AD

AMSAA

TECHNICAL REPORT NO. 263

TECHNICAL LIBRARY

ARTILLERY FORCE SIMULATION MODEL USER MANUAL

RICHARD S. SANDMEYER

JANUARY 1979

19970910 030

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

DTIC QUALITY INSPECTED 3

U. S. ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY
ABERDEEN PROVING GROUND, MARYLAND

DISPOSITION

Destroy this report when no longer needed. Do not return it to the originator.

DISCLAIMER

The findings in this report are not to be construed as an official Department of the Army position unless so specified by other official documentation.

WARNING

Information and data contained in this document are based on the input available at the time of preparation. The results may be subject to change and should not be construed as representing the DARCOM position unless so specified.

TRADE NAMES

The use of trade names in this report does not constitute an official endorsement or approval of the use of such commercial hardware or software. The report may not be cited for purposes of advertisement.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER Technical Report No. 263	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE *(and Subtitle)* Artillery Force Simulation Model User Manual		5. TYPE OF REPORT & PERIOD COVERED Final Report 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Richard S. Sandmeyer		8. CONTRACT OR GRANT NUMBER(s) N00123-76-C-0960
9. PERFORMING ORGANIZATION NAME AND ADDRESS US Army Materiel Systems Analysis Activity Aberdeen Proving Ground, Maryland 21005		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS DA Project No. 1R765706M541
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Materiel Systems Analysis Activity Aberdeen Proving Ground, MD 21005		12. REPORT DATE January 1979 13. NUMBER OF PAGES 321
14. MONITORING AGENCY NAME & ADDRESS*(if different from Controlling Office)*		15. SECURITY CLASS. *(of this report)* Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for Public Release; distribution unlimited.

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

This document is subject to page update relative to software modification or change. Updated pages will be transmitted as required. If discrepancies are found in this publication or the associated software, please notify Mr. Richard Sandmeyer, USAMSAA, ATTN: DRXSY-GS, APG, MD 21005.

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

AFSM
Artillery Force Simulation Model
Artillery
War Game
Division level simulation
Weapons Effectiveness Model
Artillery Force Performance
Artillery Effectiveness

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

The performance in combat of a division slice of BLUE artillery is a function of its weapon-ammo mix, ammo basic load and resupply, fire direction center (FDC) capability, movement policy, firing policy, weapon reliability, and weapon repair capability as well as RED anti-artillery capabilities such as counterbattery acquisition systems, counterbattery fire capability, and electronic warfare capability. These factors are taken into account by AFSM as it calculates the damage that a BLUE artillery force could do to a given RED threat force which is represented by a list of target acquisitions generated by an external war game.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

The User Manual contains:

a. An overview of the AFSM computer program including a conceptual flowchart and brief explanation of the model.

b. A detailed description of the input required to execute the program.

c. A description of the output.

d. A sample problem with fictitious inputs and the resulting output.

e. A glossary defining the important variables in AFSM.

ACKNOWLEDGMENT

The Artillery Force Simulation Model (AFSM) was developed in 1974-1975 to enhance the US Army Materiel Systems Analysis Activity's (AMSAA) capability to evaluate the performance of artillery force mix alternatives against RED threat scenarios produced by Army war gaming models.

The AFSM model has gone through many changes since its original version became operational. The version documented here is current as of May 1978. Documentation, if any, of AFSM changes made after May 1978 will be published separately.

The original AFSM model was given by AMSAA to FT Sill and to TRASANA. Each of those groups has made its own extensive changes to AFSM and now maintains a separate variant of AFSM. In addition, ARRADCOM at Dover, NJ has been given a copy of a more recent version of the AFSM model. Because of the number of different versions of AFSM in existence at these agencies, it is important to state that this manual applies in full only to AMSAA's AFSM program.

The original version of AFSM was developed in 1974-1975 for the US Army Ballistic Research Laboratory's BRLESC I and II computers by the following AMSAA personnel: Mr. E. Stauch, Mr. E. Morrow, Mr. B. King, and Mr. J. Blomquist.

The AFSM model has undergone a number of changes since the original version. The major changes made by AMSAA personnel are listed below:

a. An attrition routine to approximate the losses of BLUE artillery tubes to RED counterbattery fire was developed by Mr. C. Thomas and Mr. N. Winslow.

b. A CLGP (COPPERHEAD) submodel to allow the use of cannon launched guided projectiles was added by Mr. E. Stauch and Mr. J. Blomquist.

c. A revised and expanded attrition routine to play RED counterbattery fire in greater detail was developed by Mr. R. Sandmeyer.

d. A counterbattery suppression model was added by Mr. R. Sandmeyer.

e. A modification to allow variable size battalions having more than one weapon system was made by Mr. R. Chandler.

f. An improved munition effectiveness model including posture sequencing was added by Mr. R. Sandmeyer.

g. A GSRS (General Support Rocket System) submodel was developed by Mr. R. Chandler.

ACKNOWLEDGMENT (cont)

h. An improved massing routine was developed by Mr. E. Stauch.

In addition, Mr. R. Chandler deserves credit for modifying the AFSM program for use on the UNIVAC 1108 computer. Mr. R. Sandmeyer and Ms. D. Frederick modified the program for use on the CDC 7600 computer.

Armament Systems, Inc. personnel responsible for documentation of the program were John P. Virbila and James A. Buckner. Review of the program documentation progress as well as assistance in understanding the program coding were provided by Richard Sandmeyer of AMSAA. The documentation also relied heavily on a partial variable glossary prepared by Mr. R. Chandler and on an input definition list from an earlier version of AFSM prepared by Mr. E. Stauch and typed by Ms. C. Roberts.

Publication was carried out under the auspices of the US Army Materiel Systems Analysis Activity and administered through the Naval Weapons Center, China Lake, California by Mr. H. W. Drake, Code 318, under Contract N00123-76-C-0960.

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF FIGURES

LIST OF TABLES

ARTILLERY FORCE SIMULATION MODEL USER MANUAL

SECTION 1

INTRODUCTION

BACKGROUND

The Artillery Force Simulation Model (AFSM) is an off-shoot of earlier artillery simulation models. The earliest ancestor, called "LEGAL MIX", was prepared at AMSAA using the FORAST language for the Ballistic Research Laboratory (BRL) BRLESC I computer. Later versions of LEGAL MIX, as well as AFSM have been written in the FORTRAN programming language for CDC 7600 and UNIVAC 1108, as well as the now deceased BRLESC I and II computers.

PROBLEM INTRODUCTION

There are two sets of inputs required in order to execute AFSM. These inputs consist of target information (on magnetic tape) and user-prepared parameters for the battle scenario (on cards). The target array input tape for AFSM is an output product of either the "DIVWAG" or "DIVLEV" wargames. Section 3 of this manual defines these two inputs in detail. In defining the target inputs to AFSM, the player is allowed to structure Red units with personnel, tanks, armored personnel carriers, trucks, artillery tubes, radars, and/or missile or rocket launchers. Terrain features which can be accommodated are open areas, wooded areas, towns, and grassy environments.

A scale of military worth values for the various type tactical elements on the target list is used for establishing a priority list for target attack and for segmenting targets into categories which will control the level of attack and ammunition expenditure against a target. A measure of BLUE force performance is achieved by totaling the military worth values for damaged targets.

METHODOLOGY

The simulated artillery battle is fought by selecting RED targets for fire according to their time of acquisition in the battle area and their priority. Fire missions can be initiated by calls from forward observers to the direct support battalion Fire Direction Center (FDC) or by calls from other target sensors to Group or Division/Artillery (D/A) level FDCs. Figure 1-1 is a sample artillery fire support organization which shows the relationships of the various different echelon FDCs and the order in which they communicate in response to a fire mission.

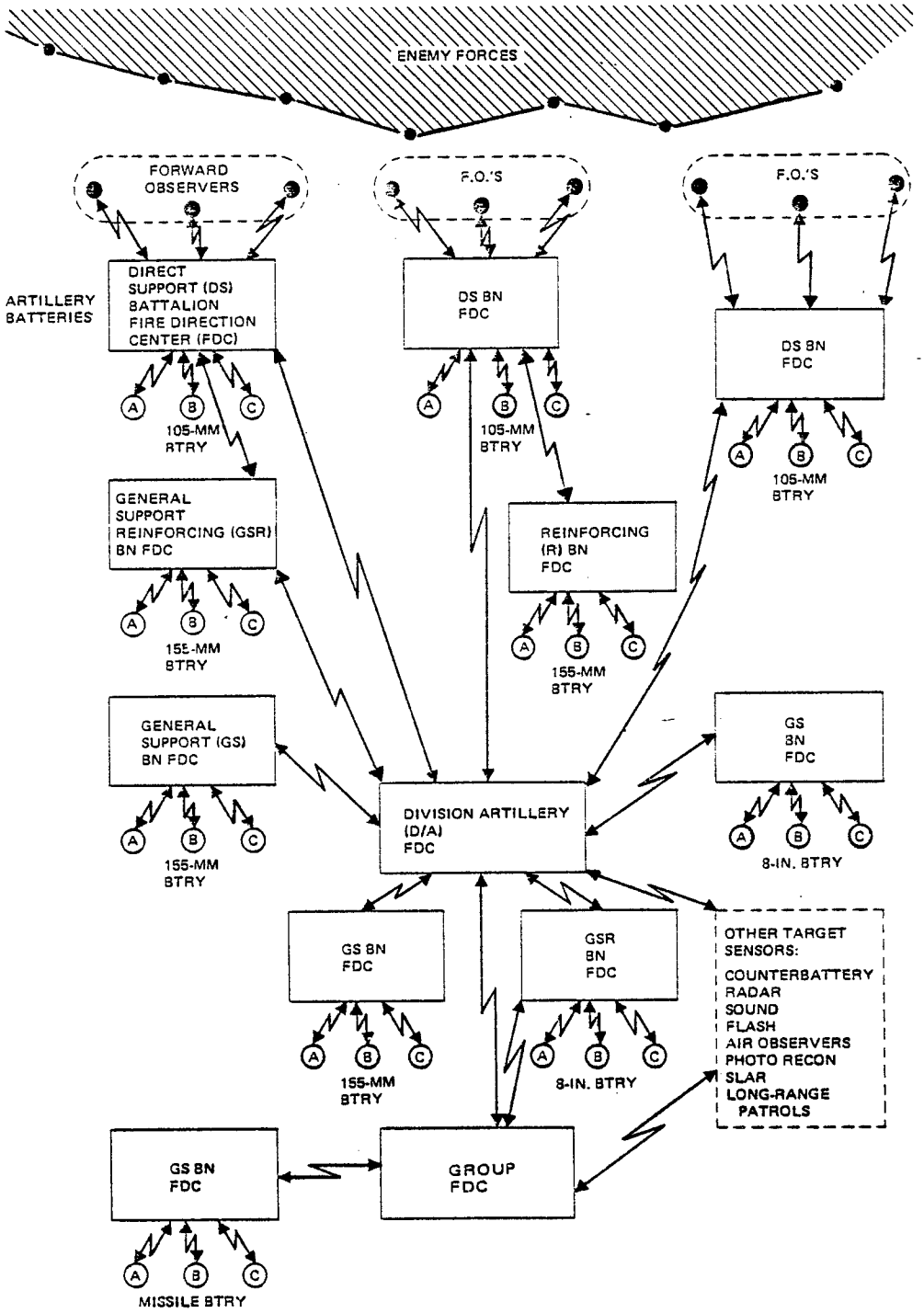


FIGURE 1-1. Artillery Fire Support Sample Organization.

The Direct Support Battalion (DS BN) FDC is normally located closest to the forward edge of the battle area (FEBA). A DS BN may be organized as a stand alone unit, in which case requests for additional fire (RFAF) will go directly to the D/A echelon FDC, or the DS BN may have a reinforcing battalion (R BN) FDC assigned. The DS BN with an R BN assigned will issue an RFAF first to the R BN, then to the D/A FDC if the R BN cannot respond. Another type of organizational assignment is the General Support Reinforcing Battalion (GSR BN). The GSR BN will respond to RFAFs from either the DS BN FDC or the D/A FDC when assigned at that echelon. Similarly, GS BN FDCs and GSR BN FDCs can be placed in the organization at the D/A and/or the Group level and will respond to RFAFs issued by their controlling FDCs. Other target sensors, such as counterbattery radar, sound, flash, air observers, photo reconnaissance, side-looking airborne radar, or long-range patrols, initiate fire mission calls directly to the Division/Artillery or Group level FDCs.

Figure 1-2 depicts a simplified logic diagram for the model. Each fire mission, as it advances to the top of the fire mission queue, is examined by the program, and the program in turn examines the resources of the appropriate FDC to see whether or not batteries assigned to that FDC can engage the target. If so, battery fire occurs, target damage is assessed, and the probability that the BLUE battery has been acquired by the RED forces is calculated. If the FDC resources are not sufficient or available to fire the mission, the program will generate a BLUE fire mission request for additional fire (RFAF) which is added to the fire mission queue in the appropriate place according to time and target priority. If, after firing, the BLUE battery was acquired by the RED forces, the program will schedule RED counterbattery fire which is added to the fire mission queue in the appropriate place according to time. Table 1-1 shows the request for fire sequence used by AFSM to examine battery resources within each battalion in order to satisfy requests for fire. If the mission originated at a higher echelon (D/A or Group), then that echelon's resources (i.e., assigned battalions) would be examined before any RFAF's would be sent to DS level.

If the BLUE battery was not acquired, the game clock will advance and the next fire mission from the queue will be processed. When the next fire mission arriving at the top of the queue is a RED fire mission, the RED batteries will fire the scheduled number of rounds for the mission, and an assessment is then made of damage to the BLUE battery. The program will then return to the queue to process the next fire mission. During each return to the fire mission queue, the program checks the gameclock. If the clock has advanced 1 hour since the last printout of the simulation, another printout will occur. If the gameclock exceeds maximum gametime (TMAX), a final printout will be made and the run will terminate. The program also makes a 1/4 hourly time check for the performance of repair and maintenance (RAM). When it is time for the 1/4 hourly RAM check, the program will remove gun tubes

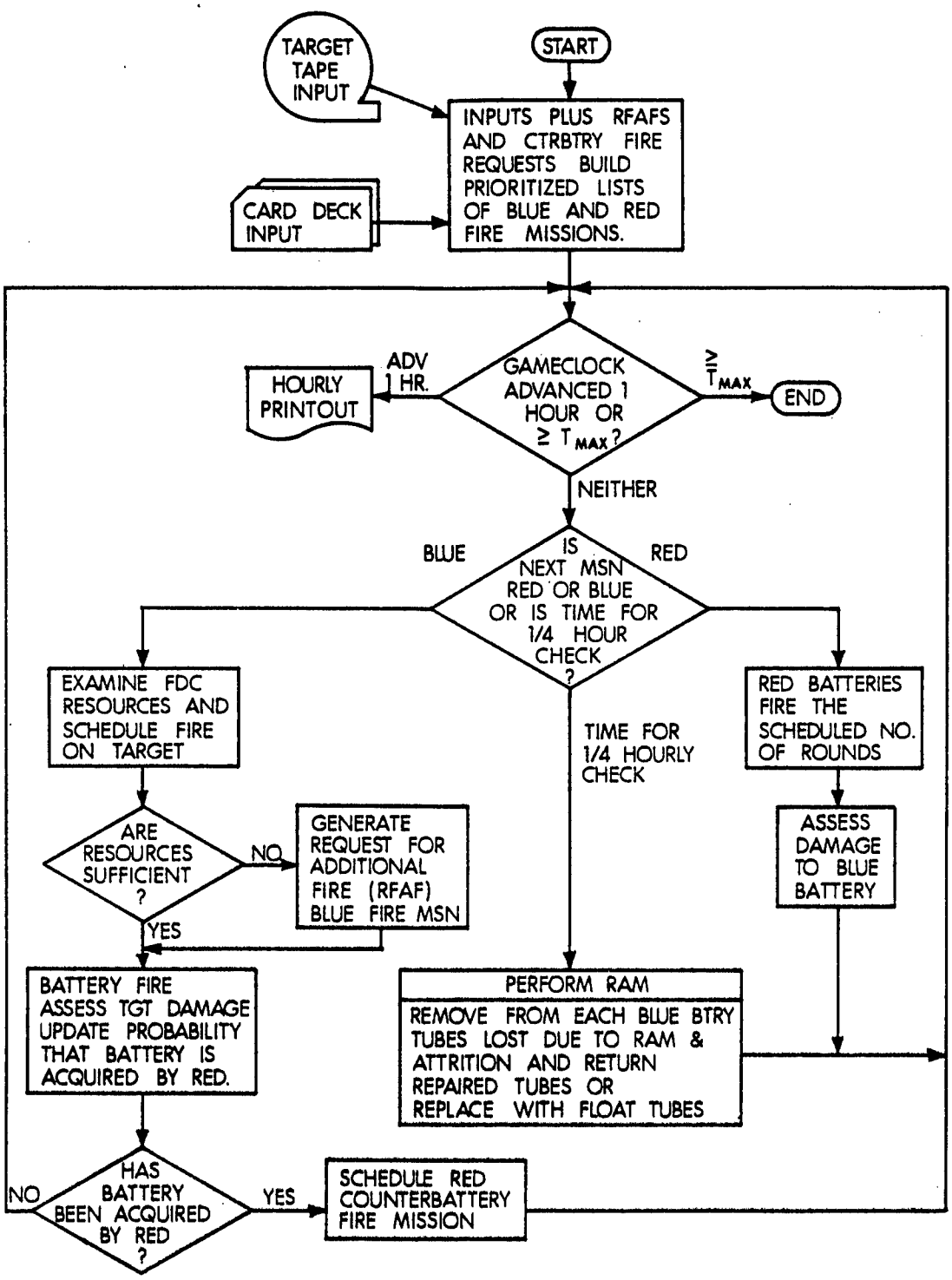


Figure 1-2. Artillery Force Simulation Model (AFSM) General Logic Flow.

TABLE 1-1. FDC Fire Ordering Sequence

Request for fire orig. by:	FDC receiving request for fire	Fire ordering sequence - *(AFSM examines battalion Battery resources in the following sequence until resources are found).*
Forward Observer (FO)	Direct Support Battalion *(Assigned to FO)*	DS BN, DS-R BN, DS-GSR BN, DIV-GS BN, DIV/GROUP-GSR BN, any DS-GSR BN not checked, other DS and DS R BNs, GROUP-GS BN.
Other target sensors	Division/ Artillery	DIV-GS BN, DIV/GROUP-GSR BN, DIV/DS-GSR BN, DS BN, DS-R BN, GROUP-GS BN.
	GROUP (Corps Level)	GROUP-GS BN, DIV/GROUP-GSR BN, DIV-GS BN, DIV/DS-GSR BN, DS BN, DS-R BN.

Definitions - BN = Battalion
DS = Direct Support
R = Reinforcing
GSR = General Support Reinforcing
GS = General Support

lost due to attrition or RAM from each BLUE battery and will return repaired tubes or make replacements with float tubes if available. After each RAM action is accomplished, the program again returns to the fire mission queue to process the next fire mission.

The artillery force is changed by the user varying the number and types of BLUE force FDCs (up to 13), the number of different weapons systems in use (up to 20), the different round types available for fire (up to 25), and the round I.D.s used per environment/posture combination (up to 10). Also, the BLUE force boundaries (x- and y- coordinates) are defined by the user. The FEBA is allowed to move up to 10 times during the battle when the user specifies the movement coordinates and the time of movement in the input card deck. Battery priority values are entered and the organization of the BLUE force scenario is defined in input card types 59 through 64 (refer to Section 3 for a detailed explanation of input card types). The user can also specify up to 13 Blue force equipment failures for RAM purposes when he constructs the input card deck battle scenario.

The final definition of the artillery force is accomplished when the user describes the RED artillery force. Up to eight RED battalion weapon systems can be specified and an unlimited number of RED battalions can be defined in each input card deck. These card parameters control the information which is read from the magnetic tape of target information provided from the previously run war game model "DIVWAG" or "DIVLEV".

SECTION 2

CONCEPTUAL FLOWCHART

This section is intended for and oriented towards the reader who is concerned with the basic content, logic, and computational flow of the AFSM program. It is not intended to explain or to delineate all of the machinations of program coding, subroutine interaction, or rationale in specific terms.

The conceptual flowchart for the AFSM program, including narrative steps, is presented in the pages that follow. The narrative steps explaining the flowchart are indicated on the flowchart by the numbers enclosed in hexagons. In addition, all input connectors, whether on-page or off-page types, are numerically ordered in a monotonically increasing fashion from the start to the end of the flowchart.

STEP 1:

Specify variables in COMMON. Enter data for the mix being played via calls to the six subroutines that are required for reading punched cards.

STEP 2:

Read target/mission data from Logical Unit No. 3 up to the next game arrival time. Store data in the PREQ array. Set GAMCLK to the arrival time of next set of data. Transfer target/mission data from the PREQ to the QUE array, dropping any target/missions that have been defeated. Order the QUE array by priorities as follows:

1. Targets by Military Worth
2. Meteorological missions
3. Survey and Artillery Target Intelligence missions
4. Fire plans

STEP 3:

If there are no Red counterbattery fire missions scheduled to occur before the next Blue (QUE) mission, continue with Step 4. Otherwise, execute the Red counterbattery fire mission scheduled for this time on the KYUSKY array. Each Red battery scheduled to fire on this mission fires as many of its scheduled rounds as its current status, considering suppression (if played), defeat status, and tube losses, permits.

If the target Blue battery has moved since the fire was scheduled, the counterbattery fire mission has no effect. Otherwise, assess and record the damage done to the Blue battery by this Red counterbattery fire mission. Remove this Red fire mission from the KYUSKY array. Return to beginning of this step to check if more Red counterbattery fire missions are scheduled to occur before the next Blue (QUE) mission.

STEP 4:

Check the current target mission, ordered by priority, in the QUE array. Determine if the FDC, to which the mission is assigned, has sufficient time to process the mission. If insufficient time is available for processing, drop the mission from the QUE array and transfer to Step 28. Otherwise, check to see if this is a fire mission. If it is, transfer to Step 8. If it is not a fire mission, continue with Step 5.

STEP 5:

Add this mission to the WORK array for this FDC and delete the mission from the QUE array. If it is too late to consider processing this mission, increment the unaccomplished mission counter, drop the mission from the QUE array, and transfer to Step 28. Otherwise, continue with Step 6.

STEP 6:

If there is no time left at this FDC, transfer to Step 28. Otherwise, charge the time used for processing to the FDC clock. If processing of the mission has not been completed, transfer to Step 28. If processing has been completed, continue with Step 7.

STEP 7:

If this is a fire plan mission and it has not been assigned to a battalion level FDC, generate fire plan messages from Division or Group to the appropriate battalions. Store these messages in the PREQ array. Regardless of the mission type, remove the mission from the WORK array for this FDC and increment the accomplished mission counter. Transfer to Step 28.

STEP 8:

This step is executed when a fire mission is to be processed. If the mission has not been assigned to a battalion FDC, transfer to Step 24. Otherwise, order the batteries in the battalion based on the following criteria:

1. Battery priority (if used)
2. Is battery in position?
3. Is battery within range of target?
4. Busy status of battery
5. Availability of ammunition
6. Does battery have the minimum number of tubes up and in operating condition?
7. Is battery undefeated (if defeat of batteries due to personnel losses is played)?
8. Is battery unsuppressed (if suppression is played)?

If this is not a potential CLGP mission transfer to Step 17. Otherwise continue with Step 9.

STEP 9:

Check the current battery's availability based upon the following:

1. Is battery within range of target?
2. Is battery currently free from other fire missions (busy status)?
3. Does battery have CLGP rounds available?
4. Does battery have sufficient number of tubes available?
5. Can battery fire CLGP rounds at the present time?

If the answers to all of the above are affirmative, transfer to Step 12. If all batteries in the battalion have been checked, continue with Step 10. Otherwise, return to the start of this step and check the next battery in the battalion.

STEP 10:

If the battalion just checked and found unable to fire CLGP has a reinforcing or GSR battalion assigned to it, then make that reinforcing or GRS battalion the one to be considered for this CLGP mission, and return to Connector ten in Step 8. Otherwise, continue with Step 11.

STEP 11:

Charge time spent to battalion FDC. Reset Military Worth value for this target to its regular value and determine if there is sufficient time for regular cannon fire. If there is not sufficient time, change the mission to an ATI report and transfer to Step 28. Otherwise, change the mission to a regular FO fire mission at the DS battalion to which the CLGP mission was originally reported and return to Connector ten in Step 8.

STEP 12:

If the FO does not have sufficient view time to fire one or more CLGP rounds, return to Step 11. Otherwise, determine the number of CLGP rounds to be fired based upon the number of rounds available and the FO view time. Determine the effects of the CLGP rounds against tanks, APCs and trucks. Continue with Step 13.

STEP 13:

If this fire mission is the first one by the current firing battery from this site, begin the Red force's probability of detecting and acquiring the firing Blue battery and continue at Step 14. If it is not the first fire mission from this site and the battery at the site has been acquired within the Red force's "target memory" time, transfer to Step 15. Otherwise continue with Step 14.

STEP 14:

Initialize or update, as appropriate, the Red force's probability of detecting and then acquiring the firing Blue battery. If the probability of acquisition exceeds 0.5, continue with Step 15. Otherwise transfer to Step 16.

STEP 15:

Schedule Red CB fire against the acquired Blue battery. Order the Red battalions by weapon type, range, and echelon. Mass enough batteries to fire the number of rounds required by the Red CB doctrine, or by firing as many rounds as possible if the CB doctrine cannot be met. In massing the Red batteries, consider the following:

1. Suppression status (if played)
2. Defeat status
3. Number of tubes up in Red battery

4. Number of rounds left in AMMO supply
5. Range to target
6. Time available
7. Movement status

Enter record of batteries massed, number of rounds each battery is to fire, and time at which they are to be fired on KYUSKY array for later execution in proper time sequence. Continue with Step 16.

STEP 16:

Remove mission from the QUE array. Charge the battalion FDC for processing time. Transfer to Step 28.

STEP 17:

Order the rounds for this battery considering only those rounds allowed against the target's estimated posture and environment. Determine the weighted lethal area for each round type based either on weight or cost per round. Sort the HE and ICM rounds in order of weighted lethal areas. Determine round availability based on the following:

1. Basic load and resupply rate
2. Constraint on number of volleys
3. Rate of fire
4. Use of rounds saved for fire plans if MW of target is greater than that of fire plan target

Determine the number of rounds allowed to be fired by first battery for best available round type. Apply the effects cutoff value as volleys are fired in trying to attain desired attack level. Assess damage to target and increment counters for rounds fired by battery, time used by battery, and missions fired by battery. Continue with Step 18.

STEP 18:

If this fire mission is the first one by the current firing battery from this site, begin the Red force's probability of detecting and acquiring the firing Blue battery and continue at Step 19. If it is not the first fire mission from this site and the battery at the site has been acquired within the Red force's "target memory" time, transfer to Step 20. Otherwise continue with Step 19.

STEP 19:

Initialize or update, as appropriate the Red force's probability of detecting and then acquiring the firing Blue battery. If the probability of acquisition exceeds 0.5, continue with Step 20. Otherwise transfer to Step 21.

STEP 20:

Schedule Red CB fire against the acquired Blue battery. Order the Red battalions by weapon type, range, and echelon. Mass enough batteries to fire the number of rounds required by the Red CB doctrine, or by firing as many rounds as possible if the CB doctrine cannot be met. In massing the Red batteries, consider the following:

1. Suppression status (if played)
2. Defeat status
3. Number of tubes up in Red battery
4. Number of rounds left in AMMO supply
5. Range to target
6. Time available
7. Movement status

Enter record of batteries massed, number of rounds each battery is to fire, and time at which they are to be fired on KYUSKY array for later execution in proper time sequence. Continue with Step 21.

STEP 21:

If the desired attack level has been reached, transfer to Step 23. Otherwise, return to Step 17 for additional batteries of the battalion, if needed, to attain the desired attack level. If, after all batteries in the battalion have been checked, and the desired attack level has not been achieved, check to see if the battalion has a reinforcing or GSR battalion assigned to it. If not, continue with Step 22. Otherwise consider the reinforcing or GSR battalion and return to Connector ten of Step 8.

STEP 22:

If the mission came from Division or Group, continue with Step 23. Otherwise, generate a RFAF to a higher echelon FDC, add the RFAF mission to the PREQ array and reset the game clock. Continue with Step 23.

STEP 23:

If any rounds have been fired by this battalion, remove the fire mission from the QUE array. Charge appropriate times to the battalion FDC and battery clocks. Transfer to Step 28.

STEP 24:

This step is executed whenever a Division or Group FDC fire mission has been specified. If the fire mission has been assigned to Group FDC, the battalions assigned to Group are ordered as follows:

1. General support battalions at Group level
2. General support reinforcing battalions from Group
3. Missile battalions

When the fire mission has been assigned to Division FDC, the battalions are ordered as follows:

1. General support battalions at Division
2. General support reinforcing battalions from Group
3. General support reinforcing battalions at Division
4. Direct support and reinforcing battalions

In either case, program execution continues with Step 25.

STEP 25:

Check the capability of each battery of the assigned battalion to contribute to this fire mission based upon the following criteria:

1. Is battery in firing position?
2. Is battery within range of target?
3. Is proper ammunition available at the battery?
4. What is the "busy" status of the battery?
5. Does the battery have the minimum number of tubes up and available for the mission?
6. Is battery undefeated?
7. Is battery unsuppressed?

If the answer to any of the above criteria is negative, transfer to Step 26. Otherwise, generate a message to the assigned battalion FDC stating required effects. Move GAMCLK back if required to do so. If the required attack level has not been reached and the battalion massing limit has not been reached, transfer to Step 26. Otherwise, charge the appropriate time to the assigned battalion FDC, delete the mission from the QUE array, and transfer to Step 28.

STEP 26:

If all assigned battalions have not been processed, return to Step 25. If all battalions have been processed and this fire mission has not been assigned to Group, transfer to Step 27. If the fire mission was not sent up to Group by Division, generate a RFAF to Division and remove fire mission from the QUE array. If the fire mission was sent up to Group from Division and battalion fire missions were generated, remove this current fire mission from the QUE array. In either case, charge the appropriate time to Group FDC and transfer to Step 28.

STEP 27:

If this fire mission was sent down to Division from Group and there were battalion level fire missions generated, or if a RFAF message was sent to Group, delete this fire mission from the QUE array. Charge the appropriate time to Division FDC and continue with Step 28.

STEP 28:

If all target/missions in the QUE array have been processed, continue with Step 29. Otherwise, return to Step 3 to process next target/ mission on the priority list.

STEP 29:

Use any remaining time up to GAMCLK to complete processing of missions stored in the WORK array for each friendly FDC in the game. Move all FDC and battery clocks up, if necessary, and charge time increments to idle times as required. If 15 minutes or more have transpired since the last RAM check, continue with Step 30; otherwise, transfer to Step 33.

STEP 30:

Determine number of weapons to be returned to this battery of the Blue force at this time. Check for attrition failures and, if there are none, transfer to Step 31. Otherwise, store the short-term and long-term failures in the TUBIN array. If a permanent failure has been inflicted, float a weapon to this battery, if one is available. Continue with Step 31.

STEP 31:

Update the status of EFC rounds and distance traveled by battery at this time. Determine firepower mobility, and tube change status of battery. Continue with Step 32.

STEP 32:

If this battery requires a tube change or has suffered a reliability failure, store short-term, long-term, and tube change failures in the appropriate slots of the TUBIN array. Assign a float weapon to this battery if a permanent failure has been incurred and a float weapon is available. Update the tubes available status for this battery. If more batteries remain to be processed, return to Step 30; otherwise, continue with Step 33.

STEP 33:

If the game clock (GAMCLK) has advanced 1 hour, print the cumulative results of the game at this time. If the maximum game time has not been met or exceeded, return to Step 2 to enter additional target/mission data from Logical Unit No. 3. Otherwise, halt execution of the AFSM program because simulation of the game has been completed.

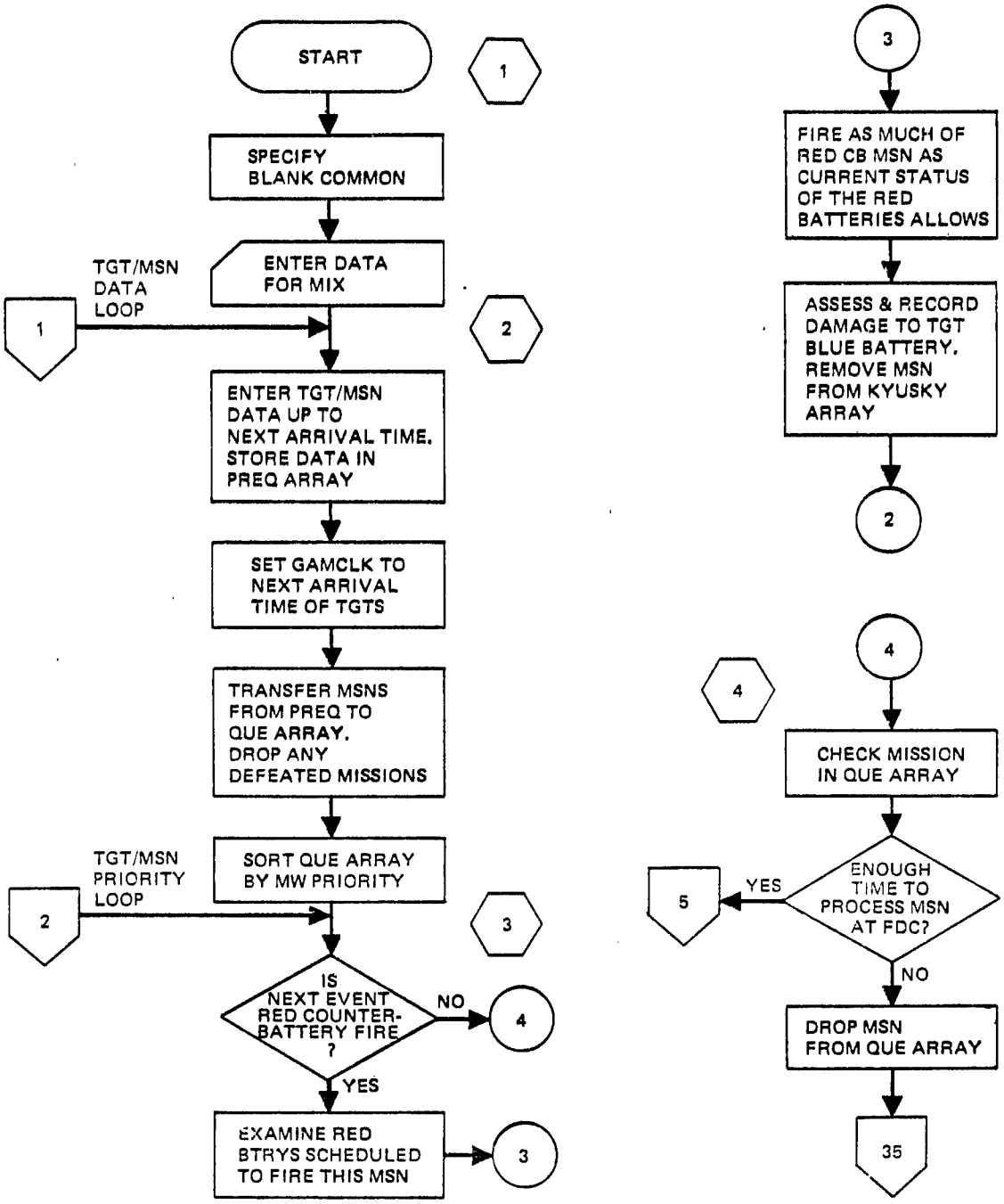


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 1 of 10)

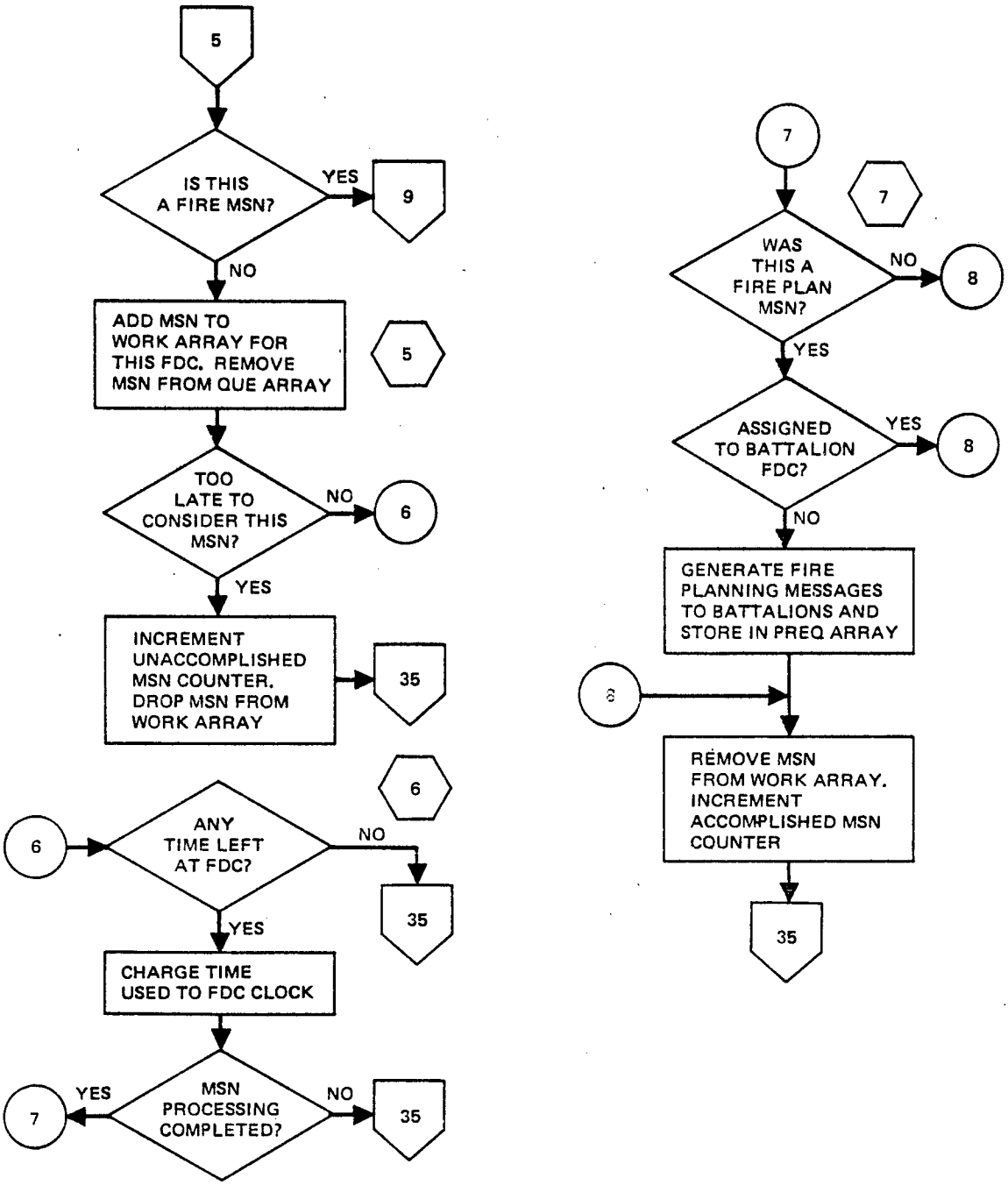


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 2 of 10)

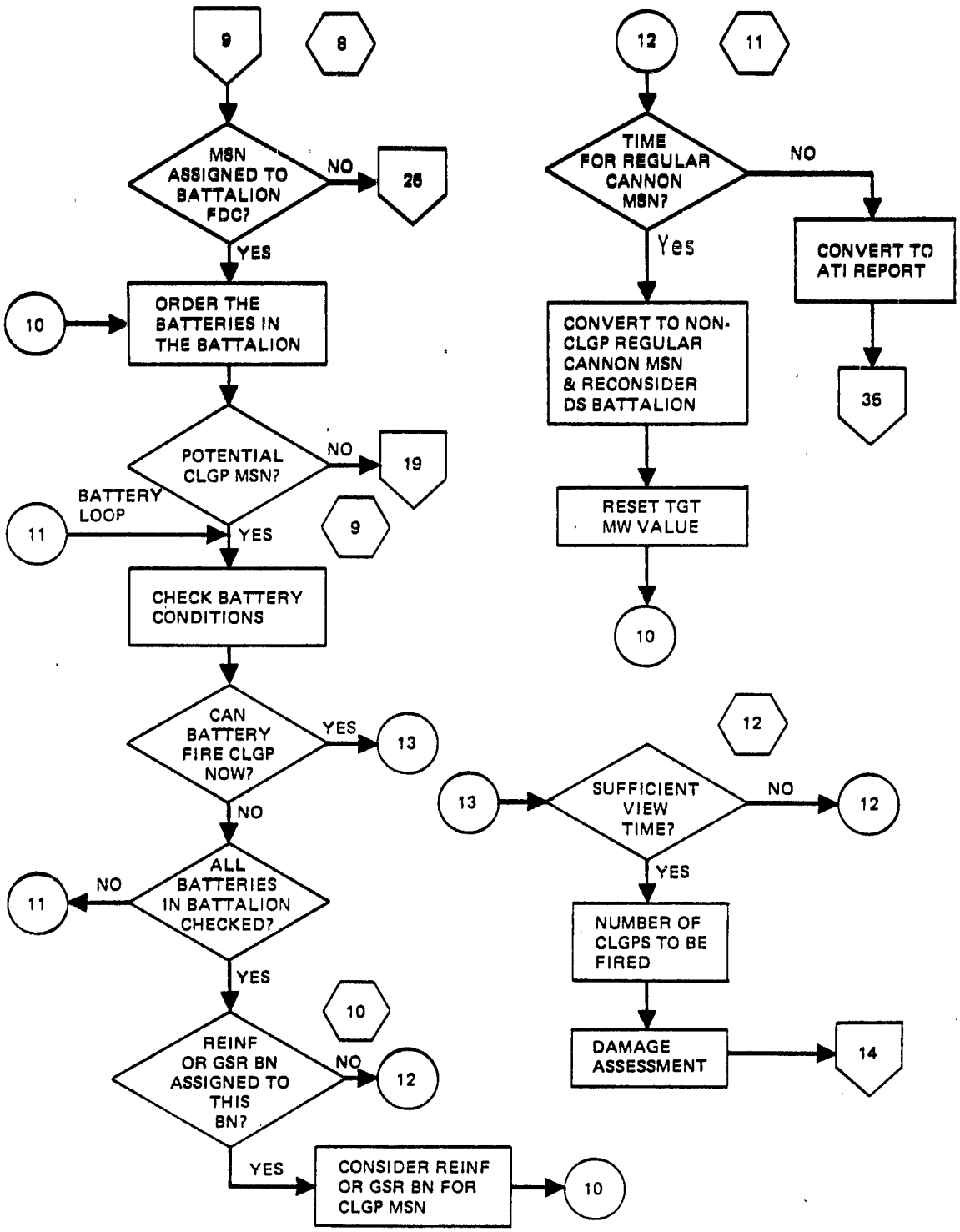


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 3 of 10)

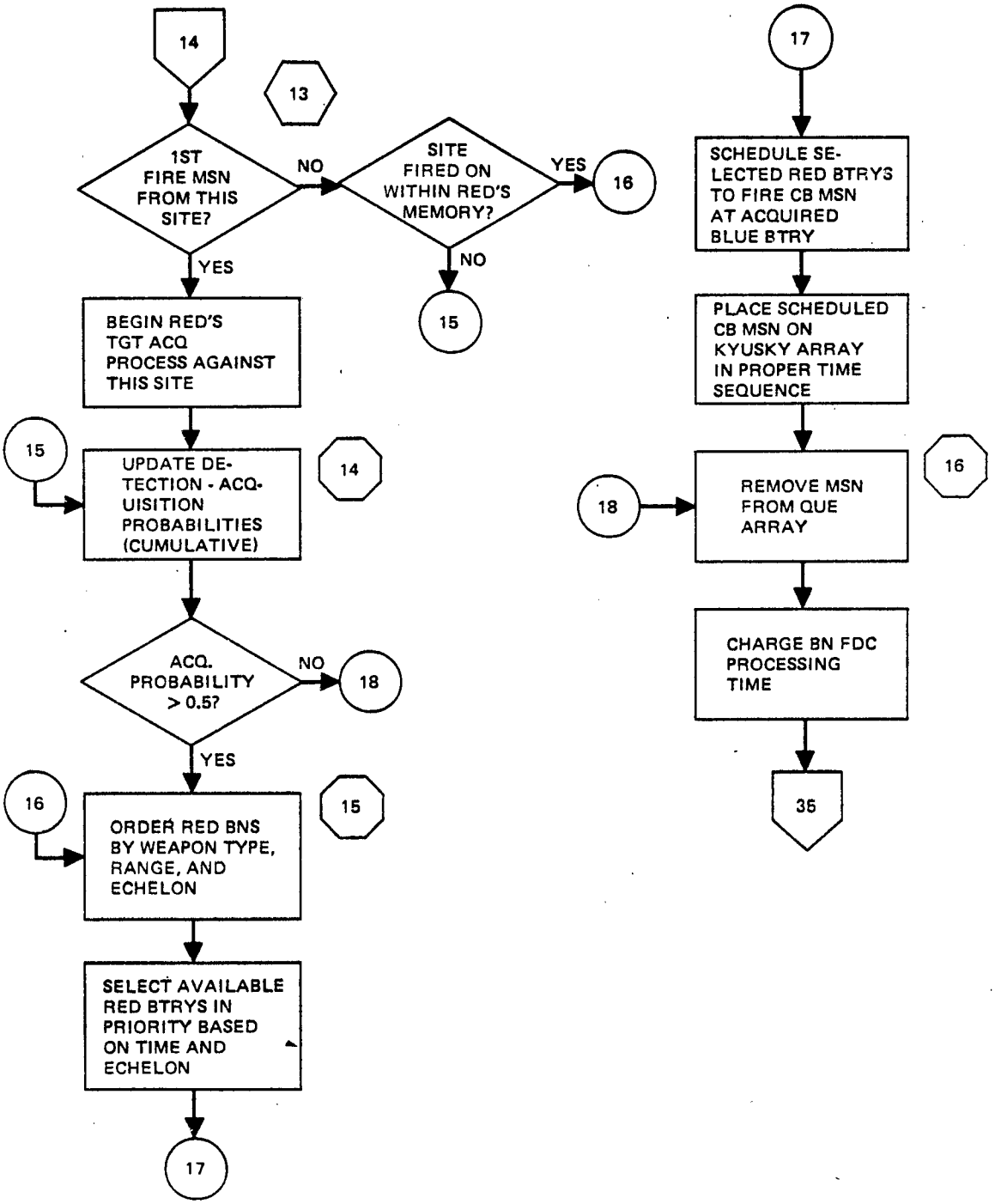


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 4 of 10)

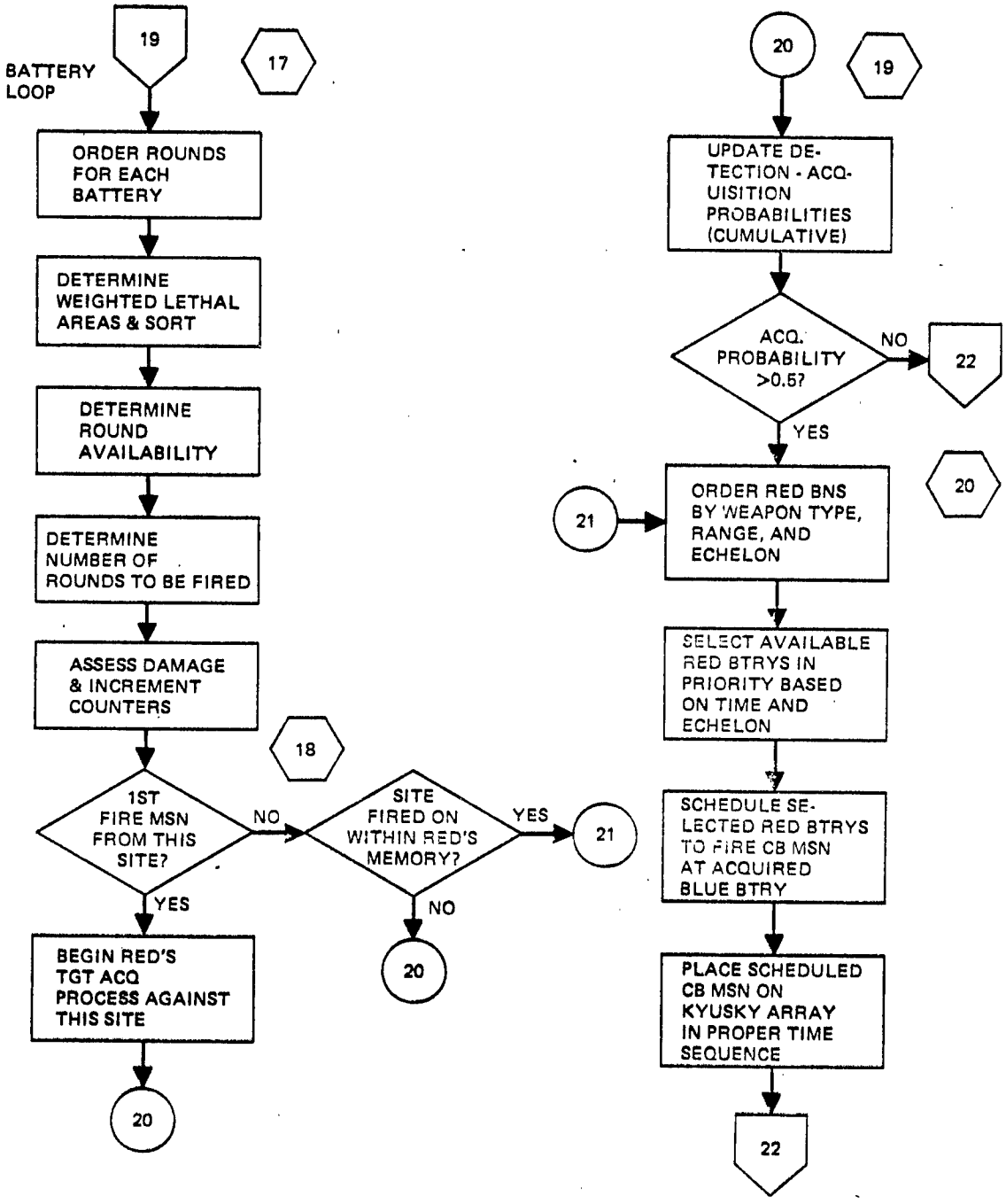


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 5 of 10)

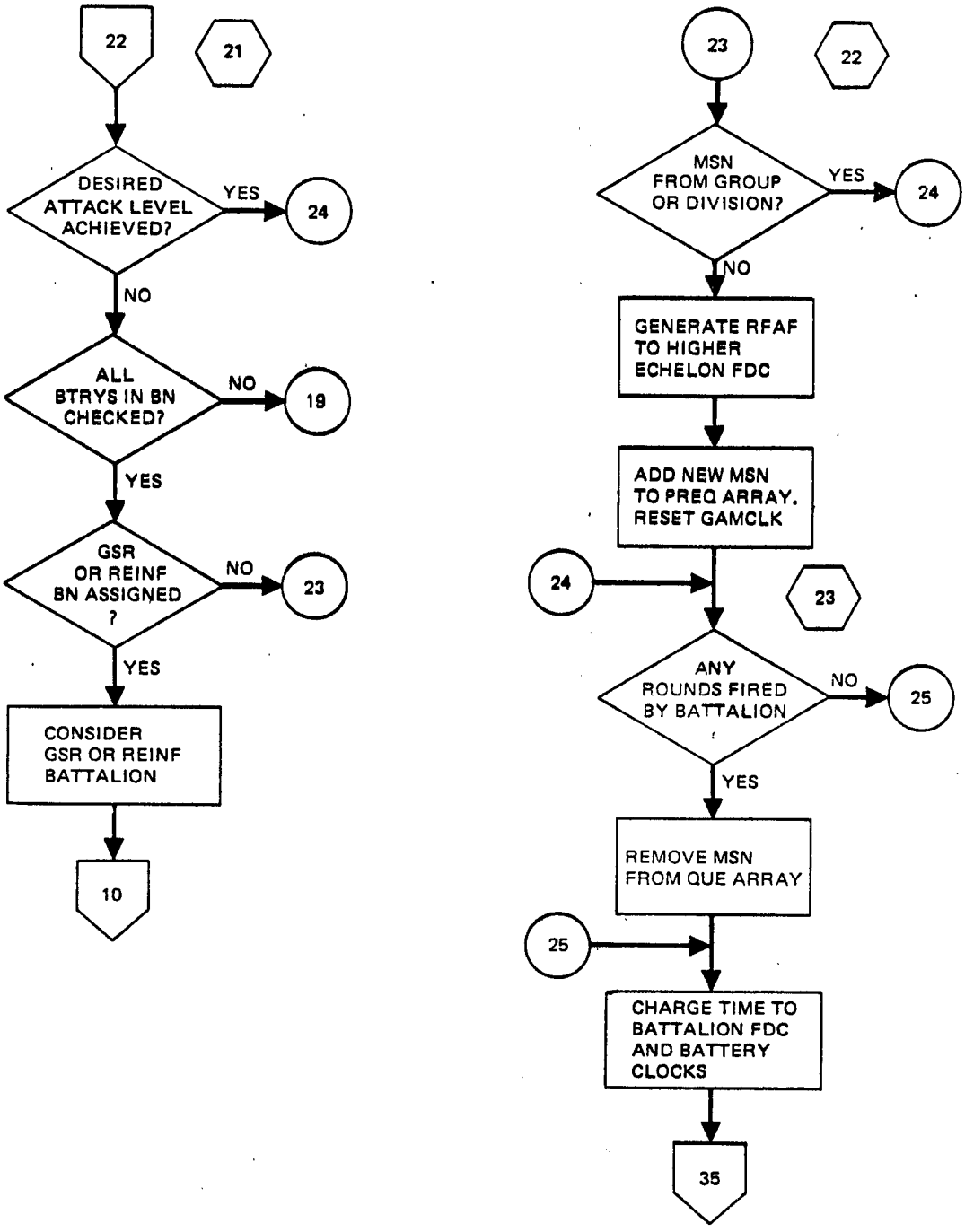


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 6 of 10)

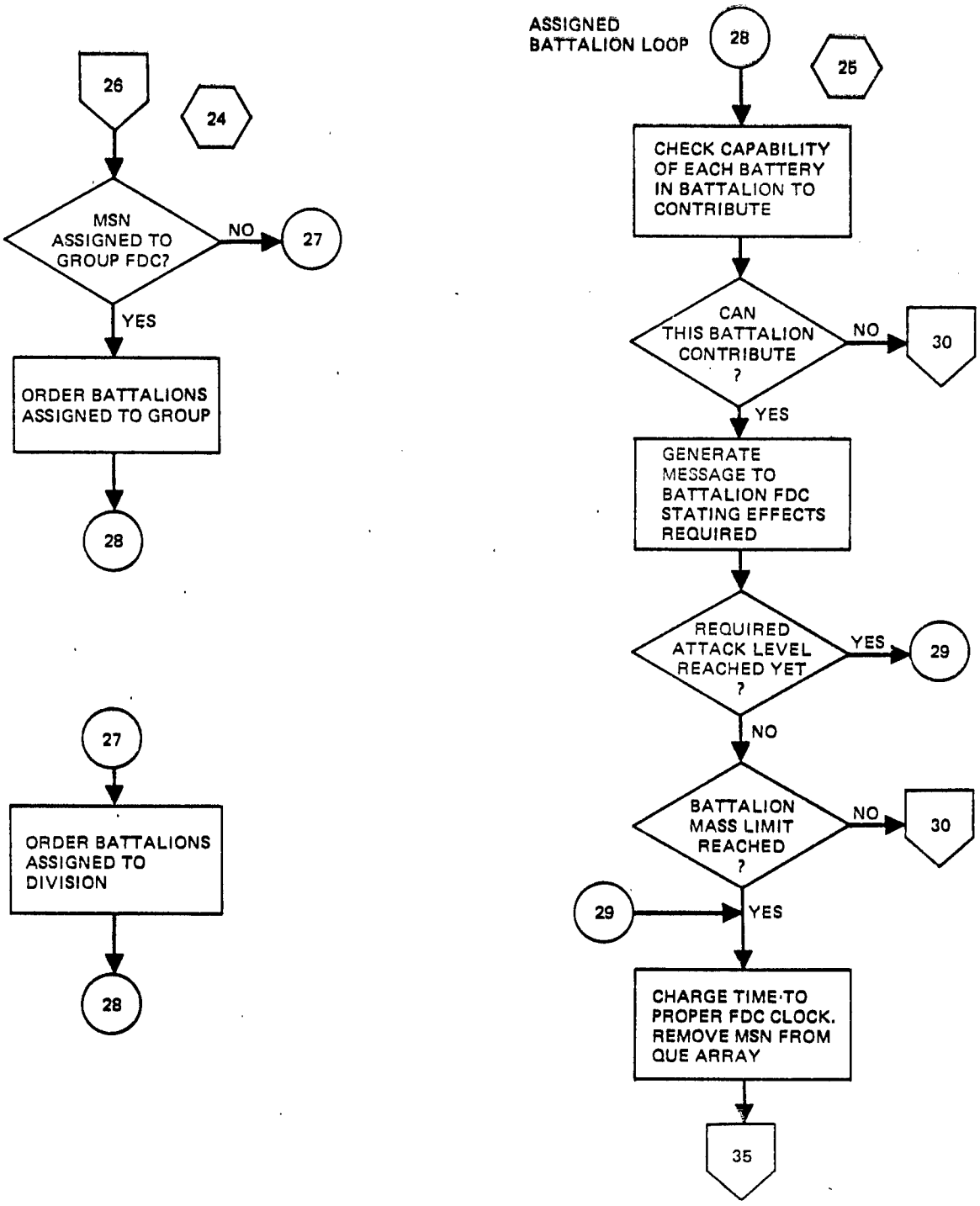


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 7 of 10)

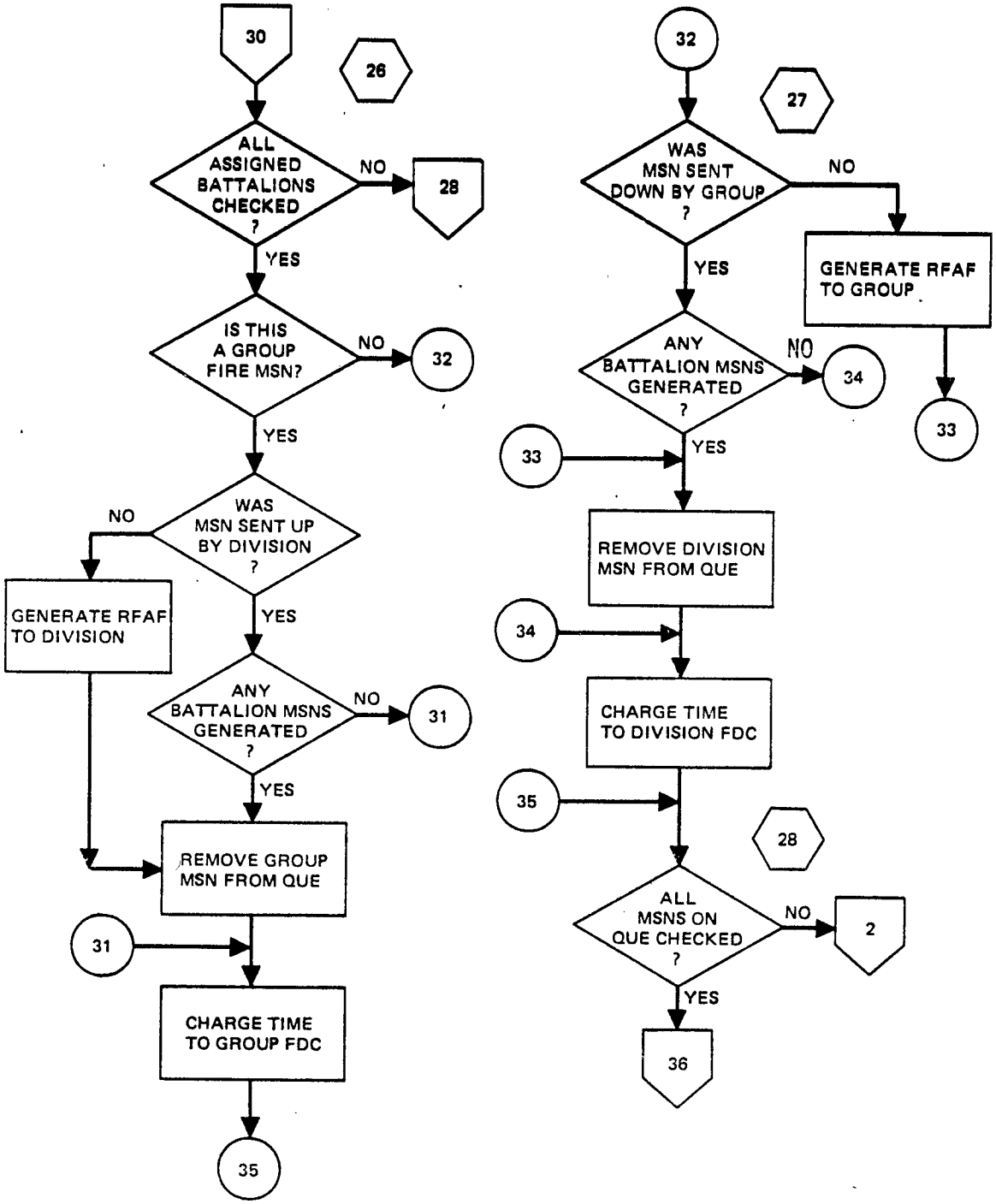


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 8 of 10)

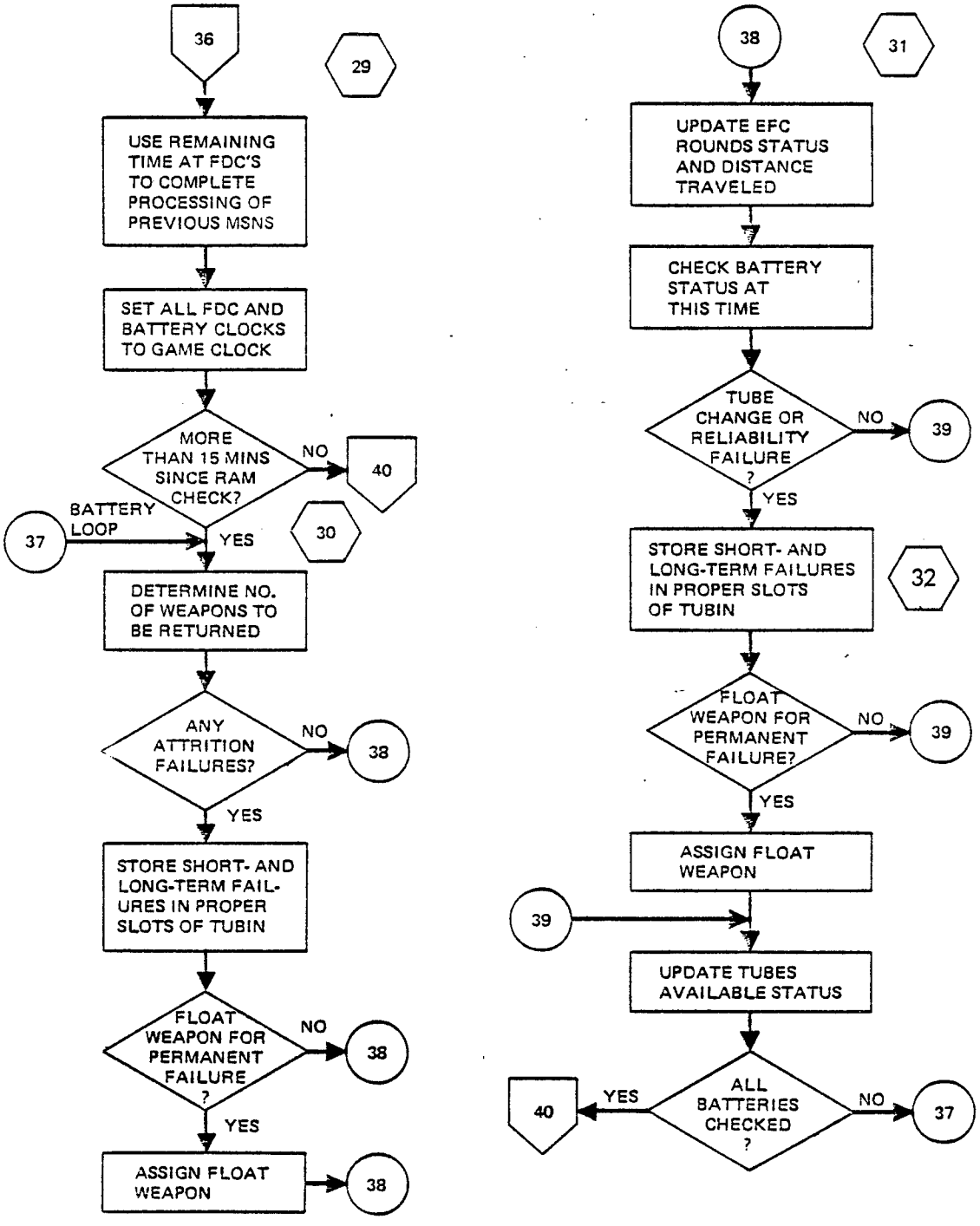


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 9 of 10)

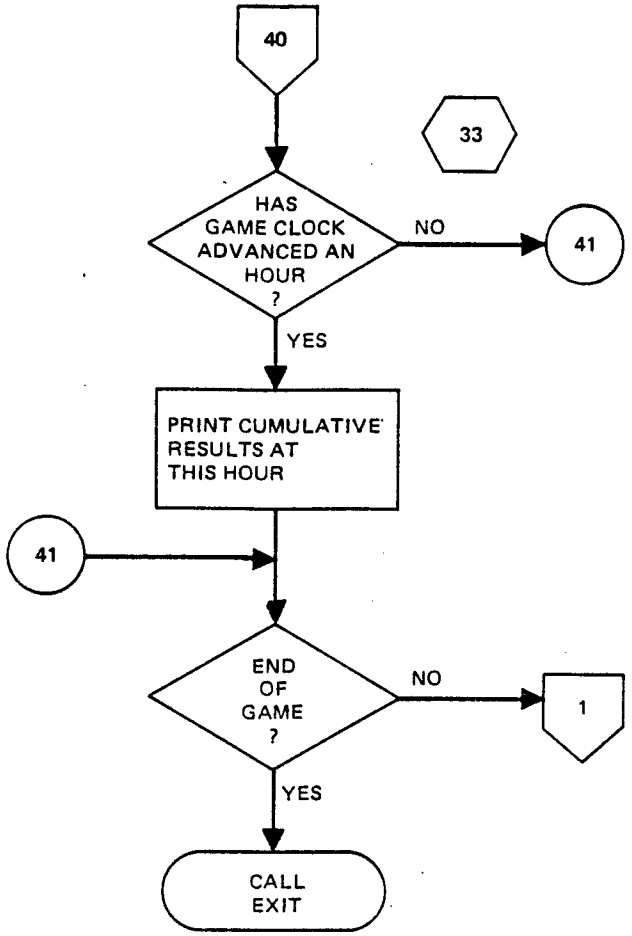


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 10 of 10)

SECTION 3

INPUT

This section is used to describe the data input requirements for proper execution of the Artillery Force Simulation Model (AFSM) program. The AFSM program requires both magnetic file (Logical Unit No. 3) and punched card inputs for program execution. Both types of data input, as well as a typical punched card data deck setup, are discussed in the pages that follow.

LOGICAL UNIT NO. 3 INPUT

The majority of target data required during execution of the AFSM program are entered from a magnetic file (Logical Unit No. 3). This file contains a variable number of as many as eight different type records that may be entered during program execution. The first two type records are always required, and one or more types of the remaining six type records are required, depending upon the complexity of the problem being played. Each of the eight different record types are discussed in the paragraphs that follow.

Record Type No. 1

This type record is entered into the program immediately after a type 17 data card has been read during execution of Subroutine TABLES. Each record contains nine data values for each Red battalion being played in the scenario. The number of records entered is controlled by the value of NTBN entered on the type 17 data card. Table 3-1 contains the parameter name, format, units, and description of the nine data values contained on each record of this type.

Record Type No. 2

This type record is entered into the program immediately after the required number of type No. 1 records has been read from Logical Unit No. 3. The number of records to be read is specified by the value of NITGTS as entered on the type 17 data card. Each record of this type contains nine data values for each individual Red target element being played. Table 3-2 contains the parameter name, format, units, and description of the nine data values contained in each record of this type.

TABLE 3-1. Logical Unit No. 3 Red Battalion Input (Subroutine TABLES).

Parameter	Format	Units	Definition
SURVBN(1,I)	F8.2	---	ID no. of i^{th} Red battalion
SURVBN(9,I)	F8.2	---	Total no. of personnel in i^{th} Red battalion
SURVBN(10,I)	F8.2	---	Total no. of tanks in i^{th} Red battalion
SURVBN(11,I)	F8.2	---	Total no. of APCs in i^{th} Red battalion
SURVBN(12,I)	F8.2	---	Total no. of trucks in i^{th} Red battalion
SURVBN(13,I)	F8.2	---	Total no. of artillery tubes in i^{th} Red battalion
SURVBN(14,I)	F8.2	---	Total no. of radars in i^{th} Red battalion
SURVBN(15,I)	F8.2	---	Total no. of missile launchers in i^{th} Red battalion
SURVBN(16,I)	F8.2	---	Total no. of companies in i^{th} Red battalion

NOTE: The number of records of this type that is read from Logical Unit No. 3 is determined by the value of NTBN entered on punched card type 17. The information is entered immediately after card type 17 has been entered into the program.

Record Type No. 3

This type record contains 53 data points for targets that are not part of a fire plan mission. The reading of this type record, as well as the number of records, is controlled in Subroutine RTAPE which is called many times during program execution. Table 3-3 contains information on the 53 data points appearing in this type record. Table 3-4 presents a breakdown of the target identification number (data point no. 1) and Table 3-5 presents a breakdown of the target/mission code (data point no. 3).

TABLE 3-2. Logical Unit No. 3 Individual Red Target Element Input (Subroutine TABLES).

Parameter	Format	Units	Definition
SURVNA(1,I)	F10.3	---	ID no. of i^{th} individual Red target
SURVNA(9,I)	F8.2	---	Total no. of personnel in i^{th} Red target
SURVNA(10,I)	F8.2	---	Total no. of tanks in i^{th} Red target
SURVNA(11,I)	F8.2	---	Total no. of APCs in i^{th} Red target
SURVNA(12,I)	F8.2	---	Total no. of trucks in i^{th} Red target
SURVNA(13,I)	F8.2	---	Total no. of artillery tubes in i^{th} Red target
SURVNA(14,I)	F8.2	---	Total no. of radars in i^{th} Red target
SURVNA(15,I)	F8.2	---	Total no. of missile launchers in i^{th} Red target
SURVNA(16,I)	F8.2	---	Total no. of next lower level subunits in i^{th} Red target

NOTE: The number of records of this type that is read from Logical Unit No. 3 is determined by the value of NITGTS entered on punched card type 17. The records are entered immediately after the Red battalion records have been entered from Logical Unit No. 3 (see Table 3-1).

TABLE 3-3. Logical Unit No. 3 Input Records from Subroutine RTAPE (Targets Not in Fire Plans).

Data Pt.	Parameter	Format	Units	Definition
1	TAR(1)	F10.3	---	Target identification number (see Table 3-4 for explanation)
2	TAR(2)	F4.0	kilometers	Target distance from FEBA
3	TAR(3)	F4.0	---	Target identification code ($\leq$12. or $\geq$17. and $\leq$24.) (See Table 3-5 for explanation)
4	TAR(4)	F4.0	---	FDC number to which target acquisition is reported (= 1., Division; = 2., Corps; =3.→ 16., battalion)
5	TAR(5)	F4.0	---	Processing priority code (= 1. for fire missions)
6	TAR(6)	F7.2	kilometers	x - coordinate of target
7	TAR(7)	F7.2	kilometers	y = coordinate of target
8	TAR(8)	F5.0	meters	Target location error (CPE)
9	TAR(9)	F3.0	---	Estimated target posture
10	TAR(10)	F5.1	---	Estimated fractional portion of target in open environment
11	TAR(11)	F5.1	---	Estimated fractional portion of target in wooded environment
12	TAR(12)	F5.1	---	Estimated fractional portion of target in town environment
13	TAR(13)	F5.1	---	Estimated fractional portion of target in grassy environment
14	TAR(14)	F5.0	meters	Estimated target radius
15	TAR(15)	F6.0	minutes	Estimated arrival time at sensed position
16	TAR(16)	F6.0	minutes	Estimated departure time from sensed position

TABLE 3-3. Logical Unit No. 3 Input Records from Subroutine RTAPE (Targets Not in Fire Plans)--Contd.

Data Pt.	Parameter	Format	Units	Definition
17	TAR(17)	F7.2	---	Estimated military worth of target
18	TAR(18)	F3.0	---	Actual posture of target
19	TAR(19)	F5.1	---	Actual fractional portion of target in open environment
20	TAR(20)	F5.1	---	Actual fractional portion of target in wooded environment
21	TAR(21)	F5.1	---	Actual fractional portion of target in town environment
22	TAR(22)	F5.1	---	Actual fractional portion of target in grassy environment
23	ALF2	A6	---	Alphanumeric description of target
24	ALF3	A4	---	Alphanumeric description of target
25	TAR(23)	F4.0	meters	Actual target radius
26	TAR(24)	F5.0	minutes	Actual arrival time at sensed position
27	TAR(25)	F5.0	minutes	Actual departure time from sensed position
28	TAR(26)	F7.2	---	Actual military worth of target
29	TAR(27)	F3.0	---	Request for additional fire (RFAF) flag (set in program)
30	TAR(28)	F4.0	---	FDC number that processes fire mission
31	TAR(29)	F3.0	---	Leave blank; used in program to keep track of fractional portion of percent damage

TABLE 3-3. Logical Unit No. 3 Input Records from Subroutine RTAPE (Targets Not in Fire Plans)--Contd.

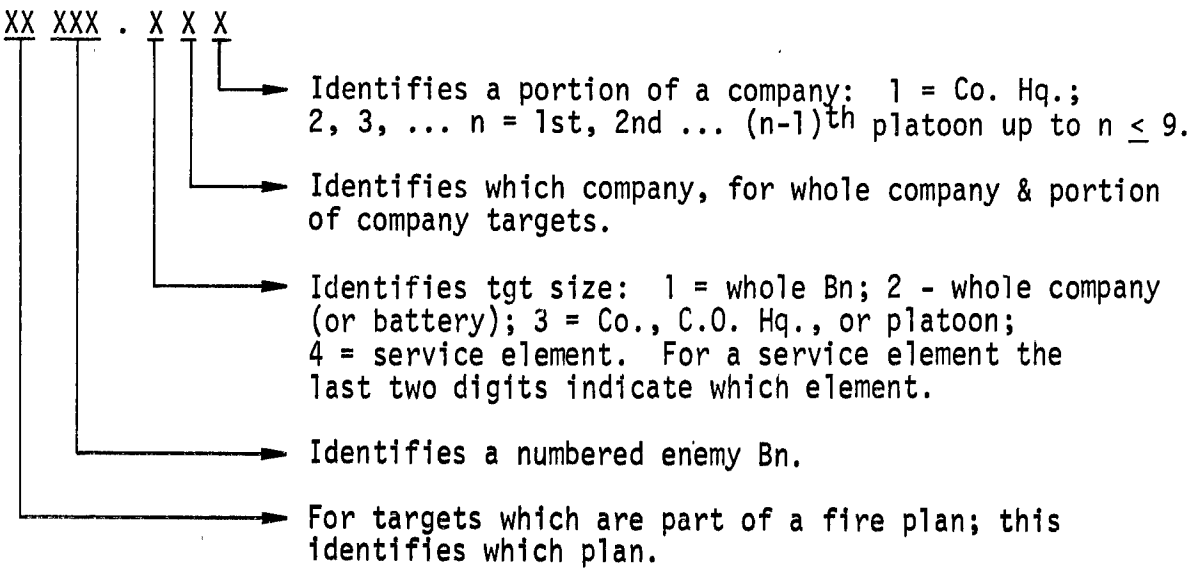
Data Pt.	Parameter	Format	Units	Definition
32	TAR(30)	F4.0	---	Original number of personnel in the target
33	TAR(31)	F4.0	---	Original number of tanks in the target
34	TAR(32)	F4.0	---	Original number of APCs in the target
35	TAR(33)	F4.0	---	Original number of trucks in the target
36	TAR(34)	F4.0	---	Original number of artillery tubes in the target
37	TAR(35)	F4.0	---	Original number of radars in the target
38	TAR(36)	F4.0	---	Original number of missile launchers in the target
39	TAR(37)	F7.3	---	Target movement code (= 0., stationary; = 1., moving; = 100., stationary CLGP target; = any other, view time for moving CLGP target)
40	TAR(38)	F4.0	---	Target identification index of enemy unit (corresponds to target's subscript in SURVNA array)
41	TAR(39)	F4.0	---	FDC no. to be charged process time of mission (left blank and set in program)
42	TAR(40)	F4.0	---	Indicates which Blue battalions have been checked in massing fire at Division against this target (left blank and set in program)

TABLE 3-3. Logical Unit No. 3 Input Records from Subroutine RTAPE (Targets Not in Fire Plans)--Concld.

Data Pt.	Parameter	Format	Units	Definition
43	TAR(41)	F4.0	---	Indicates Blue battalions that have been checked at Group in massing fire against this target (left blank and set in program)
44	TAR(42)	F3.0	---	Flag to indicate TOT mission (left blank and set in program)
45	TAR(43)	F6.2	---	Estimated military worth for CLGP target
46	TAR(44)	F4.2	---	Fractional survivors of personnel in target at acquisition time due to non-artillery fire
47	TAR(45)	F4.2	---	Fractional survivors of tanks in target at acquisition time due to non-artillery fire
48	TAR(46)	F4.2	---	Fractional survivors of APCs in target at acquisition time due to non-artillery fire
49	TAR(47)	F4.2	---	Fractional survivors of trucks in target at acquisition time due to non-artillery fire
50	TAR(48)	F4.2	---	Fractional survivors of artillery tubes in target at acquisition time due to non-artillery fire
51	TAR(49)	F4.2	---	Fractional survivors of radars in target at acquisition time due to non-artillery fire
52	TAR(50)	F4.2	---	Fractional survivors of missile launchers in target at acquisition time due to non-artillery fire
53	ALF1	A6	---	Alphanumeric description of target acquisition method

TABLE 3-4. Target Identification Number Breakdown
(Data Point No. 1).

TARGET ID



EXAMPLES:

37.100	-	The entire 37th Red Bn.
37.230	-	The 3rd company of the 37th Bn.
2037.210	-	The 1st company of the 37th Bn. on fire plan No. 2
37.314	-	The 3rd platoon of the 1st company of the 37th Bn.
37.311	-	The Co. Hq. of the 1st company of the 37th Bn.
37.312	-	The 1st platoon of the 1st company of the 37th Bn.
37.405	-	The 5th service element of the 37th Bn.
37.401	-	Bn. Hq. of the 37th Bn. (1st service element is always Hq.)
37.412	-	12th service element of the 37th Bn.

TABLE 3-5. Target/Mission Code Breakout (Data Point No. 3).

Non-fire plan Code No.	Fire plan Code No.	Type of target/mission
1	101	Artillery units
2	102	Mortar units
3	103	Antiaircraft artillery units
4	104	Antitank units
5	105	Missile and rocket units
6	106	APC units
7	107	Tank units
8	108	Command posts
9	109	Observation posts
10	110	Assembly area units
11	111	Engineer units
12	112	Service elements
13	N/A	MET message
14	N/A	Survey message
15	N/A	ATI message
16	N/A	Fire plan message
17	117	Infantry units
18	118	Harassment and interdiction mission
19	119	Illumination mission
20	120	Preparatory fire mission
21	121	Counter-preparatory fire mission
22	122	Smoke mission
23	123	Final protective fire mission
24	124	Barrier mission

Record Type No. 4

This type record is another one of the six possible types entered during execution of Subroutine RTAPE. It is used to enter data for a MET message mission to the Blue force. The type of data and associated information concerning the data are presented in Table 3-6.

Record Type No. 5

The third type of record that may be entered during execution of Subroutine RTAPE contains data for a survey processing mission to be accomplished by the Blue force. Table 3-7 contains the type of data and associated information that appeared on a type No. 5 record.

TABLE 3-6. Logical Unit No. 3 Input Records from Subroutine RTAPE (MET Message Mission).

Data Pt.	Parameter	Format	Units	Definition
1	TAR(1)	F10.3	---	MET identification number
2	TAR(2)	F4.0	---	Not used; left blank
3	TAR(3)	F4.0	---	MET message mission code (= 13.)
4	TAR(4)	F4.0	---	FDC that receives MET message
5	TAR(5)	F4.0	---	Processing priority code (= 2., MET message)
6	TAR(6)	F7.2	---	Not used; left blank
7	TAR(7)	F7.2	---	Not used; left blank
8	TAR(8)	F5.0	---	Not used; left blank
9	TAR(9)	F3.0	---	Not used; left blank
10	TAR(10)	F5.1	---	Not used; left blank
11	TAR(11)	F5.1	---	Not used; left blank
12	TAR(12)	F5.1	---	Not used; left blank
13	TAR(13)	F5.1	---	Not used; left blank
14	TAR(14)	F5.0	---	Not used; left blank
15	TAR(15)	F6.0	minutes	Arrival time of message at FDC
16	TAR(16)	F6.0	minutes	Time that MET data were taken
17	TAR(17)	F7.2	---	Not used; left blank
18	TAR(18)	F3.0	---	Not used; left blank
19	TAR(19)	F5.1	---	Not used; left blank
20	TAR(20)	F5.1	---	Not used; left blank
21	TAR(21)	F5.1	---	Not used; left blank

TABLE 3-6. Logical Unit No. 3 Input Records from Subroutine RTAPE (MET Message Mission)--Contd.

Data Pt.	Parameter	Format	Units	Definition
22	TAR(22)	F5.1	---	Not used; left blank
23	ALF2	A6	---	Not used; left blank
24	ALF2	A4	---	Not used; left blank
25	TAR(23)	F4.0	---	Not used; left blank
26	TAR(24)	F5.0	---	Not used; left blank
27	TAR(25)	F5.0	---	Not used; left blank
28	TAR(26)	F7.2	---	Not used; left blank
29	TAR(27)	F3.0	---	Not used; left blank
30	TAR(28)	F4.0	---	Number of FDC that processes the MET message mission
31	TAR(29)	F3.0	---	Not used; left blank
* 32	TAR(30)	F4.0	---	Not used; left blank

*NOTE: Data points 33 through 53 of this type record are also not used, and are therefore left blank.

TABLE 3-7. Logical Unit No. 3 Input Records from Subroutine RTAPE (Survey Processing Mission).

Data Pt.	Parameter	Format	Units	Definition
1	TAR(1)	F10.3	---	Survey request identification number
2	TAR(2)	F4.0	---	Not used; left blank
3	TAR(3)	F4.0	---	Survey processing mission code number (= 14.)
4	TAR(4)	F4.0	---	Number of FDC that receives survey processing request
5	TAR(5)	F4.0	---	Priority processing number (= 3., survey processing request)
6	TAR(6)	F7.2	---	Not used; left blank
7	TAR(7)	F7.2	---	Not used; left blank
8	TAR(8)	F5.0	---	Not used; left blank
9	TAR(9)	F3.0	---	Not used; left blank
10	TAR(10)	F5.1	---	Not used; left blank
11	TAR(11)	F5.1	---	Not used; left blank
12	TAR(12)	F5.1	---	Not used; left blank
13	TAR(13)	F5.1	---	Not used; left blank
14	TAR(14)	F5.0	---	Not used; left blank
15	TAR(15)	F6.0	minutes	Arrival time of survey request at FDC
16	TAR(16)	F6.0	minutes	Time when survey processing request must be finished
17	TAR(17)	F7.2	---	Not used; left blank
18	TAR(18)	F3.0	---	Not used; left blank
19	TAR(19)	F5.1	---	Not used; left blank

TABLE 3-7. Logical Unit No. 3 Input Records from Subroutine RTAPE (Survey Processing Mission)--Contd.

Data Pt.	Parameter	Format	Units	Definition
20	TAR(20)	F5.1	---	Not used; left blank
21	TAR(21)	F5.1	---	Not used; left blank
22	TAR(22)	F5.1	---	Not used; left blank
23	ALF2	A6	---	Not used; left blank
24	ALF3	A4	---	Not used; left blank
25	TAR(23)	F4.0	---	Not used; left blank
26	TAR(24)	F5.0	---	Not used; left blank
27	TAR(25)	F5.0	---	Not used; left blank
28	TAR(26)	F7.2	---	Not used; left blank
29	TAR(27)	F3.0	---	Not used; left blank
30	TAR(28)	F4.0	---	Number of FDC that processes survey request (may be changed in the program)
31	TAR(29)	F3.0	---	Not used; left blank
* 32	TAR(30)	F4.0	---	Not used; left blank

*NOTE: Data points 33 through 53 of this type record are also not used, and therefore left blank.

Record Type No. 6

The fourth type of record possible to be entered during execution of Subroutine RTAPE is for an Artillery Target Intelligence (ATI) mission. This type record contains essentially the same information as a type No. 3 record, except that it is identified as an ATI mission (TAR(3) = 15.) and the processing priority code, TAR(5), is set equal to 3. instead of 1., which is used for a fire mission. Table 3-8 contains the type of data and associated information for an ATI mission record.

Record Type No. 7

The fifth type of record that may be entered during execution of Subroutine RTAPE is a Fire Plan Header Record. Whenever this type record is entered into the program, it is immediately followed by a specified number of type No. 8 records. The number of fire plan target records to be entered is controlled by the value of the sixth data point appearing on the type No. 7 record. Table 3-9 contains the type of data and associated information that are entered whenever a Fire Plan Header Record is called for.

Record Type No. 8

The sixth and last type of record that can be entered from Logical Unit No. 3 is the Fire Plan Target Record. As stated previously, the number of records of this type that are entered at any one time depends upon the presence of a Fire Plan Header Record and the value of the sixth data point appearing on that record. The type of data and the necessary associated information, for each data point contained on this type record, is presented in Table 3-10.

CARD READER INPUT

The AFSM program enters data via punched cards during execution of six different subroutines of the program, all of which are called sequentially from the MAIN Routine. The purpose of the punched card inputs entered during execution of each subroutine follows.

Subroutine TABLES Input Cards

This subroutine is used to enter miscellaneous program flags and parameters used to select various options available to the user. It is also used to enter data records from Logical Unit No. 3 after Data Card Type 17 has been processed. The input parameters required on each type

TABLE 3-8. Logical Unit No. 3 Input Records from Subroutine RTAPE (Artillery Target Intelligence Mission).

Data Pt.	Parameter	Format	Units	Definition
1	TAR(1)	F10.3	---	Target identification number (see Table 3-4 for explanation)
2	TAR(2)	F4.0	kilometers	Target distance from FEBA
3	TAR(3)	F4.0	---	Mission identification code (= 15.)
4	TAR(4)	F4.0	---	FDC number to which target acquisition is reported (= 1., Division; = 2., Group; = 3. to 16. battalion)
5	TAR(5)	F4.0	---	Processing priority code (= 3. for ATI missions)
6	TAR(6)	F7.2	kilometers	x - coordinate of target
7	TAR(7)	F7.2	kilometers	y - coordinate of target
8	TAR(8)	F5.0	meters	Target location error (CPE)
9	TAR(9)	F3.0	---	Estimated target posture
10	TAR(10)	F5.1	---	Estimated fractional portion of target in open environment
11	TAR(11)	F5.1	---	Estimated fractional portion of target in wooded environment
12	TAR(12)	F5.1	---	Estimated fractional portion of target in town environment
13	TAR(13)	F5.1	---	Estimated fractional portion of target in grassy environment
14	TAR(14)	F5.0	meters	Estimated target radius
15	TAR(15)	F6.0	minutes	Estimated arrival time at sensed position
16	TAR(16)	F6.0	minutes	Estimated departure time from sensed position

TABLE 3-8. Logical Unit No. 3 Input Records from Subroutine RTAPE (Artillery Target Intelligence Mission)--Contd.

Data Pt.	Parameter	Format	Units	Definition
17	TAR(17)	F7.2	---	Estimated military worth of target
18	TAR(18)	F3.0	---	Actual posture of target
19	TAR(19)	F5.1	---	Actual fractional portion of target in open environment
20	TAR(20)	F5.1	---	Actual fractional portion of target in wooded environment
21	TAR(21)	F5.1	---	Actual fractional portion of target in town environment
22	TAR(22)	F5.1	---	Actual fractional portion of target in grassy environment
23	ALF2	A6	---	Alphanumeric description of target
24	ALF3	A4	---	Alphanumeric description of target
25	TAR(23)	F4.0	meters	Actual target radius
26	TAR(24)	F5.0	minutes	Actual arrival time at sensed position
27	TAR(25)	F5.0	minutes	Actual departure time from sensed position
28	TAR(26)	F7.2	---	Actual military worth of target
29	TAR(27)	F3.0	---	Request for additional fire (RFAF) flag
30	TAR(28)	F4.0	---	FDC number that processes fire mission
31	TAR(29)	F3.0	---	Leave blank, used in program to keep track of fractional portion of damage

TABLE 3-8. Logical Unit No. 3 Input Records from Subroutine RTAPE (Artillery Target Intelligence Mission)--Contd.

Data Pt.	Parameter	Format	Units	Definition
32	TAR(30)	F4.0	---	Original number of personnel in the target
33	TAR(31)	F4.0	---	Original number of tanks in the target
34	TAR(32)	F4.0	---	Original number of APCs in the target
35	TAR(33)	F4.0	---	Original number of trucks in the target
36	TAR(34)	F4.0	---	Original number of artillery tubes in the target
37	TAR(35)	F4.0	---	Original number of radars in the target
38	TAR(36)	F4.0	---	Original number of missile launchers in the target
39	TAR(37)	F7.3	---	Target movement code (= 0., stationary; = 1., moving; = 100., stationary CLGP tgt; any other, view time for moving CLGP target)
40	TAR(38)	F4.0	---	Target identification index of Red battalion
41	TAR(39)	F4.0	---	FDC no. to be charged process time of mission (left blank and set in program)
42	TAR(40)	F4.0	---	Same as defined in Table 3-3, but not applicable if target comes off Logical Unit No. 3 as an ATI mission, as opposed to being converted to ATI mission in the program

TABLE 3-8. Logical Unit No. 3 Input Records from Subroutine RTAPE (Artillery Target Intelligence Mission)--Concld.

Data Pt.	Parameter	Format	Units	Definition
43	TAR(41)	F4.0	---	Same as defined in Table 3-3, but not applicable if target comes off Logical Unit No. 3 as an ATI mission, as opposed to being converted to ATI mission in the program
44	TAR(42)	F3.0	---	Not used; left blank
45	TAR(43)	F6.2	---	Estimated military worth for CLGP target
46	TAR(44)	F4.2	---	Fractional survivors of personnel in target at acquisition time due to non-artillery fire
47	TAR(45)	F4.2	---	Fractional survivors of tanks in target at acquisition time due to non-artillery fire
48	TAR(46)	F4.2	---	Fractional survivors of APCs in target at acquisition time due to non-artillery fire
49	TAR(49)	F4.2	---	Fractional survivors of trucks in target at acquisition time due to non-artillery fire
50	TAR(48)	F4.2	---	Fractional survivors of artillery tube in target at acquisition time due to non-artillery fire
51	TAR(49)	F4.2	---	Fractional survivors of radars in target at acquisition time due to non-artillery fire
52	TAR(50)	F4.2	---	Fractional survivors of missile launchers in target at acquisition time due to non-artillery fire
53				Alphanumeric description of target acquisition method

TABLE 3-9. Logical Unit No. 3 Input Records from Subroutine RTAPE (Fire Plan Header Record).

Data Pt.	Parameter	Format	Units	Definition
1	TAR(1)	F10.3	---	Fire plan identification number (1000, 2000, 3000, ... etc)
2	TAR(2)	F4.0	---	Not used; left blank
3	TAR(3)	F4.0	---	Mission identification code (= 16., fire plan mission)
4	TAR(4)	F4.0	---	Number of FDC that receives fire plan request
5	TAR(5)	F4.0	---	Priority processing code (= 4 for fire plan request)
* 6	TAR(6)	F7.2	---	Number of targets in the fire plan
7	TAR(7)	F7.2	---	Flag to indicate status of fire plan (= 0.0, processing not completed; = 1.0, processing completed)
8	TAR(8)	F5.0	---	Not used; left blank
9	TAR(9)	F3.0	---	Not used; left blank
10	TAR(10)	F5.1	---	Not used; left blank
11	TAR(11)	F5.1	---	Not used; left blank
12	TAR(12)	F5.1	---	Not used; left blank
13	TAR(13)	F5.1	---	Not used; left blank
14	TAR(14)	F5.0	---	Not used; left blank
15	TAR(15)	F6.0	minutes	Arrival time of fire plan request at FDC

*NOTE: The number of record types identified in Table 3-10 is specified by the number of targets in the fire plan; 1 record per target each time a fire plan header card is entered.

TABLE 3-9. Logical Unit No. 3 Input Records from Subroutine RTAPE (Fire Plan Header Record)--Contd.

Data Pt.	Parameter	Format	Units	Definition
16	TAR(16)	F6.0	minutes	Time that fire plan processing must be completed
17	TAR(17)	F7.2	---	Number of targets assigned to first battalion selected
18	TAR(18)	F3.0	---	Number of targets assigned to second battalion selected
19	TAR(19)	F5.1	---	Number of targets assigned to third battalion selected
20	TAR(20)	F5.1	---	Number of targets assigned to fourth battalion selected
21	TAR(21)	F5.1	---	Number of targets assigned to fifth battalion selected
22	TAR(22)	F5.1	---	Number of targets assigned to sixth battalion selected
23	ALF2	A6	---	Not used; left blank
24	ALF3	A4	---	Not used; left blank
25	TAR(23)	F4.0	---	Number of targets assigned to seventh battalion selected
26	TAR(24)	F5.0	---	Number of targets assigned to eighth battalion selected
27	TAR(25)	F5.0	---	Number of targets assigned to ninth battalion selected
28	TAR(26)	F7.2	---	Number of targets assigned to tenth battalion selected
29	TAR(27)	F3.0	---	Number of targets assigned to eleventh battalion selected

TABLE 3-9. Logical Unit No. 3 Input Records from Subroutine RTAPE (Fire Plan Header Record)--Concld.

Data Pt.	Parameter	Format	Units	Definition
30	TAR(28)	F4.0	---	Number of targets assigned to twelfth battalion selected
31	TAR(29)	F3.0	---	Number of targets assigned to thirteenth battalion selected
* 32	TAR(30)	F4.0	---	Number of targets assigned to fourteenth battalion selected

*NOTE: Data points 33 through 53 of this type record are not used, and therefore left blank.

of data card, entered during execution of this subroutine, are contained on Data Card Type 1 through Data Card Type 23, respectively.

Subroutine SYSTEM Input Cards

Data associated with each artillery weapon system being played in the game are entered during execution of this subroutine. The input parameters required on each data card are illustrated on Data Card Types 24 through 26e. The program ignores data entered for systems that are not keyed in by a "1" on card type 25a or 25b.

Subroutine ROUND Input Cards

Data Card Types 27 through 40 are entered into the program during execution of this subroutine. Data for rounds not associated with the systems selected in Subroutine SYSTEM are entered but ignored by the program. Table 3-11 lists the type of data that appear on additional type 31 cards when the round in question is an HE round.

Subroutine FUFDC Input Cards

This subroutine is used to enter movement schedules and site coordinates for Blue FDCs and Blue batteries being played in the game. In addition, it is used to enter "Rounds Allowed" data for the various

environments of the game, scenario boundaries when applicable, as well as FEBA trace data. Data Card Types 41 through 56 are used to illustrate the parameters required for proper execution of this subroutine.

Subroutine WPMIX Input Cards

Data Card Types 57 through 82 are read during execution of this subroutine. The cards contain values for tactical assignments of Blue battalions, times required for various Blue FDC functions, Blue battalion ordering, and tube wear and distance traveled between various types of failures.

Subroutine REDIN Input Cards

The last subroutine used to enter input data via punched cards is this one. Data Card Types 83 through 87 are used to enter data for Red battalions, Red batteries, as well as movement and site schedules for the Red batteries.

DATA DECK SETUP

A typical AFSM punched card data deck setup is depicted in Figure 3-1. The figure is used to illustrate the various types of cards that are required when all input options of the program are exercised. As such, it serves only to illustrate a possible, but not necessarily a realistic, input data deck.

TABLE 3-10. Logical Unit No. 3 Input Records from Subroutine RTAPE (Fire Plan Target).

Data Pt.	Parameter	Format	Units	Definition
1	TFP(1,J)	F10.3	---	Identification number of j^{th} target in fire plan
2	TFP(2,J)	F4.0	kilometers	j^{th} target distance from FEBA
3	TFP(3,J)	F4.0	---	j^{th} target identification code ($\geq$ 101. and $\leq$ 112. or $\geq$ 117. and $\leq$ 124.)
4	TFP(4,J)	F4.0	---	FDC number to which j^{th} target acquisition is reported (= 1., Division; = 2., Corps; = 3. to 16., battalion)
5	TFP(5,J)	F4.0	---	Processing priority code (= 4., fire plan)
6	TFP(6,J)	F7.2	kilometers	x - coordinate of j^{th} target
7	TFP(7,J)	F7.2	kilometers	y - coordinate of j^{th} target
8	TFP(8,J)	F5.0	meters	j^{th} target location error (CPE)
9	TFP(9,J)	F3.0	---	Estimated posture of j^{th} target
10	TFP(10,J)	F5.1	---	Estimated fractional portion of j^{th} target in open environment
11	TFP(11,J)	F5.1	---	Estimated fractional portion of j^{th} target in wooded environment
12	TFP(12,J)	F5.1	---	Estimated fractional portion of j^{th} target in town environment
13	TFP(13,J)	F5.1	---	Estimated fractional portion of j^{th} target in grassy environment
14	TFP(14,J)	F5.0	meters	Estimated radius of j^{th} target
15	TFP(15,J)	F6.0	minutes	Estimated arrival time of j^{th} target at sensed position

TABLE 3-10. Logical Unit No. 3 Input Records from Subroutine RTAPE (Fire Plan Target)--Contd.

Data Pt.	Parameter	Format	Units	Definition
16	TFP(16,J)	F6.0	minutes	Estimated departure time of j^{th} target from sensed position
17	TFP(17,J)	F7.2	---	Estimated military worth of j^{th} target
18	TFP(18,J)	F3.0	---	Actual posture of j^{th} target
19	TFP(19,J)	F5.1	---	Actual fractional portion of j^{th} target in open environment
20	TFP(20,J)	F5.1	---	Actual fractional portion of j^{th} target in wooded environment
21	TFP(21,J)	F5.1	---	Actual fractional portion of j^{th} target in town environment
22	TFP(22,J)	F5.1	---	Actual fractional portion of j^{th} target in grassy environment
23	TFP(23,J)	A6	meters	Actual radius of j^{th} target
24	TFP(24,J)	A4	minutes	Actual arrival time of j^{th} target at sensed position
25	TFP(25,J)	F4.0	minutes	Actual departure time of j^{th} target from sensed position
26	TFP(26,J)	F5.0	---	Actual military worth of j^{th} target
27	TFP(27,J)	F5.0	---	Request for additional fire (RFAF) flag against j^{th} target
28	TFP(28,J)	F7.2	---	FDC number that processes fire mission against j^{th} target
29	TFP(29,J)	F3.0	---	Number of 155-mm equivalent volleys to be fired at this fire plan target
30	TFP(30,J)	F4.0	---	Original number of personnel in j^{th} target

TABLE 3-10. Logical Unit No. 3 Input Records from Subroutine RTAPE (Fire Plan Target)--Concld.

Data Pt.	Parameter	Format	Units	Definition
31	TFP(31,J)	F3.0	---	Original number of tanks in j^{th} target
32	TFP(32,J)	F4.0	---	Original number of APCs in j^{th} target
33	TFP(33,J)	F4.0	---	Original number of trucks in j^{th} target
34	TFP(34,J)	F4.0	---	Original number of artillery tubes in j^{th} target
35	TFP(35,J)	F4.0	---	Original number of radars in j^{th} target
36	TFP(36,J)	F4.0	---	Original number of missile launchers in j^{th} target
37	TFP(37,J)	F4.0	---	j^{th} target movement code (= 0., stationary; = 1., moving)
38	TFP(38,J)	F4.0	---	j^{th} target identification index of enemy battalion
39	TFP(39,J)	F7.3	---	FDC no. to be charged process time of mission (left blank and set in program)
40	TFP(40,J)	F4.0	---	Not applicable
41	TFP(41,J)	F4.0	---	Not applicable
42	TFP(42,J)	F4.0	---	Not applicable
43	TFP(43,J)	F4.0	---	Not applicable

NOTE: The number of Table 3-10 type records for a fire plan is determined by the value of TAR(6) as entered from a Table 3-9 type record.

MIX IDENTIFICATION — Card: 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62 63 64 65	66 67 68 69 70	71 72 73 74 75	76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	CXID(1)	---	A5	1-5	Alphanumeric information identifying type of mix being played. Used for information only.
B	CXID(2)	---	A5	6-10	
C	CXID(3)	---	A5	11-15	
.	.	.	.	.	
.	.	.	.	.	
.	.	.	.	.	
O	CXID(15)	---	A5	71-75	
P	CXID(16)	---	A5	76-80	

NOTE: This must be the first card of the input data deck. It may be a blank card, if so desired, but it must precede all other cards of the deck.

Card: 1

PROGRAM CONTROL FLAGS					Card: 2
	A	B	C	D	E	F	G
ID	Parameter	Units	Format	Columns	Description
A	TOTTM	minutes	F8.2	1-8	Additional time required to process a time-on-target (TOT) mission
B	SPRKEY	---	F8.2	9-16	Suppression subroutines control flag (=1.0, call subroutines; =0.0, bypass subroutines)
C	SPRET	minutes	F8.2	17-24	Duration of suppression after cessation of counterbattery fire
D	BLDFLV	---	F8.2	25-32	Blue battery defeat level
E	PERSFG	---	F8.2	33-40	Flag for Blue personnel loss consideration (= 0.0, personnel losses not a limiting factor; = 1.0, personnel losses are recorded and may result in defeat of battery)
F	SCENAR	---	F8.2	41-48	Flag to indicate scenario being played; i.e., scenario identification number
G	CLGP	---	F8.2	49-56	Flag to indicate that CLGP round is allowed (= 0.0, CLGP rounds allowed; = 1.0, CLGP rounds not allowed)

Card: 2

NUMBER OF RED BATTERIES | Card: 3

A

ID	Parameter	Units	Format	Columns	Description
A	NREDBT	---	I5	1-5	Number of Red batteries in the game

Card: 3

SCENARIO GENERAL INFORMATION					Card: 4
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37	F 38 39 40 41 42	G 43 44 45 46 47	H 48 49 50 51 52	53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	TZRO	minutes	F8.2	1-8	Game start time
B	TSTART	hours	F8.2	9-16	Time of first printout
C	TMX	minutes	F8.2	17-24	Game end time
D	TMETZO	minutes	F8.2	25-32	Time that initial MET data were taken
E	NRFP	---	I5	33-37	Maximum number of round types allowed per battery per fire plan in SAVRD, IDRDSV, RDSVK, RDSV, TGSV, and SVMW arrays
F	NESTP	---	I5	38-42	Number of estimated Red postures
G	NPLNIN	---	I5	43-47	Maximum number of fire plans that can be entered from target tape based on current array dimensions. There may be fewer than this number of fire plans on the tape
H	NPLNS	---	I5	48-52	Maximum number of fire plans allowable in SMFP and FIRPL arrays

Card: 4

FIRE PLAN MISSIONS DATA — Card: 5

ID	Parameter	Units	Format	Columns	Description
A	MAXQ	---	I5	1-5	Maximum number of missions in QUE array
B	MAXPQ	---	I5	6-10	Maximum number of missions in PREQ array
C	MAXND	---	I5	11-15	Maximum number of Red units allowed in DAMAGE array
D	MAXTFP	---	I5	16-20	Maximum number of targets (tape input) per fire plan in TFP array
E	MXTTFP	---	I5	21-25	Maximum number of additional battery fire plan missions (machine-generated) in TTFP array
F	MAXFP	---	I5	26-30	Maximum number of tape input and machine-generated missions per fire plan in FP array
G	MXBYPN	---	I5	31-35	Maximum number of missions per battery per fire plan in RDSV, TGSV, and SVMW arrays

Card: 5

CLGP SCALE FACTORS					Card: 6
	A 1 2 3 4 5 6	B 7 8 9 10 11 12	C 13 14 15 16 17 18	19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80		
ID	Parameter	Units	Format	Columns	Description
A	CLGPSF(1)	---	F6.1	1-6	Scale factor for computing number of Red tanks killed by CLGP rounds
B	CLGPSF(2)	---	F6.1	7-12	Scale factor for computing number of Red APCs killed by CLGP rounds
C	CLGPSF(3)	---	F6.1	13-18	Scale factor for computing number of Red trucks killed by CLGP rounds

Card: 6

TIME CONSTRAINTS IN PROGRAM | Card: 7

ID	Parameter	Units	Format	Columns	Description
A	TFCLM	minutes	F6.1	1-6	Minimum time required to fire a CLGP fire mission
B	ACQMIN	minutes	F6.1	7-12	Minimum time required for Red force to acquire a Blue battery as a target
C	RIFMIN	minutes	F6.1	13-18	No longer used in program
D	TMT	minutes	F6.1	19-24	Red counterbattery target memory time (If a Blue battery fires a mission from a site within TMT minutes after receiving fire at that site, Red will immediately recognize the source of fire and schedule counterfire)
E	TTGF(1)	hours	F6.1	25-30	Time required to get float from Division level
F	TTGF(2)	hours	F6.1	31-36	Time required to get float from Group level

Card: 7

WEAPON SYSTEM IDENTIFICATION NUMBERS

Card: 8

ID	Parameter	Units	Format	Columns	Description
A	IISYST(1)	---	I4	1-4	Identification number of first Blue weapon system
B	IISYST(2)	---	I4	6-9	Identification number of second Blue weapon system
C	IISYST(3)	---	I4	11-14	Identification number of third Blue weapon system
D	IISYST(4)	---	I4	16-19	Identification number of fourth Blue weapon system
E	IISYST(5)	---	I4	21-24	Identification number of fifth Blue weapon system
F	IISYST(6)	---	I4	26-29	Identification number of sixth Blue weapon system
G	IISYST(7)	---	I4	31-34	Identification number of seventh Blue weapon system
H	IISYST(8)	---	I4	36-39	Identification number of eighth Blue weapon system
I	IISYST(9)	---	I4	41-44	Identification number of ninth Blue weapon system
J	IISYST(10)	---	I4	46-49	Identification number of tenth Blue weapon system
K	IISYST(11)	---	I4	51-54	Identification number of eleventh Blue weapon system

Card: 8

COLUMN HEADERS FOR HARD COPY OUTPUT — Card: 9

A B C D E F G H I J K L

ID	Parameter	Units	Format	Columns	Description
A	COLHDR(1)	---	A4	1-4	Alphanumeric identifier of first column
B	COLHDR(2)	---	A4	7-10	Alphanumeric identifier of second column
C	COLHDR(3)	---	A4	13-16	Alphanumeric identifier of third column
D	COLHDR(4)	---	A4	19-22	Alphanumeric identifier of fourth column
E	COLHDR(5)	---	A4	25-28	Alphanumeric identifier of fifth column
F	COLHDR(6)	---	A4	31-34	Alphanumeric identifier of sixth column
G	COLHDR(7)	---	A4	37-40	Alphanumeric identifier of seventh column
H	COLHDR(8)	---	A4	43-46	Alphanumeric identifier of eighth column
I	COLHDR(9)	---	A4	49-52	Alphanumeric identifier of ninth column
J	COLHDR(10)	---	A4	55-58	Alphanumeric identifier of tenth column
K	COLHDR(11)	---	A4	61-64	Alphanumeric identifier of eleventh column
L	COLHDR(12)	---	A6	67-72	Alphanumeric identifier of twelfth column

Card: 9

ROW IDENTIFIERS FOR HARD COPY OUTPUT — Card: 10a

ID	Parameter	Units	Format	Columns	Description
A	ROWHDR(1)	---	A6	1-6	Alphanumeric identifier of first row of output
B	ROWHDR(2)	---	A6	8-13	Alphanumeric identifier of second row of output
C	ROWHDR(3)	---	A6	15-20	Alphanumeric identifier of third row of output
D	ROWHDR(4)	---	A6	22-27	Alphanumeric identifier of fourth row of output
E	ROWHDR(5)	---	A6	29-34	Alphanumeric identifier of fifth row of output
F	ROWHDR(6)	---	A6	36-41	Alphanumeric identifier of sixth row of output
G	ROWHDR(7)	---	A6	43-48	Alphanumeric identifier of seventh row of output
H	ROWHDR(8)	---	A6	50-55	Alphanumeric identifier of eighth row of output
I	ROWHDR(9)	---	A6	57-62	Alphanumeric identifier of ninth row of output
J	ROWHDR(10)	---	A6	64-69	Alphanumeric identifier of tenth row of output
K	ROWHDR(11)	---	A6	71-76	Alphanumeric identifier of eleventh row of output

Card: 10a

ROW IDENTIFIERS FOR HARD COPY OUTPUT | Card: 10b

A | B | C | D | E

ID	Parameter	Units	Format	Columns	Description
A	ROWHDR(12)	---	A6	1-6	Alphanumeric identifier of twelfth row of output
B	ROWHDR(13)	---	A6	8-13	Alphanumeric identifier of thirteenth row of output
C	ROWHDR(14)	---	A6	15-20	Alphanumeric identifier of fourteenth row of output
D	ROWHDR(15)	---	A6	22-27	Alphanumeric identifier of fifteenth row of output
E	ROWHDR(16)	---	A6	29-34	Alphanumeric identifier of sixteenth row of output

Card: 10b

RED WEAPON SYSTEM/RANGE COEFFICIENTS					Card: 11a
	A 1 2 3 4 5	B 6 7 8 9 10 11 12	C 13 14 15 16 17 18 19	D 20 21 22 23 24	E 25 26 27 28 29 30
	F 31 32 33 34 35 36 37	G 38 39 40 41 42 43 44 45	H 46 47 48 49 50	I 51 52 53 54 55	J 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	COF122(1,1)	---	F5.0	1-5	Number of 122-mm HE rounds Red force will expend in counterbattery fire for ranges ≤ 8 km against a towed battery target
B	COF122(1,2)	kilometers^{-2}	F7.4	6-12	Coefficients for additional 122-mm HE rounds Red force will expend for 8 km < range < 16 km against a towed battery target
C	COF122(1,3)	kilometers^{-4}	F7.5	13-19	Coefficients for additional 122-mm HE rounds Red force will expend for 8 km < range < 16 km against a towed battery target
D	COF122(1,4)	---	F5.0	20-24	Number of 122-mm HE rounds Red force will expend for ranges ≥ 16 km against a towed battery target
E	COF122(2,1)	---	F6.0	25-30	Number of 122-mm HE rounds Red force will expend in counterbattery fire for ranges ≤ 8 km against a self-propelled unarmored battery target
F	COF122(2,2)	kilometers^{-2}	F7.4	31-37	Coefficients for additional 122-mm HE rounds Red force will expend for 8 km < range < 16 km against a self-propelled unarmored battery target
G	COF122(2,3)	kilometers^{-4}	F8.6	38-45	Coefficients for additional 122-mm HE rounds Red force will expend for 8 km < range < 16 km against a self-propelled unarmored battery target

Card: 11a

RED WEAPON SYSTEM/RANGE COEFFICIENTS | Card: 11a

ID	Parameter	Units	Format	Columns	Description
H	COF122(2,4)	---	F5.0	46-50	Number of 122-mm HE rounds Red force will expend for range ≥ 16 km against a self-propelled unarmored battery target
I	COF122(3,1)	---	F5.0	51-55	Number of 122-mm HE rounds Red force will expend in counterbattery fire for ranges ≤ 8 km against a self-propelled armored battery target
J	COF122(3,2)	kilometers^{-2}	F6.3	56-61	Coefficient for additional 122-mm HE rounds Red force will expend for 8 km < range < 16 km against a self-propelled armored battery target

Card: 11a

RED WEAPON SYSTEM/RANGE COEFFICIENTS					Card: 11b
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13	14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80			
ID	Parameter	Units	Format	Columns	Description
A	COF122(3,3)	kilo-meters^{-4}	F8.6	1-8	Coefficient for additional 122-mm HE rounds Red force will expend for 8 km < range < 16 km against a self-propelled armored battery target
B	COF122(3,4)	---	F5.0	9-13	Number of 122-mm HE rounds Red force will expend for ranges ≥ 16 km against a self-propelled armored battery target

Card: 11b

TARGET ENVIRONMENTS, ELEMENTS, AND POSTURES | Card: 12

A B C

ID	Parameter	Units	Format	Columns	Description
A	NEV	---	I5	1-5	Number of target environments in scenario ($2 \leq NEV \leq 4$)
B	NE	---	I5	6-10	Number of target elements in scenario (≤ 9)
C	NPOST	---	I5	11-15	Number of target postures in scenario ($NESTP \leq NPOST \leq 18$) where NESTP is as defined on card 3

Card: 12

UNWARNED TARGET ELEMENTS POSTURE DATA					Card: 13
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
A	POST(1,J)	---	F8.3	1-8	Fraction of unwarned personnel standing for j^{th} posture
B	POST(2,J)	---	F8.3	9-16	Fraction of unwarned personnel prone for j^{th} posture
C	POST(3,J)	---	F8.3	17-24	Fraction of unwarned personnel crouching for j^{th} posture
D	POST(4,J)	---	F8.3	25-32	POST(I,J) = 1.0 for 3 < I < 10 indicates that element (I-2) is the critical element for targets with posture J
E	POST(5,J)	---	F8.3	33-40	POST(I,J) = 1.0 for 3 < I < 10 indicates that element (I-2) is the critical element for targets with posture J
F	POST(6,J)	---	F8.3	41-48	POST(I,J) = 1.0 for 3 < I < 10 indicates that element (I-2) is the critical element for targets with posture J
G	POST(7,J)	---	F8.3	49-56	POST(I,J) = 1.0 for 3 < I < 10 indicates that element (I-2) is the critical element for targets with posture J
H	POST(8,J)	---	F8.3	57-64	POST(I,J) = 1.0 for 3 < I < 10 indicates that element (I-2) is the critical element for targets with posture J

Card: 13

UNWARNED TARGET ELEMENTS POSTURE DATA					Card: 13
	A	B	C	D	E	F	G	H	I	
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
I	POST(9,J)	---	F8.3	65-72	POST(I,J) = 1.0 for 3 < I < 10 indicates that element (I-2) is the critical element for targets with posture J NOTE: A card of this type is required for each posture in the scenario. Each card of this type must be followed by a type 14 card. Maximum number of cards is 18.

Card: 13

WARNED TARGET ELEMENTS POSTURE DATA — Card: 14

	A	B	C	D	E	F	G	H	I
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72

ID	Parameter	Units	Format	Columns	Description
A	POST(10,J)	---	F8.3	1-8	Fraction of warned personnel standing for j^{th} posture
B	POST(11,J)	---	F8.3	9-16	Fraction of warned personnel prone for j^{th} posture
C	POST(12,J)	---	F8.3	17-24	Fraction of warned personnel crouching for j^{th} posture
D	POST(13,J)	---	F8.3	25-32	POST(I,J) = 1.0 for I ≥ 13 indicates that element (I-2) is critical element for posture J
E	POST(14,J)	---	F8.3	33-40	POST(I,J) = 1.0 for I ≥ 13 indicates that element (I-2) is critical element for posture J
F	POST(15,J)	---	F8.3	41-48	POST(I,J) = 1.0 for I ≥ 13 indicates that element (I-2) is critical element for posture J
G	POST(16,J)	---	F8.3	49-56	POST(I,J) = 1.0 for I ≥ 13 indicates that element (I-2) is critical element for posture J
H	POST(17,J)	---	F8.3	57-64	POST(I,J) = 1.0 for I ≥ 13 indicates that element (I-2) is critical element for posture J

Card: 14

WARNED TARGET ELEMENTS POSTURE DATA

Card: 14

ID	Parameter	Units	Format	Columns	Description
I	POST(18,J)	---	F8.3	65-72	POST(I,J) = 1.0 for I ≥ 13 indicates that element (I-2) is critical element for posture J NOTE: A card of this type is required for each posture in the scenario. Each card of this type must be preceded by a type 13 card. Maximum number of cards is 18.

Card: 14

NUMBER OF ESTIMATED POSTURES					Card: 15
	A				
ID	Parameter	Units	Format	Columns	Description
A	NMSN	---	I5	1-5	Number of estimated postures in scenario (NMSN ≤ NESTP as defined on card 3)

Card: 15

DESIRED ATTACK LEVELS — Card: 16

ID	Parameter	Units	Format	Columns	Description
A	VOL(1)	---	F8.2	1-8	Desired attack level versus first estimated posture
B	VOL(2)	---	F8.2	9-16	Desired attack level versus second estimated posture
C	VOL(3)	---	F8.2	17-24	Desired attack level versus third estimated posture
D	VOL(4)	---	F8.2	25-32	Desired attack level versus fourth estimated posture
E	VOL(5)	---	F8.2	33-40	Desired attack level versus fifth estimated posture
F	VOL(6)	---	F8.2	41-48	Desired attack level versus sixth estimated posture
G	VOL(7)	---	F8.2	49-56	Desired attack level versus seventh estimated posture
H	VOL(8)	---	F8.2	57-64	Desired attack level versus eighth estimated posture
I	VOL(9)	---	F8.2	65-72	Desired attack level versus ninth estimated posture
J	VOL(10)	---	F8.2	73-80	Desired attack level versus tenth estimated posture

Card: 16

RED BATTALIONS AND TARGETS IN THREAT					Card: 17
	A 1 2 3 4 5	B 6 7 8 9 10			
ID	Parameter	Units	Format	Columns	Description
A	NTBN	---	I5	1-5	Number of Red battalions in threat
B	NITGTS	---	I5	6-10	Number of individual Red targets in threat NOTE: After this card has been read, information with respect to each Red battalion and Red target is entered from Logical File No. 3.

Card: 17

NUMBER OF MILITARY WORTH GROUPINGS

Card: 18

A

ID	Parameter	Units	Format	Columns	Description
A	NGRP	---	I5	1-5	Number of military worth groupings (current maximum value of 4)

Card: 18

MILITARY WORTH LIMITS

Card: 19

ID	Parameter	Units	Format	Columns	Description
A	GROUP(1,1)	---	F10.2	1-10	Military worth upper limit for Group No. One
B	GROUP(2,1)	---	F10.2	11-20	Military worth lower limit for Group No. One
C	GROUP(1,2)	---	F10.2	21-30	Military worth upper limit for Group No. Two
D	GROUP(2,2)	---	F10.2	31-40	Military worth lower limit for Group No. Two
E	GROUP(1,3)	---	F10.2	41-50	Military worth upper limit for Group No. Three
F	GROUP(2,3)	---	F10.2	51-60	Military worth lower limit for Group No. Three
G	GROUP(1,4)	---	F10.2	61-70	Military worth upper limit for Group No. Four
H	GROUP(2,4)	---	F10.2	71-80	Military worth lower limit for Group No. Four

Card: 19

NUMBER OF FIRE PLANS					Card: 20
	A				
ID	Parameter	Units	Format	Columns	Description
A	NFPTM	---	I5	1-5	Number of fire plans on target list (current maximum value of 15) If no fire plans are on target list, it will be necessary to enter a dummy fire plan on cards 20, 21. This can be easily accomplished by reading the value 1 for NFPTM on card 20 and values 1000.00, 9000.00, 9999.00, for TMXFP array on card set 21.

Card: 20

FIRE PLAN TIME DATA — Card: 21a

ID	Parameter	Units	Format	Columns	Description
A	TMXFP(1,1)	---	F8.2	1-8	First fire plan identification number
B	TMXFP(2,1)	minutes	F8.2	9-16	Time at which fire plan will be force-processed by Division or Corps FDC
C	TMXFP(3,1)	minutes	F8.2	17-24	Time at which fire plan will be force-processed by battalion FDC
D	TMXFP(1,2)	---	F8.2	25-32	Second fire plan identification number
E	TMXFP(2,2)	minutes	F8.2	33-40	Time at which fire plan will be force-processed by Division or Corps FDC
F	TMXFP(3,2)	minutes	F8.2	41-48	Time at which fire plan will be force-processed by battalion FDC
G	TMXFP(1,3)	---	F8.2	49-56	Third fire plan identification number
H	TMXFP(2,3)	minutes	F8.2	57-64	Time at which fire plan will be force-processed by Division or Corps FDC
I	TMXFP(3,3)	minutes	F8.2	65-72	Time at which fire plan will be force-processed by battalion FDC
J	TMXFP(1,4)	---	F8.2	73-80	Fourth fire plan identification number

Card: 21a

FIRE PLAN TIME DATA — Card: 21b

	A	B	C	D	E	F	G	H	I	J
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	TMXFP(2,4)	minutes	F8.2	1-8	Time at which fourth fire plan will be force-processed by Division or Corps FDC
B	TMXFP(3,4)	minutes	F8.2	9-16	Time at which fourth fire plan will be force-processed by battalion FDC
C	TMXFP(1,5)	---	F8.2	17-24	Fifth fire plan identification number
D	TMXFP(2,5)	minutes	F8.2	25-32	Time at which fire plan will be force-processed by Division or Corps FDC
E	TMXFP(3,5)	minutes	F8.2	33-40	Time at which fire plan will be force-processed by battalion FDC
F	TMXFP(1,6)	---	F8.2	41-48	Sixth fire plan identification number
G	TMXFP(2,6)	minutes	F8.2	49-56	Time at which fire plan will be force-processed by Division or Corps FDC
H	TMXFP(3,6)	minutes	F8.2	57-64	Time at which fire plan will be force-processed by battalion FDC
I	TMXFP(1,7)	---	F8.2	65-72	Seventh fire plan identification number

Card: 21b

FIRE PLAN TIME DATA					Card: 21b
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40

F 41 42 43 44 45 46 47 48	G 49 50 51 52 53 54 55 56	H 57 58 59 60 61 62 63 64	I 65 66 67 68 69 70 71 72	J 73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
J	TMXFP(2,7)	minutes	F8.2	73-80	**Time at which fire plan will be force-processed by Division or Corps FDC** **NOTE: This card is required when more than three fire plans have been specified on card type 20. If no fire plans are played, see note on card set 20 description.**

Card: 21b

FIRE PLAN TIME DATA — Card: 21c

ID	Parameter	Units	Format	Columns	Description
A	TMXFP(3,7)	minutes	F8.2	1-8	Time at which seventh fire plan will be force-processed by battalion FDC
B	TMXFP(1,8)	---	F8.2	9-16	Eighth fire plan identification number
C	TMXFP(2,8)	minutes	F8.2	17-24	Time at which fire plan will be force-processed by Division or Corps FDC
D	TMXFP(3,8)	minutes	F8.2	25-32	Time at which fire plan will be force-processed by battalion FDC
E	TMXFP(1,9)	---	F8.2	33-40	Ninth fire plan identification number
F	TMXFP(2,9)	minutes	F8.2	41-48	Time at which fire plan will be force-processed by Division or Corps FDC
G	TMXFP(3,9)	minutes	F8.2	49-56	Time at which fire plan will be force-processed by battalion FDC
H	TMXFP(1,10)	--	F8.2	57-64	Tenth fire plan identification number
I	TMXFP(2,10)	minutes	F8.2	65-72	Time at which fire plan will be force-processed by Division or Corps FDC

Card: 21c

FIRE PLAN TIME DATA — Card: 21c

	A	B	C	D	E	F	G	H	I	J
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
J	TMXFP(3,10)	minutes	F8.2	73-80	Time at which fire plan will be force-processed by battalion FDC NOTE: This card is required when more than six fire plans have been specified on card type 20.

Card: 21c

FIRE PLAN TIME DATA — Card: 21d

ID	Parameter	Units	Format	Columns	Description
A	TMXFP(1,11)	---	F8.2	1-8	Eleventh fire plan identification number
B	TMXFP(2,11)	minutes	F8.2	9-16	Time at which fire plan will be force-processed by Division or Corps FDC
C	TMXFP(3,11)	minutes	F8.2	17-24	Time at which fire plan will be force-processed by battalion FDC
D	TMXFP(1,12)	---	F8.2	25-32	Twelfth fire plan identification number
E	TMXFP(2,12)	minutes	F8.2	33-40	Time at which fire plan will be force-processed by Division or Corps FDC
F	TMXFP(3,12)	minutes	F8.2	41-48	Time at which fire plan will be force-processed by battalion FDC
G	TMXFP(1,13)	---	F8.2	49-56	Thirteenth fire plan identification number
H	TMXFP(2,13)	minutes	F8.2	57-64	Time at which fire plan will be force-processed by Division or Corps FDC
I	TMXFP(3,13)	minutes	F8.2	65-72	Time at which fire plan will be force-processed by battalion FDC

Card: 21d

FIRE PLAN TIME DATA | Card: 21d

	A	B	C	D	E	F	G	H	I	J
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21	22 23 24 25 26 27	28 29 30 31 32 33	34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
J	TMXFP(1,14)	---	F8.2	73-80	Fourteenth fire plan identification number NOTE: This card is required when more than 10 fire plans have been specified on card type 20.

Card: 21d

FIRE PLAN TIME DATA

Card: 21e

	A	B	C	D	E
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40

ID	Parameter	Units	Format	Columns	Description
A	TMXFP(2,14)	minutes	F8.2	1-8	Time at which fourteenth fire plan will be force-processed by Division or Corps FDC
B	TMXFP(3,14)	minutes	F8.2	9-16	Time at which fourteenth fire plan will be force-processed by battalion FDC
C	TMXFP(1,15)	---	F8.2	17-24	Fifteenth fire plan identification number
D	TMXFP(2,15)	minutes	F8.2	25-32	Time at which fire plan will be force-processed by Division or Corps FDC
E	TMXFP(3,15)	minutes	F8.2	33-40	Time at which fire plan will be force-processed by battalion FDC NOTE: This card is required when more than 13 but not more than 15 fire plans have been specified on card type 20.

Card: 21e

NUMBER OF COMMUNICATIONS JAMS					Card: 22
	A				
ID	Parameter	Units	Format	Columns	Description
A	NZAP	---	I5	1-5	Number of enemy communications jams (current maximum value of 5)

Card: 22

COMMUNICATIONS JAM TIMES | Card: 23

ID	Parameter	Units	Format	Columns	Description
A	EW(1,1)	minutes	F8.2	1-8	Start time of first enemy communications jam
B	EW(2,1)	minutes	F8.2	9-16	Stop time of first enemy communications jam
C	EW(1,2)	minutes	F8.2	17-24	Start time of second enemy communications jam
D	EW(2,2)	minutes	F8.2	25-32	Stop time of second enemy communications jam
E	EW(1,3)	minutes	F8.2	33-40	Start time of third enemy communications jam
F	EW(2,3)	minutes	F8.2	41-48	Stop time of third enemy communications jam
G	EW(1,4)	minutes	F8.2	49-56	Start time of fourth enemy communications jam
H	EW(2,4)	minutes	F8.2	57-64	Stop time of fourth enemy communications jam
I	EW(1,5)	minutes	F8.2	65-72	Start time of fifth enemy communications jam
J	EW(2,5)	minutes	F8.2	73-80	Stop time of fifth enemy communications jam

Card: 23

NUMBER OF DIFFERENT WEAPON SYSTEMS					Card: 24
	A B				
ID	Parameter	Units	Format	Columns	Description
A	NSYS	---	I5	1-5	Number of different Red and Blue weapon systems in input data deck (current maximum value of 20)
B	NSYSE	---	I5	6-10	Number of different Red weapon systems played in this run of the program

Card: 24

WEAPON SYSTEMS SELECTION — Card: 25a

ID	Parameter	Units	Format	Columns	Description
A	KSIG(1)	---	I5	1-5	Flag for first weapon system = (1. used; =0, do not use)
B	KSIG(2)	---	I5	6-10	Flag for second weapon system = (1. used; =0, do not use)
C	KSIG(3)	---	I5	11-15	Flag for third weapon system = (1. used; =0, do not use)
D	KSIG(4)	---	I5	16-20	Flag for fourth weapon system = (1. used; =0, do not use)
E	KSIG(5)	---	I5	21-25	Flag for fifth weapon system = (1. used; =0, do not use)
F	KSIG(6)	---	I5	26-30	Flag for sixth weapon system = (1. used; =0, do not use)
G	KSIG(7)	---	I5	31-35	Flag for seventh weapon system = (1. used; =0, do not use)
H	KSIG(8)	---	I5	36-40	Flag for eighth weapon system = (1. used; =0, do not use)
I	KSIG(9)	---	I5	41-45	Flag for ninth weapon system = (1. used; =0, do not use)
J	KSIG(10)	---	I5	46-50	Flag for tenth weapon system = (1. used; =0, do not use)

Card: 25a

WEAPON SYSTEMS SELECTION — Card: 25a

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62 63 64 65	66 67 68 69 70	71 72 73 74 75	76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
K	KSIG(11)	---	I5	51-55	Flag for eleventh weapon system (=1. used; =0, do not use)
L	KSIG(12)	---	I5	56-60	Flag for twelfth weapon system (=1. used; =0, do not use)
M	KSIG(13)	---	I5	61-65	Flag for thirteenth weapon system (=1. used; =0, do not use)
N	KSIG(14)	---	I5	66-70	Flag for fourteenth weapon system (=1. used; =0, do not use)
O	KSIG(15)	---	I5	71-75	Flag for fifteenth weapon system (=1. used; =0, do not use)
P	KSIG(16)	---	I5	76-80	Flag for sixteenth weapon system (=1. used; =0, do not use)
					NOTE: Current dimensions of some system data arrays require that not more than 11 of the KSIG values be equal to 1. The first N systems must be Blue; the next NSYS-N systems must be Red.

Card: 25a

WEAPON SYSTEMS SELECTION | Card: 25b

A B C D

ID	Parameter	Units	Format	Columns	Description
A	KSIG(17)	---	I5	1-5	Flag for seventeenth weapon system (=1. used; =0, do not use)
B	KSIG(18)	---	I5	6-10	Flag for eighteenth weapon system (=1. used; =0, do not use)
C	KSIG(19)	---	I5	11-15	Flag for nineteenth weapon system (=1. used; =0, do not use)
D	KSIG(20)	---	I5	16-20	Flag for twentieth weapon system (=1. used; =0, do not use) NOTE: This card required when more than 16 but not more than 20 weapon systems have been specified on card type 24.

Card: 25b

WEAPON SYSTEM TITLE — Card: 26a

ID	Parameter	Units	Format	Columns	Description
A	SRDIX(1)	---	A5	1-5	Alphanumeric weapon system title
B	SRDIX(2)	---	A5	6-10	
C	SRDIX(3)	---	A5	11-15	
.	.	.	.	.	
.	.	.	.	.	
.	.	.	.	.	
O	SRDIX(15)	---	A5	71-75	
P	SRDIX(16)	---	A5	76-80	

NOTE: A card of this type is required for each different weapon system in the input data deck. Maximum number of cards of this type is 20. Each one of these cards must be followed by card types 26b, 26c, 26d, and 26e, in that order (one of each type).

Card: 26a

WEAPON SYSTEM DATA					Card: 26b
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40

	F 41 42 43 44 45 46 47 48	G 49 50 51 52 53 54 55 56	H 57 58 59 60 61 62 63 64	I 65 66 67 68 69 70 71 72	J 73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	SYSID(I)	---	F8.2	1-8	Identification number for i^{th} system (xx.1 = towed; xx.2 = self-propelled unarmored; xx.3 = self-propelled armored)
B	TPFU(I)	---	F8.2	9-16	Number of tubes or launchers per fire unit for i^{th} system
C	SROF(I)	rounds per minute	F8.2	17-24	Static rate of fire per tube for i^{th} system
D	DROF(I)	rounds per minute	F8.2	25-32	Dynamic rate of fire per tube for i^{th} system
E	HNMX(I)	rounds per tube per hour	F8.2	33-40	Maximum number of rounds per tube per hour for i^{th} system (for Red systems, this is the number of tubes per launcher; i.e., 1 for cannon, 40 for 122-mm MRL, etc.)
F	STYP(I)	---	F8.2	41-48	Weapon system type (1.0 = cannon; 2.0 = guided missile; = 3.0, multiple rocket launcher)
G	RNGMAX(I)	kilo-meters	F8.2	49-56	Maximum range of i^{th} system
H	AXVOL(I)	---	F8.2	57-64	Maximum number of volleys per mission per battery for i^{th} system

Card: 26b

WEAPON SYSTEM DATA | Card: 26b

ID	Parameter	Units	Format	Columns	Description
I	TBM(I)	minutes	F8.2	65-72	Time between fire missions for i^{th} system
J	SBLD(I)	---	F8.2	73-80	Number of rounds in basic load per battery for i^{th} system. NOTE: Maximum number of cards of this type is 20. Each card of this type must be preceded by a type 26a card, and followed by card type 26c, 26d, and 26e in that order (one of each type).

Card: 26b

WEAPON SYSTEM DATA — Card: 26c

ID	Parameter	Units	Format	Columns	Description
A	SRSPY(I)	---	F8.2	1-8	Battery resupply rate in rounds per hour for i^{th} system
B	FPVOL(I)	---	F8.2	9-16	Maximum number of volleys per battery on a fire plan target for i^{th} system
C	FPRAT(I)	---	F8.2	17-24	Ratio of volleys per battery for i^{th} system compared to a base system (155-mm is base system); For Red force, this gives number of 122-mm HE rounds equivalent to one of this system's rounds
D	TBFPM(I)	minutes	F8.2	25-32	Time between fire plans for i^{th} system
E	TUBMIN(I)	---	F8.2	33-40	Minimum number of tubes per battery for battery to be considered available for i^{th} system
F	TRFFS(I)	hours	F8.2	41-48	Short-term time to repair a failure due to firing
G	TRFFL(I)	hours	F8.2	49-56	Long-term time to repair a failure due to firing
H	TRFMS(I)	hours	F8.2	57-64	Short-term time to repair a failure due to moving
I	TRFML(I)	hours	F8.2	65-72	Long-term time to repair a failure due to moving

Card: 26c

WEAPON SYSTEM DATA					Card: 26c
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
J	TRFAS(I)	hours	F8.2	73-80	Short-term time to repair a failure due to enemy attrition NOTE: Maximum number of cards of this type is 20. Each card of this type must be preceded by card types 26a and 26b and followed by card types 26d and 26e in that order (one of each type).

Card: 26c

WEAPON SYSTEM DATA

Card: 26d

	A	B	C	D	E	F	G	H	I	J
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	TRFAL(I)	hours	F8.2	1-8	Long-term time to repair a failure due to enemy attrition
B	RBFS(I)	---	F8.2	9-16	Number of rounds between short-term failures
C	RBFL(I)	---	F8.2	17-24	Number of rounds between long-term failures
D	RBFP(I)	---	F8.2	25-32	Number of rounds between permanent failures
E	DBFS(I)	kilo-meters	F8.2	33-40	Distance traveled between short-term failures
F	DBFL(I)	kilo-meters	F8.2	41-48	Distance traveled between long-term failures
G	DBFP(I)	kilo-meters	F8.2	49-56	Distance traveled between permanent failures
H	ETCT(I)	hours	F8.2	57-64	Expected time to change tube when tube life is exceeded
I	TUBLIF(I)	---	F8.2	65-72	Tube life in number of rounds fired

Card: 26d

WEAPON SYSTEM DATA

Card: 26d

	A	B	C	D	E	F	G	H	I	J
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
J	TOTATR(I)	---	F8.3	73-80	Fractional tube damage enemy counterfire (five battalion volleys of a weighted ammo mix) would inflict on a Blue battery having this system NOTE: Maximum number of cards of this type is 20. Each card of this type must be preceded by card types 26a, 26b, and 26c, and followed by card type 26e, in that order (one of each type).

Card: 26d

WEAPON SYSTEM DATA					Card: 26e
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	
ID	Parameter	Units	Format	Columns	Description
A	CBDAMS(I)	---	F8.3	1-8	Fraction of TOTATR(I) value that would be short-term tube damage
B	CBDAML(I)	---	F8.3	9-16	Fraction of TOTATR(I) value that would be long-term tube damage
C	CBDAMP(I)	---	F8.3	17-24	Fraction of TOTATR(I) value that would be permanent tube damage
					NOTE: Maximum number of cards of this type is 20. Each card of this type must be preceded by card types 26a, 26b, 26c, and 26d, in that order (one of each type).

Card: 26e

NUMBER OF ROUND TYPES					Card: 27
	A				
ID	Parameter	Units	Format	Columns	Description
A	NRS	---	I5	1-5	Number of round types to be read from punched cards NOTE: Current maximum number of rounds used by the systems, keyed in by KSIG array in Subroutine SYSTEM, is 25. There may be an unlimited number of different rounds in the input deck, as long as not more than 25 are used in any one force mix.

Card: 27

ROUND AND WEAPON SYSTEM IDENTIFICATION

Card: 28

A B C D E F G H I J K L M N O P

ID	Parameter	Units	Format	Columns	Description
A	SRDIX(1)	---	A5	1-5	Alphanumeric round name and weapon system identification
B	SRDIX(2)	---	A5	6-10	
C	SRDIX(3)	---	A5	11-15	
.	.	.	.	.	
.	.	.	.	.	
.	.	.	.	.	
O	SRDIX(15)	---	A5	71-75	
P	SRDIX(16)	---	A5	76-80	

NOTE: The number of cards required is based on the value of NRS as entered on card type 27 (maximum value of 25). Each card of this type must be followed by a type 29 card.

Card: 28

ROUND INFORMATION (ALL TYPES)					Card: 29
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
A B	RNDID(I)	---	F8.2	1-8	Round caliber ID number for i^{th} round type in a particular system (SYSID(IS) < RNDID(I) < 100 + SYSID(IS) in order that round I be included for use with system IS)
C	WGT(I)	metric tons	F8.2	9-16	Crated unit weight for i^{th} round type
D	CST(I)	kilo-dollars	F8.2	17-24	Cost per round in thousands of dollars for i^{th} round type
E	RMX(I)	kilo-meters	F8-2	25-32	Maximum range of i^{th} round type
F	REL(I)	---	F8.2	33-40	In-flight reliability of i^{th} round type
G	RTP(I)	---	F8.2	41-48	Type of round (1.0 = ICM; 2.0 = HE; 3.0 = CLGP)
H	BLD(I)	rounds	F8.2	49-56	Basic load per battery for i^{th} round type
I	RGPY(I)	rounds per hr	F8.2	57-64	Resupply rate per battery for i^{th} round type
	RDAM(I)	meters	F8.2	65-72	Estimated radius of effects per battery volley for i^{th} round type NOTE: The number of cards required is based on the value of NRS as entered on card type 27. Each card of this type must be preceded by a type 28 card. Maximum number of cards of this type is 25.

Card: 29

ROUND INFORMATION (ICM AND HE TYPES)					Card: 30a
ID	Parameter	Units	Format	Columns	Description
A	RG(I,1)	kilo-meters	F8.2	1-8	First range value for range versus error and EFC tables for i^{th} round type
B	RG(I,2)	kilo-meters	F8.2	9-16	Second range value for range versus error and EFC tables for i^{th} round type
C	RG(I,3)	kilo-meters	F8.2	17-24	Third range value for range versus error and EFC tables for i^{th} round type
D	RG(I,4)	kilo-meters	F8.2	25-32	Fourth range value for range versus error and EFC tables for i^{th} round type
E	RG(I,5)	kilo-meters	F8.2	33-40	Fifth range value for range versus error and EFC tables for i^{th} round type
F	RG(I,6)	kilo-meters	F8.2	41-48	Sixth range value for range versus error and EFC tables for i^{th} round type
G	RG(I,7)	kilo-meters	F8.2	49-56	Seventh range value for range versus error and EFC tables for i^{th} round type
H	RG(I,8)	kilo-meters	F8.2	57-64	Eighth range value for range versus error and EFC tables for i^{th} round type
I	RG(I,9)	kilo-meters	F8.2	65-72	Ninth range value for range versus error and EFC tables for i^{th} round type

Card: 30a

ROUND INFORMATION (ICM AND HE TYPES)					Card: 30a
ID	Parameter	Units	Format	Columns	Description
J	RG(I,10)	kilo-meters	F8.2	73-80	Tenth range value for range versus error and EFC tables for i^{th} round type NOTE: The number of cards required is based on the number of cards of card type 29 that have specified ICM or HE rounds. Each card of this type must be preceded by a type 28 and type 29 card, in that order. It is not required that all 10 ranges be used; however, the range values must be in ascending order, with the last range value equal to the maximum range of the round.

Card: 30a

ROUND INFORMATION (ICM AND HE TYPES) — Card: 30b

ID	Parameter	Units	Format	Columns	Description
A	CPR(I,1)	meters	F8.2	1-8	Round-to-round error at first range value (CPE)
B	CPR(I,2)	meters	F8.2	9-16	Round-to-round error at second range value (CPE)
C	CPR(I,3)	meters	F8.2	17-24	Round-to-round error at third range value (CPE)
D	CPR(I,4)	meters	F8.2	25-32	Round-to-round error at fourth range value (CPE)
E	CPR(I,5)	meters	F8.2	33-40	Round-to-round error at fifth range value (CPE)
F	CPR(I,6)	meters	F8.2	41-48	Round-to-round error at sixth range value (CPE)
G	CPR(I,7)	meters	F8.2	49-56	Round-to-round error at seventh range value (CPE)
H	CPR(I,8)	meters	F8.2	57-64	Round-to-round error at eighth range value (CPE)
I	CPR(I,9)	meters	F8.2	65-72	Round-to-round error at ninth range value (CPE)
J	CPR(I,10)	meters	F8.2	73-80	Round-to-round error at tenth range value (CPE)
					NOTE: The number of cards required is based on the number of cards of card type 29 that have specified ICM or HE rounds. Each card of this type must be preceded by a type 28, type 29, and type 30a card, in that order.

Card: 30b

ROUND INFORMATION (ICM AND HE TYPES)					Card: 30C
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
A	CPS(I,1)	meters	F8.2	1-8	Total system error at first range value
B	CPS(I,2)	meters	F8.2	9-16	Total system error at second range value
C	CPS(I,3)	meters	F8.2	17-24	Total system error at third range value
D	CPS(I,4)	meters	F8.2	25-32	Total system error at fourth range value
E	CPS(I,5)	meters	F8.2	33-40	Total system error at fifth range value
F	CPS(I,6)	meters	F8.2	41-48	Total system error at sixth range value
G	CPS(I,7)	meters	F8.2	49-56	Total system error at seventh range value
H	CPS(I,8)	meters	F8.2	57-64	Total system error at eighth range value
I	CPS(I,9)	meters	F8.2	65-72	Total system error at ninth range value
J	CPS(I,10)	meters	F8.2	73-80	Total system error at tenth range value
					NOTE: The number of cards required is based on the number of cards of card type 29 that have specified ICM or HE rounds. Each card of this type must be preceded by a type 28, type 29, type 30a, and type 30b card, in that order.

Card: 30c

ROUND INFORMATION (ICM AND HE TYPES)					Card: 30d
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
A	CHG(I,1)	---	F8.2	1-8	Equivalent full charge value at first range value
B	CHG(I,2)	---	F8.2	9-16	Equivalent full charge value at second range value
C	CHG(I,3)	---	F8.2	17-24	Equivalent full charge value at third range value
D	CHG(I,4)	---	F8.2	25-32	Equivalent full charge value at fourth range value
E	CHG(I,5)	---	F8.2	33-40	Equivalent full charge value at fifth range value
F	CHG(I,6)	---	F8.2	41-48	Equivalent full charge value at sixth range value
G	CHG(I,7)	---	F8.2	49-56	Equivalent full charge value at seventh range value
H	CHG(I,8)	---	F8.2	57-64	Equivalent full charge value at eighth range value
I	CHG(I,9)	---	F8.2	65-72	Equivalent full charge value at ninth range value
J	CHG(I,10)	---	F8.2	73-80	Equivalent full charge value at tenth range value
					NOTE: The number of cards required is based on the number of cards of card type 29 that have specified ICM or HE rounds. Each card of this type must be preceded by a type 28, type 29, type 30a, type 30b, and type 30c card, in that order.

Card: 30d

LETHAL AREAS (HE ONLY) — Card: 31

ID	Parameter	Units	Format	Columns	Description
A	AL(1)	meters^2	F8.2	1-8	Lethal area per round versus standing personnel target at first range value in an open environment
B	AL(2)	meters^2	F8.2	9-16	Lethal area per round versus standing personnel target at second range value in an open environment
C	AL(3)	meters^2	F8.2	17-24	Lethal area per round versus standing personnel target at third range value in an open environment
D	AL(4)	meters^2	F8.2	25-32	Lethal area per round versus standing personnel target at fourth range value in an open environment
E	AL(5)	meters^2	F8.2	33-40	Lethal area per round versus standing personnel target at fifth range value in an open environment
F	AL(6)	meters^2	F8.2	41-48	Lethal area per round versus standing personnel target at sixth range value in an open environment
G	AL(7)	meters^2	F8.2	49-56	Lethal area per round versus standing personnel target at seventh range value in an open environment
H	AL(8)	meters^2	F8.2	57-64	Lethal area per round versus standing personnel target at eighth range value in an open environment
I	AL(9)	meters^2	F8.2	65-72	Lethal area per round versus standing personnel target at ninth range value in an open environment

Card: 31

LETHAL AREAS (HE ONLY)					Card: 31
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
	F 49 50 51 52 53 54 55 56	G 57 58 59 60 61 62 63 64	H 65 66 67 68 69 70 71 72	I 73 74 75 76 77 78 79 80	J

ID	Parameter	Units	Format	Columns	Description
J	AL(10)	meters^2	F8.2	73-80	Lethal area per round versus standing personnel target at tenth range value in an open environment NOTE: Each time an HE round is specified on card type 29, either 9, 18, 27, or 36 cards of type 31 are required. The number of cards depends on the value of NEV entered on card type 12. Table 3-11 lists the 36 cards of this type that may be required. These cards must be preceded by a type 30d card.

Card: 31

TABLE 3-11. Lethal Area Data Cards for HE Rounds (Card Type 31).

1	AL(J), J = 1, 10	Lethal area per round versus personnel standing target at 10 range values for an open environment
2	AL(J), J = 11, 20	Lethal area per round versus personnel prone target at 10 range values for an open environment
3	AL(J), J = 21, 30	Lethal area per round versus personnel crouching target at 10 range values for an open environment
4	AL(J), J = 31, 40	Lethal area per round versus tank target at 10 range values for an open environment; for Red rounds, the lethal area per round versus whatever Blue 105-mm system is played at 10 range values in an open environment
5	AL(J), J = 41, 50	Lethal area per round versus APC target at 10 range values for an open environment; for Red rounds, the lethal area per round versus whatever Blue towed 155-mm system is played at 10 range values in an open environment
6	AL(J), J = 51, 60	Lethal area per round versus truck target at 10 range values for an open environment; for Red rounds, the lethal area per round versus whatever Blue self-propelled, armored 155-mm system is played at 10 range values in an open environment
7	AL(J), J = 61, 70	Lethal area per round versus artillery tube target at 10 range values for an open environment; for Red rounds, the lethal area per round versus a Blue self-propelled, unarmored 8-inch or 175-mm system (whichever is played) at 10 range values in an open environment

TABLE 3-11. Lethal Area Data Cards for HE Rounds (Card Type 31) -- Contd.

8.	AL(J), J = 71, 80	Lethal area per round versus radar target at 10 range values for an open environment; for Red rounds, the lethal area per round versus a Blue missile or rocket launcher (whichever is played) at 10 range values in an open environment
9.	AL(J), J = 81, 90	Lethal area per round versus missile launcher target at 10 range values for an open environment; leave blank for Red rounds
10.	AL(J), J = 91, 100	Lethal area per round versus personnel standing target at 10 range values for a wooded environment
11.	AL(J), J = 101, 110	Lethal area per round versus personnel prone target at 10 range values for a wooded environment
12.	AL(J), J = 111, 120	Lethal area per round versus personnel crouching target at 10 range values for a wooded environment
13.	AL(J), J = 121, 130	Lethal area per round versus tank target at 10 range values for a wooded environment; for Red rounds, the lethal area per round versus whatever Blue 105-mm system is played at 10 range values in a wooded environment
14.	AL(J), J = 131, 140	Lethal area per round versus APC target at 10 range values for a wooded environment; for Red rounds, the lethal area per round versus whatever Blue towed 155-mm system is played at 10 range values in a wooded environment
15.	AL(J), J = 141, 150	Lethal area per round versus truck target at 10 range values for a wooded environment; for Red rounds, the lethal area per round versus whatever Blue self-propelled, armored 155-mm system is played at 10 range values in a wooded environment

TABLE 3-11. Lethal Area Data Cards for HE Rounds (Card Type 31) -- Contd.

16.	AL(J), J = 151, 160	Lethal area per round versus artillery tube target at 10 range values for a wooded environment; for Red rounds, the lethal area per round versus a Blue self-propelled, unarmored 8-inch or 175-mm system (whichever is played) at 10 range values in a wooded environment
17.	AL(J), J = 161, 170	Lethal area per round versus radar target at 10 range values for a wooded environment; for Red rounds, the lethal area per round versus a Blue missile or rocket launcher (whichever is played) at 10 range values in a wooded environment
18.	AL(J), J = 171, 180	Lethal area per round versus missile launcher target at 10 range values for a wooded environment; leave blank for Red rounds
19.	AL(J), J = 181, 190	Lethal area per round versus personnel standing target at 10 range values for a town environment
20.	AL(J), J = 191, 200	Lethal area per round versus personnel prone target at 10 range values for a town environment
21.	AL(J), J = 201, 210	Lethal area per round versus personnel crouching target at 10 range values for a town environment
22.	AL(J), J = 211, 220	Lethal area per round versus tank target at 10 range values for a town environment; for Red rounds, the lethal area per round versus whatever Blue 105-mm system is played at 10 range values in a town environment
23.	AL(J), J = 221, 230	Lethal area per round versus APC target at 10 range values for a town environment; for Red rounds, the lethal area per round versus whatever Blue towed 155-mm system is played at 10 range values in a town environment

TABLE 3-11. Lethal Area Data Cards for HE Rounds (Card Type 31) -- Contd.

24.	AL(J), J = 231, 240	Lethal area per round versus truck target at 10 range values for a town environment; for Red rounds, the lethal area per round versus whatever Blue self-propelled, armored 155-mm system is played at 10 range values in a town environment
25.	AL(J), J = 241, 250	Lethal area per round versus artillery tube target at 10 range values for a town environment; for Red rounds, the lethal area per round versus a Blue self-propelled, unarmored 8-inch or 175-mm system (whichever is played) at 10 range values in a town environment
26.	AL(J), J = 251, 260	Lethal area per round versus radar target at 10 range values for a town environment; for Red rounds, the lethal area per round versus a Blue missile or rocket launcher (whichever is played) at 10 range values in a town environment
27.	AL(J), J = 261, 270	Lethal area per round versus missile launcher target at 10 range values for a town environment; leave blank for Red rounds
28.	AL(J), J = 271, 280	Lethal area per round versus personnel standing target at 10 range values for a grassy environment
29.	AL(J), J = 281, 290	Lethal area per round versus personnel prone target at 10 range values for a grassy environment
30.	AL(J), J = 291, 300	Lethal area per round versus personnel crouching target at 10 range values for a grassy environment

TABLE 3-11. Lethal Area Data Cards for HE Rounds (Card Type 31) -- Concld.

31.	AL(J), J = 301, 310	Lethal area per round versus tank target at 10 range values for a grassy environment; for Red rounds, the lethal area per round versus whatever Blue 105-mm system is played at 10 range values in a grassy environment
32.	AL(J), J = 311, 320	Lethal area per round versus APC target at 10 range values for a grassy environment; for Red rounds, the lethal area per round versus whatever Blue towed 155-mm system is played at 10 range values in a grassy environment
33.	AL(J), J = 321, 330	Lethal area per round versus truck target at 10 range values for a grassy environment; for Red rounds, the lethal area per round versus whatever Blue self-propelled, armored 155-mm system is played at 10 range values in a grassy environment
34.	AL(J), J = 331, 340	Lethal area per round versus artillery tube target at 10 range values for a grassy environment; for Red rounds, the lethal area per round versus a Blue self-propelled, unarmored 8-inch or 175-mm system (whichever is played) at 10 range values in a grassy environment
35.	AL(J), J = 341, 350	Lethal area per round versus radar target at 10 range values for a grassy environment; for Red rounds, the lethal area per round versus a Blue missile or rocket launcher (whichever is played) at 10 range values in a grassy environment
36.	AL(J), J = 351, 360	Lethal area per round versus missile launcher target at 10 range values for a grassy environment; leave blank for Red rounds

ICM ROUND DATA					Card: 32
	A	B	C	D	E	F	G
ID	Parameter	Units	Format	Columns	Description
A	SRE	meters per kilometers	F8.2	1-8	Slope for radius of effects plot
B	REZ	meters	F8.2	9-16	y-intercept of radius of effects plot
C	SRO	---	F8.2	17-24	Submissile reliability in an open environment
D	SRW	---	F8.2	25-32	Submissile reliability in a wooded environment
E	SRT	---	F8.2	33-40	Submissile reliability in a town environment
F	SRG	---	F8.2	41-48	Submissile reliability in a grassy environment
G	EN	---	F8.2	49-56	Number of submissiles per round
					NOTE: Each time an ICM round is specified on card type 29, a card of this type is required. It must be preceded by a type 30d card.

Card: 32

ICM LETHAL AREAS IN OPEN ENVIRONMENT					Card: 33
ID	Parameter	Units	Format	Columns	Description
A	AL(1)	meters^2	F8.2	1-8	Lethal area per submissile for standing personnel target in an open environment
B	AL(2)	meters^2	F8.2	9-16	Lethal area per submissile for prone personnel target in an open environment
C	AL(3)	meters^2	F8.2	17-24	Lethal area per submissile for crouching personnel target in an open environment
D	AL(4)	meters^2	F8.2	25-32	Lethal area per submissile for tank target in an open environment
E	AL(5)	meters^2	F8.2	33-40	Lethal area per submissile for APC target in an open environment
F	AL(6)	meters^2	F8.2	41-48	Lethal area per submissile for truck target in an open environment
G	AL(7)	meters^2	F8.2	49-56	Lethal area per submissile for artillery tube target in an open environment
H	AL(8)	meters^2	F8.2	57-64	Lethal area per submissile for radar target in an open environment

Card: 33

ICM LETHAL AREAS IN OPEN ENVIRONMENT | Card: 33

ID	Parameter	Units	Format	Columns	Description
I	AL(9)	meters^2	F8.2	65-72	Lethal area per submissile for missile launcher target in an open environment NOTE: A card of this type is required whenever an ICM round is specified on card type 29. It must be preceded by a type 32 card.

Card: 33

ICM LETHAL AREAS IN WOODED ENVIRONMENT | Card: 34

ID	Parameter	Units	Format	Columns	Description
A	AL(10)	meters^2	F8.2	1-8	Lethal area per submissile for standing personnel target in wooded environment
B	AL(11)	meters^2	F8.2	9-16	Lethal area per submissile for prone personnel target in wooded environment
C	AL(12)	meters^2	F8.2	17-24	Lethal area per submissile for crouching personnel target in wooded environment
D	AL(13)	meters^2	F8.2	25-32	Lethal area per submissile for tank target in wooded environment
E	AL(14)	meters^2	F8.2	33-40	Lethal area per submissile for APC target in wooded environment
F	AL(15)	meters^2	F8.2	41-48	Lethal area per submissile for truck target in wooded environment
G	AL(16)	meters^2	F8.2	49-56	Lethal area per submissile for artillery tube target in wooded environment
H	AL(17)	meters^2	F8.2	57-64	Lethal area per submissile for radar target in wooded environment

Card: 34

ICM LETHAL AREAS IN WOODED ENVIRONMENT | Card: 34

ID	Parameter	Units	Format	Columns	Description
I	AL(18)	meters^2	F8.2	65-72	Lethal area per submissile for missile launcher target in wooded environment NOTE: A card of this type is required whenever an ICM round is specified on card type 29, and NEV $\geq$ 2 is specified on card type 12. It must be preceded by a type 33 card.

Card: 34

ICM LETHAL AREAS IN TOWN ENVIRONMENT					Card: 35
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40
	F 41 42 43 44 45 46 47 48	G 49 50 51 52 53 54 55 56	H 57 58 59 60 61 62 63 64	I 65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	AL(19)	meters^2	F8.2	1-8	Lethal area per submissile for standing personnel target in town environment
B	AL(20)	meters^2	F8.2	9-16	Lethal area per submissile for prone personnel target in town environment
C	AL(21)	meters^2	F8.2	17-24	Lethal area per submissile for crouching personnel target in town environment
D	AL(22)	meters^2	F8.2	25-32	Lethal area per submissile for tank target in town environment
E	AL(23)	meters^2	F8.2	33-40	Lethal area per submissile for APC target in town environment
F	AL(24)	meters^2	F8.2	41-48	Lethal area per submissile for truck target in town environment
G	AL(25)	meters^2	F8.2	49-56	Lethal area per submissile for artillery tube target in town environment
H	AL(26)	meters^2	F8.2	57-64	Lethal area per submissile for radar target in town environment

Card: 35

ICM LETHAL AREAS IN TOWN ENVIRONMENT

Card: 35

ID	Parameter	Units	Format	Columns	Description
I	AL(27)	meters^2	F8.2	65-72	Lethal area per submissile for missile launcher target in town environment NOTE: A card of this type is required whenever an ICM round is specified on card type 29, and NEV $\geq$ 3 is specified on card type 12. It must be preceded by a type 34 card.

Card: 35

ICM LETHAL AREAS IN GRASSY ENVIRONMENT					Card: 36
ID	Parameter	Units	Format	Columns	Description
A	AL(28)	meters^2	F8.2	1-8	Lethal area per submissile for standing personnel target in grassy environment
B	AL(29)	meters^2	F8.2	9-16	Lethal area per submissile for prone personnel target in grassy environment
C	AL(30)	meters^2	F8.2	17-24	Lethal area per submissile for crouching personnel target in grassy environment
D	AL(31)	meters^2	F8.2	25-32	Lethal area per submissile for tank target in grassy environment
E	AL(32)	meters^2	F8.2	33-40	Lethal area per submissile for APC target in grassy environment
F	AL(33)	meters^2	F8.2	41-48	Lethal area per submissile for truck target in grassy environment
G	AL(34)	meters^2	F8.2	49-56	Lethal area per submissile for artillery tube target in grassy environment
H	AL(35)	meters^2	F8.2	57-64	Lethal area per submissile for radar target in grassy environment

Card: 36

ICM LETHAL AREAS IN GRASSY ENVIRONMENT | Card: 36

A | B | C | D | E | F | G | H | I

ID	Parameter	Units	Format	Columns	Description
I	AL(36)	meters^2	F8.2	65-72	Lethal area per submissile for missile launcher target in grassy environment NOTE: A card of this type is required whenever an ICM round is specified on card type 29, and NEV = 4 is specified on card type 12. It must be preceded by a type 35 card.

Card: 36

NUMBER OF INTERPOLATION POINTS FOR CLGP ROUND					Card: 37
	A				
ID	Parameter	Units	Format	Columns	Description
A	NIP	---	I5	1-5	Number of interpolation points for CLGP data (current maximum value of 15) NOTE: A card of this type is required whenever a CLGP round is specified on card type 29. It must be preceded by a type 29 card specifying this round type.

Card: 37

CLGP DATA | Card: 38

ID	Parameter	Units	Format	Columns	Description
A	TFK(J)	minutes	F8.2	1-8	Time available to fire CLGP (j^{th} interpolation point)
B	XNRF(J)	---	F8.2	9-16	Number of CLGP's fired within time available interval based on 2 tubes (j^{th} interpolation point)
C	VK1(J)	---	F8.2	17-24	Number of tanks destroyed within time available interval (j^{th} interpolation point)
D	VK2(J)	---	F8.2	25-32	Number of APCs destroyed within time available interval (j^{th} interpolation point)
E	VK3(J)	---	F8.2	33-40	Number of trucks destroyed within time available interval (j^{th} interpolation point)
					NOTE: The number of cards of this type is determined by the value of NIP specified on a card type 37, which must precede these cards (15 cards maximum). The last card of this type 38 set must be followed by a type 39 and type 40 card, in that order. Cards of this set must be ordered by increasing TFK values.

Card: 38

CLGP RANGE VALUES					Card: 39
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40
	F 41 42 43 44 45 46 47 48	G 49 50 51 52 53 54 55 56	H 57 58 59 60 61 62 63 64	I 65 66 67 68 69 70 71 72	J 73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	RG(I,1)	kilo-meters	F8.2	1-8	First range value for range versus EFC table for i^{th} round type
B	RG(I,2)	kilo-meters	F8.2	9-16	Second range value for range versus EFC table for i^{th} round type
C	RG(I,3)	kilo-meters	F8.2	17-24	Third range value for range versus EFC table for i^{th} round type
D	RG(I,4)	kilo-meters	F8.2	25-32	Fourth range value for range versus EFC table for i^{th} round type
E	RG(I,5)	kilo-meters	F8.2	33-40	Fifth range value for range versus EFC table for i^{th} round type
F	RG(I,6)	kilo-meters	F8.2	41-48	Sixth range value for range versus EFC table for i^{th} round type
G	RG(I,7)	kilo-meters	F8.2	49-56	Seventh range value for range versus EFC table for i^{th} round type
H	RG(I,8)	kilo-meters	F8.2	57-64	Eighth range value for range versus EFC table for i^{th} round type

Card: 39

CLGP RANGE VALUES — Card: 39

ID	Parameter	Units	Format	Columns	Description
I	RG(I,9)	kilo-meters	F8.2	65-72	Ninth range value for range versus EFC table for i^{th} round type
J	RG(I,10)	kilo-meters	F8.2	73-80	Tenth range value for range versus EFC table for i^{th} round type NOTE: A Card of this type must follow a set of type 38 cards whenever a CLGP round is specified on card type 29.

Card: 39

EQUIVALENT FULL CHARGE VALUE AT EACH RANGE VALUE (CLGP)					Card: 40
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40	F 41 42 43 44 45 46 47 48	G 49 50 51 52 53 54 55 56	H 57 58 59 60 61 62 63 64	I 65 66 67 68 69 70 71 72	J 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
A	CHG(I,1)	---	F8.2	1-8	Equivalent full charge value at first range value for i^{th} round type
B	CHG(I,2)	---	F8.2	9-16	Equivalent full charge value at second range value for i^{th} round type
C	CHG(I,3)	---	F8.2	17-24	Equivalent full charge value at third range value for i^{th} round type
D	CHG(I,4)	---	F8.2	25-32	Equivalent full charge value at fourth range value for i^{th} round type
E	CHG(I,5)	---	F8.2	33-40	Equivalent full charge value at fifth range value for i^{th} round type
F	CHG(I,6)	---	F8.2	41-48	Equivalent full charge value at sixth range value for i^{th} round type
G	CHG(I,7)	---	F8.2	49-56	Equivalent full charge value at seventh range value for i^{th} round type
H	CHG(I,8)	---	F8.2	57-64	Equivalent full charge value at eighth range value for i^{th} round type

Card: 40

EQUIVALENT FULL CHARGE VALUE AT EACH RANGE VALUE (CLGP)					Card: 40
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
	F 49 50 51 52 53 54 55 56	G 57 58 59 60 61 62 63 64	H 65 66 67 68 69 70 71 72	I 73 74 75 76 77 78 79 80	J

ID	Parameter	Units	Format	Columns	Description
I	CHG(I,9)	---	F8.2	65-72	Equivalent full charge value at ninth range value for i^{th} round type
J	CHG(I,10)	---	F8.2	73-80	Equivalent full charge value at tenth range value for i^{th} round type NOTE: A card of this type must follow each type 39 card whenever a CLGP round is specified on card type 29.

Card: 40

NUMBER OF BLUE ARTILLERY BATTALIONS					Card: 41
	A				
ID	Parameter	Units	Format	Columns	Description
A	NBN	---	I5	1-5	Number of Blue artillery battalions in the game (current maximum value of 11)

Card: 41

FDC IDENTIFICATION DATA — Card: 42

A B C D E F G H I J K L M N O P

ID	Parameter	Units	Format	Columns	Description
A	NSITEF(I)	---	I5	1-5	Number of emplacements for i^{th} FDC (≤ 10)
B	NB	---	I5	6-10	Number of batteries assigned to i^{th} FDC (≤ 6)
C	BNXID(1)	---	A5	11-15	Alphanumeric description of i^{th} FDC
D	BNXID(2)	---	A5	16-20	
.	.	.	.	.	
.	.	.	.	.	
.	.	.	.	.	
O	BNXID(13)	---	A5	71-75	
P	BNXID(14)	---	A5	76-80	

NOTE: A maximum of 13 cards of this type may be required, based on the value of NBN entered on data card type 41. The first two cards of this type must specify that NB = 0. Each card is then followed by a type 43 card. All other cards of this type must be followed by either a type 43 or type 44 card. The first card of this type must be for the Division FDC, and the second card of this type must be for the Group FDC.

Card: 42

FDC EMPLACEMENT DATA (GROUP OR DIVISION)					Card: 43
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	TAF(J,I)	minutes	F8.2	1-8	Arrival time at j^{th} emplacement of i^{th} FDC
B	TDF(J,I)	minutes	F8.2	9-16	Departure time from j^{th} emplacement of i^{th} FDC
C	XSF(J,I)	kilo-meters	F8.2	17-24	x-coordinate of j^{th} emplacement of i^{th} FPC
D	YSF(J,I)	kilo-meters	F8.2	25-32	y-coordinate of j^{th} emplacement of i^{th} FPC
					NOTE: As many as 10 cards of this type may be required for Group and Division FDC units. The number of cards required is based on the value of NSITEF(I) specified on card type 42. This data type set must be preceded by a type 42 card. A set of this type data cards is required for both the Group and Division FDCs.

Card: 43

FRIENDLY BATTERY IDENTIFICATION DATA — Card: 44

ID	Parameter	Units	Format	Columns	Description
A	NSITE(I)	---	I5	1-5	Number of emplacements for i^{th} friendly battery
B	BNXID(1)	---	I5	6-10	Must be left blank
C	BNXID(2)	---	A5	11-15	Alphanumeric description of i^{th} Blue battery
D	BNXID(3)	---	A5	16-20	
.	.	.	.	.	
.	.	.	.	.	
.	.	.	.	.	
N	BNXID(13)	---	A5	66-70	
O	BNXID(14)	---	A5	71-75	

NOTE: Each card of this type must be preceded by a type 42 card and followed by a type 45 card. The maximum number of cards of this type is currently fixed at 33.

Card: 44

BATTERY IDENTIFICATION NUMBER					Card: 45
	A				
ID	Parameter	Units	Format	Columns	Description
A	BRYID(I)	---	F8.2	1-8	Identification number of i^{th} Blue battery (matches SYSID of this battery's weapon system) NOTE: Each card of this type must be preceded by a type 44 card and followed by a set of type 46 cards. The maximum number of cards of this type is currently fixed at 33.

Card: 45

BATTERY AND BATTALION EMPLACEMENT DATA					Card: 46
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
A	TA(J,I)	minutes	F8.2	1-8	Time of arrival at j^{th} emplacement of i^{th} Blue battery
B	TD(J,I)	minutes	F8.2	9-16	Time of departure from j^{th} emplacement for i^{th} Blue battery
C	XS(J,I)	kilo-meters	F8.2	17-24	x-coordinate of j^{th} emplacement for i^{th} Blue battery
D	YS(J,I)	kilo-meters	F8.2	25-32	y-coordinate of j^{th} emplacement for i^{th} Blue battery
E	DEPTH(J,I)	kilo-meters	F8.2	33-40	Distance from FEBA of j^{th} emplacement for i^{th} Blue battery (recalculated in program and may be left blank on card) NOTE: A set (10 cards maximum) must follow each type 45 card of the input data deck. The maximum number of sets of this type card is currently fixed at 33.

Card: 46

ROUND IDS PER ENVIRONMENT					Card: 47
ID	Parameter	Units	Format	Columns	Description
A	NP	---	I5	1-5	Posture identification number
B	NRO(J)	---	I5	6-10	Number of round types allowed for j^{th} posture in an open environment
C	NRW(J)	---	I5	11-15	Number of round types allowed for j^{th} posture in a wooded environment
D	NRT(J)	---	I5	16-20	Number of round types allowed for j^{th} posture in a town environment (=0 if NEV <3)
E	NRG(J)	---	I5	21-25	Number of round types allowed for j^{th} posture in a grassy environment (=0 if NEV = 3)
					NOTE: The maximum number of cards of this type is 10, one card for each of the 10 estimated postures in the game. Each card of this type must be followed by from one to five type 48 cards, depending upon the value of NRO(J) entered in columns 6-10 of this card. For personnel postures NRO = NRW = NRT = NRG = 1. The program ignores these values, but it is necessary to read in at least one round type for each environment and personnel posture.

Card: 47

ROUND IDS FOR Jth POSTURE FOR AN OPEN ENVIRONMENT | Card: 48

A B C D E F G H I J

ID	Parameter	Units	Format	Columns	Description
A	ORVM(1,J)	---	F8.2	1-8	First round ID for an open environment for jth posture
B	ORVM(2,J)	---	F8.2	9-16	Second round ID for an open environment for jth posture
C	ORVM(3,J)	---	F8.2	17-24	Third round ID for an open environment for jth posture
D	ORVM(4,J)	---	F8.2	25-32	Fourth round ID for an open environment for jth posture
E	ORVM(5,J)	---	F8.2	33-40	Fifth round ID for an open environment for jth posture
F	ORVM(6,J)	---	F8.2	41-48	Sixth round ID for an open environment for jth posture
G	ORVM(7,J)	---	F8.2	49-56	Seventh round ID for an open environment for jth posture
H	ORVM(8,J)	---	F8.2	57-64	Eighth round ID for an open environment for jth posture

Card: 48

ROUND IDS FOR Jth POSTURE FOR AN OPEN ENVIRONMENT					Card: 48
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
I	ORVM(9,J)	---	F8.2	65-72	Ninth round ID for an open environment for jth posture
J	ORVM(10,J)	---	F8.2	73-80	Tenth round ID for an open environment for jth posture NOTE: 10 < NRO(J) ≤ 20, one additional card required; 20 < NRO(J) ≤ 30, two additional cards required; 30 < NRO(J) ≤ 40, three additional cards required; 40 < NRO(J) ≤ 45, four additional cards required. Ten sets of this type card are required; one for each posture type. The first card of each set of this type must be preceded by a type 47 card, and the last card of each set must be followed by a type 49 card. For personnel postures, a single card with one round ID (any round) will suffice.

Card: 48

ROUND IDS FOR Jth POSTURE FOR A WOODED ENVIRONMENT					Card: 49
ID	Parameter	Units	Format	Columns	Description
A	WRVM(1,J)	---	F8.2	1-8	First round ID for a wooded environment for jth posture
B	WRVM(2,J)	---	F8.2	9-16	Second round ID for a wooded environment for jth posture
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
I	WRVM(9,J)	---	F8.2	65-72	Ninth round ID for a wooded environment for jth posture

Card: 49

ROUND IDS FOR Jth POSTURE FOR A WOODED ENVIRONMENT					Card: 49
	A	B	C	D	E	F	G	H	I	J
ID	Parameter	Units	Format	Columns	Description
J	WRVM(10,J)	---	F8.2	73-80	Tenth round ID for a wooded environment for jth posture NOTE: 10 < NRW(J) ≤ 20, one additional card required; 20 < NRW(J) ≤ 30, two additional cards required; 30 < NRW(J) ≤ 40, three additional cards required; 40 < NRW(J) ≤ 45, four additional cards required. Ten sets of this type card are required, one for each posture type. The first card of each set of this type must be preceded by the last card of a type 48 set. If NEV ≤ 3, the last card of each type 49 set must be followed by a type 50 card. For personnel postures, a single card with any round ID will suffice.

Card: 49

ROUND IDS FOR J^{th} POSTURE FOR A TOWN ENVIRONMENT					Card: 50
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
A	TRVM(1,J)	---	F8.2	1-8	First round ID for a town environment for j^{th} posture
B	TRVM(2,J)	---	F8.2	9-16	Second round ID for a town environment for j^{th} posture
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
I	TRVM(9,J)	---	F8.2	65-72	Ninth round ID for a town environment for j^{th} posture

Card: 50

ROUND IDS FOR J^{th} POSTURE FOR A TOWN ENVIRONMENT					Card: 50 Contd.
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
J	TRVM(10,J)	---	F8.2	73-80	Tenth round ID for a town environment for j^{th} posture NOTE: $10 < NRT(J) \leq 20$, one additional card required; $20 < NRT(J) \leq 30$, two additional cards required; $30 < NRT(J) \leq 40$, three additional cards required; $40 < NRT(J) \leq 45$, four additional cards required. Ten sets of this type card are required, one for each posture type, only if $NEV \geq 3$. The first card of each set of this type must be preceded by the last card of a type 49 set. If NEV = 4, the last card of each type 50 set must be followed by a type 51 card. For personnel postures, a single card with any round ID will suffice.

Card: 50 Contd.

ROUND IDS FOR J^{th} POSTURE FOR A GRASSY ENVIRONMENT — Card: 51

ID	Parameter	Units	Format	Columns	Description
A	GRVM(1,J)	---	F8.2	1-8	First round ID for a grassy environment for j^{th} posture
B	GRVM(2,J)	---	F8.2	9-16	Second round ID for a grassy environment for j^{th} posture
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
I	GRVM(9,J)	---	F8.2	65-72	Ninth round ID for a grassy environment for j^{th} posture

Card: 51

ROUND IDS FOR Jth POSTURE FOR A GRASSY ENVIRONMENT					Card: 51
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16	C 17 18 19 20 21 22 23 24	D 25 26 27 28 29 30 31 32	E 33 34 35 36 37 38 39 40	F 41 42 43 44 45 46 47 48	G 49 50 51 52 53 54 55 56	H 57 58 59 60 61 62 63 64	I 65 66 67 68 69 70 71 72	J 73 74 75 76 77 78 79 80
ID	Parameter	Units	Format	Columns	Description
J	GRVM(10,J)	---	F8.2	73-80	Tenth round ID for a grassy environment for jth posture NOTE: 10 < NRG(J) ≤ 20, one additional card required; 20 < NRG(J) ≤ 30, two additional cards required; 30 < NRG(J) ≤ 40, three additional cards required; 40 < NRG(J) ≤ 45, four additional cards required; Ten sets of this type card are required, one for each posture type, only when NEV = 4. The first card of each set of this type must be preceded by the last card of a type 50 set. For personnel postures, a single card with any round ID will suffice.

Card: 51

SCENARIO 3 BOUNDARY X-COORDINATES | Card: 52

A B C D E F G H I

ID	Parameter	Units	Format	Columns	Description
A	BNDX(1)	kilometers	F8.2	1-8	x-coordinate of first point on Scenario 3 boundary
B	BNDX(2)	kilometers	F8.2	9-16	x-coordinate of second point on Scenario 3 boundary
C	BNDX(3)	kilometers	F8.2	17-24	x-coordinate of third point on Scenario 3 boundary
D	BNDX(4)	kilometers	F8.2	25-32	x-coordinate of fourth point on Scenario 3 boundary
E	BNDX(5)	kilometers	F8.2	33-40	x-coordinate of fifth point on Scenario 3 boundary
F	BNDX(6)	kilometers	F8.2	41-48	x-coordinate of sixth point on Scenario 3 boundary
G	BNDX(7)	kilometers	F8.2	49-56	x-coordinate of seventh point on Scenario 3 boundary
H	BNDX(8)	kilometers	F8.2	57-64	x-coordinate of eighth point on Scenario 3 boundary
I	BNDX(9)	kilometers	F8.2	65-72	x-coordinate of ninth point on Scenario 3 boundary
					NOTE: This type card is required only when the value of SCENAR ≠2.0 or ≠4.0 as entered on card type 2. If the value of NEV, as read from card type 12, =2, this card follows the last type 49 card; if NEV = 3, it follows the last type 50 card; if NEV = 4, it follows the last type 51 card. Whenever this card is present, it is always followed by a type 53 card.

Card: 52

SCENARIO 3 BOUNDARY Y-COORDINATES					Card: 53
ID	Parameter	Units	Format	Columns	Description
A	BNDY(1)	kilometers	F8.2	1-8	y-coordinate of first point on Scenario 3 boundary
B	BNDY(2)	kilometers	F8.2	9-16	y-coordinate of second point on Scenario 3 boundary
C	BNDY(3)	kilometers	F8.2	17-24	y-coordinate of third point on Scenario 3 boundary
D	BNDY(4)	kilometers	F8.2	25-32	y-coordinate of fourth point on Scenario 3 boundary
E	BNDY(5)	kilometers	F8.2	33-40	y-coordinate of fifth point on Scenario 3 boundary
F	BNDY(6)	kilometers	F8.2	41-48	y-coordinate of sixth point on Scenario 3 boundary
G	BNDY(7)	kilometers	F8.2	49-56	y-coordinate of seventh point on Scenario 3 boundary
H	BNDY(8)	kilometers	F8.2	57-64	y-coordinate of eighth point on Scenario 3 boundary
I	BNDY(9)	kilometers	F8.2	64-72	y-coordinate of ninth point on Scenario 3 boundary
					NOTE: This type card is required only when a type 52 card is also required, and it appears immediately after the type 52 card. Whenever this card is present, it is always followed by a type 54 card.

Card: 53

NUMBER OF ENDPOINTS AND FEBA TRACES					Card: 54
ID	Parameter	Units	Format	Columns	Description
A	NPS	---	I5	1-5	Number of end points for FEBA trace line segments (maximum value of 10)
B	NFT	---	I5	6-10	Number of FEBA traces (maximum value of 10) NOTE: If a type 53 card is required, it is always followed by this type card. If a type 53 card is not required, and the value of NEV from card type 12 = 2, this card follows the last type 49 card; if NEV = 3 this card follows the last type 50 card; if NEV = 4, this card follows the last type 51 card. It must be followed by a type 55 card.

Card: 54

FEBA TRACE END POINT COORDINATES | Card: 55

ID	Parameter	Units	Format	Columns	Description
A	A(1,J)	kilometers	F8.2	1-8	x-coordinate of first end point of j^{th} FEBA trace
B	B(1,J)	kilometers	F8.2	9-16	y-coordinate of first end point of j^{th} FEBA trace
C	A(2,J)	kilometers	F8.2	17-24	x-coordinate of second end point of j^{th} FEBA trace
D	B(2,J)	kilometers	F8.2	25-32	y-coordinate of second end point of j^{th} FEBA trace
E	A(3,J)	kilometers	F8.2	33-40	x-coordinate of third end point of j^{th} FEBA trace
F	B(3,J)	kilometers	F8.2	41-48	y-coordinate of third end point of j^{th} FEBA trace
G	A(4,J)	kilometers	F8.2	49-56	x-coordinate of fourth end point of j^{th} FEBA trace
H	B(4,J)	kilometers	F8.2	57-64	y-coordinate of fourth end point of j^{th} FEBA trace
I	A(5,J)	kilometers	F8.2	65-72	x-coordinate of fifth end point of j^{th} FEBA trace
J	B(5,J)	kilometers	F8.2	73-80	y-coordinate of fifth end point of j^{th} FEBA trace

NOTE: The first card of this type must be preceded by the type 54 card. If NPS > 5 on card type 54, an additional card of this type is required for each FEBA trace. There is a maximum of 10 FEBA traces allowed, and therefore a maximum of 10 sets of type 55 cards comprised of either one or two cards per set. The last type 55 card must be followed by a type 56 card.

Card: 55

TIME OF FEBA TRACE — Card: 56

	A	B	C	D	E	F	G	H	I	J
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16	17 18 19 20 21 22 23 24	25 26 27 28 29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50 51 52 53 54 55 56	57 58 59 60 61 62 63 64	65 66 67 68 69 70 71 72	73 74 75 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	FEBACT(1)	minutes	F8.2	1-8	Activation time of first FEBA trace
B	FEBACT(2)	minutes	F8.2	9-16	Activation time of second FEBA trace
C	FEBACT(3)	minutes	F8.2	17-24	Activation time of third FEBA trace
D	FEBACT(4)	minutes	F8.2	25-32	Activation time of fourth FEBA trace
E	FEBACT(5)	minutes	F8.2	33-40	Activation time of fifth FEBA trace
F	FEBACT(6)	minutes	F8.2	41-48	Activation time of sixth FEBA trace
G	FEBACT(7)	minutes	F8.2	49-56	Activation time of seventh FEBA trace
H	FEBACT(8)	minutes	F8.2	57-64	Activation time of eighth FEBA trace
I	FEBACT(9)	minutes	F8.2	65-72	Activation time of ninth FEBA trace
J	FEBACT(10)	minutes	F8.2	73-80	Activation time of tenth FEBA trace
					NOTE: This card must follow the last type 55 card and must precede the type 57 card.

Card: 56

EFFECTS CUTOFF VALUES CARD						Card: 57
	A 1 2 3 4 5	B 6 7 8 9 10 11	C 12 13 14 15 16 17	D 18 19 20 21 22 23	E 24 25 26 27 28 29	F 30 31 32 33 34 35	G 36 37 38 39 40 41	H 42 43 44 45 46 47	I 48 49 50 51 52 53	J 54 55 56 57 58 59	K 60 61 62 63 64 65	L 66 67 68 69 70	M 71 72 73 74 75	N 76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
A	MASSLT	---	I5	1-5	Maximum number of battalions allowed to mass fire on any one fire mission
B	ECOF(1)	---	F6.4	6-11	Effects cutoff value for first posture
C	ECOF(2)	---	F6.4	12-17	Effects cutoff value for second posture
	.	.			.
	.	.			.
	.	.			.
J	ECOF(9)	---	F6.4	54-59	Effects cutoff value for ninth posture
K	ECOF(10)	---	F6.4	60-65	Effects cutoff value for tenth posture
L	CRITRA	---	F5.3	66-70	Round type criteria flag (=1.0, cost criterion; =2.0, weight criterion)
M	DL	---	F5.3	71-75	Defeat level
N	MRKTLT	---	I5	76-80	Maximum number of GSRS batteries allowed to mass fire on any one fire mission

Card: 57

BATTERY PRIORITY VALUES | Card: 58a

A B C D E F G H I J K L M N O P

ID	Parameter	Units	Format	Columns	Description
A	FUOD(1)	---	F5.0	1-5	Priority of battery of battalion
B	FUOD(2)	---	F5.0	6-10	Priority of battery of battalion
C	FUOD(3)	---	F5.0	11-15	Priority of battery of battalion
D	FUOD(4)	---	F5.0	16-20	Priority of battery of battalion
E	FUOD(5)	---	F5.0	21-25	Priority of battery of battalion
F	FUOD(6)	---	F5.0	26-30	Priority of battery of battalion
G	FUOD(7)	---	F5.0	31-35	Priority of battery of battalion
H	FUOD(8)	---	F5.0	36-40	Priority of battery of battalion
I	FUOD(9)	---	F5.0	41-45	Priority of battery of battalion
J	FUOD(10)	---	F5.0	46-50	Priority of battery of battalion
K	FUOD(11)	---	F5.0	51-55	Priority of battery of battalion
L	FUOD(12)	---	F5.0	56-60	Priority of battery of battalion
M	FUOD(13)	---	F5.0	61-65	Priority of battery of battalion
N	FUOD(14)	---	F5.0	66-70	Priority of battery of battalion

Card: 58a

BATTERY PRIORITY VALUES | Card: 58a

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62 63 64 65	66 67 68 69 70	71 72 73 74 75	76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
O	FUOD(15)	---	F5.0	71-75	Priority of battery of battalion
P	FUOD(16)	---	F5.0	76-80	Priority of battery of battalion

NOTE 1: This type card always follows the type 57 card. If the total number of batteries is greater than 16, card type 58b must follow this card. Otherwise, it is followed by a type 59 card.

NOTE 2: FUOD(N) is priority of J^{th} battery of battalion K where:

$$N = J + \sum_{I=1}^{K-1} NBAT(1,I)$$

NBAT(1,I) = number of batteries in I^{th} battalion ($1 \leq NBAT(1,I) \leq 6$)

Card: 58a

BATTERY PRIORITY VALUES | Card: 58b

ID	Parameter	Units	Format	Columns	Description
A	FUOD(17)	---	F5.0	1-5	Priority of battery of battalion
B	FUOD(18)	---	F5.0	6-10	Priority of battery of battalion
C	FUOD(19)	---	F5.0	11-15	Priority of battery of battalion
D	FUOD(20)	---	F5.0	16-20	Priority of battery of battalion
E	FUOD(21)	---	F5.0	21-25	Priority of battery of battalion
F	FUOD(22)	---	F5.0	26-30	Priority of battery of battalion
G	FUOD(23)	---	F5.0	31-35	Priority of battery of battalion
H	FUOD(24)	---	F5.0	36-40	Priority of battery of battalion
I	FUOD(25)	---	F5.0	41-45	Priority of battery of battalion
J	FUOD(26)	---	F5.0	46-50	Priority of battery of battalion
K	FUOD(27)	---	F5.0	51-55	Priority of battery of battalion
L	FUOD(28)	---	F5.0	56-60	Priority of battery of battalion
M	FUOD(29)	---	F5.0	61-65	Priority of battery of battalion
N	FUOD(30)	---	F5.0	66-70	Priority of battery of battalion

Card: 58b

BATTERY PRIORITY VALUES | Card: 58b

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1 2 3	4 5 6	7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30	31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62 63 64 65	66 67 68 69 70	71 72 73 74 75	76 77 78 79 80

ID	Parameter	Units	Format	Columns	Description
O	FUOD(31)	---	F5.0	71-75	Priority of battery of battalion
P	FUOD(32)	---	F5.0	76-80	Priority of battery of battalion
					NOTE 1: This card follows card 58a when the total number of batteries is greater than 16. If the total number of batteries is greater than 32, it is followed by card 58c. Otherwise, it is followed by a type 59 card.
					NOTE 2: See NOTE 2 of card 58a.

Card: 58b

BATTERY PRIORITY VALUES

Card: 58c

ID	Parameter	Units	Format	Columns	Description
A	FUOD(33)	---	F5.0	1-5	Priority of battery of battalion
B	FUOD(34)	---	F5.0	6-10	Priority of battery of battalion
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
P	FUOD(48)	---	F5.0	76-80	Priority of battery of battalion

NOTE 1: If total number of batteries > 48 but less than 65, one additional card of this type is required. If total number of batteries is greater than 64 but less than or equal to 66, two additional cards of this type are required. The last card of this type must be followed by a type 59 card.

NOTE 2: See NOTE 2 of card 58a.

Card: 58c

LATERAL BACKUP OF FDCS

Card: 59

ID	Parameter	Units	Format	Columns	Description
A	FDCD(1,1)	---	F5.0	1-5	Placement number of FDC laterally backing up Division FDC
B	FDCD(1,2)	---	F5.0	6-10	Placement number of FDC laterally backing up Group FDC
C	FDCD(1,3)	---	F5.0	11-15	Placement number of FDC laterally backing up first battalion FDC
D	FDCD(1,4)	---	F5.0	16-20	Placement number of FDC laterally backing up second battalion FDC
E	FDCD(1,5)	---	F5.0	21-25	Placement number of FDC laterally backing up third battalion FDC
F	FDCD(1,6)	---	F5.0	26-30	Placement number of FDC laterally backing up fourth battalion FDC
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
L	FDCD(1,12)	---	F5.0	56-60	Placement number of FDC laterally backing up tenth battalion FDC

Card: 59

LATERAL BACKUP OF FDCS					Card: 59
ID	Parameter	Units	Format	Columns	Description
M	FDCD(1,13)	---	F5.0	61-65	Placement number of FDC laterally backing up eleventh battalion FDC NOTE: This card follows a 58a, 58b, or 58c card as indicated. It is always followed by a type 60 card.

Card: 59

REINFORCING FDCS | Card: 60

A | B | C | D | E | F | G | H | I | J | K | L | M

ID	Parameter	Units	Format	Columns	Description
A	FDCD(2,1)	---	F5.0	1-5	Placement number of reinforcing FDC for Division FDC
B	FDCD(2,2)	---	F5.0	6-10	Placement number of reinforcing FDC for Group FDC
C	FDCD(2,3)	---	F5.0	11-15	Placement number of reinforcing FDC for first battalion FDC
D	FDCD(2,4)	---	F5.0	16-20	Placement number of reinforcing FDC for second battalion FDC
E	FDCD(2,5)	---	F5.0	21-25	Placement number of reinforcing FDC for third battalion FDC
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
L	FDCD(2,12)	---	F5.0	56-60	Placement number of reinforcing FDC for tenth battalion FDC
M	FDCD(2,13)	---	F5.0	61-65	Placement number of reinforcing FDC for eleventh battalion FDC
					NOTE: This card is always preceded by card type 59 and followed by card type 61.

Card: 60

GENERAL SUPPORT REINFORCING FDCS — Card: 61

ID	Parameter	Units	Format	Columns	Description
A	FDCD(3,1)	---	F5.0	1-5	Placement number of GSR FDC for Division FDC
B	FDCD(3,2)	---	F5.0	6-10	Placement number of GSR FDC for Group FDC
C	FDCD(3,3)	---	F5.0	11-15	Placement number of GSR FDC for first battalion FDC
D	FDCD(3,4)	---	F5.0	16-20	Placement number of GSR FDC for second battalion FDC
E	FDCD(3,5)	---	F5.0	21-25	Placement number of GSR FDC for third battalion FDC
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
L	FDCD(3,12)	---	F5.0	56-60	Placement number of GSR FDC for tenth battalion FDC
M	FDCD(3,13)	---	F5.0	61-65	Placement number of GSR FDC for eleventh battalion FDC
					NOTE: This card is always preceded by card type 60 and followed by card type 62.

Card: 61

FIRE PLAN ASSIGNMENT OF FDCS					Card: 62
	A 1 2 3 4 5	B 6 7 8 9 10	C 11 12 13 14 15	D 16 17 18 19 20	E 21 22 23 24 25
	F 26 27 28 29 30	G 31 32 33 34 35	H 36 37 38 39 40	I 41 42 43 44 45	J 46 47 48 49 50
	K 51 52 53 54 55	L 56 57 58 59 60	M 61 62 63 64 65	66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	

ID	Parameter	Units	Format	Columns	Description
A	FDCD(4,1)	---	F5.0	1-5	Fire plan assignment of Division FDC to Division or Group
B	FDCD(4,2)	---	F5.0	6-10	Fire plan assignment of Group FDC to Division or Group
C	FDCD(4,3)	---	F5.0	11-15	Fire plan assignment of first battalion FDC to Division or Group
D	FDCD(4,4)	---	F5.0	16-20	Fire plan assignment of second battalion FDC to Division or Group
E	FDCD(4,5)	---	F5.0	21-25	Fire plan assignment of third battalion FDC to Division or Group
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
L	FDCD(4,12)	---	F5.0	56-60	Fire plan assignment of tenth battalion FDC to Division or Group
M	FDCD(4,13)	---	F5.0	61-65	Fire plan assignment of eleventh battalion FDC to Division or Group (=1.0, assign to Division; =2.0, assign to Group) NOTE: This card is always preceded by card type 61 and followed by card type 63.

Card: 62

BATTALION TACTICAL ECHELON ID

Card: 63

ID	Parameter	Units	Format	Columns	Description
A	BNEC(1)	---	F5.0	1-5	Tactical echelon identification of first battalion
B	BNEC(2)	---	F5.0	6-10	Tactical echelon identification of second battalion
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
J	BNEC(10)	---	F5.0	46-50	Tactical echelon identification of tenth battalion
K	BNEC(11)	---	F5.0	51-55	Tactical echelon identification of eleventh battalion
					(=1., direct support; =2., reinforcing; =3., general support at Divison; =4., general support reinforcing at Division to a direct support battalion; =5., general support reinforcing at Group, and reinforcing only to Division; =6., general support to Group)
					NOTE: This card is always preceded by card type 62 and followed by card type 64.

Card: 63

FDC COMPUTER IDENTIFICATION — Card: 64

ID	Parameter	Units	Format	Columns	Description
A	MFDTYP(1)	---	I5	1-5	Computer type available at Division FDC
B	MFDTYP(2)	---	I5	6-10	Computer type available at Group FDC
C	MFDTYP(3)	---	I5	11-15	Computer type available at first battalion FDC
D	MFDTYP(4)	---	I5	16-20	Computer type available at second battalion FDC
E	MFDTYP(5)	---	I5	21-25	Computer type available at third battalion FDC
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
L	MFDTYP(12)	---	I5	56-60	Computer type available at tenth battalion FDC
M	MFDTYP(13)	---	I5	61-65	Computer type available at eleventh battalion FDC
					(=1, TACFIRE; =2, FADAC)
					NOTE: This card is always preceded by card type 63 and followed by card type 65a.
					In data cards 65a through 80b, the notation M/F stands for FADAC and T/F stands for TACFIRE.

Card: 64

T/F UP TO T/F UP TRANSMISSION TIME DATA

Card: 65a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,1,1)	minutes	F7.2	1-7	Transmission time of RFAF from battalion to Division or Group
B	TIM(2,1,1)	minutes	F7.2	8-14	Extra time needed to process a RFAF at battalion level
C	TIM(3,1,1)	minutes	F7.2	15-21	Time to process a TOT mission at battalion level
D	TIM(4,1,1)	minutes	F7.2	22-28	Time to process a TOT + FFE mission at battalion level
E	TIM(5,1,1)	minutes	F7.2	29-35	Time to process an OBS.ADJ mission at battalion level
F	TIM(6,1,1)	minutes	F7.2	36-42	Time to process a FFE mission at battalion level
G	TIM(7,1,1)	minutes	F7.2	43-49	Time to process and transmit an initial mission from Division to Group, or from Group to Division
H	TIM(8,1,1)	minutes	F7.2	50-56	Time to process and transmit a RFAF mission from Division to Group, or from Group to Division
I	TIM(9,1,1)	minutes	F7.2	57-63	Time to process a fire mission from Division to Group, or Group to Division
J	TIM(10,1,1)	minutes	F7.2	64-70	Time to process an initial fire mission at Division or Group

Card: 65a

T/F UP TO T/F UP TRANSMISSION TIME DATA					Card: 65a
ID	Parameter	Units	Format	Columns	Description
K	TIM(11,1,1)	minutes	F7.2	71-77	Time to process a RFAF mission Division or Group NOTE: This card is always preceded by card type 64 and followed by card type 65b.

Card: 65a

T/F UP TO T/F UP TRANSMISSION TIME DATA					Card: 65b
	L 1 2 3 4 5 6 7	M 8 9 10 11 12 13 14 15 16 17 18 19 20 21	N 22 23 24 25 26 27 28	O 29 30 31 32 33 34 35	P 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
	Q	R	S	T	U

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,1,1)	minutes	F7.2	1-7	Time to process and RFAF an initial fire mission at Division or Group
M	TIM(13,1,1)	minutes	F7.2	8-14	Time to process and RFAF a RFAF mission at Division or Group
N	TIM(14,1,1)	minutes	F7.2	15-21	Time to process a MET message at Division or Group
O	TIM(15,1,1)	minutes	F7.2	22-28	Time to process a Survey request at battalion level
P	TIM(16,1,1)	minutes	F7.2	29-35	Time to process an ATI report at Division or Group
Q	TIM(17,1,1)	minutes	F7.2	36-42	Time to process an ATI report at battalion level
R	TIM(18,1,1)	minutes	F7.2	43-49	Time to process one fire plan target at Division or Group (computer time only)
S	TIM(19,1,1)	minutes	F7.2	50-56	Time to process one fire plan target at battalion level (computer time only)
T	TIM(20,1,1)	minutes	F7.2	57-63	Time to process and transmit one fire plan target at Division or Group (computer and manual time)
U	TIM(21,1,1)	minutes	F7.2	64-70	Time to transmit one fire plan target from Division or Group to battalion level
					NOTE: This card is always preceded by card 65a and followed by card 66a.

Card: 65b

M/F UP TO T/F UP TRANSMISSION TIME DATA

Card: 66a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,2,1)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for M/F up to T/F up computers
B	TIM(2,2,1)	minutes	F7.2	8-14	
C	TIM(3,2,1)	minutes	F7.2	15-21	
D	TIM(4,2,1)	minutes	F7.2	22-28	
E	TIM(5,2,1)	minutes	F7.2	29-35	
F	TIM(6,2,1)	minutes	F7.2	36-42	
G	TIM(7,2,1)	minutes	F7.2	43-49	
H	TIM(8,2,1)	minutes	F7.2	50-56	
I	TIM(9,2,1)	minutes	F7.2	57-63	
J	TIM(10,2,1)	minutes	F7.2	64-70	
K	TIM(11,2,1)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 65b and followed by card 66b.

Card: 66a

M/F UP TO T/F UP TRANSMISSION TIME DATA — Card: 66b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,2,1)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F up to T/F up computers
M	TIM(13,2,1)	minutes	F7.2	8-14	
N	TIM(14,2,1)	minutes	F7.2	15-21	
O	TIM(15,2,1)	minutes	F7.2	22-28	
P	TIM(16,2,1)	minutes	F7.2	29-35	
Q	TIM(17,2,1)	minutes	F7.2	36-42	
R	TIM(18,2,1)	minutes	F7.2	43-49	
S	TIM(19,2,1)	minutes	F7.2	50-56	
T	TIM(20,2,1)	minutes	F7.2	57-63	
U	TIM(21,2,1)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 66a and followed by card 67a.

Card: 66b

T/F DOWN TO T/F UP TRANSMISSION TIME DATA | Card: 67a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,3,1)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for T/F down to T/F up computers
B	TIM(2,3,1)	minutes	F7.2	8-14	
C	TIM(3,3,1)	minutes	F7.2	15-21	
D	TIM(4,3,1)	minutes	F7.2	22-28	
E	TIM(5,3,1)	minutes	F7.2	29-35	
F	TIM(6,3,1)	minutes	F7.2	36-42	
G	TIM(7,3,1)	minutes	F7.2	43-49	
H	TIM(8,3,1)	minutes	F7.2	50-56	
I	TIM(9,3,1)	minutes	F7.2	57-63	
J	TIM(10,3,1)	minutes	F7.2	64-70	
K	TIM(11,3,1)	minutes	F7.2	71-77	

NOTE: **This card is always preceded by** card 66b and **followed by card 67b.**

Card: 67a

T/F DOWN TO T/F UP TRANSMISSION TIME DATA — Card: 67b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,3,1)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for T/F down to T/F up computers
M	TIM(13,3,1)	minutes	F7.2	8-14	
N	TIM(14,3,1)	minutes	F7.2	15-21	
O	TIM(15,3,1)	minutes	F7.2	22-28	
P	TIM(16,3,1)	minutes	F7.2	29-35	
Q	TIM(17,3,1)	minutes	F7.2	36-42	
R	TIM(18,3,1)	minutes	F7.2	43-49	
S	TIM(19,3,1)	minutes	F7.2	50-56	
T	TIM(20,3,1)	minutes	F7.2	57-63	
U	TIM(21,3,1)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 67a and followed by card 68a.

Card: 67b

M/F DOWN TO T/F UP TRANSMISSION TIME DATA | Card: 68a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,4,1)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for M/F down to T/F up computers
B	TIM(2,4,1)	minutes	F7.2	8-14	
C	TIM(3,4,1)	minutes	F7.2	15-21	
D	TIM(4,4,1)	minutes	F7.2	22-28	
E	TIM(5,4,1)	minutes	F7.2	29-35	
F	TIM(6,4,1)	minutes	F7.2	36-42	
G	TIM(7,4,1)	minutes	F7.2	43-49	
H	TIM(8,4,1)	minutes	F7.2	50-56	
I	TIM(9,4,1)	minutes	F7.2	57-63	
J	TIM(10,4,1)	minutes	F7.2	64-70	
K	TIM(11,4,1)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 67b and followed by card 68b.

Card: 68a

M/F DOWN TO T/F UP TRANSMISSION TIME DATA — Card: 68b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,4,1)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F down to T/F up computers
M	TIM(13,4,1)	minutes	F7.2	8-14	
N	TIM(14,4,1)	minutes	F7.2	15-21	
O	TIM(15,4,1)	minutes	F7.2	22-28	
P	TIM(16,4,1)	minutes	F7.2	29-35	
Q	TIM(17,4,1)	minutes	F7.2	36-42	
R	TIM(18,4,1)	minutes	F7.2	43-49	
S	TIM(19,4,1)	minutes	F7.2	50-56	
T	TIM(20,4,1)	minutes	F7.2	57-63	
U	TIM(21,4,1)	minutes	F7.2	64-70	

NOTE: This card is **always preceded by card 68a** and followed by card **69a.**

Card: 68b

T/F UP TO M/F UP TRANSMISSION TIME DATA

Card: 69a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,1,2)	minutes	F7.2	1-7	Same type of data as entered on card 65a except data are for T/F up to M/F up computers
B	TIM(2,1,2)	minutes	F7.2	8-14	
C	TIM(3,1,2)	minutes	F7.2	15-21	
D	TIM(4,1,2)	minutes	F7.2	22-28	
E	TIM(5,1,2)	minutes	F7.2	29-35	
F	TIM(6,1,2)	minutes	F7.2	36-42	
G	TIM(7,1,2)	minutes	F7.2	43-49	
H	TIM(8,1,2)	minutes	F7.2	50-56	
I	TIM(9,1,2)	minutes	F7.2	57-63	
J	TIM(10,1,2)	minutes	F7.2	64-70	
K	TIM(11,1,2)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 68b and followed by card 69b.

Card: 69a

T/F UP TO M/F UP TRANSMISSION TIME DATA

Card: 69b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,1,2)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for T/F up to M/F up computers
M	TIM(13,1,2)	minutes	F7.2	8-14	
N	TIM(14,1,2)	minutes	F7.2	15-21	
O	TIM(15,1,2)	minutes	F7.2	22-28	
P	TIM(16,1,2)	minutes	F7.2	29-35	
Q	TIM(17,1,2)	minutes	F7.2	36-42	
R	TIM(18,1,2)	minutes	F7.2	43-49	
S	TIM(19,1,2)	minutes	F7.2	50-56	
T	TIM(20,1,2)	minutes	F7.2	57-63	
U	TIM(21,1,2)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 69a and followed by card 70a.

Card: 69b

M/F UP TO M/F UP TRANSMISSION TIME DATA					Card: 70a
ID	Parameter	Units	Format	Columns	Description
A	TIM(1,2,2)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for M/F up to M/F up computers
B	TIM(2,2,2)	minutes	F7.2	8-14	
C	TIM(3,2,2)	minutes	F7.2	15-21	
D	TIM(4,2,2)	minutes	F7.2	22-28	
E	TIM(5,2,2)	minutes	F7.2	29-35	
F	TIM(6,2,2)	minutes	F7.2	36-42	
G	TIM(7,2,2)	minutes	F7.2	43-49	
H	TIM(8,2,2)	minutes	F7.2	50-56	
I	TIM(9,2,2)	minutes	F7.2	57-63	
J	TIM(10,2,2)	minutes	F7.2	64-70	
K	TIM(11,2,2)	minutes	F7.2	71-77	NOTE: This card is always preceded by card 69b and followed by card 70b.

Card: 70a

M/F UP TO M/F UP TRANSMISSION TIME DATA

Card: **70b**

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,2,2)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F up to M/F up computers
M	TIM(13,2,2)	minutes	F7.2	8-14	
N	TIM(14,2,2)	minutes	F7.2	15-21	
O	TIM(15,2,2)	minutes	F7.2	22-28	
P	TIM(16,2,2)	minutes	F7.2	29-35	
Q	TIM(17,2,2)	minutes	F7.2	36-42	
R	TIM(18,2,2)	minutes	F7.2	43-49	
S	TIM(19,2,2)	minutes	F7.2	50-56	
T	TIM(20,2,2)	minutes	F7.2	57-63	
U	TIM(21,2,2)	minutes	F7.2	64-70	

NOTE: This card is always preceded by **card 70a** and followed by card 71a.

Card: 70b

T/F DOWN TO M/F UP TRANSMISSION TIME DATA | Card: 71a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,3,2)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for T/F down to M/F up computers
B	TIM(2,3,2)	minutes	F7.2	8-14	
C	TIM(3,3,2)	minutes	F7.2	15-21	
D	TIM(4,3,2)	minutes	F7.2	22-28	
E	TIM(5,3,2)	minutes	F7.2	29-35	
F	TIM(6,3,2)	minutes	F7.2	36-42	
G	TIM(7,3,2)	minutes	F7.2	43-49	
H	TIM(8,3,2)	minutes	F7.2	50-56	
I	TIM(9,3,2)	minutes	F7.2	57-63	
J	TIM(10,3,2)	minutes	F7.2	64-70	
K	TIM(11,3,2)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 70b and followed by card 71b.

Card: 71a

T/F DOWN TO M/F UP TRANSMISSION TIME DATA					Card: 71b
ID	Parameter	Units	Format	Columns	Description
L	TIM(12,3,2)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for T/F down to M/F up computers
M	TIM(13,3,2)	minutes	F7.2	8-14	
N	TIM(14,3,2)	minutes	F7.2	15-21	
O	TIM(15,3,2)	minutes	F7.2	22-28	
P	TIM(16,3,2)	minutes	F7.2	29-35	
Q	TIM(17,3,2)	minutes	F7.2	36-42	
R	TIM(18,3,2)	minutes	F7.2	43-49	
S	TIM(19,3,2)	minutes	F7.2	50-56	
T	TIM(20,3,2)	minutes	F7.2	57-63	
U	TIM(21,3,2)	minutes	F7.2	64-70	
					NOTE: This card is always preceded by card 71a and followed by card 72a.

Card: 71b

M/F DOWN TO M/F UP TRANSMISSION TIME DATA					Card: 72a
ID	Parameter	Units	Format	Columns	Description
A	TIM(1,4,2)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for M/F down to M/F up computers
B	TIM(2,4,2)	minutes	F7.2	8-14	
C	TIM(3,4,2)	minutes	F7.2	15-21	
D	TIM(4,4,2)	minutes	F7.2	22-28	
E	TIM(5,4,2)	minutes	F7.2	29-35	
F	TIM(6,4,2)	minutes	F7.2	36-42	
G	TIM(7,4,2)	minutes	F7.2	43-49	
H	TIM(8,4,2)	minutes	F7.2	50-56	
I	TIM(9,4,2)	minutes	F7.2	57-63	
J	TIM(10,4,2)	minutes	F7.2	64-70	
K	TIM(11,4,2)	minutes	F7.2	71-77	
					NOTE: This card is always preceded by card 71b and followed by card 72b.

Card: 72a

M/F DOWN TO M/F UP TRANSMISSION TIME DATA

Card: 72b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,4,2)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F down to M/F up computers
M	TIM(13,4,2)	minutes	F7.2	8-14	
N	TIM(14,4,2)	minutes	F7.2	15-21	
O	TIM(15,4,2)	minutes	F7.2	22-28	
P	TIM(16,4,2)	minutes	F7.2	29-35	
Q	TIM(17,4,2)	minutes	F7.2	36-42	
R	TIM(18,4,2)	minutes	F7.2	43-49	
S	TIM(19,4,2)	minutes	F7.2	50-56	
T	TIM(20,4,2)	minutes	F7.2	57-63	
U	TIM(21,4,2)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 72a and followed by card 73a.

Card: 72b

T/F UP TO T/F DOWN TRANSMISSION TIME DATA | Card: 73a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,1,3)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for T/F up to T/F down computers
B	TIM(2,1,3)	minutes	F7.2	8-14	
C	TIM(3,1,3)	minutes	F7.2	15-21	
D	TIM(4,1,3)	minutes	F7.2	22-28	
E	TIM(5,1,3)	minutes	F7.2	29-35	
F	TIM(6,1,3)	minutes	F7.2	36-42	
G	TIM(7,1,3)	minutes	F7.2	43-49	
H	TIM(8,1,3)	minutes	F7.2	50-56	
I	TIM(9,1,3)	minutes	F7.2	57-63	
J	TIM(10,1,3)	minutes	F7.2	64-70	
K	TIM(11,1,3)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 72b and followed by card 73b.

Card: 73a

T/F UP TO T/F DOWN TRANSMISSION TIME DATA

Card: 73b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,1,3)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for T/F up to T/F down computers
M	TIM(13,1,3)	minutes	F7.2	8-14	
N	TIM(14,1,3)	minutes	F7.2	15-21	
O	TIM(15,1,3)	minutes	F7.2	22-28	
P	TIM(16,1,3)	minutes	F7.2	29-35	
Q	TIM(17,1,3)	minutes	F7.2	36-42	
R	TIM(18,1,3)	minutes	F7.2	43-49	
S	TIM(19,1,3)	minutes	F7.2	50-56	
T	TIM(20,1,3)	minutes	F7.2	57-63	
U	TIM(21,1,3)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 73a and followed by card 74a.

Card: 73b

M/F UP TO T/F DOWN TRANSMISSION TIME DATA					Card: 74a
ID	Parameter	Units	Format	Columns	Description
A	TIM(1,2,3)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for M/F up to T/F down computers
B	TIM(2,2,3)	minutes	F7.2	8-14	
C	TIM(3,2,3)	minutes	F7.2	15-21	
D	TIM(4,2,3)	minutes	F7.2	22-28	
E	TIM(5,2,3)	minutes	F7.2	29-35	
F	TIM(6,2,3)	minutes	F7.2	36-42	
G	TIM(7,2,3)	minutes	F7.2	43-49	
H	TIM(8,2,3)	minutes	F7.2	50-56	
I	TIM(9,2,3)	minutes	F7.2	57-63	
J	TIM(10,2,3)	minutes	F7.2	64-70	
K	TIM(11,2,3)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 73b and followed by card 74b.

Card: 74a

M/F UP TO T/F DOWN TRANSMISSION TIME DATA

Card: 74b

	L	M	N	O	P	Q	R	S	T	U
	1 2 3 4 5 6 7	8 9 10 11 12 13 14	15 16 17 18 19 20 21	22 23 24 25 26 27 28	29 30 31 32 33 34 35	36 37 38 39 40 41 42	43 44 45 46 47 48 49	50 51 52 53 54 55 56	57 58 59 60 61 62 63	64 65 66 67 68 69 70

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,2,3)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F up to T/F down computers
M	TIM(13,2,3)	minutes	F7.2	8-14	
N	TIM(14,2,3)	minutes	F7.2	15-21	
O	TIM(15,2,3)	minutes	F7.2	22-28	
P	TIM(16,2,3)	minutes	F7.2	29-35	
Q	TIM(17,2,3)	minutes	F7.2	36-42	
R	TIM(18,2,3)	minutes	F7.2	43-49	
S	TIM(19,2,3)	minutes	F7.2	50-56	
T	TIM(20,2,3)	minutes	F7.2	57-63	
U	TIM(21,2,3)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 74a and followed by card 75a.

Card: 74b

T/F DOWN TO T/F DOWN TRANSMISSION TIME DATA					Card: 75a
ID	Parameter	Units	Format	Columns	Description
A	TIM(1,3,3)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for T/F down to T/F down computers
B	TIM(2,3,3)	minutes	F7.2	8-14	
C	TIM(3,3,3)	minutes	F7.2	15-21	
D	TIM(4,3,3)	minutes	F7.2	22-28	
E	TIM(5,3,3)	minutes	F7.2	29-35	
F	TIM(6,3,3)	minutes	F7.2	36-42	
G	TIM(7,3,3)	minutes	F7.2	43-49	
H	TIM(8,3,3)	minutes	F7.2	50-56	
I	TIM(9,3,3)	minutes	F7.2	57-63	
J	TIM(10,3,3)	minutes	F7.2	64-70	
K	TIM(11,3,3)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 74b and followed by card 75b.

Card: 75a

T/F DOWN TO T/F DOWN TRANSMISSION TIME DATA					Card: 75b
ID	Parameter	Units	Format	Columns	Description
L	TIM(12,3,3)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for T/F down to T/F down computers
M	TIM(13,3,3)	minutes	F7.2	8-14	
N	TIM(14,3,3)	minutes	F7.2	15-21	
O	TIM(15,3,3)	minutes	F7.2	22-28	
P	TIM(16,3,3)	minutes	F7.2	29-35	
Q	TIM(17,3,3)	minutes	F7.2	36-42	
R	TIM(18,3,3)	minutes	F7.2	43-49	
S	TIM(19,3,3)	minutes	F7.2	50-56	
T	TIM(20,3,3)	minutes	F7.2	57-63	
U	TIM(21,3,3)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 75a and followed by card 76a.

Card: 75b

M/F DOWN TO T/F DOWN TRANSMISSION TIME DATA

Card: 76a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,4,3)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F down to T/F down computers
B	TIM92,4,3)	minutes	F7.2	8-14	
C	TIM(3,4,3)	minutes	F7.2	15-21	
D	TIM(4,4,3)	minutes	F7.2	22-28	
E	TIM(5,4,3)	minutes	F7.2	29-35	
F	TIM(6,4,3)	minutes	F7.2	36-42	
G	TIM(7,4,3)	minutes	F7.2	43-49	
H	TIM(8,4,3)	minutes	F7.2	50-56	
I	TIM(9,4,3)	minutes	F7.2	57-63	
J	TIM(10,4,3)	minutes	F7.2	64-70	
K	TIM(11,4,3)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 75b and followed by card 76b.

Card: 76a

M/F DOWN TO T/F DOWN TRANSMISSION TIME DATA

Card: 76b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,4,3)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F down to T/F down computers
M	TIM(13,4,3)	minutes	F7.2	8-14	
N	TIM(14,4,3)	minutes	F7.2	15-21	
O	TIM(15,4,3)	minutes	F7.2	22-28	
P	TIM(16,4,3)	minutes	F7.2	29-35	
Q	TIM(17,4,3)	minutes	F7.2	36-42	
R	TIM(18,4,3)	minutes	F7.2	43-49	
S	TIM(19,4,3)	minutes	F7.2	50-56	
T	TIM(20,4,3)	minutes	F7.2	57-63	
U	TIM(21,4,3)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 76a and followed by card 77a.

Card: 76b

T/F UP TO M/F DOWN TRANSMISSION TIME DATE

Card: 77a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,1,4)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for T/F up to M/F down computers
B	TIM(2,1,4)	minutes	F7.2	8-14	
C	TIM(3,1,4)	minutes	F7.2	15-21	
D	TIM(4,1,4)	minutes	F7.2	22-28	
E	TIM(5,1,4)	minutes	F7.2	29-35	
F	TIM(6,1,4)	minutes	F.2	36-42	
G	TIM(7,1,4)	minutes	F7.2	43-49	
H	TIM(8,1,4)	minutes	F7.2	50-56	
I	TIM(9,1,4)	minutes	F7.2	57-63	
J	TIM(10,1,4)	minutes	F7.2	64-70	
K	TIM(11,1,4)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 76b and followed by card 77b.

Card: 77a

T/F UP TO M/F DOWN TRANSMISSION TIME DATA

Card: 77b

	L	M	N	O	P	Q	R	S	T	U
	1 2 3 4 5 6 7	8 9 10 11 12 13 14	15 16 17 18 19 20 21	22 23 24 25 26 27 28	29 30 31 32 33 34 35	36 37 38 39 40 41 42	43 44 45 46 47 48 49	50 51 52 53 54 55 56	57 58 59 60 61 62 63	64 65 66 67 68 69 70

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,1,4)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for T/F up to M/F down computers
M	TIM(13,1,4)	minutes	F7.2	8-14	
N	TIM(14,1,4)	minutes	F7.2	15-21	
O	TIM(15,1,4)	minutes	F7.2	22-28	
P	TIM(16,1,4)	minutes	F7.2	29-35	
Q	TIM(17,1,4)	minutes	F7.2	36-42	
R	TIM(18,1,4)	minutes	F7.2	43-49	
S	TIM(19,1,4)	minutes	F7.2	50-56	
T	TIM(20,1,4)	minutes	F7.2	57-63	
U	TIM(21,1,4)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 77a and followed by card 78a.

Card: 77b

M/F UP TO M/F DOWN TRANSMISSION TIME DATA

Card: 78a

A | B | C | D | E | F | G | H | I | J | K

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,2,4)	minutes	F7.2	1-7	Same type of data as **entered on** card 65a, except data **are for** M/F up to M/F down **computers**
B	TIM(2,2,4)	minutes	F7.2	8-14	
C	TIM(3,2,4)	minutes	F7.2	15-21	
D	TIM(4,2,4)	minutes	F7.2	22-28	
E	TIM(5,2,4)	minutes	F7.2	29-35	
F	TIM(6,2,4)	minutes	F7.2	36-42	
G	TIM(7,2,4)	minutes	F7.2	43-49	
H	TIM(8,2,4)	minutes	F7.2	50-56	
I	TIM(9,2,4)	minutes	F7.2	57-63	
J	TIM(10,2,4)	minutes	F7.2	64-70	
K	TIM(11,2,4)	minutes	F7.2	71-77	

NOTE: This card is always **preceded by** card 77b and followed by card **78b.**

Card: 78a

M/F UP TO M/F DOWN TRANSMISSION TIME DATA

Card: 78b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,2,4)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F up to M/F down computers
M	TIM(13,2,4)	minutes	F7.2	8-14	
N	TIM(14,2,4)	minutes	F7.2	15-21	
O	TIM(15,2,4)	minutes	F7.2	22-28	
P	TIM(16,2,4)	minutes	F7.2	29-35	
Q	TIM(17,2,4)	minutes	F7.2	36-42	
R	TIM(18,2,4)	minutes	F7.2	43-49	
S	TIM(19,2,4)	minutes	F7.2	50-56	
T	TIM(20,2,4)	minutes	F7.2	57-63	
U	TIM(21,2,4)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 78a and followed by card 79a.

Card: 78b

T/F DOWN TO M/F DOWN TRANSMISSION TIME DATA

Card: 79a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,3,4)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for T/F down to M/F down computers
B	TIM(2,3,4)	minutes	F7.2	8-14	
C	TIM(3,3,4)	minutes	F7.2	15-21	
D	TIM(4,3,4)	minutes	F7.2	22-28	
E	TIM(5,3,4)	minutes	F7.2	29-35	
F	TIM(6,3,4)	minutes	F7.2	36-42	
G	TIM(7,3,4)	minutes	F7.2	43-49	
H	TIM(8,3,4)	minutes	F7.2	50-56	
I	TIM(9,3,4)	minutes	F7.2	57-63	
J	TIM(10,3,4)	minutes	F7.2	64-70	
K	TIM(11,3,4)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 78b and followed by card 79b.

Card: 79a

T/F DOWN TO M/F DOWN TRANSMISSION TIME DATA

Card: 79b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,3,4)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for T/F up to M/F down computers
M	TIM(13,3,4)	minutes	F7.2	8-14	
N	TIM(14,3,4)	minutes	F7.2	15-21	
O	TIM(15,3,4)	minutes	F7.2	22-28	
P	TIM(16,3,4)	minutes	F7.2	29-35	
Q	TIM(17,3,4)	minutes	F7.2	36-42	
R	TIM(18,3,4)	minutes	F7.2	43-49	
S	TIM(19,3,4)	minutes	F7.2	50-56	
T	TIM(20,3,4)	minutes	F7.2	57-63	
U	TIM(21,3,4)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 79a and followed by card 80a.

Card: 79b

M/F DOWN TO M/F DOWN TRANSMISSION TIME DATA

Card: 80a

ID	Parameter	Units	Format	Columns	Description
A	TIM(1,4,4)	minutes	F7.2	1-7	Same type of data as entered on card 65a, except data are for M/F down to M/F down computers
B	TIM(2,4,4)	minutes	F7.2	8-14	
C	TIM(3,4,4)	minutes	F7.2	15-21	
D	TIM(4,4,4)	minutes	F7.2	22-28	
E	TIM(5,4,4)	minutes	F7.2	29-35	
F	TIM(6,4,4)	minutes	F7.2	36-42	
G	TIM(7,4,4)	minutes	F7.2	43-49	
H	TIM(8,4,4)	minutes	F7.2	50-56	
I	TIM(9,4,4)	minutes	F7.2	57-63	
J	TIM(10,4,4)	minutes	F7.2	64-70	
K	TIM(11,4,4)	minutes	F7.2	71-77	

NOTE: This card is always preceded by card 79b and followed by card 80b.

Card: 80a

M/F DOWN TO M/F DOWN TRANSMISSION TIME DATA — Card: 80b

ID	Parameter	Units	Format	Columns	Description
L	TIM(12,4,4)	minutes	F7.2	1-7	Same type of data as entered on card 65b, except data are for M/F down to M/F down computers
M	TIM(13,4,4)	minutes	F7.2	8-14	
N	TIM(14,4,4)	minutes	F7.2	15-21	
O	TIM(15,4,4)	minutes	F7.2	22-28	
P	TIM(16,4,4)	minutes	F7.2	29-35	
Q	TIM(17,4,4)	minutes	F7.2	36-42	
R	TIM(18,4,4)	minutes	F7.2	43-49	
S	TIM(19,4,4)	minutes	F7.2	50-56	
T	TIM(20,4,4)	minutes	F7.2	57-63	
U	TIM(21,4,4)	minutes	F7.2	64-70	

NOTE: This card is always preceded by card 80a and followed by card 81.

Card: 80b

NUMBER OF FDC EQUIPMENT FAILURES					Card: 81
	A				
ID	Parameter	Units	Format	Columns	Description
A	NFAIL	---	I5	1-5	Number of FDC equipment failures + 1 (current maximum value of 13) NOTE: A dummy equipment failure is required by the program logic, thereby necessitating that the number of actual equipment failures be augmented by 1.

Card: 81

FDC EQUIPMENT FAILURE DATA — Card: 82

ID	Parameter	Units	Format	Columns	Description
A	RAMIN(I,1)	---	F8.2	1-8	Number of FDC at which i^{th} failure occurred
B	RAMIN(I,2)	minutes	F8.2	9-16	Time at which i^{th} failure occurred
C	RAMIN(I,3)	minutes	F8.2	17-24	Time at which repair of i^{th} failure is completed
D	RAMIN(I,4)	---	F8.2	25-32	Type of i^{th} failure
E	RAMIN(I,5)	minutes	F8.2	33-40	Time duration of i^{th} failure

NOTE: As many as 13 cards of this type may be required; one for each of up to 12 failures, plus a dummy failure card required for program logic.

Card: 82

RED WEAPONS SYSTEMS ORDERING					Card: 83
ID	Parameter	Units	Format	Columns	Description
A	IORDER(1)	---	I10	1-10	Orders Red weapon systems for counterbattery fire missions. Working from right to left, each digit represents the particular Red system to be tried next for counterbattery fire
B	IORDER(2)	---	I10	11-20	

NOTE: This card always follows the last type 82 card. It is followed by from one to eight type 84 cards.

Card: 83

RED BATTALION WEAPONS SYSTEMS

Card: 84

ID	Parameter	Units	Format	Columns	Description
A	REDECH(I,1)	---	F10.4	1-10	Number of the 1st Red battalion that is equipped with i^{th} weapons system type
B	REDECH(I,2)	---	F10.4	11-20	Total number of Red battalions that are equipped with i^{th} weapons system type

NOTE: Maximum number of cards of this type is eight. The first card of this type is always preceded by card 83, and the last card of this type is always followed by the first type 85 card.

Card: 84

RED BATTALION DATA — Card: 85

ID	Parameter	Units	Format	Columns	Description
A	REDBN(I,1)	---	F10.4	1-10	Battalion ID (as a Blue target on target tape) of the i^{th} Red battalion
B	REDBN(I,2)	---	F10.4	11-20	Number of batteries or fire units in the Red battalion
C	REDBN(I,3)	---	F10.4	21-30	Number of tubes per Red battery at start of game
D	REDBN(I,4)	---	F10.4	31-40	Red battalion weapons system number
E	REDBN(I,5)	---	F10.4	41-50	Index number of first battery in this Red battalion
F	REDBN(I,6)	---	F10.4	51-60	Not used at the present time; leave blank
G	REDBN(I,7)	---	F10.4	61-70	Echelon key (= 1.0, regimental artillery; =2.0, Division artillery; =3.0, Army artillery)
					NOTE: Each card of this type is followed by sets of card type 86 and card type 87. Reading of this type card and card types 86 and 87 is terminated when a value of 9999. is entered in columns 1-10 of this type card. The number of type 86 cards that are required for each card of this type depends upon the value entered in columns 11-20 of this card type.

Card: 85

RED BATTERY DATA | Card: 86

ID	Parameter	Units	Format	Columns	Description
A	REDBAT(K,1)	---	F10.4	1-10	Red battalion number to which k^{th} battery belongs
B	REDBAT(K,2)	---	F10.4	11-20	Number of tubes up in k^{th} battery
C	REDBAT(K,3)	minutes	F10.4	21-30	Time that k^{th} battery can begin next mission
D	REDBAT(K,4)	---	F10.4	31-40	k^{th} battery's current site number
E	REDBAT(K,5)	---	F10.4	41-50	Fractional personnel survivors in this Red battalion. When this drops below DL, the specified defeat level, this value is set to 100000
F	REDBAT(K,6)	---	F10.4	51-60	k^{th} battery's ID number (as a Blue target)
G	REDBAT(K,7)	---	F10.4	61-70	Number of rounds fired by k^{th} battery up to present
H	REDBAT(K,8)	---	F10.4	71-80	Number of sites for k^{th} battery during game (maximum value of 6)

NOTE: The number of cards of this type for each card type 85 is determined from the value entered in columns 11-20 of card type 85. Each type 86 card is followed by up to 6 type 87 cards, the number of type 87 cards being determined by the value entered in columns 71-80 of a type 86 card.

Card: 86

RED BATTERY SITE DATA | Card: 87

A B C D

ID	Parameter	Units	Format	Columns	Description
A	REDMOV (K,L,1)	minutes	F10.4	1-10	Time of arrival of k^{th} Red battery at its 1^{th} site
B	REDMOV (K,L,2)	minutes	F10.4	11-20	Time of departure of k^{th} Red battery from its 1^{th} site
C	REDMOV (K,L,3)	kilometers	F10.4	21-30	x - coordinate of k^{th} Red battery's 1^{th} site
D	REDMOV (K,L,4)	kilometers	F10.4	31-40	y - coordinate of k^{th} Red battery's 1^{th} site

NOTE: From 1 to 6 cards of this type are required for each type 86 card entered. The number of cards for each type 86 card is determined by the value entered in columns 71-80 of that card.

Card: 87

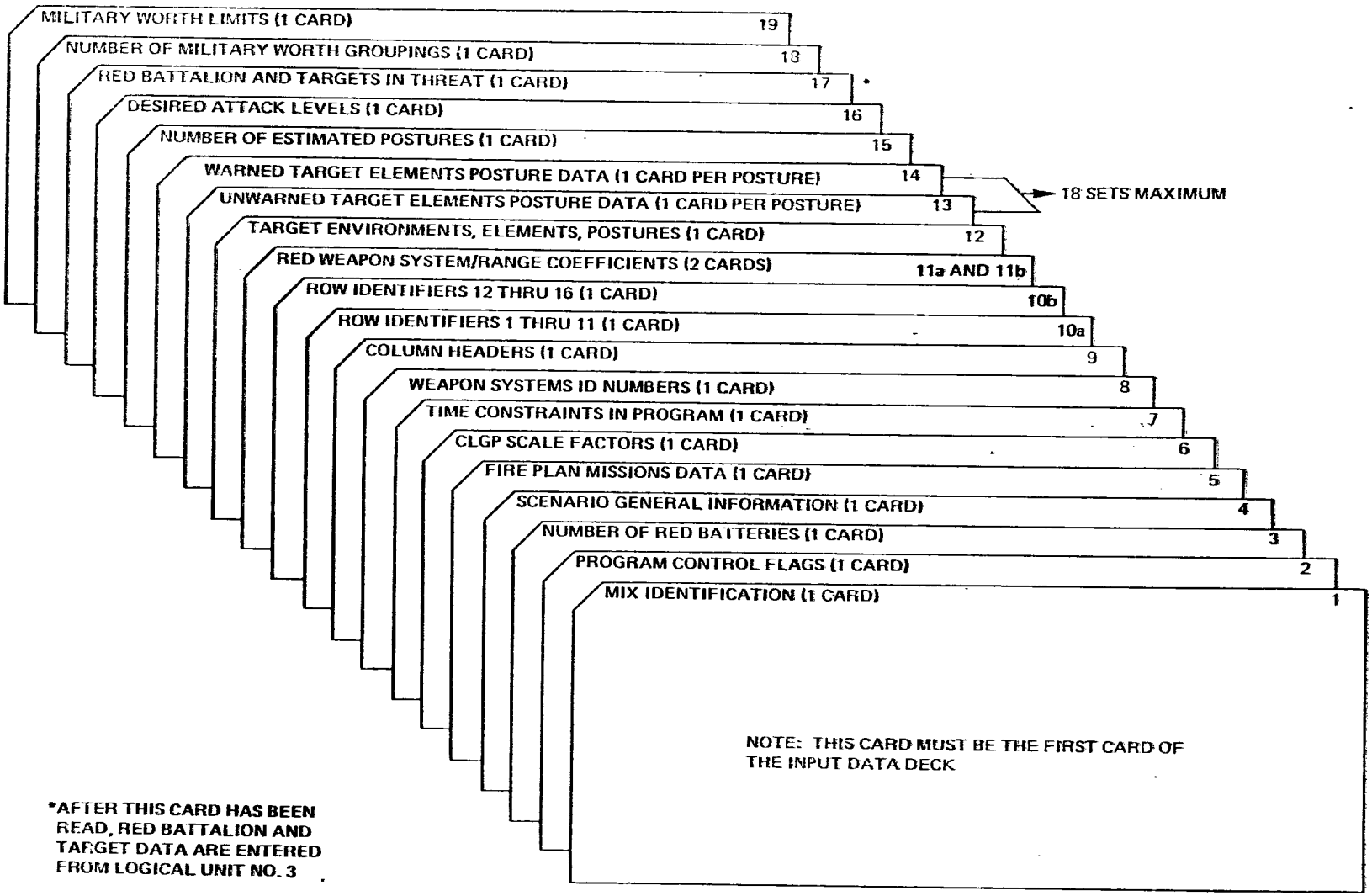


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 1 of 6).

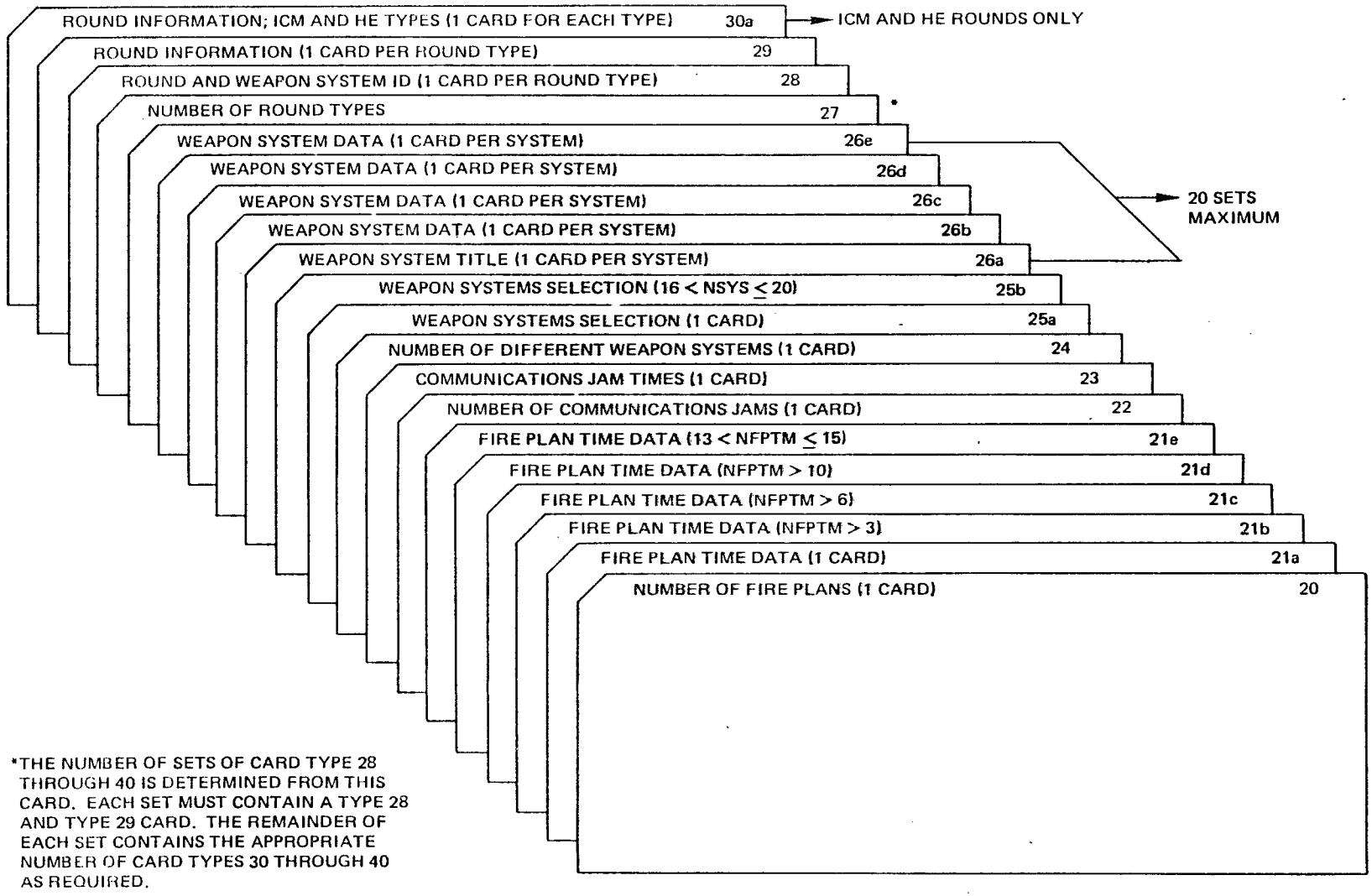


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 2 of 6).

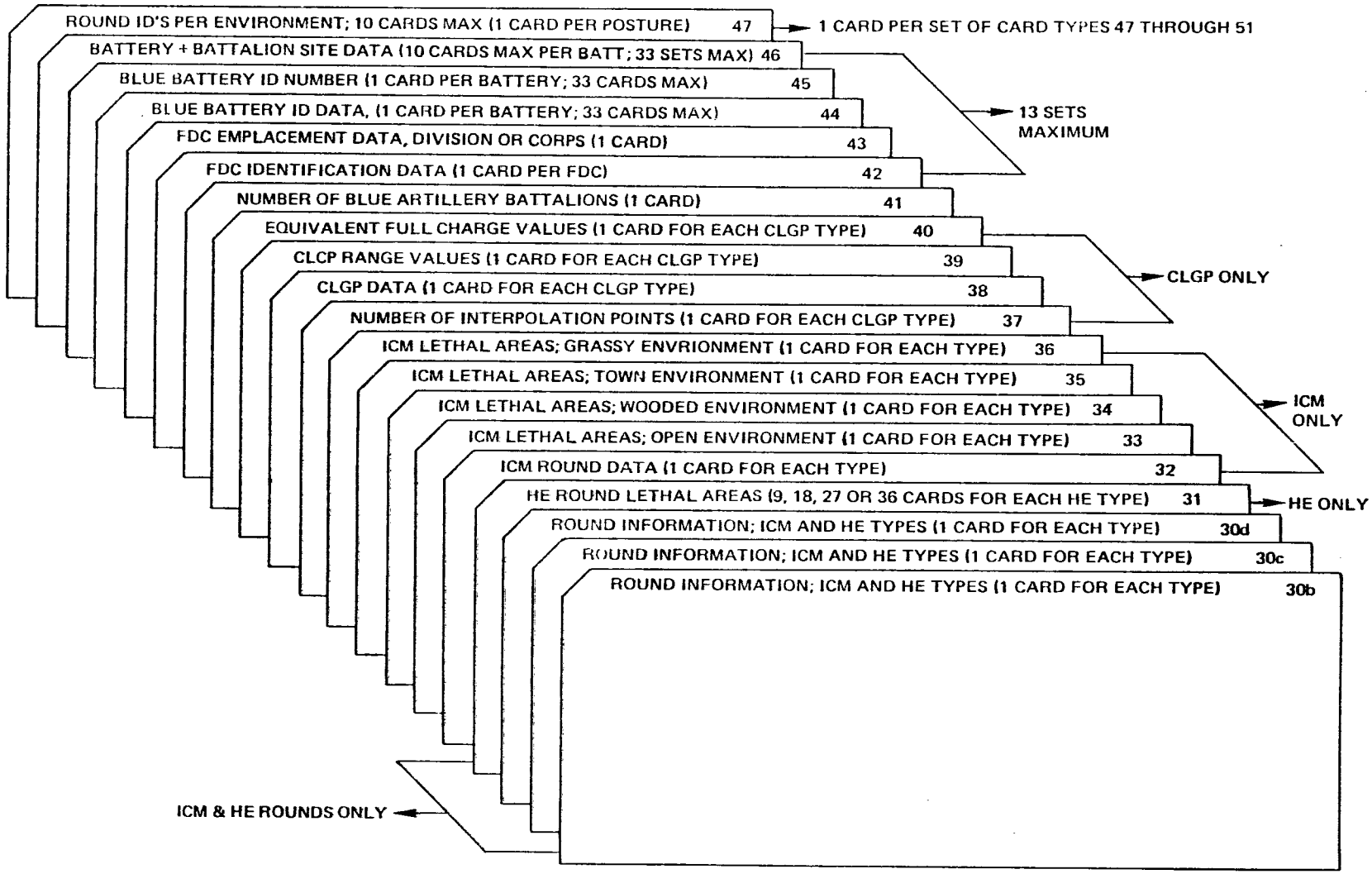


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 3 of 6).

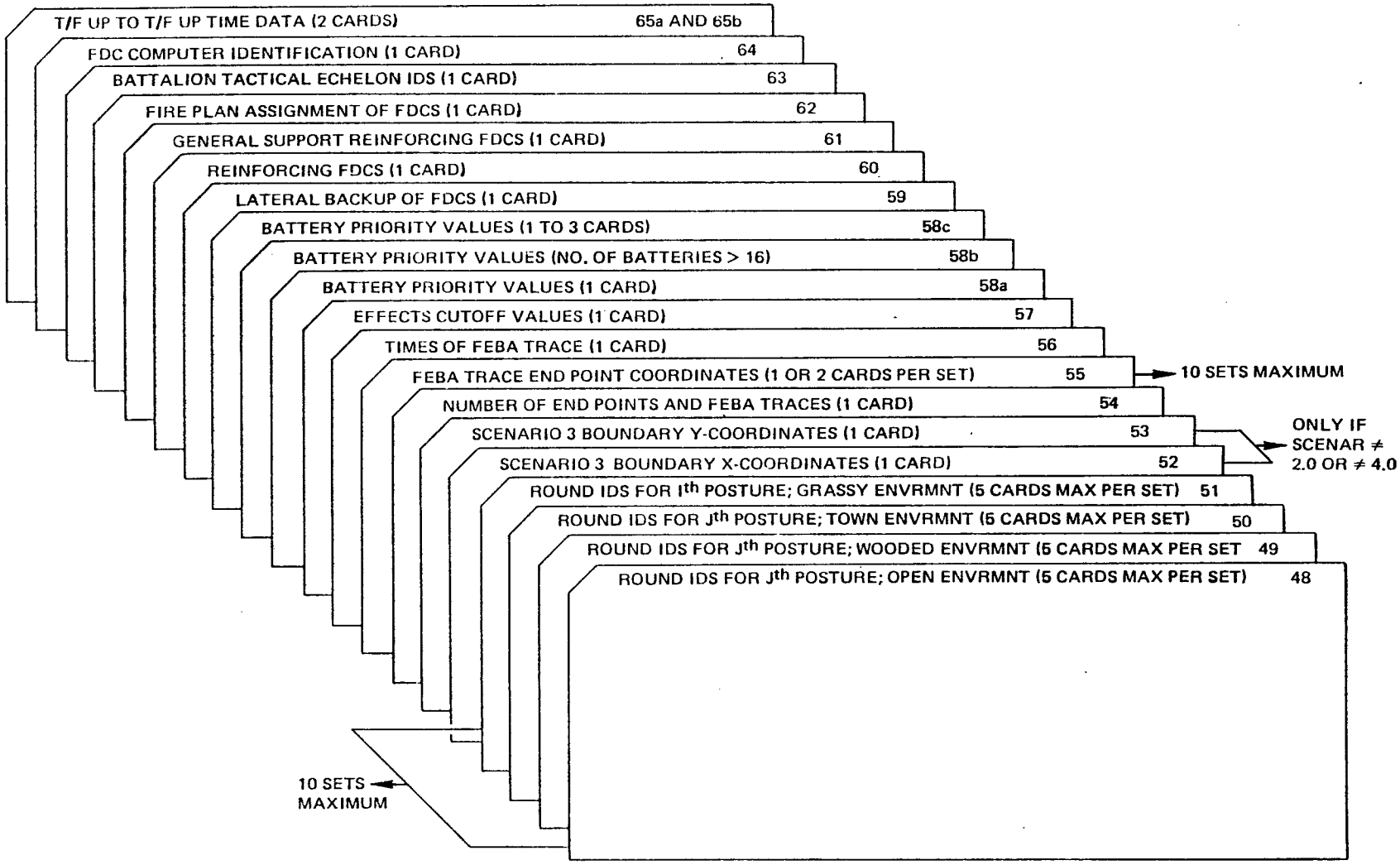


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 4 of 6).

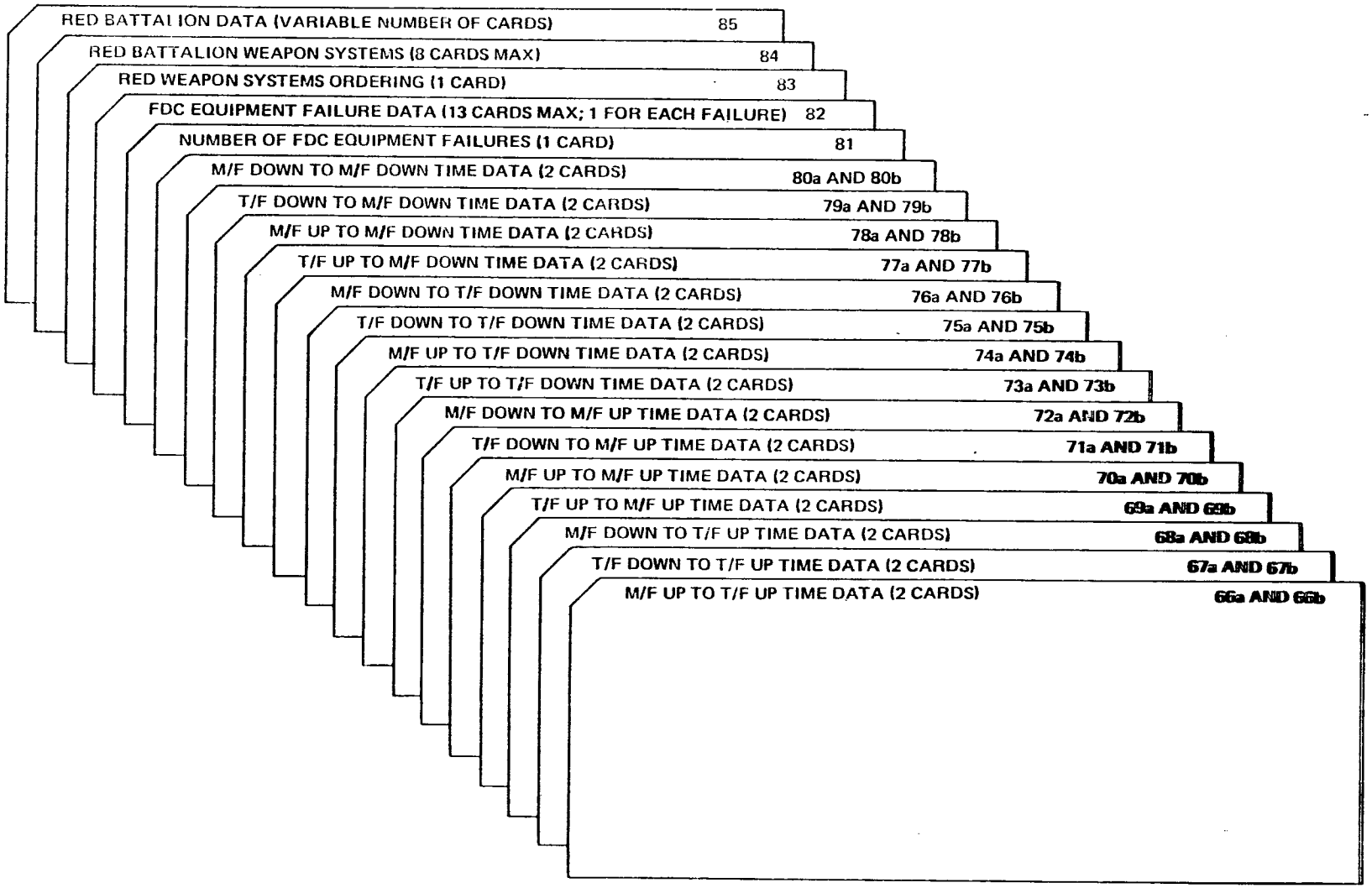


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 5 of 6).

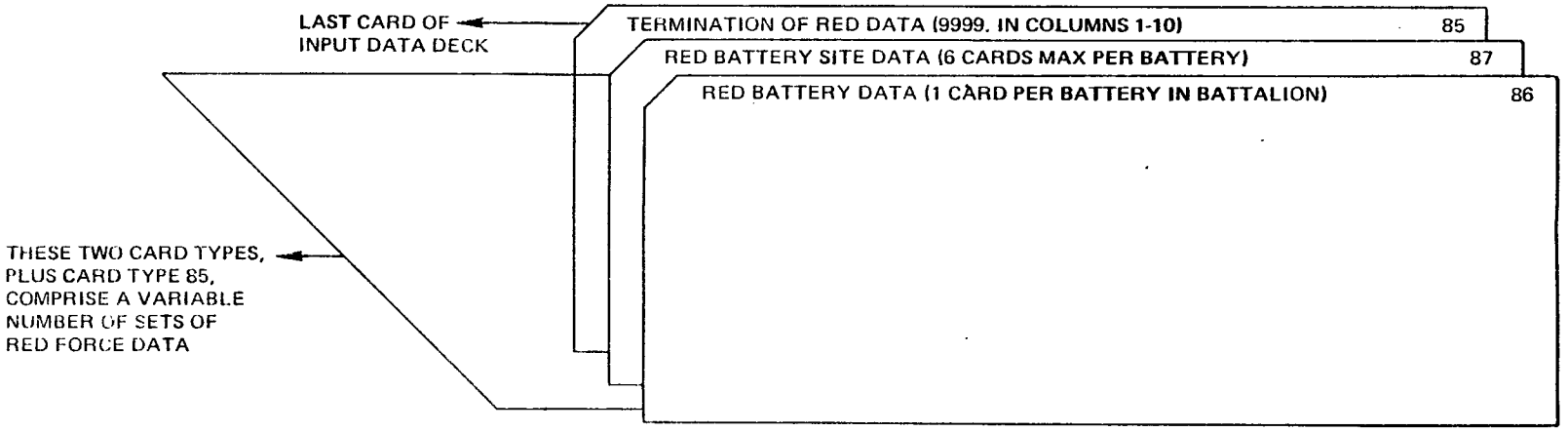


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 6 of 6).

SECTION 4

OUTPUT

In this section the various types of hard copy output generated during execution of the AFSM Computer Program are discussed. Whenever reference is made to data card types, the reader should refer to Section 3 of this report for descriptions of the specified card types. Hard copy output, as generated during execution of each of the six input subroutines, is discussed first. A discussion of the scenario results at a specified game time is presented next. Finally, the status of individual target elements at the end of the game is presented and discussed.

Subroutine TABLES

Figure 4-1 contains typical hard copy output generated during execution of Subroutine TABLES. The first two lines are card images of parameter values contained on Data Card Types 2 and 3. The third line informs the reader that all data, entered by this subroutine, have been properly loaded into the program.

```
 0.00    1.00   25.00    .30    1.00    4.00    0.00
41
      TABLES LOADED PROPERLY
```

FIGURE 4-1. Subroutine TABLES Typical Hard Copy Output.

Subroutine SYSTEM

Figure 4-2 contains 34 lines of typical hard copy output generated during execution of Subroutine SYSTEM. The output consists of data taken from Data Card Types 26b through 26e. Each set represents one of the eight friendly weapon systems in the game. The next two lines are used to indicate the number of weapon systems being played and inform the reader that all data entered by this subroutine have been properly loaded into the program.

```
1200.00     6.00     6.00     4.00    50.00     1.00    30.00     8.00     2.00  1200.00
  80.00    12.00     1.00     1.00     2.00     5.00    27.00     5.00    27.00     5.00
  27.00  1500.00   800.00  2000.00  1000.00  1000.00  2000.00     4.00  5000.00      .05
    .20      .40      .40
3100.20     4.00     3.00     2.00    40.00     1.00    30.00     5.00     2.00   850.00
 100.00    12.00     1.00     1.00     2.00     5.00    27.00     5.00    27.00     5.00
  27.00  1500.00  1500.00 10000.00  1000.00  1000.00 10000.00     3.00  2500.00      .05
    .30      .50      .20
4000.20     2.00      .50      .33     3.00     2.00    60.00     1.00    20.00    30.00
   2.00     1.00     1.00     1.00     1.00     3.00    27.00     3.00    27.00     3.00
  27.00    99.00   200.00   400.00   300.00  3000.00 30000.00     0.00999999.00      .20
    .05      .15      .80
5000.20     2.00    24.00    24.00  1000.00     3.00    25.00    12.00    15.00    90.00
  18.00    12.00     1.00    12.00     1.00     3.00    27.00     3.00    27.00     3.00
  27.00   600.00  4000.00 10000.00  1000.00  4300.00  7000.00     0.00999999.00      .20
    .10      .35      .55
12000.20    1.00     1.00     1.00     1.00     2.00    80.00     1.00    20.00    10.00
   6.00     0.00    30.00     0.00     1.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
13000.10    6.00     1.50     6.00     1.00     1.00    30.00    15.00     2.00   900.00
 300.00     0.00     1.20     0.00     2.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
14000.20    6.00    40.00    40.00    40.00     2.00    16.00     1.00    20.00   240.00
 720.00     0.00      .90     0.00     1.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
17000.30    6.00     2.00     8.00     1.00     1.00    18.00    15.00     2.00   500.00
 800.00     0.00     1.10     0.00     2.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
  8
        SYSTEM LOADED PROPERLY
```

FIGURE 4-2. Subroutine SYSTEM Typical Hard Copy Output.

Subroutine ROUND

Figure 4-3 contains 16 lines of typical hard copy output generated during execution of Subroutine ROUND. The first line contains the value of the number of different type rounds to be entered as specified on Data Card Type 27. The next 13 lines contain values of the first seven values appearing on 13 Data Card Type 29. One round type does not appear because it is incompatible with all weapon systems entered into the program. The last two lines are used to specify that nine Blue round types are used in the current scenario and that all data, entered by this subroutine, have been properly loaded into the program.

```
 14
1201.3     .081     .300     16.5     .954     1.    1200.
1202.3     .081     .200     30.0     .950     2.    1200.
1203.3     .063     .115     17.3     .980     2.    1200.
1204.3     .101    2.970     17.0     .953     3.     600.
3101.2     .100     .450     23.0     .950     1.     900.
3102.2     .150     .523     30.0     .950     2.     400.
3103.2     .100     .160     22.0     .980     2.     800.
4001.2    2.300  100.300     60.0     .965     1.      30.
5001.2     .080     .990     25.0     .950     1.      90.
12001.2   1.000    1.000     60.0     .950     1.      10.
13001.1   1.000    1.000     30.0     .970     2.     900.
14001.2   1.000    1.000     16.0     .980     2.     240.
17001.3   1.000    1.000     18.0     .950     2.     500.
 9
ROUND LOADED PROPERLY
```

FIGURE 4-3. Subroutine ROUND Typical Hard Copy Output.

Subroutine FUFDC

Figure 4-4 consists of five pages of typical hard copy output generated during execution of Subroutine FUFDC. The first line on page one contains the value for the number of friendly battalions in the game taken from Data Card Type 41. The second line, illustrates two site locations and zero battalions for Divarty FDC, as entered from Data Card Type 42. The third and fourth lines contain arrival and departure times as well as x- and y-coordinates of the sites as entered from two Data Card Type 43.

Lines five through seven contain the same type of information for Group FDC. The remaining lines on page one, Figure 4-4, as well as pages two, three, and four, contain battalion FDC site information and battery site information for all friendly battalions and batteries in the game. Data are entered via proper combinations of Data Card Types 42, 44, 45 and 46. The last two lines on page four, Figure 4-4, are used to specify that 23 batteries and 10 FDCs in the friendly force have 100 tubes available at the start of the game.

Page five of Figure 4-4 contains values for the number of points (10) per FEBA trace, the number of FEBA traces, and the x- and y-coordinates of the points. These values are entered from Data Card Type 54 and 20 Data Card Type 55.

```
   8
   2     0                              DIVARTY FDC
   0.00   875.00    61.00    63.00
 920.00  1700.00    54.00    57.00
   2     0                              CORPS FDC
   0.00   870.00    61.00    70.00
 715.00  1700.00    54.00    62.00
   7     3       BN FDC  BN1    XM155  DS
   0.00   160.00    62.00    72.40
 180.00   270.00    61.80    71.90
 300.00   390.00    58.50    71.50
 610.00   960.00    56.00    71.30
 990.00  1170.00    55.00    69.50
1120.00  1480.00    51.50    68.50
1500.00  1630.00    51.20    66.10
   3BATTERYS IN BN  1
   7     0       B BTRY  BN1      XM155  DS
1200.30
   0.00   160.00    62.00    72.40     4.00
 180.00   270.00    61.80    71.90     4.00
 300.00   390.00    58.50    71.50     8.00
 610.00   960.00    56.00    71.30    10.00
 990.00  1170.00    55.00    69.50     8.00
1120.00  1480.00    51.50    68.50     8.00
1500.00  1630.00    51.20    66.10     4.00
   7     0       A BTRY  BN1      XM155  DS
1200.30
   0.00   140.00    63.50    73.90     4.00
 160.00   250.00    63.30    73.40     4.00
 280.00   570.00    60.00    73.00     8.00
 640.00   900.00    59.50    72.80    10.00
 930.00  1150.00    56.50    71.00     8.00
1180.00  1460.00    53.00    70.00     8.00
1480.00  1630.00    52.70    69.60     4.00
   7     0       C BTRY  BN1      XM155  DS
1200.30
   0.00   140.00    65.00    75.40     4.00
 140.00   230.00    64.80    74.90     4.00
 260.00   550.00    61.50    74.50     8.00
 570.00   930.00    61.00    74.30    10.00
 960.00  1130.00    58.00    72.50     8.00
1160.00  1440.00    54.50    71.50     8.00
1460.00  1630.00    54.20    71.40     4.00
   7     3       BN FDC  BN2    XM155  DS
   0.00   110.00    67.20    69.60
 130.00   250.00    67.00    69.10
 270.00   430.00    66.50    69.10
 420.00   710.00    66.10    64.90
 740.00  1100.00    62.00    64.60
1130.00  1310.00    61.70    63.50
1340.00  1630.00    56.50    62.50
   3BATTERYS IN BN  2
   7     0                BN2      XM155  DS
1200.30
   0.00   110.00    67.20    69.60     8.00
 130.00   250.00    67.00    69.10     6.00
 270.00   430.00    66.50    65.10     5.00
 420.00   710.00    66.10    64.90     8.00
 740.00  1100.00    62.00    64.60    12.00
1130.00  1310.00    61.70    63.50    10.00
1340.00  1630.00    56.50    62.50    12.00
```

FIGURE 4-4. Subroutine FUFDC Typical Hard Copy Output (Page 1 of 5).

```
   7    0       A BTRY  BN2      XM156  DS
1200.30
   0.00   90.00   68.70   67.10    8.00
 110.00  230.00   68.50   66.60    6.00
 250.00  380.00   68.00   66.60    5.00
 400.00  690.00   67.60   66.40    8.00
 720.00 1060.00   68.50   65.10   12.00
1110.00 1290.00   63.20   65.00   10.00
1320.00 1630.00   56.00   64.00   12.00
   7    0       C BTRY  BN2      XM156  DS
1200.30
   0.00   70.00   70.20   66.60    8.00
  90.00  210.00   70.00   63.10    6.00
 230.00  360.00   69.50   66.10    5.00
 380.00  670.00   69.10   67.90    8.00
 700.00 1060.00   65.00   67.60   12.00
1090.00 1270.00   64.70   66.30   10.00
1300.00 1630.00   59.50   65.50   12.00
   6    3       BN FDC  BN3    XM156  DS
   0.00  350.00   70.50   57.80
 370.00  610.00   70.30   57.30
 630.00  690.00   69.80   57.10
 720.00  990.00   67.00   56.00
1100.00 1240.00   65.60   55.70
1320.00 1630.00   63.50   55.70
   3BATTERYS IN BN  3
   6    0       B BTRY  BN3      XM156  DS
1200.30
   0.00  350.00   70.50   57.80    6.00
 370.00  610.00   70.30   57.30    5.00
 630.00  690.00   69.80   57.10    4.00
 720.00  990.00   67.00   56.00    5.00
1100.00 1240.00   66.60   55.70    8.00
1320.00 1630.00   63.50   55.70    8.00
   6    0       A BTRY  BN3      XM156  DS
1200.30
   0.00  330.00   72.00   59.30    6.00
 350.00  590.00   71.80   58.80    5.00
 610.00  670.00   71.30   58.60    4.00
 700.00  970.00   68.50   57.50    5.00
 990.00 1270.00   66.10   57.20    8.00
1300.00 1630.00   65.00   57.20    8.00
   5    0       C BTRY  BN3      XM156  DS
1200.30
   0.00  330.00   73.50   60.80    6.00
 330.00  570.00   73.30   60.30    5.00
 590.00  650.00   72.80   60.10    4.00
 660.00  950.00   70.00   59.00    5.00
 970.00 1250.00   64.60   58.70    8.00
1280.00 1630.00   66.50   58.70    8.00
   5    3       BN FDC  BN4      M123A4  REINF TO BN 2
   0.00  170.00   67.70   67.80
 190.00  590.00   67.50   67.30
 610.00  890.00   67.00   67.10
 910.00 1190.00   66.50   66.80
1230.00 1630.00   62.50   64.50
   3BATTERYS IN BN  4
   5    0       B BTRY  BN4      M123A4  REINF TO BN 2
3100.20
   0.00  170.00   67.70   67.80   12.00
 190.00  590.00   67.50   67.30   12.00
 610.00  890.00   67.00   67.10    5.00
 910.00 1190.00   66.60   66.80    5.00
1230.00 1630.00   62.50   64.50    8.00
```

FIGURE 4-4. Subroutine FUFDC Typical Hard Copy Output (Page 2 of 5).

```
   5     0       A BTRY  BN4      M123A4  REINF TO BN 2
3100.20
   0.00  190.00   66.20   66.30   12.00
 210.00  610.00   66.00   65.80   12.00
 630.00  910.00   65.90   65.60    5.00
 930.00 1220.00   65.10   65.30    5.00
1230.00 1630.00   61.00   63.00    8.00
   5     0       C BTRY  BN4      M123A4  REINF TO BN 2
3100.20
   0.00  210.00   64.70   64.80   12.00
 230.00  650.00   64.50   64.30   12.00
 650.00  930.00   64.00   64.10    5.00
 950.00 1240.00   63.60   63.80    5.00
1270.00 1630.00   59.50   61.50    8.00
   6     3       BN FDC  BN3      M123A4  GSR TO BN 3
   0.00  230.00   75.00   59.30
 250.00  520.00   75.40   58.80
 970.00 1230.00   71.60   56.20
1250.00 1410.00   71.30   55.80
1440.00 1630.00   66.30   56.30
   3BATTERYS IN BN  5
   6     0       B BTRY  BN5      M123A4  GSR TO BN 3
3100.20
   0.00  230.00   75.60   59.30    4.00
 250.00  520.00   75.40   58.60    4.00
 550.00  950.00   72.00   58.60    4.00
 970.00 1230.00   71.60   56.20    4.00
1250.00 1410.00   71.30   55.80    6.00
1440.00 1630.00   66.30   56.30    6.00
   6     0       A BTRY  BN5      M123A4  GSR TO BN 3
3100.20
   0.00  210.00   74.10   57.80    4.00
 230.00  600.00   73.90   57.30    4.00
 630.00  930.00   70.50   55.00    4.00
 950.00 1210.00   70.10   54.70    4.00
1230.00 1390.00   69.80   54.30    6.00
1420.00 1630.00   64.80   54.80    6.00
   6     3       C BTRY  BN5      M123A4  GSR TO BN 3
3100.20
   0.00  190.00   72.60   56.30    4.00
 210.00  560.00   72.40   55.80    4.00
 590.00  910.00   69.00   53.50    4.00
 930.00 1190.00   68.60   53.20    4.00
1210.00 1370.00   68.30   52.80    6.00
1400.00 1630.00   63.30   53.30    8.00
   7     3       BN FDC  BN6      FARSS   GS AT D/A
   0.00  190.00   60.80   70.50
 210.00  460.00   60.60   70.00
 480.00  810.00   60.10   69.80
 830.00  940.00   59.70   69.50
 970.00 1190.00   56.50   67.00
1220.00 1430.00   55.50   66.50
1460.00 1630.00   53.70   66.70
   3BATTERYS IN BN  6
   7     0       B BTRY  BN6      FARSS   GS AT D/A
5000.20
   0.00  190.00   60.80   70.50    8.00
 210.00  460.00   60.60   70.00    6.00
 480.00  810.00   60.10   69.80    8.00
 830.00  940.00   59.70   69.50    6.00
 970.00 1190.00   56.50   69.00    8.00
1220.00 1430.00   55.50   68.50   10.00
1460.00 1630.00   53.70   66.70    4.00
```

FIGURE 4-4. Subroutine FUFDC Typical Hard Copy Output (Page 3 of 5).

```
   7    0      A BTRY  BN6      FARSS     GS AT D/A
5000.20
   0.00  170.00   62.30   72.00    8.00
 193.30  440.00   62.10   71.30    6.00
 463.00  790.00   61.60   72.30    8.00
 810.00  920.00   61.20   71.00    6.00
 950.00 1170.00   58.00   70.50    5.00
1200.30 1410.00   57.00   68.00   10.00
1440.00 1630.00   55.20   58.20    4.00
   7    0      C BTRY  BN6      FARSS     GS AT D/A
5000.20
   0.00  150.00   63.80   73.50    8.00
 170.00  420.00   63.60   73.00    6.00
 440.00  770.00   63.10   72.80    8.00
 790.00  930.00   62.70   72.50    5.00
 930.00 1190.00   59.50   72.00    5.00
1180.00 1390.00   58.50   69.50   10.00
1420.00 1630.00   56.70   69.70    4.00
   5    3       BN FDC  BN7      M123A4    GSR TO D/A FROM CORPS
   0.00  480.00   69.00   71.00
 500.00  750.00   64.80   70.50
 780.00 1120.00   54.50   72.50
1140.00 1310.00   54.00   72.30
1330.00 1630.00   53.70   71.90
   3BATTERYS IN BN  7
   5    0       B BTRY  BN7      M123A4    GSR TO D/A FROM CORPS
3100.20
   0.00  480.00   65.00   71.00    7.00
 500.00  750.00   64.80   70.50    3.00
 780.00 1120.00   54.50   72.50   11.00
1140.00 1310.00   54.00   72.30    4.00
1330.00 1630.00   53.70   71.90    7.00
   5    0       A BTRY  BN7      M123A4    GSR TO D/A FROM CORPS
3100.20
   0.00  460.00   63.40   69.50    7.00
 480.00  730.00   63.30   69.00    3.00
 760.00 1150.00   53.00   71.00   11.00
1120.00 1290.00   52.50   70.80    4.00
1310.00 1630.00   52.20   70.40    7.00
   5    0       C BTRY  BN7      M123A4    GSR TO D/A FROM CORPS
3100.20
   0.00  440.00   62.00   68.00    7.00
 460.00  710.00   61.80   67.50    3.00
 740.00 1080.00   51.50   69.50   11.00
1100.00 1270.00   51.00   69.30    4.00
1290.00 1630.00   50.70   68.90    0.00
   1    2       BN FDC BN8       SPEAR     GS AT CORPS
   0.00 1630.00   57.50   65.00
   2BATTERYS IN BN  8
   1    0       A BTRY BN8       SPEAR     GS AT CORPS
4000.20
   0.00 1630.00   57.50   65.00    0.00
   1    0       B BTRY BN8       SPEAR     GS AT CORPS
4000.20
   0.00 1630.00   65.00   55.00    0.00
  23   10
         FORSIZ =    100.0
```

FIGURE 4-4. Subroutine FUFDC Typical Hard Copy Output (Page 4 of 5).

```
10   10
55.00   80.00   69.00   77.00   73.00   74.00   74.00   71.00   76.00   68.00
78.00   85.00   79.00   62.00   80.00   54.00   74.00   56.00   79.00   53.00
65.00   80.00   66.00   77.00   68.00   74.00   71.00   71.00   73.00   68.00
73.00   85.00   76.00   62.00   77.00   54.00   74.00   56.00   79.00   53.00
64.00   80.00   64.00   77.00   67.00   74.00   70.00   71.00   72.00   68.00
73.00   85.00   76.00   62.00   76.00   54.00   74.00   56.00   79.00   53.00
64.00   80.00   64.00   77.00   66.00   74.00   70.00   71.00   71.00   68.00
73.00   85.00   75.00   62.00   75.00   59.00   79.00   56.00   79.00   53.00
63.00   80.00   64.00   77.00   66.00   74.00   70.00   71.00   71.00   68.00
73.00   85.00   75.00   62.00   75.00   59.00   76.00   56.00   76.00   53.00
62.00   80.00   63.00   77.00   64.00   74.00   69.00   71.00   70.00   68.00
72.00   85.00   73.00   62.00   74.00   59.00   73.00   56.00   75.00   53.00
61.00   80.00   62.00   77.00   61.00   74.00   64.00   71.00   70.00   68.00
72.00   85.00   73.00   62.00   73.00   54.00   73.00   56.00   75.00   53.00
61.00   80.00   62.00   77.00   59.00   74.00   61.00   71.00   69.00   68.00
70.00   85.00   72.00   62.00   72.00   59.00   73.00   56.00   75.00   53.00
60.00   80.00   61.00   77.00   58.00   74.00   59.00   71.00   61.00   68.00
69.00   85.00   73.00   62.00   71.00   54.00   72.00   56.00   75.00   53.00
60.00   80.00   61.00   77.00   57.00   74.00   58.00   71.00   59.00   68.00
65.00   85.00   73.00   62.00   70.00   59.00   71.00   56.00   75.00   53.00
```

FIGURE 4-4. Subroutine FUFDC Typical Hard Copy Output (Page 5 of 5).

Subroutine WPMIX

Figure 4-5 presents typical hard copy output generated during execution of Subroutine WPMIX. The first line is a card image of Data Card Type 57 and the second line is the value for the number of friendly battalions in the game. Lines three and four contain priority values for the 23 friendly batteries taken from Data Card Types 58a and 58b. These lines are followed by four lines of values of placement numbers for 1) lateral backup of FDCs, 2) reinforcing FDCs, 3) general support reinforcing FDCs, and 4) fire plan assignment of FDCs. These values are entered from Data Card Types 59 through 62 respectively. The next line is a card image of tactical echelon identification numbers that appear on Data Card Type 63.

The next 23 lines contain values computed from Data Card Type 26d information for each weapon system entered during execution of Subroutine SYSTEM. The eight columns of 23 lines contain the following information:

Column 1 - fire unit number
Column 2 - randomized number of equivalent full charge rounds fired toward next short-term tube failure
Column 3 - randomized number of equivalent full charge rounds fired toward next long-term tube failure
Column 4 - randomized number of equivalent full charge rounds fired toward next permanent tube failure
Column 5 - randomized number of EFC rounds fired toward next tube change

Column 6 - randomized number of kilometers traveled toward next short-term mobility failure
Column 7 - randomized number of kilometers traveled toward next long-term mobility failure
Column 8 - randomized number of kilometers traveled toward next permanent mobility failure

Lines 33 through 37 are ordering values for as many as 14 friendly battalions based upon battalion tactical echelon identification numbers and these values are computed during execution of this subroutine. These lines are followed by a card image of Data Card Type 64 which contains values identifying the type of computer at each of the 10 FDCs in the game.

The following 32 lines are card images of Data Card Types 65a through 80b which contain transmission times and processing time values for various missions and operative status of computers. The last two lines, card images of Data Card Types 81 and 82, contain data concerning FDC equipment failures and are the last two lines of hard copy output generated during execution of Subroutine WPMIX.

```
 3 .0010 .0010 .0010 .0010 .0010 .0010 .0010 .0010 .0010 .00102.000 .500     2
 8
1.   1.   1.   1.   1.   1.   1.    1.   1.   1.   1.   1.   1.   1.   1.   1.
1.   1.   1.   1.   1.   1.   1.
2.   1.   4.   3.   6.   5.   9.    7.  10.   8.
0.   0.   0.   0.   6.   0.   0.    0.   0.   0.
0.   0.   0.   0.   0.   7.   0.    0.   0.   0.
1.   2.   1.   1.   1.   1.   1.    1.   1.   2.
1.   1.   1.   2.   4.   3.   5.    6.
 1      602.       362.      1310.      1425.       852.       786.       631.
 2      323.       433.       501.      1162.       315.       832.      1408.
 3     1280.        45.       526.      2210.       764.       107.      1323.
 4      974.       560.       316.       240.       603.       314.      1000.
 5      411.       503.      1335.      1762.       413.       797.      1235.
 6     1412.       721.       767.      1642.       426.        67.      1161.
 7     1482.       456.      1776.       678.       200.       944.      1564.
 8     1209.       485.      1704.      1982.       943.       972.      1346.
 9      197.       176.      1216.      1191.       721.        60.      1146.
10      706.       844.      6093.      1076.       260.       179.      1997.
11      175.       169.      6925.       605.       824.        70.       580.
12      687.       457.      1976.      1091.       804.       450.      4793.
13      159.       974.       528.        86.       117.       550.      4984.
14     1011.       497.      2961.       206.       751.       284.      2595.
15       47.      1373.      2249.       309.       219.        36.      5914.
16      125.      1347.      8940.         0.       289.       999.      5123.
17      209.      3885.      5877.         0.       219.      3644.      3642.
18      153.      3458.      7559.         0.       299.       645.      1789.
19     1222.       766.      2464.       210.       940.       717.      7767.
20      908.       272.      1672.        96.       652.       231.      4312.
21     1064.      1315.       325.       554.       950.       359.      7941.
22       62.        82.        37.     28659.       187.       738.     22499.
23       68.       145.        59.     11248.       151.      2003.     10666.
6.   7.   5.   1.   2.   3.   0.    0.   0.   0.   0.   0.   3.   6.
6.   5.   1.   2.   3.   0.   0.    0.   0.   0.   0.   0.   2.   5.
8.   7.   0.   0.   0.   0.   0.    0.   0.   0.   0.   0.   0.   2.
8.   0.   0.   0.   0.   0.   0.    0.   0.   0.   0.   0.   0.   1.
 1    1    1    1    1    1    1    1    1    1
 .28     .27     .80    1.07    1.00     .55     .60     .60     .60     .25     .25
 .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .38
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 .28     .27    1.00    1.27    1.20     .75     .60     .60     .60     .25     .25
 .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .38
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 .28     .27     .80    1.07    1.00     .55     .60     .60     .60     .25     .25
 .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .38
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 .28     .27    1.00    1.27    1.20     .75     .60     .60     .60     .25     .25
 .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .38
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 .28     .27     .80    1.07    1.00     .55     .60     .50     .60     .25     .25
 .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .39
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 .28     .27    1.00    1.27    1.20     .75     .60     .60     .60     .25     .25
 .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .38
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 .28     .27     .80    1.07    1.00     .55     .60     .60     .60     .25     .25
 .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .38
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 .28     .27    1.00    1.27    1.20     .75     .60     .60     .50     .25     .25
 .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .30
1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 1
 2.00 9999.00    0.00     0.00     0.00
```

FIGURE 4-5. Subroutine WPMIX Typical Hard Copy Output.

Subroutine REDIN

Figure 4-6 presents typical hard copy output generated during execution of Subroutine REDIN. The first line is used to specify the number of enemy systems in the game. This information, followed by a card image of Data Card Type 83, is used to specify Red weapon system ordering for counterbattery fire missions.

The next four lines contain three values each, one line for each enemy system in the game. The first two values on each line are entered from Data Card Type 84 and the last value is used to specify the round ordering number for the system. The remaining lines represent Red battalion data taken from Data Card Type 85. One card represents each battalion. The fourth value on each line has been incremented by the number of different type Blue weapon systems in the game and places the Red battalion weapons systems in proper order for counterbattery fire missions. The last line, which contains 9999.0000 as its first value, is used to indicate that all data cards have been entered into the program.

```
 1432      4132
 1.0000    1.0000   10.0000
 2.0000    2.0000   11.0000
 4.0000    1.0000   12.0000
 5.0000   12.0000   13.0000
755.0000   4.0000    1.0000    5.0000    1.0000    0.0000    2.0000
901.0000   3.0000    6.0000    6.0000    5.0000    0.0000    1.0000
902.0000   3.0000    6.0000    6.0000    8.0000    0.0000    1.0000
760.0000   3.0000    6.0000    7.0000   11.0000    0.0000    2.0000
753.0000   3.0000    6.0000    8.0000   14.0000    0.0000    1.0000
843.0000   3.0000    6.0000    8.0000   17.0000    0.0000    1.0000
903.0000   3.0000    6.0000    8.0000   20.0000    0.0000    2.0000
904.0000   3.0000    6.0000    8.0000   23.0000    0.0000    2.0000
705.0000   1.0000    6.0000    8.0000   26.0000    0.0000    1.0000
715.0000   1.0000    6.0000    8.0000   27.0000    0.0000    1.0000
725.0000   1.0000    6.0000    8.0000   28.0000    0.0000    1.0000
751.0000   3.0000    6.0000    8.0000   29.0000    0.0000    1.0000
752.0000   3.0000    6.0000    8.0000   32.0000    0.0000    1.0000
806.0000   1.0000    6.0000    8.0000   35.0000    0.0000    3.0000
841.0000   3.0000    6.0000    8.0000   36.0000    0.0000    1.0000
842.0000   3.0000    6.0000    8.0000   39.0000    0.0000    1.0000
9999.0000  0.0000    0.0000    4.0000    0.0000    0.0000    0.0000
```

FIGURE 4-6. Subroutine REDIN Typical Hard Copy Output.

SCENARIO RESULTS

Hard copy output is generated during execution of Subroutine OUTPUT at the end of each hour of game time. Figure 4-7, consisting of five pages, contains scenario results after 27 hours of game time. A discussion of these results, page by page, is presented in the paragraphs that follow.

Page 1 of 5

The first line of hard copy output is used to specify that the results are for the 27th hour of the game: the scenario is a sample case. This is followed by title and column headings for the friendly battalions and an overall total column. With only eight friendly battalions in the scenario, the columns for battalions 9 through 11 contain zero values. The next nine lines of print contain the following information:

1. Military worth of Red targets attrited by artillery fire
2. Number of Red personnel attrited by artillery fire
3. Number of Red tanks attrited by artillery fire
4. Number of Red APCs attrited by artillery fire
5. Number of Red trucks attrited by artillery fire
6. Number of Red artillery tubes attrited by artillery fire
7. Number of Red radar systems attrited by artillery fire
8. Number of Red antiaircraft missile launchers attrited by artillery fire
9. Number of battery fire missions completed

The next set of data identifies the number of defeated Blue batteries up through the current game time. These data are followed by values for the number of rounds fired by each battalion, and the total number of rounds fired for each of the nine round types in the Blue force. A summary of total rounds fired by each battalion, total rounds fired, total weight in metric tons of rounds fired, and total cost in kilodollars, is presented. The remaining information pertains to CLGP results, and to unaccomplished fire missions. The results are self-explanatory.

Page 2 of 5

The first set of data pertains to the number of fire missions, the number of defeated missions, and the artillery military worth of the defeated missions for observed, non-observed, and fire plan missions at four military worth ranges. The totals for the four military worth ranges appear in the last column of each line. The next set of data, on page two, pertains to fire plan missions; the printed output is self-explanatory and no discussion is required.

The third set of data presents time summations for 10 FDCs and 23 batteries of the Blue force. The row and column headings for this set of data preclude the necessity for any discussion of the output (% busy is for most recent hour only; busy time and idle time are cumulative). The last set of information pertains to rounds fired at each of 30 range values in one kilometer increments. After the column heading, information for each different round type appears in a set of three lines. The first

line identifies the round type and the number of rounds fired at the indicated battery to target ranges. The second line again contains the round type and the number of rounds fired at the indicated FEBA to target ranges. The last line of the set contains the total number of rounds of this type that were fired. There are four sets of this type of information for four different round types appearing on this page.

Page 3 of 5

The first 15 lines are five sets of data, three lines each, containing round/range data for the five remaining round types in the Blue force. Next there are title and column headings for systems with ranges greater than 30 kilometers. For the sample problem scenario, no systems of this type exist, consequently no data of this type appears on the hard copy output.

The last set of data appearing on this page contains reliability/attrition information. Values are clearly identified and no discussion of the printed output is required (read by Blue battery, Battery 1 first in each row, Battery 2 second, etc.).

Page 4 of 5

This page contains the data breakdown for up to 11 system types in the Blue force plus a summary of systems with a common caliber. The column headings identify the 11 possible systems that can be played in a scenario. Each column contains the following information:

1. Military worth of Red targets attrited
2. Number of Red personnel attrited
3. Number of Red armor (tanks and APCs) attrited
4. Number of Red trucks attrited
5. Number of Red artillery tubes attrited
6. Number of Red radars attrited
7. Number of Red missile launchers attrited
8. Number of battery fire missions completed by system type
9. Number of rounds fired by system type
10. Weight in metric tons of rounds fired
11. Cost in kilo-dollars of rounds fired
12. Number of incoming fires received by system type
13. Number of tubes out due to attrition
14. Number of tubes out due to RAM
15. Number of tubes up at present time
16. Average fractional value of original number of tubes available at present time

The last three lines appearing on this page contain values of military worth hours, average force availability, and hourly force availability respectively.

Page 5 of 5

The last page of Figure 4-7 contains the breakdown for General Support Rocket Systems in the Blue force. For the sample problem, only Battalion #6 was equipped with GSRS and therefore its data values and the total data values are identical. The column headings clearly identify the data appearing therein and no further discussion of output is required.

INDIVIDUAL RED TARGET DATA

At the end of the game, values of the two-dimensional DAMG array and a damage level flag are printed. Figure 4-8 is a typical hard copy output of part of the data. The following information appears in each line of output:

1. Individual Red target element ID number
2. Fractional value of personnel survivors after artillery fire
3. Fractional value of tank survivors after artillery fire
4. Fractional value of APC survivors after artillery fire
5. Fractional value of truck survivors after artillery fire
6. Fractional value of artillery tube survivors after artillery fire
7. Fractional value of radar survivors after artillery fire
8. Fractional value of missile launcher survivors after artillery fire
9. Original number of personnel in target
10. Original number of tanks in target
11. Original number of APCs in target
12. Original number of trucks in target
13. Original number of artillery tubes in target
14. Original number of radar systems in target
15. Original number of missile launchers in target
16. 0.0 changes to 2.0 when cumulative damage from non-artillery and artillery fire results in critical target element damage greater than specified defeat level, i.e., a defeated target
17. Number of platoons in target

GAME TIME = 27. HOURS SAMPLE CASE

BATTALION TOTALS

	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11	TOTAL
ARTY MIL WORTH	4535.52	2455.24	4186.70	426.20	887.82	42.24	2336.27	0.00	0.00	0.00	0.00	14869.98
PERSONNEL	361.80	376.05	315.34	43.68	315.10	30.98	585.69	0.00	0.00	0.00	0.00	2028.64
TANKS	69.49	32.94	11.15	.63	.19	0.00	2.73	0.00	0.00	0.00	0.00	117.12
APCS	32.07	63.34	63.35	1.35	5.72	.53	11.85	0.00	0.00	0.00	0.00	178.19
TRUCKS	39.64	30.54	23.02	4.47	13.06	2.76	45.36	0.00	0.00	0.00	0.00	158.85
TUBES	1.67	4.40	3.33	.48	3.79	.60	8.45	0.00	0.00	0.00	0.00	22.73
RADARS	.56	0.00	.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
LNCHRS	2.52	2.38	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.54
BTRY FIRE MSNS	158	155	123	18	32	1	87	0	0	0	0	574

BATTERY NO. 4 DEFEATED
BATTERY NO. 13 DEFEATED
BATTERY NO. 19 DEFEATED

ROUND TOTALS

RND ID												
1201.30	2621.00	2450.00	1743.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6814.00
1202.30	0.00	48.00	48.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.00
1203.30	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00
1204.30	279.00	221.00	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	670.00
3101.20	0.00	0.00	0.00	164.00	448.00	0.00	1129.00	0.00	0.00	0.00	0.00	1741.00
3102.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3103.20	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	12.00
4001.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5001.20	0.00	0.00	0.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	24.00
TOTAL RNDS	2900.00	2719.00	1997.00	164.00	448.00	24.00	1141.00	0.00	0.00	0.00	0.00	9393.00
TOTAL WGT	240.48	224.66	164.40	16.40	44.80	1.92	114.10	0.00	0.00	0.00	0.00	806.76
TOTAL COST	1745.98	1523.47	1128.69	73.80	201.60	23.76	510.21	0.00	0.00	0.00	0.00	5207.51

CLGP TOTALS

NO. MSNS = 179. TANKS KILLED = 90.51 APCS KILLED = 113.50 TRUCKS KILLED = 3.34

UNACCOMPLISHED MISSIONS

MISSION TYPE		REASONS			
MSN DROPPED - QUE OVERLOADED	= 0	BATTERY BUSY	= 15	D/A FDC BUSY	= 0
TARGET DEPARTED BEFORE FIRED	= 0	BTRY OUT OF AMMO	= 0	D/A FDC OUT	= 0
TGTS DROPPED-ALL BUSY	= 0	BN FDC BUSY	= 173	CORPS FDC BUSY	= 0
SCHED PLAN MSN CANT DO	= 0	BN FDC OUT	= 0	CORPS FDC OUT	= 0
HOUSEKEEPING MSN CANT DO	= 0				
TGT OUT OF RANGE OF ALL UNITS	= 0				
TOTAL	= 0				

FIGURE 4-7. Typical Hard Copy Output of Scenario Results (Page 1 of 5).

MILITARY WORTH

	(215 - 151)			(150 - 5)			(50 - 11)			(10 - 0.5)			TOTALS		
	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN
BN FIRE MSN	87	42	10	95	15	0	153	0	0	53	0	0	388	57	10
MSNS DFTED	20	0	1	16	7	0	63	0	0	7	0	0	106	7	1
ARTY MW	7959.	1955.	417.	1903.	912.	0.	1650.	0.	0.	75.	0.	0.	11587.	2866.	417.

FIRE PLANS

PLAN	PLAN ID	NO. TGTS	NO. TGTS SCHEDULED	NO. MSNS SCHEDULED	NO. MSNS FIRED	ARTY SCORE	NO. RDS FIRED	PROCESS TIME
1.	1000.	10.	10.	10.	0.	0.00	0.00	2.40
2.	1000.	0.	0.	2.	2.	423.20	60.00	.28
3.	1000.	0.	0.	2.	2.	423.20	78.00	.28
4.	1000.	0.	0.	2.	2.	423.20	84.00	.28
5.	1000.	0.	0.	2.	2.	423.20	40.00	.28
6.	1000.	0.	0.	1.	1.	211.60	20.00	.14
7.	1000.	0.	0.	1.	1.	211.60	20.00	.14

FIRE PLAN SCORE= 2116.00 (=100.00 PERCENT OF SCHEDULED AND100.00 PERCENT OF INPUT)

TIME BREAKOUT

	D/A	CORPS	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11
MINUTES BUSY	31.44	26.06	191.28	161.71	118.05	4.83	11.14	.55	31.49	1.10	0.00	0.00	0.00
MINUTES IDLE	1588.56	1593.94	1428.72	1458.29	1501.95	1615.17	1608.86	1619.45	1588.51	1618.90	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	.42	5.83	5.00	5.00	8.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	BTRY1	BTRY2	BTRY3	BTRY4	BTRY5	BTRY6	BTRY7	BTRY8	BTRY9	BTRY10	BTRY11	BTRY12
MINUTES BUSY	250.51	187.37	114.33	234.06	196.29	84.08	204.17	107.99	80.49	30.67	5.33	4.67
MINUTES IDLE	1369.49	1432.63	1505.67	1385.94	1423.71	1535.92	1415.83	1512.01	1539.51	1589.33	1614.67	1615.33
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	0.00	0.00	0.00	0.00	12.22	0.00	24.86	1.67	0.00	1.67	0.00	0.00

	BTRY13	BTRY14	BTRY15	BTRY16	BTRY17	BTRY18	BTRY19	BTRY20	BTRY21	BTRY22	BTRY23	BTRY24
MINUTES BUSY	36.67	38.33	14.67	15.00	0.00	0.00	109.17	83.33	53.50	0.00	0.00	0.00
MINUTES IDLE	1583.33	1581.67	1605.33	1605.00	1620.00	1620.00	1510.83	1536.67	1566.50	1620.00	1620.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	BTRY25	BTRY26	BTRY27	BTRY28	BTRY29	BTRY30	BTRY31	BTRY32	BTRY33	BTRY34	BTRY35	BTRY36
MINUTES BUSY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINUTES IDLE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY												

RANGE IN KILOMETERS

ROUND ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1201.30	0	0	110	51	499	557	802	1083	982	737	810	580	241	266	72	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1201.30	22	51	172	4	910	873	878	78	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 6814.																														
1202.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	48	0	0	0	0	0	0	0	0
1202.30	0	0	0	0	0	0	0	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 96.																														
1203.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1203.30	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 36.																														
1204.30	0	0	12	17	36	46	121	113	125	91	49	20	25	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1204.30	390	144	88	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 670.																														

FIGURE 4-7. Typical Hard Copy Output of Scenario Results (Page 2 of 5).

```
3101.20   0  20   4   0   0  44  76 120 108 184 161 161 138 127 103  80  37 125  83  44  67  47  12   0   0   0   0   0   0   0
3101.20 219 217 274 436 447  88  60   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=   1741.
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=      0.
3103.20   0   0   0   0   0   0   0   0   4   0   0   0   0   4   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3103.20   0   0   0   8   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     12.
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=      0.
5001.20   0   0   0   0   0   0   0   0   0   0   0   0   0  24   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
5001.20   0   0   0  24   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     24.

                                  RANGE FOR SYSTEMS OVER THIRTY KILOMETERS
SYSTEM ID  30-35     35-40     40-45     45-50     50-55     55-60     60-65     65-70     70-75     75-80

                                  RELIABILITY/ATTRITION DATA

NUMBER OF INCOMING FIRES RECEIVED
10  6  3  7  7  6  6  4  3  1  0  0  4  2  0  0  0  0  6  2  1  0  0
NUMBER OF MINI-MOVES
 3  2  0  2  2  1  1  2  1  0  0  0  1  0  0  1  0  0  2  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO ATTRITION
 2  0  0  2  2  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO RELIABILITY
 2  1  1  1  1  2  4  2  0  0  0  0  0  0  0  0  0  1  0  1  0  0
BTRY TUBES OUT TIL NOW DUE TO TUBE CHANGES
 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES UP NOW
 3  5  6  4  3  5  4  5  6  4  4  4  4  4  4  2  2  2  4  4  4  2  2
FRACTION OF BTRY TUBES CURRENTLY AVAILABLE
50.83***.67.50.83.67.83**************************************************
TOTAL TUBES ATTRITTED =    6   TOTAL TUBES FAILED =   16   TOTAL TUBES NOW UP =   87
NO. OF TUBES OUT DUE TO TUBE CHANGES =     0
FLOATS ASSIGNED WHICH WILL BE AVAILABLE BEFORE END OF GAME =    3

NO. TARGETS FIRED =  455              NO. ACTUAL ACQ  =  455              NO. PLANS DONE  =    7
NO. TGTS ON LIST  =    0              PERCENT DROPPED = 0.00              NO. MET DONE    =    0
NO. TGTS DROPPED  =    0                                                  NO. SURV DONE   =    0
NO. TGTS COMBINED =    0                                                  NO. ATI  DONE   =  498
NO. TGTS SAVED    =  609
NO. OBSVD DROPPED =    0
NO. N-OBS DROPPED =    0
NO. FIRD BUT LEFT =   28
MODIFIED PERCENT DROPPED = 57.24
```

FIGURE 4-7. Typical Hard Copy Output of Scenario Results (Page 3 of 5).

DATA BREAKDOWN BY SYSTEM

	700	1100	1200	1300	1400	1500	2000	3100	4000	5000	5100	TOTISS
M WTH	0.00	0.00	11177.46	0.00	0.00	0.00	0.00	3650.28	0.00	42.24	0.00	11177.46
PERS	0.00	0.00	1053.19	0.00	0.00	0.00	0.00	944.47	0.00	30.98	0.00	1053.19
ARMOR	0.00	0.00	272.32	0.00	0.00	0.00	0.00	22.46	0.00	.53	0.00	272.32
TRUCK	0.00	0.00	93.20	0.00	0.00	0.00	0.00	62.89	0.00	2.76	0.00	93.20
TUBES	0.00	0.00	9.40	0.00	0.00	0.00	0.00	12.73	0.00	.60	0.00	9.40
RADAR	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
LNCHR	0.00	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.54
BTYMS	0.00	0.00	436.00	0.00	0.00	0.00	0.00	137.00	0.00	1.00	0.00	436.00
RD FR	0.00	0.00	7616.00	0.00	0.00	0.00	0.00	1753.00	0.00	24.00	0.00	7616.00
RD WG	0.00	0.00	629.54	0.00	0.00	0.00	0.00	175.30	0.00	1.92	0.00	629.54
RDCST	0.00	0.00	4398.14	0.00	0.00	0.00	0.00	785.61	0.00	23.76	0.00	4398.14
INFIR	0.00	0.00	52.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00	52.00
ATTRI	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
RAMS	0.00	0.00	14.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	14.00
TUBSU	0.00	0.00	41.00	0.00	0.00	0.00	0.00	36.00	4.00	6.00	0.00	41.00
AVG A	0.00	0.00	.86	0.00	0.00	0.00	0.00	.99	1.00	1.00	0.00	.86

MILITARY WORTH HOURS = 262310.11

AVERAGE FORCE AVAILABILITY = .9226

HOURLY FORCE AVAILABILITY = .870

FIGURE 4-7. Typical Hard Copy Output of Scenario Results (Page 4 of 5).

	MIL WTH	PERS	GSRS BREAKDOWN TANKS	APCS	TRUCKS	TUBES	RADARS	LNCHRS	RDS FIRED	RD WGT	RD COST	RSN FRD
BN 4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 6	42.239	30.984	0.000	.530	2.764	.597	0.000	0.000	24.000	1.920	23.760	1.000
BN 7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	42.239	30.984	0.000	.530	2.764	.597	0.000	0.000	24.000	1.920	23.760	1.000

FIGURE 4-7. Typical Hard Copy Output of Scenario Results (Page 5 of 5).

18. ID number for type of critical element

= 1.0, personnel
= 2.0, tanks
= 3.0, APCs
= 4.0, trucks
= 5.0, artillery tubes
= 6.0, radar systems
= 7.0, missile launchers

19. Artillery damage level ID number

= 1, 50.0% or more killed
= 2, 40.0% to 49.9% killed
= 3, 30.0% to 39.9% killed
= 4, 20.0% to 29.9% killed
= 5, 10.0% to 19.9% killed
= 6, up to 9.9% killed

The last three lines of printed output contain values for the number of Red targets at each of the six damage levels, the number of Red platoons at each damage level, and the total number of individual Red target units damaged (both as units and as equivalent no. of platoons).

760.230	.557	.926	.864	.765	.954	.506	.450	59.0	0.0	0.0	13.0	6.0	0.0	0.0	0.0	3.0	1.0	2
732.210	.851	.613	.689	.543	.867	.375	.372	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	5
732.220	.847	.536	.558	.354	.809	.225	.220	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	2
732.230	.850	.685	.852	.684	.943	.571	.564	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	3
732.301	.435	.587	.397	.241	.689	.115	.086	39.0	2.0	2.0	4.0	0.0	0.0	0.0	2.0	1.0	1.0	1
732.312	.851	.464	.689	.543	.867	.375	.372	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
732.313	.642	.705	.522	.327	.787	.108	.101	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	4
732.314	.851	.464	.689	.543	.867	.375	.372	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
732.322	.847	.186	.558	.354	.809	.225	.220	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
732.323	.847	.423	.558	.328	.809	.225	.220	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
732.324	.847	.419	.558	.354	.809	.225	.220	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
732.332	.850	.335	.852	.684	.943	.571	.564	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
732.333	.850	.435	.852	.595	.943	.571	.564	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
732.334	.850	.335	.852	.684	.943	.571	.564	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
752.210	.579	.867	.778	.674	.914	.570	.568	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
752.220	.575	.869	.780	.675	.916	.566	.564	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
752.230	.507	.854	.758	.649	.905	.482	.426	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
752.401	.602	.716	.543	.370	.813	.246	.244	41.0	0.0	0.0	15.0	0.0	0.0	0.0	0.0	1.0	1.0	3
752.405	.375	.375	.159	.044	.533	.009	.009	8.0	0.0	1.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0	1
705.210	.113	1.000	.124	1.000	1.000	0.000	.249	15.0	0.0	4.0	0.0	0.0	3.0	4.0	2.0	3.0	5.0	6
705.220	.553	.885	.798	.678	.920	.451	.293	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
705.230	1.000	.928	.865	.761	.956	.472	.387	34.0	0.0	13.0	1.0	0.0	0.0	0.0	0.0	3.0	3.0	5
841.210	.389	.864	.759	.612	.914	.358	.296	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
841.220	.435	.872	.773	.633	.920	.413	.395	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
841.230	.444	.864	.761	.622	.914	.424	.408	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
704.210	.637	.502	.618	.399	.829	.288	.283	56.0	13.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	2
704.220	.484	.460	.496	.259	.778	.086	.053	56.0	13.0	0.0	1.0	0.0	0.0	0.0	2.0	3.0	2.0	1
704.230	.457	.498	.463	.251	.753	.081	.028	56.0	13.0	0.0	1.0	0.0	0.0	0.0	2.0	3.0	2.0	1
704.312	.637	.240	.618	.399	.829	.288	.283	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
704.313	.637	.299	.618	.342	.829	.288	.283	24.0	5.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
704.314	.637	.240	.618	.399	.829	.288	.283	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
704.401	.495	.615	.453	.327	.728	.204	.168	52.0	2.0	2.0	7.0	0.0	0.0	0.0	2.0	1.0	1.0	1
722.342	.709	.970	.941	.888	.982	.660	.501	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	4
722.343	.712	.964	.931	.870	.976	.663	.397	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	4
713.210	.899	.948	.498	.843	.967	.715	.706	107.0	0.0	10.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	1
713.220	1.000	1.000	.550	1.000	1.000	1.000	1.000	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	2
713.230	1.000	1.000	.700	1.000	1.000	1.000	1.000	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3
713.342	.435	.920	.849	.730	.951	.350	.233	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
713.343	.621	.954	.912	.838	.972	.569	.437	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	3
842.210	.384	.875	.774	.622	.914	.317	.244	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
842.220	.439	.863	.761	.628	.913	.412	.356	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
842.230	.466	.867	.768	.637	.916	.444	.431	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
740.210	1.000	.899	1.000	.964	1.000	1.000	1.000	45.0	10.0	0.0	2.0	0.0	0.0	0.0	0.0	3.0	2.0	5
740.220	1.000	.899	1.000	.964	1.000	1.000	1.000	45.0	10.0	0.0	2.0	0.0	0.0	0.0	0.0	3.0	2.0	5
740.230	1.000	.899	1.000	.964	1.000	1.000	1.000	45.0	10.0	0.0	2.0	0.0	0.0	0.0	0.0	3.0	2.0	5
740.312	1.000	.200	1.000	.964	1.000	1.000	1.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
740.313	1.000	.578	.768	.511	.910	.341	.326	21.0	4.0	0.0	2.0	0.0	0.0	0.0	2.0	1.0	2.0	2
740.314	.670	.435	.647	.454	.866	.264	.259	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
740.322	1.000	.200	1.000	.964	1.000	1.000	1.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
740.323	1.000	.431	1.000	.766	1.000	1.000	1.000	21.0	4.0	0.0	2.0	0.0	0.0	0.0	2.0	1.0	2.0	1
740.324	1.000	.495	1.000	.964	1.000	1.000	1.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
702.210	1.000	1.000	.559	1.000	1.000	1.000	1.000	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	2
702.230	.804	.904	.674	.701	.934	.388	.361	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3
702.342	.338	.890	.797	.650	.932	.263	.181	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
702.343	.416	.913	.836	.711	.946	.338	.238	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
702.401	.463	.606	.434	.302	.724	.184	.147	49.0	0.0	1.0	9.0	0.0	0.0	0.0	2.0	1.0	1.0	1
703.402	.795	.914	.838	.715	.947	.323	.248	18.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	4
745.210	1.000	1.000	.786	1.000	1.000	1.000	1.000	21.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	4
745.220	.865	.945	.805	.926	.966	.634	.611	90.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	5
											97.000	12.000	21.000	16.000	15.000	23.000		
										PLATOONS =	113.000	24.000	43.000	32.000	41.000	67.000		

ND = 184

FIGURE 4-8. Typical Hard Copy Output of Individual Target Statuses at Game's End.

SECTION 5

SAMPLE PROBLEM

This section contains card image listings of the punched card input data entered during execution of each of six different input subroutines of the AFSM Computer Program. The different types of card input data are discussed in considerable detail in Section 3 of this report. The card image listings are followed by computer generated output of selected input parameters, scenario results after 9, 18, and 27 hours of game time and, finally, individual target statuses at the end of the game. The computer generated output is discussed in detail in Section 4 of this report.

SAMPLE PROBLEM CARD INPUT

Six different subroutines are used to enter punched card input data required for execution of the AFSM Computer Program. Figure 5-1 contains a card image listing of punched card data entered upon execution of Subroutine TABLES. The parameters are defined in descriptions of Data Card Types 1 through 23, Section 3.

Figure 5-2 contains a card image listing of Data Card Types 24 through 26e, entered during execution of Subroutine SYSTEM. The five pages of Figure 5-3 represent a card image listing of Data Card Types 27 through 40, entered during execution of Subroutine ROUND.

The card image listing for Data Card Types 41 through 56, entered during execution of Subroutine FUFDC, is presented in Figure 5-4. Figure 5-5 contains the card image listing for Data Card Types 57 through 82 as entered during execution of Subroutine WPMIX. The final card image listing for Data Card Types 83 through 87, entered during execution of Subroutine REDIN, is contained in Figure 5-6.

SAMPLE PROBLEM OUTPUT

The first printed output generated by the AFSM Computer Program contains values of selected input parameters entered during execution of the six input subroutines. The seven pages of values of selected input parameters are contained in Figure 5-7.

After the values of the selected input parameters are printed and if no errors cause a halt in program execution, scenario results are printed at the end of each hour of game time. Five pages are printed at the end of each hour and the results are cumulative as the game progresses. The sample problem is terminated after 27 hours of game time and the complete output is extensive.

In lieu of a complete output, scenario results are presented for game times of 9, 18 and 27 hours (end of game). Figures 5-8 through 5-10 contain the scenario results at the aforementioned game times.

At the end of the game, the status of each individual target element is printed. The status for each individual target element in the sample problem, is presented in Figure 5-11. This is the final type of output generated during execution of the AFSM Computer Program.

```
                    SAMPLE CASE
   0.00     1.00    25.00     0.30     1.00     4.00     0.00
  41
  0.0     1.00     1620.  -60.00      6   10   15   50
  40  150  500   75   15   90   30
  5.0   5.0   1.0
  2.   10.    8.   30.    8.   16.
700 1100 1200 1300 1400 1500 2000 3100 4000 5000 5100
700  1100  1200  1300  1400  1500  2000  3100  4000  5000  5100  TOT155
M WTH  PERS   ARMOR  TRUCKS TUBES  RADARS LNCHRS BTYMSN RD FRD RD WGT RDCST
INFIRE ATTRIT RAMS   TUBSUP AVG AV
190. 1.4375 .00019 470.  270. 2.6875-.008649 600. 310. 3.625
-.004929 900.
   3    9   18
  .5      .5      0.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     1.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     1.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     1.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     0.0     1.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     0.0     1.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     1.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     0.0     1.0     0.0     0.0     0.0     0.0     0.0     0.0
 0.0     0.0     0.0     1.0     0.0     0.0     0.0     0.0     0.0
 0.0     0.0     0.0     1.0     0.0     0.0     0.0     0.0     0.0
 0.0     0.0     0.0     0.0     1.0     0.0     0.0     0.0     0.0
 0.0     0.0     0.0     0.0     0.0     1.0     0.0     0.0     0.0
 0.0     0.0     0.0     0.0     0.0     1.0     0.0     0.0     0.0
 0.0     0.0     0.0     0.0     0.0     0.0     1.0     0.0     0.0
 0.0     0.0     0.0     0.0     0.0     0.0     1.0     0.0     0.0
 0.0     0.0     0.0     0.0     0.0     0.0     0.0     1.0     0.0
 0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     1.0
  .5      .5      0.      0.      0.      0.      0.      0.      0.
  .5      .5      0.      0.      0.      0.      0.      0.      0.
  .95     .05     0.      0.      0.      0.      0.      0.      0.
 0.0      .5       .5     0.      0.      0.      0.      0.      0.
 0.0     0.      0.      0.      0.      0.      0.      0.      0.
 0.0     0.      0.      0.      0.      0.      0.      0.      0.
  .95     .05     0.      0.      0.      0.      0.      0.      0.
 0.0      .4       .6     0.      0.      0.      0.      0.      0.
  .25    0.0      .75     0.      0.      0.      0.      0.      0.
 0.0      .25      .75     0.      0.      0.      0.      0.      0.
  .6     0.0      .4      0.      0.      0.      0.      0.      0.
 0.0      .25      .75     0.      0.      0.      0.      0.      0.
  .5      .5      0.      0.      0.      0.      0.      0.      0.
 0.0     1.0     0.      0.      0.      0.      0.      0.      0.
  .5      .5      0.      0.      0.      0.      0.      0.      0.
  .25     .75     0.      0.      0.      0.      0.      0.      0.
  10
 0.3     0.3     0.3     0.3     0.1     0.1     0.2     0.1     0.2     0.2
  60  340
   4
215.0     151.0     150.0     51.0     50.0     11.0     10.0     0.0
   1
1000.    325.   335.
   2
360.    800.   1330.   1530.
```

FIGURE 5-1. Sample Problem Card Input From Subroutine TABLES (Data Card Types 1 through 23).

```
  9    4
  1    1    1    1    0    1    1    1    1
                XM158
1200.3   6.00   6.00   4.00   50.00   1.00   30.00   8.00   2.60   1200.
80.0     12.0   1.0    1.0    2.0     5.0    27.0    5.0    27.0   5.0
27.0     1500.  800.   4000.  1000.   1000.  2000.   4.0    5000.   .050
  .200    .400   .400
                M123A4 W/ CHG 12
3100.2   4.00   3.00   2.00   40.00   1.00   30.00   5.00   2.06   850.
100.     12.0   1.0    1.0    2.0     5.0    27.0    5.0    27.0   5.0
27.0     1500.  1500.  10000. 1000.   1000.  10000.  3.0    2500.  .050
  .300    .500   .200
            SPEAR  GUIDED MISSILE
4000.2   2.00    .50    .33   3.00   2.00   60.00   1.00   20.00    30.
 2.00    1.00   1.00   1.00   1.00   3.00   27.00   3.00   27.00   3.00
 27.00   99.00  200.00 400.00 300.00 3000.00 30000.00  0.0 99999.  .200
  .050    .150   .800
 FIELD ARTILLERY ROCKET SUPPORT SYSTEM (FARSS--MULTIPLE ROCKET LAUNCHER)
5000.2    2.    24.    24.    1000.     3.     25.    12.   15.     90.0
 18.     12.     1.    12.     1.       3.     27.     3.     27.     3.
 27.     600.   4000.  10000.  1000.   4000.   7000.    0.  99999.  .200
  .100    .350   .550
                        SCUM-C
11000.2    1.     1.     1.     1.     2.     175.     1.     60.      8.
   2.00          60.00          1.00


   TOTAL OVERKILL ARTILLERY DEVICE (TOAD-8) FREE ROCKET
12000.2    1.     1.     1.     1.     2.     80.      1.     20.     10.
   6.00          30.00          1.00


            140 MM GUN (TOWED)
13000.1    6.     1.5    6.     1.     1.     30.0     15.     2.     900.
 300.00          1.20           2.00


            110 MM MULTIPLE ROCKET LAUNCHER
14000.2    6.     40.    40.    40.    2.     16.0     1.     20.     240.
 720.00          0.90           1.00


            125 MM HOWITZER (SELF-PROPELLED)
17000.3    6.     2.     8.     1.     1.     18.0     15.     2.     500.
 800.00          1.10           2.00
```

FIGURE 5-2. Sample Problem Card Input from Subroutine SYSTEM (Data Card Types 24 through 26e).

```
14
                XM67804     IN XM155    (DUAL PURPOSE ICM ROUND)
1201.3  .081     .350    16.5    .954     4.      1200.   80.0    150.
0.      4.      8.      12.     16.      16.5
11.     11.     20.     24.     38.      55.
39.     39.     47.     75.     123.     154.
.19     .19     .31     .66     1.0      1.0
  3.1    20.     .95     .95     .95      5.0     92.
 80.     50.    5.0     5.0     10.0     20.0    3.0     100.0   160.0
 40.     25.    3.0     3.0      8.0     12.0    2.0      60.0    80.
 30.     20.    3.0     3.0     10.0      9.0    3.0      80.0   160.0
                XM234R7  IN XM155   (HE RAP ROUND)
1202.3  .081     .200    30.0    .950     2.      1200.   80.     140.
0.      5.      10.     15.     20.      25.     30.
12.     12.     21.     34.     46.      63.     82.
26.     26.     46.     73.     102.     142.    209.
.19     .19     .31     .66     1.0      1.0     1.0
 100.0  100.0    80.0    90.0    900.    1200.   1200.
  50.0   50.0    40.0    45.0    450.     600.    600.
  10.    10.      8.      9.     90.      120.    120.
   2.     2.      1.6     1.8    18.      24.     24.
   4.     4.      3.2     3.6    36.      48.     48.
  20.    20.     16.     18.    180.     240.    240.
   3.     3.      2.4     2.7    27.      36.     36.
  80.    80.     64.     72.    720.     960.    960.
 300.    300.    240.    270.   2700.    3600.   3600.
  50.    50.     40.     45.    450.     600.    600.
  25.    25.     20.     22.5   225.     300.    300.
   5.     5.      4.      4.5    45.      60.     60.
   1.     1.       .8      .9     9.      12.     12.
   2.     2.      1.6     1.8    18.      24.     24.
  10.    10.      8.      9.     90.     120.    120.
   1.5    1.5     1.2     1.4    13.5     18.     18.
  40.    40.     32.     36.    360.     480.    480.
 150.    150.    120.    135.   1350.    1800.   1800.
  30.    30.     24.     27.    270.     360.    360.
  15.    15.     12.     13.5   135.     180.    180.
   3.     3.      2.4     2.7    27.      36.     36.
    .6     .6      .5      .5     5.4      7.2     7.2
   1.2    1.2     1.0     1.0    10.8     14.4    14.4
   6.     6.      5.      2.7    270.     360.    360.
   1.8    1.8     1.5     1.5    16.2     21.6    21.6
  20.    20.     16.     18.    180.     240.    240.
  80.    80.     75.     90.    400.     600.    600.
                XM345H3  IN  XM155  (HE ROUND)
1203.3  .060     .115    17.3    .980     2.      1200.   80.0    148.
0.      4.      8.      12.     16.      17.3
15.     15.     24.     34.     52.      62.
32.     32.     55.     78.     114.     141.
.19     .19     .31     .66     1.0      1.0
 800.    800.    820.    830.    840.     900.
 400.    400.    410.    415.    420.     450.
  80.     80.     82.     83.     84.      90.
  20.     20.     20.     20.     21.      24.
  50.     50.     50.     50.     53.      60.
 500.    500.    500.    500.    530.     600.
  50.     50.     50.     50.     53.      60.
1000.   1000.   1000.   1000.   1060.    1200.
3000.   3000.   3000.   3000.   3180.    3600.
 400.    400.    410.    415.    420.     450.
 200.    200.    205.    208.    210.     225.
  40.     40.     41.     42.     42.      45.
  10.     10.     10.     10.     10.      11.
  25.     25.     25.     25.     25.      28.
 250.    250.    250.    250.    250.     220.
  25.     25.     25.     25.     25.      28.
 500.    500.    500.    500.    500.     560.
1500.   1500.   1500.   1500.   1500.    1620.
 300.    300.    307.    315.    315.     340.
 150.    150.    153.    158.    158.     170.
  30.     30.     31.     32.     32.      34.
   7.      7.      7.      7.      7.       7.
  14.     14.     14.     14.     14.      14.
 140.    140.    140.    140.    140.     140.
```

FIGURE 5-3. Sample Problem Card Input From Subroutine ROUND (Data Card Types 27 through 40)(Page 1 of 5).

```
  14.      14.      14.      14.      14.      14.
400.     400.     400.     400.     400.     400.
1200.    1200.    1200.    1200.    1200.    1200.
                CLGP     IN XM195
1204.3   .101     2.97     17.0     .953     3.        600.     40.
  10
.00      .00      .00      .00      .00
.10      .35      .2       .3       .4
.20      .60      .30      .50      .60
.30      .80      .40      .55      .70
.40      1.00     .45      .60      .80
.80      1.60      .60      .80     1.00
1.60     2.50      .80     1.20     1.50
2.80     3.4      1.20     1.70     2.10
4.40     4.20     1.40     2.30     2.70
6.00     4.60     1.80     2.70     3.10
 0.       4.       8.      12.      16.      19.
   .2       .2       .3      .55      .80      1.0
            XM432E13  IN M123A4 W/ CHG 12 (DUAL PURPOSE ICM ROUND)
3101.2   .100     .450     23.0     .950     1.        800.     70.      160.
0.       4.       8.       12.      16.      20.      23.0
13.      13.      17.      22.      29.      33.      39.
34.      34.      47.      71.      96.      111.     144.
.18      .18      .25      .44      .69      1.0      1.0
  3.5    40.      .98      .96      .98       0.0     180.
 80.     50.     5.0      5.0     10.0     20.0     3.0      80.0      160.
 40.     25.     3.0      3.0      6.0     12.0     2.0      40.0      160.
 30.     20.     3.0      3.0     10.0     20.0     3.0      80.0      160.
            XM321E57 IN M123A4 W/ CHG 12 (HE RAP ROUND)
3102.2   .150     .523     30.0     .950     2.        400.     50.      140.
0.       4.       9.       13.      18.      22.      27.      30.
15.      15.      24.      33.      44.      58.      76.      88.
25.      25.      49.      70.      100.     145.     195.     222.
.18      .18      .25      .44      .69      1.0      1.0      1.0
 100.0    100.0    100.0    100.0    100.0    1100.    1200.    1400.
  60.0     60.0     60.0     60.0     60.0     660.     720.     840.
   6.0      6.0      6.0      6.0      6.0      66.      72.      84.
   2.5      2.5      2.5      2.5      2.5      25.      25.      25.
   5.0      5.0      5.0      5.0      5.0      50.      50.      50.
  50.0     50.0     50.0     50.0     50.0     500.     500.     500.
   5.0      5.0      5.0      5.0      5.0      50.      50.      50.
  60.      60.      60.      60.      60.      600.     600.     600.
 300.     300.     300.     300.     300.     3000.    3000.    3000.
  50.      50.      50.      50.      50.      550.     600.     700.
  25.      25.      25.      25.      25.      275.     300.     350.
   3.       3.       3.       3.       3.       28.      30.      35.
   1.2      1.2      1.2      1.2      1.2      12.      14.      18.
   2.4      2.4      2.4      2.4      2.4      24.      28.      36.
  24.      24.      24.      24.      24.      240.     280.     360.
   2.4      2.4      2.4      2.4      2.4      24.      28.      29.
  24.      24.      24.      24.      24.      240.     280.     360.
 240.     240.     240.     240.     240.     2400.    2800.    2900.
  40.      40.      40.      40.      40.      400.     450.     500.
  20.      20.      20.      20.      20.      200.     225.     250.
   2.       2.       2.       2.       2.       20.      23.      25.
   1.       1.       1.       1.       1.       10.      11.      13.
   2.       2.       2.       2.       2.       20.      23.      25.
  20.      20.      20.      20.      20.      200.     225.     250.
   2.       2.       2.       2.       2.       20.      23.      25.
  30.      30.      30.      30.      30.      300.     320.     350.
```

FIGURE 5-3. Sample Problem Card Input From Subroutine ROUND (Data Card Types 27 through 40)(Page 2 of 5)

```
 80.      80.      80.      80.      80.      800.     860.     900.
          XM987E5 IN M123A4 W/ CHG 12  (HE ROUND)
3103.2    .10      .180     22.0     .980     2.       800.     70.      145.
0.        4.       8.       12.      16.      18.      22.0
15.       15.      24.      33.      44.      51.      65.
25.       25.      49.      70.      100.     119.     166.
.18       .18      .25      .44      .69      1.0      1.0
1500.     1500.    1550.    1600.    1700.    1800.    2000.
800.      800.     800.     800.     900.     900.     1000.
150.      150.     155.     160.     170.     180.     200.
 15.       15.      15.      16.      17.      18.      20.
 30.       30.      30.      32.      34.      36.      40.
300.      300.     300.     320.     340.     360.     400.
 30.       30.      30.      32.      34.      36.      40.
300.      300.     300.     320.     340.     360.     400.
900.      900.     900.     960.     990.     1050.    1200.
1000.     1000.    1000.    1050.    1080.    1200.    1400.
500.      500.     500.     530.     540.     600.     700.
100.      100.     100.     105.     108.     120.     140.
 10.       10.      10.      11.      11.      12.      14.
 20.       20.      20.      21.      22.      24.      28.
200.      200.     200.     210.     220.     240.     280.
 20.       20.      20.      21.      22.      24.      28.
200.      200.     200.     210.     220.     240.     280.
600.      600.     600.     630.     660.     720.     840.
800.      800.     800.     800.     800.     800.     800.
400.      400.     400.     400.     400.     400.     500.
 80.       80.      80.      80.      80.      80.      85.
  8.        8.       8.       8.       8.       8.       9.
 16.       16.      17.      20.      20.      20.      20.
160.      160.     170.     200.     200.     200.     200.
 16.       16.      17.      20.      20.      20.      20.
320.      320.     340.     400.     400.     400.     400.
480.      480.     510.     600.     600.     600.     600.
          NON-NUCLEAR SPEAR (ICM WARHEAD)                .
4001.2    2.3      100.3    60.0     .965     1.       30.      2.0      180.
  0.00     12.00    24.00    36.00    48.00    60.00
 22.00     22.00    60.00    90.00   120.00   150.00
 25.00     25.00    65.00    98.00   130.00   163.00
  1.00      1.00     1.00     1.00     1.00     1.00
  0.20    180.00     0.97     0.95     0.97     0.00   980.00
80.       50.      5.0      5.0      10.0     20.      3.0      80.0     160.
40.       25.      3.0      3.0      5.0      10.      2.0      40.0     80.
30.       20.      3.0      3.0      10.0     20.0     3.0      60.0     160.
          FAASS -- ROCKET SYSTEM (ICM WARHEAD)
5001.2     .050     .99     25.       .95      1.      90.0     180.     150.
  0.       5.      10.      15.      20.      25.
 40.      40.      80.     150.     200.     250.
 50.      50.      90.     165.     220.     275.
  1.       1.       1.       1.       1.       1.
  .2     100.       .95      .90      .95      .9     800.
120.      80.       3.       6.0     11.8     60.0     4.3     40.00    100.
 60.      40.       2.       4.0      6.7     40.      2.0     20.      80.
 30.      20.       1.       2.       3.      16.      1.      10.      40.
          SCUM C  (SUBMISSILE WARHEAD)
11001.2    1.       1.     175.       .95      1.      8.       2.       .
  0.      44.3     88.7    133.     167.     200.
 30.      90.     180.     270.     360.     450.
 60.     180.     360.     540.     720.     900.
  1.       1.       1.       1.       1.       1.
```

FIGURE 5-3. Sample Problem Card Input From Subroutine ROUND (Data Card Types 27 through 40)(Page 3 of 5).

```
   .3    175.       .95      .90      .95      .0    60.
 800.    400.      30.       75.      45.      30.    50.    180.    240.
   .       .        .         .        .        .      .      .       .
   .       .        .         .        .        .      .      .       .
           TOAD-8 (SUBMISSILE WARHEAD)
12001.2     1.       1.       80.       .95     1.     10.     6.      .
   0.      16.      32.       48.      64.     80.
  80.     160.     320.      480.     640.    800.
 120.     240.     480.      720.     960.   1200.
   1.       1.       1.        1.       1.      1.
   .5     100.       .95      .90      .95      .0    30.
 800.     400.      30.       75.      45.      30.    50.    180.    240.
   .       .        .         .        .        .      .      .       .
   .       .        .         .        .        .      .      .       .
        140 MM GUN HE PROJECTILE
13001.1     1.       1.       30.       .97     2.    900.    300.      .       .
   0.       6.      12.       18.      24.     30.
  20.      36.      62.       98.     140.    190.
  40.      60.     110.      170.     250.    320.
   0.       .        .         .        .       .
 300.     300.     300.      300.     400.    450.
 100.     100.     100.      100.     180.    280.
  15.      15.      15.       15.      28.     48.
  45.      45.      45.       45.      45.     45.
  70.      70.      70.       70.      70.     70.
  28.      28.      28.       28.      28.     28.
  48.      48.      48.       48.      48.     48.
 300.     300.     300.      300.     300.    300.
   0.       .        .         .        .       .
 148.     148.     150.      150.     180.    150.
 101.     101.     106.      106.     137.    106.
  10.      10.      10.       10.      10.     10.
  14.      14.      14.       14.      14.     14.
  11.      11.      11.       11.      11.     11.
  11.      11.      11.       11.      11.     11.
  16.      16.      16.       16.      16.     16.
 106.     106.     106.      106.     106.    106.
   0.       .        .         .        .       .
 149.     149.     171.      175.     111.    169.
  56.      56.      40.       40.     117.    101.
  15.      15.      15.       15.      15.     46.
   9.       9.       9.        9.       9.      9.
  16.      16.      16.       16.      16.     16.
  11.      11.      11.       11.      11.     11.
  11.      11.      11.       11.      11.     11.
  40.      40.      40.       40.      40.     40.
   0.       .        .         .        .       .
        110 MM MULTIPLE ROCKET LAUNCHER (HE WARHEAD)
14001.2     1.       1.       16.       .98     2.    240.    720.
   0.       4.       8.       12.      16.
  20.      45.      90.      135.     180.
  35.      80.     160.      250.     310.
   0.       .        .         .        .       .
 500.     500.     600.      600.     600.
  30.      30.      30.       30.      30.
  80.      80.      80.       80.      80.
  75.      75.      75.       75.      75.
  45.      45.      45.       45.      45.
  30.      30.      30.       30.      30.
  50.      50.      50.       50.      50.
```

FIGURE 5-3. Sample Problem Card Input From Subroutine ROUND (Data Card Types 27 through 40)(Page 4 of 5).

```
 180.   180.   180.   180.   180.
   0.     .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
        125 MM HOWITZER (HE PROJECTILE)
17001.3   1.     1.    18.0     .95    2.     500.   800.     .      .
   0.    3.6    7.2    10.8    14.4   18.0
   9.    18.    36.    54.     72.    90.
  20.    33.    70.    100.    128.   153.
   0.     .      .      .      .      .
 400.   400.   400.   400.   420.   450.
 220.   220.   220.   220.   230.   260.
  25.    25.    25.    25.    25.    30.
 74.    74.    74.    74.    74.    74.
 63.    63.    63.    63.    63.    63.
  42.    42.    42.    42.    42.    42.
 81.    81.    81.    81.    81.    81.
 300.   300.   300.   300.   300.   300.
   0.     .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   .      .      .      .      .      .
   0.     .      .      .      .      .
```

FIGURE 5-3. Sample Problem Card Input From Subroutine ROUND (Data Card Types 27 through 40)(Page 5 of 5).

```
    8
    2    0                              DIVARTY FDC
0.00     875.     61.      63.          12.
920.     1700.    54.      57.          24.
    2    0                              CORPS FDC
0.00     670.     61.      70.          12.
715.     1700.    54.      62.          24.
       7    3        BN FDC   BN1    XM155  DS
       7             B BTRY   BN1      XM155  DS
   1200.3            XM155
   0.        160.    62.      72.4     4.
   180.      270.    61.8     71.9     4.
   300.      590.    58.5     71.5     8.
   610.      960.    58.      71.3     10.
   990.      1170.   55.      69.5     8.
   1120.     1480.   51.5     68.5     8.
   1500.     1630.   51.2     68.1     4.
       7             A BTRY   BN1      XM155  DS
   1200.3            XM155
   0.        140.    63.5     73.9     4.
   160.      250.    63.3     73.4     4.
   280.      570.    60.      73.      8.
   590.      900.    59.5     72.9     10.
   930.      1150.   56.5     71.      8.
   1180.     1460.   53.      70.      8.
   1480.     1630.   52.7     69.6     4.
       7             C BTRY   BN1      XM155  DS
   1200.3            XM155
   0.        120.    65.      75.4     4.
   140.      230.    64.8     74.9     4.
   260.      550.    61.5     74.5     8.
   570.      930.    61.      74.3     10.
   960.      1130.   58.      72.5     8.
   1160.     1440.   54.5     71.5     8.
   1460.     1630.   54.2     71.4     4.6
       7    3        BN FDC   BN2    XM155  DS
       7             B BTRY   BN2      XM155 DS
   1200.3                XM155
   0.        110.    67.2     65.6     8.
   130.      250.    67.      65.1     6.
   270.      400.    66.5     65.1     5.
   420.      710.    66.1     64.9     8.
   740.      1100.   62.      64.6     12.
   1130.     1310.   61.7     63.5     10.
   1340.     1630.   56.5     62.5     12.
       7             A BTRY   BN2      XM155  DS
   1200.3            XM155
   0.        90.     68.7     67.1     8.
   110.      230.    68.5     66.6     6.
   250.      380.    68.      66.6     5.
   400.      690.    67.6     66.4     8.
   720.      1080.   63.5     66.1     12.
   1110.     1290.   63.2     65.      10.
   1320.     1630.   58.      64.      12.
       7             C BTRY   BN2      XM155  DS
   1200.3            XM155
   0.        70.     70.2     68.6     8.
   90.       210.    70.      68.1     6.
   230.      360.    69.5     68.1     5.
   380.      670.    69.1     67.9     8.
   700.      1060.   65.      67.6     12.
   1090.     1270.   64.7     66.5     10.
   1300.     1630.   59.5     65.5     12.
       6    3        BN FDC   BN3    XM155  DS
       6             B BTRY   BN3      XM155  DS
   1200.3            XM155
   0.        350.    70.5     67.8     6.
```

FIGURE 5-4. Sample Problem Card Input From Subroutine FUFDC (Data Card Types 41 through 56)(Page 1 of 5).

```
370.     610.     70.3     57.3     5.
630.     690.     69.8     57.1     4.
720.     990.     67.      56.      5.
1100.    1290.    66.6     55.7     8.
1320.    1630.    63.5     55.7     8.
    6             A BTRY   BN3      XM155  DS
 1200.3           XM155
0.       330.     72.      59.3     6.
350.     590.     71.8     58.8     5.
610.     670.     71.3     58.6     4.
700.     970.     68.5     57.5     5.
990.     1270.    68.1     57.2     8.
1300.    1630.    65.      57.2     8.
    6             C BTRY   BN3      XM155  DS
 1200.3           XM155
0.       310.     73.5     60.8     6.
330.     570.     73.3     60.3     5.
590.     650.     72.8     60.1     4.
680.     950.     70.      59.      5.
970.     1250.    69.6     58.7     8.
1280.    1630.    66.5     58.7     8.
    5     3       BN FDC   BN4      M123A4  REINF TO BN 2
    5             B BTRY   BN4      M123A4  REINF TO BN 2
 3100.2           M123A4
0.       170.     67.7     67.8     12.
190.     590.     67.5     67.3     12.
610.     890.     67.      67.1     5.
910.     1190.    66.6     66.8     5.
1230.    1630.    62.5     64.5     8.
    5             A BTRY   BN4      M123A4  REINF TO BN 2
 3100.2           M123A4
0.       190.     66.2     66.3     12.
210.     610.     66.      65.8     12.
630.     910.     65.5     65.6     5.
930.     1220.    65.1     65.3     5.
1250.    1630.    61.      63.      8.
    5             C BTRY   BN4      M123A4  REINF TO BN 2
 3100.2           M123A4
0.       210.     64.7     64.8     12.
230.     630.     64.5     64.3     12.
650.     930.     64.      64.1     5.
950.     1240.    63.6     63.8     5.
1270.    1630.    59.5     61.5     8.
    6     3       BN FDC   BN5      M123A4  GSR TO BN 3
    6             B BTRY   BN5      M123A4  GSR TO BN 3
 3100.2           M123A4
0.       230.     75.6     59.3     4.
250.     520.     75.4     58.8     4.
550.     950.     72.      56.6     4.
970.     1230.    71.6     56.2     4.
1250.    1410.    71.3     55.8     6.
1440.    1630.    66.3     56.3     6.
    6             A BTRY   BN5      M123A4  GSR TO BN 3
 3100.2           M123A4
0.       210.     74.1     57.8     4.
230.     600.     73.9     57.3     4.
630.     930.     70.5     55.      4.
950.     1210.    70.1     54.7     4.
1230.    1390.    69.8     54.3     6.
1420.    1630.    64.8     54.8     6.
```

FIGURE 5-4. Sample Problem Card Input From Subroutine FUFDC (Data Card Types 41 through 56)(Page 2 of 5).

```
     6              C BTRY   BN5      M123A4   GSR TO BN 3
  3100.2            M123A4
0.        190.      72.6     56.3     4.
210.      560.      72.4     55.8     4.
590.      910.      69.0     53.5     4.
930.      1190.     68.6     53.2     4.
1210.     1370.     68.3     52.8     6.
1400.     1630.     63.3     53.3     6.
     7     3        BN FDC   BN6      FARSS    GS AT D/A
     7              B BTRY   BN6      FARSS    GS AT D/A
  5000.2            FARSS
0.        190.      60.8     70.5     8.
210.      460.      60.6     70.      6.
480.      810.      60.1     69.8     8.
830.      940.      59.7     69.5     6.
970.      1190.     56.5     69.      5.
1220.     1430.     55.5     66.5     10.
1460.     1630.     53.7     66.7     4.
     7              A BTRY   BN6      FARSS    GS AT D/A
  5000.2            FARSS
0.        170.      62.3     72.      8.
190.      440.      62.1     71.5     6.
460.      790.      61.6     71.3     8.
810.      920.      61.2     71.      6.
950.      1170.     58.      70.5     5.
1200.     1410.     57.      68.      10.
1440.     1630.     55.2     68.2     4.
     7              C BTRY   BN6      FARSS    GS AT D/A
  5000.2            FARSS
0.        150.      63.8     73.5     8.
170.      420.      63.6     73.      6.
440.      770.      63.1     72.8     8.
790.      900.      62.7     72.5     6.
930.      1150.     59.5     72.      5.
1180.     1390.     58.5     69.5     10.
1420.     1630.     56.7     69.7     4.
     5     3        BN FDC   BN7      M123A4   GSR TO D/A FROM CORPS
     5              B BTRY   BN7      M123A4   GSR TO D/A FROM CORPS
  3100.2            M123A4
0.        480.      65.      71.      7.
500.      750.      64.8     70.5     3.
780.      1120.     64.5     72.5     11.
1140.     1310.     54.      72.3     4.
1330.     1630.     53.7     71.9     7.
     5              A BTRY   BN7      M123A4   GSR TO D/A FROM CORPS
  3100.2            M123A4
0.        460.      63.4     69.5     7.
480.      730.      63.3     69.      3.
760.      1100.     53.      71.      11.
1120.     1290.     52.5     70.8     4.
1310.     1630.     52.2     70.4     7.
     5              C BTRY   BN7      M123A4   GSR TO D/A FROM CORPS
  3100.2            M123A4
0.        440.      62.      68.      7.
460.      710.      61.8     67.5     3.
740.      1080.     61.5     69.5     11.
1100.     1270.     51.      69.3     4.
1290.     1630.     50.7     68.9
     1     2     BN FDC BN8      SPEAR    GS AT CORPS
     1           A BTRY BN8      SPEAR    GS AT CORPS
```

FIGURE 5-4. Sample Problem Card Input From Subroutine FUFDC (Data Card Types 41 through 56)(Page 3 of 5).

```
 4000.2          SPEAR
0.       1630.    57.5     65.
   1             B BTRY BN8      SPEAR    GS AT CORPS
 4000.2          SPEAR
0.       1630.     65.0     55.0
   1     1    1     1
1201.3
1201.3
1201.3
   2     1    1     1
1201.3
1201.3
1201.3
   3     1    1     1
1201.3
1201.3
1201.3
   4     1    1     1
1201.3
1201.3
1201.3
   5    12   12    12
1102.1  1103.1  1104.1  1109.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2
4001.2  5001.2
1102.1  1103.1  1104.1  1109.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2
4001.2  5001.2
1102.1  1103.1  1104.1  1109.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2
4001.2  5001.2
   6    12   11    11
1102.1  1103.1  1104.1  1109.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2
4001.2  5001.2
1102.1  1103.1  1104.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2
5001.2
1102.1  1103.1  1104.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2
5001.2
   7    11   10    10
1102.1  1103.1  1104.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2
5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
   8    10   10    10
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
   9    10   10    10
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
  10    10   10    10
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
1102.1  1103.1  1201.3  1202.3  1203.3  3101.2  3102.2  3103.2  4001.2  5001.2
  10    10
  65.     80.     69.     77.     73.     74.     74.     71.     76.     68.
  78.     65.     79.     62.     80.     59.     79.     56.     74.     53.
  65.     80.     66.     77.     68.     74.     71.     71.     73.     68.
  73.     65.     76.     62.     77.     59.     79.     56.     79.     53.
  64.     80.     64.     77.     67.     74.     70.     71.     72.     68.
  73.     65.     76.     62.     76.     59.     79.     56.     79.     53.
  64.     80.     64.     77.     65.     74.     70.     71.     71.     68.
```

FIGURE 5-4. Sample Problem Card Input From Subroutine FUFDC (Data Card Types 41 through 56)(Page 4 of 5).

```
 73.     65.     75.     62.     75.     59.     79.     56.     79.     53.
 63.     80.     64.     77.     66.     74.     70.     71.     71.     68.
 73.     65.     75.     62.     75.     59.     76.     56.     76.     53.
 62.     80.     63.     77.     64.     74.     69.     71.     70.     66.
 72.     65.     73.     62.     74.     59.     75.     56.     75.     53.
 61.     80.     62.     77.     61.     74.     64.     71.     70.     68.
 72.     65.     73.     62.     73.     59.     75.     56.     75.     53.
 61.     80.     62.     77.     59.     74.     61.     71.     65.     68.
 70.     65.     72.     62.     72.     59.     73.     56.     75.     53.
 60.     80.     61.     77.     58.     74.     59.     71.     61.     68.
 69.     65.     70.     62.     71.     59.     72.     56.     75.     53.
 60.     80.     61.     77.     57.     74.     58.     71.     59.     68.
 65.     65.     70.     62.     70.     59.     71.     56.     75.     53.
 60.    180.    360.    540.    720.    900.   1080.   1260.   1440.   1620.
```

FIGURE 5-4. Sample Problem Card Input From Subroutine FUFDC (Data Card Types 41 through 56)(Page 5 of 5).

```
   3  .001  .001  .001  .001  .001  .001  .001  .001  .001  .001  2.0   .5    2
  1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.
  1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.    1.
  2.    1.    4.    3.    6.    5.    9.    7.   10.    8.
                        6.
                              7.
  1.    2.    1.    1.    1.    1.    1.    1.    1.  2.
  1.    1.    1.    2.    4.    3.    5.    6.
   1     1     1     1     1     1     1     1     1     1     1     1     1     1     1     1
0.28    0.27    0.80    1.07    1.00    0.55    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.25    0.24    0.14    1.07    0.36
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
0.28    0.27    1.00    1.27    1.20    0.75    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.28    0.24    0.34    1.07    0.36
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
0.28    0.27    0.80    1.07    1.00    0.55    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.25    0.24    0.14    1.07    0.36
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
0.28    0.27    1.00    1.27    1.20    0.75    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.28    0.24    0.34    1.07    0.36
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
0.28    0.27    0.80    1.07    1.00    0.55    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.25    0.24    0.14    1.07    0.38
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
0.28    0.27    1.00    1.27    1.20    0.75    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.28    0.24    0.34    1.07    0.36
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
0.28    0.27    0.80    1.07    1.00    0.55    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.25    0.24    0.14    1.07    0.36
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
0.28    0.27    1.00    1.27    1.20    0.75    0.60    0.60    0.60    0.25    0.25
0.33    0.33    5.50    6.00    0.25    0.28    0.24    0.34    1.07    0.36
1.00    0.33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
1.65    1.65    13.0    0.00    0.65    0.50    0.24    0.55    2.02    0.73
  1
  2.    9999.
```

FIGURE 5-5. Sample Problem Card Input From Subroutine WPMIX (Data Card Types 57 through 82).

```
      1432        4132
     1.000       1.000
     2.000       2.000
     4.000       1.000
     5.000      12.000
   755.000       4.000       1.000       1.000       1.000        .000       2.000
     1.000       1.000        .000        .000        .000     755.312        .000       5.000
    60.000     499.000      87.100      80.300
   518.000     612.000      85.300      78.800
   627.000     930.000      83.700      79.300
   958.000    1140.000      79.700      78.000
  1170.000    1619.000      75.800      76.600
     1.000       1.000        .000        .000        .000     755.313        .000       4.000
    60.000     440.000      87.500      78.100
   455.000     625.000      85.300      77.300
   640.000    1208.000      83.300      76.900
  1236.000    1619.000      79.400      75.700
     1.000       1.000        .000        .000        .000     755.322        .000       5.000
    60.000     508.000      91.900      71.900
   522.000     678.000      89.600      71.300
   688.000     996.000      88.200      70.100
  1016.000    1086.000      85.400      70.100
  1116.000    1619.000      81.600      68.300
     1.000       1.000        .000        .000        .000     755.373        .000       5.000
    60.000     475.000      93.100      69.400
   509.000     651.000      89.800      66.700
   558.000     991.000      86.100      66.100
  1006.000    1099.000      86.200      67.700
  1121.000    1619.000      83.600      66.000
   901.000       3.000       6.000       2.000       5.000        .000       1.000
     2.000       6.000        .000        .000        .000     901.210        .000       6.000
    60.000     424.000      79.900      79.200
   439.000     606.000      77.600      78.500
   633.000     944.000      73.100      76.500
   983.000    1153.000      68.900      75.900
  1175.000    1391.000      65.300      74.000
  1398.000    1619.000      64.100      74.000
     2.000       6.000        .000        .000        .000     901.220        .000       5.000
    60.000     409.000      79.700      77.700
   423.000     653.000      77.900      77.200
   573.000     995.000      74.600      77.200
  1022.000    1141.000      70.100      77.400
  1182.000    1619.000      64.100      76.200
     2.000       6.000        .000        .000        .000     901.230        .000       5.000
    60.000     401.000      80.200      76.400
   423.000     639.000      77.200      75.400
   653.000     947.000      75.700      75.300
  1038.000    1318.000      69.300      74.600
  1352.000    1619.000      64.200      74.800
   902.000       3.000       6.000       2.000       8.000        .000       1.000
     3.000       6.000        .000        .000        .000     902.210        .000       6.000
    60.000     372.000      81.200      75.800
   387.000     670.000      79.200      74.400
   692.000    1017.000      76.800      73.300
  1045.000    1153.000      72.300      72.100
  1168.000    1476.000      70.000      71.700
  1512.000    1619.000      65.200      70.100
     3.000       6.000        .000        .000        .000     902.220        .000       7.000
    60.000     461.000      81.700      74.800
   480.000     622.000      79.300      72.900
   541.000    1000.000      77.400      70.800
  1027.000    1154.000      73.700      70.500
  1169.000    1299.000      72.300      72.300
```

FIGURE 5-6. Sample Problem Card Input From Subroutine REDIN (Data Card Types 83 through 87)(Page 1 of 5).

```
1335.000  1488.000    74.300    67.500
1507.000  1619.000    72.600    65.900
   3.000     6.000      .000      .000      .000    902.230      .000     6.000
  60.000   463.000    82.400    73.900
 473.000   627.000    81.400    74.700
 601.000   959.000    76.900    74.200
 987.000  1198.000    72.300    73.400
1218.000  1538.000    69.200    73.000
1553.000  1619.000    67.200    72.400
 760.000     3.000     6.000     3.000    11.000      .000     2.000
   4.000     6.000      .000      .000      .000    760.210      .000     7.000
  60.000   476.000    82.900    73.200
 510.000   664.000    77.400    74.800
 689.000   959.000    74.700    76.000
 981.000  1133.000    71.900    77.000
1155.000  1420.000    68.000    76.700
1434.000  1520.000    66.300    76.300
1539.000  1619.000    64.600    74.100
   4.000     6.000      .000      .000      .000    760.220      .000     6.000
  60.000   448.000    81.800    72.200
 476.000   623.000    77.100    73.900
 634.000   787.000    75.200    73.300
 809.000  1175.000    72.100    74.600
1197.000  1483.000    69.900    73.000
1513.000  1619.000    65.400    71.200
   4.000     6.000      .000      .000      .000    760.230      .000     5.000
  60.000   436.000    80.900    73.000
 464.000   612.000    76.700    72.800
 627.000  1137.000    75.200    70.900
1152.000  1534.000    73.500    69.400
1556.000  1619.000    72.500    66.500
 753.000     3.000     6.000     4.000    14.000      .000     1.000
   5.000     6.000      .000      .000      .000    753.210      .000     4.000
  60.000   413.000    77.000    73.900
 447.000  1044.000    72.200    73.500
1064.000  1481.000    69.400    73.400
1509.000  1619.000    65.400    72.200
   5.000     6.000      .000      .000      .000    753.220      .000     4.000
  60.000   422.000    77.400    72.900
 456.000  1020.000    72.500    72.400
1034.000  1478.000    70.200    72.800
1495.000  1619.000    68.800    70.400
   5.000     6.000      .000      .000      .000    753.230      .000     4.000
  60.000   402.000    78.300    72.400
 443.000  1206.000    72.500    71.700
1212.000  1505.000    72.300    71.000
1530.000  1619.000    70.000    68.100
 843.000     3.000     6.000     4.000    17.000      .000     1.000
   6.000     6.000      .000      .000      .000    843.210      .000     5.000
 639.000   720.000    92.600    71.600
 794.000   951.000    81.600    72.800
1004.000  1190.000    75.600    77.300
1229.000  1550.000    70.100    74.000
1560.000  1619.000    69.100    73.300
   6.000     6.000      .000      .000      .000    843.220      .000     6.000
 540.000   593.000   130.700    84.700
 693.000   813.000    99.600    74.500
 873.000   934.000    81.000    74.000
 968.000  1156.000    76.700    73.800
1183.000  1526.000    72.300    73.600
```

FIGURE 5-6. Sample Problem Card Input From Subroutine REDIN (Data Card Types 83 through 87)(Page 2 of 5).

```
1545.000  1619.000    70.300    71.900
   6.000     6.000      .000      .000      .000   843.230      .000     6.000
 540.000   612.000   136.000    87.700
 704.000   756.000   110.500    78.000
 854.000   936.000    81.800    74.900
 972.000  1086.000    76.500    72.300
1108.000  1353.000    76.600    69.100
1567.000  1619.000    76.300    67.500
 903.000     3.000     6.000     4.000    20.000      .000     2.000
   7.000     6.000      .000      .000      .000   903.210      .000     5.000
  60.000   479.000    76.100    79.100
 504.000   581.000    73.400    77.700
 603.000   919.000    70.900    78.100
 958.000  1419.000    65.300    75.800
1434.000  1619.000    63.800    74.900
   7.000     6.000      .000      .000      .000   903.220      .000     5.000
  60.000   402.000    77.000    78.600
 432.000   616.000    73.300    76.800
 631.000  1015.000    71.900    77.000
1044.000  1108.000    68.200    74.700
1130.000  1619.000    65.500    73.900
   7.000     6.000      .000      .000      .000   903.230      .000     5.000
  60.000   462.000    77.900    78.000
 487.000   664.000    74.400    76.200
 674.000   991.000    73.600    75.200
1021.000  1162.000    69.800    73.200
1184.000  1619.000    66.200    72.900
 904.000     3.000     6.000     4.000    23.000      .000     2.000
   8.000     6.000      .000      .000      .000   904.210      .000     4.000
  60.000   412.000    79.400    72.700
 442.000  1086.000    75.300    70.300
1101.000  1528.000    73.300    71.200
1557.000  1619.000    70.300    68.900
   8.000     6.000      .000      .000      .000   904.220      .000     4.000
  60.000   449.000    78.900    71.700
 468.000  1141.000    76.100    69.500
1148.000  1353.000    75.600    69.200
1372.000  1619.000    73.600    67.600
   8.000     6.000      .000      .000      .000   904.230      .000     5.000
  60.000   426.000    79.900    71.700
 453.000  1213.000    76.700    69.100
1223.000  1393.000    75.100    70.200
1412.000  1513.000    73.300    68.600
1520.000  1619.000    72.100    68.400
 705.000     1.000     6.000     4.000    26.000      .000     1.000
   9.000     6.000      .000      .000      .000   705.220      .000     5.000
  60.000   570.000    88.000    75.900
 599.000   827.000    85.200    78.600
 861.000   925.000    95.400    77.100
1012.000  1538.000    69.200    76.500
1568.000  1619.000    65.300    74.100
 715.000     1.000     6.000     4.000    27.000      .000     1.000
  10.000     6.000      .000      .000      .000   715.220      .000     4.000
  60.000   309.000    73.400    69.400
 316.000  1316.000    73.100    68.500
1326.000  1479.000    72.800    67.500
1494.000  1619.000    71.700    65.300
 725.000     1.000     6.000     4.000    28.000      .000     1.000
  11.000     6.000      .000      .000      .000   725.220      .000     7.000
  60.000    87.000    80.200    63.400
```

FIGURE 5-6. Sample Problem Card Input From Subroutine REDIN (Data Card Types 83 through 87)(Page 3 of 5).

```
  94.000   217.000   77.800   62.900
 223.000   376.000   77.000   62.900
 390.000  1011.000   75.400   62.300
1021.000  1366.000   74.400   61.700
1373.000  1446.000   73.600   61.500
1455.000  1619.000   72.300   61.100
 751.000     3.000    6.000    4.000   29.000     .000    1.000
  12.000     6.000     .000     .000     .000  751.210     .000    5.000
  60.000   146.000   81.700   68.600
 168.000   658.000   78.300   67.800
 865.000  1115.000   77.000   67.400
1158.000  1276.000   75.000   61.300
1312.000  1619.000   73.200   66.200
  12.000     6.000     .000     .000     .000  751.220     .000    3.000
  73.000   851.000   78.800   66.800
 866.000  1392.000   76.500   65.700
1406.000  1619.000   74.500   65.800
  12.000     6.000     .000     .000     .000  751.230     .000    5.000
  60.000    66.000   62.900   60.900
 114.000   762.000   69.800   65.800
 836.000  1139.000   78.400   64.000
1149.000  1314.000   77.400   63.200
1324.000  1619.000   76.000   62.200
 752.000     3.000    6.000    4.000   32.000     .000    1.000
  13.000     6.000     .000     .000     .000  752.210     .000    8.000
  60.000    63.000   74.900   78.800
  77.000   216.000   74.900   76.700
 259.000   480.000   68.200   78.100
 494.000   804.000   68.200   76.600
 811.000  1055.000   67.100   76.800
1065.000  1240.000   66.000   75.900
1255.000  1348.000   64.200   74.700
1363.000  1619.000   62.200   73.800
  13.000     6.000     .000     .000     .000  752.220     .000    7.000
  60.000   133.000   74.900   77.800
 143.000   269.000   73.500   76.200
 310.000   738.000   67.600   77.300
 745.000   929.000   66.800   77.300
 936.000  1134.000   65.000   77.200
1164.000  1363.000   61.900   75.600
1370.000  1619.000   61.000   74.900
  13.000     6.000     .000     .000     .000  752.230     .000    6.000
  60.000    74.000   74.900   76.700
  88.000   194.000   72.100   76.900
 230.000   768.000   67.000   78.000
 774.000  1177.000   67.200   78.100
1216.000  1329.000   62.300   75.300
1339.000  1619.000   61.800   74.200
 806.000     1.000    6.000    4.000   35.000     .000    3.000
  14.000     6.000     .000     .000     .000  806.220     .000    4.000
 900.000  1097.000  119.300   83.800
1111.000  1354.000  117.800   83.300
1373.000  1472.000  115.000   81.900
1487.000  1619.000  113.600   80.000
 841.000     3.000    6.000    4.000   36.000     .000    1.000
  15.000     6.000     .000     .000     .000  841.210     .000    5.000
 540.000   579.000  119.900    5.900
 679.000   767.000   93.700   79.200
 835.000  1004.000   73.400   76.000
1038.000  1169.000   68.200   76.500
```

FIGURE 5-6. Sample Problem Card Input From Subroutine REDIN (Data Card Types 83 through 87)(Page 4 of 5).

```
1210.000  1619.000    62.300    75.900
  15.000     6.000      .000      .000      .000   841.220      .000     5.000
 540.000   574.000   121.800     4.900
 664.000   775.000    98.300    80.800
 855.000  1033.000    75.400    74.800
1067.000  1124.000    70.100    74.100
1165.000  1619.000    64.300    73.800
  15.000     6.000      .000      .000      .000   841.230      .000     6.000
 540.000   569.000   123.800     6.300
 661.000   733.000   101.000    79.900
 824.000   929.000    74.100    77.200
 976.000  1160.000    67.300    77.500
1188.000  1275.000    63.900    76.600
1282.000  1619.000    63.200    75.200
 842.000     3.000     6.000     4.000    39.000      .000     1.000
  16.000     6.000      .000      .000      .000   842.210      .000     6.000
 540.000   619.000   125.300    86.100
 719.000   807.000    94.100    76.600
 865.000   957.000    77.100    73.600
 985.000  1321.000    73.100    72.700
1349.000  1507.000    69.500    71.200
1535.000  1619.000    65.900    70.400
  15.000     6.000      .000      .000      .000   842.220      .000     5.000
 540.000   563.000   127.500    69.600
 663.000   786.000    99.300    77.100
 858.000   971.000    78.400    72.300
1007.000  1526.000    73.100    70.500
1555.000  1619.000    70.700    67.800
  15.000     6.000      .000      .000      .000   842.230      .000     6.000
 540.000   598.000   129.900     1.800
 693.000   761.000   105.700    76.500
 853.000   916.000    78.100    71.300
 935.000  1327.000    75.000    71.600
1347.000  1506.000    72.100    71.500
1535.000  1619.000    69.100    68.000
9999.0000
```

FIGURE 5-6. Sample Problem Card Input From Subroutine REDIN (Data Card Types 83 through 87)(Page 5 of 5).

```
   0.00     1.00    25.00      .30     1.00     4.00     0.00
  41
         TABLES LOADED PROPERLY
1200.30     6.00     6.00     4.00    50.00     1.00    30.00     8.00     2.00 1200.00
  80.00    12.00     1.00     1.00     2.00     5.00    27.00     5.00    27.00     5.00
  27.00 1500.00   800.00 2000.00  1000.00  1000.00  2000.00     4.00  5000.00      .05
    .20      .40      .40
3100.20     4.00     3.00     2.00    40.00     1.00    30.00     5.00     2.00   850.00
 100.00    12.00     1.00     1.00     2.00     5.00    27.00     5.00    27.00     5.00
  27.00  1500.00  1500.00 10000.00  1000.00  1000.00 10000.00     3.00  2500.00      .05
    .30      .50      .20
4000.20     2.00      .50      .33     3.00     2.00    60.00     1.00    20.00    30.00
   2.00     1.00     1.00     1.00     1.00     3.00    27.00     3.00    27.00     3.00
  27.00    99.00   200.00   400.00   300.00  3000.00 30000.00     0.00 9999.00      .20
    .05      .15      .80
5000.20     2.00    24.00    24.00  1000.00     3.00    25.00    12.00    15.00    90.00
  18.00    12.00     1.00    12.00     1.00     3.00    27.00     3.00    27.00     3.00
  27.00   600.00  4000.00 10000.00  1000.00  4000.00  7000.00     0.00 9999.00      .20
    .10      .35      .55
12000.20    1.00     1.00     1.00     1.00     2.00    80.00     1.00    20.00    10.00
   6.00     0.00    30.00     0.00     1.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
13000.10    6.00     1.50     6.00     1.00     1.00    30.00    15.00     2.00   900.00
 300.00     0.00     1.20     0.00     2.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
14000.20    6.00    40.00    40.00    40.00     2.00    16.00     1.00    20.00   240.00
 720.00     0.00      .90     0.00     1.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
17000.30    6.00     2.00     8.00     1.00     1.00    18.00    15.00     2.00   500.00
 800.00     0.00     1.10     0.00     2.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
   0.00     0.00     0.00
   8
         SYSTEM LOADED PROPERLY
  14
1201.3     .061     .300    16.5     .954       1.    1200.
1202.3     .081     .200    30.0     .950       2.    1200.
1203.3     .060     .115    17.3     .980       2.    1200.
1204.3     .101    2.970    17.0     .953       3.     600.
3101.2     .100     .450    23.0     .950       1.     900.
3102.2     .150     .523    30.0     .950       2.     400.
3103.2     .100     .160    22.0     .980       2.     800.
4001.2    2.300  100.300    60.0     .965       1.      30.
5001.2     .080     .990    25.0     .950       1.      90.
12001.2   1.000    1.000    60.0     .950       1.      10.
13001.1   1.000    1.000    30.0     .970       2.     900.
14001.2   1.000    1.000    16.0     .980       2.     240.
17001.3   1.000    1.000    18.0     .950       2.     500.
   9
         ROUND LOADED PROPERLY
   8
   2    0                          DIVARTY FDC
   0.00  375.00    61.00    63.00
 920.00 1700.00    54.00    57.00
   2    3                          CORPS FDC
   0.00  370.00    61.00    70.00
 715.00 1700.00    54.00    62.00
   7    3       BN FDC   BN1    XM155   DS
   0.00  160.00    62.00    72.40
 180.00  270.00    61.80    71.90
 300.00  390.00    58.50    71.50
```

FIGURE 5-7. Values of Selected Input Parameters (Page 1 of 7).

```
 610.00  960.00   58.00   71.30
 990.00 1170.00   55.00   69.50
1120.00 1480.00   51.50   68.50
1500.00 1630.00   51.20   68.10
   3BATTERYS IN BN  1
   7    0       B BTRY  BN1      XM155  DS
1200.30
   0.00  160.00   62.00   72.40    4.00
 180.00  270.00   61.80   71.90    4.00
 300.00  590.00   58.50   71.20    8.00
 610.00  960.00   56.00   71.30   10.00
 990.00 1170.00   55.00   69.50    8.00
1120.00 1480.00   51.50   68.50    8.00
1500.00 1630.00   51.20   68.10    4.00
   7    0       A BTRY  BN1      XM155  DS
1200.30
   0.00  140.00   63.50   73.90    4.00
 160.00  250.00   63.30   73.40    4.00
 280.00  570.00   60.00   73.00    8.00
 590.00  900.00   59.50   72.80   10.00
 930.00 1150.00   56.50   71.00    8.00
1180.00 1460.00   53.00   70.00    8.00
1480.00 1630.00   52.70   69.60    4.00
   7    0       C BTRY  BN1      XM155  DS
1200.30
   0.00  120.00   65.00   75.40    4.00
 140.00  230.00   64.80   74.90    4.00
 260.00  550.00   61.50   74.50    8.00
 570.00  930.00   61.00   74.30   10.00
 960.00 1130.00   58.00   72.50    8.00
1160.00 1440.00   54.50   71.50    8.00
1460.00 1630.00   54.20   71.40    4.60
   7    3       BN FDC  BN2    XM155  DS
   0.00  110.00   67.20   65.60
 130.00  250.00   67.00   65.10
 270.00  400.00   66.50   65.10
 420.00  710.00   66.10   64.90
 740.00 1100.00   62.00   64.60
1130.00 1310.00   61.70   63.50
1340.00 1630.00   56.50   62.50
   3BATTERYS IN BN  2
   7    0                BN2       XM155 DS
1200.30
   0.00  110.00   67.20   65.60    8.00
 130.00  250.00   67.00   65.10    6.00
 270.00  400.00   66.50   65.10    5.00
 420.00  710.00   66.10   64.90    8.00
 740.00 1100.00   62.00   64.60   12.00
1130.00 1310.00   61.70   63.50   10.00
1340.00 1630.00   56.50   62.50   12.00
   7    0       A BTRY  BN2      XM155  DS
1200.30
   0.00   90.00   68.70   67.10    8.00
 110.00  230.00   68.50   66.60    6.00
 250.00  380.00   68.00   66.60    5.00
 400.00  690.00   67.60   66.40    8.00
 720.00 1060.00   63.50   65.10   12.00
1110.00 1290.00   63.20   65.00   10.00
1320.00 1630.00   58.00   64.00   12.00
   7    3       C BTRY  BN2      XM155  DS
1200.30
   0.00   70.00   70.20   68.00    8.00
  90.00  210.00   70.00   68.10    6.00
 230.00  360.00   69.50   68.10    5.00
 380.00  670.00   69.10   67.90    8.00
 700.00 1060.00   65.00   67.00   12.00
```

FIGURE 5-7. Values of Selected Input Parameters (Page 2 of 7).

```
1090.00 1270.00   64.70   66.30   10.00
1300.00 1630.00   59.50   65.50   12.00
   6     3       BN FDC  BN3    XM155  DS
   0.00  350.00   70.30   57.80
 370.00  610.00   70.30   57.30
 630.00  690.00   69.80   57.10
 720.00  990.00   67.00   56.00
1100.00 1240.00   65.60   55.70
1320.00 1630.00   63.50   55.70
   3BATTERYS IN BN  3
   6     0       B BTRY  BN3      XM155  DS
1200.30
   0.00  390.00   70.50   57.80    6.00
 370.00  610.00   70.30   57.30    5.00
 630.00  690.00   69.80   57.10    4.00
 720.00  990.00   67.00   56.00    5.00
1100.00 1240.00   66.60   55.70    8.00
1320.00 1630.00   63.50   55.70    8.00
   6     0       A BTRY  BN3      XM155  DS
1200.30
   0.00  330.00   72.00   59.30    6.00
 350.00  590.00   71.80   58.80    5.00
 610.00  670.00   71.30   58.60    4.00
 700.00  970.00   68.50   57.50    5.00
 990.00 1270.00   66.10   57.20    8.00
1300.00 1630.00   65.00   57.20    8.00
   5     0       C BTRY  BN3      XM155  DS
1200.30
   0.00  310.00   73.50   60.80    6.00
 330.00  570.00   73.50   60.80    5.00
 590.00  650.00   72.80   60.10    4.00
 660.00  950.00   70.00   59.00    5.00
 970.00 1250.00   69.60   58.70    8.00
1280.00 1630.00   66.50   58.70    8.00
   5     3       BN FDC  BN4      M123A4  REINF TO BN 2
   0.00  170.00   67.70   67.80
 190.00  590.00   67.50   67.30
 610.00  890.00   67.00   67.10
 910.00 1190.00   66.50   66.80
1230.00 1630.00   62.50   64.50
   3BATTERYS IN BN  4
   5     0       B BTRY  BN4      M123A4  REINF TO BN 2
3100.20
   0.00  170.00   67.70   67.80   12.00
 190.00  590.00   67.50   67.30   12.00
 610.00  890.00   67.00   67.10    5.00
 910.00 1190.00   66.60   66.80    5.00
1230.00 1630.00   62.50   64.50    8.00
   5     0       A BTRY  BN4      M123A4  REINF TO BN 2
3100.20
   0.00  190.00   66.20   66.30   12.00
 210.00  610.00   66.00   65.80   12.00
 630.00  910.00   65.50   65.60    5.00
 930.00 1220.00   65.10   65.30    5.00
1250.00 1630.00   61.00   63.00    8.00
   5     0       C BTRY  BN4      M123A4  REINF TO BN 2
3100.20
   0.00  210.00   64.70   64.80   12.00
 230.00  630.00   64.50   64.30   12.00
 650.00  930.00   64.00   64.10    5.00
 950.00 1240.00   63.60   63.80    5.00
1270.00 1630.00   59.50   61.50    8.00
   6     3       BN FDC  BN5      M123A4  GSR TO BN 3
   0.00  230.00   75.60   59.80
 250.00  520.00   75.40   58.80
 550.00  950.00   72.00   56.60
```

FIGURE 5-7. Values of Selected Input Parameters (Page 3 of 7).

```
 970.00 1230.00   71.60   56.20
1250.00 1410.00   71.30   55.80
1440.00 1630.00   66.30   56.30
   3BATTERYS IN BN  5
   6     0       B BTRY  BN5      M123A4  GSR TO BN 3
3100.20
   0.00  230.00   75.60   59.30    4.00
 250.00  520.00   75.40   58.80    4.00
 550.00  950.00   72.00   56.00    4.00
 970.00 1230.00   71.60   56.20    4.00
1250.00 1410.00   71.30   55.80    6.00
1440.00 1630.00   66.30   56.30    6.00
   6     0       A BTRY  BN5      M123A4  GSR TO BN 3
3100.20
   0.00  210.00   74.10   57.80    4.00
 230.00  600.00   73.90   57.30    4.00
 630.00  930.00   70.20   55.00    4.00
 950.00 1210.00   70.10   54.70    4.00
1230.00 1390.00   69.80   54.30    6.00
1420.00 1630.00   64.80   54.80    6.00
   6     0       C BTRY  BN5      M123A4  GSR TO BN 3
3100.20
   0.00  190.00   72.60   56.30    4.00
 210.00  560.00   72.40   55.80    4.00
 590.00  910.00   69.00   53.50    4.00
 930.00 1190.00   68.60   53.20    4.00
1210.00 1370.00   68.30   52.80    6.00
1400.00 1630.00   63.30   53.30    6.00
   7     3       BN FDC  BN6      FARSS   GS AT D/A
   0.00  190.00   60.80   70.50
 210.00  460.00   60.60   70.00
 480.00  810.00   60.10   69.80
 830.00  940.00   59.70   69.50
 970.00 1190.00   56.50   69.00
1220.00 1430.00   55.50   66.50
1460.00 1630.00   53.70   66.70
   3BATTERYS IN BN  6
   7     0       B BTRY  BN6      FARSS   GS AT D/A
5000.20
   0.00  190.00   60.80   70.50    8.00
 210.00  460.00   60.60   70.00    6.00
 480.00  810.00   60.10   69.80    8.00
 830.00  940.00   59.70   69.50    6.00
 970.00 1190.00   56.50   69.00    5.00
1220.00 1430.00   55.50   66.50   10.00
1460.00 1630.00   53.70   66.70    4.00
   7     0       A BTRY  BN6      FARSS   GS AT D/A
5000.20
   0.00  170.00   62.30   72.00    8.00
 190.00  440.00   62.10   71.50    6.00
 460.00  790.00   61.60   71.30    8.00
 810.00  920.00   61.20   71.00    6.00
 950.00 1170.00   58.00   70.50    5.00
1200.00 1410.00   57.00   68.00   10.00
1440.00 1630.00   55.20   68.20    4.00
   7     3       C BTRY  BN6      FARSS   GS AT D/A
5000.20
   0.00  150.00   63.80   73.50    8.00
 170.00  420.00   63.60   73.00    6.00
 440.00  770.00   63.10   72.80    8.00
 790.00  900.00   62.70   72.50    6.00
 930.00 1150.00   59.50   72.00    5.00
1180.00 1390.00   58.50   69.50   10.00
1420.00 1630.00   56.70   69.70    4.00
   5     3       BN FDC  BN7      M123A4  GSR TO D/A FROM CORPS
   0.00  480.00   65.00   71.00
```

FIGURE 5-7. Values of Selected Input Parameters (Page 4 of 7).

```
 500.00  750.00   64.80   70.50
 780.00 1120.00   54.50   72.50
1140.00 1310.00   54.00   72.30
1330.00 1630.00   53.70   71.90
   3BATTERYS IN BN  7
   5    0       B BTRY  BN7      M123A4     GSR TO D/A FROM CORPS
3100.20
   0.00  460.00   65.00   71.00    7.00
 500.00  750.00   64.80   70.50    3.00
 780.00 1120.00   54.50   72.50   11.00
1140.00 1310.00   54.00   72.30    4.00
1330.00 1630.00   53.70   71.90    7.00
   5    0       A BTRY  BN7      M123A4     GSR TO D/A FROM CORPS
3100.20
   0.00  460.00   63.40   69.50    7.00
 480.00  730.00   63.30   69.00    3.00
 760.00 1130.00   53.00   71.00   11.00
1120.00 1290.00   52.50   70.80    4.00
1310.00 1630.00   52.20   70.40    7.00
   5    0       C BTRY  BN7      M123A4     GSR TO D/A FROM CORPS
3100.20
   0.00  440.00   62.00   68.00    7.00
 460.00  710.00   61.80   67.50    3.00
 740.00 1080.00   51.50   69.50   11.00
1100.00 1270.00   51.00   69.30    4.00
1290.00 1630.00   50.70   68.90    0.00
   1    2       BN FDC BN8      SPEAR    GS AT CORPS
   0.00 1630.00   57.50   65.00
   2BATTERYS IN BN  8
   1    0       A BTRY BN8      SPEAR    GS AT CORPS
4000.20
   0.00 1630.00   57.50   65.00    0.00
   1    0       B BTRY BN8      SPEAR    GS AT CORPS
4000.20
   0.00 1630.00   65.00   65.00    0.00
  23   10
         FORSIZ =    100.0
  10   10
  65.00   80.00   69.00   77.00   73.00   74.00   74.00   71.00   76.00   68.00
  78.00   55.00   79.00   62.00   80.00   54.00   79.00   56.00   79.00   53.00
  65.00   80.00   66.00   77.00   68.00   74.00   71.00   71.00   73.00   68.00
  73.00   65.00   76.00   62.00   77.00   54.00   79.00   56.00   79.00   53.00
  64.00   80.00   64.00   77.00   67.00   74.00   70.00   71.00   72.00   68.00
  73.00   65.00   76.00   62.00   76.00   54.00   79.00   56.00   79.00   53.00
  64.00   80.00   64.00   77.00   66.00   74.00   70.00   71.00   71.00   68.00
  73.00   65.00   75.00   62.00   75.00   59.00   79.00   56.00   79.00   53.00
  63.00   80.00   64.00   77.00   66.00   74.00   70.00   71.00   71.00   68.00
  73.00   65.00   75.00   62.00   75.00   59.00   78.00   56.00   75.00   53.00
  62.00   80.00   63.00   77.00   64.00   74.00   69.00   71.00   70.00   68.00
  72.00   65.00   73.00   62.00   74.00   59.00   75.00   56.00   75.00   53.00
  61.00   80.00   62.00   77.00   61.00   74.00   64.00   71.00   70.00   68.00
  72.00   65.00   73.00   62.00   73.00   54.00   75.00   56.00   75.00   53.00
  61.00   80.00   62.00   77.00   59.00   74.00   61.00   71.00   69.00   68.00
  70.00   65.00   72.00   62.00   72.00   59.00   73.00   56.00   75.00   53.00
  60.00   80.00   61.00   77.00   58.00   74.00   59.00   71.00   61.00   68.00
  69.00   65.00   70.00   62.00   71.00   59.00   72.00   56.00   75.00   53.00
  60.00   80.00   61.00   77.00   57.00   74.00   58.00   71.00   59.00   68.00
  65.00   65.00   70.00   62.00   70.00   59.00   71.00   56.00   75.00   53.00
   3 .0010 .0010 .0010 .0010 .0010 .0010 .0010 .0010 .0010 .00102.000 .500    2
   8
  1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.   1.
  1.   1.   1.   1.   1.   1.   1.
  2.   1.   4.   3.   6.   5.   9.   7.  10.   8.
  0.   0.   0.   0.   6.   0.   0.   0.   0.   0.
  0.   0.   0.   0.   0.   7.   0.   0.   0.   0.
  1.   2.   1.   1.   1.   1.   1.   1.   1.   2.
```

FIGURE 5-7. Values of Selected Input Parameters (Page 5 of 7).

```
1.    1.    1.    2.    4.    3.    5.    6.
 1      602.      362.      1310.      1425.      852.      786.      631.
 2      323.      433.       501.      1162.      315.      832.     1408.
 3     1280.       45.       526.      2210.      764.      107.     1323.
 4      974.      560.       316.       240.      603.      314.     1000.
 5      411.      503.      1335.      1762.      413.      797.     1235.
 6     1412.      721.       767.      1642.      426.       67.     1161.
 7     1482.      456.      1776.       678.      200.      944.     1564.
 8     1239.      485.      1704.      1982.      943.      972.     1346.
 9      197.      176.      1216.      1191.      721.       69.     1146.
10      706.      844.      6693.      1076.      260.      179.     1997.
11      175.      169.      6925.       605.      824.       70.      580.
12      687.      457.      1976.      1091.      804.      450.     4793.
13      139.      974.       528.        86.      117.      350.     4984.
14     1011.      497.      2961.       206.      751.      284.     2595.
15       47.     1373.      2249.       309.      219.       36.     5914.
16      125.     1347.      8940.         0.      284.      999.     5123.
17      209.     3885.      5877.         0.      219.     3644.     3642.
18      153.     3458.      7559.         0.      294.      645.     1789.
19     1222.      766.      2464.       210.      940.      717.     7787.
20      908.      272.      1672.        96.      632.      231.     4312.
21     1064.     1315.       325.       554.      950.      359.     7941.
22       62.       82.        37.     28659.      187.      738.    22499.
23       68.      145.        59.     11248.      151.     2003.    10606.
5.    7.    5.    1.    2.    3.    0.    0.    0.    0.    0.    0.    3.    6.
6.    5.    1.    2.    3.    0.    0.    0.    0.    0.    0.    C,    2.    5.
8.    7.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    2.
8.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    0.    1.
 1     1     1     1     1     1     1     1     1     1
  .28     .27     .80    1.07    1.00     .55     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
  .28     .27    1.00    1.27    1.20     .75     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
  .28     .27     .80    1.07    1.00     .55     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
  .28     .27    1.00    1.27    1.20     .75     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
  .28     .27     .80    1.07    1.00     .55     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
  .28     .27    1.00    1.27    1.20     .75     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
  .28     .27     .80    1.07    1.00     .55     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .25     .24     .14    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
  .28     .27    1.00    1.27    1.20     .75     .60     .60     .60     .25     .25
  .33     .33    5.50    6.00     .25     .28     .24     .34    1.07     .38
 1.00     .33    1.25    1.47    1.45    1.00    4.00    4.00    4.00    1.31    1.31
 1.65    1.65   13.00    0.00     .65     .50     .24     .55    2.02     .73
 1
 2.00 9999.00     0.00      0.00      0.00
 4
   1432      4132
 1.0000    1.0000    10.0000
```

FIGURE 5-7. Values of Selected Input Parameters (Page 6 of 7).

2.0000	2.0000	11.0000				
4.0000	1.0000	12.0000				
5.0000	12.0000	13.0000				
755.0000	4.0000	1.0000	5.0000	1.0000	0.0000	2.0000
901.0000	3.0000	6.0000	6.0000	5.0000	0.0000	1.0000
902.0000	3.0000	6.0000	6.0000	8.0000	0.0000	1.0000
760.0000	3.0000	6.0000	7.0000	11.0000	0.0000	2.0000
753.0000	3.0000	6.0000	8.0000	14.0000	0.0000	1.0000
843.0000	3.0000	6.0000	8.0000	17.0000	0.0000	1.0000
903.0000	3.0000	6.0000	8.0000	20.0000	0.0000	2.0000
904.0000	3.0000	6.0000	8.0000	23.0000	0.0000	2.0000
705.0000	1.0000	6.0000	8.0000	26.0000	0.0000	1.0000
715.0000	1.0000	6.0000	8.0000	27.0000	0.0000	1.0000
725.0000	1.0000	6.0000	8.0000	28.0000	0.0000	1.0000
751.0000	3.0000	6.0000	8.0000	29.0000	0.0000	1.0000
752.0000	3.0000	6.0000	8.0000	32.0000	0.0000	1.0000
836.0000	1.0000	6.0000	8.0000	35.0000	0.0000	3.0000
841.0000	3.0000	6.0000	8.0000	36.0000	0.0000	1.0000
842.0000	3.0000	6.0000	8.0000	39.0000	0.0000	1.0000
9999.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000

FIGURE 5-7. Values of Selected Input Parameters (Page 7 of 7).

GAME TIME = 9. HOURS SAMPLE CASE

BATTALION TOTALS

	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11	TOTAL
ARTY MIL WORTH	1668.47	1720.44	2708.41	253.88	543.12	0.00	1011.29	0.00	0.00	0.00	0.00	7905.61
PERSONNEL	64.44	222.15	191.06	18.42	131.99	0.00	295.20	0.00	0.00	0.00	0.00	923.26
TANKS	19.99	18.00	6.05	.63	0.00	0.00	.48	0.00	0.00	0.00	0.00	45.15
APCS	13.27	42.99	35.68	.95	2.88	0.00	5.91	0.00	0.00	0.00	0.00	101.69
TRUCKS	5.14	14.61	14.45	1.92	3.43	0.00	26.09	0.00	0.00	0.00	0.00	65.64
TUBES	0.00	2.30	1.25	.13	1.16	0.00	5.05	0.00	0.00	0.00	0.00	9.89
RADARS	0.00	0.00	.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.39
LNCHRS	0.00	1.55	3.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.98
BTRY FIRE MSNS	42	82	69	8	13	0	40	0	0	0	0	254

ROUND TOTALS

RND ID												
1201.30	642.00	966.00	929.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2537.00
1202.30	0.00	48.00	48.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.00
1203.30	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00
1204.30	95.00	149.00	98.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	342.00
3101.20	0.00	0.00	0.00	80.00	152.00	0.00	572.00	0.00	0.00	0.00	0.00	804.00
3102.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3103.20	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	4.00
4001.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5001.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL RNDS	737.00	1163.00	1111.00	80.00	152.00	0.00	576.00	0.00	0.00	0.00	0.00	3819.00
TOTAL WGT	81.60	97.18	91.20	8.00	15.20	0.00	57.60	0.00	0.00	0.00	0.00	330.78
TOTAL COST	506.85	790.23	629.95	36.00	68.40	0.00	258.12	0.00	0.00	0.00	0.00	2289.55

CLGP TOTALS

NO. MSNS = 93. TANKS KILLED = 37.81 APCS KILLED = 70.02 TRUCKS KILLED = 1.36

UNACCOMPLISHED MISSIONS

MISSION TYPE		REASONS			
MSN DROPPED - QUE OVERLOADED	0	BATTERY BUSY	7	D/A FDC BUSY	0
TARGET DEPARTED BEFORE FIRED	0	BTRY OUT OF AMMO	0	D/A FDC OUT	0
TGTS DROPPED-ALL BUSY	0	BN FDC BUSY	105	CORPS FDC BUSY	0
SCHED PLAN MSN CANT DO	0	BN FDC OUT	0	CORPS FDC OUT	0
HOUSEKEEPING MSN CANT DO	0				
TGT OUT OF RANGE OF ALL UNITS	0				
TOTAL	0				

FIGURE 5-8. Scenario Results After 9 Hours of Game Time (Page 1 of 5).

MILITARY WORTH

	(215 - 151)			(150 - 5)			(50 - 11)			(10 - 0.5)			TOTALS		
	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN
BN FIRE MSN	32	20	10	32	7	0	94	0	0	15	0	0	173	27	10
MSNS DFTED	9	0	1	5	6	0	33	0	0	1	0	0	48	6	1
ARTY MW	4279.	885.	417.	859.	355.	0.	1087.	0.	0.	24.	0.	0.	6248.	1241.	417.

FIRE PLANS

PLAN	PLAN ID	NO. TGTS	NO. TGTS SCHEDULED	NO. MSNS SCHEDULED	NO. MSNS FIRED	ARTY SCORE	NO. RDS FIRED	PROCESS TIME
1.	1000.	10.	10.	10.	0.	0.00	0.00	2.40
2.	1000.	0.	0.	2.	2.	423.20	60.00	.28
3.	1000.	0.	0.	2.	2.	423.20	78.00	.28
4.	1000.	0.	0.	2.	2.	423.20	84.00	.28
5.	1000.	0.	0.	2.	2.	423.20	40.00	.28
6.	1000.	0.	0.	1.	1.	211.60	20.00	.14
7.	1000.	0.	0.	1.	1.	211.60	20.00	.14

FIRE PLAN SCORE= 2116.00 (=100.00 PERCENT OF SCHEDULED AND100.00 PERCENT OF INPUT)

TIME BREAKOUT

	D/A	CORPS	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11
MINUTES BUSY	13.31	4.50	55.57	80.66	65.03	.28	5.09	0.00	12.24	.55	0.00	0.00	0.00
MINUTES IDLE	526.69	535.50	484.43	459.34	474.97	539.72	534.91	540.00	527.76	539.45	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	1.93	0.00	18.78	20.00	4.25	0.00	.92	0.00	.92	.92	0.00	0.00	0.00

	BTRY1	BTRY2	BTRY3	BTRY4	BTRY5	BTRY6	BTRY7	BTRY8	BTRY9	BTRY10	BTRY11	BTRY12
MINUTES BUSY	84.73	39.33	31.83	153.23	94.71	26.66	89.28	75.49	56.99	16.00	2.00	0.00
MINUTES IDLE	455.27	500.67	508.17	386.77	445.29	513.34	450.72	464.51	483.01	524.00	538.00	540.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	49.44	10.56	8.61	48.89	25.69	5.28	11.53	11.53	10.14	3.33	0.00	0.00

	BTRY13	BTRY14	BTRY15	BTRY16	BTRY17	BTRY18	BTRY19	BTRY20	BTRY21	BTRY22	BTRY23	BTRY24
MINUTES BUSY	22.67	7.33	3.33	0.00	0.00	0.00	44.00	41.67	28.00	0.00	0.00	0.00
MINUTES IDLE	517.33	532.67	536.67	540.00	540.00	540.00	496.00	498.33	512.00	540.00	540.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	3.89	0.00	0.00	0.00	0.00	0.00	6.27	5.56	5.56	0.00	0.00	0.00

	BTRY25	BTRY26	BTRY27	BTRY28	BTRY29	BTRY30	BTRY31	BTRY32	BTRY33	BTRY34	BTRY35	BTRY36
MINUTES BUSY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINUTES IDLE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY												

RANGE IN KILOMETERS

ROUND ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1201.30	0	0	0	24	252	162	548	299	569	190	307	114	24	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1201.30	863	840	294	144	340	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 2537.																														
1202.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	48	0	0	0	0	0	0	0	0
1202.30	0	0	0	0	0	0	0	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 96.																														
1203.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1203.30	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 36.																														
1204.30	0	0	8	13	32	26	53	80	68	24	21	4	9	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1204.30	223	63	40	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 342.																														

FIGURE 5-8. Scenario Results After 9 Hours of Game Time (Page 2 of 5).

```
3101.20   0  20   4   0   0  24  56 108  52 124  84  68  72  96  56  12   0  12  16   0   0   0   0   0   0   0   0   0   0
3101.20 152  64 120 224 244   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     804.
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     0.
3103.20   0   0   0   0   0   0   0   0   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3103.20   0   0   0   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     4.
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     0.
5001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
5001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     0.

                    RANGE FOR SYSTEMS OVER THIRTY KILOMETERS
SYSTEM ID  30-35     35-40     40-45     45-50     50-55     55-60     60-65     65-70     70-75     75-80

                              RELIABILITY/ATTRITION DATA

NUMBER OF INCOMING FIRES RECEIVED
 2  1  1  4  3  3  4  4  3  1  0  0  2  1  0  0  0  0  2  1  1  0  0
NUMBER OF MINI-MOVES
 0  0  0  1  0  1  1  2  1  0  0  0  1  0  0  0  0  0  1  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO ATTRITION
 0  0  0  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO RELIABILITY
 0  0  0  1  0  0  1  1  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO TUBE CHANGES
 0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES UP NOW
 6  6  6  4  6  6  6  5  6  4  4  4  4  4  4  2  2  2  4  4  4  2  2
FRACTION OF BTRY TUBES CURRENTLY AVAILABLE
********.67*********.83**************************************************
TOTAL TUBES ATTRITTED =    1   TOTAL TUBES FAILED =    3   TOTAL TUBES NOW UP =   97
NO. OF TUBES OUT DUE TO TUBE CHANGES =     0
FLOATS ASSIGNED WHICH WILL BE AVAILABLE BEFORE END OF GAME =    1


NO. TARGETS FIRED =  210          NO. ACTUAL ACQ  =  210          NO. PLANS DONE  =    7
NO. TGTS ON LIST  =    0          PERCENT DROPPED = 0.00          NO. MET DONE    =    0
NO. TGTS DROPPED  =    0                                          NO. SURV DONE   =    0
NO. TGTS COMBINED =    0                                          NO. ATI   DONE  =  140
NO. TGTS SAVED    =  123
NO. OBSVD DROPPED =    0
NO. N-OBS DROPPED =    0
NO. FIRD BUT LEFT =    7
MODIFIED PERCENT DROPPED = 36.94
```

FIGURE 5-8. Scenario Results After 9 Hours of Game Time (Page 3 of 5).

DATA BREAKDOWN BY SYSTEM

	700	1100	1200	1300	1400	1500	2000	3100	4000	5000	5100	TOT155
M WTH	0.00	0.00	6097.32	0.00	0.00	0.00	0.00	1808.30	0.00	0.00	0.00	6097.32
PERS	0.00	0.00	477.65	0.00	0.00	0.00	0.00	445.61	0.00	0.00	0.00	477.65
ARMOR	0.00	0.00	135.99	0.00	0.00	0.00	0.00	10.84	0.00	0.00	0.00	135.99
TRUCK	0.00	0.00	34.20	0.00	0.00	0.00	0.00	31.44	0.00	0.00	0.00	34.20
TUBES	0.00	0.00	3.55	0.00	0.00	0.00	0.00	6.34	0.00	0.00	0.00	3.55
RADAR	0.00	0.00	.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.39
LNCHR	0.00	0.00	4.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.98
BTYMS	0.00	0.00	193.00	0.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00	193.00
RD FR	0.00	0.00	3011.00	0.00	0.00	0.00	0.00	808.00	0.00	0.00	0.00	3011.00
RD WG	0.00	0.00	249.98	0.00	0.00	0.00	0.00	80.80	0.00	0.00	0.00	249.98
RDCST	0.00	0.00	1927.03	0.00	0.00	0.00	0.00	362.52	0.00	0.00	0.00	1927.03
INFIR	0.00	0.00	25.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	25.00
ATTRI	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
RAMS	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
TUBSU	0.00	0.00	51.00	0.00	0.00	0.00	0.00	36.00	4.00	6.00	0.00	51.00
AVG A	0.00	0.00	.98	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	.98

HOURLY FORCE AVAILABILITY = .970

FIGURE 5-8. Scenario Results After 9 Hours of Game Time (Page 4 of 5).

	MIL WTH	PERS	G.R. BREAKDOWN TANKS	APCS	TRUCKS	TUBES	RADARS	LNCHRS	RDS FIRED	RD WGT	RD COST	MSN FRD
BN 4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FIGURE 5-8. Scenario Results After 9 Hours of Game Time (Page 5 of 5).

GAME TIME = 18. HOURS SAMPLE CASE

BATTALION TOTALS

	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11	TOTAL
ARTY MIL WORTH	3992.61	2226.37	4057.43	422.01	849.58	42.24	2223.10	0.00	0.00	0.00	0.00	13813.35
PERSONNEL	260.26	330.12	266.46	39.94	275.64	30.98	561.29	0.00	0.00	0.00	0.00	1764.69
TANKS	41.53	25.65	10.14	.63	0.00	0.00	1.12	0.00	0.00	0.00	0.00	79.07
APCS	26.24	55.40	51.29	1.30	5.23	.53	9.98	0.00	0.00	0.00	0.00	149.96
TRUCKS	34.48	28.56	21.60	4.29	10.98	2.76	43.83	0.00	0.00	0.00	0.00	146.51
TUBES	1.67	3.93	2.96	.42	3.27	.60	8.38	0.00	0.00	0.00	0.00	21.24
RADARS	.56	0.00	.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.96
LNCHRS	2.51	2.33	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.49
BTRY FIRE MSNS	111	130	106	16	28	1	78	0	0	0	0	470

BATTERY NO. 13 DEFEATED

ROUND TOTALS

RND ID												
1201.30	2044.00	2078.00	1513.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5635.00
1202.30	0.00	48.00	48.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.00
1203.30	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00
1204.30	180.00	185.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	515.00
3101.20	0.00	0.00	0.00	156.00	376.00	0.00	1005.00	0.00	0.00	0.00	0.00	1537.00
3102.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3103.20	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	12.00
4001.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5001.20	0.00	0.00	0.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	24.00
TOTAL RNDS	2224.00	2311.00	1747.00	156.00	376.00	24.00	1017.00	0.00	0.00	0.00	0.00	7855.00
TOTAL WGT	183.74	190.89	143.75	15.60	37.60	1.92	101.76	0.00	0.00	0.00	0.00	675.21
TOTAL COST	1250.00	1286.35	988.79	70.20	169.20	23.76	454.41	0.00	0.00	0.00	0.00	4242.71

CLGP TOTALS

NO. MSNS = 138. TANKS KILLED = 61.88 APCS KILLED = 97.08 TRUCKS KILLED = 2.18

UNACCOMPLISHED MISSIONS

MISSION TYPE		REASONS			
MSN DROPPED - QUE OVERLOADED	0	BATTERY BUSY	9	D/A FDC BUSY	0
TARGET DEPARTED BEFORE FIRED	0	BTRY OUT OF AMMO	0	D/A FDC OUT	0
TGTS DROPPED-ALL BUSY	0	BN FDC BUSY	135	CORPS FDC BUSY	0
SCHED PLAN MSN CANT DO	0	BN FDC OUT	0	CORPS FDC OUT	0
HOUSEKEEPING MSN CANT DO	0				
TGT OUT OF RANGE OF ALL UNITS	0				
TOTAL	0				

FIGURE 5-9. Scenario Results After 18 Hours of Game Time (Page 1 of 5).

MILITARY WORTH

	(215 - 151)			(150 - 5)			(50 - 11)			(10 - 0.5)			TOTALS		
	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN
BN FIRE MSN	76	38	10	66	14	0	125	0	0	39	0	0	306	52	10
MSNS DFTED	18	0	1	11	7	0	43	0	0	6	0	0	78	7	1
ARTY MW	7658.	1885.	417.	1621.	838.	0.	1337.	0.	0.	56.	0.	0.	10673.	2723.	417.

FIRE PLANS

PLAN	PLAN ID	NO. TGTS	NO. TGTS SCHEDULED	NO. MSNS SCHEDULED	NO. MSNS FIRED	ARTY SCORE	NO. RDS FIRED	PROCESS TIME
1.	1000.	10.	10.	10.	0.	0.00	0.00	2.40
2.	1000.	0.	0.	2.	2.	423.20	60.00	.28
3.	1000.	0.	0.	2.	2.	423.20	78.00	.28
4.	1000.	0.	0.	2.	2.	423.20	84.00	.28
5.	1000.	0.	0.	2.	2.	423.20	48.00	.28
6.	1000.	0.	0.	1.	1.	211.60	20.00	.14
7.	1000.	0.	0.	1.	1.	211.60	20.00	.14

FIRE PLAN SCORE= 2116.00 (=100.00 PERCENT OF SCHEDULED AND100.00 PERCENT OF INPUT)

TIME BREAKOUT

	D/A	CORPS	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11
MINUTES BUSY	23.39	7.81	118.15	133.35	96.25	4.83	9.49	.55	27.64	.55	0.00	0.00	0.00
MINUTES IDLE	1056.61	1072.19	961.85	946.65	983.75	1075.17	1070.51	1079.45	1052.36	1079.45	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	3.58	0.00	23.37	7.53	0.00	2.58	1.83	0.00	3.67	0.00	0.00	0.00	0.00

	BTRY1	BTRY2	BTRY3	BTRY4	BTRY5	BTRY6	BTRY7	BTRY8	BTRY9	BTRY10	BTRY11	BTRY12
MINUTES BUSY	185.90	128.03	67.33	216.56	154.96	55.33	162.17	102.32	78.15	27.67	5.33	4.67
MINUTES IDLE	894.10	951.97	1012.67	863.44	925.04	1024.67	917.83	977.68	1001.85	1052.33	1074.67	1075.33
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	54.17	23.33	15.00	20.28	12.78	5.28	0.00	5.28	3.61	3.33	0.00	.00

	BTRY13	BTRY14	BTRY15	BTRY16	BTRY17	BTRY18	BTRY19	BTRY20	BTRY21	BTRY22	BTRY23	BTRY24
MINUTES BUSY	36.67	29.00	11.33	15.00	0.00	0.00	99.67	73.00	46.67	0.00	0.00	0.00
MINUTES IDLE	1043.33	1051.00	1068.67	1065.00	1080.00	1080.00	980.33	1007.00	1033.33	1080.00	1080.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	0.00	8.33	0.00	0.00	0.00	0.00	14.44	8.89	5.56	0.00	0.00	0.00

	BTRY25	BTRY26	BTRY27	BTRY28	BTRY29	BTRY30	BTRY31	BTRY32	BTRY33	BTRY34	BTRY35	BTRY36
MINUTES BUSY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINUTES IDLE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY												

RANGE IN KILOMETERS

ROUND ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1201.30	0	0	48	51	421	377	802	883	914	640	698	390	209	162	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1201.30	17	99	14	62	846	678	772	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS=				5635.																										
1202.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	48	0	0	0	0	0	0	0	0
1202.30	0	0	0	0	0	0	0	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS=				96.																										
1203.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1203.30	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS=				36.																										
1204.30	0	0	8	13	32	38	77	103	101	61	45	8	21	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1204.30	295	120	72	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS=				515.																										

FIGURE 5-9. Scenario Results After 18 Hours of Game Time (Page 2 of 5).

```
3101.20   0  20   4   0   0  44  76 120 100 164 133 117 138 107 103  80  37  93  63  44  67  27   0   0   0   0   0   0   0   0
3101.20 159 177 274 408 431  88   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=   1537.
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=      0.
3103.20   0   0   0   0   0   0   0   0   4   0   0   0   0   4   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3103.20   0   0   0   8   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     12.
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=      0.
5001.20   0   0   0   0   0   0   0   0   0   0   0   0   0  24   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
5001.20   0   0   0  24   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     24.

                    R A N G E   F O R   S Y S T E M S   O V E R   T H I R T Y   K I L O M E T E R S
SYSTEM ID  30-35     35-40     40-45     45-50     50-55     55-60     60-65     65-70     70-75     75-80

                                  R E L I A B I L I T Y / A T T R I T I O N   D A T A

NUMBER OF INCOMING FIRES RECEIVED
  7  5  2  6  6  5  5  4  3  1  0  0  4  2  0  0  0  0  5  2  1  0  0
NUMBER OF MINI-MOVES
  2  2  0  2  2  1  1  2  1  0  0  0  1  0  0  1  0  0  2  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO ATTRITION
  2  0  0  2  2  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO RELIABILITY
  0  0  0  1  1  2  3  2  0  0  0  0  0  0  0  0  0  0  1  0  1  0  0
BTRY TUBES OUT TIL NOW DUE TO TUBE CHANGES
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES UP NOW
  4  6  6  4  3  4  5  5  6  4  4  4  4  4  4  2  2  2  3  4  4  2  2
FRACTION OF BTRY TUBES CURRENTLY AVAILABLE
67******.67.50.67.83.83**********************************.75***************
TOTAL TUBES ATTRITTED =    6   TOTAL TUBES FAILED =   11   TOTAL TUBES NOW UP =   88
NO. OF TUBES OUT DUE TO TUBE CHANGES =     0
FLOATS ASSIGNED WHICH WILL BE AVAILABLE BEFORE END OF GAME  =    3


NO. TARGETS FIRED =  368          NO. ACTUAL ACQ  =  368          NO. PLANS DONE  =    7
NO. TGTS ON LIST  =    0          PERCENT DROPPED = 0.00          NO. MET DONE    =    0
NO. TGTS DROPPED  =    0                                          NO. SURV DONE   =    0
NO. TGTS COMBINED =    0                                          NO. ATI  DONE   =  256
NO. TGTS SAVED    =  313
NO. OBSVD DROPPED =    0
NO. N-OBS DROPPED =    0
NO. FIRD BUT LEFT =   21
MODIFIED PERCENT DROPPED = 45.96
```

FIGURE 5-9. Scenario Results After 18 Hours of Game Time (Page 3 of 5).

DATA BREAKDOWN BY SYSTEM

	700	1100	1200	1300	1400	1500	2000	3100	4000	5000	9100	TOTISS
M WTH	0.00	0.00	10276.41	0.00	0.00	0.00	0.00	3494.69	0.00	42.24	0.00	10276.41
PERS	0.00	0.00	856.83	0.00	0.00	0.00	0.00	876.88	0.00	30.98	0.00	856.83
ARMOR	0.00	0.00	210.25	0.00	0.00	0.00	0.00	18.25	0.00	.53	0.00	210.25
TRUCK	0.00	0.00	84.64	0.00	0.00	0.00	0.00	59.11	0.00	2.76	0.00	84.64
TUBES	0.00	0.00	8.56	0.00	0.00	0.00	0.00	12.08	0.00	.60	0.00	8.56
RADAR	0.00	0.00	.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.96
LNCHR	0.00	0.00	8.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.49
BTYMS	0.00	0.00	347.00	0.00	0.00	0.00	0.00	122.00	0.00	1.00	0.00	347.00
RD FR	0.00	0.00	6282.00	0.00	0.00	0.00	0.00	1549.00	0.00	24.00	0.00	6282.00
RD WG	0.00	0.00	518.39	0.00	0.00	0.00	0.00	154.90	0.00	1.92	0.00	518.39
RDCST	0.00	0.00	3525.14	0.00	0.00	0.00	0.00	693.81	0.00	23.76	0.00	3525.14
INFIR	0.00	0.00	43.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	43.00
AITRI	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
RAMS	0.00	0.00	9.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	9.00
TUBSU	0.00	0.00	43.00	0.00	0.00	0.00	0.00	35.00	4.00	6.00	0.00	43.00
AVG A	0.00	0.00	.91	0.00	0.00	0.00	0.00	.98	1.00	1.00	0.00	.91

HOURLY FORCE AVAILABILITY = .880

FIGURE 5-9. Scenario Results After 18 Hours of Game Time (Page 4 of 5).

	MIL WTH	PERS	GSRS BREAKDOWN TANKS	APCS	TRUCKS	TUBES	RADARS	LNCHRS	RDS FIRED	RD WGT	RD COST	MSN FRD
BN 4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 6	42.239	30.984	0.000	.530	2.764	.597	0.000	0.000	24.000	1.920	23.760	1.000
BN 7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	42.239	30.984	0.000	.530	2.764	.597	0.000	0.000	24.000	1.920	23.760	1.000

FIGURE 5-9. Scenario Results After 18 Hours of Game Time (Page 5 of 5).

GAME TIME = 27. HOURS SAMPLE CASE

BATTALION TOTALS

	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11	TOTAL
ARTY MIL WORTH	4535.52	2455.24	4186.70	426.20	887.82	42.24	2336.27	0.00	0.00	0.00	0.00	14869.98
PERSONNEL	361.80	376.05	315.34	43.68	315.10	30.98	585.69	0.00	0.00	0.00	0.00	2028.64
TANKS	69.49	32.94	11.15	.63	.19	0.00	2.73	0.00	0.00	0.00	0.00	117.12
APCS	32.07	63.34	63.35	1.35	5.72	.53	11.85	0.00	0.00	0.00	0.00	178.19
TRUCKS	39.64	30.54	23.02	4.47	13.06	2.76	45.36	0.00	0.00	0.00	0.00	158.85
TUBES	1.67	4.40	3.33	.48	3.79	.60	8.45	0.00	0.00	0.00	0.00	22.73
RADARS	.56	0.00	.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
LNCHRS	2.52	2.38	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.54
BTRY FIRE MSNS	158	155	123	18	32	1	87	0	0	0	0	574

BATTERY NO. 4 DEFEATED
BATTERY NO. 13 DEFEATED
BATTERY NO. 19 DEFEATED

ROUND TOTALS

RND ID												
1201.30	2621.00	2450.00	1743.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6814.00
1202.30	0.00	48.00	48.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.00
1203.30	0.00	0.00	36.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.00
1204.30	279.00	221.00	170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	670.00
3101.20	0.00	0.00	0.00	164.00	448.00	0.00	1129.00	0.00	0.00	0.00	0.00	1741.00
3102.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3103.20	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	12.00
4001.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5001.20	0.00	0.00	0.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	24.00
TOTAL RNDS	2900.00	2719.00	1997.00	164.00	448.00	24.00	1141.00	0.00	0.00	0.00	0.00	9393.00
TOTAL WGT	240.48	224.66	164.40	16.40	44.80	1.92	114.10	0.00	0.00	0.00	0.00	806.76
TOTAL COST	1745.98	1523.47	1128.69	73.80	201.60	23.76	510.21	0.00	0.00	0.00	0.00	5207.51

CLGP TOTALS

NO. MSNS = 179. TANKS KILLED = 90.51 APCS KILLED = 113.50 TRUCKS KILLED = 3.34

UNACCOMPLISHED MISSIONS

MISSION TYPE		REASONS			
MSN DROPPED - QUE OVERLOADED	0	BATTERY BUSY	16	D/A FDC BUSY	0
TARGET DEPARTED BEFORE FIRED	0	BTRY OUT OF AMMO	0	D/A FDC OUT	0
TGTS DROPPED-ALL BUSY	0	BN FDC BUSY	173	CORPS FDC BUSY	0
SCHED PLAN MSN CANT DO	0	BN FDC OUT	0	CORPS FDC OUT	0
HOUSEKEEPING MSN CANT DO	0				
TGT OUT OF RANGE OF ALL UNITS	0				
TOTAL	0				

FIGURE 5-10. Scenario Results After 27 Hours; End of Game (Page 1 of 5).

MILITARY WORTH

	(215 - 151)			(150 - 5)			(50 - 11)			(10 - 0.5)			TOTALS		
	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN
BN FIRE MSN	87	42	10	95	15	0	153	0	0	53	0	0	388	57	10
MSNS DFTED	20	0	1	16	7	0	63	0	0	7	0	0	106	7	1
ARTY MW	7959.	1955.	417.	1903.	912.	0.	1650.	0.	0.	75.	0.	0.	11587.	2866.	417.

FIRE PLANS

PLAN	PLAN ID	NO. TGTS	NO. TGTS SCHEDULED	NO. MSNS SCHEDULED	NO. MSNS FIRED	ARTY SCORE	NO. RDS FIRED	PROCESS TIME
1.	1000.	10.	10.	10.	0.	0.00	0.00	2.40
2.	1000.	0.	0.	2.	2.	423.20	60.00	.28
3.	1000.	0.	0.	2.	2.	423.20	78.00	.28
4.	1000.	0.	0.	2.	2.	423.20	84.00	.28
5.	1000.	0.	0.	2.	2.	423.20	40.00	.28
6.	1000.	0.	0.	1.	1.	211.60	20.00	.14
7.	1000.	0.	0.	1.	1.	211.60	20.00	.14

FIRE PLAN SCORE= 2116.00 (=100.00 PERCENT OF SCHEDULED AND100.00 PERCENT OF INPUT)

TIME BREAKOUT

	D/A	CORPS	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11
MINUTES BUSY	31.44	26.06	191.28	161.71	118.05	4.83	11.14	.55	31.49	1.10	0.00	0.00	0.00
MINUTES IDLE	1588.56	1593.94	1428.72	1458.29	1501.95	1615.17	1608.86	1619.45	1588.51	1618.90	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	.42	5.83	5.00	5.00	8.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	BTRY1	BTRY2	BTRY3	BTRY4	BTRY5	BTRY6	BTRY7	BTRY8	BTRY9	BTRY10	BTRY11	BTRY12
MINUTES BUSY	250.51	187.37	114.33	234.06	196.29	84.08	204.17	107.99	80.49	30.67	5.33	4.67
MINUTES IDLE	1369.49	1432.63	1505.67	1385.94	1423.71	1535.92	1415.83	1512.01	1539.51	1589.33	1614.67	1615.33
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	0.00	0.00	0.00	0.00	12.22	0.00	24.86	1.67	0.00	1.67	0.00	0.00

	BTRY13	BTRY14	BTRY15	BTRY16	BTRY17	BTRY18	BTRY19	BTRY20	BTRY21	BTRY22	BTRY23	BTRY24
MINUTES BUSY	36.67	38.33	14.67	15.00	0.00	0.00	109.17	83.33	53.50	0.00	0.00	0.00
MINUTES IDLE	1583.33	1581.67	1605.33	1605.00	1620.00	1620.00	1510.83	1536.67	1566.50	1620.00	1620.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	BTRY25	BTRY26	BTRY27	BTRY28	BTRY29	BTRY30	BTRY31	BTRY32	BTRY33	BTRY34	BTRY35	BTRY36
MINUTES BUSY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINUTES IDLE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MIN OUT - RAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERCENT BUSY												

RANGE IN KILOMETERS

ROUND ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1201.30	0	0	110	51	499	557	802	1083	982	737	810	580	241	266	72	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1201.30	22	51	172	491	0	878	78	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 6814.																														
1202.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	48	0	0	0	0	0	0	0	0
1202.30	0	0	0	0	0	0	0	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 96.																														
1203.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1203.30	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 36.																														
1204.30	0	0	12	17	36	46	121	113	125	91	49	20	25	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1204.30	390	144	88	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUM RDS= 670.																														

FIGURE 5-10. Scenario Results After 27 Hours; End of Game (Page 2 of 5).

```
3101.20   0  20   4   0   0  44  76 120 108 184 161 161 138 127 103  80  37 125  83  44  67  47  12   0   0   0   0   0   0   0
3101.20 219 217 274 436 447  88  60   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=   1741.
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3102.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=      0.
3103.20   0   0   0   0   0   0   0   0   4   0   0   0   0   4   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0
3103.20   0   0   0   8   4   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     12.
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
4001.20   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=      0.
5001.20   0   0   0   0   0   0   0   0   0   0   0   0   0  24   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
5001.20   0   0   0  24   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0
        SUM RDS=     24.

                    RANGE FOR SYSTEMS OVER THIRTY KILOMETERS
SYSTEM ID  30-35     35-40     40-45     45-50     50-55     55-60     60-65     65-70     70-75     75-80

                              RELIABILITY/ATTRITION DATA

NUMBER OF INCOMING FIRES RECEIVED
 10  6  3  7  7  6  6  4  3  1  0  0  4  2  0  0  0  0  6  2  1  0  0
NUMBER OF MINI-MOVES
  3  2  0  2  2  1  1  2  1  0  0  0  1  0  0  1  0  0  2  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO ATTRITION
  2  0  0  2  2  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES OUT TIL NOW DUE TO RELIABILITY
  2  1  1  1  1  2  4  2  0  0  0  0  0  0  0  0  0  0  1  0  1  0  0
BTRY TUBES OUT TIL NOW DUE TO TUBE CHANGES
  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
BTRY TUBES UP NOW
  3  5  6  4  3  5  4  5  6  4  4  4  4  4  4  2  2  2  4  4  4  2  2
FRACTION OF BTRY TUBES CURRENTLY AVAILABLE
50.83***.67.50.83.67.83**************************************************
TOTAL TUBES ATIRITTED =    6   TOTAL TUBES FAILED =   16   TOTAL TUBES NOW UP =   87
NO. OF TUBES OUT DUE TO TUBE CHANGES =     0
FLOATS ASSIGNED WHICH WILL BE AVAILABLE BEFORE END OF GAME  =    3

NO. TARGETS FIRED =  455          NO. ACTUAL ACQ  =  455          NO. PLANS DONE  =    7
NO. TGTS ON LIST  =    0          PERCENT DROPPED = 0.00          NO. MET DONE    =    0
NO. TGTS DROPPED  =    0                                          NO. SURV DONE   =    0
NO. TGTS COMBINED =    6                                          NO. ATI  DONE   =  498
NO. TGTS SAVED    =  609
NO. OBSVD DROPPED =    0
NO. N-OBS DROPPED =    0
NO. FIRD BUT LEFT =   28
MODIFIED PERCENT DROPPED = 57.24
```

FIGURE 5-10. Scenario Results After 27 Hours; End of Game (Page 3 of 5).

DATA BREAKDOWN BY SYSTEM

	700	1100	1200	1300	1400	1500	2000	3100	4000	5000	5100	TOT155
M WTH	0.00	0.00	11177.46	0.00	0.00	0.00	0.00	3650.28	0.00	42.24	0.00	11177.46
PERS	0.00	0.00	1053.19	0.00	0.00	0.00	0.00	944.47	0.00	30.98	0.00	1053.19
ARMOR	0.00	0.00	272.32	0.00	0.00	0.00	0.00	22.46	0.00	.53	0.00	272.32
TRUCK	0.00	0.00	93.20	0.00	0.00	0.00	0.00	62.89	0.00	2.76	0.00	93.20
TUBES	0.00	0.00	9.40	0.00	0.00	0.00	0.00	12.73	0.00	.60	0.00	9.40
RADAR	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15
LNCHR	0.00	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.54
BTYMS	0.00	0.00	436.00	0.00	0.00	0.00	0.00	137.00	0.00	1.00	0.00	436.00
RD FR	0.00	0.00	7616.00	0.00	0.00	0.00	0.00	1753.00	0.00	24.00	0.00	7616.00
RD WG	0.00	0.00	629.54	0.00	0.00	0.00	0.00	175.30	0.00	1.92	0.00	629.54
RDCST	0.00	0.00	4398.14	0.00	0.00	0.00	0.00	785.61	0.00	23.76	0.00	4398.14
INFIR	0.00	0.00	52.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00	52.00
ATTRI	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
RAMS	0.00	0.00	14.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	14.00
TUBSU	0.00	0.00	41.00	0.00	0.00	0.00	0.00	36.00	4.00	6.00	0.00	41.00
AVG A	0.00	0.00	.86	0.00	0.00	0.00	0.00	.99	1.00	1.00	0.00	.86

MILITARY WORTH HOURS = 262310.11

AVERAGE FORCE AVAILABILITY = .9226

HOURLY FORCE AVAILABILITY = .870

FIGURE 5-10. Scenario Results After 27 Hours; End of Game (Page 4 of 5).

	MIL WTH	PERS	GSRS BREAKDOWN TANKS	APCS	TRUCKS	TUBES	RADARS	LNCHRS	RDS FIRED	RD WGT	RD COST	MSN FRD
BN 4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 6	42.239	30.984	0.000	.530	2.764	.597	0.000	0.000	24.000	1.920	23.760	1.000
BN 7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN 9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BN11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	42.239	30.984	0.000	.530	2.764	.597	0.000	0.000	24.000	1.920	23.760	1.000

FIGURE 5-10. Scenario Results After 27 Hours; End of Game (Page 5 of 5).

711.220	1.000	1.000	.375	1.000	1.000	1.000	1.000	107.0	0.0	10.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	1
711.312	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
711.313	1.000	.804	.117	.472	.874	.115	.083	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
711.314	.762	.684	.112	.289	.782	.054	.044	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
711.332	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
711.333	1.000	1.000	.148	1.000	1.000	1.000	1.000	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
711.334	1.000	.897	.311	.680	.936	.358	.320	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
711.342	.328	.888	.793	.643	.931	.250	.170	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
711.343	.322	.884	.787	.635	.928	.246	.170	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
711.401	.458	.600	.408	.251	.724	.142	.127	49.0	0.0	1.0	9.0	0.0	0.0	0.0	2.0	1.0	1.0	1
711.402	.434	.697	.499	.275	.803	.023	.013	18.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	1.0	1.0	1
721.220	1.000	1.000	.850	1.000	1.000	1.000	1.000	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	5
721.312	.671	.805	.333	.486	.875	.209	.178	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
721.313	1.000	.902	.653	.692	.939	.364	.322	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	3
721.314	1.000	.910	.437	.711	.945	.368	.320	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
721.322	1.000	1.000	.350	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
721.323	1.000	1.000	.475	1.000	1.000	1.000	1.000	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
721.324	1.000	1.000	.350	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
721.332	1.000	.610	.532	.251	.724	.084	.074	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	2
721.333	1.000	1.000	.250	1.000	1.000	1.000	1.000	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
721.334	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
721.342	.362	.901	.815	.677	.939	.279	.181	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
721.343	.290	.883	.784	.626	.928	.212	.116	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
721.401	.483	.560	.426	.347	.672	.270	.230	49.0	0.0	1.0	9.0	0.0	0.0	0.0	2.0	1.0	1.0	1
721.402	.444	.713	.518	.290	.814	.021	.010	18.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	1.0	1.0	1
701.230	1.000	.934	.447	.800	.958	.629	.614	107.0	0.0	10.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	1
701.312	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
701.313	.741	.876	.265	.613	.915	.201	.162	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
701.314	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
701.322	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
701.323	1.000	.815	.300	.484	.883	.138	.108	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
701.324	1.000	.680	.249	.288	.778	.136	.088	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
701.342	.728	.944	.894	.857	.966	.556	.463	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	4
701.343	.763	.952	.908	.873	.968	.600	.374	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	4
701.401	.431	.603	.415	.249	.712	.084	.037	49.0	0.0	1.0	9.0	0.0	0.0	0.0	2.0	1.0	1.0	1
701.402	.443	.715	.520	.291	.816	.019	.009	18.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	1.0	1.0	1
731.230	1.000	.897	1.000	.964	1.000	1.000	1.000	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	5
731.312	1.000	.301	1.000	1.000	1.000	1.000	1.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.313	1.000	.261	1.000	.667	1.000	1.000	1.000	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.314	.844	.561	.763	.621	.907	.371	.359	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	2
731.322	1.000	.301	1.000	1.000	1.000	1.000	1.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.323	1.000	.471	.742	.479	.901	.272	.259	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.324	.963	.300	.995	.981	.996	.906	.701	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.332	1.000	.198	1.000	.964	1.000	1.000	1.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.333	1.000	.403	1.000	.752	1.000	1.000	1.000	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.334	1.000	.180	1.000	.964	1.000	1.000	1.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
731.401	.339	.472	.289	.167	.614	.082	.071	39.0	2.0	2.0	4.0	0.0	0.0	0.0	2.0	1.0	1.0	1
712.220	1.000	1.000	.400	1.000	1.000	1.000	1.000	107.0	0.0	10.0	0.0	0.0	0.0	0.0	2.0	3.0	3.0	1
712.312	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
712.313	1.000	1.000	.250	1.000	1.000	1.000	1.000	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
712.314	1.000	1.000	.500	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
712.332	1.000	.922	.353	.741	.952	.396	.339	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
712.333	1.000	1.000	.250	1.000	1.000	1.000	1.000	45.0	0.0	4.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	1
712.334	1.000	1.000	.646	1.000	1.000	1.000	1.000	31.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	3
712.342	.336	.892	.800	.653	.933	.256	.168	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
712.343	.346	.883	.787	.639	.927	.280	.196	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
712.401	.387	.567	.363	.192	.675	.062	.041	49.0	0.0	1.0	9.0	0.0	0.0	0.0	2.0	1.0	1.0	1
712.402	.428	.688	.487	.265	.796	.025	.015	18.0	0.0	2.0	0.0	0.0	0.0	0.0	2.0	1.0	1.0	1
715.210	.045	1.000	.048	1.000	1.000	0.000	.134	25.0	0.0	7.0	0.0	0.0	4.0	7.0	2.0	3.0	5.0	6
715.220	.148	.457	.259	.128	.607	.051	.042	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	3
715.230	.644	.817	.682	.505	.883	.195	.168	34.0	0.0	13.0	1.0	0.0	0.0	0.0	0.0	3.0	1.0	3
715.240	1.000	1.000	.393	1.000	1.000	1.000	1.000	51.0	0.0	11.0	0.0	0.0	1.0	0.0	2.0	3.0	3.0	1
724.230	1.000	.921	1.000	.972	1.000	1.000	1.000	56.0	13.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	6
724.312	1.000	.736	1.000	1.000	1.000	1.000	1.000	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	4

FIGURE 5-11. Individual Target Status at End of Game (Page 1 of 3).

724.313	1.000	.598	1.000	.846	1.000	1.000	1.000	24.0	5.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	2.0	2
724.314	.789	.365	.798	.660	.924	.343	.320	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.230	.850	.539	.847	.632	.940	.610	.605	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	2
733.312	.624	.225	.595	.418	.832	.211	.204	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.313	1.000	.261	1.000	.667	1.000	1.000	1.000	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.314	.558	.442	.561	.324	.784	.176	.170	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.322	1.000	.331	.733	.569	.906	.277	.259	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.323	.288	.442	.215	.064	.574	.001	.000	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.324	.368	.610	.386	.172	.717	.010	.007	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	3
733.333	.850	.291	.847	.529	.940	.610	.605	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.334	.850	.189	.847	.632	.940	.610	.605	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
733.401	.504	.640	.469	.321	.751	.185	.170	39.0	2.0	2.0	4.0	0.0	0.0	0.0	0.0	1.0	1.0	2
725.210	.090	1.000	.099	1.000	1.000	0.000	.198	18.0	0.0	5.0	0.0	0.0	3.0	5.0	2.0	3.0	5.0	6
725.220	.085	.534	.337	.186	.671	.074	.053	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	3
725.230	.731	.870	.767	.619	.918	.298	.261	34.0	0.0	13.0	1.0	0.0	0.0	0.0	0.0	3.0	1.0	4
725.240	1.000	.886	.455	.669	.928	.409	.386	51.0	0.0	11.0	0.0	0.0	1.0	0.0	2.0	3.0	3.0	1
901.210	.651	.958	.919	.850	.974	.604	.484	82.0	0.0	7.0	2.0	6.0	0.0	0.0	0.0	3.0	1.0	3
901.220	.652	.958	.919	.851	.974	.605	.484	82.0	0.0	7.0	2.0	6.0	0.0	0.0	0.0	3.0	1.0	3
901.230	.643	.941	.891	.811	.963	.613	.561	82.0	0.0	7.0	2.0	6.0	0.0	0.0	0.0	3.0	1.0	3
901.405	.428	.428	.199	.058	.595	.009	.009	8.0	0.0	1.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0	1
714.230	1.000	.921	1.000	.972	1.000	1.000	1.000	56.0	13.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	6
714.312	1.000	.458	.702	.541	.890	.306	.293	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
714.313	1.000	.400	1.000	.746	1.000	1.000	1.000	24.0	5.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
714.314	1.000	.476	1.000	1.000	1.000	1.000	1.000	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
714.322	1.000	.476	1.000	1.000	1.000	1.000	1.000	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
714.323	1.000	.400	1.000	.746	1.000	1.000	1.000	24.0	5.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
714.324	1.000	.638	1.000	1.000	1.000	1.000	1.000	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	3
735.220	1.000	1.000	.727	1.000	1.000	1.000	1.000	51.0	0.0	11.0	0.0	0.0	1.0	0.0	0.0	3.0	3.0	4
735.240	.901	.954	.914	.846	.969	.618	.592	74.0	5.0	3.0	17.0	0.0	0.0	0.0	0.0	3.0	4.0	5
735.312	1.000	1.000	0.000	1.000	1.000	1.000	1.000	4.0	0.0	1.0	0.0	0.0	1.0	1.0	2.0	1.0	3.0	1
735.313	1.000	1.000	0.000	1.000	1.000	1.000	1.000	4.0	0.0	1.0	0.0	0.0	1.0	1.0	2.0	1.0	3.0	1
735.314	1.000	1.000	0.000	1.000	1.000	1.000	1.000	4.0	0.0	1.0	0.0	0.0	1.0	1.0	2.0	1.0	3.0	1
735.316	.790	.904	.821	.687	.940	.293	.230	3.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0	1.0	4
735.317	.822	.924	.857	.742	.954	.335	.250	3.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0	1.0	5
735.318	.676	.855	.735	.552	.910	.112	.062	3.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0	1.0	3
753.210	.297	.745	.591	.432	.832	.285	.279	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	5
753.220	.195	.740	.576	.394	.829	.170	.126	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	5
753.230	.165	.647	.465	.301	.759	.149	.119	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	4
753.405	.400	.400	.178	.051	.570	.009	.009	8.0	0.0	1.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0	1
903.210	.410	.857	.750	.608	.909	.383	.323	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
903.220	.516	.859	.760	.641	.909	.504	.494	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
903.230	.495	.864	.766	.640	.913	.481	.470	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
751.210	.604	.870	.784	.686	.916	.599	.597	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
751.220	.583	.915	.845	.742	.941	.550	.446	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
751.230	.285	.764	.616	.454	.845	.262	.219	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	5
751.405	.391	.391	.170	.047	.562	.008	.008	8.0	0.0	1.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0	1
723.220	1.000	1.000	.850	1.000	1.000	1.000	1.000	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	5
723.314	1.000	.938	.883	.790	.962	.466	.402	31.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	1.0	3.0	5
723.342	.651	.961	.924	.858	.976	.599	.450	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	3
723.343	.673	.964	.930	.868	.978	.623	.479	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	3
723.402	.907	.969	.941	.879	.979	.592	.383	18.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	6
904.210	.141	.679	.492	.305	.773	.115	.070	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	4
904.220	.499	.874	.779	.653	.912	.456	.436	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
904.230	.437	.820	.735	.447	.900	.528	.419	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
904.405	.582	.582	.383	.222	.712	.111	.105	8.0	0.0	1.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	2
902.210	.728	.959	.923	.660	.972	.693	.579	82.0	0.0	7.0	2.0	6.0	0.0	0.0	0.0	3.0	1.0	4
902.220	.726	.961	.926	.664	.974	.689	.548	82.0	0.0	7.0	2.0	6.0	0.0	0.0	0.0	3.0	1.0	4
902.230	.653	.958	.920	.851	.975	.605	.484	82.0	0.0	7.0	2.0	6.0	0.0	0.0	0.0	3.0	1.0	3
902.405	.621	.621	.410	.219	.746	.095	.092	8.0	0.0	1.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	3
760.210	.694	.955	.915	.845	.970	.653	.505	59.0	0.0	0.0	13.0	6.0	0.0	0.0	0.0	3.0	1.0	3
760.220	.700	.964	.931	.872	.978	.659	.554	59.0	0.0	0.0	13.0	6.0	0.0	0.0	0.0	3.0	1.0	4

FIGURE 5-11. Individual Target Status at End of Game (Page 2 of 3).

760.230	.953	.921	.855	.754	.951	.810	.450	59.0	0.0	0.0	13.0	6.0	0.0	0.0	0.0	3.0	1.0	2
732.210	.827	.832	.707	.539	.882	.253	.143	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	5
732.220	.549	.609	.386	.172	.735	.012	.002	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	3
732.230	.567	.713	.519	.290	.807	.037	.006	44.0	10.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	4
732.301	.479	.679	.483	.266	.769	.073	.044	139.0	2.0	2.0	4.0	0.0	0.0	0.0	2.0	1.0	1.0	1
732.312	.720	.790	.639	.442	.855	.131	.052	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	4
732.313	.709	.783	.628	.426	.847	.123	.021	20.0	4.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	4
732.314	.540	.619	.395	.174	.733	.007	.001	12.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	3
732.322	.353	.513	.271	.087	.663	.001	.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	2
732.323	.357	.447	.213	.053	.613	.000	.000	20.0	4.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	2.0	1
732.324	.472	.562	.330	.127	.700	.004	.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	2
732.332	.245	.510	.268	.081	.658	.001	.000	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	2
732.333	.247	.513	.271	.082	.662	.001	.000	20.0	4.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	2.0	2
732.334	.567	.713	.519	.290	.807	.037	.006	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	4
752.210	.331	.890	.795	.646	.932	.276	.177	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
752.220	.362	.895	.743	.590	.938	.331	.208	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
752.230	.347	.880	.781	.631	.925	.301	.211	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
752.401	.597	.749	.571	.351	.840	.104	.093	41.0	0.0	0.0	15.0	0.0	0.0	0.0	0.0	1.0	1.0	2
752.405	.707	.736	.535	.266	.800	.017	.000	8.0	0.0	1.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	4
705.220	.373	.818	.724	.320	.901	.459	.252	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
705.230	1.000	.932	.873	.775	.958	.507	.431	34.0	0.0	13.0	1.0	0.0	0.0	0.0	0.0	3.0	3.0	5
735.312	1.000	.704	.499	.257	.804	.314	.080	4.0	0.0	1.0	0.0	0.0	1.0	1.0	2.0	1.0	3.0	1
735.313	1.000	.970	.941	.888	.960	.636	.316	4.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	3.0	6
735.315	1.000	.957	.917	.843	.974	.539	.344	4.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	3.0	6
705.316	.467	.750	.569	.326	.838	.021	.001	3.0	0.0	1.0	0.0	0.0	0.0	1.0	2.0	1.0	1.0	1
841.210	.321	.857	.744	.585	.910	.282	.209	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
841.220	.293	.846	.729	.565	.903	.250	.184	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
841.230	.320	.859	.748	.588	.912	.280	.207	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
704.210	.356	.587	.418	.190	.747	.019	.002	56.0	13.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	2
704.220	.233	.537	.301	.106	.673	.004	.000	56.0	13.0	0.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0	2
704.230	.240	.490	.296	.101	.675	.003	.000	56.0	13.0	0.0	1.0	0.0	0.0	0.0	2.0	3.0	2.0	1
704.312	.250	.464	.263	.077	.643	.001	.000	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
704.313	.356	.462	.284	.090	.664	.001	.000	24.0	6.0	0.0	1.0	0.0	0.0	0.0	2.0	1.0	2.0	1
704.314	.222	.485	.208	.092	.666	.002	.000	16.0	4.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	1
704.401	.484	.721	.533	.311	.818	.055	.023	52.0	2.0	2.0	7.0	0.0	0.0	0.0	2.0	1.0	1.0	1
722.342	.807	.903	.929	.805	.975	.616	.464	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	3
722.343	.840	.901	.925	.859	.974	.639	.367	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	3
713.210	.631	.842	.714	.520	.902	.116	.035	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	4
713.220	.678	.855	.737	.561	.909	.194	.115	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	4
713.230	.900	.901	.925	.861	.976	.619	.490	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	6
713.342	.380	.916	.841	.713	.948	.312	.152	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
713.343	.599	.946	.897	.814	.967	.552	.450	22.0	0.0	1.0	4.0	3.0	0.0	0.0	0.0	1.0	1.0	2
842.210	.471	.886	.794	.660	.921	.437	.394	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
842.220	.410	.865	.762	.620	.914	.382	.346	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
842.230	.389	.856	.746	.600	.909	.363	.334	55.0	0.0	2.0	5.0	6.0	0.0	0.0	0.0	3.0	5.0	6
702.210	.806	.912	.839	.724	.945	.426	.337	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	5
702.230	.867	.897	.740	.562	.930	.196	.069	107.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	4
702.342	.317	.849	.810	.649	.935	.263	.122	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
702.343	.491	.922	.853	.690	.946	.365	.170	22.0	0.0	1.0	4.0	3.0	0.0	0.0	2.0	1.0	1.0	1
702.401	.375	.752	.564	.378	.838	.151	.113	49.0	0.0	1.0	9.0	0.0	0.0	0.0	0.0	1.0	1.0	2
703.402	.803	.919	.847	.728	.950	.351	.238	18.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	5
740.312	.614	.820	.677	.472	.887	.096	.031	12.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	5
740.313	1.000	.867	.657	.424	.831	.034	.005	21.0	4.0	0.0	2.0	0.0	0.0	0.0	0.0	1.0	2.0	5
740.314	.564	.791	.632	.413	.868	.060	.021	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	4
740.322	.527	.656	.451	.218	.792	.011	.002	12.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	3
740.323	1.000	.729	.526	.292	.820	.024	.005	21.0	4.0	0.0	2.0	0.0	0.0	0.0	2.0	1.0	2.0	4
740.324	.704	.809	.681	.472	.869	.077	.016	12.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	5
745.210	.878	.956	.913	.835	.973	.508	.294	21.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	6
745.220	.775	.905	.822	.608	.941	.326	.210	90.0	0.0	16.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	5
											72.000	23.000	22.000	25.000	20.000	26.000		
										PLATOONS =	80.000	31.000	46.000	42.000	44.000	72.000		

ND = 189

FIGURE 5-11. Individual Target Status at End of Game (Page 3 of 3).

SECTION 6

GLOSSARY

This section contains, in alphabetical order, all of the FORTRAN variable and array names that appear in COMMON of the AFSM program. When applicable, units for the variables are specified, and a brief definition is given.

Although most of the definitions are sufficient and self-explanatory, a few of the arrays require additional detail over and above the definitions contained in the glossary. In most cases, the user is referred to the input section, Section 3 of this manual, for a more comprehensive definition of the array values. There are, however, six arrays whose values must be defined in detail before an undertaking of the machinations of the program can be achieved.

Their data descriptions are presented in the pages immediately following the general glossary. The arrays, in particular, are:

1. AMMO(10,10,14)
2. BRY(11,10)
3. DAMG(18,601)
4. FUATT(33,12)
5. STORE(9,14)
6. SYSORT(17,16)

Variable	Units	Definition
A(10,10)	kilometers	x-coordinates of endpoints of FEBA trace line segments
ACQLN	---	Computed but not used (= -2.0 ln 0.4)
ACQMIN	minutes	Minimum time for Red force to acquire a Blue battery as a counterbattery fire target
AJF	---	Not used in program
AJFHE	---	Not used in program
ALF1	---	Alphanumeric description of target acquisition method
ALF2, ALF3	---	Alphanumeric description of target
ANLCHS(15)	---	Total number of Red antiaircraft missile launchers attrited by Blue artillery fire
AMMO(10,10,14)	variable	14 information values for up to 10 batteries of a battalion and 10 round types (HE and ICM) available to the battery
APC(15)	---	Total number of Red APCs attrited by Blue artillery fire
ARL(9,3)	$meters^2$	Lethal areas of the HE round being fired for nine target elements in three environments at current range
ARLETH	$meters^2$	Lethal area of standing personnel for current round type and range value
ARMFLG	---	Flag indicating current target is a Red artillery missile or rocket battery (=0.0, no such target; =1.0, MRL, =2.0, FROG)

Variable	Units	Definition
ARMW(5,3)	---	Military worth of observed, unobserved, and plan missions defeated for each of four groups plus total military worth for each type mission
ARTFLG	---	Flag indicating current target is a Red tubed artillery battery (=0.0, no such target; =1.0, target)
ARTMW(15)	---	Military worth of Red targets attrited by Blue artillery fire
ATRKEY	---	Not used in program
AUF(5,33)	---	Total number of rounds fired by each of 33 Blue batteries up to last hour, last 3/4 hour, last 1/2 hour, last 1/4 hour, and current game time
AUR(10,33,5)	---	Total number of 10 round types fired by each of 33 Blue batteries up to last hour, last 3/4 hour, last 1/2 hour, last 1/4 hour, and current game time
AX(9,3,20)	variable	Kill probabilities against nine target elements in three environments for each of up to twenty batteries
AXVOL(11)	---	Maximum number of volleys per mission per battery for 11 weapon systems
B(10,10)	kilometers	y-coordinates of end points of FEBA trace line segments

Variable	Units	Definition
BEGIN	---	Flag used to call CKDAMG (=0.0, call to update damage to a target; =1.0, call to check past damage to a potential target; =2.0 upon return from CKDAMG, target has been previously defeated)
BLD(25)	---	Basic load in round per battery for 25 round types
BLDFLV	---	Blue battery personnel defeat level. Blue battery must have at least this fraction of its original personnel alive in order to function
BNDX(9)	kilometers	x-coordinates of nine points on Scenario 3 boundary line
BNDY(9)	kilometers	y-coordinates of nine points on Scenario 3 boundary line
BNEC(14)	---	Tactical echelon identifications of Blue battalions
BNOD(4,14)	---	Battalion ordering for missions originating at Division or DS missions originating at Group, and missions originating at Division for D/A FDC, D/A FDC, GROUP FDC, and GROUP FDC, respectively
BNPR(14)	---	Battalion priority within the Blue force for each Blue battalion
BNRND(25,15)	---	Number of rounds of each type fired by each Blue battalion plus total number of rounds of each type fired through current game time
BNXID(15)	---	Alphanumeric battery/battalion description

AFSM GLOSSARY

Variable	Units	Definition
BRY(11,10)	variable	Data with respect to each of up to 10 batteries within a battalion
BRYID(33)	---	Identification number of 33 Blue batteries
BUSY(3,33)	minutes	Completion times of up to three fire missions for each of 33 Blue batteries
CAS(9)	---	Fractional casualty level achieved by current fire mission for each of the nine target elements in the game (later changed to level for seven elements-personnel and six materiel target elements)
CASHE(9)	---	Not used in program
CASICM(9)	---	Not used in program
CBDAML(11)	---	Fraction of TOTATR value that is long-term damage for each of 11 weapon systems
CBDAMP(11)	---	Fraction of TOTATR value that is permanent damage for each of 11 weapon systems
CBDAMS(11)	---	Fraction of TOTATR value that is short-term damage for each of 11 weapon systems
CCOV(9,4)	---	Fractional coverage for nine target elements in four types of environment for current round
COVHE(9,4)	---	Not used in program
CHEKFG(33)	---	Not used in program
CHG(25,10)	---	Equivalent full charge values for 25 round types at 10 range values (CLGP, ICM, and HE round types)

AFSM GLOSSARY

Variable	Units	Definition
CLFLAG	---	CLGP target flag (=0.0, no target; =1.0, target)
CLGP	---	CLGP round flag (=0.0, CLGP rounds allowed; =1.0, CLGP rounds not allowed)
CLGPSF(3)	---	Scale factors for computing number of tanks, APCs, and trucks killed by CLGP rounds
CLKILL(4)	---	Blank (first position) plus number of tanks, APCs, and trucks killed by current CLGP rounds
CLSCOR(4)	---	Number of missions fired, plus number of tanks, APCs, and trucks killed by CLGP rounds
COF122(3,4)	variable	Four coefficients for computing number of rounds required, based on distance to target for three battery target types
COLHDR(14)	---	Alphanumeric column headers for hard copy output
CPER	meters	Round-to-round error for current range value and round type expressed in CPE
CPET	meters	Total system error for current range value and round type expressed in CPE
CPK(9,4)	---	Probability of kill for nine target elements in four environments for current range value and round type
CPKHE(9,4)	---	Not used in program
CPKICM(9,4)	---	Not used in program

AFSM GLOSSARY

Variable	Units	Definition
CPR(25,10)	meters	Round-to-round error in CPE for 25 round types and 10 range values (HE and ICM rounds)
CPS(25,10)	meters	Total system errors in CPE for 25 round types and 10 range values (HE and ICM rounds)
CRE(9,4)	--- or meters	Radius of effects values for nine target elements in four types of environment for current range value and round type
CRITRA	---	Round criterion flag (=1.0, cost criterion; =2.0, weight criterion)
CRT(25)	$(\text{kilo-dollars})^{-1}$ or $(\text{metric tons})^{-1}$	Reciprocal of either cost per round in thousands of dollars or weight per round in metric tons for 25 round types
CST(25)	kilo-dollars	Cost per round in thousands of dollars for 25 round types
CSTI(25)	$(\text{kilo-dollars})^{-1}$	Reciprocal of cost per round in thousands of dollars for 25 round types
CXID(16)	---	Alphanumeric mix identification
DAMG(18,601)	---	Eighteen target parameter values for each of up to 601 targets in the game
DBFL(11)	kilometers	Mean distance traveled between long-term mobility failures for 11 weapon systems
DBFP(11)	kilometers	Mean distance traveled between permanent mobility failures for 11 weapon systems
DBFS(11)	kilometers	Mean distance traveled between short-term mobility failures for 11 weapon systems

AFSM GLOSSARY

Variable	Units	Definition
DBSY(49)	minutes	Cumulative time that each FDC and battery of the Blue force was busy up to current hourly printout
DDST(3,33)	kilometers	Distance traveled since last short-term, long-term, and permanent mobility failures for 33 Blue batteries
DEC(9,3,20)	meters	Expected coverage in deflection of nine target elements in three types of environment for as many as twenty batteries
DEPAP	meters	Deflection round-to-round probable error modified by factor, XK, for current range value and round type
DEPM	meters	Deflection MPI probable error for current range value and round type
DEPP	meters	Deflection round-to-round probable error for current range value and round type
DEPTH(10,33)	kilometers	Distance from FEBA of as many as 10 different emplacements for 33 Blue batteries
DEPTM	meters	Deflection MPI probable error including target location error for current range value and round type
DET(33)	minutes	Start of battery detection by Red force for each of 33 Blue batteries in the game
DETLN	---	Computed but not used (=ln 0.6)
DL	---	Defeat level (a Red unit is considered defeated if the fractional survivors of the critical element drops below this level)

AFSM GLOSSARY

Variable	Units	Definition
DROF(11)	rounds per minute	Dynamic rate of fire per tube for 11 weapon systems
ECOF(10)	---	Effects cutoff values for 10 postures
EQAUF(2,33)	---	Equivalent number of full charge rounds up to last 15 minutes, and current game time for each of 33 Blue batteries
EQNR	---	Equivalent number of full-charge rounds fired by battery being processed on current mission
ERLHEV	minutes	Time of earliest HE type volley against current target
ERLICV	minutes	Time of earliest ICM type volley against current target
ETCT(11)	hours	Expected time to change tube when tube life is exceeded for 11 weapon systems
EV(4)	---	Environment consideration flag for four environments (=0.0, do not consider; ≠0.0, gives fraction of target in that environment)
EW(2,5)	minutes	Start and stop times of five communications jams
FDCD(4,13)	---	Lateral backup, reinforcing, general support reinforcing, and fire plan assignments for 13 FDCs
FDCL(13)	minutes	Time for completion of current mission processing (at current site location) for each of 13 FDCs
FDCRM(13,2)	minutes or ---	Time that FDC failure is repaired and type of failure for 13 FDCs

AFSM GLOSSARY

Variable	Units	Definition
FDOUT(13)	minutes	Time that FDC repairs are completed for 13 FDCs (if = 0.0, FDC has not experienced a failure)
FEBACT(11)	minutes	FEBA trace activation times for 10 FEBA traces and one dummy value
FEBRNG(25,30)	---	Number of rounds for 25 round types fired at 30 different ranges (1 km to 30 km in 1 km intervals for FEBA to target ranges)
FIFCLK	minutes	Cumulative 15-minute intervals of game time
FIRPL(43,50)	variable	Forty-three data values for each of up to 50 fire plans ("Header Cards") (see Table 3-9 for data value definitions)
FLGTOT(6)	---	Not used in program
FORSIZ	---	Total number of tubes available in Blue force at start of game.
FP(43,90)	variable	Forty-three data values for as many as 90 targets that are included in fire plans (See Table 3-10 for data values)
FPCLK	minutes	Rounds have been set aside for all fire plans occurring prior to this time.
FPRAT(11)	---	Ratio of volleys per battery to volleys per base system for 11 weapon systems
FPSCOR	---	Fire plan scoreboard (military worth total of fire plans executed thus far in the game)

Variable	Units	Definition
FPTGIN	---	Number of fire plans entered as part of input data up to game time
FPTGSC	---	Number of fire plans scheduled through current game time
FPVOL(11)	---	Maximum number of volleys per battery against a fire plan target for 11 weapon systems
FSUM	---	Used to compute "Military Worth Hours"
FUATT(33,12)	variable	Miscellaneous data (12 values) for each of 33 Blue batteries
FUOD(33)	---	Priority values for 33 Blue batteries
GAMCLK	minutes	Current game time (time up through which FDCs may work)
GP(9,25,10)	--- or matrices	Pk (ICM) against nine target elements or radius of effects (HE) for 25 round types at 10 range values for a grassy environment
GROUP(2,4)	---	Upper and lower military worth values for four groupings
GRVM(45,10)	---	Round ID's for 45 round types and 10 postures in a grassy environment
GSRS(10,12)	---	Output results for as many as nine Blue battalions equipped with GSRS plus total results
HAVAIL	---	Hourly availability of tubes in Blue force
HBLD(25)	---	Half the basic load in rounds per battery for 25 round types

AFSM GLOSSARY

Variable	Units	Definition
HNMX(11)	rounds per tube per hour	Maximum number of rounds per tube per hour for 11 weapon systems for Blue force; number of tubes per launcher for Red force
IAMMO(45)	---	A pointer array; IAMMO(IR) is the index of round IR in the AUR array
IBNTYP(16)	---	Weapon system number in each Blue battalion in the game
IBRYID(16)	---	Integer value of battery identification number
ICM	---	Flag for ICM rounds (=0, none; >0, some); number of ICM round types to be considered for current mission
ICOUNT(30)	kilometers	Thirty range values used in game (1 km to 30 km)
IDDST(3,33)	kilometers	Initial (randomized) distance traveled by each of up to 33 Blue batteries at start of game since its last short-term, long-term, and permanent mobility failures
IDRDSV(6,33)	---	Round index numbers for six round types saved for fire plans by each of up to 33 Blue batteries
IFLAG(33)	---	Site number for attrition checks of 33 Blue batteries (= scheduled site number plus number of minimoves)
IFLOAT(14)	---	Battalion float flag for battalions in the game (=0, no tubes floated; = 1, tubes floated into game)
IGSRS	---	Flag for GSRS mission (=0, no GSRS mission; =1, GSRS mission)

Variable	Units	Definition
IHE	---	Flag for HE rounds; number of HE round types to be considered by current battery on this fire mission (=0, none; >0, some)
IHOUR	hours	Integer value of game time in hours
IISYST(16)	---	Integer value of weapon systems identification number
IJF	---	Number of batteries massed on current fire mission
ILRNGC(11,10)	---	Number of rounds fired for 10 ranges in excess of 30 kilometers for 11 weapon systems
IMSNFD(33)	---	Number of fire missions completed from current site for each of 33 Blue batteries (used only if battery is a GSRS one)
IORDER(2)	---	Red weapon systems ordering for counterbattery fire missions
IQ	---	Subscript of current mission in QUE array
IRDCNT(25,30)	---	Number of rounds of 25 different round types available at 30 different ranges (1 km to 30 km battery to target range)
IRDS(4,33)	---	Randomized initial number of equivalent full-charge rounds fired since last short-term, long-term, permanent firepower failures, and number fired since last tube change for each of up to 33 Blue batteries
IRMFLG(13)	---	FDC operable condition flag (=0, operable; =1, inoperable)
ISIT(33)	---	Current site location number for each of 33 Blue batteries

AFSM GLOSSARY

Variable	Units	Definition
ITRAY(33)	---	Index of FEBA trace last used for distance calculation for each of 33 Blue batteries
JFLAG(33)	---	Index of site locations at which battery most recently received counterbattery fire for 33 Blue batteries (index includes number of minimoves)
JGPTST	---	Position of first service element of target battalion in DAMG array
JPLTST	---	Position of first platoon of target battalion in DAMG array
JRAY(33)	---	Index of scheduled battery site used the last time that distance from FEBA to each of 33 Blue batteries was computed
KFLOAT	---	Number of artillery tubes floated into the game
KJX	---	Counter incremented in TIME but not used elsewhere (causes every third FDC transmission to require twice as much time if EW is in effect and FDC has TACFIRE)
KOUTRG	---	Number of targets out of range of all units
KSIG(20)	---	Use flag for each of 20 weapon systems entered from punched cards (=0, system not in game; =1, system in game)
KYUSKY(33,22)	---	Data for Red counterbattery fire missions against 33 Blue batteries
LHE(20)	---	LHE(I)=0, if i^{th} firing battery is shooting ICM on this mission; LHE(I)=I, if i^{th} firing battery is shooting HE on this mission

Variable	Units	Definition
MASSLT	---	Maximum number of Blue battalions allowed to mass fire on any single-fire mission
MAXFP	---	Maximum number of tape input and machine-generated missions per fire plan
MAXKYU	---	Maximum number of pending Red counterbattery fire missions allowed
MAXND	---	Maximum number of units allowed in the DAMG array
MAXPQ	---	Maximum number of missions allowed in the PREQ array
MAXQ	---	Maximum number of missions allowed in the QUE array
MAXTFP	---	Maximum number of tape input targets per fire plan
MFDTYP(13)	---	Computer type available at each of 13 FDCs (=1, TACFIRE; =2, FADAC)
MGSRS	---	Number of batteries equipped with GSRS
MRKTLT	---	Maximum number of GSRS batteries allowed to mass on any single target
MSNFLG	---	Not used in program
MSNS(15)	---	Number of battery fire missions per battalion plus total number of fire missions
MXBYPN	---	Maximum number of missions per battery per fire plan

AFSM GLOSSARY

Variable	Units	Definition
MXTTFP	---	Maximum number of additional missions per battery per fire plan (machine-generated)
MQT(2,3)	--- or kilometers	Order of and distance to target of three direct support battalions for fire mission from Division
NATI	---	Number of Artillery Target Intelligence reports completed
NBAT(2,16)	---	Number of batteries assigned and identification number of first battery assigned for each FDC
NBB	---	Number of times batteries were busy
NBLBAT	---	Number of Blue batteries in the game
NBLUSY	---	Number of Blue weapon systems in game
NBN	---	Number of Blue battalions
NCB	---	Number of times Group FDC was busy
NCO	---	Number of times Group FDC was out (down) when sent a mission
ND	---	Current number of Red units in DAMG array
NDB	---	Number of times Division FDC was busy
NDBF	---	Number of times target departed before being fired upon
NDCBSY	---	Number of FDCs busy
NDDB	---	Number of targets dropped because all battalions were busy

Variable	Units	Definition
NDFQ	---	Number of missions dropped due to QUE overload
NDFT(5,3)	---	Number of observed, unobserved, and planned missions defeated for four military worth groups, plus total number of each type defeated
NDO	---	Number of times Division FDC was out (down) when sent a mission
NDS	---	Number of Blue direct support battalions in the game
NE	---	Number of different type target elements
NESTP	---	Number of estimated postures
NEV	---	Number of target environments ($2 \leq NEV \leq 4$)
NFB	---	Number of times a battalion FDC was busy
NFBL	---	Number of missions fired after target unit departed
NFDC	---	Number of Blue FDCs (=NBN + 2)
NFO	---	Number of times a battalion FDC was out (down) when sent a mission
NFP	---	Number of fire plans
NFPTM	---	Number of fire plans on target list
NFT	---	Number of FEBA traces
NFU	---	Number of Blue fire units
NGRP	---	Number of military worth groupings

Variable	Units	Definition
NHOS	---	Number of housekeeping missions not done
NIFR(33)	---	Number of incoming fires received by each of 33 Blue batteries
NIP	---	Number of interpolation points for CLGP data
NITGTS	---	Number of individual potential targets in Red force
NJX	---	Counter that is incremented in TIME but not used elsewhere (causes every second FDC transmission to require double time when using FADAC during EW)
NKYU	---	Number of Red counterbattery fire missions currently scheduled
NMET	---	Number of MET message processing missions completed
NMINMV(33)	---	Number of minimoves for each of 33 Blue batteries
NMSN	---	Number of estimated postures in game
NOA	---	Number of times a battery was out of ammunition when considered for a mission
NOFM(5,3)	---	Number of observed, unobserved, and planned battalion fire missions for each of four military worth groups plus total missions of each type
NOR	---	Number of battalions out of range to current target

Variable	Units	Definition
NOTD	---	Number of observed targets that were dropped
NPLNIN	---	Number of fire plans on target tape
NPLNS	---	Maximum number of fire plans allowed in the game
NPOST	---	Number of target postures in the game
NPPD	---	Number of scheduled missions unable to do
NPR	---	Number of missions in PREQ array
NPS	---	Number of end points for FEBA trace line segments
NQ	---	Number of targets in QUE array
NQFM	---	Number of fire missions on QUE list
NR	---	Number of rounds per volley fired in current fire mission by current battery
NREDBT	---	Number of Red batteries in the game
NRFP	---	Maximum number of round types per battery per fire plan
NRG(15)	---	Number of round types for 15 postures in a grassy environment
NRO(15)	---	Number of round types for 15 postures in an open environment
NRS	---	Number of round types whose data are to be entered from punched cards
NRT(15)	---	Number of round types for 15 postures in a town environment

AFSM GLOSSARY

Variable	Units	Definition
NRW(15)	---	Number of round types for 15 postures in a wooded environment
NSAV	---	Number of targets saved
NSI(187)	---	Number of currently recorded intervals during which each of 187 batteries received incoming fire that could result in suppression
NSITE(33)	---	Number of different emplacements (10 maximum) for each of 33 Blue batteries
NSITEF(13)	---	Number of different emplacements (10 maximum) for each of 13 FDCs
NSUR	---	Number of survey processing missions completed
NSYS	---	Number of weapon systems types in Blue force
NSYSE	---	Number of weapon systems types in Red force
NTBN	---	Number of target battalions in Red force
NTCM	---	Number of targets combined in the game
NV	---	Number of volleys for current round type by current battery
NVL(20)	---	Number of volleys fired by each of up to 20 batteries massing on this mission
NVOL	---	Number of volleys fired by current battery on current mission
NZAP	---	Number of communications jams

Variable	Units	Definition
OBSCLK	minutes	Records of incoming fire at times prior to OBSCLK are now too old to have any suppressive effects
OLDCLK	minutes	A lower bound on the time at which any event now being considered can occur
OMEGA	degrees or radians	Angle of fall for HE rounds
OP(9,25,10)	---	Pk(ICM) or radius of effects (HE) against nine target elements for 25 round types at 10 range values for an open environment
ORVM(45,10)	---	Round ID numbers for 45 round types and 10 postures in an open environment
PER(15)	---	Number of Red personnel attrited by Blue artillery fire
PERSFG	---	Personnel flag for Red counter-battery fire (=1.0, batteries can be defeated due to personnel losses; ≠1.0, batteries cannot be defeated due to personnel losses)
PI	---	π
PII	---	π^{-1}
PLT(6)	---	Total number of platoons for each of six artillery damage levels
PNACQ(33)	---	Probability of non-acquisition by Red CB for each of 33 Blue batteries
PNDET(33)	---	Probability of non-detection by Red CB for each of 33 Blue batteries

AFSM GLOSSARY

Variable	Units	Definition
POST(18,18)	---	Unwarned and warned target elements posture data (see data card types 13 and 14)
PRCT(49)	---	Percentage of last hour that each FDC and battery of the Blue force was busy
PREQ(50,150)	variable	Fifty data values for each of up to 150 missions stored in the PREQ array (see Tables 3-3, 3-6, 3-7, 3-8, and 3-9 for typical data value descriptions)
QUE(43,56)	variable	Forty-three data values for each of up to 56 missions stored in the QUE array ordered by military worth (data value descriptions identical to those for PREQ array except last seven data points dropped)
RADARS(15)	---	Number of Red radars attrited by Blue artillery fire
RAM(33)	---	Fraction of tubes currently available at 33 Blue batteries
RAMIN(13,5)	--- or minutes	FDC equipment failure data for 13 FDCs
RASR	---	Square root of the ratio of round-to-round error to system error for current round type and range value
RASRHE	---	Not used in program
RBFL(11)	---	Mean number of rounds between long-term failures for each of 11 weapon systems
RBFP(11)	---	Mean number of rounds between permanent failures for each of 11 weapon systems

Variable	Units	Definition
RBFS(11)	---	Mean number of rounds between short-term failures for each of 11 weapon systems
RDAM(25)	meters	Estimated radius of effects per battery volley for each of 25 round types
RDCLK	minutes	Used to determine value of TSTCLK which, in turn, determines whether next Red counterbattery fire mission is to be fired yet
RDCST(15)	kilo-dollars	Total cost of rounds expended by each battalion and total cost of all rounds expended by the Blue force
RDS(4,33)	---	Randomized initial values for number of rounds fired since last short-term, long-term, permanent fire power failure and tube change for each of up to 33 Blue batteries
RDSUM(15)	---	Number of rounds fired by each battalion and total number of rounds fired by Blue force
RDSV(6,33,30)	---	Number of volleys saved for each of six round types available at each of 33 Blue batteries for use against each of 30 fire plan missions
RDSVK(6,33)	---	Total number of fire plan targets for which each of six round types available has been saved at each of 33 Blue batteries
RDWGT(15)	metric tons	Total weight of rounds fired by each battalion and total weight of all rounds fired by Blue force
RE(25,10)	meters	Radius of effects for HE and Pk for ICM rounds for each of 25 round types at each of 10 range values

Variable	Units	Definition
REC(9,3,20)	meters	Expected coverage in range against each of nine target elements in each of three environments for each of 20 batteries massing on this fire mission
REDBAT(145,8)	--- or minutes	Red battery data (eight values) for as many as 145 Red batteries in the game
REDBN(60,7)	---	Red battalion data (seven values) for as many as 60 Red battalions in the game
REDECH(8,3)	---	Number of first Red battalion equipped with weapon system, total number of battalions with system, and round ID number for each of eight Red weapon systems
REDFLG	---	Not used in program
REDMOV(145,6,4)	minutes or kilometers	Arrival and departure times and site coordinates for each of six emplacements for each of 145 Red batteries
REDSCD(145,6)	variable	Data (six values) on each of 145 Red batteries that can contribute at least 5.0 percent to current counterbattery fire mission
REL(25)	---	In-flight reliability of each of 25 round types
RELI(25)	---	Reciprocal of in-flight reliability of each of 25 round types
REPAP	meters	Range round-to-round probable error modified by factor, XK, for current round type and range value (in CPE)

Variable	Units	Definition
REPM	meters	MPI probable error in range for current round type and range value (in CPE)
REPP	meters	Range round-to-round error for current round type and range value (in CPE)
REPTM	meters	Range MPI probable error including target location error for current round type and range value (in CPE)
RG(25,10)	kilometers	Range values for range versus error and EFC tables for each of 25 round types at each of 10 range values
RIFMIN	---	Not used in program
RIFTIM(33)	minutes	Not used in program
RMX(25)	kilometers	Maximum range for each of 25 round types
RNDCNT(25,30)	---	Number of rounds of each round type for each of 30 range values (battery to target ranges)
RNDID(25)	---	Round caliber ID number for each of 25 round types
RNGC(11,10)	---	Number of rounds fired by each of 11 weapon systems for each of 10 ranges in excess of 30 kilometers
RNGMAX(11)	kilometers	Maximum range for each of 11 weapon systems
ROWHDR(20)	variable	Alphanumeric identifiers for 20 rows per page of hard copy output
RR	---	In-flight reliability of current round type

AFSM GLOSSARY

Variable	Units	Definition
RSPY(25)	rounds per hour	Resupply rate per battery for each of 25 round types
RTP(25)	---	Round identification for each of 25 round types (=1.0, ICM; =2.0, HE; =3.0, CLGP)
SAVAIL	---	Used to calculate average fraction of Blue tubes available over entire game
SAVRD(9,33)	---	Number of volleys saved for fire plan targets for each of nine round types at each of 33 Blue batteries
SBLD(11)	---	Number of rounds in basic load per battery for each of 11 weapon systems
SCED(2,33,30)	minutes	Start and end times for each of up to 30 fire plan missions for each of up to 33 Blue batteries
SCEDT(33)	---	Total number of fire plan missions assigned to each of up to 33 Blue batteries
SCENAR	---	Key to scenario being used
SDET(33)	minutes	Time since current detection/ acquisition process by Red force was initiated for each of 33 Blue batteries
SMFP(50,9)	variable	Fire plan results for each of up to 50 fire plans
SPL	meters	Submunition pattern radius (or length) for current ICM round at current range
SPRESS(187,4,15)	variable	Four data values for 15 suppression intervals for each of 187 batteries (Red and Blue)

Variable	Units	Definition
SPRET	minutes	Suppression time duration following cessation of incoming fire
SPRFLG	---	Suppression flag for current battery (=1.0, suppressed; =0.0, not suppressed)
SPRKEY	---	Suppression subroutines control flag (=1.0, use subroutines; =0.0, do not use subroutines)
SPW	meters	Submunition pattern width for current ICM round at current range
SQRTPI	---	$\pi^{1/2}$
SRDIX(16)	---	Alphanumeric weapon system title or alphanumeric round name and weapon system identification
SROF(11)	rounds per minute	Static rate of fire per tube for each of 11 weapon systems
SRSPY(11)	rounds per hour	Battery resupply rate for each of 11 weapon systems
STORE(9,14)	variable	Data used by higher echelons in selecting battalions to fire a mission
STORMW(40)	---	Cumulative military worth value for each cumulative hour of game time up to a maximum of 40 hours
STYP(11)	---	Weapon system type for each of 11 systems (=1.0, cannon; =2.0, missile; =3.0, GSRS)
SVMW(6,33,30)	---	Military worth of target for six round types, 33 batteries, and 30 fire plans

AFSM GLOSSARY

Variable	Units	Definition
SURVBN(16,170)	---	Red battalion breakdown, including fraction not killed by non-artillery at current time and original amount
SURVNA(16,913)	---	Individual Red target breakdown including fraction not killed by non-artillery at current time and original amount
SYSID(11)	---	Identification numbers of 11 weapon systems
SYSORT(17,16)	variable	Data breakdown for each weapon system in the game
SYSTUB(11)	---	Number of Blue tubes in current mix for each of up to 11 weapon systems
TA(10,33)	minutes	Time of arrival at each of 10 emplacements for each of 33 Blue batteries
TAF(10,13)	minutes	Time of arrival at each of 10 emplacements for each of 13 FDCs
TAR(50)	variable	Temporary storage of data for non-fire plan missions, MET missions, survey missions, ATI missions, and fire plan header information
TBFPM(11)	minutes	Time between fire plan missions for each of 11 weapon systems
TBM(11)	minutes	Time between missions for each of 11 weapon systems
TBSY(49)	minutes	Cumulative time that each FDC and battery in the Blue force were busy, up to current game time

AFSM GLOSSARY

Variable	Units	Definition
TD(10,33)	minutes	Time of departure from each of 10 emplacements by each of 33 Blue batteries
TDF(10,13)	minutes	Time of departure from each of 10 emplacements by each of 13 FDCs
TFADVL	minutes	Time required for a battery to fire the additional volleys when firing more than one volley on current mission
TFCLM	minutes	Minimum time required to fire a CLGP mission
TFK(15)	minutes	Time available for firing a CLGP mission at each of 15 interpolation points
TFP(43,75)	variable	Data values for each of 75 fire plan targets (See Table 3-10)
TGSV(6,33,30)	---	Target ID numbers for each of six round types available at each of 33 Blue batteries for each of 30 fire plan targets
THOUR	hours	Time at current hourly printout
TIFR(33)	minutes	Time that most recent incoming counterbattery fire was received by each of 33 Blue batteries
TIM(21,4,4)	minutes	Time data for various combinations and states of readiness of FDC computer transmission/processing
TIMNOW	minutes	Time current battery finishes firing its rounds
TIMSKY(33)	minutes	Time at which each of 33 counter-battery fire missions are scheduled; TIMSKY(1) is time of next counterbattery fire mission

Variable	Units	Definition
TIMVL(20)	minutes	Time of first volley for each of up to 20 batteries massing on this mission
TL	meters	Current target length
TLAX(49)	minutes	Cumulative time that each FDC and battery in the Blue force were idle up to current game time
TLE	meters	Current target location error
TLSTVL	minutes	Time of last volley of all volleys fired by the (up to 20) batteries massing on this mission
TMET(16)	minutes	Time of receipt of MET message at specified FDC
TMETZO	minutes	Time that original MET data were taken
TMT	minutes	Red battery memory time duration for counterbattery fire purposes
TMWHRS	MW-hours	Total military worth hours at current game time
TMX	minutes	Game termination time
TMXFP(3,15)	--- or minutes	ID numbers and fire plan processing start times for each of 15 fire plans
TNK(15)	---	Number of Red tanks attrited by Blue artillery fire
TOT105(20)	variable	Output data for all systems of some common caliber
TOTATR(11)	---	Total attrition caused by a standard level of Red counter-battery fire against each of up to 11 weapon systems

Variable	Units	Definition
TOTS(6)	---	Total number of targets damaged for each of six artillery damage levels
TOTTM	minutes	Not used in program
TP(9,25,10)	--- or meters	Pk(ICM) or radius of effects (HE) against nine target elements for 25 round types at 10 range values for a town environment
TPFU(11)	---	Number of tubes or launchers per fire unit for each of 11 weapon systems
TRAM(49)	minutes	Cumulative time that each FDC and battery of the Blue force were down due to RAM, up to current game time
TRFAL(11)	hours	Time to repair a long-term failure due to enemy attrition for each of 11 weapon systems
TRFAS(11)	hours	Time to repair a short-term failure due to enemy attrition for each of 11 weapon systems
TRFFL(11)	hours	Time to repair a long-term failure due to firing for each of 11 weapon systems
TRFFS(11)	hours	Time to repair a short-term failure failure due to firing for each of 11 weapon systems
TRFML(11)	hours	Time to repair a long-term failure due to moving for each of 11 weapon systems
TRFMS(11)	hours	Time to repair a short-term failure due to moving for each of 11 weapon systems

Variable	Units	Definition
TRK(15)	---	Number of Red trucks attrited by Blue artillery fire
TRVM(45,10)	---	Round ID numbers for each of 45 round types and each of 10 postures in a town environment
TSTART	hours	Time of first print of game results
TSTCLK	minutes	Time up to which scheduled Red counterbattery missions will be executed
TTFP(43,15)	variable	Fire plan data for up to 15 fire plans when more than one battalion is required for fire plan execution
TTGF(2)	minutes	Time required to get float based on battalion echelon identification number
TTOTC(33)	---	Number of tubes out for tube changes for each of 33 Blue batteries
TTPOA(33)	---	Number of tubes out due to attrition for each of 33 Blue batteries
TTPOR(33)	---	Number of tubes out due to reliability for each of 33 Blue batteries
TUBAV(33)	---	Current number of tubes available at each of 33 Blue batteries
TUBIN(8,33)	minutes	Times when tubes will be returned to each of 33 Blue batteries
TUBLIF(11)	---	Tube life in number of rounds fired for each of 11 weapon systems

Variable	Units	Definition
TUBOT(33)	---	Number of tubes out at each of 33 Blue batteries at current game time
TW	meters	Current target width
TZRO	minutes	Game start time
USEDFP(45,33)	---	Number of times that saved rounds (for fire plan) were used for each of 45 round types saved by each of 33 Blue batteries
VK1(15)	---	Number of tanks destroyed within time-available interval for each of 15 interpolation points (CLGP rounds only)
VK2(15)	---	Number of APCs destroyed within time-available interval for each of 15 interpolation points (CLGP rounds only)
VK3(15)	---	Number of trucks destroyed within time-available interval for each of 15 interpolation points (CLGP rounds only)
VL	meters	Total length of volley being processed
VOL(10)	---	Desired attack level for each of 10 postures
VW	meters	Total width of volley being processed
W	---	Constant = 0.693147 = ln 2.0
W1	---	Computed but not used (=2.0 ln 2.0)
WGT(25)	metric tons	Crated unit weight for each of 25 round types

Variable	Units	Definition
WGTI(25)	$(\text{metric tons})^{-1}$	Reciprocal of crated unit weight for each of 25 round types
WKS	---	Constant = 0.892437 = $(-\pi \ln 0.7)^{-1}$
WORK(4,16,4)	--- or minutes	Four priorities for each FDC and four data values for each non-fire mission
WP(9,25,10)	--- or meters	Similar to OP(9,25,10) but for a wooded environment
WRVM(45,10)	---	Round identification numbers for each of 45 round types used against each of 10 postures in a wooded environment
XBSY(49)	minutes	Time that each FDC and battery of the Blue force was busy during last hour of game time
XK	---	Factor for modifying deflection and range precision errors for current round type and range value
XNRF(15)	---	Number of CLGPs fired (based on 2 tubes) within time available interval for each of 15 interpolation points
XS(10,33)	kilometers	x-coordinates for each of 10 emplacement sites for each of 33 Blue batteries
XSF(10,13)	kilometers	x-coordinates for each of 10 emplacement sites for each of 13 FDCs
YS(10,33)	kilometers	y-coordinates for each of 10 emplacement sites for each of 33 Blue batteries

AFSM GLOSSARY

Variable	Units	Definition
YSF(10,13)	kilometers	y-coordinates for each of 10 emplacement sites for each of 13 FDCs

AMMO(I,J,K)

(10,10,14)

*I is the i^{th} round type

J is the j^{th} battery of the specified battalion

K is as defined below:

=1, round number as entered from Subroutine ROUND

=2, lethal area weighted over posture and environment for ICM rounds only

=3, weighted lethal area divided by criterion

=4, precision error (CPER) for round-to-round, meters

=5, total system error (CPET), meters

=6, expected fractional coverage (ECV)

=7, number of rounds required for specified damage level

=8, number of rounds available

=9, number of rounds fired

=10, effect achieved by number of rounds fired

=11, lethal area for HE rounds weighted over posture and environment for "unwarned" postures

=12, lethal area for HE rounds weighted over posture and environment for "warned" postures

=13, total CPE for calculating estimated effects (ECPET), meters

=14, number of equivalent full charge rounds (EQNR)

---

*I= 1 through 5, ICM rounds ranked by greatest lethal area divided by criterion

I= 6 through 10, HE rounds ranked by greatest lethal area divided by criterion

BRY(I,J)

(11,10)

J is the battery number (fire unit) within the specified battalion

I is as defined below:

=1, battery identification number

=2, number of tubes available to fire in the battery

=3, battery x-coordinate, kilometers

=4, battery y-coordinate, kilometers

=5, range to target squared, kilometers^2

=6, priority value of j^{th} battery relative to other batteries in the battalion; smaller value is better

=7, key to fire unit status

=1, available; =2, single busy;

=3, double busy; =4, not available

=8, rate of fire, rounds per tube per minute

=9, i^{th} subscript of round in AMMO(I,J,K) array

=10, battery number (KFU)

=11, system number of this battery

DAMG(I,J)

(18,601)

J is the j^{th} specific target ID in the DAMG array

I is as defined below:

=1, target ID from QUE(1, IQ)

=2, fractional value of personnel survivors due to artillery fire

=3, fractional value of tank survivors due to artillery fire

=4, fractional value of APC survivors due to artillery fire

=5, fractional value of truck survivors due to artillery fire

=6, fractional value of artillery tube survivors due to artillery fire

=7, fractional value of radar survivors due to artillery fire

=8, fractional value of missile launcher survivors due to artillery fire

=9, original number of personnel in target

=10, original number of tanks in target

=11, original number of APCs in target

=12, original number of trucks in target

=13, original number of artillery tubes in target

=14, original number of radars in target

=15, original number of missile launchers in target

=16, changed from "0." to "2." when cumulative damage from non-artillery and artillery fire results in critical target element damage greater than specified defeat level, i.e. a defeated target

=17, number of platoons in target

=18, ID number for type of critical element

FUATT(I,J)

(33,12)

I is the i^{th} Blue battery to which data applies

J is as defined below:

=1, probability that battery has been detected at current site

=2, time since detection process began, minutes

=3, probability of acquisition at current site

=4, time since acquisition process began, minutes

=5, not used at this time

=6, fractional value of Blue personnel survivors

=7, cumulative short-term tube damage now in battery

=8, cumulative long-term tube damage now in battery

=9, cumulative permanent tube damage now in battery

=10, corrects battery site (rocket systems only)

=11, number of incoming fires received since last move

=12, total number of incoming fires received thus far

STORE(I,J)

(9,14)

J is the j^{th} Blue battalion being considered for current mission

I is as defined below:

=1, the time that this battalion would receive message to fire, minutes

=2, fractional damage this battalion can achieve

=3, FDC that would process this mission

=4, *posture sequencing flag

=5, **General Support Rocket System (GSRS) flag

=6, =7, =8, =9 } no longer used in program

*If STORE(4,J) $\geq$ 1000., use posture sequencing when an HE round is the first one fired; otherwise do not use posture sequencing on this mission

**If STORE(5,J) $\geq$ 5., consider only GSRS batteries against this target; otherwise, consider only cannon or missile batteries

SYSORT(I,J)

(17,16)

J is the j^{th} Blue weapon system type

I is as defined below:

=1, total military worth of Red targets attrited by j^{th} Blue system type

=2, total number of Red personnel attrited by j^{th} Blue system type

=3, total number of Red armor attrited by j^{th} Blue system type

=4, total number of Red trucks attrited by j^{th} Blue system type

=5, total number of Red artillery tubes attrited by j^{th} Blue system type

=6, total number of Red radars attrited by j^{th} Blue system type

=7, total number of Red missile launchers attrited by j^{th} Blue system type

=8, total number of battery missions fired by j^{th} Blue system type

=9, total number of rounds fired by j^{th} Blue system type

=10, total weight of rounds fired by j^{th} Blue system type, metric tons

=11, total cost of rounds fired by j^{th} Blue system type, kilo-dollars

=12, total number of incoming fires received by j^{th} Blue system type

=13, total number of Blue artillery tubes of j^{th} Blue system type out due to attrition

=14, total number of Blue artillery tubes of j^{th} Blue system type out due to RAM

=15, total number of Blue artillery tubes up of j^{th} Blue system type

=16, average fractional value of tubes available of j^{th} Blue system type

=17, working slot for number of Blue artillery tubes up of j^{th} Blue system type [used for computation of SYSORT(16,I)]

DISTRIBUTION LIST

No. of Copies	Organization
12	Commander Defense Documentation Center ATTN: TCA Cameron Station Alexandria, VA 22314
1	Commander US US Army Materiel Development and Readiness Command ATTN: DRCCP 5001 Eisenhower Avenue Alexandria, VA 22333
1	Commander US Army Materiel Development and Readiness Command ATTN: DRCRE-I 5001 Eisenhower Avenue Alexandria, VA 22333
1	Commander US Army Materiel Development and Readiness Command ATTN: DRCBSI-L 5001 Eisenhower Avenue Alexandria, VA 22333
1	Commander US Army Materiel Development and Readiness Command ATTN: DRCPA-S 5001 Eisenhower Avenue Alexandria, VA 22333
1	Commander US Army Materiel Development and Readiness Command ATTN: DRCQA 5001 Eisenhower Avenue Alexandria, VA 22333
1	Commander US Army Materiel Development and Readiness Command ATTN: DRCDE-R 5001 Eisenhower Avenue Alexandria, VA 22333
1	Commander US Army Test and Evaluation Command ATTN: STEDP-MT-L Dugway Proving Ground, Utah 84022
1	Commander US Army Armament Research and Development Command ATTN: Tech Lib Dover, NJ 07801
1	Commander US Army Materiel Development and Readiness Command ATTN: DRCDE-D 5001 Eisenhower Avenue Alexandria, VA 22333
1	Commander US Army Armament Research and Development Command ATTN: Sys Anal Ofc Rock Island, IL 61201
1	Commander Rock Island Arsenal ATTN: Tech Lib Rock Island, IL 61201
1	Commander Harry Diamond Laboratories ATTN: DELHD-SAB 2800 Powder Mill Road Adelphi, MD 20783
1	Reliability Analysis Ctr ATTN: Mr. I. L. Krulac Griffiss AFB, NY 13441
1	Commander USA Electronics R&D Command ATTN: DRDEL-SA Fort Monmouth, NJ 07703

DISTRIBUTION LIST (cont)

No. of Copies	Organization
2	Director US Army TRADOC Systems Analysis Activity ATTN: ATAA-SL ATAA-T White Sands Missile Range, New Mexico 88002
1	Commander US Army Missile R&D Command ATTN: DRDMI-C Redstone Arsenal, AL 35809
1	Commander US Army Troop Support & Aviation Materiel Readiness Command ATTN: DRSTS-BA 4300 Goodfellow Blvd St. Louis, MO 63120
2	Commander US Army Tank Automotive R&D Command ATTN: DRDTA-UL (Tech Lib) DRDTA-V Warren, MI 48090
1	Commander USA Mobility Equipment R&D Command ATTN: DRDME-O Fort Belvoir, VA 22060
1	Chief, US Army Natick R&D Command ATTN: DRDNA-O Natick, MA 01760
1	Commander USA Concepts Analysis Agency 8120 Woodmont Avenue Bethesda, MD 20014
2	Chief Defense Logistics Studies Information Exchange US Army Logistics Management Center ATTN: DRXMC-D FT Lee, VA 23801
1	Aerospace & Defense Group Systems & Research Center Honeywell Incorporated ATTN: Raymond W. Schaefer 2600 Ridgway Parkway Minneapolis, MN 55413
1	Commander USA Armament R&D Command ATTN: SARPA-AD-C (Dr. S. Einbinder) Dover, NJ 07801
1	Project Manager Army Tactical Data Systems ATTN: DRCPM-TDS Fort Monmouth, NJ 07703
1	Commander USA Field Artillery School ATTN: ATSF-CTD Fort Sill, OK 73503
1	Commander USA Combined Arms Combat Developments Activity ATTN: ATCA-CA-A Fort Leavenworth, KS 66027
	Aberdeen Proving Ground
	Cdr, USATECOM, ATTN: DRSTE, DRSTE-CS-A, Bldg. 314 Dir, BRL, STINFO Br, Bldg. 305 Dir, BRL, Bldg. 328 Dir, HEL, Bldg. 520