conduct precision firing on a specific target only with great effort and under very favorable conditions, can, with the development of laser guided and other terminally-guided munitions, attack specific targets with great accuracy as a matter of course. This effect is modeled in increasing detail in the WARRAMP process and has no historical experience.

(5) Theater Rate versus Historical RTD. As explained earlier, it is essential in any study of artillery expenditures to define clearly which type of rate is being observed and compared. Both operational and theater rates are available in historical data. Theater rates are by definition the lowest rates possible to compute since they use in the denominator all tubes available in a theater and not only those available to a specific area of operations.

(6) Current Level of the Analysis. Statistical analysis is an iterative process. This study is only the first step at data description and exploratory analysis. As the work progresses and other relevant variables are added or are taken away, the ability to account for the variation in historical data will improve. As it does so, the ability to compare WARRAMP and historical results will improve. Not that the rates will necessarily draw closer, but the confidence in the difference and the certainty with which we accept the information derived will increase.

5-3. COMPARISON OF WARRAMP RATES WITH HISTORICAL RTD

a. Reduced Scope of the Comparisons. At the outset of this study, it was intended that the comparisons of WARRAMP and historical data be a major result of the work. However, up to this point, the variables used in the analysis do not provide sufficient explanation of the variability to fit equations for RTD with any confidence in predictions

of individual events. As a result, the comparisons made in this chapter are mostly for illustrative purposes. These comparisons provide a start point but are of such low confidence levels that they can only be considered early iterations of what will, with continued analysis, be useful comparisons. An attempt to present any greater array of detailed comparisons at this point would be meaningless.

b. **WARRAMP Rates versus Historical RTD.** From Table 5-2 it can be seen that the most pronounced difference found in this comparison exists for 105mm/light tube types. The difference is greater at the 30-day rate than the 180-day rate. 155mm/medium rates compare more closely with AHART results, 203mm/heavy still closer. None, however, fall within the 95 percent confidence limits of a normal linear distribution.

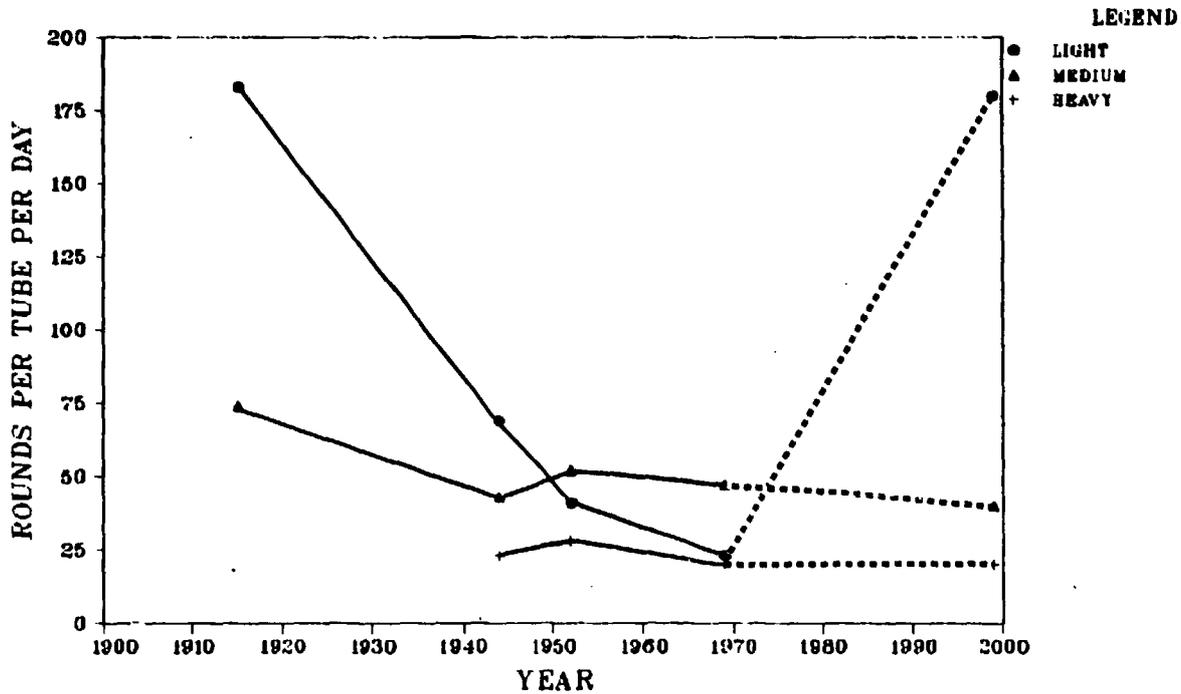
Table 5-2. WARRAMP Rates vs Historical RTD

TUBETYPE	Average RTD	95% Confidence interval	Standard deviation	WARRAMP rate	
				30-day	180-day
105mm	62.9	3.9	55.9	200	180
155mm	39.0	2.4	30.2	100	45
203mm	21.9	1.5	18.6	30	20
Light	50.2	3.0	56.8		
Medium	39.0	2.4	30.2		
Heavy	23.7	1.2	20.1		
All	38.4	1.5	43.4		

- As a result of considerations in Table 5-1, WARRAMP rates should be expected to be less than average RTD.

c. WARRAMP Rates versus RTD Over YEAR by TUBECAT

(1) Data collected from the requirements studies are plotted in Figure 5-1 together with the historical data as a point of departure for further analysis. No attempt is made here to extend the distribution of historical RTD beyond their place in time. When confidence in the data increases, a worthwhile attempt to do so can be made.

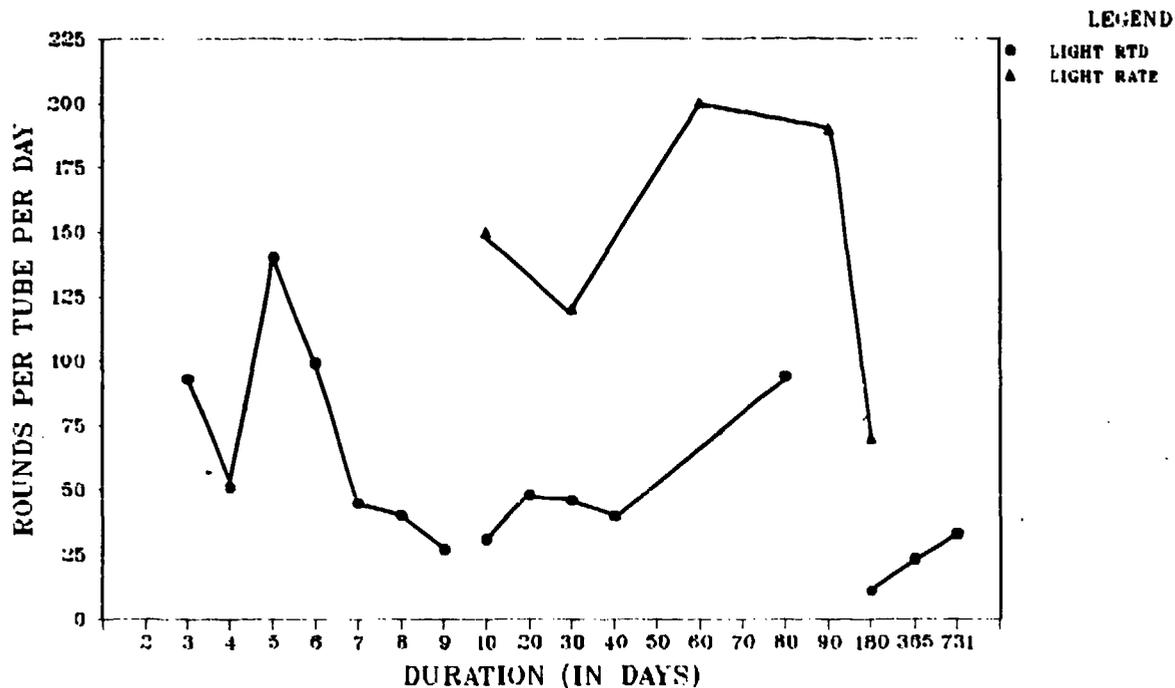


NOTE: Values plotted for 1999 are WARRAMP rates. Both continuous and broken lines are to aid observation only.

Figure 5-1. WARRAMP Rates vs RTD Over YEAR by TUBECAT

(2) Once again the 105mm/light tube types depart most dramatically from what was found in this historical data base. The light tube type historical curve would have to reverse itself dramatically for some reason to meet what WARRAMP predicts. The medium and heavy tube types do not seem to deviate greatly. It seems possible that such rates could actually occur.

d. WARRAMP Rates versus RTD for DURATION by TUBETYPE/TUBECAT. Figures 5-2, 5-3, and 5-4 provide additional comparisons for rates and RTD over various DURATIONS. Light tube types remain at great variance from historical data. Medium and heavy tube types seem much closer to historical experience throughout.



NOTE: Scale for DURATION changes; connecting lines are to aid observation only.

Figure 5-2. WARRAMP Rates vs RTD for DURATION by TUBECAT - Light Tubes

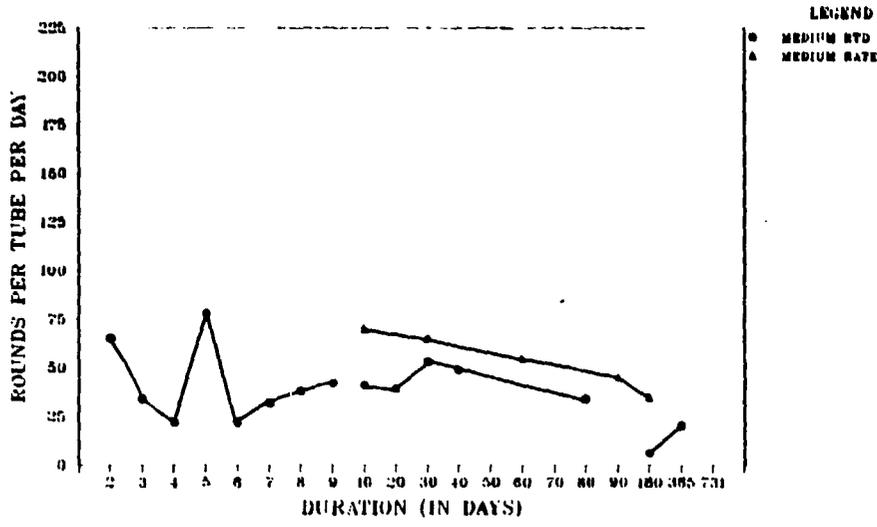


Figure 5-3. WARRAMP Rates vs RTD for DURATION BY TUBECAT - Medium Tubes

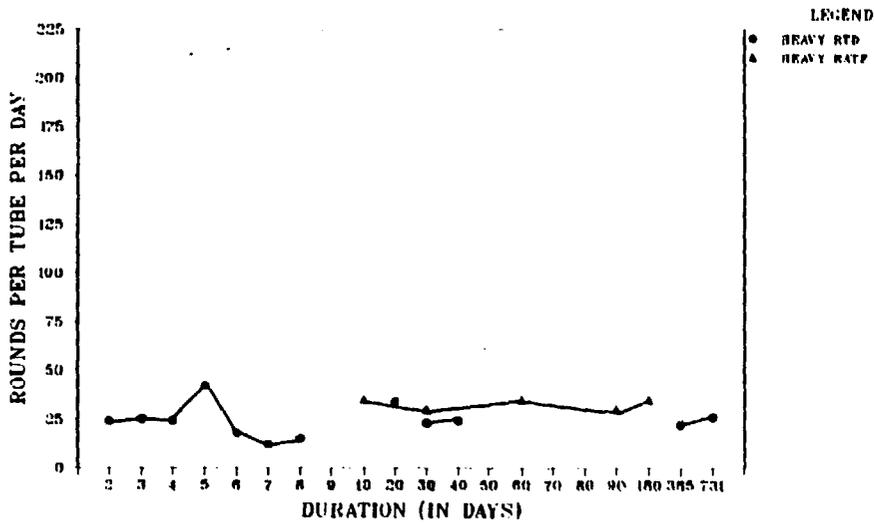


Figure 5-4. WARRAMP Rates vs RTD for DURATION by TUBECAT - Heavy Tubes

e. WARRAMP Rates versus RTD Over OPN by TUBECAT

(1) Final WARRAMP results intentionally are rates which are aggregate results of the spectrum of combat operations. To compare RTD with rates for individual operations within WARRAMP, it is necessary to extract the rates from the division-level simulation (COSAGE).

(2) The rates shown in Figures 5-5, 5-6, and 5-7 for the UNSP group are, as described in Chapter 4, those most comparable to theater rates. To provide additional information here, the WARRAMP theater rates and the historical UNSP RTD are also plotted. RTD are plotted and connected by like level of intensity (i.e., light, medium, heavy) to make observation easier.

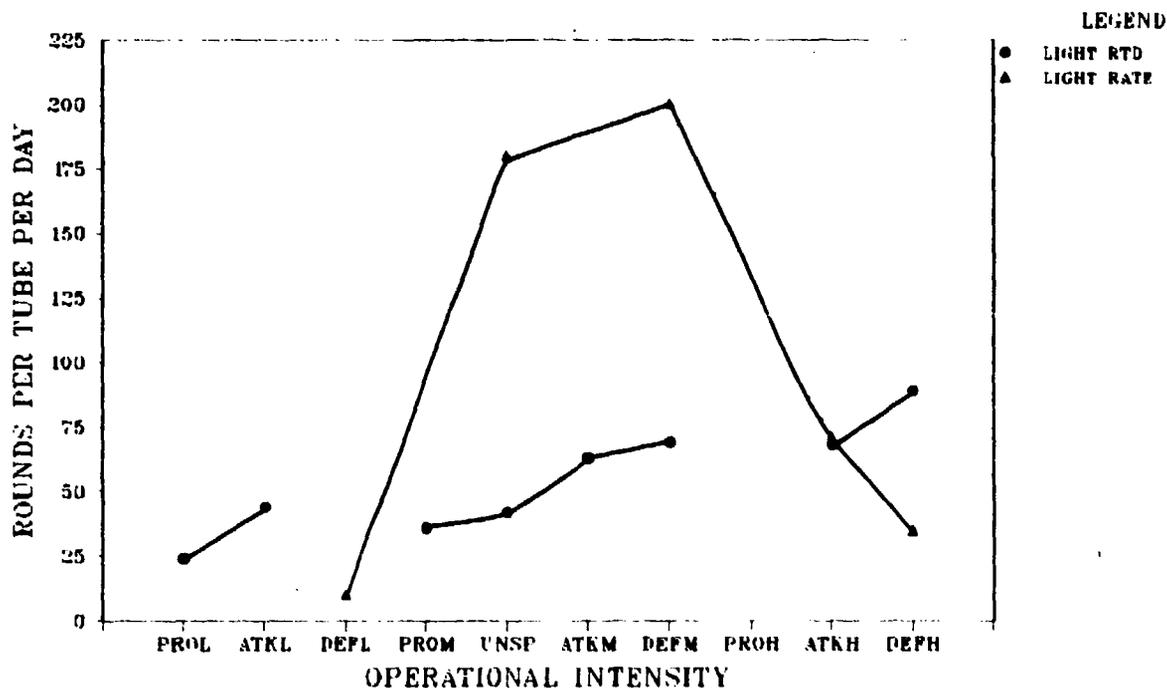


Figure 5-5. Division-level WARRAMP Rates vs RTD Over OPN by TUBECAT - Light Tubes.

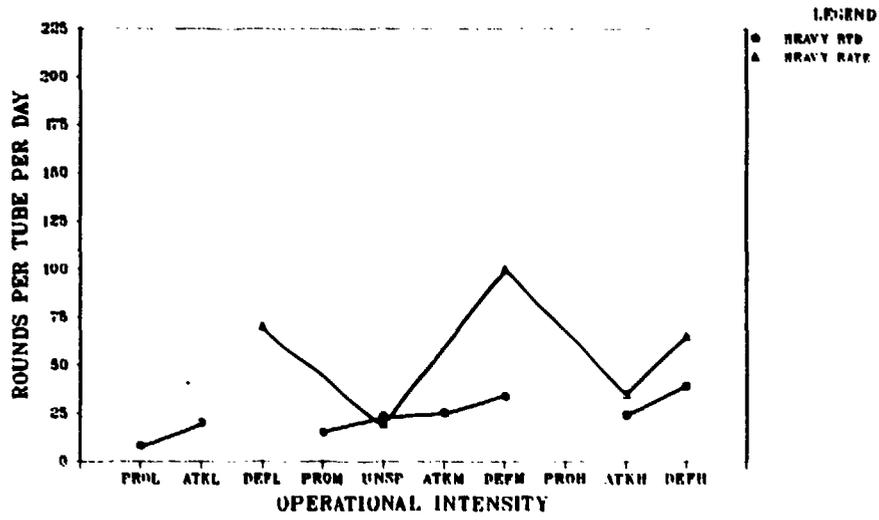


Figure 5-6. Division-level WARRAMP Rates vs RTD Over OPN by TUBECAT - Medium Tubes

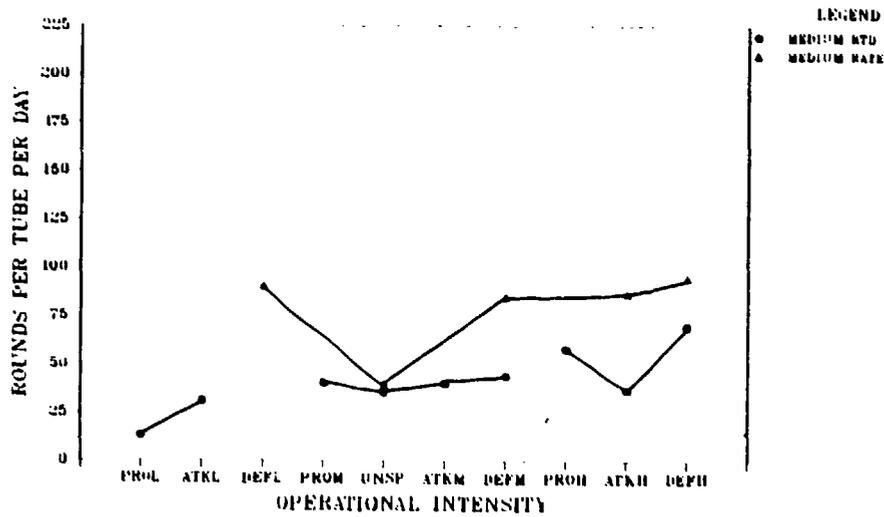


Figure 5-7. Division-level WARRAMP Rates vs RTD Over OPN by TUBECAT - Heavy Tubes

(3) The defense light operation (DEFL), for which there is no historical RTD in AHART, is an operation for which WARRAMP rates are developed. Assuming it is in correct alignment with the other postures, based on historical experience, WARRAMP rates appear quite different. None of the three tube categories follows the traditional roles. Medium and heavy tube types have higher rates than expected, light tube types actually have less than expected.

(4) For the defense medium (DEFM) posture, the WARRAMP rates for all three tube types seem very high. Light tubes regain their expected role, but heavy tube types fire more than the medium types, contrary to their expected roles. For the attack heavy (ATKH) posture, the WARRAMP rates seem only slightly higher than expected. Light tubes would normally be expected to fire more than medium. For the defense heavy (DEFH) posture, the light tubes are again out of order. WARRAMP rates for both medium and heavy tube types seem higher than expected.

(5) In the light and heavy tube types, WARRAMP rates are higher for defense than attack, as expected. Light tube types are the reverse, contrary to the historical data.

(6) Having been processed through the Attrition Calibration (ATCAL) Model and Concepts Evaluation Model (CEM), the WARRAMP theater rates shown in the UNSP group are much closer to historical experience and conform to traditional roles as well. The causes of these results are worthy topics for additional study.

APPENDIX A
STUDY CONTRIBUTORS

The AHART Study is a one-man, six programming staff month effort generously assisted by a number of other individuals.

Author. MAJ Francis L. Dougherty

GMU Faculty Advisor. Dr. Irwin Greenberg

CAA Supervisor. Mr. Philip Louer

CAA Fellowship Screening Board

COL Daniel D. Clark, Chairman
Mr. Gerry Cooper, Member
Mr. Daniel J. Shedlowski, Member

Chief, Math/Stat Team, CAA. Mr. Carl Bates

Included in Appendix C of the report is a very long list of those throughout the analytical, historical, and scientific communities who willingly provided research assistance, personal papers, and bibliographies as well as time to this study effort. Individual names are included, not solely for reference, but in recognition of their willing assistance.

Particularly generous assistance was provided by Dr. Robert Helmbold. Dr. Helmbold's willingness to share his perspective on the use of historical data in analysis of combat simulation and early research assistance were very encouraging and very instructive.

A special note of appreciation is made to COL William Owen and LTC John Bondanella for their assistance in defining the objectives of the study and demonstrating its place in the work of the Requirements Directorate, and to Mr. E. B. Vandiver III for his willingness to sponsor historical comparisons in the analysis of combat simulation.

One last expression of appreciation to Dr. Greenberg for his guidance, for his aid in solving problems in the methodology, and for his willingness to support my fledgling efforts in this field.

Errors of omission or commission made in this study are solely the responsibility of the author, all made despite the willing assistance and advice of those just named.

APPENDIX B
STUDY DIRECTIVE

This study is conducted under the auspices of the US Army Concepts Analysis Agency Fellowship Program for the twofold purpose of first providing research of value to the Agency that has never been accomplished and second, conducting research to be submitted as the final work toward a Master's Research Project of interest to the study director. The work is done in accordance with requirements for completion of a Master's in Systems Engineering at George Mason University.

Study proposals were submitted to both an Agency selection board and to Dr. Irwin Greenberg of the Department of Statistics and Operations Research at George Mason University. Upon selection for the fellowship, an Agency Review Board made up of the Agency's Director and Assistant Directors examined and approved the research objectives and methodology. Dr. Greenberg approved the proposal and accepted the study as a Master's Research Project.

APPENDIX C
DATA COLLECTION

C-1. PURPOSE. The purpose of this appendix is to highlight those resource activities surveyed during the data collection process. Use of this appendix will provide an appreciation for the nature of this work and the nature of the community that is involved in the process of applying scientific methods to historical data. Use of this appendix will aid in efficient retrieval of the AHART sources and permit greater in-depth study of the data used in this study. For anyone continuing in this work, the appendix provides a guide to what has been done and offers a place from which to continue.

C-2. INITIAL SOURCES

a. Defense Technical Information Center (DTIC). Accessed through the CAA Technical Library, this activity maintains a data base which includes a current list of all completed and ongoing technical studies. In addition to referencing related studies, this data base alerts others doing work in the same field to the fact that the AHART Study is in progress. Interested parties may wish to assist unsolicited.

b. Defense Logistics Studies Information Exchange (DLSIE). Accessed through the CAA Technical Library, this activity provides a source of technical data for various logistics systems, including ammunition distribution, and maintains catalogs of completed and ongoing studies in the logistics field.

c. DIALOG. "The Supermarket of Data Bases" provides access to statistical indices, Congressional and private information services, dissertation indices, etc.

d. NEXIS. This resource did provide access to newspaper, magazine, wire service, and current newsletters for relevant fields. In this study there is some limited use of periodicals.

e. Online Computer Library Center (OCLC). Provides access to bibliographic data bases of books from nearly any library in the US. Titles found in other sources are available to CAA through interlibrary loan.

f. Compendium of Key Field Activity Scientific and Technical Capabilities. This document is not an activity but provides organization charts for nearly every Department of the Army activity that is needed for studies of this nature. From the compendium it was possible to begin the series of inquiries and interviews that lead to the greatest amount of data for AHART. These activities are grouped by function and are listed with relevant annotation in the next paragraph of this chapter.

C-3. SOURCES BY FUNCTIONALLY GROUPED COMMUNITIES

a. For purposes of this study, the list of contributing activities is divided into three functional groups. The first group includes staff, doctrinal, and analytic activities. The second includes major library staffs and various command historical offices. The third group identifies specialized scientific and technical activities that assisted with the study. Unless stated in the narrative, for a particular activity any future research should renew contact with these activities to determine whether they are currently in possession of additional usable historical data or relevant studies.

b. **Staff, Doctrinal, Analytical Community.** The first community into which these resource activities are grouped is the staff structure that supports the major Army headquarters, those who are responsible for near- and long-term planning, updating, and publication of doctrinal issues and those responsible for analytic studies. By definition, this is a large, diverse group. Table C-1 (following page) provides an overview of the activities included in this group. Included here are not only those who contributed valuable data or bibliographic material, but also those whose interest in the subject was clear but for the reasons stated were not in possession of relevant historical data. Information on those activities which should not be sought out further is as valuable as knowing those worthy of continued inquiry.

(1) Department of Defense (DOD)

(a) **Office of the Secretary of Defense (OSD).** Mr. Glenn Stockton provided access to the study Historical Data on Wartime Ammunition Usage [OUSD-ALL-1]. In a subordinate office to the OSD is Mr. Royce Kneece, whose interests lie in historical comparisons and who maintains institutional knowledge of such information. Mr. Sal Kohozy maintains this type of data for the OSD Sustainability Study [OSD-S-1].

(b) **Joint and Combined Arms.** Exemplary of so many other activities, this activity expressed great interest in the nature of the project as well as a need for the results. Work being done at this activity is focused on current projects. None require any maintenance of data useful to AHART. This condition could change. This activity and many like them should be contacted periodically for relevant data.

(c) **Theater Operations and Planning.** Sponsors of the OSD Sustainability Study. Among other actions, the study calls for comparison of the current combat simulations with historical data. This activity is interested in historical comparisons but is currently unable to commit the assets to produce an historical data base.

Table C-1. Data Collection Staff, Doctrinal, Analytical Community

DOD Office of the Secretary of Defense Joint and Combined Operations Theater Operations and Planning	DIA Soviet Division
DAS PA&E CAA	TRADOC HQ Combat Systems Branch Program Developments Estimates Division Firepower Directorate FA Branch
ODCSOPS Tech Office DAMO-FDL	TRAC Ammo Planning Factors Div
ODCSLOG DAMO-SMA	CAC Combat Studies Institute Department of Sustainability FA Representative Joint and Combined Arms Operation
ODCSRDA Combat Support Systems Munitions Division DOD Armaments/Munitions Requirements Comm.	CGSC School of Advanced Military Studies
Field Artillery Center Combat Developments Weapons Department Doctrine Division Concepts and Studies Division	National Defense University Wargaming and Simulation Division
Infantry Center FA Branch Maneuver Branch	Research Analysis Corp (RAC)
Army Logistics Management Center Operations Analysis Directorate Literature Division	Operations Research Office (ORO)

(2) Director of the Army Staff (DAS)

(a) US Army Concepts Analysis Agency (CAA). The primary sponsors of AHART are now willing to commit considerable manpower to historical research. Primarily responsible to the Director of the Army Staff for theater-level analysis, CAA recognizes the value of historical research for comparison with their many combat simulations. The Director, Mr. E. B. Vandiver, has done work in historical comparisons with combat simulations while Director of the ODCSOPS Tech Office. Mr. Phil Louer, Acting Deputy Director, CAA, supervises the AHART Study. Dr. Robert Helmbold is conducting a far more detailed analysis on a computer data base of historical information on 601 battles developed jointly by CAA and the Historical Evaluation and Research

Organization (HERO) office. All three have provided support, invaluable advice, and resources to conduct the AHART Study.

(b) **Program, Analysis, and Evaluation (PA&E)**. Interested in use of historical research but not staffed to ever conduct their own studies. Mr. Don Whitfield is presently in search of data to explain past expenditure rates and days of supply computations. With the Combat Service Support Division of ODCSOPS (DAMO-FDL), this office has great impact on the development and acceptance of wartime requirements in ammunition.

(3) Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS)

(a) **Technical Office**. This office uses combat simulation results to support both requirements studies and operational planning studies. For this reason they maintain data that tracks the progress of the WARRAMP process. They recognize the value of historical comparisons and have done some limited data collection but have not ever had a sufficiently complete data base to maintain any records usable outside their office. Mr. John Riente assisted in a search of Tech Office safes and files for any remaining data with negative results.

(b) **Combat Service Support Division (DAMO-FDL)**. This office is the focal point within ODCSOPS for research done in support of determining ammunition requirements. LTC John Bondanella, as the primary action officer for this work, provided invaluable assistance in understanding the process of determining requirements. As action officer he is often questioned concerning historical comparisons with combat simulation, and to the present time has had no usable source of information. He assisted with introductions to relevant activities and opened his files to the search for historical and WARRAMP data.

(4) Office of the Deputy Chief of Staff for Logistics (ODCSLOG) (Ammunition Logistics Office (DALO-SMA)). This office is the focal point within ODCSLOG for use of the Worldwide Ammunition Supply Report (WARS). This report provides data on the authorized production levels of ammunition and on comparative expenditures. Mr. Dean Turner maintains institutional knowledge of historical information.

(5) Office of the Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA)

(a) **Combat Support Division**. Has not maintained historical data but seeks such data for applicable studies. At this time LTC Denny Morin has assumed control over Mr. Joe Byron's papers, including the paper Days of Supply - Ammunition [ROA-S-1]. This division is likely to have additional data in the future.

(b) **Munitions Division**. Mr. Joe Byron, while a member of this division, produced the paper Days of Supply - Ammunition [ROA-S-1] at the request of the Secretary of the Army, John Marsh. This division maintains close coordination with ODCSOPS (DAMO-FDL) to influence the wartime requirements process and to receive the results.

(c) **DOD Armaments and Munitions Division.** LTC Clinton Smith of the Requirements Committee maintains information on determination of wartime requirements produced by combat simulations. The effects of rationing on requirements have received some attention from this office.

(6) **Defense Intelligence Agency (DIA).** Able to provide analysis of non-US methods for determining ammunition requirements by country. Has access to studies done by foreign analytic activities comparable to AHART. Of primary interest is the use of historical analysis in the Soviet planning system.

(7) **US Army Training and Doctrine Command Headquarters (TRADOC HQ)**

(a) **Combat Studies Branch.** The office seeks to use such data but has never been able to achieve reasonable access to very useful data. Therefore, no attempt is made to maintain data beyond that included on slides for specific presentations.

(b) **Program Development Office.** Doctrinal input from the various Army schools and centers is required to be approved by Mr. Richard Ware before use in the WARRAMP process. Historical comparisons have been made in the past but primarily for direct fire weapon systems.

(c) **Estimates Division.** Uses almost exclusively data produced by combat simulation. Within the Theater Directorate, Mr. Tom Redman has used historical data received from Mr. Wolf Prow, whose avocation it is to research historical data on such requirements.

(d) **Firepower Directorate.** The Field Artillery Branch of this office makes limited use of historical artillery expenditure data but has no resources to assemble or maintain such numbers. Members of this office seek assistance from the TRADOC Headquarters Library when such data is required.

(8) **Combined Arms Center (CAC), Fort Leavenworth, Kansas**

(a) **Combat Studies Institute.** The Institute supports research for the commander of the Combined Arms Center. Studies unique to the Institute were more tactically oriented and not technically detailed enough in the area of ammunition expenditures to include operational or theater rates. Dr. Gawyrich has recently traveled extensively throughout the Middle East and has accumulated an extensive bibliography on the area. He provided portions of his bibliography that were relevant to artillery expenditures.

(b) **Department of Joint and Combined Arms Operations.** This organization includes a Committee for Theater and Operational Planning but is primarily interested in current and future operations. Little was done to maintain historical data for comparisons, at least in the area of ammunition expenditures.

(c) **Department of Sustainability.** This activity is responsible for assembly of FM 101-10-1 as its contents are collected from throughout the TRADOC community. No audit trail of historical data is maintained here.

(d) **School of Advanced Military Studies.** This school is the focal point for students of the Command and General Staff College who continue on to do research toward a Master's Degree in military history studies. The research covers a broad range of subjects, some of which relate to artillery expenditures. None of the work surveyed had any additional detail on artillery ammunition expenditures beyond what is locally available. As these studies begin and are completed, they are included in the DTIC database.

(e) **Field Artillery Representative.** This individual represents the Artillery Center for input to combat simulations at the Combined Arms Center but has not employed historical data of ammunition expenditures in the work.

(9) **TRADOC Analysis Command (TRAC) - Ammunition Planning Factors Division.** This division is attempting to complete a landmark study designed to standardize the definitions and methods used in determining wartime requirements. The effort has concentrated on simulation results. Recently, however, they have been required to assemble historical data for comparison. Once accepted, the study will have major impact on the way the Army determines wartime requirements of ammunition. Their interest in planning for future rates increases their desire for the most recent combat experience--Arab/Israeli Wars, Falklands, etc. LTC Garrison has provided their bibliography on combat expenditures and has been given a copy of the AHART data base.

(10) **The Field Artillery Center and School (FAS)**

(a) **Combat Developments.** The work done by this office is dependent almost solely on the results of combat simulation. Mr. Lonney Minton expressed great interest in receiving the data produced by AHART. He has relied on Lessons Learned documents from the Morris Sweat Library for historical comparisons with less than satisfactory results.

(b) **Doctrine Division.** This division is responsible for input of doctrinal rates and other decision criteria for conduct of fire with the artillery Tactical Fire Control (TACFIRE) System. The data used to determine input parameters is derived from operational testing and combat simulation. Mr. Al Beemer expressed interest in comparison with historical results, had personal experience with artillery in combat, but maintained no other historical data.

(c) **Concepts and Studies Division.** In this office Mr. Bill Bennet maintains institutional knowledge of data and resource material. There have been numerous requests for artillery expenditure data, but he has been unable to collect data in a form that is readily available. Mr. Bill believes this kind of data to be almost exclusively located in the archives in Washington, DC.

(d) **The Field Artillery Journal.** The recent vintage journals provided no data directly nor did the current staff feei expenditure data would be included in journal articles. No index existed with which to search for such data. Journal articles of the period prior to WWII, located through the Field Artillery Museum, included numerous such entries and even whole articles on German, French, and American expenditures in WWI.

(11) The Infantry Center

(a) **Maneuver Branch.** Mr. Wright completed an in-house study to compare the results of several studies used today to decide on rates for various army organizations. He compared FM 101-10-1 to Division 86 and other studies. No historical data was used, but this study offers readily available comparisons with combat simulations when the historical data is available.

(b) **Field Artillery Branch.** CPT Yaeger provided historical data assembled by this branch and used by the school commander to support briefings on the effects of artillery expenditures on fire support of maneuver units. CPT Yaeger had surveyed the other organizations of the school to locate historical data on artillery support of maneuver units with negative results.

(12) The Army Logistics Management Center (ALMC)

(a) **Operations Analysis Directorate.** Mr. Dorsey Kimbrall has done work to compare historical data with the combat simulation and logistics models employed by this office. His efforts, however, are primarily on near-term requirements. Because of difficulty of accessing relevant historical data, he has not maintained any amount of data in his office. Mr. Jim Fitzgerald provided information on the Logistics Data System Research Activity (LDSRA), the predecessor to the current Logistics Evaluation Agency (LEA). The records maintained by that organization need to be located.

(b) **Literature Division.** Mr. Dilday assembles the Logistics Center's input to revisions of FM 101-10-1. Since the 1976 revision, no new historical data has been used as input. At this time, no audit trail exists on the collection of the data used for that revision. Current input from the Log Center is generated by combat simulation.

(13) **National Defense University Wargaming And Simulation Division.** Colonel Alnwick maintains data on Soviet historical expenditures as well as current Soviet methods of determining requirements. Soviets in the past have depended heavily on historical data to determine planning figures for artillery expenditures.

(14) **Research Analysis Corporation (RAC).** This office was formed when Johns Hopkins University was forced to separate the Operations Research Office from the university. No longer in existence, this organization continues to have great influence on the use of historical data to study operational planning. A rather large collection of studies done on WWII and Korea provide information and data relevant to AHART. None, however, directly attempt to produce a large-scale data base for use in robust analysis. Analysis of limited amounts of historical data are the substance of their reports.

(15) **Operations Research Office (ORO).** As an office of Johns Hopkins University, this activity was a pioneer in the operations research field that developed after WWII. Not possessing present-day computer capabilities, the studies were limited in scope and data to that which was then available and tractable. A collection of their studies includes a sizable amount of data and information useful in the AHART analysis.

c. **Historical and Library Community (Table C-2)**

Table C-2. Data Collection - Historical and Library Community

Libraries	Historical offices
CAA Technical Library	Aberdeen Proving Ground
Army/Pentagon	Watervliet Arsenal
Armed Forces Staff College	Letterkenny Arsenal
National Defense University	Rock Island Arsenal
West Point	ALMC
Military History Institute	Field Artillery School
Center of Military History	TRADOC HQ
Morris Sweat, Ft Sill	CAC
ALMC	
Combined Arms, Ft Leavenworth	Field Artillery Museum
TRADOC Technical Library System	Field Artillery Journal
	Historical Evaluation and Research Organization
	Military History Magazine
	Combat Weapons Magazine

(1) **Historical Offices**

(a) **Aberdeen Proving Ground.** The office is subordinate to the historical office at Rock Island with primary responsibility for data on chemical munitions. This office would benefit those needing to specialize in the use of chemical munitions of WWI to present. Chemical weapons are outside the scope of the present AHART effort.

(b) **Army Logistics Management Center (ALMC).** Dr. Lynn L. Sims provided several personal papers on the subject of ammunition expenditures and information on others at the Log Center with interest in the subject. His work included historical expenditure data and narrative on the context in which the data was analyzed.

(c) **Combined Arms Center (CAC).** Dr. Dan Hughes assisted greatly by conducting a thorough search of the Combined Arms Library and providing information on others at the center who had interest in this data. His office had often been queried on the subject of ammunition expenditures but had never needed to assemble historical data beyond compiling limited bibliographies.

(d) **Watervliet Arsenal.** Research done by this office concentrates on product engineering efforts. The weapons laboratories at the arsenal have not shown a need for assembling data on ammunition expenditures.

(e) **Letterkenny Arsenal.** Mr. Jim Walker is working on research into the nature and the reliability of the data included in the Combat Operations Loss and Expenditure Data - Vietnam (COLEDV) [AMC-VN-COLEDV] reports. The results of his study will be useful later in supporting the validity of AHART data points.

(f) **Rock Island Arsenal.** Rock Island's position as coordinator of the industrial base required to produce the munitions generates great interest in the methods for determining ammunition requirements. Mr. Robert Bouilly, having received many requests from his command on the subject, has compiled a very useful bibliography on ammunition expenditures since WWII. Mr. Bouilly was exceptionally willing to assist and offer suggestions on other sources of data.

(g) **The Field Artillery Center and School (FAS).** With The Field Artillery Center's responsibility for advocacy on behalf of the artillery and its very successful history in combat, it would be expected that the Center would rely far more on historical experience in many areas of instruction and analysis. Dr. Dastrup, as Command Historian, has received numerous requests for such data. The effort to collect and maintain historical data, however, has proven quite difficult to them, and they feel that it has never provided very useful results. As a consequence, no amount of historical data has been maintained at Fort Sill. When such data is needed, reference is made to the files at the Center of Military History. The use of combat simulation continues at the Field Artillery Center with no readily available means of comparison with historical data.

(h) **The Field Artillery Museum.** Separate and distinct from either the office of the command historian and the Morris Sweat Library, the Museum holds collections of literature on unit histories and the general development of the Field Artillery. Included in this information provided by the curator, Mr. Lynden Couvillion, are Field Artillery Journal articles of the WWI period that contain data on German, British, French, and American artillery expenditure data.

(i) Historical Evaluation and Research Organization (HERO).

This private organization is specifically in the business of collection and analysis of historical data. Led by Colonel (Ret.) Trevor Dupuy, HERO has amassed considerable amounts of information including sizable amounts of ammunition expenditure data. Much of what has been done by this activity has been the result of research for government contracts and is accessible through DTIC or the library system. A library of additional resource material is maintained in their offices.

(j) Military History Magazine. This organization, located in Leesburg, Virginia, offers a great deal of original research into historical data as well as access to a large group of interested individuals outside the formal military community. None the data used in AHART comes from this source, but contact with the magazine offers possibilities for future research.

(k) Combat Weapons Magazine. This private organization likewise offers possibilities for future research. In this case, the field of interest is specifically weapons-oriented as is AHART.

(2) Libraries

(a) Army/Pentagon. This library, by its location and mission, is capable of getting nearly any document in the military/civilian system. Reasonably accessible to CAA, it has documents onhand that the CAA Technical Library cannot maintain because of its size.

(b) CAA Technical Library. Through DTIC, DLSIE, and inter-library loan, this library can and did provide most sources needed for AHART.

(c) Armed Forces Staff College. The College specializes in joint operations and national level geo-political studies. Ammunition expenditures even at theater level are considered technical and are not maintained. When such data is found or required, reference is given to the Center of Military History. There is a large collection of WWI information, but the library has never studied it for this kind of information.

(d) National Defense University. Collections which include data on technical subjects below the strategic level of military operations have been taken from this library and have become part of the collection at the Military History Institute.

(e) Training And Doctrine Command Headquarters Library. Mr. Jim Burns is director of all libraries in the TRADOC community. Because of the number of past requests for such data, his office has assembled descriptive indices and card files on the subject of ammunition expenditures. The collective TRADOC library system maintains files worth continued research beyond what has been accomplished to date. Mr. J. Romjue of this library provided numerous references included in the AHART bibliography. Ms. Fran Doyle of the TRADOC Headquarters Technical Library provided references in addition to those compiled by Mr. Romjue.

(f) **United States Military Academy.** This library is an extension of the National Archives and maintains several of their collections. Documents relating directly to ammunition expenditures are maintained in the National Archives sections in Washington.

(g) **Military History Institute (MHI).** With the Center of Military History and the National Archives, this activity is a storehouse of great amounts of relevant resource material. Research assistants are exceptionally willing and provide extensive bibliographic listings on artillery and ammunition expenditures. The collection there on WWI expenditures is worthy of research beyond what has been possible for AHART. In addition, MHI has access to studies done by the Army War College. MHI has become the collection point for works formerly spread among Army libraries.

(h) **Center of Military History (CMH).** This organization is by definition the primary source of data and the focal point for military related historical research in Washington, DC. Its resources go far beyond computer data base literature searches to material that is cataloged only on printed documents maintained on the premises. Ms. Hannah Zidlik maintains extensive bibliographies and is the author of much of the cataloging effort. No effort, however, seems to be ongoing to commit these catalogs to machine-readable form. CMH has complete access to the National Archives and the Suitland Record Repository and is of great assistance in gaining initial entry to these activities. Personnel at CMH assist in organizing any search to make most efficient use of the National Archives' extensive holdings.

(i) **Morris Sweat Library.** Maintained for the varied use of professional artillery officers, the library seeks to provide information concerning both past and present. Lessons-learned documents from each of the major wars provide limited amounts of historical data on artillery expenditures. Beyond these there is little else on this subject. Mr. Les Miller of the library staff conducted an extensive search of library assets with negative results.

(j) **Army Logistics Management Center Library.** Dr. Lynn Sims of the command historical office has, during his own efforts to collect ammunition expenditure data, conducted a thorough search of this library with little results. Information in this library was included in the papers on ammunition expenditures he provided for use in AHART.

(k) **Army Ordnance Center and School.** Formerly the ordnance activities included what is now the requirements determination process and encompassed all that has now become separately identified as the Field Artillery. Ordnance literature from these earlier periods is full of references to expenditure data and methods of determining the needs of the Army as it then existed. These periods were also prior to the widespread use of quantitative analysis; hence, the data is poorly organized and is often incomplete for use in current analysis.

(1) **Combined Arms Center.** Mrs. Mary Crow provided a detailed list of holdings, made up mostly of records from the National Archives, containing reports of operation and after action reports from units in WWII. Other references in their possession include data from the Arab-Israeli Wars and copies of the HERO Combat Data Subscription Service. Accessibility to most of the documents locally precluded travel to Fort Leavenworth for research.

(m) **TRADOC Technical Library System.** As a result of numerous requests for data, a reference file on artillery ammunition expenditures has been assembled, many of which are now included in the AHART bibliography. No historical data on artillery expenditures has been extracted or separately maintained.

d. **Scientific and Technical Community (Table C-3)**

Table C-3. Data Collection - Scientific and Technical Community

AMC HQ	ANSAA
Executive Dir Conventional Ammo Requirements Division	Ground Support Division
Studies Management	Ground Warfare Division
Army Munitions Development Div	Special Studies
Management and Analysis Office	RAM Division
	Technical Services
AMC COM	
Rock Island - Munitions Division	
Picatinny Arsenal	
PM Ammo Logistics	
Systems Planning Division	
Advanced Systems Concepts Ofc	
PM Medium Howitzer	
Combat Development Analysis Directorate	

(1) **Army Material Command Headquarters - Washington, DC**

(a) **Executive Director for Conventional Ammunition.** This office began operation in 1982 for the purpose of directing the production and distribution of ammunition. While it assumed duties for offices formerly at Rock Island Arsenal, it has collected no past records. Limited use is made of historical data. The interest of this office is primarily in ongoing operations. Mr. Samuel Deck of the Requirements Division of this office has worked with CMH and the Department of the Army Statistical Clearance Office to collect historical data when necessary.

(b) **Office of Management and Analysis.** Mr. John Lazaruk in the Studies Management Office was well aware of the studies being conducted throughout the Army Materiel Command including those beyond the headquarters. For several days he surveyed numerous relevant study directors to determine their use of historical data and assisted greatly the work done to gather information and data.

(c) **Army Munitions Developments Division.** This office is a user of the the WARRAMP process results and has done some comparison with historical data. They do not, however, conduct any research into historical data but depend on Rock Island for this information.

(2) Army Materiel Command - Picatinny Arsenal

(a) **Advanced Systems Concepts Office.** Mr. Fran Luzzi in this office has recently attempted to gather historical data for comparison with the WARRAMP numbers of which they are users. While he had great interest in AHART, they had not been successful in their attempts to gather such data.

(b) **Project Manager's Office, 155mm Howitzers.** Uses historical data to support requirements but does not assemble the data nor maintain data beyond the need to brief the current project.

(c) **Project Manager's Office, Ammunition.** Mr. Rusty Von Schwedler is conducting research into rates of fire in combat situations to support work being done on more efficient means of packaging munitions for transport. He has assembled a limited set of data and will be continuing his work in this area.

(d) **Requirements Office.** Mr. Larry Bechman of this office maintains the data used by the PM offices and for internal studies and was very interested in such data. References maintained by this office were available locally through library sources.

(3) Ammunition, Material, and Chemical Command - Rock Island Arsenal (Ammunition Division). Mr. Ed Jameson has the responsibility of understanding and influencing the determination of peacetime and wartime requirements for ammunition on behalf of the Rock Island community. He is a user of the WARRAMP process results and has used historical data to seek a "common sense" comparison. Rock Island Arsenal maintains extensive records on the production and distribution of ammunition. This is the start point for what eventually becomes the expenditures, losses, or stockpiles that are of interest to AHART. Currently, the Worldwide Ammunition Supply Report is designed to meet the requirement to account for this production and distribution.

(2) Army Materiel Systems Analysis Activity (AMSAA)

(a) Office of the Director. Mr. Keith Meyers, the current Director of AMSAA, was a member of the team which traveled to the Middle East in 1973 as part of the data collection and study effort there [WESG-AI-1].

(b) Ground Warfare Division. There have been limited comparisons made with results of testing and analysis done at AMSAA, but the historical data was assembled elsewhere and is not maintained in this office. Mr. Rick Scungio, while a chief of the division, made similar comparisons employing historical data to investigate the WARRAMP process and was aware of significant differences existing between them. No documents have been maintained to support this belief. Mr. John Kramar, the current chief of the division, has prepared an unpublished discussion paper on ammunition usage in WWII and Vietnam [AMSSA-WWII-VN-1]. Mr. Clark Thomas of this division has maintained close relations with CAA to review technical weapons characteristics prior to their use in the WARRAMP process.

(c) Combat Support Division. Mr. Pete Reid, the current chief of this division, was a member of the team that collected data for the Yom Kippur War [WESG-AI-1]. Mr. Tom Nolan of the Combat Simulation Branch in this division maintains the historical data that is used for comparisons with results of their simulations.

APPENDIX D
ANNOTATED BIBLIOGRAPHY

D-1. PREFACE

a. This bibliography is organized to facilitate reference to the AHART data base. As explained in paragraph 2-4a, Chapter 2, references to resource material required coding to be entered into the source field of the data base.

b. The reference code, in brackets, is organized in three parts. The first is an abbreviation for the activity from which the data was made available to this study. The second part is the war or wars for which the data is primarily applicable. The third is an arbitrarily assigned sequence number, within the given activity and war. Sequence numbers usually but do not always correspond with the alphabetical order of the titles.

D-2. HISTORICAL

[ACGC-AI-1] Role of the Field Artillery in the Yom Kippur War, Air Command and General Staff College, May 1977. Unlike so many other documents which attempt to focus on the high technology direct fire battle, this study focuses on the artillery in this advanced form of warfare. The effects of electronic warfare and some developmental munitions are presented. The study provides contrast with purely conventional nondevelopmental munitions data.

[AMC-S-1] Attrition of Ammunition Stockpile, George Schlenker, Army Weapons Command, Rock Island, IL, Weapons Research Office, May 1964 (AD371077). No expenditure data is included. This reference presents a unique aspect of the process of determining ammunition requirements--that of the negative effect of overstocking.

[AMC-VN-COLEDV] COLED-V Coordination Trip Report; Combat Operations Loss and Expenditure Data - Vietnam, US Army Combat Developments Command, Typescript, CDC, 9 Nov 66 (ARMY-CDC-COLED-V-CTR). This is a complete study of artillery expenditures as exist anywhere. Taking advantage of modern communications and computer technology, data concerning artillery expenditures was processed directly from the battlefield within days of occurrence. Analysis includes, among many other detailed statistics, the RTD for every month of the war. As a true theater rate, it adds significantly to comparisons with the WARRAMP process.

[AMMC-S-1] Combat Service Support Mission Area Analysis, US Army Missile and Munitions Center and School, Redstone Arsenal, Alabama, January 1986. This document is the result of combat simulation modeling but is included in this bibliography because of its similarity to the purpose of the WARRAMP process and because of its uniquely high

rates. This study does for operational rates what WARRAMP does for theater rates.

[AMSAA-S-1] List of Division Interim Notes Published, Patricia E. Andrews, Technical Support Division, US Army Materiel Systems Analysis Activity, January 1987. This publication provides lists of resource material that can be located no other way. Included are numerous studies which enhance analysis in technical subjects.

[AMSAA-S-2] List of Publications, Patricia E. Andrews, Technical Support Division, US Army Materiel Systems Analysis Activity, January 1987. This publication provides lists of technical memorandums, technical reports, special publications, and miscellaneous publications applicable to this study. AMSAA's capability for technical analysis of systems is useful for historical comparison especially when developmental systems are included. This publication provides resource material that can be located no other way.

[ARMS-WWII-1] Medium Artillery in the Jungle--Direct Support, Fort Knox, Kentucky, US Army Armor School, May 1948 (ARMS-MM-K3).

[CAA-AI-3] An Analysis of Combat Attrition and Intensity of War (CATIWAR), US Army Concepts Analysis Agency, Bethesda, Maryland, April 1980. This report compares historical data from WWII, Korea, and the Arab/Israeli Wars of 1967 and 1973 with combat simulations. Operational rates are included.

[CAA-S-1] Combat History Analysis Study Effort (CHASE) Progress Report For The Period August 1984 - June 1985, Dr. Robert L. Heimbald and Aqeel A. Khan, US Army Concepts Analysis Agency, August 1986. During this study the HERO data base containing extensive data on 601 battles was committed to a mainframe for use in computerized quantitative analysis. The data was then summarized, examined for trends and interrelationships, and used to test hypothesis. It does not include artillery expenditures, but the appropriate battles and techniques of analysis could be used for continued analysis of the AHART data.

[CAA-S-2] Lessons Learned Regarding Battle Data Bases, Intra-Agency Memorandum for the Director From Dr. Robert Heimbald, US Army Concepts Analysis Agency, January 1987. This 40+ page document provides insight into the inherent difficulties of building and analyzing combat data bases and offers solutions.

[CAA-S-3] Nonnuclear Ammunition Combat Rates Programing FY 75/79 (AMMO 75/79), Volumes I-V, US Army Concepts Analysis Agency, July 1973. These volumes constitute the results of the earliest programing studies done at CAA. This methodology is the predecessor to WARRAMP. The rates generated in this study can rightfully be compared to both the WARRAMP rates and theater-level historical rates. Such comparisons would display a progression of results of various rates studies as compared to historical data.

[CAA-S-4] Wartime Requirements, Programing FY 91, Southwest Asia (P91M), US Army Concepts Analysis Agency, December 1985.

[CAC-S-1] Division 86 Final Report, US Army Combined Arms Combat Developments Activity, Combined Arms Center, October 1981, ACN 36801. In the process of updating the force and making changes to organization and function, a study was done on the effects of these changes on the artillery ammunition expenditures. Operational rates were produced for the new division and are included in the report.

[CAC-WWII-1] Combat Operations Report, ETO, Ninth Army, M-R-1021.2 (Reel #2). Reel No 106, Item 489 - Ninth US Army Operations I - Brest-Crozon, September 1944. Chapter III - Operations of the 2nd Infantry Division at Brest. Expenditure of ammunition by type, p. 43-44. Ninth US Army Operations II: five-nation front. Flash 2 - Ninth US Army Operations III: Combat in Holland. Flash 3 - Ninth US Army Operations IV: Offensive in Holland in November 1944.

[CAC-WWII-2] Daily Ammunition Status Report, Assistant Chief of Staff, G-2, HQ, IV Corps, 12 Nov 51. N-17056.16. Ammunition expended 311800 Oct to 101800 Nov 51.

[CAC-WWII-3] G-4 Historical Report, 20 Oct - 26 Dec 44, X Corps, 1945. C-16006. Ordnance section Leyte-Samar Campaign, ammunition expenditures: artillery, p. 4.

[CAC-WWII-4] Historical Record, 62nd Armored Field Artillery Battalion, 1945. M-N-1065. Item 1388 - 62nd Armored Field Artillery Battalion historical record, 19 Nov 41 - Apr 45.

[CAC-WWII-5] History of Buna Campaign, New Guinea, Center of Military History. M-N-1034.2 (Reel #2). Item 993 - 205th FA Bn, History New Guinea Campaign 16 Feb - 4 Oct 43. Appendix X - ammunition expenditure Battery A, B, and C HE and smoke. Item 994, Appendix III - 205th FA Bn; last page of #994 shows daily expenditures of Battery A, B, and C, HE and smoke, 24 Jul - 11 Sep 43.

[CAC-WWII-6] History of Headquarters Sixth Army Group, ETO, Aug - Oct 44, Feb, May, Jun, Jul 45. R-11980.6. Effect of ammunition supply on operations of Sixth Army Group, World War II (15 Aug 44 - 7 May 45); consumption and requirements analysis. Ammunition expenditure chart D-day (15 Aug 44) to 7 May 45, p. 30-40.

[CAC-WWII-7] History of Headquarters Sixth Army Group, ETO, Nov 44 - Feb 45. R-11980.3. Chapter VI, Reduction of the Colmar Pocket. American Forces rounds expended 17 Jan - 9 Feb, p. 20.

[CAC-WWII-8] History of Operations, Italy - G-4 Operational Report, 88th Infantry Division, 1944. M-N-1029.7. Flash 3, Ordnance office, monthly operations report for April 1944. Ammunition expenditures for attached units during April 1944, Incl #3, Annex No 6, page 1; Annex No 5, page 2. Artillery ammunition expenditures during March 1944, Annex No 5, pages 1 and 2. Flash No 2 - historical report for month of Feb 44, p. 1.

[CAC-WWII-9] History of Operations, Italy - G-4 Operational Report, 88th Infantry Division, 1944. M-N-1029.8. Annex No 5, page 3 - artillery ammunition expenditures during May 44. Annex No 6 - ammunition expenditure of attached units during May 44. Flash No 1 - 88th Infantry Division, Jun 44, Annex 6 - Artillery ammunition expenditure during Jun 44, p. 2. Flash No 2 - 88th Infantry Division, Jul 44, Annex 5 - artillery ammunition expended during Jul 44, p. 2. Flash No 3 - Annex No 5 - artillery ammunition expended during Aug 44, 1 page.

[CAC-WWII-10] History of Operations, Italy - G-4 Operational Report, 88th Infantry Division, 1944. M-N-1029.9. Annex No 5, page 2, artillery ammunition expended during Sep 44. Flash No 1, artillery ammunition expended during Oct 44, Annex 5, page 2. Annex 5, page 1, artillery ammunition expended by attached units during Oct 44. Flash No 2, artillery ammunition expended during Nov 44, Annex No 6, page 1, artillery ammunition expenditure of attached units during Nov 44.

[CAC-WWII-11] History of Ordnance Section Headquarters 27 Jan 1943 - 15 Dec 1945, Sixth Army, 1946. R-12461. Tables, ordnance ammunition expenditures summary--Leyte Campaign--20 October through 25 December 1944 (67 days) and insert "Ammunition expenditure summary," Luzon operation period: 9 January - 30 June 1945 (173 days).

[CAC-WWII-12] Infantry and Artillery Ammunition Expenditure Report, 6 June - October 1944, 4th Infantry Div., 1945. Item #225, 13 pages, M-N-1067.70.

[CAC-WWII-13] G-4 Historical Report, 88th Infantry Division, December 1944. M-N-1029 (Reel #10). Annex 5, page 2, artillery ammunition expenditures during Dec 44. Annex 6, ammunition expenditure of the attached units during Dec 44. Annex No 6, pages 1 and 2, ammunition expenditures of attached units during Jan 45. Flash No 2, Annex No 6, pages 1 and 2, ammunition expenditures during Feb 45; ammunition expenditures of attached units during Feb 45.

[CAC-WWII-14] G-4 Historical Report, 88th Infantry Division, 1945. M-N-1029 (Reel #11). Annex No 1-1 pages 1 and 2, ammunition expenditures of attached units during Mar 45. Flash No 1, Annex 5, page 2, artillery ammunition expended during Apr 45; Annex 6, pages 1 and 2, ammunition expenditures of attached units during Apr 45. Flash No 2. [CAC-WWII-15] G-4 Historical Report, 88th Infantry Division, 1945. M-N-1029 (Reel #12).

[CAC-WWII-16] Logistical Data - Jungle Warfare 1 Jan 45 to 31 Mar 45, Sixth Army, 10 May 45. N-3857. Artillery ammunition expenditure expressed in rounds per weapon per hour, and artillery units of fire (SWPA).

[CAC-WWII-17] Logistical data - jungle warfare, based on Sixth Army experiences. Services of Supply, SWPA. 1 Dec 43 - 30 Sep 44. N-3677. Field artillery ammunition expenditures average rate per gun per hour, 1 Dec 43 - 30 Sep 44.

[CAC-WWII-18] Ordnance Ammunition Report, 4th Infantry Division, 1944. M-N-1067.34. Item #2208, ordnance ammunition supply report - 4th Infantry Division, Feb 44 - 8 May 45. Item #2209, ordnance ammunition report - 4th Infantry Division, 6 June - 31 Oct 44.

[CAC-WWII-19] Report of Operations, European Campaign, 3d Infantry Division, June 1945. M-N-1020 (Reel 100), Jan 45 - Flash No 1, Item 1281, Incl #1 - ammunition expenditures for month, 2 pages. Apr 45 - for month, p. 176. 1-10 May 45 - for month (1-10 May 45), 1 page.

[CAC-WWII-20] Report of Operations in Tunisia 15 Mar - 10 Apr 43, II Corps, May 1943. N-2652-A. Report on operations conducted by II Corps in Tunisia. Statistical data corrected to include 2 May 1943. (Report; Army Ground Forces Board MTO - No A-492.)

Ammunition expenditure - 1 Aug - 31 Aug 44 - p. 44.
 Ammunition expenditure - 1 Sep - 30 Sep 44 - p. 60.
 Ammunition expenditure - 1 Jan - 31 Jan 45 - p. 49.
 Ammunition expenditure - 1 Feb - 28 Feb 45 - p. 43.
 Ammunition expenditure - 1 Mar - 31 Mar 45 - p. 61-62.
 Ammunition expenditure - 1 Apr - 30 Apr 45 - p. 73-75.

[CAC-WWII-21] Report of Operations, Oct 44, XII Corps, 5 Nov 44. R-12002.1. Ammunition expenditures:

010600 to 020600 Oct 44, p. 165. 030600 to 040600 Oct 44, p. 177.
 040600 to 050600 Oct 44, p. 182. 050600 to 060600 Oct 44, p. 187.
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[CAC-WWII-22] Report of Operations, 1 November 1944 - 30 November 1944, XII Corps, 5 Nov 44. N-12002.2. Ammunition expenditures:
 310600 to 010600 Nov 44, p. 191. 010600 to 020600 Nov 44, p. 195.
 020600 to 030600 Nov 44, p. 199. 030600 to 040600 Nov 44, p. 201.
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[CAC-WWII-23] Report of Operations, 1-31 Dec 44, XII Corps, 5 Jan 45. N-12002.3. Ammunition expenditures:
 300600 to 010600 Dec 44, p. 240. 010600 to 020600 Dec 44, p. 245.
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[CAC-WWII-24] Report of Operations, 1 March 1945 - 31 March 1945, XII Corps, 15 Apr 45. R-12002.6. Ammunition expenditures:
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[CAC-WWII-25] Report of Operations, XII Corps Artillery, May 1945. R-12002.7. Ammunition expenditures:

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[CAC-WWII-26] Report of Operations, 1-18 November 1943, 3d Infantry Division, 7 Dec 43. N-11216.2. Inclosure No 1: Report. Ammunition expenditures, 1-18 November 1943, p. 16.

[CAC-WWII-27] Report of Operations, Italian Campaign, Mar 44, 3d Infantry Division, 17 Apr 44. N-11216.3.

[CAC-WWII-28] Report of Operations, June 1944, 3d Infantry Division, 22 Jul 44. N-11216.4. Ammunition expenditures for month of June 1944.

[CAC-WWII-29] Report of Operations, August 1944, 3d Infantry Division, 19 Sep 44. R-11216.5. Ammunition expenditures for August 1944, p. 29-30.

[CAC-WWII-30] Report of Operations, ETO, September 1944, 3d Infantry Division, 13 Oct 44. N-11216.6. Ammunition expenditures, p. 26-27.

[CAC-WWII-31] Report of Operations, October 1944, 3d Infantry Division, 8 Nov 44. R-11216.7. Ammunition expenditures for October 1944, p. 27-28.

[CAC-WWII-32] Report of Operations, November 1944, 3d Infantry Division, 23 Dec 44. R-11216.8. Total expenditures for the month of November 1944, p. 24-25.

[CAC-WWII-33] Report of Operations, December 1944, 3d Infantry Division, Dec 44. R-11216.69. Ammunition expenditures for December 1944, p. 27-28.

[CAC-WWII-34] Report of Operations, February 1945, 3d Infantry Division. R-11216.10. Expenditures for month of Feb 45, p. 27-28 by type. (Jan 45 is on microfilm - M-N-1021.1).

[CAC-WWII-35] Report of Operations March 1945, 3d Infantry Division, 7 May 45. R-11216.11. Expenditures for March 1945, p. 32-33. (Apr, May 45 is on microfilm, M-N-1020).

[CAC-WWII-36] Report of Operations, 14 June - 1 Jul 44, 9th Infantry Division, 14 Jul 44. R-11546. Ammunition expenditures, p. 19-20.

[CAC-WWII-37] Report of Operations, 1-31 July 1944, 9th Infantry Division. 1 Aug 44. R-11546. Ammunition expenditures, p. 19.

[CAC-WWII-38] Report of Operations, 1-31 August 1944, 9th Infantry Division, 1 Sep 44. R-11546. Ammunition expenditures, p. 24.

[CAC-WWII-39] Report of Operations, 1-30 September 1944, 9th Infantry Division, 1 Dec 44. R-11546. Ammunition expenditures, p. 32.

[CAC-WWII-40] Report of Operations, 1-31 October 1944, 9th Infantry Division, 1 Nov 44. R-11546. Ammunition expenditures, p. 30.

[CAC-WWII-41] Report of Operations, 1-30 November 1944, 9th Infantry Division, 1 Dec 44. R-11546. Ammunition expenditures, p. 13.

[CAC-WWII-42] Report of Operations, 1-31 December 1944, 9th Infantry Division, 5 Jan 45. R-11546. Ammunition expenditures, p. 18.

[CAC-WWII-43] Report of Operations, 1-31 January 1945, 9th Infantry Division, 5 Feb 45. R-11546. Ammunition expenditures, p. 17.

[CAC-WWII-44] Report of Operations, 1-28 February 1945, 9th Infantry Division, 5 Mar 45. R-11546. Ammunition expenditures--small arms, mortar, artillery (105 how and 155 how), p. 13.

[CAC-WWII-45] Report of Operations, 1-31 March 1945, 9th Infantry Division, 5 Apr 45. R-11546. Ammunition expenditures, p. 19-20.

[CAC-WWII-46] Report of Operations, 1-30 Apr 1945, 9th Infantry Division, 1945. R-11546. Ammunition expenditures, p. 17.

[CAC-WWII-47] "Report on the Employment of Artillery Units at Saipan." C.C.O.R.'s Bulletin CCOR/69, 10 Jan 45. N-7440.19. Ammunition expenditures per day by type.

[CAC-WWII-48] Report of Operations, World War II, 1st Armored Div. M-N-1068.14. Box 2195 - 27th Armored FA Bn. History 8 Nov 42 - Aug 45. Item 2394 - Battalion History of the 27th Armored FA Bn., First Armored Div, 8 Nov 42 - 9 May 43. Missions fired and rounds expended are reported by day throughout.

[CAC-WWII-49] Report of Operations, World War II, 1st Armored Division, 68th Armored FA Battalion History 15 Jan 44 - Aug 45 and ammunition expenditures 30 Nov - Dec 43. Box No 2196 and 2197. M-N-1068.15 and .16.

[CAC-WWII-50] Report of Operations, World War II, 1st Armored Division, 91st Armored FA Bn. Historical record, 31 Jan 43 - Aug 45 and report of combat operations - 16 May 43. M-N-1068.17.

[CAC-WWII-51] Ammo Joe's March from the Gothic Line to Victory, Sterling, E. A., Allied Forces Headquarters, 1943. N-5320.2. Ammunition expended by weapon. 241800A Sep 44 to 251800B Apr 45.

[CAC-WWII-52] Summary of Operations ETO, 2d Infantry Division Artillery, Jul 44 - 7 May 45. War Department, 8 Jun 45. R-12485.

[CAC-WWII-53] After Action Report, ETO, Jul 44 - Mar 45, War Department, 1945. Ammunition expenditures for 11 months by 12th, 15th, 37th, and 38th FA Bn (105mm howitzer), p. 1.

[CAC-WWII-54] Unit Report of Action, June 1944 - April 1945, 1st Infantry Division Artillery. N-11239. Ammunition expenditures, 1-30 Apr 45, p. 5; 1-31 Mar 45, p. 17-18; 1-28 Feb 45, p. 15; 1-31 Jan 45, p. 21-22; 1-31 Dec 44, p. 18-19; 1-30 Nov 44, p. 18; 1-31 Oct 44, p. 10; 1-30 Sep 44, p. 5-6; 1-31 Aug 44, p. 7; 1-31 Jul 44 - none (says "see separate battalion reports for breakdown to types of ammunition.") 1-30 Jun 44, p. 7.

[CAC-WWII-55] Unit Report of Action, 1-31 May 1945, 1st US Infantry Division Artillery, 21 June 1945. N-11239. Ammunition expended by battalion, not by types of ammunition.

[CGSC-K-1] Study Estimated Expenditures of Artillery Ammunition, Major Charles R. Fulbruge, QM Corps, CGSC, Ft. Leavenworth, Sep 54 (N-18104-A) Monthly Korean War theater-level expenditures-789 days of combat.

[CGSC-S-1] Variation of Artillery Ammunition Expenditures with Intelligence, Operations Research Organization, ORO-TP-46, Robert H. Hobbs, October 1961 (AD267747). This study was a designed experiment using experienced artillery officers to determine artillery expenditures given various levels of intelligence data. The difficulty of isolating the effects of intelligence through historical data was sufficiently great that this alternative solution was attempted. The experiment was only marginally successful requiring more effort than was expected. With increasing availability of reliable data bases, historical data may again be a reasonable alternative.

[CGSC-S-2] Estimated Expenditures of Artillery Ammunition, Command and General Staff College, 10 Sep 54. N-18104-A. Study to determine the validity of material contained in the tables of paragraphs 108 and 109 of FM 101-10, June 1953. Incl - trip report, COL A. S. Byunoski, methodology in the development of tables 108a, FM 101-10, Jul 53, 18 Jul 55.

[CGSC-WWII-1] Field Artillery Group in Support of the Corps and Field Army, 1942 - 1953, Major Russell A. Weatherby, CGSC, Ft. Leavenworth, KS, 1965. Unpublished M.A. thesis.

[CGSC-WWII-2] Role of Field Artillery in the Battle of Kasserine Pass, Major David W. Hazen, M.M.A.S. thesis, Command and General Staff College, Ft. Leavenworth, Kansas, 1973 (D766.82U3).

[CMH-K-1] Logistics in the Korean Theater, Center of Military History, Washington, DC. Provides theater total expenditures for every month of the war. The data is broken down by tube type, but no means of determining tube density in the theater is given. Data provided by the Fulbruge study [CGSC-K-1] make this data very useful.

[CMH-K-2] Combat Actions in Korea, Russell A. Gugeler, Office of the Chief of Military History, 1970 (DS918G832).

[CMH-S-1] Guide To Japanese Monographs and Japanese Studies on Manchuria, 1945 - 1960, Office of the Chief of Military History, 1960. This manuscript provides reference to an extensive list of primary sources for ammunition expenditures and logistics in this part of the world. The referenced literature is accessible at the Center of Military History.

[CMH-WWII-1] Ammunition Supply and Operations, European Campaign Appendix 2, UA25, U586 Study No. 100, General Board US Forces European Theater, ca. 1945 (D769A5 No. 100). This is a member of the well-known "Green Book" series. The data is highly aggregate and, given the complexity of assembling such data prior to the widespread use of computers, the data is suspect. The method of assembling the data is unknown. It may, however, be the best data that exists at that level of aggregation.

[CMH-WWII-2] US Army In WWII - European Theater of Operations - Logistical Support of the Armies, Vol. I-II, Roland G. Ruppenthal, Army Center for Military History, 1953. Dealing with logistics aspects of the war, there is both narrative and expenditure data found under the subject listing of ammunition. Comparisons are made between planned rates of fire and actual theater expenditure rates.

[CMH-WWII-3] US Army In WWII - The Ordnance Department: Procurement and Supply, Harry C. Thomson and Lida Mayo, Army Center for Military History, 1958. As with all books in the "Green Book" series, most of the volume is narrative but not quantifiable. This volume does provide theater-level data on stockage levels in Europe and comparable monthly expenditure data for 1944 and 1945.

[CMH-WWII-4] Last Offensive, The, Charles B. McDonald, Government Printing Office, Washington, DC, 1974. Presents the chronology together with artillery expenditures of the battle for Okinawa. Operational expenditures.

[CMH-WWII-5] Reports of the General Board, US Army European Theater, General Board, Mimeo, USFET, 1945-1946. 131 Reports, (D769A5 No. 100) Nos. 58-67.

[CMH-WWII-6] Reports of the Observer Boards, Pacific Ocean Areas, US Army Ground Forces Observer Board, Mimeo, 5 Jan 44 - 21 Jul 45, 11 volumes (D767U4.).

[CMH-WWII-7] Reports of the Observer Boards, Mediterranean Theater of Operations, US Army Ground Forces Observer Board, Mimeo, 22 Dec 42 - 13 Aug 45, 9 volumes (D766.8U4.). Nos. 100 and 126.

[CMH-WWII-8] Army Ground Forces Board Report A-107-1, NATO, 7 Jan 44. R-7038. 36th Div. Arty. 17 Nov to 19 Dec 43. Chart "Expenditure rounds per gun per day" (lights and medium). 2-11 Dec 43. Camino-Maggiore-Lunge-Rotunda-Difensa operation.

[CMH-WWII-9] Determination of Mobilization Reserve of Ammunition (U), Chief of Ordnance, 11 Feb 48. C-16722. Includes charts with data from monthly theater reports of ammunition expenditures and losses, World War II by months for various guns.

[CMH-WWII-10] Directives and Miscellaneous Information, CinCPOA, 1944. Vol I. N-11562-A. Table 24 - CinCPOA unit of fire ground weapons, effective 21 Mar 44. Unit of fire table used to determine actual rounds of ammunition for all ground weapons used in the Central Pacific area.

[CMH-VN-1] American Forces in Action, Vietnam Studies, Office of the Chief of Military History, Washington, DC.

[CNA-ALL-1] Validation of Combat Models Against Historical Data, Professional Paper No. 27, Leon Feldman and Susan Simon, Center for Naval Analysis, 1970. This work provides no expenditure data but does offer insight into the difficulties involved in using historical data for for analysis specifically of combat simulations.

[CNA-K-1] Study of Land/Air Tradeoffs (SLAT), Statistical Analysis of Korean War Data, Naval Warfare Analysis Group, Center for Naval Analysis, Study 64, Arlington, VA, March 1970, 9 volumes. Historical analysis of Korea and comparison with wargame results in Vols I, VII, VIII, IX (240866/240874) (AD-869 481) (NWAG-Study-64-Vol-9); a very extensive study of related aspects of combat and attempts at rigorous analysis of historical data. Some expenditure data is included, but the greater value lies in the example of ways in which historical data can be used to arrive at a greater understanding of the complex nature of land and air warfare.

[CNA-S-1] Method for Estimating Ground Combat Attrition Coefficients, CNA Research Contribution No. 103, E.H. Kingsley, Nov 68 (231366). This study offers additional insight into variables with which to analyze several forms of combat data. No useful expenditure data is included.

[CORG-WWII-1] Frequency Analysis of WWII Ammunition Expenditure Levels And Combat Models, CORG, Technical Operations Inc., (AD 747). Included in this study is an assembled data base for daily operational expenditures for the II US Corps in Italy in 1943 and 1944. The results of the frequency analysis done in this study is remarkably close to the results of AHART.

[DA-ALL-1] Logistics Support Modelling, Department of the Army Pamphlet 750-21, Jan 1982. This document describes the data requirements, the simulation process, and prescribes the conditions under which simulations are useful. No expenditure data is included.

[DA-S-1] Review of Army Analysis, Volume 1 - Main Report, Department of the Army, April 1979. A basic review of Army analysis resources, organizations, and procedures. This work provides the framework in which AHART and many similar studies are done. It provides a clear definition of boundaries for what can be considered "the system;" the operational and organizational structure known as the US Army.

[DA-VN-1] Lessons Learned HQ 2nd Bn, 213th FA, Adjutant General's Office, Department of the Army, Washington, DC, Nov 68 (AD395896). Artillery operations in Vietnam. In addition to maintenance and tactical operations data, there is information relating target identification with expenditure for 105mm howitzers.

[DA-VN-2] Vietnam Studies - Field Artillery 1954-1973, Washington, DC, Department of the Army, Army Library (DS557.A6V661 No.20).

[DA-VN-3] Vietnam Studies - Logistics Support, LTG Joseph M. Heiser Jr., Washington, DC, Department of the Army, 1974 (DS554.52H4).

[DB-ALL-1] Dictionary of Battles, Thomas Y. Eggenberger, Crowell Co., NY, 1967 (D25E29D).

[DUSA-S-1] Loss Rates Comparison Study, Memorandum For Deputy Chief of Staff of the Army for Operations from the Deputy Under Secretary of the Army for Operations Research, March 1980. This three-page memorandum describes the need for an extensive data base of historical ammunition expenditures for comparison with computer simulations. It also suggests some of the variables that would be appropriate to such a study.

[FAS-AI-1] The October 1973 Middle East War, A Bibliography, US Army Field Artillery School, June 1976. Presents further relevant materials published on the war. It includes representative unclassified ordnance data.

[FAS-S-1] Fire Suppression Symposium Report, Combat Developments Directorate, The Field Artillery School, January 1980. This document provides no expenditure data. It does give insight into the difficulties of simulating some aspects of the artillery problem. The members of the symposium employ historical comparisons in their work.

[FAS-WWI-1] "Expenditure of Ammunition," The Field Artillery Journal, Volume VII, The United States Field Artillery Association, Volume VII,

1917. A timely pronouncement of the surprise with which the high expenditure rates of WWI were met. The article provides German Army expenditure data for the battle of the Somme, July 1917. These include the highest rates found in the AHART Study.

[[FAS-WWI-2] "Artillery Statistics From the World War," translation by Colonel Oliver L. Spaulding, The Field Artillery Journal, The Field Artillery Association, Washington, DC, September-October 1924. Includes theater expenditure rates for both French and German artillery for the war. It also provides operational rates for selected battles.

[FAS-WWI-3] "Ammunition Expenditure By The First Field Artillery Brigade A.E.F.," The Field Artillery Journal, The Field Artillery Association, Washington, DC, May-June 1930. Provides weapon densities and expenditure rates, by type tube, throughout the year 1918. Included in the narrative is the stated purpose of the data to point out "the problem of ammunition supply during active operations." These are operational rates. As stated in the paper, rounds lost in transit and damaged during operations are not included in the expenditure figures.

[FAS-WWI-4] "Organization, Armament, Ammunition Expenditures of the German Field Artillery During the World War," LTG Van Alfred Muther, The Field Artillery Journal, The Field Artillery Association, Washington, DC, July - August 1935. An attempt to provide insight into the enormous increase in artillery expenditures in WWI written by the Chief of the Field Artillery of the Royal Prussian War Ministry. The article includes both operational and theater rates data. Data is present for German, French, and Russian artillery. Operations resulting in capture of Bizerta and surrounding territory, northern Tunisia. II Corps. 23 Apr - 9 May 43. N-2652-8. Ammunition expenditures (rounds per gun) for Apr - May 43--105mm howitzer, 155mm howitzer, 155mm gun, 13th FA Bde attached to II Corps.

[FRG-S-1] Informationen Zum Munitionsverbrauch Von Landstrietkrafte Seit 1939, Office for Studies And Research for the German Army, translation from the original, July 1986. This document contains detailed expenditure data for the German Army in combat since 1939. It is extremely valuable in offering the data needed to examine both sides of several WWII engagements. Included is the Germans' own analysis of the data. This effort parallels AHART in the use of historical data in operational planning.

[HERO-ALL-1] Search For Historical Records of High-Rate Artillery Fire in Combat Situations, HERO, March 1978. This work done for the US Army Human Engineering Laboratory set out with the express purpose of locating combat situations with the highest rates of fire in each given period of time. These rates then should be the highest rates that could be used to compare with combat simulations. Since they are operational rates, they should certainly be far above theater rates generated by the WARRAMP process. Data useful to identify numerous variables in addition to those in AHART is available in this study.

[HERO-ALL-2] Evolution of Weapons and Warfare, Trevor N. Dupuy, Bobbs-Merrill Co., Indianapolis, IN, 1980. This work provides much of the setting in which the AHART Study could rightfully be studied. Association of the major events in the historical development of weapons provides a useful perspective not found elsewhere.

[HERO-ALL-3] History, Numbers, and War, Vol 1 No. 2, HERO, 1977.

[HERO-AI-1] "Arab-Israeli Six Day War 1967", Combat Data Subscription Service, Vol 1 No. 2, Vol 2 No. 1, HERO, 1977.

[HERO-AI-2] Ramadan War 1973, The, T. N. Dupuy, Dupuy Associates, 1978.

[HERO-AI-3] Elusive Victory, Arab-Israeli Wars 1947-1973, T. N. Dupuy, HERO, Inc., 1984. This book resulted from extensive interviews and research. It provides numerous statistical charts and narrative description. T. N. Dupuy is in the business of historical analysis and attempts to produce quantitative analysis of the Six Day War of 1967. While there is reasonable detail on several subjects, artillery expenditures is not one of them. A personal visit to HERO offices did not turn up any additional data.

[HERO-K-1] Artillery Fire Near the Inje, May 1951, Report for the Human Engineering Laboratory, HERO, May 1977. Describes the chronology of events and accompanying artillery expenditures. Operational rates.

[HERO-WWII-K-CDSS] Combat Data Subscription Service, HERO, 1978. Very detailed expenditure data for Mediterranean and European theaters and for Korea. Almost entirely operational rates. Clearly associated with operational mission, weapon densities, and time periods.

[HERO-WWII-1] Opposed Rates of Advance of Large Forces (ORALFORE), Trevor N. Dupuy and Grace P. Hayes, HERO, Aug 72 (AD-902 830/9). This large volume in small print details the operational and environmental circumstances related to rates of advance for six operations of WWII. Included are weapon densities and expenditure data for these operations. Corps and division-level rates and analysis with which to compare subordinate models in the WARRAMP process are included.

[JDR-S-1] "Fast-Val: Summary Report on the Comparison Of Model with Combat Results," Lind, et al., Journal of Defence Research Series: Tactical Warfare, Vol 6B:3, Fall 74.

[LOGC-ALL-1] Ammunition Day of Supply, Lynn L. Sims, Historical Office, US Army Logistics Center, undated. This paper provides a concise summary of the information provided in Ammunition Day of Supply WWI-1960 (ORO-ALL-1).

[LOGC-K-1] Korean War Ammo Rates, Lynn L. Sims, Historical Office, The US Army Logistics Center, January 1985. This professional paper was written in response from many parts of the Logistics Center for historical data on artillery expenditures. It provides a concise description of the controversy over ammunition expenditures in Korea

and provides some expenditure data. Appended to this paper are the monthly expenditure figures for Korea taken from Logistics in the Korean Theater [CMH-K-1].

[LOGC-WWII-1] World War II Ammo Rates, Lynn L. Sims, Historical Office, The US Army Logistics Center, January 1985. This professional paper was written in response from many parts of the Logistics Center for historical data on artillery expenditures. The paper describes several factors that appear as a result of historical research to influence the expenditure of artillery ammunition. The paper also describes the system used during the war for determining rates and the difficulties in doing so. Appended to the paper is an extract from The US Army In WWII series that displays comparisons among rates determined by this system and the actual theater rates.

[LOGC-WWII-2] First Army Ammo Rates, World War II, Lynn L. Sims, Historical Office, US Army Logistics Center, January 1985. This work provides narrative description of the units operation closely associated with the ammunition expenditures for each phase of that operation. Operational rates for 105mm howitzer, 155mm gun, and 155mm howitzer are attached.

[MHI-ALL-1] Index of Course Materials 1919-1942 - Ammunition, US General, US Army War College, Carlisle, PA. This document is maintained by the Military History Institute and contains references to the methods of determining requirements and includes comparative expenditures.

[MHI-K-1] "Memoirs of BG George B. Barth, Commanding Officer, 24th and 25th Div Arty in Korea," US Army Military Research Collection, S.L.A. Marshall (item #406), Military History Institute, Carlisle Barracks, PA.

[MHI-K-2] Relationship of Casualties to Tactics and Ammunition Expenditures: 2nd US Infantry Division Korea, 1 Feb 1953 - 31 Mar 1953, Defense Department, 1954. 132 pages (UL504.3 R46. 1953, MHI).

[MHI-K-3] Study of the Underlying Causes of Deficiencies in the Ammunition Stockpile, MG Carroll H. Deitrick, et al., Chief of Ordnance, Aberdeen Proving Ground, MD, July 1959 (UF700U47 - MHI).

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[MHI-S-2] Aspects of Ammunition Management in the US Army, LTC John E. Baker, Army War College student paper, Carlisle Barracks, PA, March 1969 (AWC-IS69).

[MHI-S-3] Better Direct Support Artillery - An Increasing Requirement, Larry A. Blakely, Carlisle Barracks, PA, US Army War College, 1966 (AWC-IR-CRS-7).

[MHI-VN-1] Artillery Considerations in Low Intensity Warfare, COL. Jesse B. Hollis, US Army War College, 1966 (AWS-IR-CRS-4).

[MHI-VN-2] Systems Analysis Of Close Fire Support Artillery For Ground Forces, Harold A. Dye, US Army War College, May 1965 AWC-IS-64/65.

MHI-WWI-1] Report of Ammunition Expended and Wasted, Chief of Ordnance, US Army Expeditionary Force, July 1919 (UF700U4).

[MHI-WWII-1] Artillery Fact Sheet, US Army Field Forces, 1945. (UA32A5).

MORS-S-1] Casualty Rates, Combat Intensity, Tempo of Battle, Military Operations Research Symposium, 1978.

[NA-VN-2] After Action Report - Operation Billings, 12-26 June 1967, Annex D, First Infantry Division, 26 July 1967. Operational rates for protracted combat operations.

[NA-VN-3] After Action Report - Operation Junction City, 22 Feb - 15 Apr 67, Annex D, First Infantry Division, 8 May 1967 (N17439.21/AD390548). Operational rates for protracted combat operations. Pages 1, 2, 15, Appendix D II-11, Appendix E, p. 9.

[NA-WWII-0] Action Against Enemy Report, ETO, February 1945. 11th Armored Division Artillery. N-12137 After action. Ammunition expended: 25-26 Feb, p. 419-425; 15-23 Feb, p. 290-300; 5-15 Feb, p. 108-117. 492d Armored FA Bn, Btry C. 174th FA Bn, and Btry D (-2d Plat). 575th AAA Bn Rounds expended: 22-23 Feb, p. 249; 21-22 Feb, p. 247; 20-21 Feb, p. 246; 19-20 Feb, p. 244; 17-18 Feb, p. 240; 16-17 Feb, p. 238; 15-16 Feb, p. 236; 18-19 Feb, p. 242.

[NA-WWII-1] Artillery Ammunition Expenditures as Related to Infantry Casualties, US Army XII Corps Headquarters, July 1945 (UF15&U62).

[NA-WWII-2] Report of Operations, 12th Army Group, Vol XI, page 87, UX151, n.12.A3 v.11.

[NA-WWII-3] Report of Operations, First US Army, 20 Oct 43 - 1 Aug 44, Annex 3-11.

[NA-WWII-5] After Action Report, ETO, XX Corps Artillery. R-12296. Ammunition expended 1 Aug 44 to 31 Dec 44, p. 102. Daily Army artillery reports 31 Oct 44, p. 132.

[NA-WWII-6] After Action Report, 1 August 1944 to 9 May 1945, Third Army, 15 May 1945. Vol. II, Part 9 - Artillery. N-11480-B.

[NA-WWII-7] After Action Report for September 1944, 62nd Armored Field Artillery Battalion. AGF, 16 October 1944. N-6765.

[NA-WWII-8] Ammo Joe at Anzio Jan 22 '44 - May 31, '44, Allied Forces Headquarters, 1944. N-5320.1. Expenditures by weapon.

[NA-WWII-9] Ammo Joe's Advance on Rome May 1, 1944 - July 31, 1944, Allied Forces Headquarters, 1944. N-5320.1. By weapon.

[NA-WWII-10] Analysis of Artillery Ammunition Expenditures in Fifth Army - 9 Sep - 17 Dec 43, Fifth Army HQ, Office of the Artillery Officer, 10 Jan 44. N-7039. By weapon.

[NA-WWII-11] Army Field Forces Observer Team No 8 to Far East Command, Report and Questionnaire, Army Field Forces. April - May 1953. Two volumes. N-17834.8-A & B. Tab K: Artillery, Inclosure 3 - Ammunition expenditures.

[NA-WWII-12] Artillery Information Service Memorandum No 1, First Army, December 1943. R-16558.1. Ammunition expenditures Northern Tunisia Apr 23 - May 8; Sicily Jul 10 - Aug 15, p. 16-17.

[NA-WWII-13] Artillery Information Service, First United States Army, July 1944. R-16558.15. Ammunition expenditures 6 June to 24 June, p. 71-76.

[NA-WWII-14] Artillery Information Service, First United States Army, July 1944. R-16558.15. Ammunition expenditures 24 Jun to 5 Aug, by weapon and day, p. 152-172.

[NA-WWII-15] Artillery Information Service, First United States Army, December 1944. R-16558.7. Paragraph 101. Ammunition expenditures p. 188-228, 6 Aug to 28 Oct.

[NA-WWII-16] Artillery Information Service, First United States Army, May 1945. N-16558.8. Paragraph 76. Ammunition expenditures, p. 219-329 (recapitulation - ammunition expenditures 6 June 1944 - 8 May 1945), p. 222. Also tables by weapon per day.

[ORO-ALL-1] Ammunition Day of Supply WWI-1960, Dorothy K. Clark, Operations Research Organization, ORO-TP-18, December 1960 (AD323064). A major work in the field of ammunition requirements studies. It provides an essential understanding of the need for predicting wartime requirements for ammunition. The study gives valuable insight into the changing definitions for ammunition rates as well as an historical perspective on the use of scientific methods of analysis to determine these rates.

[ORO-K-1] Effects of Counterbattery Fire, The, Thurton L. Page, Operations Research Organization, ORO-T-284, March 1955 (AD69456). This study provides an extremely detailed analysis of target acquisition and counterfire in the Korean War. It provides great insight into the role of artillery in the defense light operation. It does not provide sufficient detail of missions other than counterbattery fire to be of greater use to the AHART Study but would be

valuable in further research into the influence of target acquisition on artillery expenditures.

[ORO-K-2] US Army Battle Casualties In Korea, Fredent W. Cleaver, Operations Research Organization, ORO-T-71, October 1956. Among other details useful to indirect fire studies, the relative impact of artillery as a killer on the battlefield is presented. No direct expenditure data is given, only the resulting analysis on same. Some specific data on weapon density during portions of the war is included.

[ORO-K-3] Combat Zone Logistics In Korea, Operations Research Organization, ORO-T-15, November 1951. This document provides no artillery expenditure data but does include narrative description of the attempts to maintain data necessary to calculate consumption data and to produce near-term planning figures. It further provides detail on the ammunition resupply system and the major difficulties experienced there.

[ORO-K-4] Artillery Weight, Personnel, Firepower Trends, J. Duncan Love, Operations Research Organization, ORO-SP-115, October 1959. (AD394654L).

[ORO-S-1] Validity of Strategic Logistics Planning Factors, Owen Mattingly Operations Research Organization, ORO-T-280, Nov 54 (AD111765). This document includes no artillery expenditure data. It does compare operational planning figures with actual combat consumption of various classes of supply. The difficulties of such comparisons are applicable to the AHART Study.

[ORO-S-2] Combat Day of Supply - Ammunition, Andrew J. Eckles III, Operations Research Organization, ORO-SP-175, 1954 (AD394656L).

[ORO-WWI-1] Cost of Inflicting a Casualty - WWI, Operations Research Organization, June 1960.

[ORO-WWII-1] Artillery Usage WWII, Vol. 2, J. Duncan Love, Operations Research Organization, ORO-T-375, April 1959 (AD208021). This is a major source of expenditures in terms of weight and total rounds for WWII Europe. This data is provided for each participating US Army/Army Group. Unfortunately, data sufficient to calculate RTD is provided only for one of the four armies. The data for the other armies lack the average density of tubes present in a given period. Were this data found elsewhere, the value of this document would increase greatly. There is also analysis in terms of distribution of ranges fired, types of missions, times of activity, etc., useful in more detailed analysis of this data.

[ORO-WWII-2] Cost in Ammunition of Inflicting a Casualty, L. VanLoan Naisawald, Operations Research Organization, ORO-T-246, July 1953 (AD28927) 147957. Data for the Anzio campaign in Europe and for the invasion of Okinawa in the Pacific are presented in great detail. Monthly expenditure data for both direct and indirect fire weapons in terms of cost and weight are provided. US, British, and German data is

present to varying degrees. The density of artillery tubes is missing and must be determined elsewhere to make best use of this data.

[ORO-WWII-3] The Cost in Ammunition of Inflicting a Casualty, L. VanLoan Naisawald, Operations Research Office, Johns Hopkins University, December 1953. Technical Memorandum ORO-T-246, N-16454.229. Anzio and Okinawa. Tables - ammunition fired by US VI Corps, Anzio, gives type of ammunition and rounds for period 31 Jan - 29 Feb 44; 29 Feb - 31 Mar 44, and April 44. Table of US ammunition expenditures, XXIV and III Corps, Okinawa, given by type of ammunition and rounds.

[ORO-WWII-4] Causative Agents of Battle Casualties WWII, L. VanLoan Naisawald, Operations Research Organization, ORO-T-241, July 1954, (Nov 53) (AD25637). One of the few documents that provides comparable data for three theaters of operation--Mediterranean, Europe, and the Pacific. Data is oriented toward casualty analysis but provides some amount of expenditure data.

[ORO-WWII-5] Incidence of Predicted Artillery Fire, Dorothy K. Clark, Operations Research Organization, ORO-T-68, October 1950, (ATI92697).

[OUSA-ALL-1] Historical Data on Wartime Ammunition Usage and Attrition, John Bemis, Production Engineering Support Office (PESO), Office of the Under Secretary of Defense, April 1978. This document is the result of a short-term study effort on Army ammunition consumption. The data included is directly applicable to AHART. Operational rates from all major wars in this century are included. A small amount of theater-level data is present. The study includes some exploratory analysis of the data.

[OUSD-ALL-1] US Army Ammunition Firing Rates And Battlefield Equipment Attrition - A Historical Survey, John Bemis, Product Engineering Services Office, Office of the Under Secretary of the Army (R&E), April 1978. This document includes the data taken from numerous others listed herein. The work was an attempt on a limited basis to accomplished the same purpose as AHART.

[RAC-S-1] Casualty Predictions Conventional Weapons 1965-1970, Research Analysis Corporation, November 1964.

[RAC-VN-1] Survey of Casualties Republic of Vietnam Military Forces, 1962, Richard W. Parker Jr., Research Analysis Corporation, RAC-TP-167(FOV), August 1965 (AD366296). Another in the series of casualty analysis. This study, even more than others, is oriented to medical analysis and therefore provides no expenditure data. It does offer an opportunity for analysis of the relative effects of artillery vis-a-vis direct fire weapons.

[RAC-WWII-K-1] Distribution of Casualties by Causative Agents, Jeffery A. Burt, Research Analysis Corporation, RAC-T-445, March 1965 (AD368202). In addition to addressing the distribution of causative agents, the study provides expenditure data and battle parameter variables similar to the AHART variables. Historical data was derived

directly from the National Archives and reviewed by the Center of Military History.

[RAC-WWII-2] Casualties and the Dynamics of Battle, R. J. Best, Research Analysis Corporation, RAC-TP-185, March 1966 (AD372260) 235587. Substantial documentation on various qualitative aspects of WWII combat but not sufficiently detailed for extensive quantitative analysis.

[RAND-VN-1] An Analysis of Firing Data From the 1st Marine Division, Helmbold, Rand, D-20519-PR, July 1970 - A follow-on study to a larger work. A very detailed analysis of the distribution of rounds by type and by time of day fired for a 1-month period in 1968. Some very useful expenditure data for operational rates is included.

[RAND-VN-2] Summary of Firing Data From the 3rd Marine Amphibious Force, Helmbold, Rand D-19573-PR, November 1969. Detailed target specification list for combined air ground operations for a 5-week period. Allows for a more detailed analysis of operational rates under specific circumstances.

[UK-ALL-1] Historical Data in the Assessment of Combat Degradation, Defence Operational Analysis Establishment, UK Ministry of Defence, October 1985. Expenditures for artillery data are given in terms of the number of rounds per square yard and not readily convertible to the defined rates in the AHART Study. The study does offer insight into the British use of historical data for analysis and operational planning. Some work is done on the effects of artillery preparation on given battles. This group has studied extensively over a hundred battles. Correspondence with them could prove beneficial for both sides.

[USAREUR-WWII-1] Guide to Foreign Military Studies 1945-1954, Historical Division, Headquarters US Army Europe, 1954. This manuscript provides extensive listing of otherwise unknown documents. Many of the documents reference the German, Russian, and Italian operations. Many include references to logistics and ammunition expenditures.

[USMA-ALL-1] West Point Atlas of American Wars, The, Vincent J. Esposito, Praeger Publishers, 1972 USMA-ALL-1. This atlas provides no expenditure data. It does provide a detailed description of all battles in which US forces were involved from 1900 to 1953. A chronology of battles is available for immediate reference.

[USMC-AI-1] Analysis of the Lessons Learned in the October 1973 Arab/Israeli War, Marine Corps Development and Education Command, Quantico, Virginia, January 1975 (unclassified title). Provides data updated from previous studies. Includes relevant logistics data.

[USMC-S-1] Class V Combat Planning Factors Study, Quantics Inc., Wayne, PA, June 1981 (ADC029438).

[USMC-VN-1] "Battle for Khe Sanh," LTC Walt, Reader's Digest, May 1970. Based on The Battle for Khe Sanh, CPT M. S. Shore II, USMC Historical Branch, G-3 Division, Headquarters USMC, 1969. This document provides data for one of the few large-scale battles that are comparable with more conventional wars.

[TOI-WWII-1] Activity Indicators for Estimation of Combat Consumption Requirements, Combat Operations Research Group Technical Operations, Inc., Ft Belvoir, Dec 65 (AD370493).

[VRI-AI-1] Summary of a Verification Study of Vector II with Arab-Israeli War, Vector Research Inc., (VRI-G-N-81-1), July 1985. A short paper offering some detail on the Golan Heights Campaign in the Arab-Israeli War. Summarizes an attempt at actually validating a combat simulation with historical data. No specific expenditure data is given.

[WSEG-AI-1] October 1973 Middle East War, The, Volumes I-III, (unclassified title) Weapons Systems Evaluation Group, January 1975. This is the unclassified title to the SECRET-NOFORN report. Included in Volume III are the theater rates for the 17 days of the war for all artillery tubes. Analysis of the classified data and its effect on the study results is included in a separate appendix to the study.

D-3. STATISTICAL

Beck, James V. and Kenneth J. Arnold, Parameter Estimation in Engineering and Science, John Wiley and Sons Inc., 1977.

Bhattacharyya, Gouri K. and Richard A. Johnson, Statistical Concepts and Methods, John Wiley and Sons, Inc., 1977.

Bloomfield, Peter, Fourier Analysis of Time Series: An Introduction, Wiley, Inc., 1976.

BMDP Statistical Software, Department of Biomathematics, University of California Press, Los Angeles, CA, 1983 release.

Box, George and Gwilyn Jenkins, Time Series Analysis: Forecasting and Control, Revised Edition, Holden-Day, Inc., 1976.

Carbone, Robert and Spyros Makriddakis, "Forecasting When Pattern Changes Occur Beyond The Historical Data," Management Science, March 1986.

Daniel, Cuthbert and Fred Wood, Fitting Equations To Data: Computer Analysis of Multifactor Data, Second Edition, Wiley, Inc., 1980.

Kleinbaum David G. and Lawrence L. Kupper, Applied Regression Analysis and Other Multivariable Methods, Duxbury Press, North Scituate, Massachusetts, 1978.

Makridakis, Spyros and Steven C. Wheelwright, Forecasting, Methods and Applications, John Wiley and Sons, 1978.

Mosteller, Fredrick and John Tukey, Data Analysis and Regression Analysis, Addison-Wesley Co., 1977.

Simpson, Alan, Understanding DBASEIII PLUS, Sybex Inc., 1986.

Tufte, Edward R., Visual Display of Quantitative Information, Graphics Press, Cheshire, CT, Third Printing, August 1984.

Wickelgren, Wayne A., How To Solve Problems: Elements of a Theory of Problems and Problem Solving, W. H. Freeman and Company, 1974.

APPENDIX E

DATA BASE MANAGEMENT SYSTEM AND DATA ANALYSIS PROGRAMS

E-1. **PURPOSE.** The purpose of this appendix is to describe the hardware, the software, the files, and the routines used to conduct this study. This documentation has the specific purpose of facilitating expansion of the data base and updating the analysis by US Army Concepts Analysis Agency personnel.

E-2. **THE SYSTEM.** The system used to manage AHART is designed around the hardware and software systems available at CAA and at George Mason University. While it was never necessary to use the university system, all BMDP routines and other software were available at both. The AHART data base management system and analysis routines would require changes in order to be used on the university mainframe, but the effort is minimal if needed. The components of the system are as follows:

Microcomputer	IBM PC AT	LEADING EDGE
Mainframe Computer	Sperry 1184	CYBER
Graphic Work Station	Superset	(not available at GMU)
Data Base Software	DBASEIII PLUS	
Spreadsheet/Graphics	LOTUS Version 2.1	
Graphics	QCHART	
PC-Mainframe Transfer	PIBTERM	
Statistical Software	BMDP	

E-3. DBASEIII PLUS

a. The AHART data base was input to and is presently stored on floppy and hard disk drives on an IBM personal computer AT employing the DBASEIII Plus software package. A data entry format is included in the AHART data base to augment the numerous browsing, indexing, and sorting capabilities of the software. The procedures for employing the ASSIST and DOT commands in DBASEIII Plus are left to the user referencing the appropriate microcomputer and DBASEIII documentation.

b. DBASEIII Plus was chosen for its ease of use for beginner level users, for its ease of transportability increasing the probable distribution of AHART, and for its transferability to ASCII and other forms of code. Use of a microcomputer software package freed the study from constraints of a single mainframe system.

c. The following file names must be selected upon entry into the DBASEIII Plus system:

Data base	AHART.DBF
Data entry format	AHART.FMT
Data entry screen	AHART.SCR
Data base text	AHART.TBK

d. The data entry screen appears in Chapter 2.

e. Selected fields of the AHART data base in hard copy appear in Appendix F.

E-4. LOTUS

a. To permit use of available graphics and to make optimum use of spreadsheet capabilities when appropriate, AHART was translated into LOTUS using the LOTUS TRANSLATOR program.

b. Prior to entering the LOTUS TRANSLATOR, the data base is indexed and reduced to only necessary fields.

(1) The data base can be and is indexed in several ways within DBASEIII. The file is indexed first by TUBETYPE, then by DATE; TUBEDATE.NDX was used whenever translated, transferred to other systems, or printed in hard copy for dissemination. The indexed files which could be used for this purpose are:

TUBEDATE.NDX

OPN.NDX

DURATION.NDX

TUBETYPE.NDX

DATE.NDX

(2) To most efficiently produce a LOTUS worksheet for any particular analysis, only selected fields need to be transferred from the data base. Use of the COPY command on DBASEIII permitted such selection and transformation into the data base format (DBF) needed by the TRANSLATOR. An example follows:

```
COPY TO TUBEDATE.DBF FIELDS DATE, TUBETYPE, OPERATION, DAYSQUANT,  
SIZE, ROTUBEDAY
```

c. After entering the TRANSLATOR program in LOTUS, the following commands are entered:

```
Translation From: DBASEIII To: LOTUS Version 2.1
```

```
Source File: AHART.DBF
```

d. The resulting LOTUS spreadsheet becomes:

```
Destination File: AHART.WK1
```

E-5. MICRO TO MAINFRAME TRANSFER SOFTWARE - PIBTERM

a. To permit use of mainframe hardware, software, and storage capabilities, it was necessary to translate the AHART data base from DBASEIII to the Sperry 1184 computer system. The following instructions are unique to the Sperry but provide a guide for use on other systems.

b. A specially designed software package, PIBTERM, is available to users of the Sperry 1184. Other such translators should be available when such an interface is needed.

c. The data base in DBASEIII is first converted to ASCII format with the following command:

```
COPY TO COPY.TXT FIELDS DATE,TUBETYPE,TUBECAT,TUBEQTY,TYPERD,OPERATION
DAYSQUANT,SIZE,ADTUBEDAY TYPE SDF
```

d. The converted data base with the name COPY.TXT is placed on a low density floppy disk.

e. The disk is placed on an IBM PC XT which has been interfaced with the Sperry, and the following instructions and commands are executed:

Place the low density disk containing the PIBTERM program in the A: drive.

Then turn on both the control unit and the monitor. If the PC is already on, place the PIBTERM in the A: drive as before, then perform a warm boot by simultaneously hitting the CTRL, ALT, and DEL keys of the keyboard.

Hit the return key in response to questions about the date and the time.

At the prompt for the A: drive (>A:), type in the program name, PIBTERM, and hit RETURN.

The following will be displayed on the monitor:

```
PIBTERM Version 3.2.1 (November, 1985) Ready.
Hit Alt-1 for command list.
Modem initialization: $$open caadem
```

Followed by a message that flashes on the monitor stating

```
Beginning Dumb Terminal Emulation.
```

Next, strike the RETURN key and proceed to sign on to the Sperry.

```
USERID/PASSWORD
USERID/ACCOUNT/QUALIFIER
```

After logging on, enter

```
@KERMIT COPT.TXT ( when uploading )
@KERMIT ( when downloading )
```

Note: When uploading, ensure the filename COPY.TXT is current on the Sperry

The following message is now displayed

Kermit 1100 2.2

To tell the computer where to locate/store the file COPY.TXT, simultaneously strike the ALT key and the F key. The following menu will appear:

- A)ctive directory change
- C)opy file
- D)irectory display
- E)rase file
- F)ree space on drive
- L)ogged drive change
- V)iew a file
- Q)uit

Select "L" then select "B" when the drive selection menu appears.

Place the disk with the file COPY.TXT into the B: drive.

A file can now be uploaded or downloaded.

UPLOADING

To upload the file, strike the ALT key and the S key simultaneously.

From the menu that appears select "d) Kermit".

From the menu that appears next select "a) Send a file".

A prompt appears; type in the name of PC file to be sent. When complete, strike RETURN.

A screen will appear accounting for bytes sent, packets sent, number of retries, and the number of bytes remaining to be sent.

When the transfer is complete another menu will appear; select the "QUIT" option.

Type in @EOF.

The option now exists to transfer more files or log off.

DOWNLOADING

To download the file, strike the ALT key and the R key simultaneously.

From the menu that appears select "d) Kermit".

From the menu that appears next select "a) Get text file".

A prompt appears; type in the name of Sperry file to be received.

When complete, strike RETURN.

(The file will be stored on the data diskette under a variation of the Sperry filename. The first eight characters of the filename are taken from the Sperry filename and the three characters of the file extension are taken from the Sperry file's element name.)

As the file transfer begins, a screen will appear accounting for bytes sent, packets sent, number of retries, and the number of bytes remaining to be sent.

When the transfer is complete, another menu will appear; select the "QUIT" option.

Type in @EOF

The option now exists to transfer more files or log off.

LOGOFF

To log off, type in the following commands:

@FREEM,TN
\$\$\$OFF
ALT key and X key simultaneously

Answer "Y" to the query to log off or not

E-6. BMDP STATISTICAL SOFTWARE

a. Conversion of AHART to BMDP-readable Code. BMDP is designed to group, compare, and compute numbers. It will only accept two fields of four alpha characters each as record identifiers. After the record identifiers, which are not used in calculation, all entries must be numeric. It is therefore necessary to completely code any entries in the AHART data base for which calculations are desired. Those fields of type "character" must be coded into numerics.

(1) The actual conversion of AHART fields to BMDP-readable code (numerics) is accomplished after the file has been transferred via PIBTERM to the Sperry.

(2) To accomplish the task of conversion to numerics, each field was given a "scale," i.e., OPERATION was scaled from 1 to 10 according to the 10 operational intensities; SIZE was scaled from 1 to 900 according to the number of company-sized maneuver units being supported in a particular battle, etc. This scale has direct impact on the results of the analysis and should be examined closely for an accurate understanding of the data base. The effort required to code these fields for use in BMDP enhanced greatly the effort to quantify the data for analysis.

(3) The following is a Sperry "runstream" or macro specifically designed to convert the AHART data base to numeric scales usable to

CAA-TP-87-6

BMDP:

@ED,UP K2AHART.CODER

@ED,UP K2AHART.COPIED/TUBEDATE,.CODED/TUBEDATE

LIM C

C /19/ 19/9999

SEQ. [1,4] 1,1

LIM C 13 23

C /075GUN/075 /A

C /075HOW/075 /A

C /081MTR/081 /A

C /105GUN/105 /A

C /105HOW/105 /A

C /155GUN/156 /A

C /155HOW/155 /A

C /175GUN/175 /A

C /240HOW/240 /A

C /107MTR/107 /A

C /114GUN/114 /A

C /203GUN/203 /A

C /203HOW/203 /A

C /UNSP /30 /A

C /LIGHT /31 /A

C /MEDIUM/32 /A

C /HEAVY /33 /A

LIM C 24 29 /A

LIM C 52 58

C /BADL/ATKL /A

C /BAHD/ATKM /A

C /BAPD/ATKH /A

C /DL /DEFL /A

C /HD /DEFM /A

C /PD /DEFH /A

C /ATKL/02 /A

C /ATKM/05 /A

C /ATKH/08 /A

C /DEFL/03 /A

C /DEFM/06 /A

C /DEFH/09 /A

C /PROL/01 /A

C /PROM/04 /A

C /PROH/07 /A

C /UNSP/30 /A

LIM C 43 47

C /HE /01 /A

C /SMK /02 /A

C /ILLUM/03 /A

C /ICM /04 /A

C /UNSP /30 /A

LIM C 61 67

C /2CORPS/11 /A

C /CORPS /10 /A

C /2BN /05 /A

C /BNTF /04 /A

C /BN /03 /A

C /2BDE /07 /A

C /BDE /06 /A

C /2DIV /09 /A

C /DIV /08 /A

C /2CO /02 /A

C /CO /01 /A

C /1ARMY /12 /A

C /2ARMY /13 /A

C /ARMYGP/14 /A

C /THEA /15 /A

C /LIGHT /105 /A

C /MEDIUM/155 /AC /HEAVY /203/A

C /UNSP /30 /A

EXI

@BK2

b. The BMDP File

(1) After being coded into an acceptable format, the data base is ready for examination and analysis. The coded data base is first examined for data outside acceptable ranges and for missing data. Then the most basic location parameters are determined to ensure the data is even usable. The BMDP routine PID shown in paragraph (4) below is used for these purposes with the AHART data base.

(2) In addition to simple data description, BMDP routine PID includes the capability of conducting numerous filtering operations, transforms, and other computations on a set of data and storing it for future use. The capability of storing a BMDP file in the proper format for later use greatly simplifies the writing of other routines which employ the same data in the same form. This file is simply called the BMDP FILE.

(3) The Sperry filename of the BMDP file produced in this manner is K2PIDTTYPMIN. In Sperry this program creates only a distinct data file. There is no element name. Rerunning the program as written will overwrite the file.

(4) SIMPLE DATA DESCRIPTION and the BMDP FILE Program

```
@ED,R K2AHART.PID-MINUS/GRP-TUBETYPE

@LIB$*BMDP85.BMDPID 120000
/PROBLEM TITLE IS 'COPIED/TUBEDATE'.
/INPUT VARIABLES ARE 12.
FORMAT IS '(A4,F4,2F2,8X,F3,12X,F4,F2,3X,F4,F2,6X,F3,6X,F6.1)'.
/ VARIABLE NAMES ARE RECNO, YEAR, MONTH, DAY, TUBETYPE, TUBECAT,
TUBEQTY, TYPERD, DURATION, OPN, SIZE, RTD.
MAXIMUM ARE (2)1999, (3)12, (4)31, (5)240, (6)203, (7)2000,
(8)30, (9)9999, (10)10, (11)999, (12)9999.
MINIMUM ARE (2)1900, (3)01, (4)01, (5)30, (6)30, (7)01,
(8)01, (9)02, (10)01, (11)01, (12)01.
GROUPING IS TUBETYPE.
LABEL IS RECNO.
/SAVE CODE IS FIRST.
FILE IS 'K2PIDTTYPMIN'.
NEW.
/GROUP CODES(10) ARE 01,02,03,04,05,06,07,08,09,10.
NAMES(10) ARE PROL,ATKL,DEFL,PROM,UNSP,ATKM,DEFM,
PRJH,ATKH,DEFH.

CUTPOINTS(9) ARE 1,2,3,4,5,6,7,8,9,10,20,30,40,50,60,
70,80,90,180,365,730.
NAME(9) ARE '1','2','3','4','5','6','7','8','9','10',
'11T020','21T030','31T040','41T050','51T060',
'61T070','71T080','81T090',
'91T0180','181T0365','366T0730',
'731PLUS',
CODES(5) ARE 075,081,105,107,114,155,156,175,203,240,030,031,032,033.
```

NAMES(5) ARE '075', '081',
 '105',
 '107', '114',
 '155', '156',
 '175',
 '203', '240',
 'UNSP', 'LIGHT', 'MEDIUM', 'HEAVY'.

CUTPOINTS(7) ARE 3,6,12,18,24,30,36,42,48,54,60,66,
 72,78,84,90,96,114,132,150,168,186.

NAMES(7) ARE '3ORLESS', '4T06', '7T012', '13T018', '19T024',
 '25T030', '31T036', '37T042', '43T048',
 '49T054', '55T060', '61T066', '67T072',
 '73T078', '79T084', '85T090', '91T096',
 '97T0114', '115T0132', '133T0150',
 '151T0158', '169T0186', '187PLUS',

CODES(8) ARE 01, 02 03, 04, 30.

NAMES(8) ARE HE, SMK, ILLUM, ICM, UNSP.

CODES(11) ARE 001,002,003,004,005,006,009,018,027,054,081,162,243,486,
 729,900,1000.

NAMES(11) ARE CO, '2CO', BN, BNTF, '2BN', BDE, '2BDE', DIV, '2DIV',
 CORPS, '2CORPS', '1ARMY', '2ARMY', ARMYGP, THEA, UNSP.

CODES(6) ARE 105,155,203,030.

NAMES(6) ARE LIGHT, MEDIUM, HEAVY, UNSP.

CODES(2) ARE 1900,1904,1915,1916,1918,1943,1944,1945,1951,1952,1953,
 1967,1968,1969,1970,1976,1999.

NAMES(2) ARE '1900', '1904', '1915', '1916', '1918', '1943', '1944', '1945',
 '1951', '1952', '1953', '1967', '1968', '1969', '1970', '1976',
 '1999'.

/PRINT DATA.
 MISSING.
 MAXIMUM.
 MINIMUM.

c. **BMDP Programs.** For those familiar with BMDP software, the following provides documentation of the BMDP programs used in the data description and the exploratory analysis. Only a single example of each type of program is included. Many variations to these programs were used to investigate other aspects of the data.

(1) Detailed Data Description Program

@ED,R K2AHART.P2D-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP2D
 /PROBLEM TITLE IS 'AHART P2D'.
 /INPUT FILE IS 'K2P1DITTYPMIN'.
 CODE IS 'FIRST'.
 /PRINT ESTIMATES.
 STEM.

/END

(2) Histograms and Univariate Plots Program

@ED,R K2AHART.P5D-MINUS/GRP-TUBETYPE

```

@LIB$*BMDP85.BMDP5D
/PROBLEM  TITLE IS 'AHART P5D-MINUS'.
/INPUT    CODE IS FIRST.
           FILE IS 'K2P1DTTYPMIN'.

```

```

/PLOT
/END

```

(3) Bivariate (Scatter) Plots Program

@ED,R K2AHART.LP6D-MINUS/GRP-TUBETYPE

```

@LIB$*BMDP85.BMDP6D
/PROBLEM  TITLE IS 'AHART P6D-MINUS'.
/INPUT    CODE IS FIRST.
           FILE IS 'K2P1DTTYPMIN'.
/PLOT     YVAR ARE RTD.
           XVAR ARE YEAR,OPN,DURATION,TUBETYPE,TUBEQTY,TYPERD,SIZE,TRUECAT
           CROSS.

```

/END

(4) Description of Groups (Strata) with Histograms and Analysis of Variance Program

@ED.R K2AHART.P7D-MUNUS/GRP-TUBETYPE

```

@LIB$*BMDP85.BMDP7D 50000
/PROBLEM  TITLE IS "AHART P7D".
/INPUT    FILE IS 'K2P1DTTYPMIN'.
           CODE IS FIRST.
/VARIABLE GROUPING IS TUBETYPE.
/HISTOGRAM GROUPING IS TUBETYPE

```

```

/COMPARISON ALPHA IS 5.
             BONFERRONI.
             TUKEY.
             SCHEFFE.

```

```

/PRINT CORRELATION.
           DATA.
           TTEST.
           PLOT

```

/END

(5) Multiple Linear Regression Program

@ED,R K2AHART.P1R-MINUS/GRP-TUBETYPE

@LIB\$*MDP85.BMDP1R

/PROBLEM TITLE IS AHART P1R'.

/INPUT FILE IS 'K2P1DTTYPMIN'.
CODE IS FIRST.

/REGRESS DEPENDENT IS RTD.
INDEPENDENTS ARE TUBETYPE, YEAR.
TOLERANCE IS .05.

/PLOT RESIDUALS.

/END NORMAL.

(6) All Possible Subset Regression Program

@FD,R K2AHART.P9R-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP9R

/PROBLEM TITLE IS "AHART P9R'.

/INPUT FILE IS 'K2P1DTTYPMIN'.
CODE IS FIRST.

/REGRESS DEPENDENT IS RTD.
INDEPENDENTS ARE YEAR, TUBETYPE, TUBEQTY, OPN, DURATION, SIZE.
TOLERANCE IS .05.

/PLOT RESIDUALS.
NORMAL.
XVAR ARE YEAR, TUBETYPE, TUBEQTY, OPN, DURATION, SIZE.
YVARS ARE RTD, RTD, RTD, RTD, RTD, RTD.
STATISTICS.
HISTOGRAM.

/PRINT DATA.
CORR.
COVA.
RREG.
CREG.
RESI.

/END

(7) Stepcase Regression Program

@ED,R K2AHART.P2R-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP2R
 /PROBLEM TITLE IS 'AHART P2R'.
 /INPUT FILE IS 'K2P1DTTYPMIN'.

CODE IS FIRST.
 /VARIABLE USE = YEAR,TUBETYPE,TUBEQTY,OPN,DURATION,SIZE,RTD.
 /REGRESS DEPENDENT IS RTD.
 TOLERANCE IS .05.
 /PLOT RESIDUALS.
 NORMAL.
 /PRINT DATA.
 CORR.
 COVA.
 RREG.
 /END

(8) Nonlinear Regression Data Transformed Square Root Program

@ED,R K2AHART.P1D-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP1D 120000
 /PROBLEM TITLE IS 'COPIED/TUBEDATE'.
 /INPUT VARIABLES ARE 12. FORMAT IS
 FORMAT IS '(A4,F4,2F2,8X,F3,12X,F4,F2,3X,F4,F2,6X,F3,6X,F6.1)'.
 / VARIABLE NAMES ARE RECON, YEAR, MONTH, DAY, TUBETYPE, TUBECAT,
 TUBEQTY, TYPERD, DURATION, OPN, SIZE, RTD.
 MAXIMUM ARE (2)1999, (3)12, (4)31, (5)240, (6)203, (7)2000
 (8)30, (9)9999, (10)10, (11)999, (12)9999.
 MINIMUM ARE (2)1900, (3)01, (4)01, (5)30, (6)30, (7)01.
 (8)01, (9)02, (10)01, (11)01, (12)01.
 GROUPING IS TUBETYPE.
 LABEL IS RECNO.
 /TRANSFORM
 RTD = SQRT(RTD).
 /SAVE
 CODE IS FIRST.
 FILE IS 'K2P1DSQRT'.
 NEW.
 /GROUP
 CODES(10) ARE 01,02,03,04,05,06,07,08,09,10.
 NAMES(10) ARE PROL,ATKL,DEFL,PROM,UNSP,ATKM,DEFM,
 PROH,ATKH,DEFH.
 CUTPOINTS(9) ARE 1,2,3,4,5,6,7,8,9,10,20,30,40,50,60,
 70,80,90,180,365,730.
 NAMES(9) ARE '1','2','3','4','5','6','7','8','9','10',
 '11T020','21T030','31T040','41T050','51T060',
 '61T070','71T080','81T090',
 '91T0180','181T0365','366T0730',
 '731PLUS'.

CODES(5) ARE 075,081,105,107,114,155,156,175,203,240,030,031,032,033.

NAMES(5) ARE '075', '081',
 '105',
 '107', '114',
 '155', '156',
 '175',
 '203', '240',
 'UNSP', 'LIGHT', 'MEDIUM', 'HEAVY'.

CUTPOINTS(7) ARE 3,6,12,18,24,30,36,42,48,54,60,66,
 72,78,84,90,96,114,132,150,168,186.

NAMES(7) ARE '3ORLESS', '4T06', '7T012', '13T018', '19T024',
 '25T030', '31T036', '37T042', '43T048',
 '73T078', '79T084', '85T090', '91T096',
 '97T0114', '115T0132', '133T0150',
 '151T0168', '169T0186', '187PLUS'.

CODES(8) ARE 01, 02 03, 04, 30.
 NAMES(8) ARE HE, SMK, ILLUM, ICM, UNSP.

CODES(11) ARE 001,002,003,004,005,006,009,018,027,054,081,162,243,486,
 729,900,1000.

NAMES(11) ARE CO, '2CO', BN, BNTF, '2BN', BDE, '2BDE', DIV, '2DIV',
 CORPS, '2CORPS', '1ARMY', '2ARMY', ARMYGP, THEA, UNSP.

CODES(6) ARE 105,155,203,030.

NAMES(6) ARE LIGHT, MEDIUM, HEAVY, UNSP.

CODES(2) ARE 1900,1904,1915,1916,1918,1943,1944,1945,1951,1952,1953,
 1967,1968,1969,1970,1976,1999.

NAMES(2) ARE '1900', '1904', '1915', '1916', '1918', '1943', '1944', '1945',
 '1951', '1952', '1953', '1967', '1968', '1969', '1970', '1976',
 '1999'.

/PRING DATA.
 MISSING.
 MAXIMUM.
 MINIMUM.

E-7. QCHART GRAPHICS

a. The following routines can be input directly onto the SUPERSET graphics terminal from the Sperry mainframe. Use of these routines will provide all graphics shown in this report. Modification of these routines will preclude the need to learn SUPERSET DISPLAY language. As long as the need for change is not extensive, updating of these graphics can be done entirely on the mainframe.

b. The files themselves are too lengthy to include in the report. The relevant filenames are as follows:

K2AHART.SUPERSET/OBS	.SUPERSET/OBS-WARRAMP
.SUPERSET/DURATION	.SUPERSET/DUR-WARRAMP
.SUPERSET/OPERATION	.SUPERSET/OPN-WARRAMP
.SUPERSET/TWOVAR2	.SUPERSET/WAR-WARRAMP
	.SUPERSET/YEAR

APPENDIX F

THE AHART DATA BASE

F-1. PURPOSE. This appendix is provided to supplement the use of floppy and hard disk storage of the data base on microcomputers. It is intended that this data base be disseminated as widely as possible. It is also intended that the present data base be only a start to a much greater and more useful data base of field artillery historical expenditure data.

F-2. THE DATA BASE STRUCTURE

a. Definitions, explanations, and analyses of each of the fields in the data base are included in Chapter 2 of the main report.

b. The data base as shown in this appendix has been indexed first by tube types (see TUBETYPE field). Within tube types, the data is ordered chronologically (see DATE field).

c. Record numbers are the order in which the data was entered into the data base and should not be used for location of records. Record location is most efficiently done by tube type, date, and by identification with the historical event.

d. The source field is referenced in Appendix D, Bibliography, for further research into the resource material.

(NOT USED)

Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBESTYZ	TUBECAT	TUBEOUNTY TYPED	DATE/TIME	OPERATION	SPTUBEMNT
2601											
52	NERO-WW1-CDSS	CANTIGNY	1STUS FA BDE CORPS		04/25/18	0750UN	LIGHT	40 UNSP	74 UNSP		-1.0
54	NERO-WW1-CDSS	COEUVRES	1STUS FA BDE CORPS		07/16/18	0750UN	LIGHT	40 UNSP	74 UNSP		103.0
55	NERO-WW1-CDSS	BEAUMONT	1STUS FA BDE CORPS		09/12/18	0750UN	LIGHT	40 UNSP	74 UNSP		100.0
57	NERO-WW1-CDSS	MEUSE-ARGNON	1STUS FA BDE CORPS		10/06/18	0750UN	LIGHT	40 UNSP	74 UNSP		100.0
291	TOI-WW1-1	ITALY	XIVS CORPS		01/01/42	0750UN	LIGHT	-1 NE	720 ATEN		20.5
12	ORO-WW1-1	ANZIO	VI CORPS		01/21/44	0750UN	LIGHT	-1 NE	30 ATXM		-1.0
9	ORO-WW1-1	ANZIO	VI CORPS		02/29/44	0750UN	LIGHT	-1 NE	22 ATEN		-1.0
29	ORO-WW1-1	ANZIO	VI CORPS		04/01/44	0750UN	LIGHT	-1 NE	30 ATEN		-1.0
260	CHN-WW1-1	WWII EUE	ALL		06/01/44	0750UN	LIGHT	-1 NE	100 UNSP		2.0
3123	NERO-WW1-CDSS	ROER RIVER	XIII CORPS		02/22/45	0750UN	LIGHT	100 UNSP	1 UNSP		27.1
3146	NERO-WW1-CDSS	ROER RIVER	9TH US ARMY		02/22/45	0750UN	LIGHT	100 UNSP	1 UNSP		-1.0
3156	NERO-WW1-CDSS	ROER RIVER	9TH US ARMY		02/22/45	0750UN	LIGHT	90 UNSP	1 UNSP		-1.0
3160	NERO-WW1-CDSS	ROER RIVER	XIII CORPS		02/22/45	0750UN	LIGHT	90 UNSP	1 UNSP		19.1
22	ORO-WW1-1	OKINAWA	XIV CORPS		05/01/45	0750UN	LIGHT	-1 NE	03 ATIC		-1.0
24	ORO-WW1-1	OKINAWA	XIV CORPS		05/01/45	0750UN	LIGHT	-1 NE	03 ATEN		-1.0
507	CHN-E-1	KOREA	US ARMY		10/01/51	0750UN	LIGHT	-1 UNSP	25 UNSP		-1.0
508	CHN-E-1	KOREA	US ARMY		11/01/51	0750UN	LIGHT	-1 UNSP	20 UNSP		-1.0
509	CHN-E-1	KORPA	US ARMY		12/01/51	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
510	CHN-E-1	KOREA	US ARMY		01/01/52	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
511	CHN-E-1	KOREA	US ARMY		02/01/52	0750UN	LIGHT	-1 UNSP	20 UNSP		-1.0
512	CHN-E-1	KOREA	US ARMY		02/01/52	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
513	CHN-E-1	KOREA	US ARMY		04/01/52	0750UN	LIGHT	-1 UNSP	30 UNSP		-1.0
742	CHN-E-1	KOREA	US ARMY		05/01/52	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
743	CHN-E-1	KOREA	US ARMY		06/01/52	0750UN	LIGHT	-1 UNSP	30 UNSP		-1.0
744	CHN-E-1	KOREA	US ARMY		07/01/52	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
745	CHN-E-1	KOREA	US ARMY		08/01/52	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
746	CHN-E-1	KOREA	US ARMY		09/01/52	0750UN	LIGHT	-1 UNSP	30 UNSP		-1.0
747	CHN-E-1	KOREA	US ARMY		10/01/52	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
748	CHN-E-1	KOREA	US ARMY		11/01/52	0750UN	LIGHT	-1 UNSP	30 UNSP		-1.0
749	CHN-E-1	KOREA	US ARMY		12/01/52	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
750	CHN-E-1	KOREA	US ARMY		01/01/53	0750UN	LIGHT	-1 UNSP	21 UNSP		-1.0
751	CHN-E-1	KOREA	US ARMY		02/01/53	0750UN	LIGHT	-1 UNSP	20 UNSP		-1.0
752	CHN-E-1	KOREA	US ARMY		03/01/53	0750UN	LIGHT	-1 UNSP	21 UNSP		-1.0
753	CHN-E-1	KOREA	US ARMY		04/01/53	0750UN	LIGHT	-1 UNSP	20 UNSP		-1.0
754	CHN-E-1	KOREA	US ARMY		05/01/53	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
755	CHN-E-1	KOREA	US ARMY		06/01/53	0750UN	LIGHT	-1 UNSP	20 UNSP		-1.0
756	CHN-E-1	KOREA	US ARMY		07/01/53	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
757	CHN-E-1	KOREA	US ARMY		08/01/53	0750UN	LIGHT	-1 UNSP	31 UNSP		-1.0
2885	APC-VN-COLEDY	VIETNAM	US ARMY		08/22/15	0750UN	LIGHT	-1 UNSP	6 UNSP		200.0
3399	FAS-WW1-7	CHAMPAGNE	FRENCH		10/01/60	0750UN	LIGHT	-1 UNSP	31 UNSP		10.3
3598	FAS-WW1-7	ANSAUVILLE	1STUS FA BDE CORPS		01/23/18	0750UN	LIGHT	00 UNSP	72 UNSP		27.0
12	ORO-WW1-1	MARNE	FRENCH		07/15/18	0750UN	LIGHT	-1 UNSP	3 UNSP		200.0
8	ORO-WW1-1	ANZIO	VI CORPS		01/21/44	0750UN	LIGHT	-1 NE	20 ATEN		-1.0
30	ORO-WW1-1	ANZIO	VI CORPS		02/29/44	0750UN	LIGHT	-1 NE	22 ATEN		-1.0
3545	NERO-WW1-CDSS	DIADEN	VI CORPS		04/01/44	0750UN	LIGHT	-1 NE	30 ATEN		-1.0
3557	NERO-WW1-CDSS	DIADEN	VI CORPS		05/12/44	0750UN	LIGHT	-1 UNSP	2 ATEN		74.4
3581	NERO-WW1-CDSS	DIADEN	65TH US DIV		05/14/44	0750UN	LIGHT	12 UNSP	2 ATEN		90.2
3569	NERO-WW1-CDSS	DIADEN	65TH US DIV		05/16/44	0750UN	LIGHT	4 UNSP	2 ATEN		-1.0
3592	NERO-WW1-CDSS	DIADEN	65TH US DIV		05/22/44	0750UN	LIGHT	8 UNSP	2 ATEN		-1.0
261	CHN-WW1-1	WWII EUE	ALL		05/25/44	0750UN	LIGHT	-1 UNSP	2 ATEN		-1.0
3136	NERO-WW1-CDSS	ROER RIVER	XIX CORPS		06/01/45	0750UN	LIGHT	-1 NE	100 UNSP		9.0
3145	NERO-WW1-CDSS	ROER RIVER	XIX CORPS		02/22/45	0750UN	LIGHT	72 UNSP	1 UNSP		20.9
3155	NERO-WW1-CDSS	ROER RIVER	9TH US ARMY		02/22/45	0750UN	LIGHT	72 UNSP	1 UNSP		-1.0

Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQWANT	TYPED	DAYSONANT	OPERATION	ESTUATED
3155	NERO-WM11-CD55	ROER RIVER	9TH US ARMY	1 ARMY	02/23/45	0730W	LIGHT	72 UNSP	1 UNSP			-1.0
3161	NERO-WM11-CD55	ROER RIVER	XVI CORPS	CORPS	02/23/45	0730W	LIGHT	72 UNSP	1 UNSP			56.9
3167	NERO-WM11-CD55	ROER RIVER	XVI CORPS	CORPS	02/23/45	0730W	LIGHT	142 UNSP	1 UNSP			62.2
3200	NERO-WM11-CD55	PO VALLEY	11 CORPS	CORPS	04/14/45	0730W	LIGHT	-1 UNSP	3 ATEN			272.0
3205	NERO-WM11-CD55	PO VALLEY	IV CORPS	CORPS	04/14/45	0730W	LIGHT	-1 UNSP	3 ATEN			266.0
17	ORO-WM11-1	OLINAWA	XXIV CORPS	2 CORPS	05/01/51	0730W	LIGHT	-1 NE	02 ATEN			-1.0
514	CMH-E-1	KOREA	US ARMY	THEA	10/01/51	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
515	CMH-E-1	KOREA	US ARMY	THEA	11/01/51	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
516	CMH-E-1	KOREA	US ARMY	THEA	12/01/51	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
517	CMH-E-1	KOREA	US ARMY	THEA	01/01/52	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
518	CMH-E-1	KOREA	US ARMY	THEA	02/01/52	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
519	CMH-E-1	KOREA	US ARMY	THEA	03/01/52	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
520	CMH-E-1	KOREA	US ARMY	THEA	04/01/52	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
528	CMH-E-1	KOREA	US ARMY	THEA	05/01/52	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
758	CMH-E-1	KOREA	US ARMY	THEA	06/01/52	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
760	CMH-E-1	KOREA	US ARMY	THEA	07/01/52	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
761	CMH-E-1	KOREA	US ARMY	THEA	08/01/52	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
762	CMH-E-1	KOREA	US ARMY	THEA	09/01/52	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
763	CMH-E-1	KOREA	US ARMY	THEA	10/01/52	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
764	CMH-E-1	KOREA	US ARMY	THEA	11/01/52	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
765	CMH-E-1	KOREA	US ARMY	THEA	12/01/52	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
766	CMH-E-1	KOREA	US ARMY	THEA	01/01/53	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
767	CMH-E-1	KOREA	US ARMY	THEA	02/01/53	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
768	CMH-E-1	KOREA	US ARMY	THEA	03/01/53	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
769	CMH-E-1	KOREA	US ARMY	THEA	04/01/53	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
770	CMH-E-1	KOREA	US ARMY	THEA	05/01/53	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
771	CMH-E-1	KOREA	US ARMY	THEA	06/01/53	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
772	CMH-E-1	KOREA	US ARMY	THEA	07/01/53	0730W	LIGHT	-1 UNSP	30 UNSP			-1.0
773	CMH-E-1	KOREA	US ARMY	THEA	08/01/53	0730W	LIGHT	-1 UNSP	31 UNSP			-1.0
289	TOI-WM11-1	ITALY	XIVS CORPS	CORPS	01/01/42	081MTR	LIGHT	-1 NE	720 ATEN			25.4
10	ORO-WM11-1	ANZIO	VI CORPS	CORPS	02/20/44	081MTR	LIGHT	-1 NE	32 ATEN			-1.0
33	ORO-WM11-1	ANZIO	VI CORPS	CORPS	04/01/44	081MTR	LIGHT	-1 NE	30 ATEN			-1.0
229	CMH-WM11-1	WILL EUE	ALL	THEA	06/01/44	081MTR	LIGHT	-1 NE	100 UNSP			10.2
23	ORO-WM11-1	OLINAWA	XXIV CORPS	CORPS	05/01/45	081MTR	LIGHT	-1 NE	03 ATEN			-1.0
25	ORO-WM11-1	OLINAWA	XXIV CORPS	CORPS	05/01/45	081MTR	LIGHT	-1 NE	03 ATEN			-1.0
472	CMH-E-1	KOREA	US ARMY	THEA	02/01/51	081MTR	LIGHT	010 UNSP	10 UNSP			5.0
473	CMH-E-1	KOREA	US ARMY	THEA	02/11/51	081MTR	LIGHT	010 UNSP	10 UNSP			11.1
474	CMH-E-1	KOREA	US ARMY	THEA	02/21/51	081MTR	LIGHT	091 UNSP	8 UNSP			9.8
475	CMH-E-1	KOREA	US ARMY	THEA	02/01/52	081MTR	LIGHT	091 UNSP	21 UNSP			9.3
476	CMH-E-1	KOREA	US ARMY	THEA	02/11/52	081MTR	LIGHT	091 UNSP	10 UNSP			9.9
477	CMH-E-1	KOREA	US ARMY	THEA	02/11/51	081MTR	LIGHT	091 UNSP	10 UNSP			5.2
478	CMH-E-1	KOREA	US ARMY	THEA	04/11/51	081MTR	LIGHT	091 UNSP	10 UNSP			6.9
479	CMH-E-1	KOREA	US ARMY	THEA	04/21/51	081MTR	LIGHT	091 UNSP	10 UNSP			22.1
480	CMH-E-1	KOREA	US ARMY	THEA	05/11/51	081MTR	LIGHT	091 UNSP	10 UNSP			12.0
481	CMH-E-1	KOREA	US ARMY	THEA	05/21/51	081MTR	LIGHT	091 UNSP	10 UNSP			12.0
482	CMH-E-1	KOREA	US ARMY	THEA	06/01/51	081MTR	LIGHT	091 UNSP	10 UNSP			11.7
483	CMH-E-1	KOREA	US ARMY	THEA	06/11/51	081MTR	LIGHT	091 UNSP	10 UNSP			15.0
484	CMH-E-1	KOREA	US ARMY	THEA	06/11/51	081MTR	LIGHT	091 UNSP	10 UNSP			9.7
485	CMH-E-1	KOREA	US ARMY	THEA	06/11/51	081MTR	LIGHT	091 UNSP	10 UNSP			11.2
486	CMH-E-1	KOREA	US ARMY	THEA	06/23/51	081MTR	LIGHT	091 UNSP	12 UNSP			4.3
487	CMH-E-1	KOREA	US ARMY	THEA	07/03/51	081MTR	LIGHT	091 UNSP	12 UNSP			5.3
488	CMH-E-1	KOREA	US ARMY	THEA	07/15/51	081MTR	LIGHT	091 UNSP	12 UNSP			6.5
489	CMH-E-1	KOREA	US ARMY	THEA	07/24/51	081MTR	LIGHT	091 UNSP	12 UNSP			6.3
490	CMH-E-1	KOREA	US ARMY	THEA	08/05/51	081MTR	LIGHT	091 UNSP	10 UNSP			6.3
491	CMH-E-1	KOREA	US ARMY	THEA	08/15/51	081MTR	LIGHT	091 UNSP	10 UNSP			15.7

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEREQNT	TYPEDD	DATECAT	OPERATION	RETCATEGORY
491	CNH-E-1	KOREA	US ARMY	THEA	08/15/51	081MTR	LIGHT	943	UNSP	10	UNSP	15.7
492	CNH-E-1	KOREA	US ARMY	THEA	08/25/51	081MTR	LIGHT	947	UNSP	10	UNSP	17.2
493	CNH-E-1	KOREA	US ARMY	THEA	10/01/51	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
494	CNH-E-1	KOREA	US ARMY	THEA	10/09/51	081MTR	LIGHT	960	UNSP	9	UNSP	10.7
495	CNH-E-1	KOREA	US ARMY	THEA	11/01/51	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
496	CNH-E-1	KOREA	US ARMY	THEA	11/16/51	081MTR	LIGHT	980	UNSP	30	UNSP	12.2
497	CNH-E-1	KOREA	US ARMY	THEA	12/01/51	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
498	CNH-E-1	KOREA	US ARMY	THEA	01/01/52	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
499	CNH-E-1	KOREA	US ARMY	THEA	02/01/52	081MTR	LIGHT	-1	UNSP	29	UNSP	-0.0
500	CNH-E-1	KOREA	US ARMY	THEA	02/01/52	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
501	CNH-E-1	KOREA	US ARMY	THEA	04/01/52	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
502	CNH-E-1	KOREA	US ARMY	THEA	05/01/52	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
503	CNH-E-1	KOREA	US ARMY	THEA	06/01/52	081MTR	LIGHT	1007	UNSP	11	UNSP	11.0
504	CNH-E-1	KOREA	US ARMY	THEA	06/25/52	081MTR	LIGHT	1007	UNSP	10	UNSP	7.7
505	CNH-E-1	KOREA	US ARMY	THEA	07/01/52	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
506	CNH-E-1	KOREA	US ARMY	THEA	08/01/52	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
507	CNH-E-1	KOREA	US ARMY	THEA	09/01/52	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
508	CNH-E-1	KOREA	US ARMY	THEA	09/01/52	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
509	CNH-E-1	KOREA	US ARMY	THEA	09/25/52	081MTR	LIGHT	1146	UNSP	10	UNSP	7.2
510	CNH-E-1	KOREA	US ARMY	THEA	10/01/52	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
511	CNH-E-1	KOREA	US ARMY	THEA	10/05/52	081MTR	LIGHT	1146	UNSP	1	UNSP	10.0
512	CNH-E-1	KOREA	US ARMY	THEA	10/16/52	081MTR	LIGHT	1146	UNSP	10	UNSP	10.0
513	CNH-E-1	KOREA	US ARMY	THEA	11/01/52	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
514	CNH-E-1	KOREA	US ARMY	THEA	12/01/52	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
515	CNH-E-1	KOREA	US ARMY	THEA	01/01/53	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
516	CNH-E-1	KOREA	US ARMY	THEA	02/01/53	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
517	CNH-E-1	KOREA	US ARMY	THEA	02/01/53	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
518	CNH-E-1	KOREA	US ARMY	THEA	04/01/53	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
519	CNH-E-1	KOREA	US ARMY	THEA	05/01/53	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
520	CNH-E-1	KOREA	US ARMY	THEA	05/16/53	081MTR	LIGHT	1700	UNSP	10	UNSP	0.0
521	CNH-E-1	KOREA	US ARMY	THEA	05/20/53	081MTR	LIGHT	1700	UNSP	11	UNSP	15.0
522	CNH-E-1	KOREA	US ARMY	THEA	06/01/53	081MTR	LIGHT	-1	UNSP	30	UNSP	-1.0
523	CNH-E-1	KOREA	US ARMY	THEA	06/05/53	081MTR	LIGHT	1050	UNSP	11	UNSP	13.0
524	CNH-E-1	KOREA	US ARMY	THEA	06/26/53	081MTR	LIGHT	1799	UNSP	10	UNSP	15.0
525	CNH-E-1	KOREA	US ARMY	THEA	07/01/53	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
526	CNH-E-1	KOREA	US ARMY	THEA	07/06/53	081MTR	LIGHT	1799	UNSP	10	UNSP	17.4
527	CNH-E-1	KOREA	US ARMY	THEA	07/15/53	081MTR	LIGHT	1803	UNSP	11	UNSP	10.0
528	CNH-E-1	KOREA	US ARMY	THEA	08/01/53	081MTR	LIGHT	-1	UNSP	31	UNSP	-1.0
529	NA-VN-2	OP DALLAS	US IN DIV	DIV	05/17/67	081MTR	LIGHT	-1	NE	9	FROM	10.0
530	NA-VN-2	OP BILLINGS	US IN DIV	DIV	06/11/67	081MTR	LIGHT	-1	NE	10	FROM	32.7
531	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	081MTR	LIGHT	-1	UNSP	300	UNSP	7.2
532	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	081MTR	LIGHT	-1	UNSP	305	UNSP	7.2
533	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	081MTR	LIGHT	-1	UNSP	305	UNSP	-1.0
534	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/68	081MTR	LIGHT	-1	UNSP	31	UNSP	0.3
535	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	081MTR	LIGHT	-1	UNSP	31	UNSP	0.3
536	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	081MTR	LIGHT	-1	UNSP	30	UNSP	5.3
537	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	081MTR	LIGHT	-1	UNSP	300	UNSP	0.3
538	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	081MTR	LIGHT	-1	UNSP	305	UNSP	0.3
539	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	081MTR	LIGHT	-1	UNSP	305	UNSP	-1.0
540	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	081MTR	LIGHT	-1	UNSP	31	UNSP	5.6
541	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	081MTR	LIGHT	-1	UNSP	30	UNSP	7.7
542	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	081MTR	LIGHT	-1	UNSP	31	UNSP	5.7
543	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	081MTR	LIGHT	-1	UNSP	31	UNSP	5.9
544	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	081MTR	LIGHT	-1	UNSP	28	UNSP	7.4

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBECOUNT	TYPED	DAYSQUART	OPERATION	ROTATEDAY
2913	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	001MZE	LIGHT	-1	WHSP	20	WHSP	7.4
2919	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	001MZE	LIGHT	-1	WHSP	21	WHSP	7.3
2920	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	001MZE	LIGHT	-1	WHSP	21	WHSP	7.0
2923	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	001MZE	LIGHT	-1	WHSP	30	WHSP	6.3
336	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	001MZE	LIGHT	-1	WHSP	30	WHSP	6.2
390	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	001MZE	LIGHT	772	WHSP	30	WHSP	9.0
391	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	001MZE	LIGHT	801	WHSP	30	WHSP	10.0
392	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	001MZE	LIGHT	807	WHSP	30	WHSP	11.3
393	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MZE	LIGHT	-1	WHSP	300	WHSP	12.3
394	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MZE	LIGHT	783	WHSP	30	WHSP	9.7
395	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MZE	LIGHT	-1	WHSP	263	WHSP	12.3
396	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MZE	LIGHT	-5	WHSP	105	WHSP	-1.0
397	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	001MZE	LIGHT	826	WHSP	30	WHSP	18.9
398	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	001MZE	LIGHT	856	WHSP	30	WHSP	9.7
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	001MZE	LIGHT	868	WHSP	30	WHSP	9.0
398	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	001MZE	LIGHT	819	WHSP	30	WHSP	12.3
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	001MZE	LIGHT	781	WHSP	30	WHSP	12.9
398	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	001MZE	LIGHT	768	WHSP	30	WHSP	12.7
400	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	001MZE	LIGHT	682	WHSP	30	WHSP	16.0
401	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	001MZE	LIGHT	986	WHSP	30	WHSP	26.0
258	FH81-10-1 JUL 76	MONZ	AR DIV	DIV	07/20/76	001MZE	LIGHT	-1	ME	1	PROB	27.0
7	ORO-WH11-1	ANZIO	VI CORPS	CORPS	02/29/66	000WGHUNT	LIGHT	-1	ME	32	ATEM	-1.0
28	ORO-WH11-1	ANZIO	VI CORPS	CORPS	06/01/66	000WGHUNT	LIGHT	-1	ME	30	ATEM	-1.0
3996	FAS-WH1-1	SOMME	26ERARMY	JARMY	07/01/66	103HOW	LIGHT	-1	WHSP	30	WHSP	176.0
3994	FAS-WH1-1	SOMME	26ERARMY	JARMY	07/13/66	103HOW	LIGHT	-1	WHSP	1	WHSP	070.0
287	TO1-WH11-1	ITALY	XIUS CORPS	CORPS	01/01/62	105HOW	LIGHT	-1	ME	720	ATEM	31.9
2267	LOGC-WH11-2	WH11	1 US ARMY	IARMY	01/01/66	105HOW	LIGHT	536	WHSP	30	ATEM	63.0
2225	HERO-WH11-CDSS	MONTECASSINO	34TH US DIV	DIV	01/20/66	105HOW	LIGHT	30	WHSP	13	WHSP	104.0
3268	LOGC-WH11-2	WH11	1 US ARMY	IARMY	01/21/66	105HOW	LIGHT	394	WHSP	32	ATEM	23.0
3261	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	01/22/66	105HOW	LIGHT	-1	WHSP	6	WHSP	128.2
3242	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	01/26/66	105HOW	LIGHT	7	WHSP	7	WHSP	106.2
3240	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	01/25/66	105HOW	LIGHT	-1	WHSP	6	WHSP	93.1
14	ORO-WH11-1	ANZIO	VI CORPS	CORPS	01/21/66	105HOW	LIGHT	-1	ME	30	ATEM	-1.0
3237	HERO-WH11-CDSS	MONTECASSINO	34TH US DIV	DIV	02/01/66	105HOW	LIGHT	30	WHSP	21	WHSP	89.0
3245	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	29	WHSP	97.0
3246	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	29	WHSP	130.0
3247	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	29	WHSP	110.0
3252	HERO-WH11-CDSS	ANZIO	45TH US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	29	WHSP	120.0
3252	HERO-WH11-CDSS	ANZIO	45TH US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	29	WHSP	72.4
3248	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	02/06/66	105HOW	LIGHT	18	WHSP	5	WHSP	172.1
268	CHK-WH11-2	WH11 FUE	1 US ARMY	IARMY	02/10/66	105HOW	LIGHT	-1	ME	13	ATEM	42.0
2269	LOGC-WH11-2	WH11	1 US ARMY	IARMY	02/12/66	105HOW	LIGHT	933	WHSP	11	PROB	15.0
5	ORO-WH11-1	ANZIO	VI Corps	CORPS	02/20/66	105HOW	LIGHT	-1	ME	32	ATEM	-1.0
3255	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	18	WHSP	96.2
3256	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	18	WHSP	97.6
3257	HERO-WH11-CDSS	ANZIO	28D US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	18	WHSP	85.2
3260	HERO-WH11-CDSS	ANZIO	45TH US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	11	WHSP	51.1
3261	HERO-WH11-CDSS	ANZIO	45TH US DIV	DIV	02/01/66	105HOW	LIGHT	-1	WHSP	9	WHSP	107.0
31	ORO-WH11-1	ANZIO	VI CORPS	CORPS	04/01/66	105HOW	LIGHT	-1	ME	30	ATEM	-1.0
60	HERO-WH11-CDSS	DIADEN	88US IN DIV	DIV	05/11/66	105HOW	LIGHT	36	WHSP	17	BAFP	221.0
61	HERO-WH11-CDSS	DIADEN	88US IN DIV	DIV	05/11/66	105HOW	LIGHT	36	WHSP	17	BAFP	169.0
72	HERO-WH11-CDSS	DIADEN	88US IN DIV	DIV	05/11/66	105HOW	LIGHT	12	WHSP	17	BAFP	60.0
83	HERO-WH11-CDSS	DIADEN	88US IN DIV	DIV	05/11/66	105HOW	LIGHT	36	WHSP	17	BAFP	104.3
84	HERO-WH11-CDSS	DIADEN	88US IN DIV	DIV	05/11/66	105HOW	LIGHT	36	WHSP	17	BAFP	55.7
3534	HERO-WH11-CDSS	DIADEN	85TH US DIV	DIV	05/12/66	105HOW	LIGHT	96	WHSP	2	ATEM	415.9

Serial	SOURCE	BATTLE	UNIT	SIZE	DATE	TYPE/TYPE	TUBECAT	TUBESHAFT	TUBESHAFT	OPERATION	STRENGTH
3334	NERO-W111-CD55	DIADEM	05TH US DIV	DIV	05/13/46	103MOW	LIGHT	90 WNSP	2 ATEN	277.7	
3366	NERO-W111-CD55	DIADEM	05TH US DIV	DIV	05/10/46	103MOW	LIGHT	90 WNSP	2 ATEN	80.9	
3370	NERO-W111-CD55	DIADEM	05TH US DIV	DIV	05/10/46	103MOW	LIGHT	60 WNSP	2 ATEN	10.3	
3362	NERO-W111-CD55	DIADEM	05TH US DIV	DIV	05/12/46	103MOW	LIGHT	60 WNSP	2 ATEN	161.2	
3356	NERO-W111-CD55	DIADEM	05TH US DIV	DIV	05/23/46	103MOW	LIGHT	72 WNSP	100 WNSP	21.0	
3362	NERO-W111-CD55	DIADEM	05TH US DIV	DIV	06/01/46	103MOW	LIGHT	-1 NE	100 WNSP	20.3	
262	CMH-W111-1	W111 EUB	ALL	THEA	06/01/46	103MOW	LIGHT	-1 NE	100 WNSP	32.1	
264	CMH-W111-1	W111 EUB	ALL	THEA	06/01/46	103MOW	LIGHT	-1 NE	100 WNSP	62.0	
273	CMH-W111-2	W111 EUB	12VS ARMY	ARMY	06/04/46	103MOW	LIGHT	-1 WNSP	100 ATEN	-1.0	
345	CMH-W111-2	GERMANY	105 ARMY	ARMY	06/04/46	103MOW	LIGHT	-1 NE	12 ATEN	01.0	
277	CMH-W111-2	W111 EUB	105 ARMY	ARMY	06/08/46	103MOW	LIGHT	-1 NE	7 ATEN	63.0	
295	CMH-W111-2	W111 EUB	105 ARMY	ARMY	06/11/46	103MOW	LIGHT	-1 NE	7 ATEN	29.0	
299	CMH-W111-2	GERMANY	105 ARMY	ARMY	06/18/46	103MOW	LIGHT	-1 NE	7 ATEN	55.0	
302	CMH-W111-2	GERMANY	105 ARMY	ARMY	06/25/46	103MOW	LIGHT	-1 NE	7 ATEN	29.0	
700	CMH-W111-2	GERMANY	105 ARMY	ARMY	07/02/46	103MOW	LIGHT	-1 NE	7 ATEN	55.0	
316	CMH-W111-2	GERMANY	105 ARMY	ARMY	07/09/46	103MOW	LIGHT	-1 NE	7 ATEN	20.0	
224	CMH-W111-2	GERMANY	105 ARMY	ARMY	07/16/46	103MOW	LIGHT	-1 NE	7 ATEN	20.0	
331	CMH-W111-2	GERMANY	105 ARMY	ARMY	07/23/46	103MOW	LIGHT	-1 NE	7 ATEN	20.0	
339	CMH-W111-2	GERMANY	105 ARMY	ARMY	07/30/46	103MOW	LIGHT	-1 NE	7 ATEN	20.0	
2326	LOGC-W111-2	W111	1 US ARMY	ARMY	08/06/46	103MOW	LIGHT	423 WNSP	12 ATEN	01.0	
2337	LOGC-W111	W111	1 US ARMY	ARMY	08/16/46	103MOW	LIGHT	498 WNSP	13 ATEN	13.0	
2350	LOGC-W111-2	W111	1 US ARMY	ARMY	09/04/46	103MOW	LIGHT	436 WNSP	16 ATEN	15.0	
2350	LOGC-W111-2	W111	1 US ARMY	ARMY	09/17/46	103MOW	LIGHT	494 WNSP	15 ATEN	26.0	
2360	LOGC-W111-2	W111	1 US ARMY	ARMY	10/02/46	103MOW	LIGHT	510 WNSP	13 ATEN	02.0	
2281	LOGC-W111-2	W111	1 US ARMY	ARMY	10/15/46	103MOW	LIGHT	522 WNSP	13 ATEN	23.0	
2362	LOGC-W111-2	W111	1 US ARMY	ARMY	10/29/46	103MOW	LIGHT	594 WNSP	14 WNSP	28.0	
185	NERO-W111-CD55	SAAR	35US IM DIV	DIV	11/08/46	103MOW	LIGHT	24 WNSP	4 BAPD	00.1	
166	NERO-W111-CD55	SAAR	35US IM DIV	DIV	11/08/46	103MOW	LIGHT	5 WNSP	3 BAPD	30.6	
2324	NERO-W111-CD55	DIADEM	60TH US DIV	DIV	11/08/46	103MOW	LIGHT	-1 WNSP	2 ATEN	140.3	
95	NERO-W111-CD55	GERMANY	6US AB DIV	B DE	11/10/46	103MOW	LIGHT	9 WNSP	2 BAPD	0.2	
2099	NERO-W111-CD55	SAAR	GARDIV	DIV	11/10/46	103MOW	LIGHT	-8 WNSP	1 BAPD	21.6	
3373	NERO-W111-CD55	SAAR	60TH US DIV	DIV	11/10/46	103MOW	LIGHT	45 WNSP	2 ATEN	20.6	
3291	NERO-W111-CD55	ITALY/NEW EUB	4TH US DIV	DIV	11/11/46	103MOW	LIGHT	-1 WNSP	1 BCFM	13.2	
176	NERO-W111-CD55	SAAR	25LS 14 DIV	DIV	11/12/46	103MOW	LIGHT	24 WNSP	4 BAPD	00.5	
2263	LOGC-W111-2	W111	1 US ARMY	ARMY	11/12/46	103MOW	LIGHT	576 WNSP	14 ATEN	64.9	
113	NERO-W111-CD55	GERMANY	6US AB DIV	B DE	11/12/46	103MOW	LIGHT	30 WNSP	3 BAPD	23.3	
121	NERO-W111-CD55	GERMANY	6US AB DIV	B DE	11/14/46	103MOW	LIGHT	18 WNSP	2 BAPD	57.7	
3106	NERO-W111-CD55	SAAR	GARDIV	DIV	11/14/46	103MOW	LIGHT	54 WNSP	1 ATEN	70.0	
3115	NERO-W111-CD55	SAAR	GARDIV	DIV	11/15/46	103MOW	LIGHT	40 WNSP	1 ATEN	20.6	
3193	NERO-W111-CD55	SAAR	60TH US DIV	DIV	11/18/46	103MOW	LIGHT	40 WNSP	2 ATEN	70.1	
182	MLRO-W111-CD55	SAAR	35US IM DIV	DIV	11/18/46	103MOW	LIGHT	24 WNSP	1 BAPD	00.2	
3406	MLRO-W111-CD55	SAAR	60TH US DIV	DIV	11/18/46	103MOW	LIGHT	36 WNSP	1 BAPD	36.7	
193	MLRO-W111-CD55	SAAR	35US IM DIV	DIV	11/19/46	103MOW	LIGHT	24 WNSP	2 BAPD	01.0	
3316	MLRO-W111-CD55	SAAR	6TH AB DIV	DIV	11/19/46	103MOW	LIGHT	26 WNSP	2 ATEN	21.0	
201	MLRO-W111-CD55	SAAR	35US IM DIV	DIV	11/21/46	103MOW	LIGHT	20 WNSP	2 BAPD	45.2	
3305	MLRO-W111-CD55	SAAR	6TH AB DIV	DIV	11/21/46	103MOW	LIGHT	36 WNSP	2 ATEN	01.7	
3494	MLRO-W111-CD55	SAAR	75US IM DIV	DIV	11/23/46	103MOW	LIGHT	26 WNSP	2 BAPD	20.5	
2417	NERO-W111-CD55	SAAR	6TH AB DIV	DIV	11/23/46	103MOW	LIGHT	36 WNSP	2 ATEN	37.0	
2483	NERO-W111-CD55	SAAR	60TH US DIV	DIV	11/25/46	103MOW	LIGHT	40 WNSP	2 ATEN	47.4	
127	NERO-W111-CD55	GERMANY	6US AB DIV	DIV	11/26/46	103MOW	LIGHT	36 WNSP	1 BAPD	37.3	
284	CMH-W111-2	W111 EUB	105 ARMY	ARMY	11/26/46	103MOW	LIGHT	-1 NE	14 ATEN	01.0	

REPORT NO	SOURCE	BATT-E	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TUBED	DATAQUANT	OPERATION	RTUBEDAY
203	CMH-WM11-2	WHII EUR	1 US ARMY	I ARMY	11/26/44	10SHOV	LIGHT	-1 RE	14 ATEN	14 ATEN		41.0
204	LOGC-WM11-2	WHII EUR	1 US ARMY	I ARMY	11/26/44	10SHOV	LIGHT	530 UNSP	16 ATEN	16 ATEN		41.0
137	NERO-WM11-CDS5	GERMANY	4 US AR DIV	DIV	11/27/44	10SHOV	LIGHT	34 UNSP	3 RADL	3 RADL		31.0
3472	NERO-WM11-CDS5	SAAC	6TH AR DIV	DIV	11/27/44	10SHOV	LIGHT	28 UNSP	8 ATIL	8 ATIL		28.0
3478	NERO-WM11-CDS5	GERMANY	80TH US DIV	DIV	11/28/44	10SHOV	LIGHT	48 UNSP	2 ATEN	2 ATEN		33.7
147	NERO-WM11-CDS5	GERMANY	4 US AR DIV	DIV	12/01/44	10SHOV	LIGHT	54 UNSP	2 BAPD	2 BAPD		63.7
221	NERO-WM11-CDS5	SAE	35 US IN DIV	DIV	12/04/44	10SHOV	LIGHT	24 UNSP	3 BAPD	3 BAPD		73.0
3439	NERO-WM11-CDS5	SAE	80TH US DIV	DIV	12/04/44	10SHOV	LIGHT	36 UNSP	1 ATEN	1 ATEN		76.0
3441	NERO-WM11-CDS5	SAE	6TH US DIV	DIV	12/04/44	10SHOV	LIGHT	36 UNSP	1 ATEN	1 ATEN		37.6
3450	NERO-WM11-CDS5	SAE	6TH US DIV	DIV	12/05/44	10SHOV	LIGHT	34 UNSP	2 AKEL	2 AKEL		18.0
157	NERO-WM11-CDS5	GERMANY	4 US AR DIV	DIV	12/06/44	10SHOV	LIGHT	27 UNSP	2 BAPD	2 BAPD		42.3
449	NERO-WM11-CDS5	SAE	35 US IN DIV	DIV	12/06/44	10SHOV	LIGHT	24 UNSP	1 RADL	1 RADL		45.0
2345	LOGC-WM11-2	WHII EUR	1 US ARMY	I ARMY	12/10/44	10SHOV	LIGHT	600 UNSP	6 ATEN	6 ATEN		44.0
239	NERO-WM11-CDS5	ARDENNES	99 US IN DIV	DIV	12/10/44	10SHOV	LIGHT	6 UNSP	2 PD	2 PD		103.2
270	CMH-WM11-2	WHII EUR	1 US ARMY	I ARMY	12/10/44	10SHOV	LIGHT	-1 RE	26 DEFN	26 DEFN		65.0
2266	LOGC-WM11-2	WHII EUR	1 US ARMY	I ARMY	12/10/44	10SHOV	LIGHT	504 UNSP	16 DEFN	16 DEFN		69.0
3210	NERO-WM11-CDS5	ARDENNES	4TH US DIV	DIV	12/10/44	10SHOV	LIGHT	12 UNSP	1 DEFN	1 DEFN		43.1
3231	NERO-WM11-CDS5	ARDENNES	4TH US DIV	DIV	12/10/44	10SHOV	LIGHT	15 UNSP	6 DEFN	6 DEFN		37.5
3236	NERO-WM11-CDS5	ITALYANM EUR	4TH US DIV	DIV	12/10/44	10SHOV	LIGHT	-1 UNSP	2 DEFN	2 DEFN		45.1
3249	NERO-WM11-CDS5	ITALYANM EUR	2D US DIV	DIV	12/10/44	10SHOV	LIGHT	-1 UNSP	2 DEFN	2 DEFN		64.7
3302	NERO-WM11-CDS5	ITALYANM EUR	99TH US DIV	DIV	12/10/44	10SHOV	LIGHT	-1 UNSP	2 DEFN	2 DEFN		163.2
240	NERO-WM11-CDS5	ARDENNES	99 US IN DIV	DIV	12/10/44	10SHOV	LIGHT	6 UNSP	2 PD	2 PD		60.3
3217	NERO-WM11-CDS5	ARDENNES	4TH US DIV	DIV	12/10/44	10SHOV	LIGHT	12 UNSP	1 DEFN	1 DEFN		105.8
3247	NERO-WM11-CDS5	ITALYANM EUR	4TH US DIV	DIV	12/10/44	10SHOV	LIGHT	-1 UNSP	2 DEFN	2 DEFN		45.0
3280	NERO-WM11-CDS5	ITALYANM EUR	2D US DIV	DIV	12/10/44	10SHOV	LIGHT	-1 UNSP	2 DEFN	2 DEFN		237.0
3313	NERO-WM11-CDS5	ITALYANM EUR	99TH US DIV	DIV	12/10/44	10SHOV	LIGHT	-1 UNSP	2 DEFN	2 DEFN		60.3
3250	NERO-WM11-CDS5	ITALYANM EUR	4TH US DIV	DIV	12/20/44	10SHOV	LIGHT	-1 UNSP	2 DEFN	2 DEFN		102.4
3224	NERO-WM11-CDS5	ARDENNES	4TH US DIV	DIV	12/22/44	10SHOV	LIGHT	24 UNSP	2 DEFN	2 DEFN		102.4
3110	NERO-WM11-CDS5	ROER RIVER	XII CORPS	CORPS	02/22/45	10SHOV	LIGHT	204 UNSP	1 UNSP	1 UNSP		67.2
3115	NERO-WM11-CDS5	ROER RIVER	XVI CORPS	CORPS	02/22/45	10SHOV	LIGHT	144 UNSP	1 UNSP	1 UNSP		10.4
3131	NERO-WM11-CDS5	ROER RIVER	XIX CORPS	CORPS	02/22/45	10SHOV	LIGHT	232 UNSP	1 UNSP	1 UNSP		94.0
3140	NERO-WM11-CDS5	ROER RIVER	9TH US ARMY	I ARMY	02/22/45	10SHOV	LIGHT	570 UNSP	1 UNSP	1 UNSP		-1.0
3162	NERO-WM11-CDS5	ROER RIVER	9TH US ARMY	I ARMY	02/23/45	10SHOV	LIGHT	204 UNSP	1 UNSP	1 UNSP		90.0
3171	NERO-WM11-CDS5	ROER RIVER	XIX CORPS	CORPS	02/23/45	10SHOV	LIGHT	222 UNSP	1 UNSP	1 UNSP		123.2
3021	NERO-WM11-CDS5	BNIME CROSS	XIII CORPS	CORPS	03/18/45	10SHOV	LIGHT	150 UNSP	1 UNSP	1 UNSP		8.0
3022	NERO-WM11-CDS5	BNIME CROSS	XV CORPS	CORPS	03/18/45	10SHOV	LIGHT	250 UNSP	1 UNSP	1 UNSP		3.0
3023	NERO-WM11-CDS5	BNIME CROSS	XIV CORPS	CORPS	03/18/45	10SHOV	LIGHT	102 UNSP	1 UNSP	1 UNSP		6.5
3001	NERO-WM11-CDS5	BNIME CROSS	75 MEDIV	DIV	03/19/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		15.7
3009	NERO-WM11-CDS5	BNIME CROSS	75 MEDIV	DIV	03/19/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		9.0
3024	NERO-WM11-CDS5	BNIME CROSS	XIII CORPS	CORPS	03/19/45	10SHOV	LIGHT	128 UNSP	1 UNSP	1 UNSP		28.0
3025	NERO-WM11-CDS5	BNIME CROSS	XIV CORPS	CORPS	03/19/45	10SHOV	LIGHT	27 UNSP	1 UNSP	1 UNSP		3.4
3026	NERO-WM11-CDS5	BNIME CROSS	XV CORPS	CORPS	03/19/45	10SHOV	LIGHT	102 UNSP	1 UNSP	1 UNSP		6.7
3002	NERO-WM11-CDS5	BNIME CROSS	75 MEDIV	DIV	03/20/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		16.4
3010	NERO-WM11-CDS5	BNIME CROSS	75 MEDIV	DIV	03/20/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		11.9
3027	NERO-WM11-CDS5	BNIME CROSS	XIII CORPS	CORPS	03/20/45	10SHOV	LIGHT	130 UNSP	1 UNSP	1 UNSP		14.0
2020	ALRO-WM11-CDS5	BNIME CROSS	XIV CORPS	CORPS	03/20/45	10SHOV	LIGHT	270 UNSP	1 UNSP	1 UNSP		5.0
3020	NERO-WM11-CDS5	BNIME CROSS	XIV CORPS	CORPS	03/20/45	10SHOV	LIGHT	102 UNSP	1 UNSP	1 UNSP		11.7
2931	NERO-WM11-CDS5	BNIME CROSS	30 MEDIV	DIV	03/21/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		1.2
2932	NERO-WM11-CDS5	BNIME CROSS	30 MEDIV	DIV	03/21/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		3.0
2936	NERO-WM11-CDS5	BNIME CROSS	79 MEDIV	DIV	03/21/45	10SHOV	LIGHT	72 UNSP	1 UNSP	1 UNSP		3.5
2940	NERO-WM11-CDS5	BNIME CROSS	79 MEDIV	DIV	03/21/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		3.0
3003	NERO-WM11-CDS5	BNIME CROSS	75 MEDIV	DIV	03/21/45	10SHOV	LIGHT	12 UNSP	1 UNSP	1 UNSP		13.0
3030	NERO-WM11-CDS5	BNIME CROSS	XIII CORPS	CORPS	03/21/45	10SHOV	LIGHT	130 UNSP	1 UNSP	1 UNSP		13.2
3031	NERO-WM11-CDS5	BNIME CROSS	XIV CORPS	CORPS	03/21/45	10SHOV	LIGHT	207 UNSP	1 UNSP	1 UNSP		6.1

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEREQUANT	TYPED	DAY	SQUAD	OPERATION	RT	SP	TUBEDAY
3031	NERO-WMII-CDSS	ENGINE CROSS	XVIIICORPS	CORPS	03/21/45	105HOW	LIGHT	267	UNSP	1	UNSP	1	UNSP	8.1	
3032	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/21/45	105HOW	LIGHT	162	UNSP	1	UNSP	1	UNSP	9.9	
2948	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/22/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	6.2	
2976	NERO-WMII-CDSS	ENGINE CROSS	35UKDIV	DIV	03/22/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	12.2	
3008	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/22/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	12.3	
3011	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/22/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	19.8	
3019	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/22/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	32.3	
3034	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/22/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	9.4	
3035	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/22/45	105HOW	LIGHT	268	UNSP	1	UNSP	1	UNSP	5.4	
2939	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/22/45	105HOW	LIGHT	162	UNSP	1	UNSP	1	UNSP	11.2	
2958	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/22/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	182.3	
3005	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/23/45	105HOW	LIGHT	36	UNSP	1	UNSP	1	UNSP	26.3	
3012	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/23/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	19.2	
3036	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/23/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	24.6	
3037	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/23/45	105HOW	LIGHT	137	UNSP	1	UNSP	1	UNSP	12.7	
3038	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/23/45	105HOW	LIGHT	270	UNSP	1	UNSP	1	UNSP	17.2	
2933	NERO-WMII-CDSS	ENGINE CROSS	30UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	9.8	
2937	NERO-WMII-CDSS	ENGINE CROSS	30UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	316.7	
2940	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	412.1	
2950	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	137.8	
2959	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/24/45	105HOW	LIGHT	36	UNSP	1	UNSP	1	UNSP	244.7	
2977	NERO-WMII-CDSS	ENGINE CROSS	35UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	244.7	
3004	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	289.3	
3006	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	282.5	
3013	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	488.8	
3028	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	185.8	
3039	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	388.3	
3040	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/24/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	267.8	
3041	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/24/45	105HOW	LIGHT	162	UNSP	1	UNSP	1	UNSP	29.2	
2936	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/25/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	137.9	
2941	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/25/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	99.3	
2960	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/25/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	19.6	
2976	NERO-WMII-CDSS	ENGINE CROSS	35UKDIV	DIV	03/25/45	105HOW	LIGHT	36	UNSP	1	UNSP	1	UNSP	184.7	
2985	NERO-WMII-CDSS	ENGINE CROSS	35UKDIV	DIV	03/25/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	192.8	
3014	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/25/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	82.5	
3042	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/25/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	71.8	
3043	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/25/45	105HOW	LIGHT	136	UNSP	1	UNSP	1	UNSP	30.7	
3044	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/25/45	105HOW	LIGHT	304	UNSP	1	UNSP	1	UNSP	47.3	
2925	NERO-WMII-CDSS	ENGINE CROSS	30UKDIV	DIV	03/26/45	105HOW	LIGHT	156	UNSP	1	UNSP	1	UNSP	11.3	
2942	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/26/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	86.6	
2952	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/26/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	45.1	
2961	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/26/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	62.8	
2974	NERO-WMII-CDSS	ENGINE CROSS	35UKDIV	DIV	03/26/45	105HOW	LIGHT	36	UNSP	1	UNSP	1	UNSP	78.7	
3045	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/26/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	18.0	
3046	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/26/45	105HOW	LIGHT	138	UNSP	1	UNSP	1	UNSP	27.8	
3047	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/26/45	105HOW	LIGHT	306	UNSP	1	UNSP	1	UNSP	66.9	
2943	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/27/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	72.7	
2953	NERO-WMII-CDSS	ENGINE CROSS	79UKDIV	DIV	03/27/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	56.3	
2948	NERO-WMII-CDSS	ENGINE CROSS	35UKDIV	DIV	03/27/45	105HOW	LIGHT	36	UNSP	1	UNSP	1	UNSP	72.3	
3015	NERO-WMII-CDSS	ENGINE CROSS	75UKDIV	DIV	03/27/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	21.9	
3048	NERO-WMII-CDSS	ENGINE CROSS	XIIICORPS	CORPS	03/27/45	105HOW	LIGHT	12	UNSP	1	UNSP	1	UNSP	24.9	
3049	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/27/45	105HOW	LIGHT	159	UNSP	1	UNSP	1	UNSP	17.7	
3049	NERO-WMII-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/27/45	105HOW	LIGHT	246	UNSP	1	UNSP	1	UNSP	47.2	

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBTYPE	TUBCAT	TUBSEQUANT	TYPED	DAYSEQUANT	OPERATION	EDTUBEDAY
3049	MERO-WM11-CD55	ENGINE CROSS	AVIATIONCORPS	CORPS	03/27/45	103SHOW	LIGHT	246 UNSP	1 UNSP	1 UNSP	UNSP	47.2
3050	MERO-WM11-CD55	ENGINE CROSS	AVIATIONCORPS	DIV	03/28/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	125.1
3051	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/28/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	20.0
3052	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/28/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	142.0
3053	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/28/45	103SHOW	LIGHT	26 UNSP	1 UNSP	1 UNSP	UNSP	90.6
3054	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/28/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	122.0
3055	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/28/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	153.5
3056	MERO-WM11-CD55	ENGINE CROSS	75UKDIV	DIV	03/28/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	1.7
3057	MERO-WM11-CD55	ENGINE CROSS	75UKDIV	DIV	03/28/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	16.3
3058	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/29/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	19.6
3059	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/29/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	84.5
3060	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/29/45	103SHOW	LIGHT	36 UNSP	1 UNSP	1 UNSP	UNSP	49.2
3061	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/29/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	182.0
3062	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/29/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	136.0
3063	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/29/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	89.6
3064	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/29/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	89.6
3065	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/30/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	66.7
3066	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/30/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	76.0
3067	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/30/45	103SHOW	LIGHT	38 UNSP	1 UNSP	1 UNSP	UNSP	87.9
3068	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/30/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	161.0
3069	MERO-WM11-CD55	ENGINE CROSS	75UKDIV	DIV	03/30/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	129.2
3070	MERO-WM11-CD55	ENGINE CROSS	75UKDIV	DIV	03/30/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	2.7
3071	MERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/31/45	103SHOW	LIGHT	36 UNSP	1 UNSP	1 UNSP	UNSP	48.0
3072	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/31/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	63.0
3073	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/31/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	215.5
3074	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/31/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	92.7
3075	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/31/45	103SHOW	LIGHT	12 UNSP	1 UNSP	1 UNSP	UNSP	45.2
3076	MERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	04/14/45	103SHOW	LIGHT	-1 UNSP	3 ATEN	3 ATEN	UNSP	285.0
3077	MERO-WM11-CD55	ENGINE CROSS	11 CORPS	CORPS	04/14/45	103SHOW	LIGHT	-1 UNSP	5 ATEN	5 ATEN	UNSP	168.0
3078	MERO-WM11-CD55	ENGINE CROSS	11 CORPS	CORPS	05/01/45	103SHOW	LIGHT	-1 UNSP	82 ATEN	82 ATEN	UNSP	-1.0
3079	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	01/01/51	103SHOW	LIGHT	-1 UNSP	789 UNSP	789 UNSP	UNSP	33.0
3080	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	01/01/51	103SHOW	LIGHT	-1 UNSP	36 UNSP	36 UNSP	UNSP	15.2
3081	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	01/01/51	103SHOW	LIGHT	-1 UNSP	21 UNSP	21 UNSP	UNSP	15.2
3082	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	02/01/51	103SHOW	LIGHT	-1 UNSP	28 UNSP	28 UNSP	UNSP	24.5
3083	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	02/01/51	103SHOW	LIGHT	678 UNSP	10 UNSP	10 UNSP	UNSP	21.1
3084	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	02/01/51	103SHOW	LIGHT	-1 UNSP	28 UNSP	28 UNSP	UNSP	28.5
3085	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	02/11/51	103SHOW	LIGHT	678 UNSP	10 UNSP	10 UNSP	UNSP	32.2
3086	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	02/21/51	103SHOW	LIGHT	678 UNSP	8 UNSP	8 UNSP	UNSP	20.0
3087	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	03/01/51	103SHOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	UNSP	48.3
3088	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	03/01/51	103SHOW	LIGHT	-1 UNSP	678 UNSP	678 UNSP	UNSP	49.5
3089	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	03/01/51	103SHOW	LIGHT	-1 UNSP	31 UNSP	31 UNSP	UNSP	46.3
3090	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	03/11/51	103SHOW	LIGHT	678 UNSP	21 UNSP	21 UNSP	UNSP	21.4
3091	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	04/01/51	103SHOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	UNSP	25.0
3092	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	04/01/51	103SHOW	LIGHT	687 UNSP	10 UNSP	10 UNSP	UNSP	27.2
3093	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	04/01/51	103SHOW	LIGHT	-1 UNSP	36 UNSP	36 UNSP	UNSP	25.0
3094	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	04/11/51	103SHOW	LIGHT	607 UNSP	10 UNSP	10 UNSP	UNSP	26.0
3095	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	04/21/51	103SHOW	LIGHT	-1 UNSP	705 UNSP	705 UNSP	UNSP	20.0
3096	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	05/01/51	103SHOW	LIGHT	-1 UNSP	30 ATEN	30 ATEN	UNSP	57.4
3097	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	05/01/51	103SHOW	LIGHT	705 UNSP	10 UNSP	10 UNSP	UNSP	60.4
3098	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	05/01/51	103SHOW	LIGHT	-1 UNSP	31 UNSP	31 UNSP	UNSP	57.4
3099	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	05/11/51	103SHOW	LIGHT	705 UNSP	9 UNSP	9 UNSP	UNSP	10.2
3100	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	05/21/51	103SHOW	LIGHT	693 UNSP	10 UNSP	10 UNSP	UNSP	60.2
3101	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	06/01/51	103SHOW	LIGHT	-1 UNSP	30 ATEN	30 ATEN	UNSP	50.0
3102	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	06/01/51	103SHOW	LIGHT	693 UNSP	10 UNSP	10 UNSP	UNSP	46.5
3103	MERO-WM11-CD55	ENGINE CROSS	US ARMY	THEA	06/01/51	103SHOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	UNSP	50.0

DO LAHART
Records

Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAY	QUANT	OPERATION	RTUTWEDAY
1962	CGSC-K-1	KOREA	US ARMY	THEA	06/01/51	105MOW	LIGHT	-1	UNSP	30	UNSP	30.6	
449	CMH-K-1	KOREA	US ARMY	THEA	06/11/51	105MOW	LIGHT	693	UNSP	10	UNSP	60.8	
450	CMH-K-1	KOREA	US ARMY	THEA	06/13/51	105MOW	LIGHT	693	UNSP	10	UNSP	60.8	
451	CMH-K-1	KOREA	US ARMY	THEA	06/23/51	105MOW	LIGHT	693	UNSP	9	UNSP	51.2	
371	CGSC-K-1	KOREA	US ARMY	THEA	07/01/51	105MOW	LIGHT	-1	UNSP	30	ATEM	48.4	
1965	CGSC-K-1	KOREA	US ARMY	THEA	07/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	48.4	
452	CMH-K-1	KOREA	US ARMY	THEA	07/03/51	105MOW	LIGHT	693	UNSP	12	UNSP	60.3	
453	CMH-K-1	KOREA	US ARMY	THEA	07/15/51	105MOW	LIGHT	693	UNSP	9	UNSP	16.4	
454	CMH-K-1	KOREA	US ARMY	THEA	07/24/51	105MOW	LIGHT	693	UNSP	12	UNSP	12.6	
2036	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	11.8	
2129	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	11.8	
2160	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	2.2	
2191	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	12.9	
374	CGSC-K-1	KOREA	US ARMY	THEA	08/01/51	105MOW	LIGHT	-1	UNSP	30	ATEM	27.6	
1968	CGSC-K-1	KOREA	US ARMY	THEA	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	27.6	
2037	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	0.2	
2136	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	75.3	
2161	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	15.4	
2182	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.1	
2259	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	97.5	
2268	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	140.7	
2271	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	55.8	
2274	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	99.8	
2038	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	0.4	
2131	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.9	
2182	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.9	
2193	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	8.1	
2038	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.8	
2132	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.2	
2183	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	21.9	
2194	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.3	
2040	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	4.3	
2133	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	10.7	
2164	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	11.8	
2195	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.3	
455	CMH-K-1	KOREA	US ARMY	THEA	08/05/51	105MOW	LIGHT	693	UNSP	10	UNSP	-1.8	
2041	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	24.9	
2134	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	35.1	
2165	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.2	
2196	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.1	
2042	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	1.1	
2135	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.3	
2166	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	16.6	
2197	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	8.8	
2043	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	10.8	
2136	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	8.7	
2167	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.1	
2198	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	72.3	
2044	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.6	
2137	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.6	
2168	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	7.7	
2199	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	19.0	
2045	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/09/51	105MOW	LIGHT	18	UNSP	1	UNSP	10.8	
2138	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/09/51	105MOW	LIGHT	18	UNSP	1	UNSP	58.8	
2169	HERO-WMII-E-CD55	KOREA	X CORPS	CORPS	08/09/51	105MOW	LIGHT	18	UNSP	1	UNSP	65.8	

DO NUMBER	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUNT	TYPED	DATEQUANT	OPERATION	REPERDAY
2169	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	65.8
2200	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.2
2046	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.6
2139	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	3.7
2170	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.2
2201	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.6
2047	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	3.8
2140	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	5.3
2171	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	5.2
2202	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	7.1
2048	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.9
2141	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	13.6
2172	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	20.6
2203	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	21.3
2049	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	11.2
2142	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	3.8
2173	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	4.6
2204	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	13.1
2050	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	19.7
2143	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	9.8
2174	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	1.4
2205	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.2
456	CNH-E-1		US ARMY	THEA	08/15/51	103NOW	LIGHT	681 UNSP	681 UNSP	10 UNSP	UNSP	49.0
2051	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.4
2144	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.7
2175	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	7.3
2206	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	14.4
2052	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	60.9
2145	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	87.3
2176	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	10.1
2207	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	20.3
2053	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	100.7
2146	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	100.2
2177	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	72.5
2208	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	95.6
2054	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	359.1
2147	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	350.6
2178	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	209.2
2209	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	339.3
2055	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	210.1
2148	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	32.3
2179	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	169.1
2210	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	240.0
2056	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/20/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	210.2
2149	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/20/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	174.8
2170	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/20/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	140.7
2211	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/21/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	238.8
2057	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/21/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	135.7
2150	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/21/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	101.0
2141	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/21/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	100.8
2058	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/22/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	62.0
2182	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/22/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	192.0
2213	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/22/51	103NOW	LIGHT	18 UNSP	18 UNSP	1 UNSP	UNSP	88.5

DO LAHART
Records

Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	RTBTUEBAY
2213	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/22/51	105HOW	LIGHT	10 UNSP	1 UNSP			80.3
2059	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/23/51	105HOW	LIGHT	10 UNSP	1 UNSP			74.9
2152	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/23/51	105HOW	LIGHT	10 UNSP	1 UNSP			99.6
2183	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/23/51	105HOW	LIGHT	10 UNSP	1 UNSP			56.1
2214	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/23/51	105HOW	LIGHT	10 UNSP	1 UNSP			80.6
2060	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/24/51	105HOW	LIGHT	10 UNSP	1 UNSP			69.2
2153	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/24/51	105HOW	LIGHT	10 UNSP	1 UNSP			67.6
2184	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/24/51	105HOW	LIGHT	10 UNSP	1 UNSP			102.5
2215	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/24/51	105HOW	LIGHT	10 UNSP	1 UNSP			92.4
457	CMN-K-1	KOREA	US ARMY	THEA	08/25/51	105HOW	LIGHT	081 UNSP	10 UNSP			206.2
2061	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/25/51	105HOW	LIGHT	10 UNSP	1 UNSP			142.6
2154	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/25/51	105HOW	LIGHT	10 UNSP	1 UNSP			103.1
2185	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/25/51	105HOW	LIGHT	10 UNSP	1 UNSP			207.6
2216	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/25/51	105HOW	LIGHT	10 UNSP	1 UNSP			206.3
2062	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/26/51	105HOW	LIGHT	10 UNSP	1 UNSP			681.2
2155	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/26/51	105HOW	LIGHT	10 UNSP	1 UNSP			208.3
2186	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/26/51	105HOW	LIGHT	10 UNSP	1 UNSP			943.7
2217	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/27/51	105HOW	LIGHT	10 UNSP	1 UNSP			79.1
2156	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/27/51	105HOW	LIGHT	10 UNSP	1 UNSP			411.6
2187	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/27/51	105HOW	LIGHT	10 UNSP	1 UNSP			120.6
2064	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/28/51	105HOW	LIGHT	10 UNSP	1 UNSP			499.7
2157	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/28/51	105HOW	LIGHT	10 UNSP	1 UNSP			61.8
2188	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/28/51	105HOW	LIGHT	10 UNSP	1 UNSP			356.3
2219	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/29/51	105HOW	LIGHT	10 UNSP	1 UNSP			216.1
2065	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/29/51	105HOW	LIGHT	10 UNSP	1 UNSP			68.6
2158	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/29/51	105HOW	LIGHT	10 UNSP	1 UNSP			52.1
2189	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/29/51	105HOW	LIGHT	10 UNSP	1 UNSP			172.9
2220	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/29/51	105HOW	LIGHT	10 UNSP	1 UNSP			11.8
2066	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/30/51	105HOW	LIGHT	10 UNSP	1 UNSP			671.2
2159	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/30/51	105HOW	LIGHT	10 UNSP	1 UNSP			102.6
2190	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/30/51	105HOW	LIGHT	10 UNSP	1 UNSP			268.0
2221	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/30/51	105HOW	LIGHT	10 UNSP	1 UNSP			45.8
2656	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/31/51	105HOW	LIGHT	10 UNSP	1 UNSP			155.6
2776	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/31/51	105HOW	LIGHT	10 UNSP	1 UNSP			341.5
2806	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/31/51	105HOW	LIGHT	10 UNSP	1 UNSP			50.0
1971	CGSC-K-1	KOREA	US ARMY	THEA	09/01/51	105HOW	LIGHT	-1 UNSP	30 ATIR			50.0
2260	HERO-WM11-K-CD55	KOREA	XCORPS	CORPS	09/01/51	105HOW	LIGHT	-1 UNSP	30 UNSP			79.7
2269	HERO-WM11-K-CD55	KOREA	XCORPS	CORPS	09/01/51	105HOW	LIGHT	-1 UNSP	30 UNSP			101.0
2272	HERO-WM11-K-CD55	KOREA	XCORPS	CORPS	09/01/51	105HOW	LIGHT	-1 UNSP	30 UNSP			209.0
2275	HERO-WM11-K-CD55	KOREA	XCORPS	CORPS	09/01/51	105HOW	LIGHT	-1 UNSP	30 UNSP			163.1
2657	HERG-WM11-K-CD55	KOREA	X CORPS	CORPS	09/01/51	105HOW	LIGHT	10 UNSP	1 UNSP			51.3
2747	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/01/51	105HOW	LIGHT	10 UNSP	1 UNSP			309.1
2777	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/01/51	105HOW	LIGHT	10 UNSP	1 UNSP			251.0
2807	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/01/51	105HOW	LIGHT	10 UNSP	1 UNSP			208.6
2658	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/02/51	105HOW	LIGHT	10 UNSP	1 UNSP			87.2
2748	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/02/51	105HOW	LIGHT	10 UNSP	1 UNSP			274.3
2778	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/02/51	105HOW	LIGHT	10 UNSP	1 UNSP			214.2
2808	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/02/51	105HOW	LIGHT	10 UNSP	1 UNSP			328.6
2659	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/03/51	105HOW	LIGHT	10 UNSP	1 UNSP			67.7
2749	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/03/51	105HOW	LIGHT	10 UNSP	1 UNSP			199.7
2779	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/03/51	105HOW	LIGHT	10 UNSP	1 UNSP			81.3

DO LAMANT	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	SUBSQUANT	TYPED	DATEQUANT	OPERATION	RTSUBREDAY
2779	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/03/51	105HOW	LIGHT	10	UNSP	1	UNSP	91.3
2780	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/03/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.3
2781	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.0
2782	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	105HOW	LIGHT	10	UNSP	1	UNSP	105.9
2783	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	105HOW	LIGHT	10	UNSP	1	UNSP	109.1
2784	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	105HOW	LIGHT	10	UNSP	1	UNSP	62.2
2785	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	105HOW	LIGHT	10	UNSP	1	UNSP	219.7
2786	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	105HOW	LIGHT	10	UNSP	1	UNSP	203.1
2787	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	131.6
2788	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	9.6
2789	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	99.9
2790	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	43.6
2791	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	10.0
2792	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	9.5
2793	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	25.9
2794	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	11.5
2795	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	105HOW	LIGHT	10	UNSP	1	UNSP	59.1
2796	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	105HOW	LIGHT	10	UNSP	1	UNSP	47.9
2797	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	105HOW	LIGHT	10	UNSP	1	UNSP	12.9
2798	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	151.6
2799	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	239.3
2800	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	1.7
2801	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	20.2
2802	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.6
2803	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	202.5
2804	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	21.0
2805	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	12.3
2806	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	131.2
2807	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	111.7
2808	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	55.2
2809	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	107.4
2810	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.5
2811	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	71.1
2812	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	358.2
2813	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	170.7
2814	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	75.5
2815	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	105HOW	LIGHT	10	UNSP	1	UNSP	91.7
2816	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	105HOW	LIGHT	10	UNSP	1	UNSP	200.0
2817	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	105HOW	LIGHT	10	UNSP	1	UNSP	305.4
2818	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	111.8
2819	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	205.8
2820	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	821.1
2821	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	279.2
2822	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	237.6
2823	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	226.1
2824	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	817.5
2825	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	107.6
2826	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	105HOW	LIGHT	10	UNSP	1	UNSP	113.3
2827	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	105HOW	LIGHT	10	UNSP	1	UNSP	205.4
2828	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	105HOW	LIGHT	10	UNSP	1	UNSP	277.0
2829	HERO-W111-E-CDSS	KOREA	X CORPS	CORPS	09/17/51	105HOW	LIGHT	10	UNSP	1	UNSP	206.3

DO LAMART	Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	EDTUBESDAY
2673	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/17/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	202.3		
2763	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/17/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	75.7		
2793	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/17/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	221.7		
2823	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/17/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	109.6		
2674	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/18/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	128.4		
2764	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/18/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	131.1		
2794	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/18/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	437.2		
2824	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/18/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	131.9		
2675	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/19/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	60.1		
2795	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/19/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	134.6		
2825	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/19/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	436.1		
2676	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/20/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	182.2		
2796	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/20/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	149.1		
2826	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/20/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	247.3		
2677	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/20/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	126.6		
2797	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/21/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	15.6		
2827	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/21/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	80.3		
2678	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/21/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	47.8		
2798	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/21/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	76.5		
2828	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/22/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	12.8		
2679	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/22/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	207.2		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/22/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	256.6		
2829	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/22/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	192.8		
2680	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/23/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	15.2		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/23/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	199.2		
2830	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/23/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	150.8		
2681	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/23/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	115.8		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/23/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	339.0		
2831	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/24/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	118.2		
2682	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/24/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	93.8		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/24/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	11.6		
2832	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/25/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	148.3		
2683	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/25/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	135.8		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/25/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	66.6		
2833	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/25/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	21.8		
2684	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/26/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	249.0		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/26/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	103.7		
2834	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/26/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	96.4		
2685	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/27/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	12.3		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/27/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	208.8		
2835	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/27/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	262.3		
2686	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/27/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	70.5		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/28/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	28.7		
2836	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/28/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	118.2		
2687	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/28/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	159.0		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/28/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	30.1		
2837	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/29/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	32.9		
2688	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/29/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	147.6		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/29/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	119.3		
2838	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/29/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	163.6		
2689	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/30/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	13.7		
2799	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/30/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	20.1		
2839	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	09/30/51	105HOW	LIGHT	18 UNSP	1 UNSP	1 UNSP	189.3		

DO LAMANT
Records

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TUBEQUANT TYPE	DAYQUANT	OPERATION	REPORT	DATE
2590	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/30/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	100.3	
2612	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/30/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	39.5	
380	COSC-L-1	KOREA	US ARMY	THEA	10/01/51	10SHOW	LIGHT	-1 UNSP	-1 UNSP	30 ATEN	30 ATEN	67.7	
521	CMN-K-1 & CGSC-K-1	KOREA	US ARMY	THEA	10/01/51	10SHOW	LIGHT	-1 UNSP	-1 UNSP	31 UNSP	31 UNSP	67.7	
2261	HERO-WMII-E-CDSS	KOREA	XCORPS	CORPS	10/01/51	10SHOW	LIGHT	-1 UNSP	-1 UNSP	22 UNSP	22 UNSP	65.5	
2370	HERO-WMII-E-CDSS	KOREA	XCORPS	CORPS	10/01/51	10SHOW	LIGHT	-1 UNSP	-1 UNSP	22 UNSP	22 UNSP	128.3	
2273	HERO-WMII-E-CDSS	KOREA	XCORPS	CORPS	10/01/51	10SHOW	LIGHT	-1 UNSP	-1 UNSP	22 UNSP	22 UNSP	268.7	
2503	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	16.2	
2588	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	82.7	
2591	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	178.5	
2613	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	65.9	
2594	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	15.2	
2614	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	62.1	
2595	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	201.7	
2593	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	22.0	
2571	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	72.8	
2615	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	206.2	
658	CMN-K-1	KOREA	US ARMY	THEA	10/04/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	24.3	
2506	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	77.8	
2572	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	20.2	
2594	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	88.7	
2616	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	237.3	
2597	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	95.3	
2573	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	302.2	
2595	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	528.7	
2617	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	104.8	
2588	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	157.1	
2574	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	282.5	
2596	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	324.1	
2618	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	148.5	
2595	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	115.8	
2575	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	428.2	
2597	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	298.3	
2619	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	121.8	
2510	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	288.6	
2598	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	382.7	
2620	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	198.3	
2577	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	288.6	
2599	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/09/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	283.1	
2621	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/09/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	394.8	
2612	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	96.8	
2576	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	129.4	
2600	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	212.2	
2622	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	338.6	
2613	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	131.6	
2578	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	42.8	
2601	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	548.5	
2623	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	217.2	
2514	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	121.5	
2580	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	10SHOW	LIGHT	10 UNSP	10 UNSP	1 UNSP	1 UNSP	63.8	

DO LAMART

Records	SOURCE	BATTLE	UNITY	312E	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAISYQUANT	OPERATION	EDTUESDAY
2580	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	62.0
2602	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	200.0
2624	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	199.0
2515	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	98.1
2581	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	85.1
2603	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	166.8
2625	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	229.3
2516	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/14/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	42.0
2582	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/14/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	137.8
2604	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/14/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	123.7
2626	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/14/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	265.2
2517	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/15/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.8
2563	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/15/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	89.7
2605	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/15/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	113.3
2627	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/15/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	164.1
2518	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/16/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0
2584	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/16/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	147.8
2606	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/16/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	162.6
2628	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/16/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	195.7
2519	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/17/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0
2585	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/17/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	85.4
2607	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/17/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	147.3
2629	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/17/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	104.1
2520	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/18/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	16.2
2586	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/18/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	79.6
2608	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/18/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	198.7
2630	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/18/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	47.9
2521	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/19/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	50.5
2587	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/19/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	122.2
2609	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/19/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	164.3
2631	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/19/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	112.2
2522	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/20/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	34.2
2588	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/20/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	81.3
2610	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/20/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	76.3
2632	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/20/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	22.7
2523	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/21/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	40.0
2589	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/21/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	77.5
2611	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/21/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	82.1
2633	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/21/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	79.2
2634	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	11/01/51	105HOW	LIGHT	10 UNSP	1 UNSP	1 UNSP	1 UNSP	58.8
383	CGSC-E-1	KOREA	US ARMY	THEA	11/01/51	105HOW	LIGHT	-1 UNSP	30 ATEN	30 ATEN	30 ATEN	58.8
522	CMH-E-1 & CGSC-E-1	KOREA	US ARMY	THEA	11/01/51	105HOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	58.8
459	CMH-E-1	KOREA	US ARMY	THEA	11/16/51	105HOW	LIGHT	749 WJSP	10 UNSP	10 UNSP	10 UNSP	60.4
386	CGSC-E-1	KOREA	US ARMY	THEA	12/01/51	105HOW	LIGHT	-1 UNSP	30 ATEN	30 ATEN	30 ATEN	22.1
523	CMH-E-1 & CGSC-E-1	KOREA	US ARMY	THEA	12/01/51	105HOW	LIGHT	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	22.1
524	CMH-E-1	KOREA	US ARMY	THEA	01/01/52	105HOW	LIGHT	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
525	CMH-E-1	KOREA	US ARMY	THEA	02/01/52	105HOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
526	CMH-E-1	KOREA	US ARMY	THEA	03/01/52	105HOW	LIGHT	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
527	CMH-E-1	KOREA	US ARMY	THEA	04/01/52	105HOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
774	CMH-E-1	KOREA	US ARMY	THEA	05/01/52	105HOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
775	CMH-E-1	KOREA	US ARMY	THEA	06/01/52	105HOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
460	CMH-E-1	KOREA	US ARMY	THEA	06/14/52	105HOW	LIGHT	1065 UNSP	10 UNSP	10 UNSP	10 UNSP	29.2
461	CMH-E-1	KOREA	US ARMY	THEA	06/25/52	105HOW	LIGHT	1065 UNSP	10 UNSP	10 UNSP	10 UNSP	17.0
776	CMH-E-1	KOREA	US ARMY	THEA	07/01/52	105HOW	LIGHT	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
777	CMH-E-1	KOREA	US ARMY	THEA	08/01/52	105HOW	LIGHT	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
778	CMH-E-1	KOREA	US ARMY	THEA	09/01/52	105HOW	LIGHT	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0

DO LAMANT

DO LAMANT	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETIFF	TUBECAT	TUBESQUANT	TYPED	DATE	OPERATION	RTUBEDAY
778	CMH-E-1	KOREA	US ARMY	THEA	09/01/52	103MOW	LIGHT	-1 UNSP	20 UNSP		20 UNSP	-1.0
462	CMH-E-1	KOREA	US ARMY	THEA	09/25/52	103MOW	LIGHT	1063 UNSP			20 UNSP	30.2
779	CMH-E-1	KOREA	US ARMY	THEA	10/01/52	103MOW	LIGHT	-1 UNSP	31 UNSP		20 UNSP	-1.0
463	CMH-E-1	KOREA	US ARMY	THEA	10/03/52	103MOW	LIGHT	1065 UNSP			16 UNSP	50.4
464	CMH-E-1	KOREA	US ARMY	THEA	10/10/52	103MOW	LIGHT	1077 UNSP			10 UNSP	20.5
780	CMH-E-1	KOREA	US ARMY	THEA	11/01/52	103MOW	LIGHT	-1 UNSP	20 UNSP		20 UNSP	-1.0
781	CMH-E-1	KOREA	US ARMY	THEA	12/01/52	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	-1.0
782	CMH-E-1	KOREA	US ARMY	THEA	01/01/53	103MOW	LIGHT	-1 UNSP	20 UNSP		20 UNSP	-1.0
783	CMH-E-1	KOREA	US ARMY	THEA	02/01/53	103MOW	LIGHT	-1 UNSP	20 UNSP		20 UNSP	-1.0
784	CMH-E-1	KOREA	US ARMY	THEA	04/01/53	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	-1.0
785	CMH-E-1	KOREA	US ARMY	THEA	04/01/53	103MOW	LIGHT	-1 UNSP	30 UNSP		30 UNSP	-1.0
786	CMH-E-1	KOR	US ARMY	THEA	05/01/53	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	-1.0
465	CMH-E-1	KORCA	US ARMY	THEA	05/16/53	103MOW	LIGHT	1432 UNSP			10 UNSP	22.4
466	CMH-E-1	KORCA	US ARMY	THEA	05/26/53	103MOW	LIGHT	1432 UNSP			11 UNSP	42.0
787	CMH-E-1	KOREA	US ARMY	THEA	06/01/53	103MOW	LIGHT	-1 UNSP	20 UNSP		20 UNSP	-1.0
467	CMH-E-1	KOREA	US ARMY	THEA	06/05/53	103MOW	LIGHT	1648 UNSP			11 UNSP	41.5
468	CMH-E-1	KOREA	US ARMY	THEA	06/15/53	103MOW	LIGHT	1653 UNSP			11 UNSP	35.0
469	CMH-E-1	KOREA	US ARMY	THEA	06/26/53	103MOW	LIGHT	1653 UNSP			10 UNSP	39.1
788	CMH-E-1	KOREA	US ARMY	THEA	07/01/53	103MOW	LIGHT	-1 UNSP	21 UNSP		21 UNSP	-1.0
470	CMH-E-1	KOREA	US ARMY	THEA	07/06/53	103MOW	LIGHT	1653 UNSP			10 UNSP	42.7
471	CMH-E-1	KOREA	US ARMY	THEA	07/15/53	103MOW	LIGHT	1619 UNSP			11 UNSP	49.3
789	CMH-E-1	KOREA	US ARMY	THEA	08/01/53	103MOW	LIGHT	-1 UNSP	21 UNSP		21 UNSP	-1.0
405	CMH-VN-1	PRE-TET	1US IN DIV	DIV	01/30/67	103MOW	LIGHT	-1 UNSP	100 UNSP		100 UNSP	-1.0
406	CMH-VN-1	TET	1US IN DIV	DIV	02/01/67	103MOW	LIGHT	-1 PD	-1 PD		-1 PD	-1.0
389	NA-VN-1	OP JUNG CITY	1US IN DIV	DIV	02/22/67	103MOW	LIGHT	-1 NE	21 PROM		21 PROM	44.0
393	NA-VN-1	OP JUNG CITY	1US IN DIV	DIV	02/15/67	103MOW	LIGHT	-1 NE	31 PROM		31 PROM	107.0
401	NA-VN-3	OP DALLAS	1US IN DIV	DIV	05/17/67	103MOW	LIGHT	-1 NE	9 PROM		9 PROM	8.1
397	NA-VN-2	OP BILLINGS	1US IN DIV	DIV	06/11/67	103MOW	LIGHT	-1 NE	26 PROM		26 PROM	65.6
416	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	103MOW	LIGHT	-1 UNSP	200 UNSP		200 UNSP	30.0
623	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	103MOW	LIGHT	-1 UNSP	305 UNSP		305 UNSP	30.0
641	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	103MOW	LIGHT	-1 UNSP	205 UNSP		205 UNSP	30.0
2869	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	103MOW	LIGHT	-1 UNSP	205 UNSP		205 UNSP	-1.0
2875	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/31/68	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	27.0
2861	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	103MOW	LIGHT	-1 UNSP	3 UNSP		3 UNSP	33.6
422	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/68	103MOW	LIGHT	-1 UNSP	20 UNSP		20 UNSP	31.0
624	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	103MOW	LIGHT	-1 UNSP	260 UNSP		260 UNSP	33.7
642	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	103MOW	LIGHT	-1 UNSP	265 UNSP		265 UNSP	-1.0
2887	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	103MOW	LIGHT	-1 UNSP	305 UNSP		305 UNSP	28.0
2893	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	103MOW	LIGHT	-1 UNSP	30 UNSP		30 UNSP	45.7
2899	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	31.1
2905	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	35.2
2911	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	103MOW	LIGHT	-1 UNSP	28 UNSP		28 UNSP	30.1
2917	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	30.5
2923	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/69	103MOW	LIGHT	-1 UNSP	31 UNSP		31 UNSP	31.9
2928	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	103MOW	LIGHT	-1 UNSP	30 UNSP		30 UNSP	35.4
434	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	103MOW	LIGHT	-1 UNSP	30 UNSP		30 UNSP	32.0
566	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	103MOW	LIGHT	570 UNSP			30 UNSP	36.2
567	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/69	103MOW	LIGHT	570 UNSP			30 UNSP	36.2
568	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	103MOW	LIGHT	514 UNSP			30 UNSP	40.5
438	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	103MOW	LIGHT	-1 UNSP	260 UNSP		260 UNSP	41.5
569	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	103MOW	LIGHT	506 UNSP			30 UNSP	41.7
625	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	103MOW	LIGHT	-1 UNSP	205 UNSP		205 UNSP	61.0
643	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	103MOW	LIGHT	-1 UNSP	205 UNSP		205 UNSP	-1.0
570	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	103MOW	LIGHT	510 UNSP			30 UNSP	46.0
571	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	103MOW	LIGHT	474 UNSP			30 UNSP	32.8

DO LAMART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESWAB TYPE	BATSCHWAB	OPERATION	EDT	TUBESWAB
571	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	105HOW	LIGHT	474 UNSP	30 UNSP			33.8
572	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	105HOW	LIGHT	492 UNSP	30 UNSP			40.2
573	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	105HOW	LIGHT	456 UNSP	30 UNSP			37.9
574	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	105HOW	LIGHT	444 UNSP	30 UNSP			41.3
575	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	105HOW	LIGHT	398 UNSP	30 UNSP			43.3
576	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	105HOW	LIGHT	374 UNSP	30 UNSP			50.2
577	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	105HOW	LIGHT	322 UNSP	30 UNSP			52.8
293	TOI-WHII-1	ITALY	XIUS CORPS	CORPS	01/01/62	107MTR	LIGHT	-1 NE	738 ATER			32.5
696	CNH-E-1	KOREA	US ARMY	THEA	10/01/51	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
697	CNH-E-1	KOREA	US ARMY	THEA	11/01/51	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
698	CNH-E-1	KOREA	US ARMY	THEA	12/01/51	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
699	CNH-E-1	KOREA	US ARMY	THEA	01/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
700	CNH-E-1	KOREA	US ARMY	THEA	02/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
701	CNH-E-1	KOREA	US ARMY	THEA	03/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
702	CNH-E-1	KOREA	US ARMY	THEA	04/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
703	CNH-E-1	KOREA	US ARMY	THEA	05/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
704	CNH-E-1	KOREA	US ARMY	THEA	06/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
705	CNH-E-1	KOREA	US ARMY	THEA	07/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
706	CNH-E-1	KOREA	US ARMY	THEA	08/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
707	CNH-E-1	KOREA	US ARMY	THEA	09/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
708	CNH-E-1	KOREA	US ARMY	THEA	10/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
709	CNH-E-1	KOREA	US ARMY	THEA	11/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
710	CNH-E-1	KOREA	US ARMY	THEA	12/01/52	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
711	CNH-E-1	KOREA	US ARMY	THEA	01/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
712	CNH-E-1	KOREA	US ARMY	THEA	02/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
713	CNH-E-1	KOREA	US ARMY	THEA	03/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
714	CNH-E-1	KOREA	US ARMY	THEA	04/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
715	CNH-E-1	KOREA	US ARMY	THEA	05/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
716	CNH-E-1	KOREA	US ARMY	THEA	06/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
717	CNH-E-1	KOREA	US ARMY	THEA	07/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
718	CNH-E-1	KOREA	US ARMY	THEA	08/01/53	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
411	CNH-VN-1	PRE-YET	US IN DIV	THEA	01/20/67	107MTR	LIGHT	-1 UNSP	300 PD			-1.0
412	CNH-VN-1	PRE-YET	US IN DIV	DIV	02/01/67	107MTR	LIGHT	-1 UNSP	300 PD			-1.0
391	NA-VN-1	OP JUNC CITY	US IN DIV	DIV	02/22/67	107MTR	LIGHT	-1 NE	31 PROM			17.0
393	NA-VN-1	OP JUNC CITY	US IN DIV	DIV	03/15/67	107MTR	LIGHT	-1 NE	31 PROM			36.0
400	NA-VN-3	OP DALLAS	US IN DIV	DIV	05/17/67	107MTR	LIGHT	-1 NE	8 PROM			24.7
400	NA-VN-2	OP BILLINGS	US IN DIV	DIV	06/11/67	107MTR	LIGHT	-1 NE	16 PROM			25.5
417	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	107MTR	LIGHT	-1 UNSP	260 UNSP			15.8
626	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	107MTR	LIGHT	-1 UNSP	265 UNSP			15.8
644	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	107MTR	LIGHT	-1 UNSP	265 UNSP			-1.0
2870	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/68	107MTR	LIGHT	-1 UNSP	31 UNSP			13.7
2876	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	107MTR	LIGHT	-1 UNSP	31 UNSP			11.1
2882	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/68	107MTR	LIGHT	-1 UNSP	31 UNSP			11.1
423	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	107MTR	LIGHT	-1 UNSP	300 UNSP			10.1
627	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	107MTR	LIGHT	-1 UNSP	365 UNSP			10.1
645	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	107MTR	LIGHT	-1 UNSP	265 UNSP			-1.0
2888	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	107MTR	LIGHT	-1 UNSP	31 UNSP			9.1
2898	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	107MTR	LIGHT	-1 UNSP	30 UNSP			7.8
2900	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	107MTR	LIGHT	-1 UNSP	31 UNSP			-1.0
2906	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	107MTR	LIGHT	-1 UNSP	31 UNSP			9.2
2912	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	107MTR	LIGHT	-1 UNSP	30 UNSP			10.7
2918	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/69	107MTR	LIGHT	-1 UNSP	31 UNSP			11.7
2924	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/69	107MTR	LIGHT	-1 UNSP	31 UNSP			12.4
2926	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	107MTR	LIGHT	-1 UNSP	30 UNSP			9.4
435	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	107MTR	LIGHT	-1 UNSP	30 UNSP			13.7

DO LIBRARY

Records	DO LIBRARY	BATTLE	UNIT	SIZE	DATE	TURBTYPE	TURBCAT	TURBOVANT	TYPED	BATSQUANT	OPERATION	ESTIMATE
435	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	107NTR	LIGHT	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	13.7
578	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	107NTR	LIGHT	237 UNSP	30 UNSP	30 UNSP	30 UNSP	19.2
579	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/69	107NTR	LIGHT	233 UNSP	30 UNSP	30 UNSP	30 UNSP	22.4
580	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	107NTR	LIGHT	209 UNSP	30 UNSP	30 UNSP	30 UNSP	26.0
629	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107NTR	LIGHT	-1 UNSP	300 UNSP	300 UNSP	300 UNSP	23.2
581	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107NTR	LIGHT	294 UNSP	30 UNSP	30 UNSP	30 UNSP	22.8
628	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107NTR	LIGHT	-1 UNSP	305 UNSP	305 UNSP	305 UNSP	23.2
646	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107NTR	LIGHT	-1 UNSP	305 UNSP	305 UNSP	305 UNSP	-1.0
582	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	107NTR	LIGHT	222 UNSP	30 UNSP	30 UNSP	30 UNSP	24.0
583	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	107NTR	LIGHT	221 UNSP	30 UNSP	30 UNSP	30 UNSP	21.9
584	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	107NTR	LIGHT	207 UNSP	30 UNSP	30 UNSP	30 UNSP	17.8
585	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	107NTR	LIGHT	224 UNSP	30 UNSP	30 UNSP	30 UNSP	21.3
586	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	107NTR	LIGHT	192 UNSP	30 UNSP	30 UNSP	30 UNSP	22.6
587	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	107NTR	LIGHT	206 UNSP	30 UNSP	30 UNSP	30 UNSP	28.7
588	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	107NTR	LIGHT	192 UNSP	30 UNSP	30 UNSP	30 UNSP	26.2
589	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	107NTR	LIGHT	127 UNSP	30 UNSP	30 UNSP	30 UNSP	23.0
63	HERO-WM11-COSS	DIADEN	88US IN DIV	THEA	05/11/44	1140UN	LIGHT	6 UNSP	17 RAPD	17 RAPD	17 RAPD	142.7
74	HERO-WM11-COSS	DIADEN	88US IN DIV	DIV	05/11/44	1140UN	LIGHT	6 UNSP	17 BANO	17 BANO	17 BANO	77.4
86	HERO-WM11-COSS	DIADEN	88US IN DIV	DIV	05/11/44	1140UN	LIGHT	6 UNSP	17 BANO	17 BANO	17 BANO	106.2
3526	HERO-WM11-COSS	DIADEN	85TH US DIV	DIV	05/12/44	1140UN	LIGHT	6 UNSP	2 ATEN	2 ATEN	2 ATEN	102.7
2548	HERO-WM11-COSS	DIADEN	85TH US DIV	DIV	05/14/44	1140UN	LIGHT	6 UNSP	2 ATEN	2 ATEN	2 ATEN	106.2
3572	HERO-WM11-COSS	DIADEN	85TH US DIV	DIV	05/16/44	1140UN	LIGHT	6 UNSP	2 ATEN	2 ATEN	2 ATEN	93.0
3364	HERO-WM11-COSS	DIADEN	85TH US DIV	DIV	05/20/44	1140UN	LIGHT	6 UNSP	2 ATEN	2 ATEN	2 ATEN	21.5
3540	HERO-WM11-COSS	DIADEN	85TH US DIV	DIV	05/22/44	1140UN	LIGHT	6 UNSP	2 ATEN	2 ATEN	2 ATEN	65.0
3584	HERO-WM11-COSS	DIADEN	85TH US DIV	DIV	05/25/44	1140UN	LIGHT	7 UNSP	2 ATEN	2 ATEN	2 ATEN	28.4
262	CMH-WM11-1	WILL EUB	ALL	THEA	06/01/44	1140UN	LIGHT	-1 NE	100 ATEN	100 ATEN	100 ATEN	-1.0
244	CMH-WM11-2	GERMANY	129S ARMY OF	ARMYGP	06/04/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	13.0
268	CMH-WM11-2	WILL EUB	10S ARMY	IARMY	06/11/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	27.0
301	CMH-WM11-2	GERMANY	10S ARMY	IARMY	06/18/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	24.0
306	CMH-WM11-2	GERMANY	10S ARMY	IARMY	06/25/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	20.0
312	CMH-WM11-2	GERMANY	10S ARMY	IARMY	07/02/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	33.0
328	CMH-WM11-2	GERMANY	10S ARMY	IARMY	07/09/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	9.6
328	CMH-WM11-2	GERMANY	10S ARMY	IARMY	07/16/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	20.0
335	CMH-WM11-2	GERMANY	10S ARMY	IARMY	07/23/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	15.0
343	CMH-WM11-3	GERMANY	10S ARMY	IARMY	07/30/44	1140UN	LIGHT	-1 NE	7 ATEN	7 ATEN	7 ATEN	15.0
3226	HERO-WM11-COSS	DIADEN	80TH US DIV	DIV	11/09/44	1140UN	LIGHT	-1 UNSP	2 ATEN	2 ATEN	2 ATEN	21.9
3274	HERO-WM11-COSS	SAAR	80TH US DIV	DIV	11/10/44	1140UN	LIGHT	12 UNSP	2 ATEN	2 ATEN	2 ATEN	23.0
3292	HERO-WM11-COSS	ITALYENW EUB	45N US DIV	DIV	11/11/44	1140UN	LIGHT	-1 UNSP	1 BEFN	1 BEFN	1 BEFN	-1.0
3285	HERO-WM11-COSS	SAAR	80TH US DIV	DIV	11/14/44	1140UN	LIGHT	12 UNSP	2 ATEN	2 ATEN	2 ATEN	61.2
3286	HERO-WM11-COSS	SAAR	80TH US DIV	DIV	11/15/44	1140UN	LIGHT	12 UNSP	2 ATEN	2 ATEN	2 ATEN	20.1
3407	HERO-WM11-COSS	SAAR	80TH US DIV	DIV	11/18/44	1140UN	LIGHT	12 UNSP	3 ATEN	3 ATEN	3 ATEN	120.0
3517	HERO-WM11-COSS	SAAR	67N AR DIV	DIV	11/19/44	1140UN	LIGHT	-1 UNSP	2 ATEN	2 ATEN	2 ATEN	-1.0
3506	HERO-WM11-COSS	SAAR	67N AR DIV	DIV	11/21/44	1140UN	LIGHT	-1 UNSP	2 ATEN	2 ATEN	2 ATEN	-1.0
3495	HERO-WM11-COSS	SAAR	67N AR DIV	DIV	11/23/44	1140UN	LIGHT	-1 UNSP	2 ATEN	2 ATEN	2 ATEN	-1.0
3418	HERO-WM11-COSS	SAAR	80TH US DIV	DIV	11/25/44	1140UN	LIGHT	12 UNSP	2 ATEN	2 ATEN	2 ATEN	50.4
3484	HERO-WM11-COSS	SAAR	67N AR DIV	DIV	11/25/44	1140UN	LIGHT	-1 UNSP	2 ATEN	2 ATEN	2 ATEN	-1.0
3473	HERO-WM11-COSS	SAAR	67N AR DIV	DIV	11/27/44	1140UN	LIGHT	-1 UNSP	2 ATEN	2 ATEN	2 ATEN	-1.0
3429	HERO-WM11-COSS	SAAR	80TH US DIV	DIV	11/28/44	1140UN	LIGHT	12 UNSP	3 ATEN	3 ATEN	3 ATEN	76.6
3440	HERO-WM11-COSS	SAAR	80TH US DIV	DIV	12/01/44	1140UN	LIGHT	-1 UNSP	3 ATEN	3 ATEN	3 ATEN	-1.0
3462	HERO-WM11-COSS	SAAR	67N AR DIV	DIV	12/04/44	1140UN	LIGHT	12 UNSP	3 ATEN	3 ATEN	3 ATEN	100.5
3451	HERO-WM11-COSS	SAAR	67N AR DIV	DIV	12/05/44	1140UN	LIGHT	12 UNSP	3 ATEN	3 ATEN	3 ATEN	50.2
241	HERO-WM11-COSS	ARDENNES	89US IN DIV	DIV	12/16/44	1140UN	LIGHT	3 UNSP	2 FB	2 FB	2 FB	2.3
3226	HERO-WM11-COSS	ITALYENW EUB	45N US DIV	DIV	12/16/44	1140UN	LIGHT	-1 UNSP	2 BEFN	2 BEFN	2 BEFN	-1.0
3271	HERO-WM11-COSS	ITALYENW EUB	2D US DIV	DIV	12/16/44	1140UN	LIGHT	-1 UNSP	2 BEFN	2 BEFN	2 BEFN	2.2
3204	HERO-WM11-COSS	ITALYENW EUB	89TH US DIV	DIV	12/16/44	1140UN	LIGHT	-1 UNSP	2 BEFN	2 BEFN	2 BEFN	2.3

DO LAMART

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEOUANT	TYPESD	DAYSOUANT	OPERATION	EDTUBEDBY
2386	LOGC-WM11-2	WM11	1 US ARMY	I ARMY	10/15/44	155GUM	HEAVY	86 UNSP	14 ATEL	14 ATEL	14 ATEL	8.0
2386	LOGC-WM11-2	WM11	1 US ARMY	I ARMY	10/29/44	155GUM	HEAVY	82 UNSP	14 PROL	14 PROL	14 PROL	8.0
169	NERO-WM11-CDSS	SAAR	35US IN DIV	DIV	11/08/44	155GUM	HEAVY	1 UNSP	4 BAPD	4 BAPD	4 BAPD	49.3
3227	NERO-WM11-CDSS	DIADEN	80TH US DIV	DIV	11/08/44	155GUM	HEAVY	-1 UNSP	2 ATEM	2 ATEM	2 ATEM	59.0
86	NERO-WM11-CDSS	GERMANY	4US AR DIV A BDE	DIV	11/10/44	155GUM	HEAVY	2 UNSP	2 BAPD	2 BAPD	2 BAPD	44.5
105	NERO-WM11-CDSS	GERMANY	4US AR DIV B 2BDE	DIV	11/10/44	155GUM	HEAVY	5 UNSP	3 ATEL	3 ATEL	3 ATEL	30.3
3101	NERO-WM11-CDSS	SAAR	GARDIV	DIV	11/10/44	155GUM	HEAVY	-1 UNSP	1 DEFM	1 DEFM	1 DEFM	30.0
3294	NERO-WM11-CDSS	ITALYANM EUR	4TH US DIV	DIV	11/11/44	155GUM	HEAVY	84 UNSP	5 BAPD	5 BAPD	5 BAPD	22.0
177	NERO-WM11-CDSS	SAAR	35US IN DIV	DIV	11/12/44	155GUM	HEAVY	2 UNSP	3 BAPD	3 BAPD	3 BAPD	31.0
2391	LOGC-WM11-2	WM11	1 US ARMY	I ARMY	11/12/44	155GUM	HEAVY	84 UNSP	14 ATEL	14 ATEL	14 ATEL	24.0
115	NERO-WM11-CDSS	GERMANY	4US AR DIV B 2BDE	DIV	11/13/44	155GUM	HEAVY	2 UNSP	3 BAPD	3 BAPD	3 BAPD	31.0
3110	NERO-WM11-CDSS	SAAR	GARDIV	DIV	11/14/44	155GUM	HEAVY	5 UNSP	3 UNSP	3 UNSP	3 UNSP	36.6
3117	NERO-WM11-CDSS	SAAR	GARDIV	DIV	11/15/44	155GUM	HEAVY	5 UNSP	2 ATEM	2 ATEM	2 ATEM	43.2
165	NERO-WM11-CDSS	SAAR	35US IN DIV	DIV	11/18/44	155GUM	HEAVY	5 UNSP	1 BAPD	1 BAPD	1 BAPD	45.8
194	NERO-WM11-CDSS	SAAR	35US IN DIV	DIV	11/19/44	155GUM	HEAVY	5 UNSP	2 BAPD	2 BAPD	2 BAPD	28.0
3519	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/19/44	155GUM	HEAVY	5 UNSP	2 ATEM	2 ATEM	2 ATEM	28.0
203	NERO-WM11-CDSS	SA*2	35US IN DIV	DIV	11/21/44	155GUM	HEAVY	5 UNSP	2 BAPD	2 BAPD	2 BAPD	28.0
3508	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/21/44	155GUM	HEAVY	5 UNSP	2 ATEM	2 ATEM	2 ATEM	28.0
213	NERO-WM11-CDSS	SAAR	35US IN DIV	DIV	11/23/44	155GUM	HEAVY	5 UNSP	3 BAPD	3 BAPD	3 BAPD	15.0
2497	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/23/44	155GUM	HEAVY	5 UNSP	3 ATEL	3 ATEL	3 ATEL	35.2
3422	NERO-WM11-CDSS	SAAR	80TH US DIV	DIV	11/25/44	155GUM	HEAVY	5 UNSP	2 ATEL	2 ATEL	2 ATEL	48.2
3486	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/26/44	155GUM	HEAVY	5 UNSP	1 BAPD	1 BAPD	1 BAPD	23.2
129	NERO-WM11-CDSS	GERMANY	4US AR DIV	DIV	11/26/44	155GUM	HEAVY	-1 NE	14 ATEL	14 ATEL	14 ATEL	24.0
285	CNH-WM11-2	WM11 EUR	1 US ARMY	I ARMY	11/26/44	155GUM	HEAVY	84 UNSP	14 ATEL	14 ATEL	14 ATEL	24.0
2392	LOGC-WM11-2	WM11	1 US ARMY	I ARMY	11/27/44	155GUM	HEAVY	5 UNSP	3 BAPD	3 BAPD	3 BAPD	27.0
139	NERO-WM11-CDSS	GERMANY	4US AR DIV	DIV	11/27/44	155GUM	HEAVY	6 UNSP	8 ATEL	8 ATEL	8 ATEL	35.7
3475	NERO-WM11-CDSS	SAAR	80TH US DIV	DIV	11/27/44	155GUM	HEAVY	2 UNSP	3 ATEM	3 ATEM	3 ATEM	93.3
3431	NERO-WM11-CDSS	SAAR	80TH US DIV	DIV	11/28/44	155GUM	HEAVY	4 UNSP	3 BAPD	3 BAPD	3 BAPD	35.3
140	NERO-WM11-CDSS	GERMANY	4US AR DIV	DIV	12/01/44	155GUM	HEAVY	6 UNSP	1 ATEM	1 ATEM	1 ATEM	24.7
223	NERO-WM11-CDSS	SAAR	35US IN DIV	DIV	12/04/44	155GUM	HEAVY	6 UNSP	1 ATEM	1 ATEM	1 ATEM	24.7
3442	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	12/04/44	155GUM	HEAVY	6 UNSP	1 ATEM	1 ATEM	1 ATEM	24.7
3464	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	12/05/44	155GUM	HEAVY	6 UNSP	2 ATEL	2 ATEL	2 ATEL	15.3
3453	NERO-WM11-CDSS	SAAR	4US AR DIV	DIV	12/06/44	155GUM	HEAVY	3 UNSP	2 BAPD	2 BAPD	2 BAPD	13.3
158	NERO-WM11-CDSS	GERMANY	35US IN DIV	DIV	12/06/44	155GUM	HEAVY	15 UNSP	1 BAPD	1 BAPD	1 BAPD	18.0
231	NERO-WM11-CDSS	SAAR	99US IN DIV	DIV	12/06/44	155GUM	HEAVY	77 UNSP	6 ATEL	6 ATEL	6 ATEL	27.0
2393	LOGC-WM11-2	WM11	1 US ARMY	I ARMY	12/10/44	155GUM	HEAVY	9 UNSP	3 PD	3 PD	3 PD	26.3
243	NERO-WM11-CDSS	ARDEENES	1 US ARMY	I ARMY	12/10/44	155GUM	HEAVY	-1 NE	26 DEFM	26 DEFM	26 DEFM	34.0
272	CNH-WM11-2	WM11 EUR	1 US ARMY	I ARMY	12/10/44	155GUM	HEAVY	87 UNSP	16 DEFM	16 DEFM	16 DEFM	34.3
2394	LOGC-WM11-2	WM11	1 US ARMY	I ARMY	12/16/44	155GUM	HEAVY	12 UNSP	1 DEFM	1 DEFM	1 DEFM	23.0
3212	NERO-WM11-CDSS	ARDEENES	4TH US DIV	DIV	12/16/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	23.0
3239	NERO-WM11-CDSS	ITALYANM EUR	4TH US DIV	DIV	12/16/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	23.0
3272	NERO-WM11-CDSS	ITALYANM EUR	99TH US DIV	DIV	12/16/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	23.0
3205	NERO-WM11-CDSS	ITALYANM EUR	99TH US DIV	DIV	12/16/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	23.0
251	NERO-WM11-CDSS	ARDEENES	4TH US DIV	DIV	12/18/44	155GUM	HEAVY	12 UNSP	3 PD	3 PD	3 PD	44.2
3219	NERO-WM11-CDSS	ARDEENES	4TH US DIV	DIV	12/18/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	34.3
3250	NERO-WM11-CDSS	ITALYANM EUR	4TH US DIV	DIV	12/18/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	34.3
3283	NERO-WM11-CDSS	ITALYANM EUR	2D US DIV	DIV	12/18/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	61.2
3316	NERO-WM11-CDSS	ITALYANM EUR	99TH US DIV	DIV	12/18/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	44.2
3261	NERO-WM11-CDSS	ITALYANM EUR	4TH US DIV	DIV	12/20/44	155GUM	HEAVY	-1 UNSP	2 DEFM	2 DEFM	2 DEFM	54.3
3226	NERO-WM11-CDSS	ARDEENES	4TH US DIV	DIV	12/22/44	155GUM	HEAVY	4 UNSP	4 UNSP	4 UNSP	4 UNSP	54.3
3121	NERO-WM11-CDSS	ROER RIVER	XIII CORPS	CORPS	02/22/45	155GUM	HEAVY	37 UNSP	1 UNSP	1 UNSP	1 UNSP	113.6
3128	NERO-WM11-CDSS	ROER RIVER	XVI CORPS	CORPS	02/22/45	155GUM	HEAVY	24 UNSP	1 UNSP	1 UNSP	1 UNSP	15.0
3134	NERO-WM11-CDSS	ROER RIVER	XVI CORPS	CORPS	02/22/45	155GUM	HEAVY	36 UNSP	1 UNSP	1 UNSP	1 UNSP	93.7
3141	NERO-WM11-CDSS	ROER RIVER	9TH US ARMY	I ARMY	02/22/45	155GUM	HEAVY	97 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0
3151	NERO-WM11-CDSS	ROER RIVER	9TH US ARMY	I ARMY	02/23/45	155GUM	HEAVY	97 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0

DO LAMART	Records	SOURCE	BATTLE	UNIT	SIZ	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DATEQUANT	OPERATION	ESTIMATED
	3151	HERO-WM11-CDS5	ROER RIVER	97N US ARMY	1ARMY	02/22/45	155GUM	HEAVY	87	UNSP	1	UNSP	-1.0
	3165	HERO-WM11-CDS5	ROER RIVER	XIII CORPS	CORPS	02/23/45	155GUM	HEAVY	37	UNSP	1	UNSP	109.4
	3170	HERO-WM11-CDS5	ROER RIVER	XVI CORPS	CORPS	02/23/45	155GUM	HEAVY	24	UNSP	1	UNSP	20.4
	3174	HERO-WM11-CDS5	ROER RIVER	XIX CORPS	CORPS	02/23/45	155GUM	HEAVY	36	UNSP	1	UNSP	160.0
	3079	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	30	UNSP	1	UNSP	4.4
	3080	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/10/45	155GUM	HEAVY	36	UNSP	1	UNSP	1.4
	3081	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/19/45	155GUM	HEAVY	36	UNSP	1	UNSP	7.3
	3082	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/19/45	155GUM	HEAVY	36	UNSP	1	UNSP	3.0
	3083	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/20/45	155GUM	HEAVY	36	UNSP	1	UNSP	3.7
	3084	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/20/45	155GUM	HEAVY	36	UNSP	1	UNSP	1.7
	3085	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/21/45	155GUM	HEAVY	36	UNSP	1	UNSP	4.5
	3086	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/21/45	155GUM	HEAVY	36	UNSP	1	UNSP	1.0
	3087	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/22/45	155GUM	HEAVY	30	UNSP	1	UNSP	9.1
	3088	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/22/45	155GUM	HEAVY	36	UNSP	1	UNSP	2.9
	3089	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/23/45	155GUM	HEAVY	36	UNSP	1	UNSP	6.4
	3090	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/23/45	155GUM	HEAVY	36	UNSP	1	UNSP	14.4
	3091	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/24/45	155GUM	HEAVY	68	UNSP	1	UNSP	61.9
	3092	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/24/45	155GUM	HEAVY	68	UNSP	1	UNSP	200.3
	3093	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/25/45	155GUM	HEAVY	26	UNSP	1	UNSP	12.6
	3094	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/25/45	155GUM	HEAVY	48	UNSP	1	UNSP	63.0
	3095	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/26/45	155GUM	HEAVY	36	UNSP	1	UNSP	32.9
	3096	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/26/45	155GUM	HEAVY	36	UNSP	1	UNSP	46.0
	3097	HERO-WM11-CDS5	ENINE CROSS	XIIICORPS	CORPS	03/27/45	155GUM	HEAVY	33	UNSP	1	UNSP	10.7
	3098	HERO-WM11-CDS5	ENINE CROSS	XVVICORPS	CORPS	03/27/45	155GUM	HEAVY	33	UNSP	1	UNSP	50.3
	3203	HERO-WM11-CDS5	PO VALLEY	1V CORPS	CORPS	04/10/45	155GUM	HEAVY	-1	UNSP	3	ATEM	80.0
	3208	HERO-WM11-CDS5	PO VALLEY	1V CORPS	CORPS	04/16/45	155GUM	HEAVY	-1	UNSP	3	ATEM	57.0
	3209	HERO-WM11-CDS5	OTEMAWA	XIIIVLIII	2CORPS	05/01/45	155GUM	HEAVY	-1	ME	03	ATEM	-1.0
	2098	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	07/31/51	155GUM	HEAVY	4	UNSP	1	UNSP	4.0
	2099	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/01/51	155GUM	HEAVY	4	UNSP	1	UNSP	54.5
	2285	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/01/51	155GUM	HEAVY	-1	UNSP	31	UNSP	37.0
	2100	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	4	UNSP	1	UNSP	9.7
	2101	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	4	UNSP	1	UNSP	11.5
	2102	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/06/51	155GUM	HEAVY	4	UNSP	1	UNSP	-1.0
	2103	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/06/51	155GUM	HEAVY	4	UNSP	1	UNSP	6.3
	2104	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/06/51	155GUM	HEAVY	4	UNSP	1	UNSP	10.5
	2105	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/07/51	155GUM	HEAVY	4	UNSP	1	UNSP	9.2
	2106	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/08/51	155GUM	HEAVY	4	UNSP	1	UNSP	10.0
	2107	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/08/51	155GUM	HEAVY	4	UNSP	1	UNSP	3.5
	2108	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/10/51	155GUM	HEAVY	4	UNSP	1	UNSP	1.2
	2109	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/11/51	155GUM	HEAVY	4	UNSP	1	UNSP	3.5
	2110	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/12/51	155GUM	HEAVY	4	UNSP	1	UNSP	10.2
	2111	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/13/51	155GUM	HEAVY	4	UNSP	1	UNSP	6.7
	2112	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/16/51	155GUM	HEAVY	4	UNSP	1	UNSP	30.5
	2113	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/16/51	155GUM	HEAVY	4	UNSP	1	UNSP	3.5
	2114	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/16/51	155GUM	HEAVY	4	UNSP	1	UNSP	2.5
	2115	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/17/51	155GUM	HEAVY	4	UNSP	1	UNSP	50.0
	2116	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/18/51	155GUM	HEAVY	4	UNSP	1	UNSP	110.5
	2117	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/18/51	155GUM	HEAVY	4	UNSP	1	UNSP	112.5
	2118	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/20/51	155GUM	HEAVY	4	UNSP	1	UNSP	68.5
	2119	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/21/51	155GUM	HEAVY	4	UNSP	1	UNSP	102.5
	2120	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/22/51	155GUM	HEAVY	4	UNSP	1	UNSP	80.5
	2121	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/23/51	155GUM	HEAVY	4	UNSP	1	UNSP	70.0
	2122	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/24/51	155GUM	HEAVY	4	UNSP	1	UNSP	100.5
	2123	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/25/51	155GUM	HEAVY	4	UNSP	1	UNSP	34.5
	2124	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	08/26/51	155GUM	HEAVY	4	UNSP	1	UNSP	46.5

DO LAMART	Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	RTUSBCAT
	2124	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/26/51	155GUN	HEAVY	4	UNSP	1	UNSP	46.5
	2125	NERO-WM11-K-CD56	KOREA	X CORPS	CORPS	08/27/51	155GUN	HEAVY	4	UNSP	1	UNSP	36.7
	2126	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/28/51	155GUN	HEAVY	4	UNSP	1	UNSP	12.7
	2127	NERO-WM11-K-CD56	KOREA	X CORPS	CORPS	08/29/51	155GUN	HEAVY	4	UNSP	1	UNSP	47.7
	2128	CDSS FAIR 1977	KOREA	X CORPS	CORPS	08/30/51	155GUN	HEAVY	4	UNSP	1	UNSP	79.2
	2116	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	08/31/51	155GUN	HEAVY	4	UNSP	1	UNSP	64.7
	2166	NERO-WM11-K-CD56	KOREA	X CORPS	CORPS	09/01/51	155GUN	HEAVY	30	UNSP	30	UNSP	26.3
	2117	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/01/51	155GUN	HEAVY	4	UNSP	1	UNSP	58.3
	2119	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/02/51	155GUN	HEAVY	4	UNSP	1	UNSP	49.3
	2120	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/03/51	155GUN	HEAVY	4	UNSP	1	UNSP	48.5
	2121	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/04/51	155GUN	HEAVY	4	UNSP	1	UNSP	45.2
	2122	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/05/51	155GUN	HEAVY	4	UNSP	1	UNSP	75.2
	2123	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/06/51	155GUN	HEAVY	4	UNSP	1	UNSP	33.5
	2124	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/07/51	155GUN	HEAVY	4	UNSP	1	UNSP	18.5
	2125	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/08/51	155GUN	HEAVY	4	UNSP	1	UNSP	62.2
	2126	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/09/51	155GUN	HEAVY	4	UNSP	1	UNSP	52.2
	2127	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/10/51	155GUN	HEAVY	4	UNSP	1	UNSP	45.0
	2128	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/11/51	155GUN	HEAVY	4	UNSP	1	UNSP	18.0
	2129	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/12/51	155GUN	HEAVY	4	UNSP	1	UNSP	32.7
	2130	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/13/51	155GUN	HEAVY	4	UNSP	1	UNSP	7.0
	2131	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/14/51	155GUN	HEAVY	4	UNSP	1	UNSP	22.0
	2132	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/15/51	155GUN	HEAVY	4	UNSP	1	UNSP	56.7
	2133	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/16/51	155GUN	HEAVY	4	UNSP	1	UNSP	44.7
	2134	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/17/51	155GUN	HEAVY	4	UNSP	1	UNSP	48.5
	2135	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/18/51	155GUN	HEAVY	4	UNSP	1	UNSP	48.0
	2136	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/19/51	155GUN	HEAVY	4	UNSP	1	UNSP	19.0
	2137	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/20/51	155GUN	HEAVY	4	UNSP	1	UNSP	17.7
	2138	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/21/51	155GUN	HEAVY	4	UNSP	1	UNSP	26.7
	2139	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/22/51	155GUN	HEAVY	4	UNSP	1	UNSP	21.2
	2140	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/23/51	155GUN	HEAVY	4	UNSP	1	UNSP	66.5
	2141	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/24/51	155GUN	HEAVY	4	UNSP	1	UNSP	66.7
	2142	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/25/51	155GUN	HEAVY	4	UNSP	1	UNSP	19.2
	2143	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/26/51	155GUN	HEAVY	4	UNSP	1	UNSP	21.7
	2144	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/27/51	155GUN	HEAVY	4	UNSP	1	UNSP	16.5
	2145	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/28/51	155GUN	HEAVY	4	UNSP	1	UNSP	28.5
	2146	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/29/51	155GUN	HEAVY	4	UNSP	1	UNSP	12.9
	2147	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	09/30/51	155GUN	HEAVY	4	UNSP	1	UNSP	1.0
	335	CMN-E-1	KOREA	US ARMY	AREA	10/01/51	155GUN	HEAVY	-1	UNSP	31	UNSP	-1.0
	2267	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/01/51	155GUN	HEAVY	23	UNSP	23	UNSP	39.0
	2587	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/01/51	155GUN	HEAVY	4	UNSP	1	UNSP	44.0
	2588	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/02/51	155GUN	HEAVY	4	UNSP	1	UNSP	54.5
	2589	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/03/51	155GUN	HEAVY	4	UNSP	1	UNSP	32.8
	2590	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/04/51	155GUN	HEAVY	4	UNSP	1	UNSP	24.7
	2591	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/05/51	155GUN	HEAVY	4	UNSP	1	UNSP	28.0
	2592	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/06/51	155GUN	HEAVY	4	UNSP	1	UNSP	23.2
	2593	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/07/51	155GUN	HEAVY	4	UNSP	1	UNSP	34.5
	2594	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/08/51	155GUN	HEAVY	4	UNSP	1	UNSP	17.2
	2595	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/09/51	155GUN	HEAVY	4	UNSP	1	UNSP	23.7
	2596	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/10/51	155GUN	HEAVY	4	UNSP	1	UNSP	55.0
	2597	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/11/51	155GUN	HEAVY	4	UNSP	1	UNSP	41.7
	2598	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/12/51	155GUN	HEAVY	4	UNSP	1	UNSP	48.5
	2599	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/13/51	155GUN	HEAVY	4	UNSP	1	UNSP	-1.0
	2560	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/14/51	155GUN	HEAVY	4	UNSP	1	UNSP	77.5
	2561	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/15/51	155GUN	HEAVY	4	UNSP	1	UNSP	68.0
	2562	NERO-WM11-K-CD55	KOREA	X CORPS	CORPS	10/16/51	155GUN	HEAVY	4	UNSP	1	UNSP	68.0

DO LAMART	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUSBUQUANT	TYPED	DAY	QUART	OPERATION	EDTUBEDAY
	2562	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	155GUN	HEAVY	4 UNSP	4	UNSP	1 UNSP	UNSP	68.0
	2563	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	155GUN	HEAVY	4 UNSP	4	UNSP	1 UNSP	UNSP	59.5
	2564	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	155GUN	HEAVY	4 UNSP	4	UNSP	1 UNSP	UNSP	64.0
	2565	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	155GUN	HEAVY	4 UNSP	4	UNSP	1 UNSP	UNSP	39.0
	2566	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	155GUN	HEAVY	4 UNSP	4	UNSP	1 UNSP	UNSP	25.0
	2567	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	155GUN	HEAVY	4 UNSP	4	UNSP	1 UNSP	UNSP	38.0
	536	CNH-E-1	KOREA	US ARMY	THEA	11/01/51	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	537	CNH-E-1	KOREA	US ARMY	THEA	12/01/51	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	538	CNH-E-1	KOREA	US ARMY	THEA	01/01/52	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	539	CNH-E-1	KOREA	US ARMY	THEA	02/01/52	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	540	CNH-E-1	KOREA	US ARMY	THEA	03/01/52	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	541	CNH-E-1	KOREA	US ARMY	THEA	04/01/52	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	806	CNH-E-1	KOREA	US ARMY	THEA	05/01/52	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	807	CNH-E-1	KOREA	US ARMY	THEA	06/01/52	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	808	CNH-E-1	KOREA	US ARMY	THEA	07/01/52	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	809	CNH-E-1	KOREA	US ARMY	THEA	08/01/52	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	810	CNH-E-1	KOREA	US ARMY	THEA	09/01/52	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	811	CNH-E-1	KOREA	US ARMY	THEA	10/01/52	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	812	CNH-E-1	KOREA	US ARMY	THEA	11/01/52	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	813	CNH-E-1	KOREA	US ARMY	THEA	12/01/52	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	814	CNH-E-1	KOREA	US ARMY	THEA	01/01/53	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	815	CNH-E-1	KOREA	US ARMY	THEA	02/01/53	155GUN	HEAVY	-1 UNSP	28	UNSP	28	UNSP	-1.0
	816	CNH-E-1	KOREA	US ARMY	THEA	03/01/53	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	817	CNH-E-1	KOREA	US ARMY	THEA	04/01/53	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	818	CNH-E-1	KOREA	US ARMY	THEA	05/01/53	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	819	CNH-E-1	KOREA	US ARMY	THEA	06/01/53	155GUN	HEAVY	-1 UNSP	30	UNSP	30	UNSP	-1.0
	820	CNH-E-1	KOREA	US ARMY	THEA	07/01/53	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	821	CNH-E-1	KOREA	US ARMY	THEA	08/01/53	155GUN	HEAVY	-1 UNSP	31	UNSP	31	UNSP	-1.0
	3600	FAS-WMI-7	CHAMPAGNE	FRENCH	THEA	09/22/15	155HOW	MEDIUM	-1 UNSP	6	UNSP	6	UNSP	58.0
	3597	FAS-WMI-1	SOMME	2GERARMY	IARMY	07/01/16	155HOW	MEDIUM	-1 UNSP	30	UNSP	30	UNSP	119.0
	3595	FAS-WMI-1	SOMME	2GERARMY	IARMY	07/15/16	155HOW	MEDIUM	-1 UNSP	1	UNSP	1	UNSP	229.0
	51	HERO-WMI-CDSS	ANSAUVILLE	1STUS FA BDE	CORPS	01/23/18	155HOW	MEDIUM	24 UNSP	24	UNSP	24	UNSP	16.0
	52	HERO-WMI-CDSS	CANTIGNY	1STUS FA BN	CORPS	04/25/18	155HOW	MEDIUM	74 UNSP	74	UNSP	74	UNSP	52.0
	53	HERO-WMI-CDSS	COEURVES	1STUS FA BDE	CORPS	07/18/18	155HOW	MEDIUM	24 UNSP	24	UNSP	24	UNSP	68.0
	56	HERO-WMI-CDSS	BEAUMONT	1STUS FA BDE	CORPS	09/12/18	155HOW	MEDIUM	24 UNSP	24	UNSP	24	UNSP	148.0
	58	HERO-WMI-CDSS	MEUSE-ARGONN	1STUS FA BDE	CORPS	10/04/18	155HOW	MEDIUM	24 UNSP	24	UNSP	24	UNSP	52.0
	286	TOI-WMII-1	ITALY	XIUS CORPS	CORPS	01/01/43	155HOW	MEDIUM	-1 NE	720	ATEM	ATEM	30.1	
	2381	LOGC-WMII-2	WHII	I US ARMY	IARMY	01/01/44	155HOW	MEDIUM	254 UNSP	254	UNSP	254	UNSP	33.0
	3336	HERO-WMII-CDSS	MONTECASSINO	34TH US DIV	DIV	01/20/44	155HOW	MEDIUM	11 UNSP	11	UNSP	11	UNSP	67.6
	2382	LOGC-WMII-2	WHII	I US ARMY	IARMY	01/21/44	155HOW	MEDIUM	200 UNSP	200	UNSP	200	UNSP	26.0
	3339	HERO-WMII-CDSS	ANZIO	3RD US DIV	DIV	01/24/44	155HOW	MEDIUM	-1 UNSP	7	UNSP	7	UNSP	42.1
	15	ORO-WMII-1	ANZIO	VI CORPS	CORPS	01/23/44	155HOW	MEDIUM	-1 NE	30	ATEM	ATEM	-1.0	
	3338	HERO-WMII-CDSS	MONTECASSINO	34TH US DIV	DIV	02/01/44	155HOW	MEDIUM	12 UNSP	12	UNSP	12	UNSP	48.4
	3344	HERO-WMII-CDSS	ANZIO	3RD US DIV	DIV	02/01/44	155HOW	MEDIUM	-1 UNSP	29	UNSP	29	UNSP	39.9
	3350	HERO-WMII-CDSS	ANZIO	45TH US DIV	DIV	02/01/44	155HOW	MEDIUM	-1 UNSP	8	UNSP	8	ATEM	38.4
	281	CNH-WMII-2	WHII EUR	IUS ARMY	IARMY	02/10/44	155HOW	MEDIUM	-1 NE	13	ATEM	ATEM	24.0	
	2383	LOGC-WMII-2	WHII	I US ARMY	IARMY	02/12/44	155HOW	MEDIUM	259 UNSP	259	UNSP	259	UNSP	11.0
	3351	HERO-WMII-CDSS	ANZIO	45TH US DIV	DIV	02/12/44	155HOW	MEDIUM	-1 UNSP	17	UNSP	17	UNSP	65.1
	6	ONG-WMII-1	ANZIO	VI Corps	CORPS	02/29/44	155HOW	MEDIUM	-1 NE	32	ATEM	ATEM	-1.0	
	3354	HERO-WMII-CDSS	ANZIO	3RD US DIV	DIV	03/01/44	155HOW	MEDIUM	-1 UNSP	10	UNSP	10	UNSP	32.1
	3358	HERO-WMII-CDSS	ANZIO	45TH US DIV	DIV	03/01/44	155HOW	MEDIUM	-1 UNSP	31	UNSP	31	UNSP	68.6
	3359	HERO-WMII-CDSS	ANZIO	45TH US DIV	DIV	03/01/44	155HOW	MEDIUM	-1 UNSP	10	UNSP	10	UNSP	68.4
	34	ORO-WMII-1	ANZIO	VI CORPS	CORPS	04/01/44	155HOW	MEDIUM	-1 NE	30	ATEM	ATEM	-1.0	
	62	HERO-WMII-CDSS	DIADEN	68US IN DIV	DIV	05/11/44	155HOW	MEDIUM	36 UNSP	36	UNSP	36	UNSP	125.0
	73	HERO-WMII-CDSS	DIADEN	68US IN DIV	DIV	05/11/44	155HOW	MEDIUM	40 UNSP	40	UNSP	40	UNSP	46.0

DO LAHART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPEAD	DAYSCOUNTY	OPERATION	EDTUBEDAY
73	HERO-WWII-CDSS	DIADEM	88US IN DIV	DIV	05/11/44	15SHOW	MEDIUM	40 UNSP		17 BARD		46.6
85	HERO-WWII-CDSS	DIADEM	88US IN DIV	DIV	05/11/44	15SHOW	MEDIUM	42 UNSP		17 BARD		109.8
3535	HERO-WWII-CDSS	DIADEM	85TH US DIV	DIV	05/12/44	15SHOW	MEDIUM	36 UNSP		2 ATEN		167.4
3547	HERO-WWII-CDSS	DIADEM	85TH US DIV	DIV	05/14/44	15SHOW	MEDIUM	30 UNSP		2 ATEN		167.5
3571	HERO-WWII-CDSS	DIADEM	85TH US DIV	DIV	05/16/44	15SHOW	MEDIUM	22 UNSP		2 ATEN		36.7
3363	HERO-WWII-CDSS	DIADEM	85TH US DIV	DIV	05/20/44	15SHOW	MEDIUM	20 UNSP		2 ATEN		32.8
3559	HERO-WWII-CDSS	DIADEM	85TH US DIV	DIV	05/22/44	15SHOW	MEDIUM	28 UNSP		3 ATEN		88.9
3583	HERO-WWII-CDSS	DIADEM	85TH US DIV	DIV	05/25/44	15SHOW	MEDIUM	30 UNSP		2 ATEN		23.3
265	CMH-WWII-1	WWII EUR	US ARMY	THEA	06/01/44	15SHOW	MEDIUM	-1 NE		180 UNSP		12.4
274	CMH-WWII-2	WWII EUR	1US ARMY	ARMY	06/06/44	15SHOW	MEDIUM	-1 NE		6 ATEN		17.6
275	CMH-WWII-2	WWII EUR	1US ARMY	ARMY	06/06/44	15SHOW	MEDIUM	-1 NE		6 ATEN		17.6
347	CMH-WWII-3	GERMANY	12US ARMY GP	ARMYGP	06/06/44	15SHOW	MEDIUM	-1 UNSP		180 ATEN		17.8
278	CMH-WWII-2	WWII EUR	1US ARMY	ARMY	06/08/44	15SHOW	MEDIUM	-1 NE		12 ATEN		20.0
296	CMH-WWII-2	WWII EUR	1US ARMY	ARMY	06/11/44	15SHOW	MEDIUM	-1 NE		7 ATEN		37.0
300	CMH-WWII-2	GERMANY	1US ARMY	ARMY	06/18/44	15SHOW	MEDIUM	-1 NE		7 ATEN		24.0
304	CMH-WWII-2	GERMANY	1US ARMY	ARMY	06/25/44	15SHOW	MEDIUM	-1 NE		7 ATEN		18.0
309	CMH-WWII-2	GERMANY	1US ARMY	ARMY	07/02/44	15SHOW	MEDIUM	-1 NE		7 ATEN		61.0
317	CMH-WWII-2	GERMANY	1US ARMY	ARMY	07/09/44	15SHOW	MEDIUM	-1 NE		7 ATEN		53.0
325	CMH-WWII-2	GERMANY	1US ARMY	ARMY	07/16/44	15SHOW	MEDIUM	-1 NE		7 ATEN		12.0
332	CMH-WWII-2	GERMANY	1US ARMY	ARMY	07/23/44	15SHOW	MEDIUM	-1 NE		7 ATEN		18.0
340	CMH-WWII-2	GERMANY	1US ARMY	ARMY	07/30/44	15SHOW	MEDIUM	-1 NE		7 ATEN		15.0
2370	LOGC-WWII-2	WWII	1 US ARMY	ARMY	08/06/44	15SHOW	MEDIUM	229 UNSP		12 ATEN		20.0
2371	LOGC-WWII-2	WWII	1 US ARMY	ARMY	08/16/44	15SHOW	MEDIUM	148 UNSP		17 ATEN		11.0
2372	LOGC-WWII-2	WWII	1 US ARMY	ARMY	08/04/44	15SHOW	MEDIUM	138 UNSP		13 ATEN		8.0
2373	LOGC-WWII-2	WWII	1 US ARMY	ARMY	09/17/44	15SHOW	MEDIUM	203 UNSP		15 ATEN		19.0
2374	LOGC-WWII-2	WWII	1 US ARMY	ARMY	10/02/44	15SHOW	MEDIUM	222 UNSP		13 ATEN		24.0
2375	LOGC-WWII-2	WWII	1 US ARMY	ARMY	10/15/44	15SHOW	MEDIUM	228 UNSP		14 ATEN		18.0
2376	LOGC-WWII-2	WWII	1 US ARMY	ARMY	10/29/44	15SHOW	MEDIUM	213 UNSP		14 ATEN		13.0
167	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/08/44	15SHOW	MEDIUM	3 UNSP		4 BARD		22.7
3325	HERO-WWII-CDSS	DIADEM	60TH US DIV	DIV	11/08/44	15SHOW	MEDIUM	-1 UNSP		2 ATEN		38.9
104	HERO-WWII-CDSS	GERMANY	4US AR DIV B	29DE	11/10/44	15SHOW	MEDIUM	12 UNSP		1 BARD		7.7
3100	HERO-WWII-CDSS	SAAR	GARDIV	DIV	11/10/44	15SHOW	MEDIUM	12 UNSP		3 ATEN		37.1
3375	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/10/44	15SHOW	MEDIUM	21 UNSP		3 ATEN		13.0
3292	HERO-WWII-CDSS	ITALY AND EUR	4TH US DIV	DIV	11/11/44	15SHOW	MEDIUM	-1 UNSP		1 DEFM		17.3
2377	LOGC-WWII-2	WWII	1 US ARMY	ARMY	11/12/44	15SHOW	MEDIUM	258 UNSP		14 ATEN		21.0
114	HERO-WWII-CDSS	GERMANY	4US AR DIV B	29DE	11/13/44	15SHOW	MEDIUM	12 UNSP		3 BARD		18.9
122	HERO-WWII-CDSS	GERMANY	4US AR DIV A	DIV	11/14/44	15SHOW	MEDIUM	2 UNSP		2 BARD		61.5
3109	HERO-WWII-CDSS	SAAR	GARDIV	DIV	11/14/44	15SHOW	MEDIUM	12 UNSP		1 ATEN		81.0
3386	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/14/44	15SHOW	MEDIUM	24 UNSP		1 ATEN		32.7
3114	HERO-WWII-CDSS	SAAR	GARDIV	DIV	11/15/44	15SHOW	MEDIUM	6 UNSP		2 ATEN		24.2
3397	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/15/44	15SHOW	MEDIUM	24 UNSP		2 ATEN		33.3
184	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/18/44	15SHOW	MEDIUM	12 UNSP		1 BARD		21.3
3408	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/19/44	15SHOW	MEDIUM	24 UNSP		1 ATEN		45.0
3518	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/19/44	15SHOW	MEDIUM	24 UNSP		2 ATEN		39.1
282	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/21/44	15SHOW	MEDIUM	4 UNSP		2 BARD		14.2
3507	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/21/44	15SHOW	MEDIUM	6 UNSP		2 ATEN		18.5
212	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/23/44	15SHOW	MEDIUM	12 UNSP		2 BARD		16.8
3491	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/23/44	15SHOW	MEDIUM	12 UNSP		2 ATEN		18.5
3485	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/25/44	15SHOW	MEDIUM	24 UNSP		3 ATEN		-1.0
3485	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/25/44	15SHOW	MEDIUM	24 UNSP		3 ATEN		38.0
124	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	11/26/44	15SHOW	MEDIUM	24 UNSP		2 ATEN		19.9
284	CMH-WWII-2	WWII EUR	1US ARMY	ARMY	11/26/44	15SHOW	MEDIUM	-1 NE		1 BARD		18.0
2378	LOGC-WWII-2	WWII	1 US ARMY	ARMY	11/26/44	15SHOW	MEDIUM	260 UNSP		14 ATEN		24.0
138	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	11/27/44	15SHOW	MEDIUM	24 UNSP		14 ATEN		24.0
3474	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/27/44	15SHOW	MEDIUM	2 UNSP		8 ATEN		11.5
												6.5

DD FORM	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	EDTUESDAY
3474	HERO-WM11-CD55	SAAR	6TH AR DIV	DIV	11/27/44	15SHOW	MEDIUM	2 UNSP	9 ATFL	9 ATFL	9 ATFL	0.5
3475	HERO-WM11-CD55	SAAR	60TH US DIV	DIV	11/28/44	15SHOW	MEDIUM	24 UNSP	3 ATEN	3 ATEN	3 ATEN	32.1
3476	HERO-WM11-CD55	GERMANY	405 AR DIV	DIV	12/01/44	15SHOW	MEDIUM	12 UNSP	2 RAPD	2 RAPD	2 RAPD	25.1
3477	HERO-WM11-CD55	SAAR	3505 IN DIV	DIV	12/04/44	15SHOW	MEDIUM	12 UNSP	1 BAPD	1 BAPD	1 BAPD	47.0
3478	HERO-WM11-CD55	SAAR	60TH US DIV	DIV	12/04/44	15SHOW	MEDIUM	12 UNSP	1 ATEN	1 ATEN	1 ATEN	50.6
3479	HERO-WM11-CD55	SAAR	6TH AR DIV	DIV	12/04/44	15SHOW	MEDIUM	12 UNSP	3 ATEN	3 ATEN	3 ATEN	-1.0
3480	HERO-WM11-CD55	SAAR	6TH AR DIV	DIV	12/05/44	15SHOW	MEDIUM	12 UNSP	2 ATFL	2 ATFL	2 ATFL	-1.0
3481	HERO-WM11-CD55	SAAR	3505 IN DIV	DIV	12/06/44	15SHOW	MEDIUM	12 UNSP	1 BADL	1 BADL	1 BADL	12.6
3482	HERO-WM11-CD55	SAAR	1 US ARMY	IARMY	12/10/44	15SHOW	MEDIUM	282 UNSP	6 ATEN	6 ATEN	6 ATEN	29.0
3483	LOGC-WM1-2	W11	99US IN DIV	DIV	12/15/44	15SHOW	MEDIUM	9 UNSP	2 PD	2 PD	2 PD	100.0
3484	HERO-WM11-CD55	ARDENNES	105 ARMY	IARMY	12/16/44	15SHOW	MEDIUM	-1 NF	24 DEFN	24 DEFN	24 DEFN	44.0
3485	CMH-WM11-2	W11	1 US ARMY	IARMY	12/16/44	15SHOW	MEDIUM	231 UNSP	16 DEFN	16 DEFN	16 DEFN	46.0
3486	LOGC-WM11-2	W11	1 US ARMY	IARMY	12/16/44	15SHOW	MEDIUM	6 UNSP	6 DEFN	6 DEFN	6 DEFN	79.0
3487	HERO-WM11-CD55	ARDENNES	4TH US DIV	DIV	12/16/44	15SHOW	MEDIUM	12 UNSP	6 DEFN	6 DEFN	6 DEFN	79.0
3488	HERO-WM11-CD55	ARDENNES	4TH US DIV	DIV	12/16/44	15SHOW	MEDIUM	-1 UNSP	2 DEFN	2 DEFN	2 DEFN	70.0
3489	HERO-WM11-CD55	ITALYANW EUR	4TH US DIV	DIV	12/16/44	15SHOW	MEDIUM	-1 UNSP	2 DEFN	2 DEFN	2 DEFN	49.1
3490	HERO-WM11-CD55	ITALYANW EUR	2D US DIV	DIV	12/16/44	15SHOW	MEDIUM	-1 UNSP	2 DEFN	2 DEFN	2 DEFN	100.0
3491	HERO-WM11-CD55	ITALYANW EUR	99US IN DIV	DIV	12/16/44	15SHOW	MEDIUM	9 UNSP	2 PD	2 PD	2 PD	103.1
3492	HERO-WM11-CD55	ARDENNES	4TH US DIV	DIV	12/18/44	15SHOW	MEDIUM	12 UNSP	1 DEFN	1 DEFN	1 DEFN	79.7
3493	HERO-WM11-CD55	ARDENNES	4TH US DIV	DIV	12/18/44	15SHOW	MEDIUM	-1 UNSP	2 DEFN	2 DEFN	2 DEFN	70.7
3494	HERO-WM11-CD55	ITALYANW EUR	2D US DIV	DIV	12/18/44	15SHOW	MEDIUM	-1 UNSP	2 DEFN	2 DEFN	2 DEFN	110.4
3495	HERO-WM11-CD55	ITALYANW EUR	4TH US DIV	DIV	12/18/44	15SHOW	MEDIUM	-1 UNSP	2 DEFN	2 DEFN	2 DEFN	103.1
3496	HERO-WM11-CD55	ARDENNES	4TH US DIV	DIV	12/20/44	15SHOW	MEDIUM	-1 UNSP	3 DEFN	3 DEFN	3 DEFN	14.3
3497	HERO-WM11-CD55	ARDENNES	4TH US DIV	DIV	12/22/44	15SHOW	MEDIUM	4 UNSP	2 DEFN	2 DEFN	2 DEFN	14.3
3498	HERO-WM11-CD55	ROER RIVER	X111 CORPS	CORPS	02/22/45	15SHOW	MEDIUM	91 UNSP	1 UNSP	1 UNSP	1 UNSP	71.4
3499	HERO-WM11-CD55	ROER RIVER	XVI CORPS	CORPS	02/22/45	15SHOW	MEDIUM	48 UNSP	1 UNSP	1 UNSP	1 UNSP	12.3
3500	HERO-WM11-CD55	ROER RIVER	XIX CORPS	CORPS	02/22/45	15SHOW	MEDIUM	106 UNSP	1 UNSP	1 UNSP	1 UNSP	63.2
3501	HERO-WM11-CD55	ROER RIVER	XIX CORPS	CORPS	02/22/45	15SHOW	MEDIUM	247 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0
3502	HERO-WM11-CD55	ROER RIVER	9TH US ARMY	IARMY	02/22/45	15SHOW	MEDIUM	252 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0
3503	HERO-WM11-CD55	ROER RIVER	9TH US ARMY	IARMY	02/23/45	15SHOW	MEDIUM	96 UNSP	1 UNSP	1 UNSP	1 UNSP	86.8
3504	HERO-WM11-CD55	ROER RIVER	X111 CORPS	CORPS	02/23/45	15SHOW	MEDIUM	48 UNSP	1 UNSP	1 UNSP	1 UNSP	52.2
3505	HERO-WM11-CD55	ROER RIVER	XVI CORPS	CORPS	02/23/45	15SHOW	MEDIUM	108 UNSP	1 UNSP	1 UNSP	1 UNSP	113.1
3506	HERO-WM11-CD55	ROER RIVER	XIX CORPS	CORPS	02/23/45	15SHOW	MEDIUM	84 UNSP	1 UNSP	1 UNSP	1 UNSP	8.0
3507	HERO-WM11-CD55	ROER RIVER	XIX CORPS	CORPS	03/18/45	15SHOW	MEDIUM	84 UNSP	1 UNSP	1 UNSP	1 UNSP	1.5
3508	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/18/45	15SHOW	MEDIUM	158 UNSP	1 UNSP	1 UNSP	1 UNSP	3.9
3509	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/18/45	15SHOW	MEDIUM	26 UNSP	1 UNSP	1 UNSP	1 UNSP	9.1
3510	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/19/45	15SHOW	MEDIUM	156 UNSP	1 UNSP	1 UNSP	1 UNSP	3.3
3511	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/19/45	15SHOW	MEDIUM	36 UNSP	1 UNSP	1 UNSP	1 UNSP	5.0
3512	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/19/45	15SHOW	MEDIUM	64 UNSP	1 UNSP	1 UNSP	1 UNSP	7.3
3513	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/20/45	15SHOW	MEDIUM	159 UNSP	1 UNSP	1 UNSP	1 UNSP	2.1
3514	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/20/45	15SHOW	MEDIUM	37 UNSP	1 UNSP	1 UNSP	1 UNSP	0.0
3515	HERO-WM11-CD55	SHINE CROSS	35UEDIV	DIV	03/21/45	15SHOW	MEDIUM	12 UNSP	1 UNSP	1 UNSP	1 UNSP	5.3
3516	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/21/45	15SHOW	MEDIUM	84 UNSP	1 UNSP	1 UNSP	1 UNSP	3.3
3517	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/21/45	15SHOW	MEDIUM	153 UNSP	1 UNSP	1 UNSP	1 UNSP	1.0
3518	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/21/45	15SHOW	MEDIUM	26 UNSP	1 UNSP	1 UNSP	1 UNSP	6.0
3519	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/21/45	15SHOW	MEDIUM	83 UNSP	1 UNSP	1 UNSP	1 UNSP	4.5
3520	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/22/45	15SHOW	MEDIUM	161 UNSP	1 UNSP	1 UNSP	1 UNSP	1.1
3521	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/22/45	15SHOW	MEDIUM	26 UNSP	1 UNSP	1 UNSP	1 UNSP	11.4
3522	HERO-WM11-CD55	SHINE CROSS	79UEDIV	DIV	03/22/45	15SHOW	MEDIUM	12 UNSP	1 UNSP	1 UNSP	1 UNSP	0.1
3523	HERO-WM11-CD55	SHINE CROSS	35UEDIV	DIV	03/23/45	15SHOW	MEDIUM	84 UNSP	1 UNSP	1 UNSP	1 UNSP	6.3
3524	HERO-WM11-CD55	SHINE CROSS	35UEDIV	DIV	03/23/45	15SHOW	MEDIUM	84 UNSP	1 UNSP	1 UNSP	1 UNSP	7.7
3525	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/23/45	15SHOW	MEDIUM	156 UNSP	1 UNSP	1 UNSP	1 UNSP	10.0
3526	HERO-WM11-CD55	SHINE CROSS	XIX CORPS	CORPS	03/23/45	15SHOW	MEDIUM	37 UNSP	1 UNSP	1 UNSP	1 UNSP	14.3
3527	HERO-WM11-CD55	SHINE CROSS	79UEDIV	DIV	03/24/45	15SHOW	MEDIUM	12 UNSP	1 UNSP	1 UNSP	1 UNSP	319.0
3528	HERO-WM11-CD55	SHINE CROSS	35UEDIV	DIV	03/24/45	15SHOW	MEDIUM	12 UNSP	1 UNSP	1 UNSP	1 UNSP	209.0

DO LAHART

Records

NO	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	EDTUBEDAY
2993	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/24/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	269.8
3068	HERO-WM11-CDSS	ENGINE CROSS	XI1IUCORPS	CORPS	03/24/45	155HOW	MEDIUM	94 UNSP	94 UNSP	1 UNSP	1 UNSP	61.0
3069	HERO-WM11-CDSS	ENGINE CROSS	XVIIUCORPS	CORPS	03/24/45	155HOW	MEDIUM	168 UNSP	168 UNSP	1 UNSP	1 UNSP	207.5
3070	HERO-WM11-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/24/45	155HOW	MEDIUM	38 UNSP	38 UNSP	1 UNSP	1 UNSP	34.6
2969	HERO-WM11-CDSS	ENGINE CROSS	79UEDIV	DIV	03/25/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	87.4
2994	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/25/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	6.5
3071	HERO-WM11-CDSS	ENGINE CROSS	XI1IUCORPS	CORPS	03/25/45	155HOW	MEDIUM	84 UNSP	84 UNSP	1 UNSP	1 UNSP	28.6
3072	HERO-WM11-CDSS	ENGINE CROSS	XVIIUCORPS	CORPS	03/25/45	155HOW	MEDIUM	168 UNSP	168 UNSP	1 UNSP	1 UNSP	27.1
3073	HERO-WM11-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/25/45	155HOW	MEDIUM	36 UNSP	36 UNSP	1 UNSP	1 UNSP	11.0
2970	HERO-WM11-CDSS	ENGINE CROSS	79UEDIV	DIV	03/26/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	27.7
2995	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/26/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	41.8
3074	HERO-WM11-CDSS	ENGINE CROSS	XI1IUCORPS	CORPS	03/26/45	155HOW	MEDIUM	84 UNSP	84 UNSP	1 UNSP	1 UNSP	36.4
3075	HERO-WM11-CDSS	ENGINE CROSS	XVIIUCORPS	CORPS	03/26/45	155HOW	MEDIUM	168 UNSP	168 UNSP	1 UNSP	1 UNSP	38.2
3076	HERO-WM11-CDSS	ENGINE CROSS	XIXUCORPS	CORPS	03/26/45	155HOW	MEDIUM	36 UNSP	36 UNSP	1 UNSP	1 UNSP	12.9
2971	HERO-WM11-CDSS	ENGINE CROSS	79UEDIV	DIV	03/27/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	52.8
2996	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/27/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	73.1
3077	HERO-WM11-CDSS	ENGINE CROSS	XI1IUCORPS	CORPS	03/27/45	155HOW	MEDIUM	84 UNSP	84 UNSP	1 UNSP	1 UNSP	12.1
3078	HERO-WM11-CDSS	ENGINE CROSS	XVIIUCORPS	CORPS	03/27/45	155HOW	MEDIUM	168 UNSP	168 UNSP	1 UNSP	1 UNSP	62.3
2972	HERO-WM11-CDSS	ENGINE CROSS	79UEDIV	DIV	03/28/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	59.4
2997	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/28/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	76.1
2998	HERO-WM11-CDSS	ENGINE CROSS	79UEDIV	DIV	03/29/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	48.3
2999	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/29/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	72.9
2974	HERO-WM11-CDSS	ENGINE CROSS	79UEDIV	DIV	03/30/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	66.7
2975	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/30/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	46.9
3000	HERO-WM11-CDSS	ENGINE CROSS	79UEDIV	DIV	03/31/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	50.3
3001	HERO-WM11-CDSS	ENGINE CROSS	35UEDIV	DIV	03/31/45	155HOW	MEDIUM	12 UNSP	12 UNSP	1 UNSP	1 UNSP	32.8
3202	HERO-WM11-CDSS	PO VALLEY	II CORPS	CORPS	04/14/45	155HOW	MEDIUM	-1 UNSP	-1 UNSP	3 ATEN	3 ATEN	121.6
3207	HERO-WM11-CDSS	PO VALLEY	IV CORPS	CORPS	04/14/45	155HOW	MEDIUM	-1 UNSP	-1 UNSP	9 ATEN	9 ATEN	76.0
19	ORO-WM11-J	OKINAWA	XI1I1I1I	2CORPS	05/01/45	155HOW	MEDIUM	-1 NE	-1 NE	83 ATEN	83 ATEN	-1.0
353	CGSC-E-1	KOREA	US ARMY	THEA	01/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	769 UNSP	769 UNSP	16.9
1948	CGSC-E-1	KOREA	US ARMY	THEA	01/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	31 UNSP	31 UNSP	4.3
1773	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	1 UNSP	1 UNSP	14.5
1602	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	1 UNSP	1 UNSP	32.6
1831	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	1 UNSP	1 UNSP	13.3
1860	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	1 UNSP	1 UNSP	18.3
1889	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	1 UNSP	1 UNSP	25.7
1918	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	1 UNSP	1 UNSP	-1.0
357	CGSC-E-1	KOREA	US ARMY	THEA	02/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	28 UNSP	28 UNSP	16.7
1951	CGSC-E-1	KOREA	US ARMY	THEA	02/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	28 UNSP	28 UNSP	16.7
360	CGSC-E-1	KOREA	US ARMY	THEA	03/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	30 UNSP	30 UNSP	15.0
1954	CGSC-E-1	KOREA	US ARMY	THEA	03/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	31 UNSP	31 UNSP	15.0
363	CGSC-E-1	KOREA	US ARMY	THEA	04/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	30 UNSP	30 UNSP	23.9
1957	CGSC-E-1	KOREA	US ARMY	THEA	04/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	30 UNSP	30 UNSP	23.9
2260	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	61.3
2299	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	47.3
2318	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	21.1
2337	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	26.6
2281	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	21.8
2300	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	9.9
2319	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	28.6
2338	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	11.0
2282	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/13/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	3.7
2301	HERO-WM11-A-CDSF	KOREA	X CORPS	CORPS	04/13/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	13.0
2320	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/13/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	24.6
2339	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	04/13/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	1 UNSP	17.6

DO LAHART	SOURCE	BATTLE	UNIT	SIZE	DATE	TURBTYPE	TUSECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	ROTUBEDAY
2339	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/13/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	17.6
2340	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	16 UNSP	16 UNSP	1 UNSP	UNSP	21.0
2341	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	46.3
2342	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	11.9
2343	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	13.6
2344	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	25.3
2345	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	24.1
2346	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	24.1
2347	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	27.1
2348	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	26.1
2349	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	25.2
2350	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	6.7
2351	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	1.1
2352	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	23.2
2353	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/17/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	16.6
2354	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/17/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	7.6
2355	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/17/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	-1.0
2356	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	30.3
2357	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	22.9
2358	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	12.5
2359	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	26.6
2360	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	37.3
2361	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	16.2
2362	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	2.2
2363	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	4.6
2364	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	28.3
2365	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/20/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	43.9
2366	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/20/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	-1.0
2367	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/21/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	44.0
2368	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/21/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	44.0
2369	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/22/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	38.2
2370	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/22/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	1.4
2371	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/22/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	10.0
2372	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	86.9
2373	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	84.6
2374	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	31.3
2375	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	38.5
2376	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/24/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	54.1
2377	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/24/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	68.1
2378	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/24/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	53.4
2379	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/25/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	19.9
2380	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/25/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	47.4
2381	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/25/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	54.2
2382	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	-1.0
2383	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	53.3
2384	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	1.3
2385	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	74.7
2386	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/27/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	2.1
2387	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	04/27/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	16.0

DO LAHART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	RTUBEDAY
2315	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/27/51	15SHOW	MEDIUM	16	UNSP	1	UNSP	10.9
2324	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/27/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	17.1
2353	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/27/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	30.7
2297	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	1.5
2316	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	28.8
2335	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	2.9
2354	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	1.3
2298	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	3.3
2317	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/29/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	2.5
2336	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/29/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	15.0
2355	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/29/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	2.5
822	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	24.2
853	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	13.1
884	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
915	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	0.0
946	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
977	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
366	CAC-K-1	KOREA	US ARMY	THEA	05/01/51	15SHOW	MEDIUM	-1	UNSP	30	ATEM	36.7
823	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	23.6
854	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	5.0
885	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	2.7
916	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	0.0
947	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
978	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1660	CGSC-K-1	KOREA	US ARMY	THEA	05/01/51	15SHOW	MEDIUM	-1	UNSP	31	UNSP	36.7
824	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	58.6
855	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	69.4
886	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	5.0
917	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	46.4
948	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
979	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
825	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	33.3
856	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	10.0
887	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	18.9
918	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	31.1
949	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	10.0
980	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
826	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	23.7
857	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	15.6
888	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	10.0
919	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	13.0
950	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
981	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
827	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	16.4
858	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	22.1
889	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	17.9
920	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	19.8
951	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
982	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
828	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	43.3
859	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	17.3
890	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	4.7
921	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	2.0
952	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
983	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0

DO LAHART	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEOUANT	TYPEND	DAYOUANT	OPERATION	RETFUREDAY
883	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/06/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
829	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.6
840	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.5
891	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.9
922	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	4.2
953	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
984	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
830	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	47.7
861	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.5
892	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.2
923	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.1
954	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
985	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.5
831	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.5
862	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.1
893	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.0
924	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
955	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	45.0
986	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	40.0
832	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.4
863	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
894	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	26.6
925	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.7
956	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.2
987	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
833	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	66.1
864	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	28.5
895	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	62.0
926	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.6
957	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	40.0
988	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
834	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	94.1
865	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.6
896	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.7
927	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.2
958	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	72.2
989	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
835	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	07.0
866	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	42.3
897	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	01.3
928	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	5.7
959	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	98.7
990	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
836	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	36.6
867	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	89.1
898	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.0
929	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.0
960	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	71.2
991	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
837	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	47.5
868	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	36.2
899	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	91.7
930	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	2.7
961	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.2
992	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0

DO LABART	Source	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUDECAT	TUBEQUNT	TYPED	DAYSQUNT	OPERATION	REQUIREMENT
902	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/13/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
898	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	142.6
899	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	62.2
900	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	147.2
901	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	76.7
902	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	58.0
903	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
898	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	110.5
870	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	129.5
901	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	88.1
902	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	164.2
903	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	63.5
904	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
898	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	132.2
871	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	75.3
902	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	168.3
903	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	131.2
904	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	100.7
905	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
891	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	161.8
872	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	22.5
902	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	66.8
904	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	155.2
905	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	101.1
906	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
892	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	56.5
873	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	36.2
904	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	98.9
903	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	130.1
906	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	127.2
907	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	75.8
893	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	104.1
874	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	76.6
905	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	77.6
906	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	148.6
907	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	74.0
908	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	160.2
894	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	67.6
875	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	57.9
908	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	52.9
907	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	64.0
908	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	99.7
895	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	1.2
907	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	21.0
908	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	33.0
1000	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
896	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	28.7
877	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	36.5
908	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	27.9
909	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	39.6
970	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	21.2
1001	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	118.1
												27.2

DO LAMART

Records SOURCE

DO LAMART	Records SOURCE	BATTLE	UNIT	SIZE	DATE	TUBTYPE	TUBCAT	TUBQUANT	TYPED	BATSQUANT	OPERATION	ESTIMATE
1001	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/24/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	27.2
847	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	20.1
878	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	-1.0
809	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	-1.0
940	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	10.0
971	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	170.0
1002	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	32.0
848	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	2.7
879	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	9.3
910	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	1.5
941	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	6.2
972	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	7.5
1003	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	9.1
849	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	23.7
880	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	25.9
911	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	32.2
942	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	222.0
973	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	22.0
1004	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	29.7
850	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	42.4
881	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	30.5
912	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	26.7
943	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	44.9
974	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	26.2
1005	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	-1.0
851	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	60.9
882	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	44.0
913	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	-1.0
944	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	72.2
975	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	110.5
1006	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	-1.0
852	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	30.3
883	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	22.0
914	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	17.0
945	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	19.7
976	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	62.0
1007	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	-1.0
1008	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	50.4
1028	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	2.6
1009	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	10.0
1008	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	97.2
1008	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	150.0
1128	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	153NOW	MEDIUM	-1	WNSP	30	AYEM	25.0
349	CGSC-E-1	KOREA	US ARMY	THEA	06/01/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	25.2
1009	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	3.6
1029	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	-1.0
1009	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	37.0
1009	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	61.7
1003	CGSC-E-1	KOREA	US ARMY	THEA	06/01/51	153NOW	MEDIUM	-1	WNSP	30	WNSP	25.0
1010	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	25.2
1040	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	67.3
1070	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	25.3
1100	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	18.5
1150	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	55.2
1011	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	153NOW	MEDIUM	-1	WNSP	1	WNSP	28.5

DO LAMART

RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQVANT	TYPERD	DAY	SQUANT	OPERATION	SUBTUBEDAY
1011	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/02/51	155HOW	MEDIUM	-1	UNSP			UNSP	28.5
1041	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/03/51	155HOW	MEDIUM	-1	UNSP			UNSP	44.1
1071	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/02/51	155HOW	MEDIUM	-1	UNSP			UNSP	19.0
1101	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/02/51	155HOW	MEDIUM	-1	UNSP			UNSP	34.0
1131	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/02/51	155HOW	MEDIUM	-1	UNSP			UNSP	34.3
1012	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	34.9
1042	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	20.7
1072	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	29.0
1102	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	51.0
1013	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/05/51	155HOW	MEDIUM	-1	UNSP			UNSP	26.5
1043	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/05/51	155HOW	MEDIUM	-1	UNSP			UNSP	00.5
1073	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/05/51	155HOW	MEDIUM	-1	UNSP			UNSP	29.4
1103	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/05/51	155HOW	MEDIUM	-1	UNSP			UNSP	61.2
1014	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/05/51	155HOW	MEDIUM	-1	UNSP			UNSP	25.0
1044	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	40.2
1074	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	61.2
1104	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	56.2
1134	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	06.0
1015	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/06/51	155HOW	MEDIUM	-1	UNSP			UNSP	100.0
1045	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/07/51	155HOW	MEDIUM	-1	UNSP			UNSP	45.2
1075	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/07/51	155HOW	MEDIUM	-1	UNSP			UNSP	87.0
1105	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/07/51	155HOW	MEDIUM	-1	UNSP			UNSP	65.8
1135	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/07/51	155HOW	MEDIUM	-1	UNSP			UNSP	132.2
1016	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/08/51	155HOW	MEDIUM	-1	UNSP			UNSP	55.7
1046	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/08/51	155HOW	MEDIUM	-1	UNSP			UNSP	75.5
1076	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/08/51	155HOW	MEDIUM	-1	UNSP			UNSP	62.1
1106	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/08/51	155HOW	MEDIUM	-1	UNSP			UNSP	92.1
1136	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/08/51	155HOW	MEDIUM	-1	UNSP			UNSP	150.2
1017	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/08/51	155HOW	MEDIUM	-1	UNSP			UNSP	67.5
1047	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/09/51	155HOW	MEDIUM	-1	UNSP			UNSP	82.1
1077	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/09/51	155HOW	MEDIUM	-1	UNSP			UNSP	102.0
1107	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/09/51	155HOW	MEDIUM	-1	UNSP			UNSP	102.9
1137	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/09/51	155HOW	MEDIUM	-1	UNSP			UNSP	50.2
1018	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/10/51	155HOW	MEDIUM	-1	UNSP			UNSP	50.2
1048	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/10/51	155HOW	MEDIUM	-1	UNSP			UNSP	48.0
1078	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/10/51	155HOW	MEDIUM	-1	UNSP			UNSP	102.6
1108	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/10/51	155HOW	MEDIUM	-1	UNSP			UNSP	132.5
1138	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/10/51	155HOW	MEDIUM	-1	UNSP			UNSP	43.7
1019	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/11/51	155HOW	MEDIUM	-1	UNSP			UNSP	48.6
1049	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/11/51	155HOW	MEDIUM	-1	UNSP			UNSP	35.0
1079	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/11/51	155HOW	MEDIUM	-1	UNSP			UNSP	65.5
1109	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/11/51	155HOW	MEDIUM	-1	UNSP			UNSP	31.3
1139	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/11/51	155HOW	MEDIUM	-1	UNSP			UNSP	128.0
1020	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	50.0
1050	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	92.5
1110	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	73.8
1140	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	70.5
1021	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	68.2
1051	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	72.4
1081	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	70.7
1111	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	27.6
1141	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155HOW	MEDIUM	-1	UNSP			UNSP	50.2

DO LABART

Records SOURCE

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANTY	TYPED	DAYQUANTY	OPERATION	REPTWEDNESDAY
1141	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	36.2
1022	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	35.9
1022	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	36.8
1082	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	57.9
1112	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.4
1142	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	59.8
1022	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	121.4
1052	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIA	-1	UNSP	1	UNSP	50.1
1082	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	29.2
1112	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	166.4
1142	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	70.5
1024	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	18.2
1054	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	92.2
1084	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	60.6
1114	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	54.5
1144	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	51.5
1022	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	44.1
1052	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	72.8
1082	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.3
1112	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	180.8
1142	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	48.8
1026	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	37.3
1056	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	90.5
1086	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	31.6
1116	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	22.4
1146	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	62.7
1027	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	25.6
1057	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	59.6
1087	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	26.9
1117	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.6
1147	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	88.2
1028	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.8
1058	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.8
1088	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	68.8
1118	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	92.2
1148	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.8
1029	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	91.6
1089	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	30.9
1119	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	27.2
1149	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	110.7
1030	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.8
1060	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	28.3
1090	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	37.9
1120	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	60.8
1150	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	82.7
1031	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.8
1061	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	26.8
1091	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	59.2
1121	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	82.7
1151	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	56.7
1022	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	8.8
1062	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	37.9
1092	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	67.8
1122	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	66.8

NO	LANARY	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECA*	TUBEQUNT	TIPERO	DAYQUANT	OPERATION	EDTUBESDAY
1121	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/26/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	88.6
1122	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/26/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	27.8
1033	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	-1.0
1063	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	24.6
1093	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	68.6
1123	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	72.0
1153	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	42.5
1034	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/26/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	-1.0
1064	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/26/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	28.8
1084	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/26/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	58.6
1124	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/26/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	48.8
1134	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/26/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	77.2
1035	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	12.8
1065	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	25.5
1095	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	28.7
1125	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	30.8
1155	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	82.0
1036	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	18.9
1066	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	28.6
1096	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	38.1
1126	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	60.7
1156	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	25.5
1037	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	17.2
1067	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	122.1
1097	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	68.2
1127	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	138.8
1157	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	66.0
1158	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	58.4
1189	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	109.1
1220	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/30/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	118.3
1251	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	06/30/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	72.0
372	COSC-E-1	KOREA	US ARMY	THEA	07/01/51	155MOW	MEDIUM	-1	UNSP	UNSP	30	ATEM	24.9
1159	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	37.8
1190	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	78.5
1221	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	62.5
1232	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	88.2
1164	COSC-E-1	KOREA	US ARMY	THEA	07/01/51	155MOW	MEDIUM	-1	UNSP	UNSP	3	UNSP	28.9
1160	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/02/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	62.0
1191	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/02/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	138.5
1222	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/02/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	49.1
1252	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/02/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	91.6
1161	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/03/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	68.6
1192	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/03/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	76.8
1223	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/03/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	138.3
1254	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/03/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	82.5
1193	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/04/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	82.5
1224	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/04/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	88.9
1163	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/05/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	61.2
1194	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/05/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	36.8
1225	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/05/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	82.1
1255	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/05/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	71.6
1164	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/06/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	45.3
1171	MEMO-W111-E-CD55	KOREA	X CORPS	CORPS	07/06/51	155MOW	MEDIUM	-1	UNSP	UNSP	1	UNSP	87.2

NO	LAHART	SOURCE	BATTLE	UNIT	SIZE	DATE	SUBSTYPE	TUBECAT	TUBERWANT	TYPED	DAYSQWANT	OPERATION	ESTIMATED
1195		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/06/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	07.2
1226		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/06/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1257		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/06/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	01.0
1165		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	00.0
1196		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	101.1
1227		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	00.7
1258		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	104.0
1166		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	32.0
1197		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	43.3
1228		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	27.7
1259		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	104.2
1167		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	15.0
1198		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1229		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.3
1260		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	03.2
1168		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	9.3
1199		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	33.1
1230		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.7
1261		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	00.0
1169		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.2
1200		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	40.5
1231		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	10.0
1262		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	107.3
1170		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.0
1263		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	52.0
1201		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.0
1263		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	335.3
1171		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.3
1202		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	00.7
1233		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.0
1264		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	120.5
1172		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.1
1203		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	00.5
1265		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	105.0
1173		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	2.2
1204		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1235		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.0
1266		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1174		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.1
1205		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.0
1236		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.3
1267		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.1
1175		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.5
1206		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.7
1237		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1268		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.3
1176		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.7
1207		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	4.3
1238		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.1
1269		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.0
1177		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.2
1208		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.6
1239		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1270		HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	07/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0

DO NUMBER	SOURCE	BATTLE	UNIT	SIZE	DATE	TUSTRYPE	TUSTRCAT	SUBSEQUANT	TYPED	DAYS	OPERATION	ESTIMATED
2256	NERO-W111-E-CDS5	KOREA	ICORPS	CORPS	08/01/51	153NOM	MEDIUM	-1	UNSP	31	UNSP	20.4
2257	NERO-W111-E-CDS5	KOREA	ICORPS	CORPS	08/01/51	153NOM	MEDIUM	-1	UNSP	31	UNSP	69.5
1976	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/02/51	153NOM	MEDIUM	18	UNSP	1	UNSP	2.7
2007	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/02/51	153NOM	MEDIUM	18	UNSP	1	UNSP	11.7
2258	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/02/51	153NOM	MEDIUM	18	UNSP	1	UNSP	10.5
1977	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/03/51	153NOM	MEDIUM	18	UNSP	1	UNSP	3.6
2008	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/03/51	153NOM	MEDIUM	18	UNSP	1	UNSP	7.9
2259	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/03/51	153NOM	MEDIUM	18	UNSP	1	UNSP	12.4
1978	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/04/51	153NOM	MEDIUM	18	UNSP	1	UNSP	5.2
2009	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/04/51	153NOM	MEDIUM	18	UNSP	1	UNSP	13.2
2260	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/04/51	153NOM	MEDIUM	18	UNSP	1	UNSP	10.1
1979	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/05/51	153NOM	MEDIUM	18	UNSP	1	UNSP	9.3
2010	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/05/51	153NOM	MEDIUM	18	UNSP	1	UNSP	13.1
2261	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/05/51	153NOM	MEDIUM	18	UNSP	1	UNSP	9.7
1980	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/06/51	153NOM	MEDIUM	18	UNSP	1	UNSP	12.1
2011	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/06/51	153NOM	MEDIUM	18	UNSP	1	UNSP	5.3
2262	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/06/51	153NOM	MEDIUM	18	UNSP	1	UNSP	9.9
1981	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/07/51	153NOM	MEDIUM	18	UNSP	1	UNSP	9.2
2012	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/07/51	153NOM	MEDIUM	18	UNSP	1	UNSP	6.3
2263	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/07/51	153NOM	MEDIUM	18	UNSP	1	UNSP	9.2
1982	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/08/51	153NOM	MEDIUM	18	UNSP	1	UNSP	14.2
2013	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/08/51	153NOM	MEDIUM	18	UNSP	1	UNSP	14.2
2264	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/08/51	153NOM	MEDIUM	18	UNSP	1	UNSP	32.6
1983	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/09/51	153NOM	MEDIUM	18	UNSP	1	UNSP	9.0
2014	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/09/51	153NOM	MEDIUM	18	UNSP	1	UNSP	5.7
2265	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/09/51	153NOM	MEDIUM	18	UNSP	1	UNSP	9.6
1984	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/10/51	153NOM	MEDIUM	18	UNSP	1	UNSP	35.0
2015	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/10/51	153NOM	MEDIUM	18	UNSP	1	UNSP	8.2
2266	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/10/51	153NOM	MEDIUM	18	UNSP	1	UNSP	8.2
1985	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/10/51	153NOM	MEDIUM	18	UNSP	1	UNSP	10.6
2016	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/11/51	153NOM	MEDIUM	18	UNSP	1	UNSP	17.4
2267	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/11/51	153NOM	MEDIUM	18	UNSP	1	UNSP	1.6
1986	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/11/51	153NOM	MEDIUM	18	UNSP	1	UNSP	4.6
2017	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/12/51	153NOM	MEDIUM	18	UNSP	1	UNSP	10.8
2268	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/12/51	153NOM	MEDIUM	18	UNSP	1	UNSP	42.0
1987	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/12/51	153NOM	MEDIUM	18	UNSP	1	UNSP	22.2
2018	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/13/51	153NOM	MEDIUM	18	UNSP	1	UNSP	17.4
2269	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/13/51	153NOM	MEDIUM	18	UNSP	1	UNSP	11.2
1988	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/13/51	153NOM	MEDIUM	18	UNSP	1	UNSP	22.1
2019	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/14/51	153NOM	MEDIUM	18	UNSP	1	UNSP	24.6
2270	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/14/51	153NOM	MEDIUM	18	UNSP	1	UNSP	15.4
1989	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/15/51	153NOM	MEDIUM	18	UNSP	1	UNSP	18.0
2020	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/15/51	153NOM	MEDIUM	18	UNSP	1	UNSP	20.0
2271	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/15/51	153NOM	MEDIUM	18	UNSP	1	UNSP	12.4
1990	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/16/51	153NOM	MEDIUM	18	UNSP	1	UNSP	16.7
2021	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/16/51	153NOM	MEDIUM	18	UNSP	1	UNSP	34.3
2272	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/16/51	153NOM	MEDIUM	18	UNSP	1	UNSP	3.2
1991	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/17/51	153NOM	MEDIUM	18	UNSP	1	UNSP	60.8
2022	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/17/51	153NOM	MEDIUM	18	UNSP	1	UNSP	98.7
2273	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/17/51	153NOM	MEDIUM	18	UNSP	1	UNSP	54.3
1992	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/18/51	153NOM	MEDIUM	18	UNSP	1	UNSP	168.1
2023	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/18/51	153NOM	MEDIUM	18	UNSP	1	UNSP	201.0
2274	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/18/51	153NOM	MEDIUM	18	UNSP	1	UNSP	89.2
1993	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/19/51	153NOM	MEDIUM	18	UNSP	1	UNSP	235.6
2024	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/19/51	153NOM	MEDIUM	18	UNSP	1	UNSP	112.0
2275	NERO-W111-E-CDS5	KOREA	X CORPS	CORPS	08/19/51	153NOM	MEDIUM	18	UNSP	1	UNSP	48.5

DO LABANT	Source	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQVANT	TIPED	DAY	QUANT	OPERATION	ED	TUBEDRAY
2024	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/19/51	155HOW	MEDIUM	10	UNSP		1	UNSP	48.5	
2041	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/19/51	155HOW	MEDIUM	10	UNSP		1	UNSP	156.5	
694	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/20/51	155HOW	MEDIUM	10	UNSP		1	UNSP	48.6	
25	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/20/51	155HOW	MEDIUM	10	UNSP		1	UNSP	32.4	
42	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/20/51	155HOW	MEDIUM	10	UNSP		1	UNSP	138.2	
1995	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/21/51	155HOW	MEDIUM	10	UNSP		1	UNSP	55.6	
2026	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/21/51	155HOW	MEDIUM	10	UNSP		1	UNSP	82.5	
2263	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/21/51	155HOW	MEDIUM	10	UNSP		1	UNSP	108.2	
1996	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/22/51	155HOW	MEDIUM	10	UNSP		1	UNSP	71.8	
2027	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/22/51	155HOW	MEDIUM	10	UNSP		1	UNSP	21.7	
2244	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/22/51	155HOW	MEDIUM	10	UNSP		1	UNSP	34.1	
1997	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/23/51	155HOW	MEDIUM	10	UNSP		1	UNSP	38.2	
2028	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/23/51	155HOW	MEDIUM	10	UNSP		1	UNSP	29.5	
2245	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/23/51	155HOW	MEDIUM	10	UNSP		1	UNSP	31.0	
1998	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/24/51	155HOW	MEDIUM	10	UNSP		1	UNSP	34.8	
2029	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/24/51	155HOW	MEDIUM	10	UNSP		1	UNSP	32.7	
2246	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/24/51	155HOW	MEDIUM	10	UNSP		1	UNSP	49.2	
1999	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/25/51	155HOW	MEDIUM	10	UNSP		1	UNSP	37.4	
2030	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/25/51	155HOW	MEDIUM	10	UNSP		1	UNSP	38.9	
2247	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/25/51	155HOW	MEDIUM	10	UNSP		1	UNSP	186.7	
2000	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/26/51	155HOW	MEDIUM	10	UNSP		1	UNSP	100.6	
2031	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/26/51	155HOW	MEDIUM	10	UNSP		1	UNSP	48.1	
2248	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/26/51	155HOW	MEDIUM	10	UNSP		1	UNSP	169.9	
2001	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/27/51	155HOW	MEDIUM	10	UNSP		1	UNSP	89.5	
2032	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/27/51	155HOW	MEDIUM	10	UNSP		1	UNSP	119.3	
2249	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/27/51	155HOW	MEDIUM	10	UNSP		1	UNSP	168.8	
2002	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/28/51	155HOW	MEDIUM	10	UNSP		1	UNSP	24.3	
2033	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/28/51	155HOW	MEDIUM	10	UNSP		1	UNSP	183.1	
2250	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/28/51	155HOW	MEDIUM	10	UNSP		1	UNSP	91.8	
2003	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/29/51	155HOW	MEDIUM	10	UNSP		1	UNSP	25.1	
2034	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/29/51	155HOW	MEDIUM	10	UNSP		1	UNSP	173.2	
2251	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/29/51	155HOW	MEDIUM	10	UNSP		1	UNSP	141.5	
2004	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/30/51	155HOW	MEDIUM	10	UNSP		1	UNSP	65.5	
2035	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/30/51	155HOW	MEDIUM	10	UNSP		1	UNSP	157.6	
2252	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/30/51	155HOW	MEDIUM	10	UNSP		1	UNSP	116.4	
2005	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/31/51	155HOW	MEDIUM	10	UNSP		1	UNSP	55.8	
2036	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	08/31/51	155HOW	MEDIUM	10	UNSP		1	UNSP	142.1	
378	CGS-E-1	KOREA	US ARMY	THEA	09/01/51	155HOW	MEDIUM	30	AYEM		30	AYEM	21.7	
1972	CGS-E-1	KOREA	US ARMY	THEA	09/01/51	155HOW	MEDIUM	30	UNSP		30	UNSP	21.7	
2254	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155HOW	MEDIUM	30	UNSP		30	UNSP	58.3	
2257	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155HOW	MEDIUM	30	UNSP		30	UNSP	48.8	
2276	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155HOW	MEDIUM	30	UNSP		30	UNSP	69.3	
2399	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155HOW	MEDIUM	10	UNSP		1	UNSP	89.7	
2429	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155HOW	MEDIUM	10	UNSP		1	UNSP	40.1	
2437	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155HOW	MEDIUM	10	UNSP		1	UNSP	122.8	
2400	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/02/51	155HOW	MEDIUM	10	UNSP		1	UNSP	79.1	
2430	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/02/51	155HOW	MEDIUM	10	UNSP		1	UNSP	32.5	
2438	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/02/51	155HOW	MEDIUM	10	UNSP		1	UNSP	93.1	
2401	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155HOW	MEDIUM	10	UNSP		1	UNSP	78.9	
2431	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155HOW	MEDIUM	10	UNSP		1	UNSP	43.5	
2439	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155HOW	MEDIUM	10	UNSP		1	UNSP	72.8	
2402	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/04/51	155HOW	MEDIUM	10	UNSP		1	UNSP	36.6	
2432	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/04/51	155HOW	MEDIUM	10	UNSP		1	UNSP	60.8	
2440	NERO-W111-E-CD55	KOREA	X CORPS	CORPS	09/04/51	155HOW	MEDIUM	10	UNSP		1	UNSP	109.7	

DO LAHART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	RTUBEDBY
2400	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/04/51	155HOW	MEDIUM	18 UNSP	1	UNSP		185.7
2403	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/05/51	155HOW	MEDIUM	18 UNSP	1	UNSP		72.7
2423	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155HOW	MEDIUM	18 UNSP	1	UNSP		31.1
2401	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155HOW	MEDIUM	18 UNSP	1	UNSP		67.5
2404	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/06/51	155HOW	MEDIUM	18 UNSP	1	UNSP		23.7
2434	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/06/51	155HOW	MEDIUM	18 UNSP	1	UNSP		3.7
2402	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/06/51	155HOW	MEDIUM	18 UNSP	1	UNSP		23.0
2405	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/07/51	155HOW	MEDIUM	18 UNSP	1	UNSP		6.0
2403	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/07/51	155HOW	MEDIUM	18 UNSP	1	UNSP		6.3
2406	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP		48.7
2436	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP		11.2
2404	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP		45.2
2407	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP		38.0
2437	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/09/51	155HOW	MEDIUM	18 UNSP	1	UNSP		33.8
2405	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/09/51	155HOW	MEDIUM	18 UNSP	1	UNSP		50.8
2408	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP		12.3
2438	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP		21.0
2406	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP		35.7
2409	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP		26.2
2439	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP		23.0
2407	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP		9.1
2416	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP		41.6
2408	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP		21.0
2408	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP		75.9
2411	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP		30.2
2401	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP		46.9
2409	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP		95.5
2412	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP		54.5
2402	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP		46.3
2430	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP		99.7
2413	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/15/51	155HOW	MEDIUM	18 UNSP	1	UNSP		61.6
2403	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/15/51	155HOW	MEDIUM	18 UNSP	1	UNSP		114.0
2401	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/15/51	155HOW	MEDIUM	18 UNSP	1	UNSP		91.1
2416	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/16/51	155HOW	MEDIUM	18 UNSP	1	UNSP		72.0
2402	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/16/51	155HOW	MEDIUM	18 UNSP	1	UNSP		90.1
2413	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/17/51	155HOW	MEDIUM	18 UNSP	2	UNSP		66.1
2405	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/17/51	155HOW	MEDIUM	18 UNSP	1	UNSP		61.3
2403	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/17/51	155HOW	MEDIUM	18 UNSP	1	UNSP		29.3
2416	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP		54.0
2404	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP		101.0
2404	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP		74.1
2417	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP		43.3
2407	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP		50.0
2405	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP		92.0
2418	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP		46.0
2408	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP		16.0
2405	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP		70.0
2419	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP		21.0
2409	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP		26.1
2420	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	1	UNSP		25.6
2400	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	1	UNSP		37.3
2406	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	1	UNSP		59.6

DO LAMART Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	EFFUSEDAY
2458	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	39.4
2459	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/23/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	32.6
2451	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	19.1
2450	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/23/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	39.9
2422	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/24/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	29.2
2452	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/24/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	36.2
2460	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/24/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	36.9
2423	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/25/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	46.6
2453	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/25/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	15.1
2461	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/25/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	35.1
2424	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/26/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	55.5
2454	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/26/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	16.3
2462	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/26/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	27.2
2425	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/27/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	161.1
2455	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/27/51	155HOW	MEDIUM	1 UNSP	1 UNSP	1 UNSP	UNSP	19.8
2463	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/27/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	26.1
2426	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/28/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	63.2
2456	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/28/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	16.9
2464	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/28/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	24.6
2427	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/29/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	47.6
2457	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/29/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	11.3
2465	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/29/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	14.6
2458	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/30/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	51.1
2460	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/30/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	24.0
2434	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/30/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	31.5
381	CGSC-E-1	KOREA	US ARMY	TREA	10/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	38 ATEN	UNSP	39.4
528	CMH-E-1 & CGSC-E-1	KOREA	US ARMY	TREA	10/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	31 UNSP	UNSP	28.4
2255	HERO-WM11-E-CD55	KOREA	XCORPS	CORPS	10/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	32 UNSP	UNSP	75.2
2258	HERO-WM11-E-CD55	KOREA	XCORPS	CORPS	10/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	22 UNSP	UNSP	35.9
2479	HERO-WM11-E-CD55	KOREA	XCORPS	CORPS	10/01/51	155HOW	MEDIUM	-1 UNSP	-1 UNSP	22 UNSP	UNSP	56.6
2459	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/01/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	69.9
2481	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/01/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	64.5
2435	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/01/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	48.9
2460	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/02/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	43.1
2482	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/02/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	42.1
2436	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/02/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	38.0
2461	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/03/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	48.3
2483	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/03/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	28.5
2437	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/03/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	21.2
2462	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/04/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	32.5
2484	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/04/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	22.1
2438	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/04/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	25.9
2463	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/05/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	80.4
2485	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/05/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	29.9
2439	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/05/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	84.0
2464	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/06/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	78.0
2466	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/06/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	58.8
2460	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/06/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	95.3
2465	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/07/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	122.6
2487	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/07/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	58.1
2441	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/07/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	72.7
2468	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	143.0
2442	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	56.9
2442	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	96.7
2467	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/09/51	155HOW	MEDIUM	18 UNSP	18 UNSP	1 UNSP	UNSP	114.2

DO LHMART	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUSECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	BOTWSEDAY
2467	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18	UNSP	1	UNSP	114.2
2468	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/09/51	155HOW	MEDIUM	18	UNSP	1	UNSP	25.6
2469	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18	UNSP	1	UNSP	104.1
2470	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	84.2
2471	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	35.2
2472	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	58.5
2473	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/11/51	155HOW	MEDIUM	18	UNSP	1	UNSP	132.3
2474	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/11/51	155HOW	MEDIUM	18	UNSP	1	UNSP	96.6
2475	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18	UNSP	1	UNSP	68.8
2476	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18	UNSP	1	UNSP	32.1
2477	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18	UNSP	1	UNSP	56.7
2478	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18	UNSP	1	UNSP	78.4
2479	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/13/51	155HOW	MEDIUM	18	UNSP	1	UNSP	28.7
2480	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/13/51	155HOW	MEDIUM	18	UNSP	1	UNSP	75.9
2481	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/14/51	155HOW	MEDIUM	18	UNSP	1	UNSP	92.8
2482	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/14/51	155HOW	MEDIUM	18	UNSP	1	UNSP	58.7
2483	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/14/51	155HOW	MEDIUM	18	UNSP	1	UNSP	75.3
2484	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/15/51	155HOW	MEDIUM	18	UNSP	1	UNSP	58.3
2485	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/15/51	155HOW	MEDIUM	18	UNSP	1	UNSP	57.1
2486	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/16/51	155HOW	MEDIUM	18	UNSP	1	UNSP	85.1
2487	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/16/51	155HOW	MEDIUM	18	UNSP	1	UNSP	47.2
2488	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/16/51	155HOW	MEDIUM	18	UNSP	1	UNSP	99.6
2489	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/17/51	155HOW	MEDIUM	18	UNSP	1	UNSP	38.8
2490	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/17/51	155HOW	MEDIUM	18	UNSP	1	UNSP	62.5
2491	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/18/51	155HOW	MEDIUM	18	UNSP	1	UNSP	79.1
2492	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/18/51	155HOW	MEDIUM	18	UNSP	1	UNSP	28.8
2493	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/18/51	155HOW	MEDIUM	18	UNSP	1	UNSP	42.3
2494	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/19/51	155HOW	MEDIUM	18	UNSP	1	UNSP	50.3
2495	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/19/51	155HOW	MEDIUM	18	UNSP	1	UNSP	35.1
2496	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/19/51	155HOW	MEDIUM	18	UNSP	1	UNSP	38.3
2497	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/20/51	155HOW	MEDIUM	18	UNSP	1	UNSP	19.1
2498	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/20/51	155HOW	MEDIUM	18	UNSP	1	UNSP	32.3
2499	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/20/51	155HOW	MEDIUM	18	UNSP	1	UNSP	37.9
2500	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/21/51	155HOW	MEDIUM	18	UNSP	1	UNSP	37.7
2501	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/21/51	155HOW	MEDIUM	18	UNSP	1	UNSP	31.5
2502	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/21/51	155HOW	MEDIUM	18	UNSP	1	UNSP	32.3
2503	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18	UNSP	1	UNSP	78.8
2504	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18	UNSP	1	UNSP	43.6
2505	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18	UNSP	1	UNSP	87.8
2506	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18	UNSP	1	UNSP	64.5
2507	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18	UNSP	30	ATM	23.0
2508	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18	UNSP	30	UNSP	23.0
2509	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	23.4
2510	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	30.8
2511	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	29.2
2512	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	27.1
2513	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/10/51	155HOW	MEDIUM	18	UNSP	1	UNSP	89.7
2514	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/11/51	155HOW	MEDIUM	18	UNSP	1	UNSP	38.9
2515	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/11/51	155HOW	MEDIUM	18	UNSP	1	UNSP	16.5
2516	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/11/51	155HOW	MEDIUM	18	UNSP	1	UNSP	22.7
2517	HERO-WM11-K-CDSS	KOREA	X CORPS	CORPS	11/11/51	155HOW	MEDIUM	18	UNSP	1	UNSP	11.0

DO LAMART	Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DATE	QUANT	OPERATION	EDUCATED
	1569	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	11.0
	1599	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	19.2
	1490	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	42.2
	1510	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	31.6
	1540	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	26.3
	1570	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	40.6
	1600	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	12.5
	1681	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	28.8
	1711	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	30.8
	1541	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	44.0
	1571	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	37.5
	1691	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	41.5
	1682	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	19.7
	1512	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	19.7
	1542	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	7.1
	1572	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	19.9
	1683	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	11.2
	1513	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	12.5
	1543	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	36.2
	1573	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	15.7
	1603	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	49.6
	1684	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	11.0
	1514	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	35.8
	1544	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	43.9
	1574	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	33.6
	1604	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/16/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	51.7
	1685	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	47.9
	1515	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	37.0
	1545	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	41.2
	1575	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	33.2
	1605	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/17/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	55.7
	1486	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	28.1
	1516	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	22.7
	1546	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	27.2
	1576	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	30.3
	1606	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/18/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	47.5
	1487	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	55.2
	1517	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	29.0
	1547	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	48.1
	1577	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	39.4
	1607	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	42.7
	1488	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	56.2
	1518	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	44.3
	1548	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	35.0
	1578	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	27.0
	1608	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	27.0
	1489	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	26.3
	1519	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	15.7
	1549	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	18.1
	1579	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	6.7
	1609	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	23.7
	1490	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	21.1
	1520	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	18.5
	1550	NERO-W111-K-CD55	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1	17.9

DO LAMART	RECORDS SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAP	TUBEQUANT	TYPED	DAY	QUANT	OPERATION	EDF	EDF	EDF	EDF
1550	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	17.9			
1550	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	7.0			
1610	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	60.0			
1681	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	36.3			
1521	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	28.0			
1531	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	64.5			
1581	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	22.5			
1611	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	29.7			
1492	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	18.0			
1522	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	27.6			
1552	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	55.0			
1582	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	18.8			
1612	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	30.7			
1493	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	49.1			
1523	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	25.7			
1553	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	37.0			
1583	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	12.0			
1613	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	64.0			
1494	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	25.0			
1524	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	35.9			
1554	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	60.7			
1584	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	32.2			
1614	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	52.7			
1495	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	32.3			
1525	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	7.4			
1555	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	48.4			
1585	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	0.7			
1615	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	30.2			
1496	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	37.0			
1527	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	24.1			
1557	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	117.9			
1587	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	1.3			
1617	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	30.0			
1282	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	15.5			
1313	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	18.0			
1344	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	31.5			
1375	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	0.2			
1406	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	7.0			
1437	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	-1.0			
1468	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	13.1			
1498	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	18.0			
1528	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	6.2			
1558	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	55.7			
1588	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	11/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	32.5			
1598	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	13.8			
387	CGSC-E-1	KOREA	US ARMY	THEA	12/01/51	155HOW	MEDIUM	-1	UNSP	30	ATEM	UNSP	13.6			
520	CGM-E-1 & CGSC-E-1	KOREA	US ARMY	THEA	12/01/51	155HOW	MEDIUM	-1	UNSP	31	UNSP	UNSP	13.6			
1282	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	31.0			
1314	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	3.6			
1345	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	10.5			
1376	HERO-WM11-E-CDS8	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	UNSP	7.6			

DO LAMART
Records SOURCE

DO LAMART	Records SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEOVANT TYPED	DAYSOVANT	OPERATION	EDTUBEDAT
1376	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	7.6
1377	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	6.0
1378	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	-1.0
1379	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	19.9
1380	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	17.1
1381	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	16.0
1382	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	42.5
1383	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/01/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	46.7
1384	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	9.6
1385	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	3.6
1386	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	6.2
1387	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	5.2
1388	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	8.7
1389	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	-1.0
1390	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	22.0
1391	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	26.0
1392	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	31.1
1393	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	57.2
1394	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	56.2
1395	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	27.1
1396	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	16.1
1397	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	4.8
1398	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	24.0
1399	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	-1.0
1400	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	12.6
1401	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	23.6
1402	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	32.1
1403	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	25.2
1404	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/02/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	50.4
1405	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	9.2
1406	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	15.5
1407	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	20.2
1408	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	44.2
1409	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	-1.0
1410	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	14.3
1411	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	7.6
1412	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	35.4
1413	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	5.0
1414	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	24.0
1415	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	19.2
1416	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	14.4
1417	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	22.7
1418	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	17.7
1419	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	54.0
1420	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	-1.0
1421	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	12.2
1422	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	17.3
1423	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	25.0
1424	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	17.0
1425	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	41.0
1426	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/04/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	23.7
1427	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	10.0
1428	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	UNSP	10.4

DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	SAVSQUANT	OPERATION	ESP/SECURITY
1350	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	10.4
1381	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	5.2
1412	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	24.2
1443	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1474	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	32.0
1504	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	24.3
1534	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	33.0
1564	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.2
1594	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/06/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	30.5
1289	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	29.0
1220	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	3.0
1351	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1382	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	17.4
1413	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	32.5
1444	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1475	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	02.0
1505	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	32.2
1535	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	17.3
1565	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	31.7
1595	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	24.5
1290	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/07/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	10.7
1321	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	10.0
1352	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	17.3
1383	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.9
1414	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	0.3
1445	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1476	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	04.5
1506	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	04.0
1536	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1566	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	20.0
1596	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	24.1
1291	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	25.1
1322	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	32.1
1353	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.4
1384	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	19.4
1415	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1446	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.9
1477	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.7
1507	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.4
1537	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.1
1567	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	9.1
1597	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/08/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	23.8
1292	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	11.3
1323	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	7.7
1354	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-3.0
1385	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	11.3
1416	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.1
1447	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	14.2
1478	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	0.0
1508	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	7.5
1538	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	26.0
1568	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1598	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/11/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0

DO LAHART
Records

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE TYPE	TUBECAT	TUBQUANT	TYPES	DATE	OPERATION	EFF
1448	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/12/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1449	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.2
1450	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.2
1451	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.5
1452	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	6.0
1453	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	28.5
1454	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1455	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.8
1456	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	19.9
1457	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	25.0
1458	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	28.0
1459	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	9.2
1460	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1461	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	6.0
1462	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1463	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1464	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	17.5
1465	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.7
1466	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	17.6
1467	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	9.2
1468	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.5
1469	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	32.1
1470	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	13.5
1471	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1472	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1473	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/18/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	28.0
1474	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/18/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	51.0
1475	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/18/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1476	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	19.2
1477	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1478	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.7
1479	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	27.2
1480	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	10.5
1481	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1482	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.1
1483	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.3
1484	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.5
1485	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	12.2
1486	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1487	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	27.8
1488	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.6
1489	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	29.7
1490	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	23.6
1491	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.7
1492	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1493	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	23.2

DO LAMART Record SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQWART	TYPEB	DATEQWART	OPERATION	RETURNED
1454	HERO-WM11-E-CD55	X CORPS	CORPS	12/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.2
1304	HERO-WM11-E-CD55	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.1
1335	HERO-WM11-E-CD55	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.3
1466	HERO-WM11-E-CD55	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.9
1367	HERO-WM11-E-CD55	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.6
1428	HERO-WM11-E-CD55	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.6
1459	HERO-WM11-E-CD55	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.3
1305	HERO-WM11-E-CD55	X CORPS	CORPS	12/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	31.0
1326	HERO-WM11-E-CD55	X CORPS	CORPS	12/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	22.2
1367	HERO-WM11-E-CD55	X CORPS	CORPS	12/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.9
1398	HERO-WM11-E-CD55	X CORPS	CORPS	12/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.7
1429	HERO-WM11-E-CD55	X CORPS	CORPS	12/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1460	HERO-WM11-E-CD55	X CORPS	CORPS	12/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.6
1306	HERO-WM11-E-CD55	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.0
1327	HERO-WM11-E-CD55	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	31.9
1368	HERO-WM11-E-CD55	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	14.2
1399	HERO-WM11-E-CD55	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.0
1461	HERO-WM11-E-CD55	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1307	HERO-WM11-E-CD55	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	48.3
1328	HERO-WM11-E-CD55	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.4
1369	HERO-WM11-E-CD55	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.5
1400	HERO-WM11-E-CD55	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.6
1431	HERO-WM11-E-CD55	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	5.8
1462	HERO-WM11-E-CD55	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1308	HERO-WM11-E-CD55	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.9
1329	HERO-WM11-E-CD55	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.2
1368	HERO-WM11-E-CD55	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.0
1398	HERO-WM11-E-CD55	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.6
1370	HERO-WM11-E-CD55	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.6
1401	HERO-WM11-E-CD55	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1432	HERO-WM11-E-CD55	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	22.5
1463	HERO-WM11-E-CD55	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1309	HERO-WM11-E-CD55	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	28.7
1329	HERO-WM11-E-CD55	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	31.2
1369	HERO-WM11-E-CD55	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1371	HERO-WM11-E-CD55	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.6
1433	HERO-WM11-E-CD55	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1464	HERO-WM11-E-CD55	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	38.9
1310	HERO-WM11-E-CD55	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.8
1341	HERO-WM11-E-CD55	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	15.2
1372	HERO-WM11-E-CD55	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.8
1403	HERO-WM11-E-CD55	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	15.2
1434	HERO-WM11-E-CD55	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1465	HERO-WM11-E-CD55	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	41.0
1311	HERO-WM11-E-CD55	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	28.3
1342	HERO-WM11-E-CD55	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.3
1373	HERO-WM11-E-CD55	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.3
1404	HERO-WM11-E-CD55	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1435	HERO-WM11-E-CD55	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1466	HERO-WM11-E-CD55	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	36.3
1312	HERO-WM11-E-CD55	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.3
1343	HERO-WM11-E-CD55	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	32.2
1374	HERO-WM11-E-CD55	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.6
1405	HERO-WM11-E-CD55	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.2
1436	HERO-WM11-E-CD55	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1467	HERO-WM11-E-CD55	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	69.8

DO LAMART

Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUNT	TYPERD	DAYSOQUNT	OPERATION	RTFVEDAY
1896	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/10/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1928	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/10/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1764	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/11/52	155MOW	MEDIUM	-1	SP	1	UNSP	-1.0
1812	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/11/52	155MOW	MEDIUM	-1	SP	1	UNSP	-1.0
1842	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/11/52	155MOW	MEDIUM	-1	SP	1	UNSP	2.3
1871	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/11/52	155MOW	MEDIUM	-1	SP	1	UNSP	-1.0
1908	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/11/52	155MOW	MEDIUM	-1	SP	1	UNSP	-1.0
1929	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/11/52	155MOW	MEDIUM	-1	SP	1	UNSP	-1.0
1765	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/12/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	9.0
1814	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/12/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1843	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/12/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1872	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/12/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1961	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/12/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1930	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/12/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	3.0
1766	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/13/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1815	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/13/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1846	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/13/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1873	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/13/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1902	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/13/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1916	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/13/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1845	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/14/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1874	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/14/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1903	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/14/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	3.0
1922	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/14/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	8.5
1788	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/15/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	23.2
1817	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/15/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	14.7
1846	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/16/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	13.9
1875	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/16/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	15.5
1904	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/16/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	29.4
1845	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	27.0
1876	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	23.5
1906	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	22.1
1935	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	16.0
1818	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	16.1
1848	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	29.6
1907	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	20.0
1934	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1750	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	15.5
1819	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	18.3
1849	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	33.2
1877	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	22.5
1908	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	20.0
1935	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/17/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	16.1
1781	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1820	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	15.0
1849	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	23.0
1878	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1907	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	28.0
1936	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/18/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1756	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/19/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	15.0
1792	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/19/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	28.2
1821	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/19/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	14.4
1850	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/19/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	15.1
1879	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/19/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	23.0
1908	HERO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/19/52	155MOW	MEDIUM	-1	UNSP	1	UNSP	23.0

DO LAHART	RECORD#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSONANT	OPERATION	EDTUBEDAT
	1906	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/19/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.0
	1907	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/19/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.5
	1908	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.9
	1909	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	15.4
	1910	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.3
	1911	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	5.5
	1912	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.5
	1913	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.4
	1914	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	15.6
	1915	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.3
	1916	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	10.9
	1917	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.6
	1918	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
	1919	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.0
	1920	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.0
	1921	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.2
	1922	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.0
	1923	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.2
	1924	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.7
	1925	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.1
	1926	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.1
	1927	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.1
	1928	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.0
	1929	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	28.2
	1930	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.5
	1931	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.6
	1932	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.9
	1933	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.8
	1934	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	8.9
	1935	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.4
	1936	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.7
	1937	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	26.0
	1938	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.7
	1939	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.9
	1940	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.3
	1941	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	22.6
	1942	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.1
	1943	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.1
	1944	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.2
	1945	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	27.5
	1946	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.1
	1947	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.2
	1948	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
	1949	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.0
	1950	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.9
	1951	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.7
	1952	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	17.2
	1953	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	22.2
	1954	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.0
	1955	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.0
	1956	HERO-W111-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.9

DO LAMBERT	RECORDED SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	REPTURDAY
1917	HERO-BWII-E-CD55	KOREA	X CORPS	CORPS	02/28/52	1530W	MEDIUM	-1	UNSP	1	UNSP	29.9
1946	HERO-BWII-E-CD55	KOREA	X CORPS	CORPS	02/28/52	1530W	MEDIUM	-1	UNSP	1	UNSP	32.9
533	CM-K-1	KOREA	US ARMY	THEA	03/01/52	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
536	CM-K-1	KOREA	US ARMY	THEA	04/01/52	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
790	CM-K-1	KOREA	US ARMY	THEA	05/01/52	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
791	CM-K-1	KOREA	US ARMY	THEA	06/01/52	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
792	CM-K-1	KOREA	US ARMY	THEA	07/01/52	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
793	CM-K-1	KOREA	US ARMY	THEA	08/01/52	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
794	CM-K-1	KOREA	US ARMY	THEA	09/01/52	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
795	CM-K-1	KOREA	US ARMY	THEA	10/01/52	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
796	CM-K-1	KOREA	US ARMY	THEA	11/01/52	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
797	CM-K-1	KOREA	US ARMY	THEA	12/01/52	1530W	MEDIUM	-1	UNSP	21	UNSP	-1.0
798	CM-K-1	KOREA	US ARMY	THEA	01/01/53	1530W	MEDIUM	-1	UNSP	21	UNSP	-1.0
799	CM-K-1	KOREA	US ARMY	THEA	02/01/53	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
800	CM-K-1	KOREA	US ARMY	THEA	03/01/53	1530W	MEDIUM	-1	UNSP	21	UNSP	-1.0
801	CM-K-1	KOREA	US ARMY	THEA	04/01/53	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
802	CM-K-1	KOREA	US ARMY	THEA	05/01/53	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
803	CM-K-1	KOREA	US ARMY	THEA	06/01/53	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
804	CM-K-1	KOREA	US ARMY	THEA	07/01/53	1530W	MEDIUM	-1	UNSP	21	UNSP	-1.0
805	CM-K-1	KOREA	US ARMY	THEA	08/01/53	1530W	MEDIUM	-1	UNSP	21	UNSP	-1.0
807	CM-VN-1	PRE-TET	IUS IN DIV	DIV	01/29/67	1530W	MEDIUM	-1	UNSP	100	UNSP	-1.0
808	CM-VN-1	TET	IUS IN DIV	DIV	02/01/67	1530W	MEDIUM	-1	UNSP	30	PD	-1.0
390	NA-VN-1	OP JUNC CITY	IUS IN DIV	DIV	02/23/67	1530W	MEDIUM	-1	NE	31	FROM	24.0
394	NA-VN-1	OP JUNC CITY	IUS IN DIV	DIV	02/15/67	1530W	MEDIUM	-1	NE	31	FROM	52.9
602	NA-VN-3	OP DALLAS	IUS IN DIV	DIV	05/17/67	1530W	MEDIUM	-1	NE	9	FROM	42.2
398	NA-VN-3	OP BILLINGS	IUS IN DIV	DIV	05/11/67	1530W	MEDIUM	-1	NE	16	FROM	61.0
413	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1530W	MEDIUM	-1	UNSP	300	UNSP	33.8
628	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1530W	MEDIUM	-1	UNSP	365	UNSP	33.8
638	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1530W	MEDIUM	-1	UNSP	365	UNSP	-1.0
2868	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	23.9
2874	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	25.4
2888	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/68	1530W	MEDIUM	-1	UNSP	30	UNSP	24.8
421	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	300	UNSP	23.8
621	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	365	UNSP	23.8
639	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	365	UNSP	-1.0
2886	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	20.1
2892	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	1530W	MEDIUM	-1	UNSP	30	UNSP	21.4
2898	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	27.1
2904	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	1530W	MEDIUM	-1	UNSP	28	UNSP	25.1
2910	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	1530W	MEDIUM	-1	UNSP	28	UNSP	22.1
2916	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/69	1530W	MEDIUM	-1	UNSP	31	UNSP	27.2
2922	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/69	1530W	MEDIUM	-1	UNSP	31	UNSP	23.9
433	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	1530W	MEDIUM	-1	UNSP	26	UNSP	23.9
534	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	1530W	MEDIUM	283	UNSP	30	UNSP	27.3
555	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/69	1530W	MEDIUM	286	UNSP	30	UNSP	28.5
556	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	1530W	MEDIUM	286	UNSP	30	UNSP	26.2
627	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	-1	UNSP	266	UNSP	28.8
557	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	289	UNSP	30	UNSP	28.3
632	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	-1	UNSP	305	UNSP	29.8
558	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	-1	UNSP	265	UNSP	-1.0
559	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	1530W	MEDIUM	264	UNSP	30	UNSP	29.6
560	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	1530W	MEDIUM	257	UNSP	30	UNSP	27.4
561	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	1530W	MEDIUM	260	UNSP	30	UNSP	25.5
562	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	1530W	MEDIUM	229	UNSP	30	UNSP	30.0

DO	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE TYPE	TUBECAY	TUBEQVANT	TIPERS	DAYSONANT	OPERATION	ESTUBEDAY
562	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	1550W	MEDIUM	228 UNSP	32 UNSP	32 UNSP	32 UNSP	30.8
563	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	1550W	MEDIUM	181 UNSP	38 UNSP	38 UNSP	38 UNSP	32.3
564	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	1550W	MEDIUM	170 UNSP	30 UNSP	30 UNSP	30 UNSP	37.4
565	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	1550W	MEDIUM	168 UNSP	30 UNSP	30 UNSP	30 UNSP	40.6
236	PH101-10-1 J6L 76	NONE	AR DIV	DIV	07/30/76	1550W	MEDIUM	-1 NE	-1 PHON	-1 PHON	-1 PHON	58.0
415	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1750G	HEAVY	300 UNSP	300 UNSP	300 UNSP	300 UNSP	19.9
617	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1750G	HEAVY	265 UNSP	265 UNSP	265 UNSP	265 UNSP	19.0
435	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1750G	HEAVY	265 UNSP	265 UNSP	265 UNSP	265 UNSP	1.0
2867	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/68	1750G	HEAVY	31 UNSP	31 UNSP	31 UNSP	31 UNSP	19.0
2873	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/68	1750G	HEAVY	31 UNSP	31 UNSP	31 UNSP	31 UNSP	16.9
2879	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/68	1750G	HEAVY	30 UNSP	30 UNSP	30 UNSP	30 UNSP	16.6
420	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1750G	HEAVY	268 UNSP	268 UNSP	268 UNSP	268 UNSP	18.0
618	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1750G	HEAVY	305 UNSP	305 UNSP	305 UNSP	305 UNSP	18.0
638	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1750G	HEAVY	305 UNSP	305 UNSP	305 UNSP	305 UNSP	1.0
2891	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	1750G	HEAVY	30 UNSP	30 UNSP	30 UNSP	30 UNSP	15.0
2897	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	1750G	HEAVY	31 UNSP	31 UNSP	31 UNSP	31 UNSP	14.8
2903	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	1750G	HEAVY	31 UNSP	31 UNSP	31 UNSP	31 UNSP	20.3
2908	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	1750G	HEAVY	30 UNSP	30 UNSP	30 UNSP	30 UNSP	10.9
2915	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/69	1750G	HEAVY	31 UNSP	31 UNSP	31 UNSP	31 UNSP	21.2
2921	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/69	1750G	HEAVY	31 UNSP	31 UNSP	31 UNSP	31 UNSP	28.0
2927	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	1750G	HEAVY	30 UNSP	30 UNSP	30 UNSP	30 UNSP	19.0
432	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	1750G	HEAVY	30 UNSP	30 UNSP	30 UNSP	30 UNSP	19.0
542	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	1750G	HEAVY	45 UNSP	45 UNSP	45 UNSP	45 UNSP	22.2
543	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/69	1750G	HEAVY	37 UNSP	37 UNSP	37 UNSP	37 UNSP	26.0
544	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	1750G	HEAVY	44 UNSP	44 UNSP	44 UNSP	44 UNSP	22.5
626	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750G	HEAVY	37 UNSP	37 UNSP	37 UNSP	37 UNSP	20.2
545	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750G	HEAVY	37 UNSP	37 UNSP	37 UNSP	37 UNSP	20.2
614	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750G	HEAVY	365 UNSP	365 UNSP	365 UNSP	365 UNSP	20.2
637	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750G	HEAVY	365 UNSP	365 UNSP	365 UNSP	365 UNSP	1.0
546	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	1750G	HEAVY	42 UNSP	42 UNSP	42 UNSP	42 UNSP	18.0
547	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	1750G	HEAVY	36 UNSP	36 UNSP	36 UNSP	36 UNSP	14.0
548	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	1750G	HEAVY	43 UNSP	43 UNSP	43 UNSP	43 UNSP	19.2
549	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	1750G	HEAVY	37 UNSP	37 UNSP	37 UNSP	37 UNSP	25.1
550	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	1750G	HEAVY	46 UNSP	46 UNSP	46 UNSP	46 UNSP	18.4
551	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	1750G	HEAVY	42 UNSP	42 UNSP	42 UNSP	42 UNSP	18.1
552	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	1750G	HEAVY	62 UNSP	62 UNSP	62 UNSP	62 UNSP	28.1
553	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	1750G	HEAVY	58 UNSP	58 UNSP	58 UNSP	58 UNSP	19.5
394	TO1-WM11-1	ITALY	US ARMY	THEA	01/01/43	2030G	HEAVY	728 ATEN	728 ATEN	728 ATEN	728 ATEN	19.1
69	HERO-WM11-CDS5	DIADEN	80US IN DIV	DIV	05/11/44	2030G	HEAVY	-1 UNSP	17 BAPD	17 BAPD	17 BAPD	17.6
77	HERO-WM11-CDS3	DIADEN	80US IN DIV	DIV	05/11/44	2030G	HEAVY	-1 UNSP	17 BAPD	17 BAPD	17 BAPD	13.0
86	HERO-WM11-CDS4	DIADEN	80US IN DIV	DIV	05/11/44	2030G	HEAVY	-1 UNSP	17 BAPD	17 BAPD	17 BAPD	1.0
3534	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/12/44	2030G	HEAVY	1 UNSP	2 ATEN	2 ATEN	2 ATEN	17.0
3531	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/14/44	2030G	HEAVY	1 UNSP	2 ATEN	2 ATEN	2 ATEN	1.0
3575	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/16/44	2030G	HEAVY	1 UNSP	2 ATEN	2 ATEN	2 ATEN	1.0
3567	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/20/44	2030G	HEAVY	1 UNSP	2 ATEN	2 ATEN	2 ATEN	8.0
3563	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/22/44	2030G	HEAVY	1 UNSP	2 ATEN	2 ATEN	2 ATEN	13.0
3547	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/25/44	2030G	HEAVY	1 UNSP	2 ATEN	2 ATEN	2 ATEN	8.6
228	CMH-WM11-1	WM11 EUE	ALL	THEA	06/01/44	2030G	HEAVY	-1 NE	100 UNSP	100 UNSP	100 UNSP	4.8
349	CMH-WM11-3	GERMANY	12US ARMY GP	ARMYGP	06/08/44	2030G	HEAVY	-1 UNSP	100 ATEN	100 ATEN	100 ATEN	3.0
314	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/02/44	2030G	HEAVY	-1 NE	7 ATEN	7 ATEN	7 ATEN	21.0
321	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/09/44	2030G	HEAVY	-1 NE	7 ATEN	7 ATEN	7 ATEN	19.0
320	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/16/44	2030G	HEAVY	-1 NE	7 ATEN	7 ATEN	7 ATEN	3.0
170	CMH-WM11-2	GERMANY	35US IN DIV	DIV	07/23/44	2030G	HEAVY	-1 NE	7 ATEN	7 ATEN	7 ATEN	1.0
329	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/08/44	2030G	HEAVY	-1 UNSP	2 ATEN	2 ATEN	2 ATEN	15.0

DO LAMBERT Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAP	TUBECVART	TYPESD	DAYSCVART	OPERATION	ESTUREDAY
321	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/09/44	2020W	HEAVY	-1 HE		7 ATEN		20.6
320	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/16/44	2020W	HEAVY	-1 HE		7 ATEN		2.6
326	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/23/44	2020W	HEAVY	-1 HE		7 ATEN		4.0
344	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/30/44	2020W	HEAVY	-1 HE		7 ATEN		4.8
160	NERO-WM11-CDSS	SAAR	2505 IN DIV	DIV	11/09/44	2020W	HEAVY	14 WNSP		4 BAPD		27.1
3228	NERO-WM11-CDSS	DIADEM	60TH US DIV	DIV	11/09/44	2020W	HEAVY	-1 WNSP		2 AFEN		48.0
97	NERO-WM11-CDSS	GERMANY	495 AB DIV A BDE		11/10/44	2020W	HEAVY	-1 WNSP		2 BAPC		24.0
108	NERO-WM11-CDSS	GERMANY	405 AB DIV B BDE		11/10/44	2020W	HEAVY	-1 WNSP		1 BAPD		20.5
3102	NERO-WM11-CDSS	SAAR	GARDIV	DIV	11/10/44	2020W	HEAVY	2 WNSP		3 ATKL		17.5
3277	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	11/10/44	2020W	HEAVY	2 WNSP		3 ATKL		17.5
3295	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	11/11/44	2020W	HEAVY	-1 WNSP		1 DEFN		27.0
178	NERO-WM11-CDSS	SAAR	3505 IN DIV	DIV	11/12/44	2020W	HEAVY	11 WNSP		4 BAPL		22.2
116	NERO-WM11-CDSS	GERMANY	405 AB DIV A BDE		11/12/44	2020W	HEAVY	-1 WNSP		2 BAPD		20.0
3271	NERO-WM11-CDSS	GERMANY	405 AB DIV A BDE		11/14/44	2020W	HEAVY	-1 WNSP		2 BAPD		16.0
123	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	11/14/44	2020W	HEAVY	2 WNSP		1 ATKL		-1.0
3208	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	11/15/44	2020W	HEAVY	2 WNSP		2 ATEN		33.5
3209	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/15/44	2020W	HEAVY	2 WNSP		2 ATEN		33.5
3237	NERO-WM11-CDSS	SAAR	3505 IN DIV	DIV	11/15/44	2020W	HEAVY	14 WNSP		1 BAPL		50.6
106	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	11/16/44	2020W	HEAVY	3 WNSP		1 ATKL		37.0
3418	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	11/16/44	2020W	HEAVY	13 WNSP		2 BAPD		19.6
3220	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/16/44	2020W	HEAVY	10 WNSP		2 ATEN		16.0
195	NERO-WM11-CDSS	SAAR	3505 IN DIV	DIV	11/17/44	2020W	HEAVY	10 WNSP		2 BAPD		26.7
300	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/21/44	2020W	HEAVY	4 WNSP		2 ATEN		16.5
3269	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/21/44	2020W	HEAVY	3 WNSP		2 BAPD		7.2
3409	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/23/44	2020W	HEAVY	6 WNSP		2 ATEN		6.0
3409	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/23/44	2020W	HEAVY	6 WNSP		2 ATEN		6.0
3271	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	11/25/44	2020W	HEAVY	14 WNSP		3 ATEN		22.0
3487	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/25/44	2020W	HEAVY	14 WNSP		2 ATEN		13.4
128	NERO-WM11-CDSS	GERMANY	405 AB DIV	DIV	11/25/44	2020W	HEAVY	2 WNSP		1 BAPD		17.3
140	NERO-WM11-CDSS	GERMANY	405 AB DIV	DIV	11/27/44	2020W	HEAVY	5 WNSP		3 BAPL		7.8
3470	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	11/27/44	2020W	HEAVY	8 ATKL		8 ATKL		14.0
3432	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	11/28/44	2020W	HEAVY	2 WNSP		2 ATEN		22.5
156	NERO-WM11-CDSS	GERMANY	405 AB DIV	DIV	12/01/44	2020W	HEAVY	8 WNSP		2 BAPD		11.0
3403	NERO-WM11-CDSS	SAAR	60TH US DIV	DIV	12/06/44	2020W	HEAVY	12 WNSP		1 ATEN		37.4
3403	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	12/06/44	2020W	HEAVY	-1 WNSP		1 ATEN		-1.0
3403	NERO-WM11-CDSS	SAAR	6TH AR DIV	DIV	12/06/44	2020W	HEAVY	-1 WNSP		1 ATEN		-1.0
3434	NERO-WM11-CDSS	GERMANY	405 AB DIV	DIV	12/09/44	2020W	HEAVY	13 WNSP		2 BAPD		17.0
274	NERO-WM11-CDSS	SAAR	3505 IN DIV	DIV	12/09/44	2020W	HEAVY	3 WNSP		2 BAPD		3.7
342	NERO-WM11-CDSS	ARDENNES	3505 IN DIV	DIV	12/09/44	2020W	HEAVY	3 WNSP		1 BAPL		16.7
3240	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	12/10/44	2020W	HEAVY	3 WNSP		2 BAPD		30.7
3272	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	12/10/44	2020W	HEAVY	-1 WNSP		2 DEFN		-1.0
3200	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	12/10/44	2020W	HEAVY	-1 WNSP		2 DEFN		38.7
320	NERO-WM11-CDSS	ARDENNES	6TH US DIV	DIV	12/10/44	2020W	HEAVY	3 WNSP		2 BAPD		45.7
3231	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	12/10/44	2020W	HEAVY	-1 WNSP		2 DEFN		-1.0
3206	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	12/10/44	2020W	HEAVY	-1 WNSP		2 DEFN		65.7
3217	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	12/10/44	2020W	HEAVY	-1 WNSP		2 DEFN		45.7
3202	NERO-WM11-CDSS	ITALYEN	6TH US DIV	DIV	12/20/44	2020W	HEAVY	-1 WNSP		3 DEFN		-1.0
3122	NERO-WM11-CDSS	ROER RIVER	3111 CORPS	CORPS	02/22/45	2020W	HEAVY	12 WNSP		1 WNSP		30.6
3135	NERO-WM11-CDSS	ROER RIVER	3111 CORPS	CORPS	02/22/45	2020W	HEAVY	23 WNSP		1 WNSP		31.9
3162	NERO-WM11-CDSS	ROER RIVER	3111 CORPS	CORPS	02/22/45	2020W	HEAVY	35 WNSP		1 WNSP		-1.0
3152	NERO-WM11-CDSS	ROER RIVER	3111 CORPS	CORPS	02/22/45	2020W	HEAVY	36 WNSP		1 WNSP		-1.0
3166	NERO-WM11-CDSS	ROER RIVER	3111 CORPS	CORPS	02/22/45	2020W	HEAVY	12 WNSP		1 WNSP		31.3
3175	NERO-WM11-CDSS	ROER RIVER	3111 CORPS	CORPS	02/22/45	2020W	HEAVY	24 WNSP		1 WNSP		90.3
3188	NERO-WM11-CDSS	BRINE CROSS	3111 CORPS	CORPS	03/18/45	2020W	HEAVY	9 WNSP		1 WNSP		7.3
3181	NERO-WM11-CDSS	BRINE CROSS	3111 CORPS	CORPS	03/18/45	2020W	HEAVY	40 WNSP		1 WNSP		1.3
3182	NERO-WM11-CDSS	BRINE CROSS	3111 CORPS	CORPS	03/18/45	2020W	HEAVY	24 WNSP		1 WNSP		4.5

NO	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBTYPE	TUBCAT	TUBQUANT	TYPED	DAYSQUANT	OPERATION	RTURNED
2182	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/19/45	203HOW	HEAVY	26	UNSP	1	UNSP	4.5
2183	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/19/45	203HOW	HEAVY	59	UNSP	1	UNSP	1.5
2184	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/20/45	203HOW	HEAVY	24	UNSP	1	UNSP	5.2
2185	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/21/45	203HOW	HEAVY	61	UNSP	1	UNSP	2.7
2186	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/21/45	203HOW	HEAVY	24	UNSP	1	UNSP	6.2
2187	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/22/45	203HOW	HEAVY	68	UNSP	1	UNSP	2.1
2188	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/22/45	203HOW	HEAVY	24	UNSP	1	UNSP	2.8
2189	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/22/45	203HOW	HEAVY	61	UNSP	1	UNSP	1.3
2190	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/22/45	203HOW	HEAVY	68	UNSP	1	UNSP	6.9
2191	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/22/45	203HOW	HEAVY	24	UNSP	1	UNSP	26.8
2192	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/22/45	203HOW	HEAVY	68	UNSP	1	UNSP	102.0
2193	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/22/45	203HOW	HEAVY	24	UNSP	1	UNSP	15.1
2194	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/23/45	203HOW	HEAVY	68	UNSP	1	UNSP	28.1
2195	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/23/45	203HOW	HEAVY	24	UNSP	1	UNSP	22.5
2196	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/23/45	203HOW	HEAVY	68	UNSP	1	UNSP	7.8
2197	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/23/45	203HOW	HEAVY	24	UNSP	1	UNSP	7.2
2198	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/27/45	203HOW	HEAVY	24	UNSP	1	UNSP	26.8
2199	HERO-WM11-CDBS	RHINE CROSS	XIIICORPS	CORPS	03/27/45	203HOW	HEAVY	-1	UNSP	3	ATM	66.8
2200	HERO-WM11-CDBS	PO VALLEY	II CORPS	CORPS	06/16/45	203HOW	HEAVY	28	0	5	ATM	25.9
2201	HERO-WM11-CDBS	PO VALLEY	IV CORPS	CORPS	01/01/51	203HOW	HEAVY	789	UNSP	31	UNSP	1.2
1949	CGSC-E-1	KOREA	US ARMY	THEA	01/01/51	203HOW	HEAVY	31	UNSP	31	UNSP	2.8
1950	CGSC-E-1	KOREA	US ARMY	THEA	02/01/51	203HOW	HEAVY	28	UNSP	28	UNSP	3.0
1951	CGSC-E-1	KOREA	US ARMY	THEA	02/01/51	203HOW	HEAVY	29	UNSP	29	UNSP	29.3
1952	CGSC-E-1	KOREA	US ARMY	THEA	03/01/51	203HOW	HEAVY	31	UNSP	31	UNSP	29.5
1953	CGSC-E-1	KOREA	US ARMY	THEA	03/01/51	203HOW	HEAVY	30	UNSP	30	UNSP	19.3
1954	CGSC-E-1	KOREA	US ARMY	THEA	04/01/51	203HOW	HEAVY	28	UNSP	28	UNSP	20.2
1955	CGSC-E-1	KOREA	US ARMY	THEA	05/01/51	203HOW	HEAVY	-1	UNSP	30	ATM	20.2
1956	CGSC-E-1	KOREA	US ARMY	THEA	05/01/51	203HOW	HEAVY	-1	UNSP	31	UNSP	20.2
1957	CGSC-E-1	KOREA	US ARMY	THEA	06/01/51	203HOW	HEAVY	30	UNSP	30	ATM	34.6
1958	CGSC-E-1	KOREA	US ARMY	THEA	06/01/51	203HOW	HEAVY	30	UNSP	30	ATM	36.6
1959	CGSC-E-1	KOREA	US ARMY	THEA	07/01/51	203HOW	HEAVY	30	UNSP	30	ATM	34.9
1960	CGSC-E-1	KOREA	US ARMY	THEA	07/01/51	203HOW	HEAVY	31	UNSP	31	UNSP	34.9
1961	CGSC-E-1	KOREA	US ARMY	THEA	07/21/51	203HOW	HEAVY	30	UNSP	30	ATM	51.1
1962	CGSC-E-1	KOREA	US ARMY	THEA	08/01/51	203HOW	HEAVY	31	UNSP	31	UNSP	51.1
1963	CGSC-E-1	KOREA	US ARMY	THEA	08/01/51	203HOW	HEAVY	31	UNSP	31	UNSP	22.8
1964	CGSC-E-1	KOREA	US ARMY	THEA	08/01/51	203HOW	HEAVY	31	UNSP	31	UNSP	36.0
1965	CGSC-E-1	KOREA	US ARMY	THEA	08/01/51	203HOW	HEAVY	31	UNSP	31	UNSP	27.3
1966	CGSC-E-1	KOREA	US ARMY	THEA	08/02/51	203HOW	HEAVY	12	UNSP	12	UNSP	17.9
1967	CGSC-E-1	KOREA	US ARMY	THEA	08/02/51	203HOW	HEAVY	12	UNSP	12	UNSP	12.8
1968	CGSC-E-1	KOREA	US ARMY	THEA	08/06/51	203HOW	HEAVY	12	UNSP	12	UNSP	1.0
1969	CGSC-E-1	KOREA	US ARMY	THEA	08/06/51	203HOW	HEAVY	12	UNSP	12	UNSP	10.0
1970	CGSC-E-1	KOREA	US ARMY	THEA	08/07/51	203HOW	HEAVY	12	UNSP	12	UNSP	13.9
1971	CGSC-E-1	KOREA	US ARMY	THEA	08/08/51	203HOW	HEAVY	12	UNSP	12	UNSP	38.0
1972	CGSC-E-1	KOREA	US ARMY	THEA	08/10/51	203HOW	HEAVY	12	UNSP	12	UNSP	7.3
1973	CGSC-E-1	KOREA	US ARMY	THEA	08/11/51	203HOW	HEAVY	12	UNSP	12	UNSP	8.5
1974	CGSC-E-1	KOREA	US ARMY	THEA	08/12/51	203HOW	HEAVY	12	UNSP	12	UNSP	28.2
1975	CGSC-E-1	KOREA	US ARMY	THEA	08/13/51	203HOW	HEAVY	12	UNSP	12	UNSP	12.9
1976	CGSC-E-1	KOREA	US ARMY	THEA	08/14/51	203HOW	HEAVY	12	UNSP	12	UNSP	17.5
1977	CGSC-E-1	KOREA	US ARMY	THEA	08/15/51	203HOW	HEAVY	12	UNSP	12	UNSP	42.9
1978	CGSC-E-1	KOREA	US ARMY	THEA	08/16/51	203HOW	HEAVY	12	UNSP	12	UNSP	91.0

DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUNT	TYPED	BASEQUNT	OPERATION	DEPENDENCY
2064	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/17/51	203NOW	HEAVY	12 UNSP	1 UNSP			01.0
2065	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/18/51	203NOW	HEAVY	12 UNSP	1 UNSP			171.5
2066	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/19/51	203NOW	HEAVY	12 UNSP	1 UNSP			78.0
2067	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/20/51	203NOW	HEAVY	12 UNSP	1 UNSP			48.9
2068	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/21/51	203NOW	HEAVY	12 UNSP	1 UNSP			22.3
2069	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/22/51	203NOW	HEAVY	12 UNSP	1 UNSP			14.0
2070	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/23/51	203NOW	HEAVY	12 UNSP	1 UNSP			27.0
2071	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/24/51	203NOW	HEAVY	12 UNSP	1 UNSP			78.6
2072	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/25/51	203NOW	HEAVY	12 UNSP	1 UNSP			48.2
2073	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/26/51	203NOW	HEAVY	12 UNSP	1 UNSP			07.4
2074	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/27/51	203NOW	HEAVY	12 UNSP	1 UNSP			31.3
2075	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/28/51	203NOW	HEAVY	12 UNSP	1 UNSP			18.8
2076	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/29/51	203NOW	HEAVY	12 UNSP	1 UNSP			42.2
2077	CDSS PAKS 1977	KOREA	X CORPS	CORPS	09/30/51	203NOW	HEAVY	12 UNSP	1 UNSP			20.3
2078	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/31/51	203NOW	HEAVY	12 UNSP	1 UNSP			77.3
1972	CGSC-E-1	KOREA	US ARMY	THEA	09/01/51	203NOW	HEAVY	-1 UNSP	20 ATTN			28.8
2202	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/01/51	203NOW	HEAVY	-1 UNSP	20 UNSP			32.1
2667	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/01/51	203NOW	HEAVY	12 UNSP	1 UNSP			80.3
2668	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/02/51	203NOW	HEAVY	12 UNSP	1 UNSP			78.3
2669	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/03/51	203NOW	HEAVY	12 UNSP	1 UNSP			44.4
2670	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	203NOW	HEAVY	12 UNSP	1 UNSP			19.8
2671	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	203NOW	HEAVY	12 UNSP	1 UNSP			3.7
2672	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	203NOW	HEAVY	12 UNSP	1 UNSP			11.3
2673	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	203NOW	HEAVY	12 UNSP	1 UNSP			-1.0
2674	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	203NOW	HEAVY	12 UNSP	1 UNSP			21.7
2675	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	203NOW	HEAVY	12 UNSP	1 UNSP			69.2
2676	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	203NOW	HEAVY	12 UNSP	1 UNSP			38.1
2677	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	203NOW	HEAVY	12 UNSP	1 UNSP			18.0
2678	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	203NOW	HEAVY	12 UNSP	1 UNSP			25.4
2679	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	203NOW	HEAVY	12 UNSP	1 UNSP			61.2
2680	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	203NOW	HEAVY	12 UNSP	1 UNSP			31.7
2701	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	203NOW	HEAVY	12 UNSP	1 UNSP			53.6
2702	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	203NOW	HEAVY	12 UNSP	1 UNSP			20.9
2703	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/17/51	203NOW	HEAVY	12 UNSP	1 UNSP			12.6
2704	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/18/51	203NOW	HEAVY	12 UNSP	1 UNSP			37.0
2705	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/19/51	203NOW	HEAVY	12 UNSP	1 UNSP			37.5
2706	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/20/51	203NOW	HEAVY	12 UNSP	1 UNSP			29.9
2707	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/21/51	203NOW	HEAVY	12 UNSP	1 UNSP			31.7
2708	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/22/51	203NOW	HEAVY	12 UNSP	1 UNSP			49.7
2709	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/23/51	203NOW	HEAVY	12 UNSP	1 UNSP			20.4
2710	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/24/51	203NOW	HEAVY	12 UNSP	1 UNSP			19.6
2711	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/25/51	203NOW	HEAVY	12 UNSP	1 UNSP			8.2
2712	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/26/51	203NOW	HEAVY	12 UNSP	1 UNSP			18.1
2713	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/27/51	203NOW	HEAVY	12 UNSP	1 UNSP			32.9
2714	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/28/51	203NOW	HEAVY	12 UNSP	1 UNSP			41.7
2715	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	09/29/51	203NOW	HEAVY	12 UNSP	1 UNSP			61.7
2724	CGSC-E-1	KOREA	US ARMY	THEA	10/01/51	203NOW	HEAVY	-1 UNSP	20 ATTN			81.7
658	CNN-E-1 6 CGSC-E-1	KOREA	US ARMY	THEA	10/01/51	203NOW	HEAVY	-1 UNSP	31 UNSP			81.7
2204	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	203NOW	HEAVY	12 UNSP	22 UNSP			81.1
2323	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	203NOW	HEAVY	12 UNSP	1 UNSP			49.2
2324	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	203NOW	HEAVY	12 UNSP	1 UNSP			62.0
2327	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	203NOW	HEAVY	12 UNSP	1 UNSP			18.0
2328	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	203NOW	HEAVY	12 UNSP	1 UNSP			42.6

DO JANARY
Record

Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	RAYQUANT	OPERATION	ERTUREDAY
2526	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	203NOW	HEAVY	12 UNSP	1 UNSP			42.6
2528	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	203NOW	HEAVY	12 UNSP	1 UNSP			26.0
2529	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	203NOW	HEAVY	12 UNSP	1 UNSP			47.4
2530	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	203NOW	HEAVY	12 UNSP	1 UNSP			68.1
2531	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	203NOW	HEAVY	12 UNSP	1 UNSP			72.9
2532	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/09/51	203NOW	HEAVY	12 UNSP	1 UNSP			25.3
2533	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	203NOW	HEAVY	12 UNSP	1 UNSP			25.2
2534	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	203NOW	HEAVY	12 UNSP	1 UNSP			9.1
2535	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	203NOW	HEAVY	12 UNSP	1 UNSP			40.3
2536	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/13/51	203NOW	HEAVY	12 UNSP	1 UNSP			61.9
2537	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	203NOW	HEAVY	12 UNSP	1 UNSP			47.8
2538	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/15/51	203NOW	HEAVY	12 UNSP	1 UNSP			40.2
2539	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	203NOW	HEAVY	12 UNSP	1 UNSP			62.3
2540	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	203NOW	HEAVY	12 UNSP	1 UNSP			60.6
2541	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	203NOW	HEAVY	12 UNSP	1 UNSP			24.5
2542	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	203NOW	HEAVY	12 UNSP	1 UNSP			14.5
2543	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	203NOW	HEAVY	12 UNSP	1 UNSP			42.8
2544	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	203NOW	HEAVY	12 UNSP	1 UNSP			20.6
2545	NERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/22/51	203NOW	HEAVY	12 UNSP	1 UNSP			25.1
265	CGSC-E-1	KOREA	US ARMY	THEA	11/01/51	203NOW	HEAVY	12 UNSP	20 ATEN			42.8
651	CMN-E-1 & CGSC-E-1	KOREA	US ARMY	THEA	11/01/51	203NOW	HEAVY	12 UNSP	31 UNSP			20.6
268	CGSC-E-1	KOREA	US ARMY	THEA	12/01/51	203NOW	HEAVY	12 UNSP	31 UNSP			25.1
652	CMN-E-1 & CGSC-E-1	KOREA	US ARMY	THEA	12/01/51	203NOW	HEAVY	12 UNSP	31 UNSP			25.1
653	CMN-E-1	KOREA	US ARMY	THEA	01/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
654	CMN-E-1	KOREA	US ARMY	THEA	02/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
655	CMN-E-1	KOREA	US ARMY	THEA	03/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
656	CMN-E-1	KOREA	US ARMY	THEA	04/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
657	CMN-E-1	KOREA	US ARMY	THEA	05/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
658	CMN-E-1	KOREA	US ARMY	THEA	06/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
659	CMN-E-1	KOREA	US ARMY	THEA	07/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
660	CMN-E-1	KOREA	US ARMY	THEA	08/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
661	CMN-E-1	KOREA	US ARMY	THEA	09/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
662	CMN-E-1	KOREA	US ARMY	THEA	10/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
663	CMN-E-1	KOREA	US ARMY	THEA	11/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
664	CMN-E-1	KOREA	US ARMY	THEA	12/01/52	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
665	CMN-E-1	KOREA	US ARMY	THEA	01/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
666	CMN-E-1	KOREA	US ARMY	THEA	02/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
667	CMN-E-1	KOREA	US ARMY	THEA	03/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
668	CMN-E-1	KOREA	US ARMY	THEA	04/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
669	CMN-E-1	KOREA	US ARMY	THEA	05/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
670	CMN-E-1	KOREA	US ARMY	THEA	06/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
671	CMN-E-1	KOREA	US ARMY	THEA	07/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
672	CMN-E-1	KOREA	US ARMY	THEA	08/01/53	203NOW	HEAVY	12 UNSP	31 UNSP			1.0
609	CMN-VN-1	PRE-TET	105 IN DIV	DIV	01/20/67	203NOW	HEAVY	12 UNSP	100 PD			1.0
610	CMN-VN-1	TET	105 IN DIV	DIV	02/01/67	203NOW	HEAVY	12 UNSP	30 PD			1.0
202	NA-VN-1	OP JUNC CITY	105 IN DIV	DIV	02/22/67	203NOW	HEAVY	12 UNSP	21 PROM			7.0
206	NA-VN-1	VIETNAM	US ARMY	THEA	02/15/67	203NOW	HEAVY	12 UNSP	31 PROM			25.0
614	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/67	203NOW	HEAVY	12 UNSP	260 UNSP			26.4
632	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/67	203NOW	HEAVY	12 UNSP	265 UNSP			20.4
2866	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	07/01/68	203NOW	HEAVY	12 UNSP	265 UNSP			1.0
2872	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	08/01/68	203NOW	HEAVY	12 UNSP	31 UNSP			25.8
2878	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	09/01/68	203NOW	HEAVY	12 UNSP	31 UNSP			17.9
619	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/68	203NOW	HEAVY	12 UNSP	266 UNSP			19.4
615	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/68	203NOW	HEAVY	12 UNSP	265 UNSP			19.4
633	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/68	203NOW	HEAVY	12 UNSP	265 UNSP			1.0

DO LAMART Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	RTUBESQUANT
67	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	16/01/68	202N0W	HEAVY	-4	UNSP	363	UNSP	-1.0
2894	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	16/01/68	202N0W	HEAVY	-1	UNSP	31	UNSP	15.0
2895	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	11/01/68	202N0W	HEAVY	-1	UNSP	30	UNSP	18.1
2896	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	12/01/68	202N0W	HEAVY	-1	UNSP	21	UNSP	19.0
2897	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	01/01/68	202N0W	HEAVY	-1	UNSP	21	UNSP	18.1
2898	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	02/01/68	202N0W	HEAVY	-1	UNSP	20	UNSP	20.0
2914	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	03/01/68	202N0W	HEAVY	-1	UNSP	31	UNSP	23.6
2920	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	05/01/68	202N0W	HEAVY	-1	UNSP	31	UNSP	20.0
2924	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	06/01/68	202N0W	HEAVY	-1	UNSP	21	UNSP	19.0
601	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	07/01/68	202N0W	HEAVY	-1	UNSP	30	UNSP	25.0
602	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	07/01/68	202N0W	HEAVY	77	UNSP	30	UNSP	19.2
603	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	08/01/68	202N0W	HEAVY	72	UNSP	30	UNSP	24.3
604	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	09/01/68	202N0W	HEAVY	77	UNSP	30	UNSP	20.1
625	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/68	202N0W	HEAVY	-1	UNSP	30	UNSP	23.5
605	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/68	202N0W	HEAVY	65	UNSP	30	UNSP	23.2
616	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/68	202N0W	HEAVY	-1	UNSP	345	UNSP	23.5
634	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	10/01/68	202N0W	HEAVY	-1	UNSP	365	UNSP	-1.0
606	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	11/01/68	202N0W	HEAVY	79	UNSP	30	UNSP	23.0
607	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	12/01/68	202N0W	HEAVY	71	UNSP	30	UNSP	21.0
608	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	01/01/70	202N0W	HEAVY	69	UNSP	30	UNSP	10.4
609	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	02/01/70	202N0W	HEAVY	58	UNSP	30	UNSP	20.6
610	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	03/01/70	202N0W	HEAVY	64	UNSP	30	UNSP	20.7
611	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	04/01/70	202N0W	HEAVY	65	UNSP	30	UNSP	23.3
612	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	05/01/70	202N0W	HEAVY	68	UNSP	30	UNSP	22.8
613	ANC-VN-COLEDY	VIETNAM	US ARMY	THEA	06/01/70	202N0W	HEAVY	56	UNSP	30	UNSP	31.2
257	FN161-10-1 JUL 76	MONZ	AR DIV	THEA	07/20/70	202N0W	HEAVY	-1	NE	1	PRON	30.0
26	ORO-WM11-1	ANZIO	V1 CORPS	CORPS	05/01/44	202N0W	HEAVY	-1	NE	20	ATEL	-1.0
31	ORO-WM11-1	OLIVANA	XXIVSIIII	2CORPS	05/01/44	202N0W	HEAVY	-1	NE	83	ATEL	-1.0
292	TOI-WM11-1	ITALY	V1 CORPS	CORPS	01/01/43	240N0W	HEAVY	-1	NE	726	ATEL	10.0
27	ORO-WM11-1	ANZIO	V1 CORPS	CORPS	05/01/44	240N0W	HEAVY	-1	NE	30	ATEL	-1.0
67	NERO-WM11-CDS5	DIADEM	80US IN DIV	DIV	05/11/44	240N0W	HEAVY	3	UNSP	17	BAPO	61.7
78	NERO-WM11-CDS5	DIADEM	80US IN DIV	DIV	05/11/44	240N0W	HEAVY	3	UNSP	17	BAPO	36.0
3548	NERO-WM11-CDS5	DIADEM	80US IN DIV	DIV	05/12/44	240N0W	HEAVY	3	UNSP	17	BAPO	31.7
3552	NERO-WM11-CDS5	DIADEM	80US IN DIV	DIV	05/14/44	240N0W	HEAVY	2	UNSP	2	ATEL	61.5
3576	NERO-WM11-CDS5	DIADEM	80US IN DIV	DIV	05/16/44	240N0W	HEAVY	2	UNSP	2	ATEL	50.0
3544	NERO-WM11-CDS5	DIADEM	80US IN DIV	DIV	05/20/44	240N0W	HEAVY	3	UNSP	2	ATEL	9.3
3568	NERO-WM11-CDS5	DIADEM	80US IN DIV	DIV	05/22/44	240N0W	HEAVY	2	UNSP	2	ATEL	19.0
369	CMH-WM11-1	WM11 EUB	ALL	THEA	05/25/44	240N0W	HEAVY	2	UNSP	2	ATEL	17.0
351	CMH-WM11-3	GERMANY	11US ARMY GP	ARMYGP	06/06/44	240N0W	HEAVY	-1	NE	100	UNSP	-1.0
315	CMH-WM11-2	GERMANY	1US ARMY	IARMY	07/02/44	240N0W	HEAVY	-1	NE	7	ATEL	10.0
323	CMH-WM11-2	GERMANY	1US ARMY	IARMY	07/09/44	240N0W	HEAVY	-1	NE	7	ATEL	-1.0
328	CMH-WM11-2	GERMANY	1US ARMY	IARMY	07/22/44	240N0W	HEAVY	-1	NE	7	ATEL	7.0
171	NERO-WM11-CDS5	SAAR	35US IN DIV	DIV	11/08/44	240N0W	HEAVY	2	UNSP	4	BAPO	1.0
3320	NERO-WM11-CDS5	DIADEM	30TH US DIV	DIV	11/08/44	240N0W	HEAVY	-1	UNSP	2	BAPO	6.3
98	NERO-WM11-CDS5	GERMANY	4US AR DIV A	8DE	11/10/44	240N0W	HEAVY	-1	UNSP	2	BAPO	2.0
108	NERO-WM11-CDS5	GERMANY	4US AR DIV B	29DE	11/10/44	240N0W	HEAVY	-1	UNSP	1	BAPO	3.0
3108	NERO-WM11-CDS5	SAAR	6ARDIV	DIV	11/10/44	240N0W	HEAVY	1	UNSP	3	ATEL	2.0
3378	NERO-WM11-CDS5	SAAR	60TH US DIV	DIV	11/10/44	240N0W	HEAVY	1	UNSP	3	ATEL	1.0
3297	NERO-WM11-CDS5	ITALY	4TH US DIV	DIV	11/11/44	240N0W	HEAVY	-1	UNSP	1	DEFN	2.0
3390	NERO-WM11-CDS5	SAAR	60TH US DIV	DIV	11/14/44	240N0W	HEAVY	2	UNSP	3	ATEL	-1.0
2401	NERO-WM11-CDS5	SAAR	60TH US DIV	DIV	11/15/44	240N0W	HEAVY	1	UNSP	2	ATEL	6.0
3528	NERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	11/15/44	240N0W	HEAVY	1	UNSP	2	ATEL	0.0
168	NERO-WM11-CDS5	SAAR	35US IN DIV	DIV	11/18/44	240N0W	HEAVY	2	UNSP	1	BAPO	15.5

DO LHMNT	Source	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQURT	TYPEED	DAYSQURT	OPERATION	EDTUBEDZY
188	HERO-WM11-CDS5	SAAR	3505 IN DIV	DIV	11/18/44	240HOM	HEAVY	2 UNSP	2 UNSP	1 BADL	1	15.5
3112	HERO-WM11-CDS5	SAAR	80TH US DIV	DIV	11/18/44	240HOM	HEAVY	2 UNSP	2 UNSP	1 ATEL	1	15.8
197	HERO-WM11-CDS5	SAAR	3505 IN DIV	DIV	11/19/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 BAPD	2	2.5
3222	HERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	11/19/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 ATEM	2	2.3
206	HERO-WM11-CDS5	SAAR	3505 IN DIV	DIV	11/21/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 BAPD	2	2.5
3311	HERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	11/21/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 ATEM	2	2.3
216	HERO-WM11-CDS5	SAAR	3505 IN DIV	DIV	11/23/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 BAPD	2	3.5
3500	HERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	11/23/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 ATEM	2	2.3
3423	HERO-WM11-CDS5	SAAR	80TH US DIV	DIV	11/25/44	240HOM	HEAVY	2 UNSP	2 UNSP	3 ATEL	3	7.5
3489	HERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	11/25/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 ATEM	2	16.8
132	HERO-WM11-CDS5	GERMANY	4US AR DIV	DIV	11/26/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 BAPD	2	5.8
142	HERO-WM11-CDS5	GERMANY	4US AR DIV	DIV	11/27/44	240HOM	HEAVY	2 UNSP	2 UNSP	2 BADL	2	5.8
3478	HERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	11/27/44	240HOM	HEAVY	3 UNSP	3 UNSP	8 ATEL	8	6.0
3434	HERO-WM11-CDS5	SAAR	80TH US DIV	DIV	11/28/44	240HOM	HEAVY	3 UNSP	3 UNSP	3 ATEM	3	17.8
152	HERO-WM11-CDS5	GERMANY	4US AR DIV	DIV	12/01/44	240HOM	HEAVY	4 UNSP	4 UNSP	2 BAPD	2	6.3
224	HERO-WM11-CDS5	SAAR	3505 IN DIV	DIV	12/04/44	240HOM	HEAVY	3 UNSP	3 UNSP	1 BAPD	1	19.7
3465	HERO-WM11-CDS5	SAAR	80TH US DIV	DIV	12/04/44	240HOM	HEAVY	3 UNSP	3 UNSP	1 ATEM	1	15.7
3467	HERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	12/04/44	240HOM	HEAVY	3 UNSP	3 UNSP	3 ATEM	3	19.7
3156	HERO-WM11-CDS5	SAAR	6TH AR DIV	DIV	12/05/44	240HOM	HEAVY	3 UNSP	3 UNSP	2 ATEL	2	2.3
161	HERO-WM11-CDS5	GERMANY	4US AR DIV	DIV	12/06/44	240HOM	HEAVY	3 UNSP	3 UNSP	2 BAPD	2	2.3
3242	HERO-WM11-CDS5	ITALYANW EUR	4TH US DIV	DIV	12/06/44	240HOM	HEAVY	-1 UNSP	-1 UNSP	1 BADL	1	2.0
3275	HERO-WM11-CDS5	ITALYANW EUR	2D US DIV	DIV	12/16/44	240HOM	HEAVY	-1 UNSP	-1 UNSP	2 DEFN	2	-1.0
3308	HERO-WM11-CDS5	ITALYANW EUR	99TH US DIV	DIV	12/16/44	240HOM	HEAVY	-1 UNSP	-1 UNSP	2 DEFN	2	-1.0
3253	HERO-WM11-CDS5	ITALYANW EUR	4TH US DIV	DIV	12/18/44	240HOM	HEAVY	-1 UNSP	-1 UNSP	2 DEFN	2	-1.0
3286	HERO-WM11-CDS5	ITALYANW EUR	2D US DIV	DIV	12/18/44	240HOM	HEAVY	-1 UNSP	-1 UNSP	2 DEFN	2	-1.0
3319	HERO-WM11-CDS5	ITALYANW EUR	99TH US DIV	DIV	12/18/44	240HOM	HEAVY	-1 UNSP	-1 UNSP	2 DEFN	2	-1.0
3264	HERO-WM11-CDS5	ITALYANW EUR	4TH US DIV	DIV	12/20/44	240HOM	HEAVY	-1 UNSP	-1 UNSP	2 DEFN	2	-1.0
3129	HERO-WM11-CDS5	ROER RIVER	XVI CORPS	CORPS	02/22/45	240HOM	HEAVY	18 UNSP	18 UNSP	1 UNSP	1	-1.0
3144	HERO-WM11-CDS5	ROER RIVER	9TH US ARMY	IARMY	02/22/45	240HOM	HEAVY	18 UNSP	18 UNSP	1 UNSP	1	-1.0
3154	HERO-WM11-CDS5	ROER RIVER	9TH US ARMY	IARMY	02/23/45	240HOM	HEAVY	18 UNSP	18 UNSP	1 UNSP	1	-1.0
719	CNH-K-1	ROER RIVER	9TH US ARMY	IARMY	02/23/45	240HOM	HEAVY	18 UNSP	18 UNSP	1 UNSP	1	26.6
720	CNH-K-1	KOREA	US ARMY	THEA	10/01/51	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
721	CNH-K-1	KOREA	US ARMY	THEA	11/01/51	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
722	CNH-K-1	KOREA	US ARMY	THEA	11/01/51	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
723	CNH-K-1	KOREA	US ARMY	THEA	01/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	29 UNSP	29	-1.0
724	CNH-K-1	KOREA	US ARMY	THEA	03/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
725	CNH-K-1	KOREA	US ARMY	THEA	04/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	30 UNSP	30	-1.0
726	CNH-K-1	KOREA	US ARMY	THEA	05/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
727	CNH-K-1	KOREA	US ARMY	THEA	06/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
728	CNH-K-1	KOREA	US ARMY	THEA	07/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
729	CNH-K-1	KOREA	US ARMY	THEA	08/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
730	CNH-K-1	KOREA	US ARMY	THEA	09/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	30 UNSP	30	-1.0
731	CNH-K-1	KOREA	US ARMY	THEA	10/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
732	CNH-K-1	KOREA	US ARMY	THEA	11/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	30 UNSP	30	-1.0
733	CNH-K-1	KOREA	US ARMY	THEA	12/01/52	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
734	CNH-K-1	KOREA	US ARMY	THEA	01/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	26 UNSP	26	-1.0
735	CNH-K-1	KOREA	US ARMY	THEA	03/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
736	CNH-K-1	KOREA	US ARMY	THEA	03/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	30 UNSP	30	-1.0
737	CNH-K-1	KOREA	US ARMY	THEA	04/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	30 UNSP	30	-1.0
738	CNH-K-1	KOREA	US ARMY	THEA	05/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
739	CNH-K-1	KOREA	US ARMY	THEA	06/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	30 UNSP	30	-1.0
740	CNH-K-1	KOREA	US ARMY	THEA	07/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0
741	CNH-K-1	KOREA	US ARMY	THEA	08/01/53	240HOM	HEAVY	-1 UNSP	-1 UNSP	31 UNSP	31	-1.0

DO LAMART	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBSEQUANT	TYPED	DAYQUANT	OPERATION	EDTUBESDAY
741	CMH-E-1	KOREA	US ARMY	THEA	08/01/52	24DNOW	HEAVY	-1 UNSP	31 UNSP	17 BAPD	UNSP	-1.0
70	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/11/44	HEAVY	HEAVY	16 UNSP	17 BAPD	17 BAPD	UNSP	185.1
81	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/11/44	HEAVY	HEAVY	16 UNSP	17 BAPD	17 BAPD	UNSP	32.7
93	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/11/44	HEAVY	HEAVY	16 UNSP	17 BAPD	17 BAPD	UNSP	99.2
3543	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/12/44	HEAVY	HEAVY	16 UNSP	2 ATEN	2 ATEN	UNSP	183.1
3555	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/14/44	HEAVY	HEAVY	16 UNSP	2 ATEN	2 ATEN	UNSP	39.2
3578	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/16/44	HEAVY	HEAVY	15 UNSP	2 ATEN	2 ATEN	UNSP	66.5
3371	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/20/44	HEAVY	HEAVY	12 UNSP	2 ATEN	2 ATEN	UNSP	12.8
3567	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/23/44	HEAVY	HEAVY	12 UNSP	2 ATEN	2 ATEN	UNSP	28.3
3591	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	05/23/44	HEAVY	HEAVY	12 UNSP	2 ATEN	2 ATEN	UNSP	17.5
174	HERO-WMII-CD55	SAAR	3505 IN DIV	DIV	11/08/44	HEAVY	HEAVY	-1 UNSP	23 UNSP	4 BAPD	UNSP	42.4
3333	HERO-WMII-CD55	DIADEN	805 US DIV	DIV	11/08/44	HEAVY	HEAVY	5 UNSP	2 BAPD	2 BAPD	UNSP	23.6
101	HERO-WMII-CD55	GERMANY	405 AR DIV A	BDE	11/10/44	HEAVY	HEAVY	5 UNSP	2 BAPD	2 BAPD	UNSP	23.6
111	HERO-WMII-CD55	GERMANY	405 AR DIV A	BDE	11/10/44	HEAVY	HEAVY	5 UNSP	2 BAPD	2 BAPD	UNSP	16.6
3382	HERO-WMII-CD55	GERMANY	605 AR DIV B	28DE	11/10/44	HEAVY	HEAVY	9 UNSP	3 ATEN	3 ATEN	UNSP	18.7
3300	HERO-WMII-CD55	ITALYANM	605 US DIV	DIV	11/11/44	HEAVY	HEAVY	-1 UNSP	1 DEFN	1 DEFN	UNSP	29.4
180	HERO-WMII-CD55	SAAR	3505 IN DIV	DIV	11/12/44	HEAVY	HEAVY	16 UNSP	4 BAPD	4 BAPD	UNSP	23.5
119	HERO-WMII-CD55	GERMANY	405 AR DIV B	28DE	11/13/44	HEAVY	HEAVY	3 UNSP	3 BAPD	3 BAPD	UNSP	68.6
125	HERO-WMII-CD55	GERMANY	405 AR DIV A	BDE	11/14/44	HEAVY	HEAVY	3 UNSP	2 BAPD	2 BAPD	UNSP	68.3
3113	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/14/44	HEAVY	HEAVY	5 UNSP	1 ATEN	1 ATEN	UNSP	56.4
3393	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/14/44	HEAVY	HEAVY	5 UNSP	1 ATEN	1 ATEN	UNSP	58.4
3404	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/15/44	HEAVY	HEAVY	9 UNSP	2 ATEN	2 ATEN	UNSP	32.8
3522	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/15/44	HEAVY	HEAVY	9 UNSP	2 ATEN	2 ATEN	UNSP	32.8
191	HERO-WMII-CD55	SAAR	3505 IN DIV	DIV	11/16/44	HEAVY	HEAVY	22 UNSP	1 BAPD	1 BAPD	UNSP	44.2
3415	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/16/44	HEAVY	HEAVY	16 UNSP	1 ATEN	1 ATEN	UNSP	33.8
199	HERO-WMII-CD55	SAAR	3505 IN DIV	DIV	11/19/44	HEAVY	HEAVY	21 UNSP	2 BAPD	2 BAPD	UNSP	19.3
3525	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/19/44	HEAVY	HEAVY	18 UNSP	2 BAPD	2 BAPD	UNSP	28.9
209	HERO-WMII-CD55	SAAR	3505 IN DIV	DIV	11/21/44	HEAVY	HEAVY	12 UNSP	2 ATEN	2 ATEN	UNSP	23.1
3514	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/21/44	HEAVY	HEAVY	12 UNSP	2 ATEN	2 ATEN	UNSP	15.8
219	HERO-WMII-CD55	SAAR	3505 IN DIV	DIV	11/23/44	HEAVY	HEAVY	13 UNSP	2 BAPD	2 BAPD	UNSP	8.2
3503	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/23/44	HEAVY	HEAVY	12 UNSP	2 ATEN	2 ATEN	UNSP	9.9
3426	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/25/44	HEAVY	HEAVY	18 UNSP	3 ATEN	3 ATEN	UNSP	23.7
3492	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/25/44	HEAVY	HEAVY	23 UNSP	2 ATEN	2 ATEN	UNSP	28.6
135	HERO-WMII-CD55	GERMANY	405 AR DIV	DIV	11/26/44	HEAVY	HEAVY	18 UNSP	1 BAPD	1 BAPD	UNSP	15.9
145	HERO-WMII-CD55	GERMANY	405 AR DIV	DIV	11/27/44	HEAVY	HEAVY	14 UNSP	3 BAPD	3 BAPD	UNSP	16.3
3481	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/27/44	HEAVY	HEAVY	6 UNSP	3 ATEN	3 ATEN	UNSP	41.7
3437	HERO-WMII-CD55	SAAR	605 US DIV	DIV	11/28/44	HEAVY	HEAVY	17 UNSP	2 BAPD	2 BAPD	UNSP	15.8
155	HERO-WMII-CD55	GERMANY	405 AR DIV	DIV	12/01/44	HEAVY	HEAVY	9 UNSP	1 BAPD	1 BAPD	UNSP	21.7
227	HERO-WMII-CD55	SAAR	3505 IN DIV	DIV	12/04/44	HEAVY	HEAVY	21 UNSP	1 ATEN	1 ATEN	UNSP	30.7
3448	HERO-WMII-CD55	SAAR	605 US DIV	DIV	12/04/44	HEAVY	HEAVY	9 UNSP	1 ATEN	1 ATEN	UNSP	21.7
3470	HERO-WMII-CD55	SAAR	605 US DIV	DIV	12/04/44	HEAVY	HEAVY	18 UNSP	2 ATEN	2 ATEN	UNSP	18.9
3459	HERO-WMII-CD55	SAAR	405 AR DIV	DIV	12/05/44	HEAVY	HEAVY	22 UNSP	3 BAPD	3 BAPD	UNSP	6.2
163	HERO-WMII-CD55	GERMANY	405 AR DIV	DIV	12/06/44	HEAVY	HEAVY	12 UNSP	2 BAPD	2 BAPD	UNSP	15.8
237	HERO-WMII-CD55	ARDENNES	9905 IN DIV	DIV	12/16/44	HEAVY	HEAVY	12 UNSP	2 PD	2 PD	UNSP	29.4
246	HERO-WMII-CD55	ARDENNES	9905 IN DIV	DIV	12/16/44	HEAVY	HEAVY	12 UNSP	1 DEFN	1 DEFN	UNSP	23.8
3215	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/16/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	33.0
3245	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/16/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	33.0
3278	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/16/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	29.4
3311	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/16/44	HEAVY	HEAVY	-1 UNSP	2 PD	2 PD	UNSP	44.7
254	HERO-WMII-CD55	ARDENNES	9905 IN DIV	DIV	12/18/44	HEAVY	HEAVY	12 UNSP	1 DEFN	1 DEFN	UNSP	34.3
3222	HERO-WMII-CD55	ARDENNES	405 US DIV	DIV	12/18/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	33.3
3256	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/18/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	42.9
3289	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/18/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	44.7
3222	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/18/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	44.7
3267	HERO-WMII-CD55	ITALYANM	405 US DIV	DIV	12/20/44	HEAVY	HEAVY	-1 UNSP	2 DEFN	2 DEFN	UNSP	54.3

DO LAMANT	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	RAY	SQUANT	OPERATION	ESTIMATED
3287	HERO-WWII-CD55	ITALYANM	EUR	4TH US DIV	DIV	12/20/44	HEAVY	HEAVY	-1 UNSP	3	DEFN	54.3		
3229	HERO-WWII-CD55	ARDENNES	EUR	4TH US DIV	DIV	12/22/44	HEAVY	HEAVY	4 UNSP	11	BAPD	54.3		
68	HERO-WWII-CD55	DIADEM	EUR	90US IN DIV	DIV	05/11/44	LIGHT		72 UNSP	17	BAPD	103.6		
79	HERO-WWII-CD55	DIADEM	EUR	90US IN DIV	DIV	05/11/44	LIGHT		12 UNSP	17	BAPD	66.8		
91	HERO-WWII-CD55	DIADEM	EUR	88US IN DIV	DIV	05/11/44	LIGHT		72 UNSP	17	BAPD	66.8		
3541	HERO-WWII-CD55	DIADEM	EUR	85TH US DIV	DIV	05/12/44	LIGHT		96 UNSP	2	ATEM	108.6		
3557	HERO-WWII-CD55	DIADEM	EUR	85TH US DIV	DIV	05/14/44	LIGHT		102 UNSP	2	ATEM	138.8		
3577	HERO-WWII-CD55	DIADEM	EUR	85TH US DIV	DIV	05/16/44	LIGHT		66 UNSP	2	ATEL	91.8		
3369	HERO-WWII-CD55	DIADEM	EUR	88TH US DIV	DIV	05/20/44	LIGHT		36 UNSP	2	ATEL	16.3		
3585	HERO-WWII-CD55	DIADEM	EUR	85TH US DIV	DIV	05/22/44	LIGHT		66 UNSP	2	ATEM	57.7		
3598	HERO-WWII-CD55	DIADEM	EUR	85TH US DIV	DIV	05/23/44	LIGHT		72 UNSP	2	ATEL	9.6		
172	HERO-WWII-CD55	SAAR	EUR	35US IN DIV	DIV	11/08/44	LIGHT		29 UNSP	4	BAPD	46.1		
3331	HERO-WWII-CD55	DIADEM	EUR	30TH US DIV	DIV	11/08/44	LIGHT		-1 UNSP	2	ATEM	72.7		
100	HERO-WWII-CD55	GERMANY	EUR	4US AR DIV A BDE	BDE	11/10/44	LIGHT		9 UNSP	2	BAPD	0.3		
109	HERO-WWII-CD55	GERMANY	EUR	4US AR DIV B 2BDE	BDE	11/10/44	LIGHT		18 UNSP	1	BAPD	21.7		
3105	HERO-WWII-CD55	SAAR	EUR	68DIV	DIV	11/10/44	LIGHT		36 UNSP	2	ATEL	36.3		
3380	HERO-WWII-CD55	SAAR	EUR	80TH US DIV	DIV	11/10/44	LIGHT		45 UNSP	2	ATEL	28.8		
3298	HERO-WWII-CD55	ITALYANM	EUR	35US IN DIV	DIV	11/11/44	LIGHT		-1 UNSP	1	DEFN	42.3		
179	HERO-WWII-CD55	GERMANY	EUR	4US AR DIV B 2BDE	BDE	11/12/44	LIGHT		38 UNSP	3	BAPD	68.5		
117	HERO-WWII-CD55	GERMANY	EUR	4US AR DIV R	BDE	11/12/44	LIGHT		16 UNSP	2	BAPD	57.8		
124	HERO-WWII-CD55	GERMANY	EUR	68DIV	DIV	11/14/44	LIGHT		54 UNSP	1	ATEL	78.8		
3111	HERO-WWII-CD55	SAAR	EUR	80TH US DIV	DIV	11/14/44	LIGHT		48 UNSP	1	ATEL	28.6		
3391	HERO-WWII-CD55	SAAR	EUR	80TH US DIV	DIV	11/14/44	LIGHT		48 UNSP	1	ATEL	28.6		
3602	HERO-WWII-CD55	SAAR	EUR	80TH US DIV	DIV	11/15/44	LIGHT		27 UNSP	2	ATEM	76.1		
3530	HERO-WWII-CD55	SAAR	EUR	35US IN DIV	DIV	11/15/44	LIGHT		96 UNSP	1	BAPD	54.1		
188	HERO-WWII-CD55	SAAR	EUR	60TH US DIV	DIV	11/18/44	LIGHT		48 UNSP	1	ATEL	56.1		
3413	HERO-WWII-CD55	SAAR	EUR	35US IN DIV	DIV	11/18/44	LIGHT		24 UNSP	2	BAPD	41.8		
198	HERO-WWII-CD55	SAAR	EUR	35US IN DIV	DIV	11/18/44	LIGHT		36 UNSP	2	ATEM	21.8		
3523	HERO-WWII-CD55	SAAR	EUR	6TH AR DIV	DIV	11/19/44	LIGHT		24 UNSP	2	BAPD	45.2		
207	HERO-WWII-CD55	SAAR	EUR	5TH AR DIV	DIV	11/21/44	LIGHT		36 UNSP	2	ATEM	61.7		
3512	HERO-WWII-CD55	SAAR	EUR	35US IN DIV	DIV	11/23/44	LIGHT		24 UNSP	2	BAPD	28.9		
217	HERO-WWII-CD55	SAAR	EUR	4TH AR DIV	DIV	11/23/44	LIGHT		36 UNSP	2	ATEM	55.8		
3501	HERO-WWII-CD55	SAAR	EUR	80TH US DIV	DIV	11/23/44	LIGHT		48 UNSP	3	ATEL	47.4		
3424	HERO-WWII-CD55	SAAR	EUR	80TH US DIV	DIV	11/25/44	LIGHT		36 UNSP	2	ATEM	69.3		
3490	HERO-WWII-CD55	SAAR	EUR	6TH AR DIV	DIV	11/25/44	LIGHT		36 UNSP	1	BAPD	37.3		
133	HERO-WWII-CD55	GERMANY	EUR	4US AR DIV	DIV	11/26/44	LIGHT		54 UNSP	3	BAPD	31.6		
143	HERO-WWII-CD55	GERMANY	EUR	4US AR DIV	DIV	11/27/44	LIGHT		28 UNSP	8	ATEL	28.8		
3479	HERO-WWII-CD55	SAAR	EUR	60TH US DIV	DIV	11/27/44	LIGHT		48 UNSP	3	ATEM	33.7		
3435	HERO-WWII-CD55	SAAR	EUR	60TH US DIV	DIV	11/28/44	LIGHT		54 UNSP	2	BAPD	63.7		
159	HERO-WWII-CD55	GERMANY	EUR	35US IN DIV	DIV	12/01/44	LIGHT		24 UNSP	1	BAPD	73.6		
225	HERO-WWII-CD55	SAAR	EUR	35US IN DIV	DIV	12/04/44	LIGHT		36 UNSP	1	ATEM	76.8		
3466	HERO-WWII-CD55	SAAR	EUR	80TH US DIV	DIV	12/04/44	LIGHT		36 UNSP	1	ATEM	57.6		
3465	HERO-WWII-CD55	SAAR	EUR	6TH AR DIV	DIV	12/04/44	LIGHT		36 UNSP	2	ATEL	18.8		
3457	HERO-WWII-CD55	GERMANY	EUR	4US AR DIV	DIV	12/05/44	LIGHT		27 UNSP	2	BAPD	42.8		
162	HERO-WWII-CD55	SAAR	EUR	35US IN DIV	DIV	12/06/44	LIGHT		24 UNSP	1	BAPD	49.6		
235	HERO-WWII-CD55	ARDENNES	EUR	99US IN DIV	DIV	12/16/44	LIGHT		6 UNSP	2	PD	105.2		
244	HERO-WWII-CD55	ARDENNES	EUR	99US IN DIV	DIV	12/16/44	LIGHT		12 UNSP	6	DEFN	45.1		
3213	HERO-WWII-CD55	ARDENNES	EUR	4TH US DIV	DIV	12/16/44	LIGHT		15 UNSP	6	DEFN	57.5		
3239	HERO-WWII-CD55	ARDENNES	EUR	4TH US DIV	DIV	12/16/44	LIGHT		-1 UNSP	2	DEFN	45.1		
3243	HERO-WWII-CD55	ITALYANM	EUR	4TH US DIV	DIV	12/16/44	LIGHT		-1 UNSP	2	DEFN	84.7		
3276	HERO-WWII-CD55	ITALYANM	EUR	20 US DIV	DIV	12/16/44	LIGHT		-1 UNSP	2	DEFN	105.2		
3309	HERO-WWII-CD55	ITALYANM	EUR	99TH US DIV	DIV	12/16/44	LIGHT		6 UNSP	2	PD	63.8		
252	HERO-WWII-CD55	ARDENNES	EUR	99US IN DIV	DIV	12/16/44	LIGHT		12 UNSP	1	DEFN	105.8		
3220	HERO-WWII-CD55	ARDENNES	EUR	4TH US DIV	DIV	12/16/44	LIGHT		-1 UNSP	2	DEFN	165.8		
3254	HERO-WWII-CD55	ITALYANM	EUR	4TH US DIV	DIV	12/16/44	LIGHT		-1 UNSP	2	DEFN	165.8		

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Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	RTTUBEDAY
3254	HERO-WWII-CDS5	ITALY6NW	EUR 4TH US DIV	DIV	12/16/44	LIGHT	LIGHT	-1 UNSP	2 DEFH	165.8		
3257	HERO-WWII-CDS5	ITALY6NW	EUR 2D US DIV	DIV	12/18/44	LIGHT	LIGHT	-1 UNSP	2 DEFH	237.7		
3260	HERO-WWII-CDS5	ITALY6NW	EUR 99TH US DIV	DIV	12/18/44	LIGHT	LIGHT	-1 UNSP	2 DEFH	60.3		
3265	HERO-WWII-CDS5	ITALY6NW	EUR 4TH US DIV	DIV	12/20/44	LIGHT	LIGHT	-1 UNSP	3 DEFH	182.4		
3277	HERO-WWII-CDS5	ARDENNES	4TH US DIV	DIV	12/22/44	LIGHT	LIGHT	28 UNSP	2 DEFH	162.4		
69	HERO-WWII-CDS5	DIADEN	86US IM DIV	DIV	05/11/44	MEDIUM		46 UNSP	17 BARD	50.1		
80	HERO-WWII-CDS5	DIADEN	86US IM DIV	DIV	05/11/44	MEDIUM		46 UNSP	17 BARD	50.1		
92	HERO-WWII-CDS5	DIADEN	86US IM DIV	DIV	05/11/44	MEDIUM		46 UNSP	17 BARD	50.1		
3242	HERO-WWII-CDS5	DIADEN	83TH US DIV	DIV	05/12/44	MEDIUM	MEDIUM	42 UNSP	2 ATEN	164.6		
3254	HERO-WWII-CDS5	DIADEN	83TH US DIV	DIV	05/14/44	MEDIUM	MEDIUM	26 UNSP	2 ATEN	357.2		
3278	HERO-WWII-CDS5	DIADEN	85TH US DIV	DIV	05/16/44	MEDIUM	MEDIUM	26 UNSP	2 ATEN	49.4		
3270	HERO-WWII-CDS5	DIADEN	86TH US DIV	DIV	05/20/44	MEDIUM	MEDIUM	24 UNSP	2 ATEN	31.8		
3266	HERO-WWII-CDS5	DIADEN	85TH US DIV	DIV	05/22/44	MEDIUM	MEDIUM	34 UNSP	2 ATEN	79.4		
3290	HERO-WWII-CDS5	DIADEN	85TH US DIV	DIV	05/25/44	MEDIUM	MEDIUM	27 UNSP	2 ATEN	24.6		
173	HERO-WWII-CDS5	SAAR	35US IM DIV	DIV	11/08/44	MEDIUM	MEDIUM	3 UNSP	4 BARD	22.7		
3232	HERO-WWII-CDS5	DIADEN	80TH US DIV	DIV	11/08/44	MEDIUM	MEDIUM	-1 UNSP	2 ATEN	31.1		
110	HERO-WWII-CDS5	GERMANY	4US AR DIV 8 2BDE		11/10/44	MEDIUM	MEDIUM	12 UNSP	1 BARD	7.6		
3106	HERO-WWII-CDS5	SAAR	8ARDIV	DIV	11/10/44	MEDIUM	MEDIUM	12 UNSP	2 ATEN	37.1		
3281	HERO-WWII-CDS5	SAAR	80TH US DIV	DIV	11/10/44	MEDIUM	MEDIUM	22 UNSP	3 ATEN	21.7		
3299	HERO-WWII-CDS5	ITALY6NW	EUR 4TH US DIV	DIV	11/11/44	MEDIUM	MEDIUM	-1 UNSP	1 DEFH	17.3		
118	HERO-WWII-CDS5	GERMANY	4UE AR DIV 8 2BDE		11/13/44	MEDIUM	MEDIUM	12 UNSP	3 BARD	19.3		
3112	HERO-WWII-CDS5	SAAR	8ARDIV	DIV	11/14/44	MEDIUM	MEDIUM	12 UNSP	1 ATEN	81.8		
2292	HERO-WWII-CDS5	SAAR	80TH US DIV	DIV	11/14/44	MEDIUM	MEDIUM	26 UNSP	1 ATEN	36.2		
3203	HERO-WWII-CDS5	SAAR	80TH US DIV	DIV	11/15/44	MEDIUM	MEDIUM	26 UNSP	2 ATEN	38.2		
3231	HERO-WWII-CDS5	SAAR	8TH AR DIV	DIV	11/15/44	MEDIUM	MEDIUM	6 UNSP	2 ATEN	26.2		
190	HERO-WWII-CDS5	SAAR	35US IM DIV	DIV	11/18/44	MEDIUM	MEDIUM	12 UNSP	1 BARD	21.3		
3214	HERO-WWII-CDS5	SAAR	80TH US DIV	DIV	11/18/44	MEDIUM	MEDIUM	24 UNSP	1 ATEN	72.3		
3224	HERO-WWII-CDS5	SAAR	8TH AR DIV	DIV	11/19/44	MEDIUM	MEDIUM	24 UNSP	2 ATEN	39.1		
3213	HERO-WWII-CDS5	SAAR	35US IM DIV	DIV	11/21/44	MEDIUM	MEDIUM	6 UNSP	2 ATEN	16.2		
218	HERO-WWII-CDS5	SAAR	35US IM DIV	DIV	11/23/44	MEDIUM	MEDIUM	12 UNSP	2 BARD	16.8		
3202	HERO-WWII-CDS5	SAAR	8TH AR DIV	DIV	11/23/44	MEDIUM	MEDIUM	26 UNSP	2 ATEN	-1.8		
3225	HERO-WWII-CDS5	SAAR	80TH US DIV	DIV	11/25/44	MEDIUM	MEDIUM	26 UNSP	2 ATEN	37.4		
3291	HERO-WWII-CDS5	SAAR	8TH AR DIV	DIV	11/25/44	MEDIUM	MEDIUM	12 UNSP	2 ATEN	19.8		
134	HERO-WWII-CDS5	GERMANY	4US AR DIV	DIV	11/26/44	MEDIUM	MEDIUM	24 UNSP	1 BARD	18.8		
144	HERO-WWII-CDS5	GERMANY	4US AR DIV	DIV	11/27/44	MEDIUM	MEDIUM	24 UNSP	3 BARD	11.3		
3260	HERO-WWII-CDS5	SAAR	8TH AR DIV	DIV	11/27/44	MEDIUM	MEDIUM	4 UNSP	6 ATEN	12.8		
3236	HERO-WWII-CDS5	SAAR	80TH US DIV	DIV	11/28/44	MEDIUM	MEDIUM	26 UNSP	3 ATEN	66.9		
154	HERO-WWII-CDS5	GERMANY	4US AR DIV	DIV	12/01/44	MEDIUM	MEDIUM	12 UNSP	2 BARD	15.1		
226	HERO-WWII-CDS5	SAAR	35US IM DIV	DIV	12/04/44	MEDIUM	MEDIUM	12 UNSP	1 BARD	47.0		
3247	HERO-WWII-CDS5	SAAR	80TH US DIV	DIV	12/04/44	MEDIUM	MEDIUM	12 UNSP	1 ATEN	59.6		
3269	HERO-WWII-CDS5	SAAR	8TH AR DIV	DIV	12/04/44	MEDIUM	MEDIUM	12 UNSP	1 ATEN	180.3		
3258	HERO-WWII-CDS5	SAAR	8TH AR DIV	DIV	12/05/44	MEDIUM	MEDIUM	12 UNSP	2 ATEN	59.3		
238	HERO-WWII-CDS5	SAAR	35US IM DIV	DIV	12/06/44	MEDIUM	MEDIUM	12 UNSP	1 BARD	12.6		
245	HERO-WWII-CDS5	ARDENNES	99US IM DIV	DIV	12/16/44	MEDIUM	MEDIUM	12 UNSP	2 PD	82.2		
3214	HERO-WWII-CDS5	ARDENNES	4TH US DIV	DIV	12/16/44	MEDIUM	MEDIUM	6 UNSP	1 DEFH	79.0		
3234	HERO-WWII-CDS5	ARDENNES	4TH US DIV	DIV	12/16/44	MEDIUM	MEDIUM	12 UNSP	6 DEFH	27.6		
3244	HERO-WWII-CDS5	ITALY6NW	EUR 4TH US DIV	DIV	12/16/44	MEDIUM	MEDIUM	-1 UNSP	3 DEFH	79.0		
3277	HERO-WWII-CDS5	ITALY6NW	EUR 2D US DIV	DIV	12/16/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH	42.8		
3216	HERO-WWII-CDS5	ITALY6NW	EUR 99TH US DIV	DIV	12/16/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH	82.2		
253	HERO-WWII-CDS5	ARDENNES	99US IM DIV	DIV	12/16/44	MEDIUM	MEDIUM	9 UNSP	2 PD	182.1		
3221	HERO-WWII-CDS5	ARDENNES	4TH US DIV	DIV	12/18/44	MEDIUM	MEDIUM	12 UNSP	1 DEFH	79.7		
3253	HERO-WWII-CDS5	ITALY6NW	EUR 4TH US DIV	DIV	12/18/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH	79.7		
3284	HERO-WWII-CDS5	ITALY6NW	EUR 2D US DIV	DIV	12/18/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH	318.4		
3311	HERO-WWII-CDS5	ITALY6NW	EUR 99TH US DIV	DIV	12/18/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH	180.1		

DO NAME	RECORDS SOURCE	BATTLE	UNI-	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	EDTUBEDAY
3371	HERO-WWII-CDSS	ITALYCNM EUR	99TH US DIV	DIV	12/18/44	MEDIUM	MEDIUM	-3 UNSP	2	DEPN	2	163.1
3366	HERO-WWII-CDSS	ITALYCNM EUR	4TH US DIV	DIV	12/20/44	MEDIUM	MEDIUM	-1 UNSP	3	DEPN	3	14.3
3228	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/22/44	MEDIUM	MEDIUM	4 UNSP	2	DEPN	2	18.3
34	RAC-WWII-E-1	SICILY	7TH ARMY	ARMY	07/10/43	UNSP	UNSP	-1 UNSP	39	ATEM	39	-1.0
1	RAC-WWII-E-1	SALEZIO	3INF DIV	DIV	09/19/43	UNSP	UNSP	-1 UNSP	60	ATEM	60	-1.0
2	RAC-WWII-E-1	SALEZIO	3INF DIV	DIV	01/22/44	UNSP	UNSP	-1 UNSP	67	ATEM	67	-1.0
3383	HERO-WWII-CDSS	ANZIO	3RD US DIV	DIV	01/25/44	UNSP	UNSP	-1 UNSP	6	UNSP	6	72.3
3388	HERO-WWII-CDSS	ANZIO	3RD US DIV	DIV	02/01/44	UNSP	UNSP	-1 UNSP	3	UNSP	3	137.8
3	RAC-WWII-E-1	BOUGAINVILLE	129INF REGT	BDE	03/09/44	UNSP	UNSP	-1 UNSP	16	DEPN	16	8
4	RAC-WWII-E-1	GUSTAV LINE	826AS DIV	DIV	05/10/44	UNSP	UNSP	-1 UNSP	20	ATEM	20	-1.0
71	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	100 UNSP	17	BRPD	17	190.1
82	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	76 UNSP	17	BRPD	17	48.8
94	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	126 UNSP	17	BADL	17	81.6
3544	HERO-WWII-CDSS	DIADEN	85TH US DIV	DIV	05/12/44	UNSP	UNSP	154 UNSP	2	ATEM	2	185.7
3556	HERO-WWII-CDSS	DIADEN	85TH US DIV	DIV	05/14/44	UNSP	UNSP	156 UNSP	2	ATEM	2	136.3
3580	HERO-WWII-CDSS	DIADEN	85TH US DIV	DIV	05/16/44	UNSP	UNSP	108 UNSP	2	ATEL	2	48.3
3372	HERO-WWII-CDSS	DIADEN	88TH US DIV	DIV	05/20/44	UNSP	UNSP	72 UNSP	2	ATEL	2	21.6
3568	HERO-WWII-CDSS	DIADEN	85TH US DIV	DIV	05/22/44	UNSP	UNSP	112 UNSP	2	ATEM	2	50.4
3582	HERO-WWII-CDSS	DIADEN	85TH US DIV	DIV	05/23/44	UNSP	UNSP	111 UNSP	2	ATEL	2	18.1
173	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/08/44	UNSP	UNSP	35 UNSP	4	BRPD	4	38.2
3334	HERO-WWII-CDSS	DIADEN	80TH US DIV	DIV	11/08/44	UNSP	UNSP	-1 UNSP	2	ATEM	2	35.6
102	HERO-WWII-CDSS	GERMANY	4US AR DIV A	BDE	11/10/44	UNSP	UNSP	14 UNSP	2	BRPD	2	8.5
112	HERO-WWII-CDSS	GERMANY	4US AR DIV B	2BDE	11/10/44	UNSP	UNSP	35 UNSP	1	BRPD	1	18.1
3107	HERO-WWII-CDSS	SAAR	6ARDIV	DIV	11/10/44	UNSP	UNSP	87 UNSP	3	ATEL	3	32.6
3383	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/10/44	UNSP	UNSP	87 UNSP	3	ATEL	3	20.8
3301	HERO-WWII-CDSS	ITALYCNM EUR	4TH US DIV	DIV	11/11/44	UNSP	UNSP	-1 UNSP	1	DEPN	1	36.1
101	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/12/44	UNSP	UNSP	40 UNSP	4	BADL	4	31.3
120	HERO-WWII-CDSS	GERMANY	4US AR DIV B	2BDE	11/13/44	UNSP	UNSP	45 UNSP	2	BADL	2	23.4
126	HERO-WWII-CDSS	GERMANY	4US AR DIV A	BDE	11/14/44	UNSP	UNSP	21 UNSP	2	RAPD	2	56.1
3114	HERO-WWII-CDSS	SAAR	6ARDIV	DIV	11/14/44	UNSP	UNSP	71 UNSP	1	ATEL	1	77.8
3394	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/14/44	UNSP	UNSP	89 UNSP	1	ATEL	1	18.9
3405	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/15/44	UNSP	UNSP	93 UNSP	2	ATEM	2	35.3
3533	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/15/44	UNSP	UNSP	42 UNSP	2	ATEM	2	60.6
192	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/18/44	UNSP	UNSP	98 UNSP	1	BADL	1	47.6
3416	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/18/44	UNSP	UNSP	96 UNSP	1	ATEL	1	59.9
200	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/19/44	UNSP	UNSP	45 UNSP	2	BRPD	2	31.4
3524	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/19/44	UNSP	UNSP	69 UNSP	2	ATEM	2	27.4
210	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/21/44	UNSP	UNSP	28 UNSP	2	BRPD	2	39.6
3515	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/21/44	UNSP	UNSP	54 UNSP	3	ATEM	3	46.5
220	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/23/44	UNSP	UNSP	49 UNSP	2	BRPD	2	16.6
3504	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/23/44	UNSP	UNSP	44 UNSP	2	ATEM	2	28.3
3427	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/25/44	UNSP	UNSP	96 UNSP	3	ATEL	3	41.8
3493	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/25/44	UNSP	UNSP	78 UNSP	2	ATEM	2	42.4
146	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	11/26/44	UNSP	UNSP	70 UNSP	1	BRPD	1	27.6
3482	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/27/44	UNSP	UNSP	92 UNSP	3	BADL	3	23.7
3426	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/27/44	UNSP	UNSP	47 UNSP	8	ATEL	8	19.5
156	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	11/28/44	UNSP	UNSP	96 UNSP	3	ATEM	3	38.5
228	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	12/01/44	UNSP	UNSP	83 UNSP	2	BRPD	2	48.3
3449	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	12/04/44	UNSP	UNSP	45 UNSP	1	BRPD	1	56.1
3471	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	12/04/44	UNSP	UNSP	69 UNSP	1	ATEM	1	39.8
3460	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	12/05/44	UNSP	UNSP	57 UNSP	2	ATEL	2	73.6
164	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	12/06/44	UNSP	UNSP	69 UNSP	2	BRPD	2	28.1
238	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	12/06/44	UNSP	UNSP	58 UNSP	1	BADL	1	27.1
247	HERO-WWII-CDSS	ARDENNES	99US IN DIV	DIV	12/16/44	UNSP	UNSP	30 UNSP	2	PD	2	77.7

DO LAMART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBESCAT	SUBSEQUANT TYPERD	DAYSOAUNT	OPERATION	REPORTEDBY
247	HERO-WMII-CDSS	ARDENNES	95US IN DIV	DIV	12/16/44	UNSP	UNSP	26 UNSP	2 PD	UNSP	77.7
3214	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	UNSP	UNSP	36 UNSP	1 DEFM	UNSP	43.2
3235	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	UNSP	UNSP	27 UNSP	6 DEFM	UNSP	44.2
3246	HERO-WMII-CDSS	ITALYANW EUR	4TH US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	43.2
3278	HERO-WMII-CDSS	ITALYANW EUR	2D US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	61.2
3312	HERO-WMII-CDSS	ITALYANW EUR	99TH US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	77.7
3355	HERO-WMII-CDSS	ARDENNES	95US IN DIV	DIV	12/16/44	UNSP	UNSP	24 UNSP	2 PD	UNSP	78.5
3223	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	UNSP	UNSP	26 UNSP	1 DEFM	UNSP	93.3
3257	HERO-WMII-CDSS	ITALYANW EUR	4TH US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	93.3
3290	HERO-WMII-CDSS	ITALYANW EUR	2D US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	169.3
3324	HERO-WMII-CDSS	ITALYANW EUR	99TH US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	70.5
3324	HERO-WMII-CDSS	ITALYANW EUR	99TH US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	82.9
3268	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/20/44	UNSP	UNSP	26 UNSP	2 DEFM	UNSP	82.9
3230	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/22/44	UNSP	UNSP	26 UNSP	2 DEFM	UNSP	82.9
3124	HERO-WMII-CDSS	ROER RIVER	XII CORPS	CORPS	02/22/45	UNSP	UNSP	486 UNSP	1 UNSP	UNSP	-1.0
3130	HERO-WMII-CDSS	ROER RIVER	XVI CORPS	CORPS	02/22/45	UNSP	UNSP	264 UNSP	1 UNSP	UNSP	-1.0
3137	HERO-WMII-CDSS	ROER RIVER	XIX CORPS	CORPS	02/22/45	UNSP	UNSP	632 UNSP	1 UNSP	UNSP	-1.0
3147	HERO-WMII-CDSS	ROER RIVER	9TH US ARMY	ARMY	02/22/45	UNSP	UNSP	1543 UNSP	1 UNSP	UNSP	-1.0
3157	HERO-WMII-CDSS	ROER RIVER	9TH US ARMY	ARMY	02/23/45	UNSP	UNSP	1569 UNSP	1 UNSP	UNSP	-1.0
3176	HERO-WMII-CDSS	ROER RIVER	XIII CORPS	CORPS	02/23/45	UNSP	UNSP	566 UNSP	1 UNSP	UNSP	-1.0
3177	HERO-WMII-CDSS	ROER RIVER	XVI CORPS	CORPS	02/23/45	UNSP	UNSP	389 UNSP	1 UNSP	UNSP	-1.0
3178	HERO-WMII-CDSS	ROER RIVER	XIX CORPS	CORPS	02/23/45	UNSP	UNSP	648 UNSP	1 UNSP	UNSP	-1.0
3179	HERO-WMII-CDSS	ROER RIVER	US ARMY	ARMY	02/23/45	UNSP	UNSP	34 UNSP	1 UNSP	UNSP	-1.0
35	RAC-WMII-E-1	KOREA	24INF REGT	ARMY	07/26/50	UNSP	UNSP	-1 UNSP	6 DEFL	UNSP	-1.0
36	RAC-WMII-E-1	KOREA	25DIV TYREAN BN TF	ARMY	08/07/50	UNSP	UNSP	-1 UNSP	6 ATEN	UNSP	-1.0
37	RAC-WMII-E-1	KOREA	1CAV DIV	DIV	09/01/50	UNSP	UNSP	-1 UNSP	16 DEFM	UNSP	-1.0
38	RAC-WMII-E-1	KOREA	7CAV REGT	BDE	09/02/50	UNSP	UNSP	-1 UNSP	6 ATEN	UNSP	-1.0
39	RAC-WMII-E-1	KOREA	1CAV DIV	DIV	09/17/50	UNSP	UNSP	-1 UNSP	3 ATEN	UNSP	-1.0
40	RAC-WMII-E-1	KOREA	2INF DIV	DIV	11/23/50	UNSP	UNSP	-1 UNSP	6 DL	UNSP	-1.0
41	RAC-WMII-E-1	KOREA	23INF DIV	DIV	03/07/51	UNSP	UNSP	-1 UNSP	3 ATEN	UNSP	-1.0
42	RAC-WMII-E-1	KOREA	24INF DIV	DIV	04/22/51	UNSP	UNSP	-1 UNSP	7 DEFL	UNSP	-1.0
43	RAC-WMII-E-1	KOREA	25INF DIV	DIV	05/23/51	UNSP	UNSP	-1 UNSP	6 ATEN	UNSP	-1.0
44	RAC-WMII-E-1	KOREA	30INF REGT	BDE	07/26/51	UNSP	UNSP	-1 UNSP	5 ATEN	UNSP	-1.0
45	RAC-WMII-E-1	KOREA	31INF REGT	BDE	08/30/51	UNSP	UNSP	-1 UNSP	7 ATEN	UNSP	-1.0
46	RAC-WMII-E-1	KOREA	23INF REGT	BDE	09/13/51	UNSP	UNSP	-1 UNSP	16 ATEN	UNSP	-1.0
47	RAC-WMII-E-1	KOREA	19INF REGT	BDE	09/29/51	UNSP	UNSP	-1 UNSP	9 ATEN	UNSP	-1.0
48	RAC-WMII-E-1	KOREA	31NF DIV	DIV	10/03/51	UNSP	UNSP	-1 NE	7 ATEN	UNSP	-1.0
49	RAC-WMII-E-1	KOREA	21NF DIV	DIV	10/03/51	UNSP	UNSP	-1 UNSP	11 ATEN	UNSP	-1.0

APPENDIX G

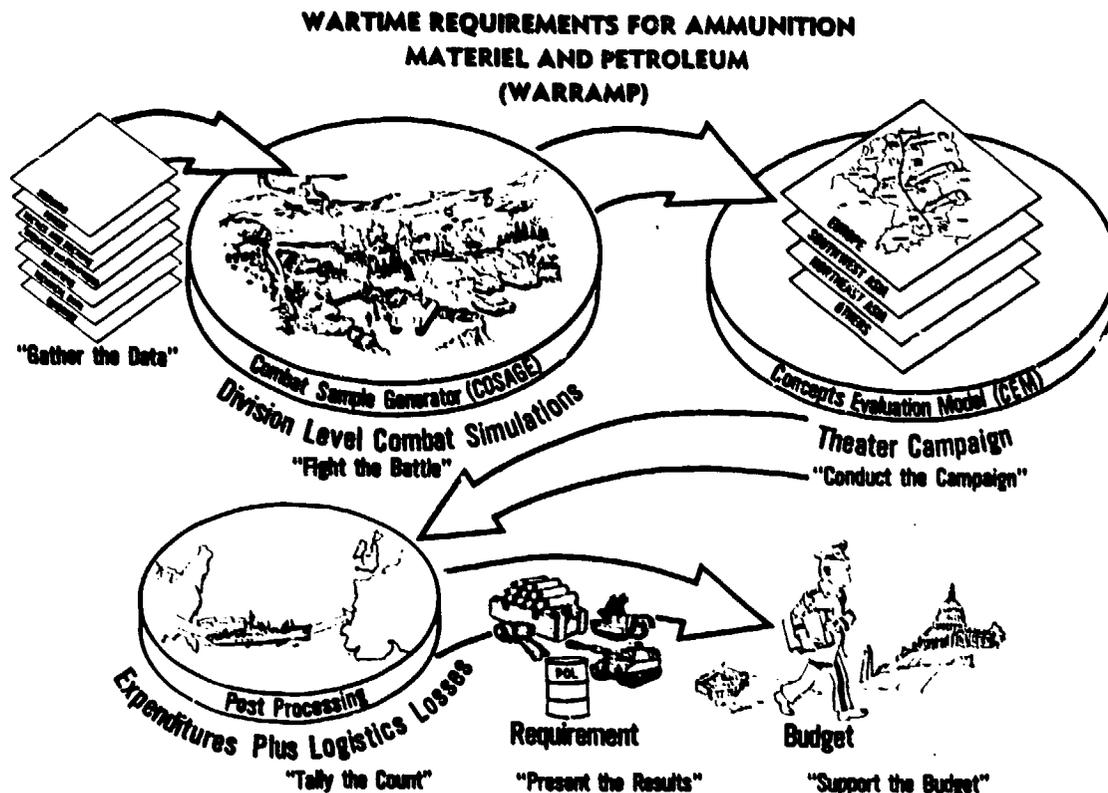
THE WARRAMP PROCESS

G-1. **PURPOSE.** The purpose of this appendix is to provide a description of the combat simulation process used to determine wartime requirement for ammunition. This is only a partial description but includes those aspects of the process that are relevant to this study.

G-2. THE WARRAMP PROCESS

a. As a vehicle for comparison with historical data the combat simulation process WARRAMP will be used. The acronym represents the "Wartime Requirements for Ammunition, Materiel, and Petroleum." As its name indicates, WARRAMP is designed to determine requirements not only for ammunition but for major end items of combat equipment and the petroleum stocks necessary to sustain the force. Comparisons made in AHART will concentrate strictly on indirect fire ammunition requirements.

b. WARRAMP is not a single combat simulation. WARRAMP actually describes a process employing two primary simulations, a calibration routine to match the two and a series of pre- and postprocessing routines. Figure G-1 presents a simplified view of the process.



c. WARRAMP is designed and used for the express purpose of providing updated quantitative analysis in support of changes made to the current means of deterrence and the current methods of combat. WARRAMP is part of a larger system of analysis known as the Program Objective Memorandum (POM) cycle. The "P-Studies" conducted by the US Army Concepts Analysis Agency and shown in the upper part of Figure G-2 produce, among other results, the "ammo rates" used by the POM. These figures are used to brief Congress and support the budget process.

d. Secondly, the results of WARRAMP are input to a system of analysis known as the Total Army Analysis (TAA) shown in the lower part of Figure G-2. TAA is designed to determine requirements for administrative and logistic support units that back up the combat units covered in the POM. The "SRA studies" are the quantitative portion of the TAA process conducted at the US Army Concepts Analysis Agency.

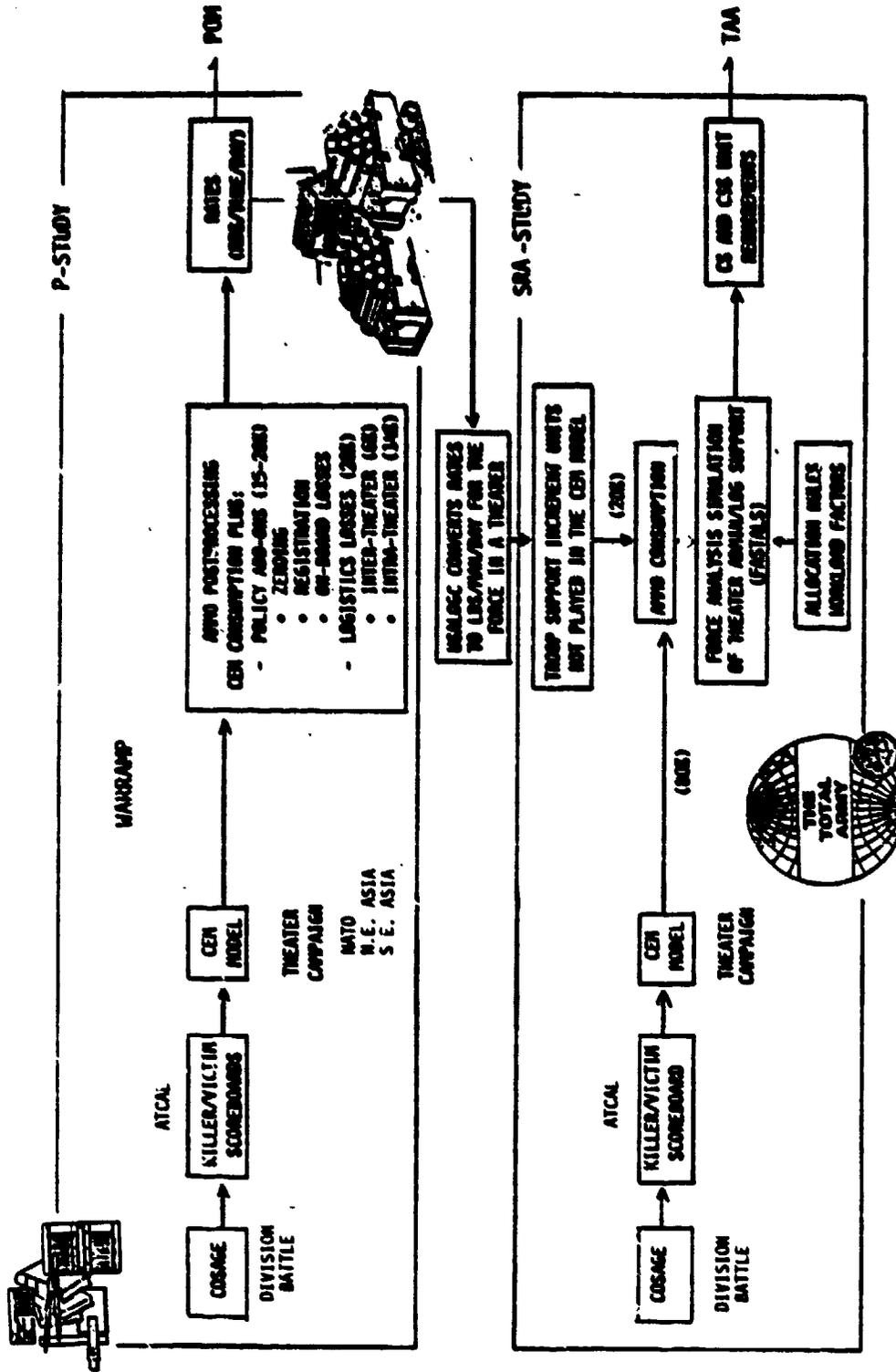


Figure G-2. The POM/TAA Process

e. The obvious importance of the WARRAMP process dictates that it be done properly and that its results be consistent with some measure of "reality." While it is impractical here to provide a complete explanation of the mechanics and relationships inherent in the process, the following are the primary characteristics of the process that are relevant to AHART.

- COSAGE - The Combat Sample Generator is a division-level, closed loop, stochastic combat simulation. As such, it seeks to simulate the probabilistic nature of division-level combat for a period of 24 hours using predetermined decision thresholds. Being closed looped, COSAGE eliminates the changes brought about by man-in-the-loop simulations. The simulation is run numerous times to produce steady-state results. A standard set of division combat operations is employed to produce ammunition rates representative of the spectrum of combat conditions.
- CEM - The Concepts Evaluation Model is the theater war simulation in WARRAMP. It is also closed looped but is deterministic in design. By employing the results of the COSAGE simulation it simulates the strategies and interactions that occur on the theater level of combat.
- ATCAL - The Attrition Calibration routine is the method of translating the results of the stochastic simulation into values usable to the deterministic CEM simulation. More than just calibrating attrition, it likewise calibrates the ammunition and other resources that are inherent in producing the attrition.
- APP - The Ammunition Postprocessor is a mathematical algorithm that provides analysts and decisionmakers with the capability of inputting factors not possible to include directly in the simulations. The APP combines the results of the simulations together with the analyst input to produce what is exported as WARRAMP results.
- Detailed technical characteristics of units and weapon systems expected to be present in the force in any given year are the primary input to the simulations. For this reason, understanding the change in expenditures over time becomes a useful endeavor. Trends in ammunition expenditures with changes in technical capabilities over time are of great interest. Historical data can provide insight into these trends.
- As the threat to national security changes, so does the force designed to meet the threat. These changes are included in WARRAMP. An historical perspective on the effects of the size and composition of a force on the expenditure rates provides useful information relevant to WARRAMP results.
- The WARRAMP process provides detailed output on each weapon system included in the simulation. The results of artillery ammunition expenditure studies are naturally produced by type of tube. Historical data readily differentiates among type artillery tubes, providing WARRAMP analysts with comparisons for the expenditures for tubes of different size and mission.

- WARRAMP attempts to produce results representative of the spectrum of combat operations. A historical perspective on the change in ammunition expenditures with a change in combat operation and operational intensity would be essential to analysts.
- WARRAMP produces expenditure rates for tubes for each day over a 180-day period. Published results are normally provided in 15-day increments. The effect of duration of the battle on expenditures found in history would provide useful information to analysts and decisionmakers.

f. This description of the WARRAMP process is by no means exhaustive but includes the major properties of WARRAMP that are relevant to AHART. In-depth information on this process is available in programmer and user manuals referenced in the bibliography [CACI-S-1].

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GLOSSARY

1. ABBREVIATIONS, ACRONYMS, AND SHORT TERMS

AHART	Analysis of Historical Artillery Expenditures
ALMC	Army Logistics Management Center
AMSAA	Army Materiel Systems Analysis Activity
APP	Ammunition Postprocessor
ATCAL	Attrition Calibration
ATKH	attack heavy
ATKL	attack light
ATKM	attack medium
CAA	US Army Concepts Analysis Agency
CAC	Combined Arms Center
COSAGE	Combat Sample Generator
DAS	Director of the Army Staff
DEFH	defense heavy
DEFL	defense light
DEFM	defense medium
DIA	Defense Intelligence Agency
DLSIE	Defense Logistics Studies Information Exchange
DOD	Department of Defense
DTIC	Defense Technical Information Center
GMU	George Mason University
HE	high explosive
HERO	Historical Evaluation and Research Organization
ICM	improved conventional munitions
ODCSLOG	Office of the Deputy Chief of Staff for Logistics

ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
ODCSRDA	Office of the Deputy Chief of Staff for Research, Development and Acquisition
POM	Program Objective Memorandum
PROH	protracted heavy
PROL	protracted light
PROM	protracted medium
SADARM	seek and destroy armor
TRAC	TRADOC Analysis Center
TRADOC	US Army Training and Doctrine Command
TWG	terminally-guided munitions
UNSP	unspecified
WARRAMP	Wartime Requirements for Ammunition, Materiel, and Petroleum

2. DEFINITIONS

BATTLE

An AHART data base field name; this term is used broadly to define an engagement of any size from company to theater size force. When it is necessary to know the size of the battle, the size of the forces involved is given.

BMDP

Once an acronym for biomedical programs, the letters have come to stand alone as a trade name for a large assortment of statistical software commercially available to mainframe computer systems. The software reduces to four convenient steps calculations that would otherwise require extensive labor and time.

BNTF

An abbreviation for battalion task force used with the variable SIZE to describe a force of three maneuver companies, a headquarters, and support company. Unlike a standard battalion, this battalion has attached to it additional engineer, signal, and an artillery battery dedicated for sole support.

DAYSQUANT

An AHART field name for the number of 24-hour periods in an historical event.

DURATION

An AHART variable name used in the analysis to examine the relationship between the number of days in an historical event and the number of days involved.

OPERATION

An AHART data base field name; this term is defined by Table 7-1 of FM 101-10-1 and includes protracted, attack and defensive operations on three levels--light, medium, and heavy. Included in this study is a set of data for which no single operation can be defined, normally aggregated data from numerous types of operations. This data is assigned to the unspecified (UNSP) operation and included in the analysis. When it is necessary to know the size of the operation, the size of the forces involved is given.

operational rate

The rate computed in combat simulation when only those tubes that fired were included in the calculation.

operational RTD

The RTD computed from historical data when only those tubes that were actually in position to fire in support of that battle were included in the calculation.

OPN

An AHART variable name. This is the variable name used in the analysis of the data base field "operation."

rate

Rate is the term used in the analysis of combat simulations for the number of rounds fired "on average" by a single tube of artillery in a single 24-hour period. The calculation is performed by isolating the total number of rounds fired by all tubes of a specific tube type throughout the simulation, dividing that number by the number of 24-hour periods in the simulation and by the appropriate number of tubes. There are two kinds of rates, operational and theater.

RTD

RTD is the average rounds per tube per day actually fired in an historical battle. Its definition parallels the definition of a "rate" except that it defines actual expenditures, not expenditures from combat simulation. The calculation is performed by isolating from historical records the total number of rounds fired by all tubes of a specific artillery tube type throughout the duration of the battle or throughout the period for which data is being gathered, dividing that number by the density of those tubes in that battle or present during the period and then dividing again by the number of 24-hour periods in the historical data. There are two kinds of RTD, operational and theater.

theater rate

The rate computed in a combat simulation when all tubes in a theater of operations are included in the input files of the simulation and are then used in the calculation of rates.

theater RTD

The RTD is computed from historical data when all tubes in a large (six corps or greater) force are accounted for by logisticians or historians and included in the calculation of RTD. If an actual theater of operation such as Korea or the Middle East did not involve six corps on one side supported by artillery, the RTD was considered a theater RTD if it included in the calculation all tubes present for that force in the theater.

size

An AHART field name. The same name in upper case letters is used as a variable name in the analysis.

SIZE

An AHART variable name for the size of the maneuver force supported by the artillery in a given data base record.

TUBECAT

An AHART data base field name. The same name is used in the analysis as a variable name. All tubes are placed in one of three categories--light, medium, or heavy. Light tubes include all indirect artillery weapons up to and including 120mm. The medium category includes 122mm to 155mm howitzers. The heavy category includes 155mm guns and above.

TUBEQUANT

The AHART data base field name for the rounds per tube per day recorded in an historical event.

TUBEQTY

The variable name used in the analysis of the relationship between the number of tubes present and the artillery expenditures in an historical event.

tube type

A type tube is defined by its "caliber" in millimeters. The 8-inch tube is a 203mm tube type. The conversion of all other means of measurement to millimeters facilitates the scaling of tube types for analysis.

TUBETYPE

An AHART data base field name. The same name is used in the analysis as a variable name.

UNIT

An AHART data base field name used to specify the unit headquarters of the force present in the historical event. This is the level at which the artillery expenditure rate was computed.



**AN ANALYSIS OF HISTORICAL
ARTILLERY EXPENDITURES
(AHART) STUDY - CY 87**

**STUDY
SUMMARY
CAA-TP-87-6**

THE REASONS FOR PERFORMING THE STUDY were:

(1) To conduct research into the availability of historical field artillery ammunition expenditure data and to assemble the available data into a data base.

(2) To determine if the historical data can be used for meaningful comparisons with a wartime requirements combat simulation process.

THE STUDY AUDIENCES are: analysts responsible for the conduct of wartime requirements combat simulations; decisionmakers who desire to use historical data and information in the process of determining requirements for artillery ammunition; and historians interested in deriving historical information through application of quantitative methods.

THE PRINCIPAL FINDINGS of the work are:

(1) There exists a great amount of available historical data on field artillery ammunition expenditures. The AHART data base, assembled through this study, is now available for use, wider dissemination, and enhancement.

(2) The assembled historical data provides very useful comparisons with the results of the wartime requirements combat simulation process, WARRAMP, and with other combat simulations as well.

THE MAIN ASSUMPTIONS were as follows:

(1) Historical data found in primary sources were accepted as reliable unless accompanying documentation strongly indicated otherwise. The difficulties of assembling such data under wartime conditions is acknowledged.

(2) Historical data in secondary sources not verifiable through primary sources were accepted as reliable if taken from a reasonably well-based source (i.e., government analytical agencies, military historical offices, relevant Department of the Army (DA) Staff activities).

(3) Historical information can be quantified and meaningfully subjected to quantitative analysis.

(4) Factors affecting historical artillery ammunition expenditures apply to current and future artillery ammunition expenditures.

THE PRINCIPAL LIMITATIONS which affect the findings are: the study will be limited to conventional, nondevelopmental field artillery munitions; the majority of data is limited to US data, with some British and French data for WWI; the study variables were limited to those for which historical data is available and those considered applicable to comparison with the specific combat simulation used in the study; and the study is limited to exploratory analysis of the data.

THE SCOPE OF THE STUDY

(1) The study is a pilot effort in assembling, from a multitude of fragments, a single source of data on field artillery ammunition expenditures.

(2) Using BMDP statistical software, an analysis of the data is performed. For each study variable, an evaluation is made of the applicability of the available data for comparison with combat simulation.

(3) A combat simulation process used for determination of wartime ammunition requirements is used as a vehicle for comparison with the historical data. Employing the defined study variables, numerous comparisons are made. Regression analysis is performed to determine the ability of the chosen variables to explain the variability of the historical rates and to determine the order of importance of the variables for continued research.

THE STUDY OBJECTIVES were:

(1) Assemble in data base format a set of historical data points for conventional field artillery expenditures.

(2) Define a set of variables with which to examine historical data and determine the availability of relevant data for each variable.

(3) Determine the capability of the study variables to explain historical rates.

(4) Compare historical rates with the results of the combat simulation process.

(5) Determine priorities for further research/analysis.

THE STUDY EFFORT was an in-house project at the US Army Concepts Analysis Agency. The study was performed as an individual research fellowship.

COMMENTS AND QUESTIONS may be directed to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-RQ, 8120 Woodmont Avenue, Bethesda, Maryland 20814-2797.



**AN ANALYSIS OF HISTORICAL
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**STUDY
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CAA-TR-87-6**

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THE STUDY AUDIENCES are: analysts responsible for the conduct of wartime requirements combat simulations; decisionmakers who desire to use historical data and information in the process of determining requirements for artillery ammunition; and historians interested in deriving historical information through application of quantitative methods.

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