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ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY ABERDEEN PROV--ETC F/G 9/2  
ARTILLERY FORCE SIMULATION MODEL USER MANUAL.(U)  
JAN 79 R S SANDMEYER

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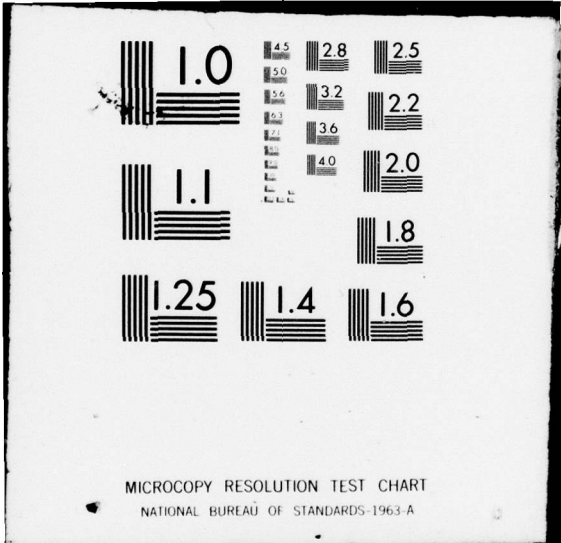
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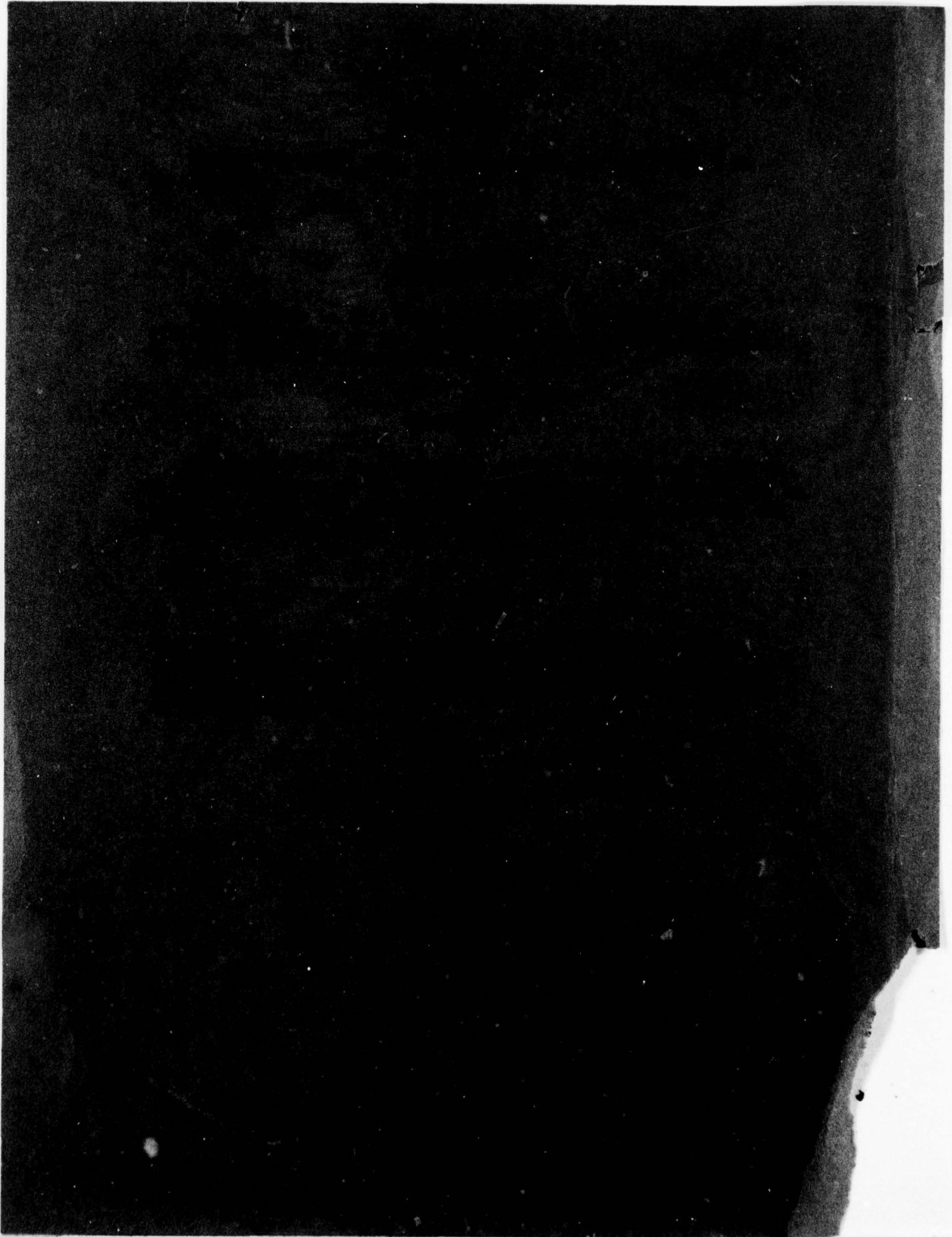
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The performance in combat of a division slice of BLUE artillery is a function of its weapon-ammo mix, ammo basic load and resupply, fire direction center (FDC) capability, 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.		

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The User Manual contains:

- (1) An overview of the AFSM computer program including a conceptual flow-chart and brief explanation of the model.
- (2) A detailed description of the input required to execute the program.
- (3) A description of the output.
- (4) A sample problem with fictitious inputs and the resulting output.
- (5) A glossary defining the important variables in AFSM.

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## 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.

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# 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.

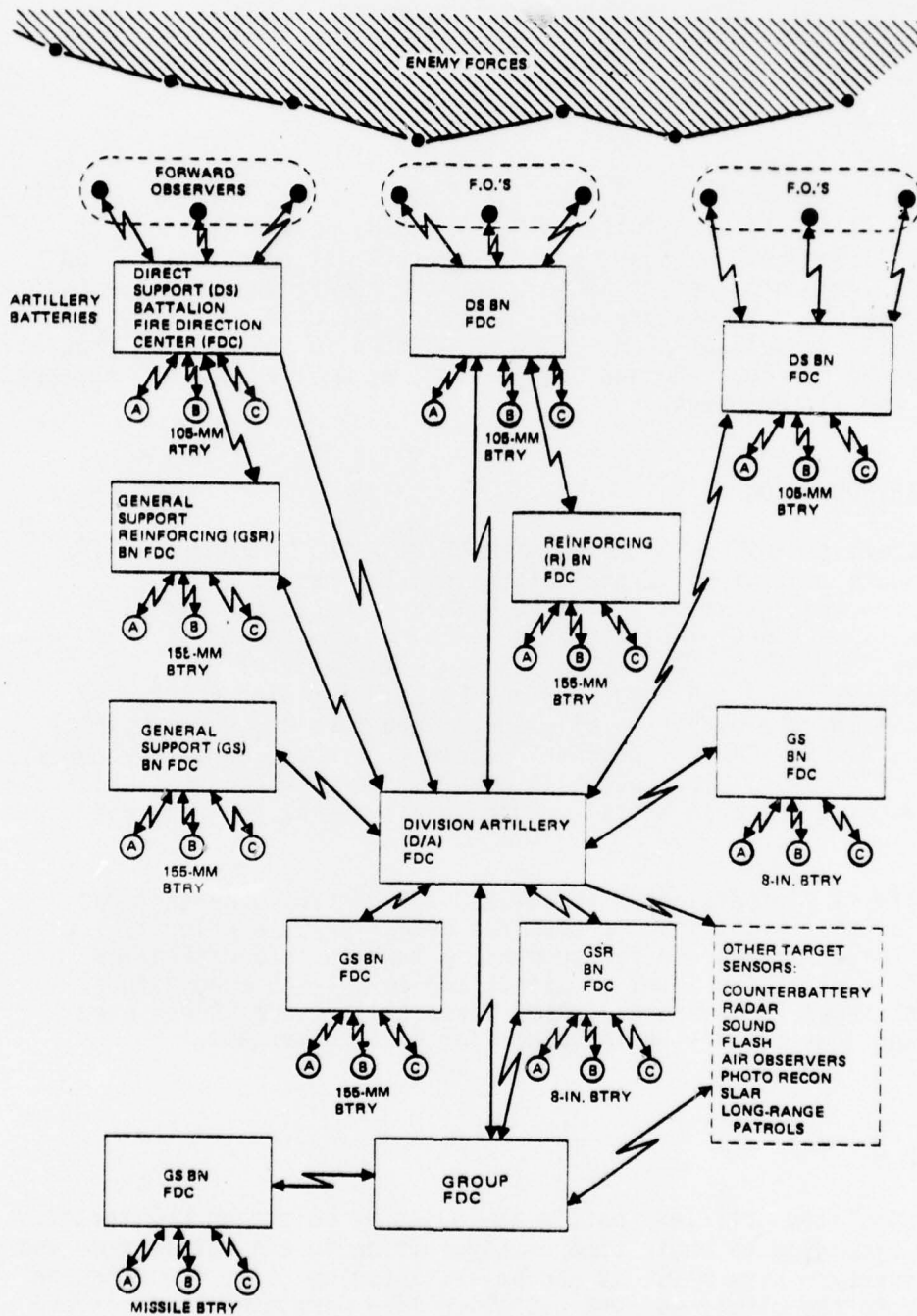


FIGURE 1-1. Artillery Fire Support Sample Organization.

# ARTILLERY FORCE SIMULATION MODEL USER MANUAL

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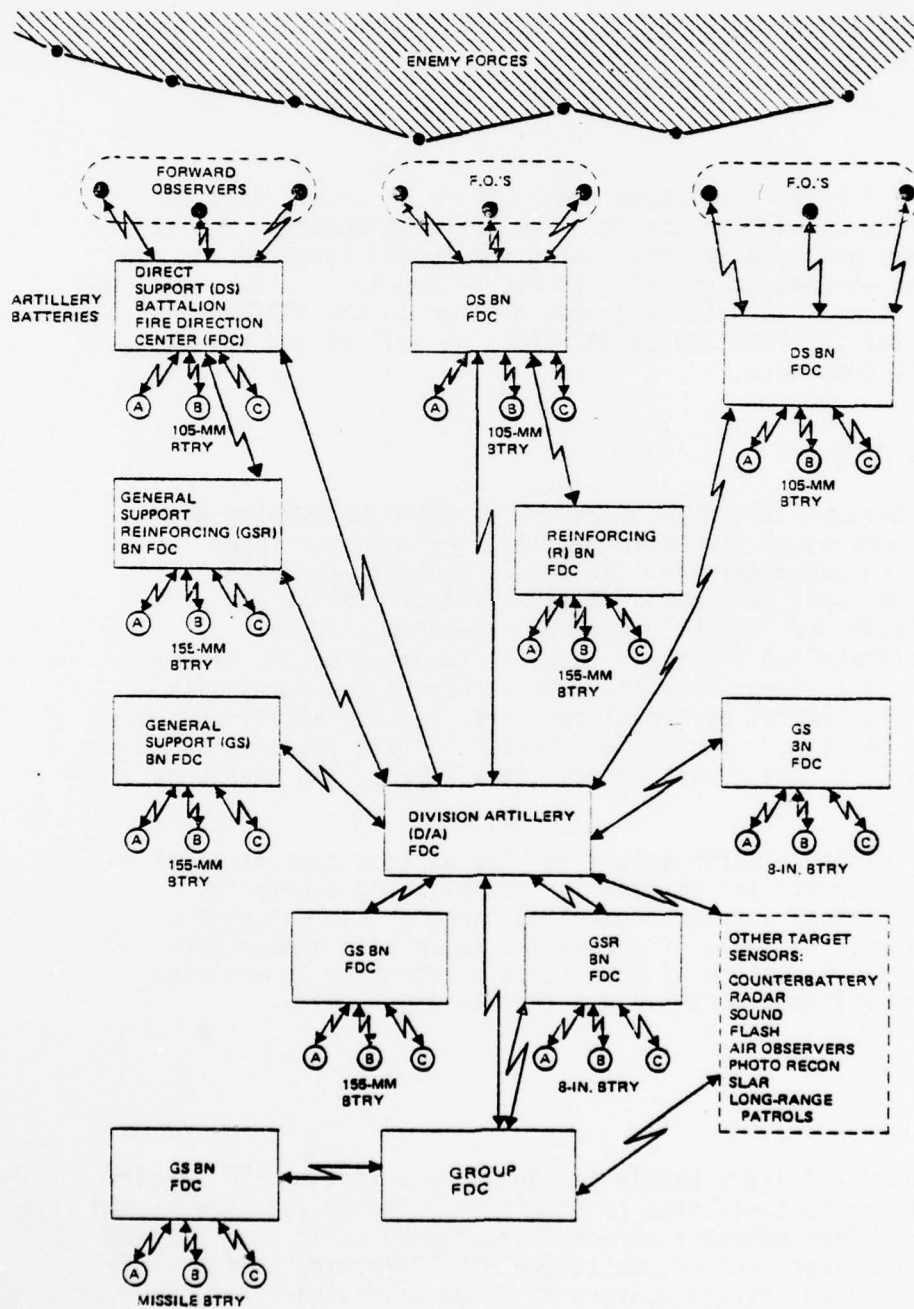


FIGURE 1-1. Artillery Fire Support Sample Organization.

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

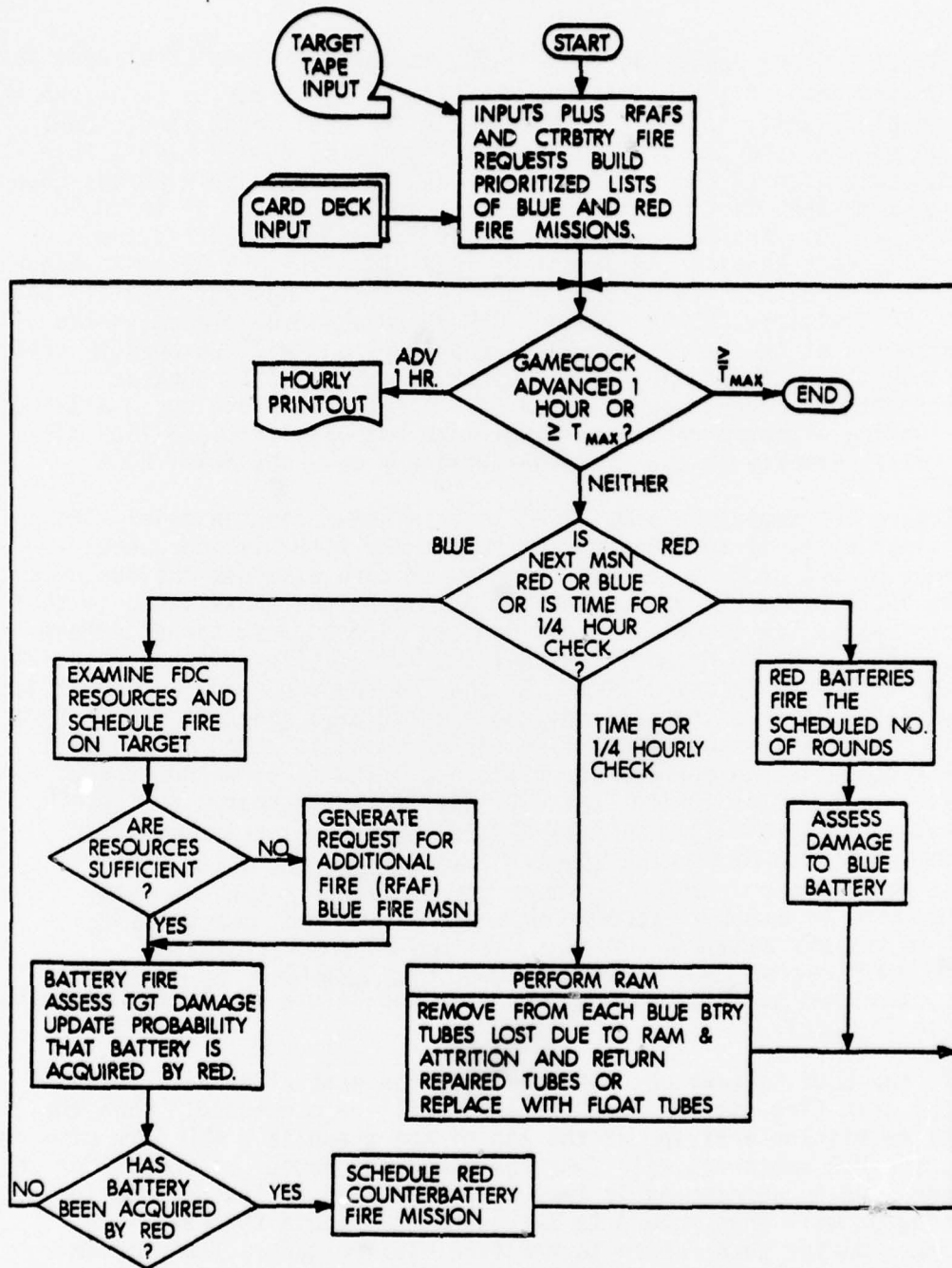


Figure 1-2. Artillery Force Simulation Model (AFSM) General Logic Flow.

TABLE 1-1. FDC Fire Ordering Sequence

Request for fire orig. by:	FDC receiving request for fire	Fire ordering sequence - <i>(AFSM examines battalion Battery resources in the following sequence until resources are found).</i>
Forward Observer (FO)	Direct Support Battalion <i>(Assigned to FO)</i>	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.



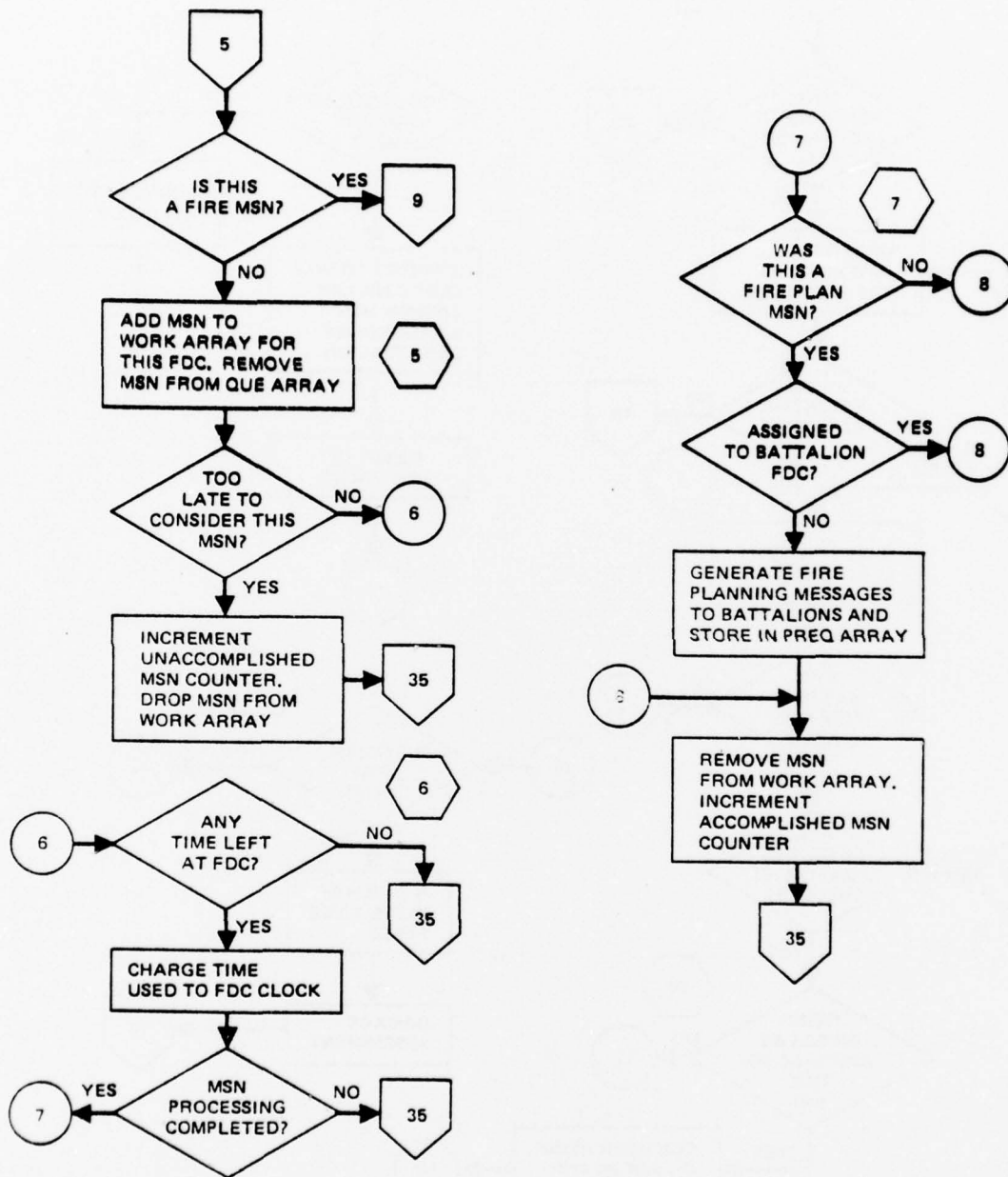


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 2 of 10)

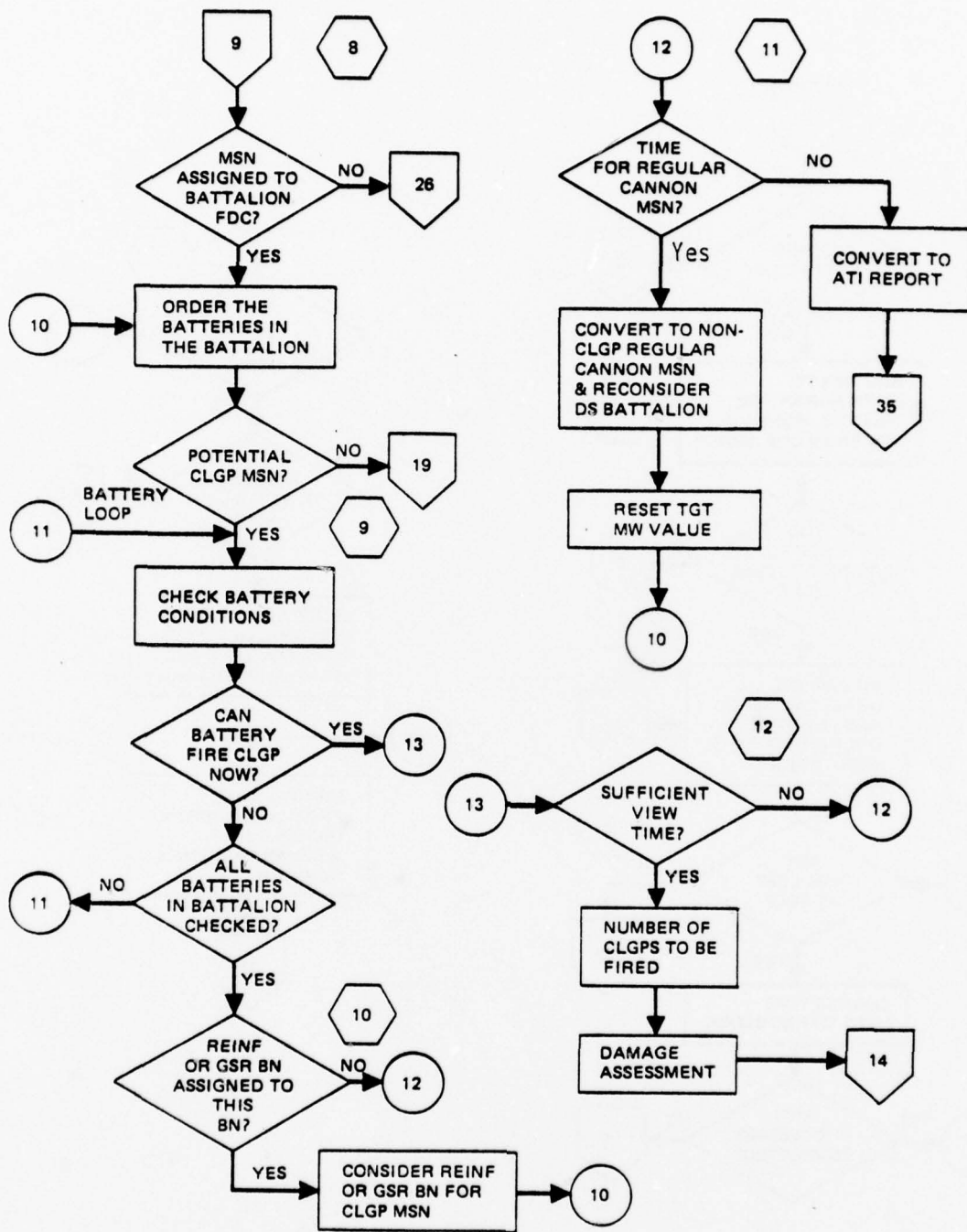


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 3 of 10)

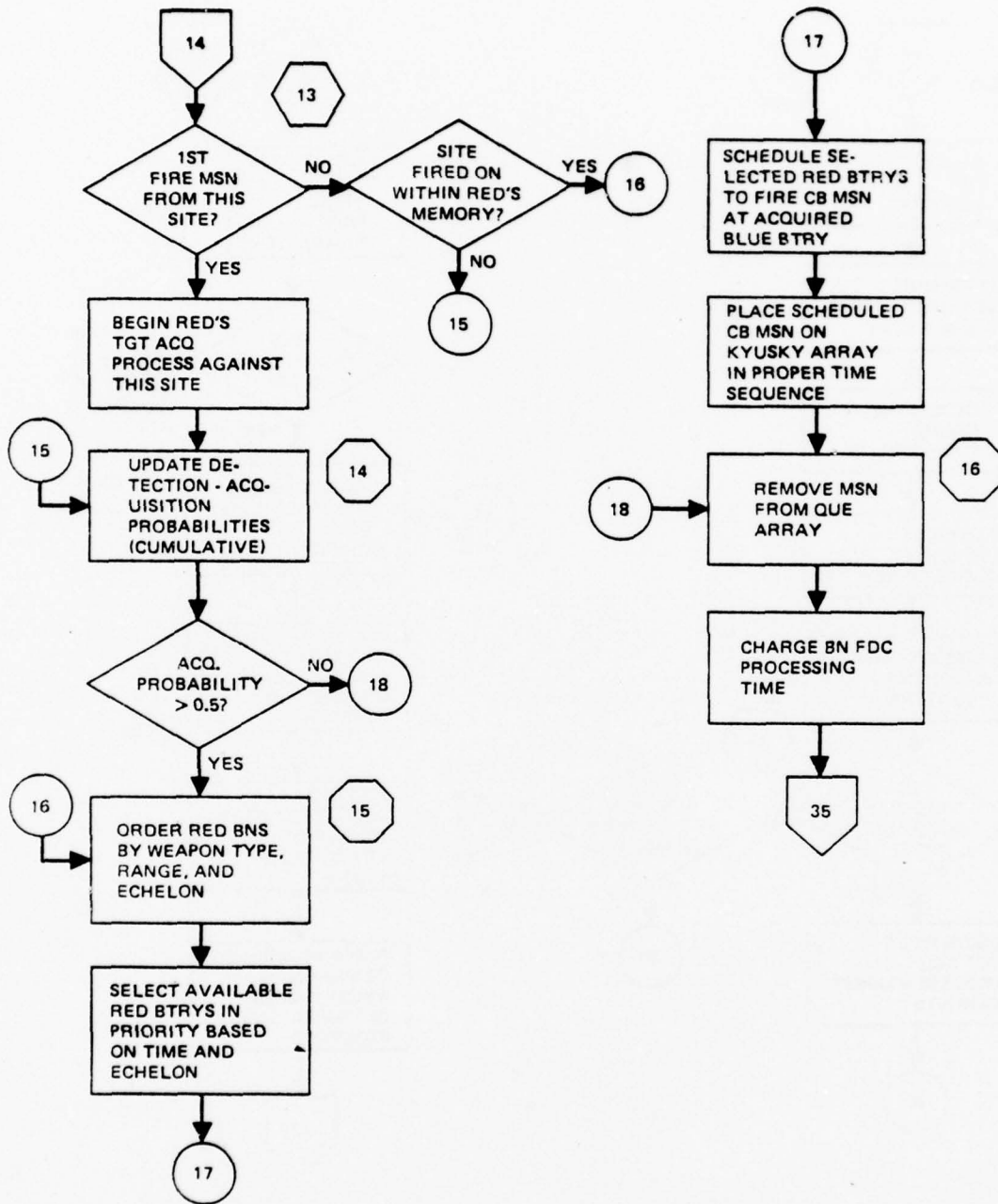


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 4 of 10)

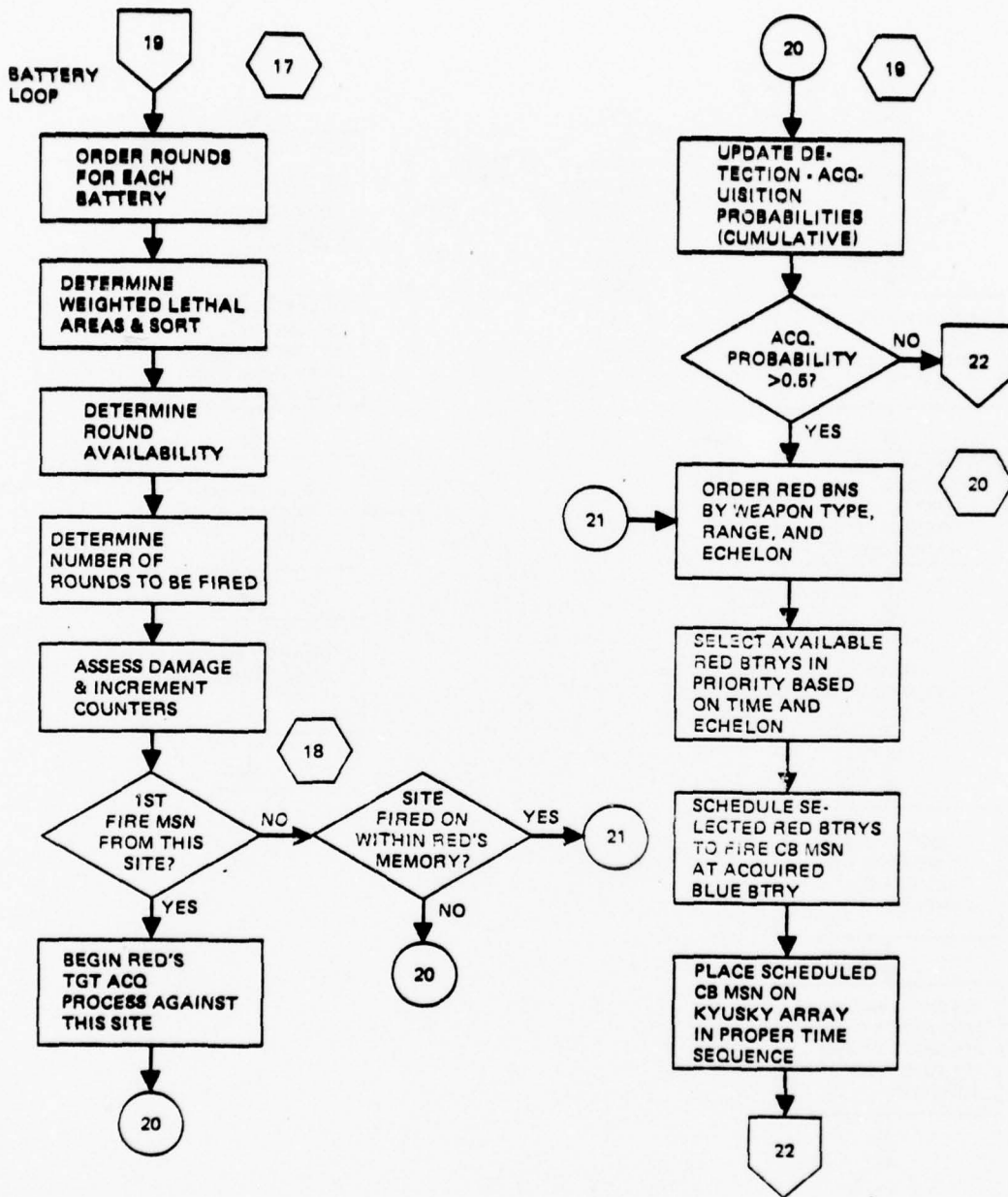


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 5 of 10)

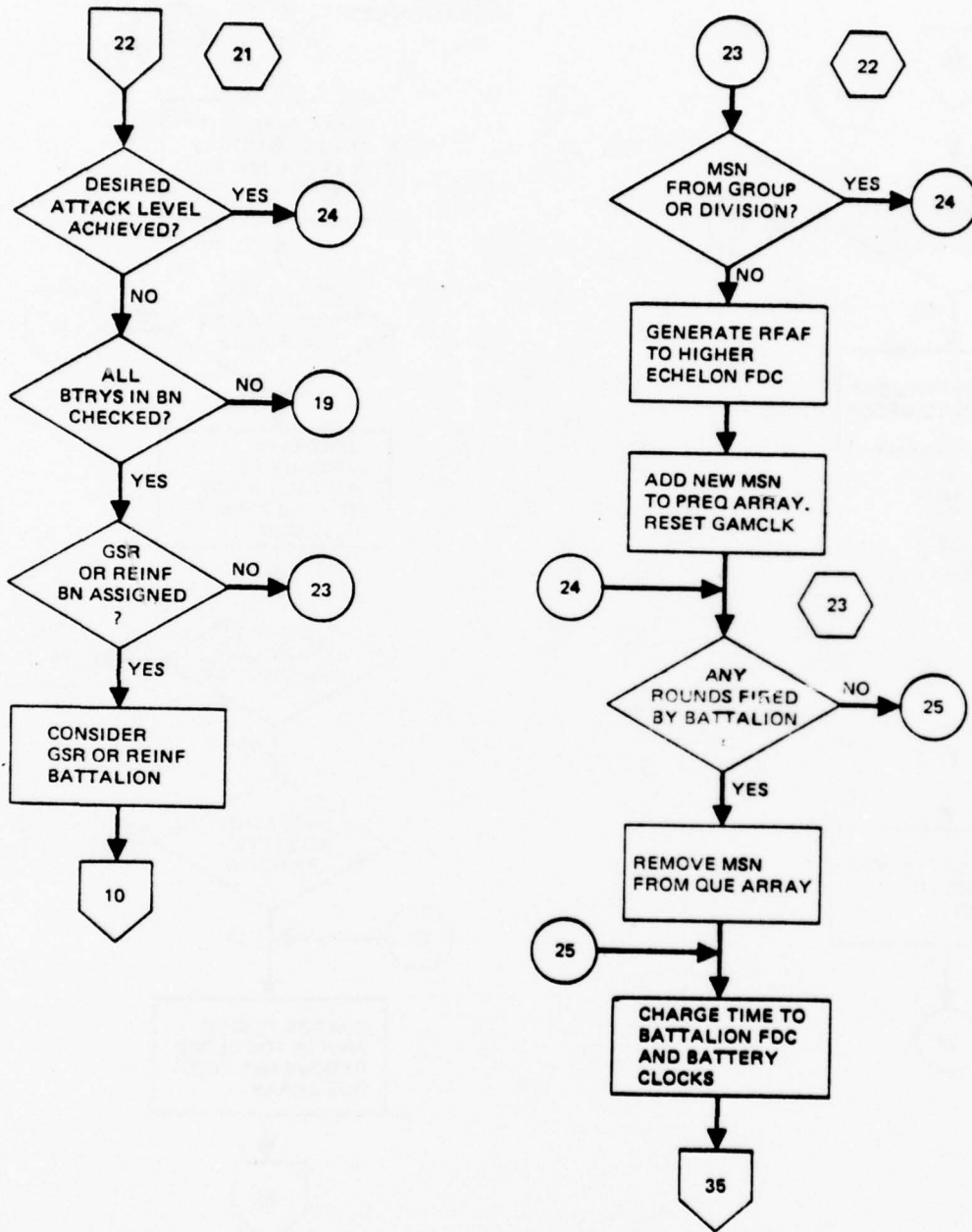


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 6 of 10)

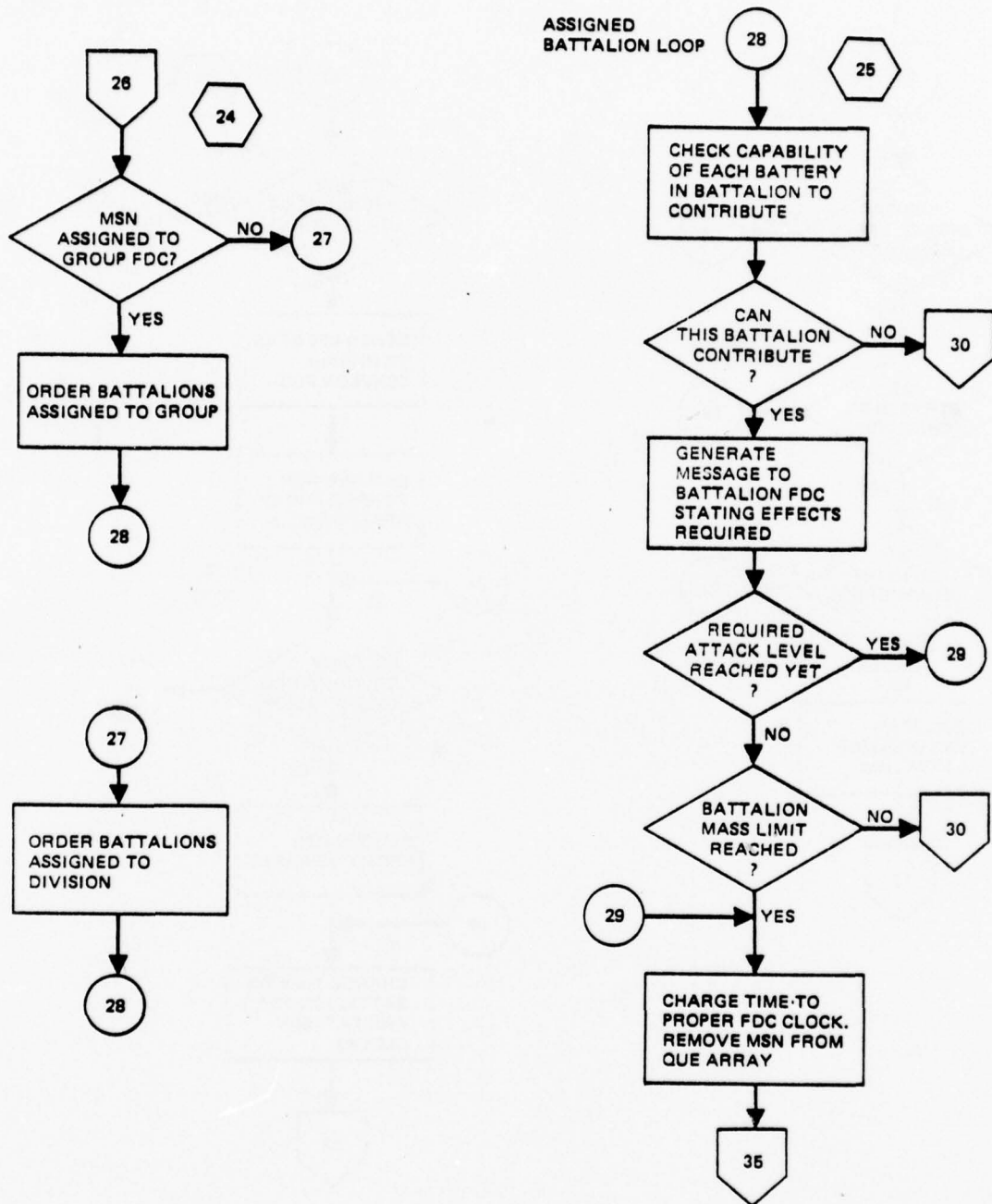


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 7 of 10)

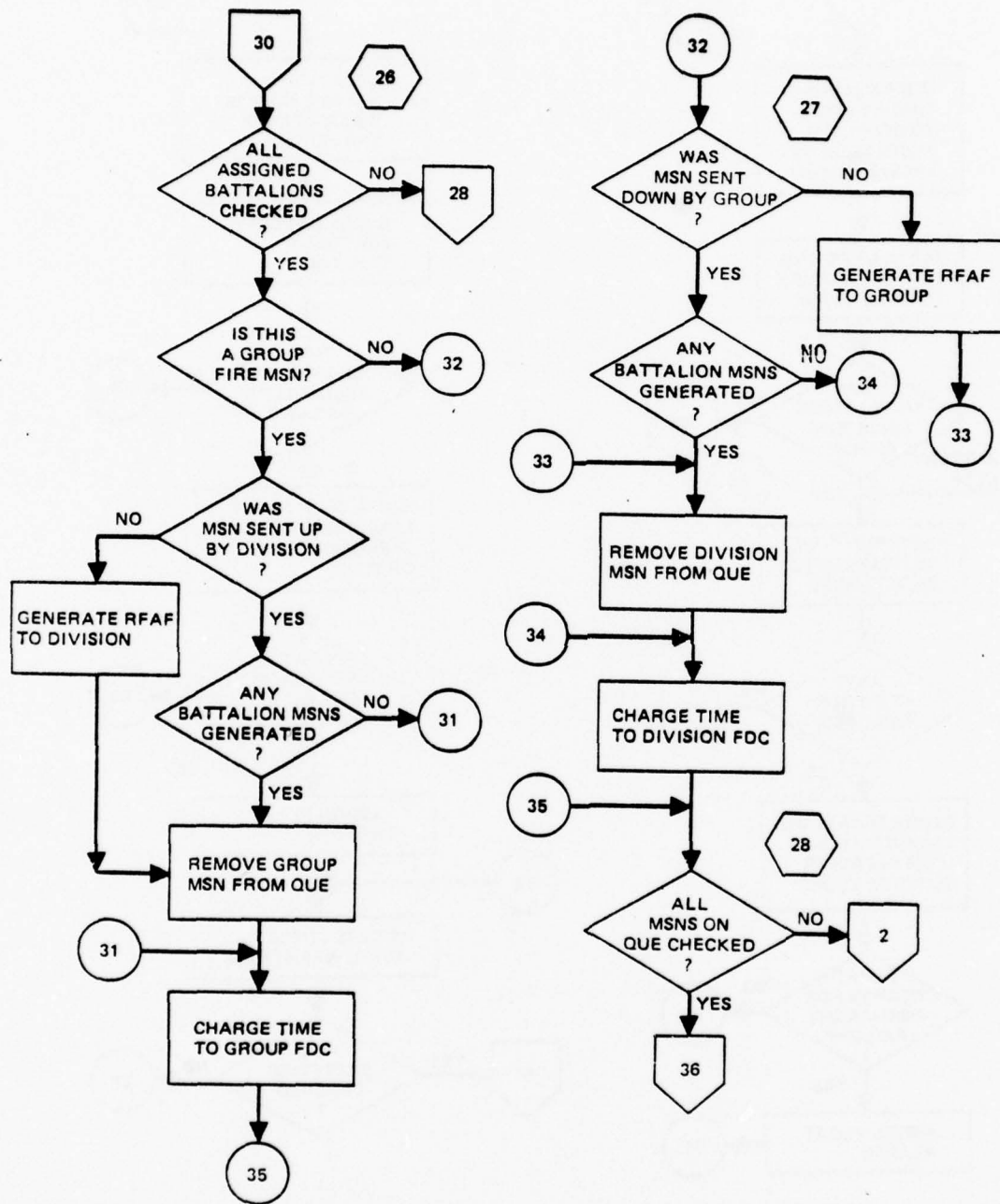


Figure 2-1. Conceptual Flowchart, AFMSM Program (Page 8 of 10)

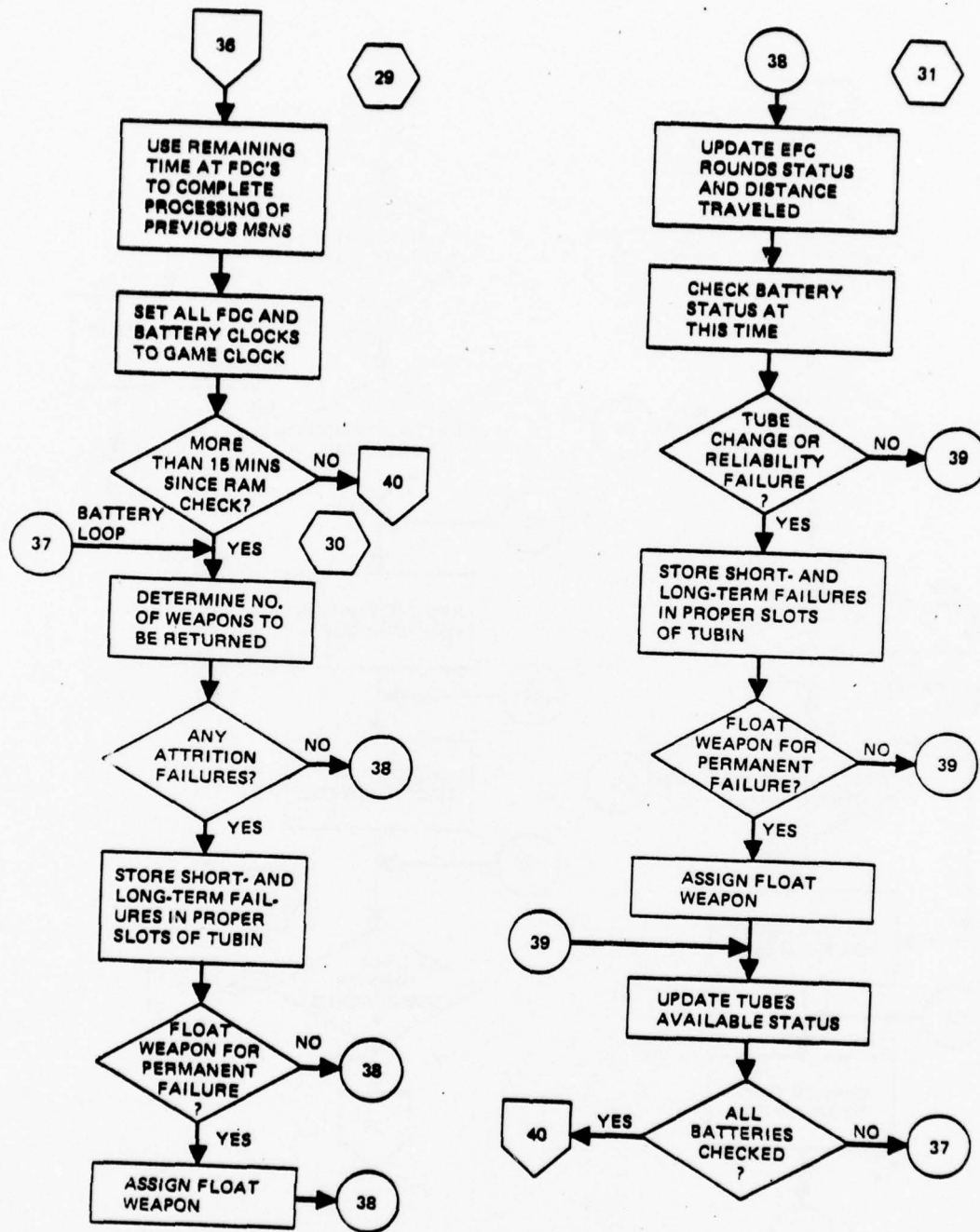


Figure 2-1. Conceptual Flowchart, AFMS Program (Page 9 of 10)

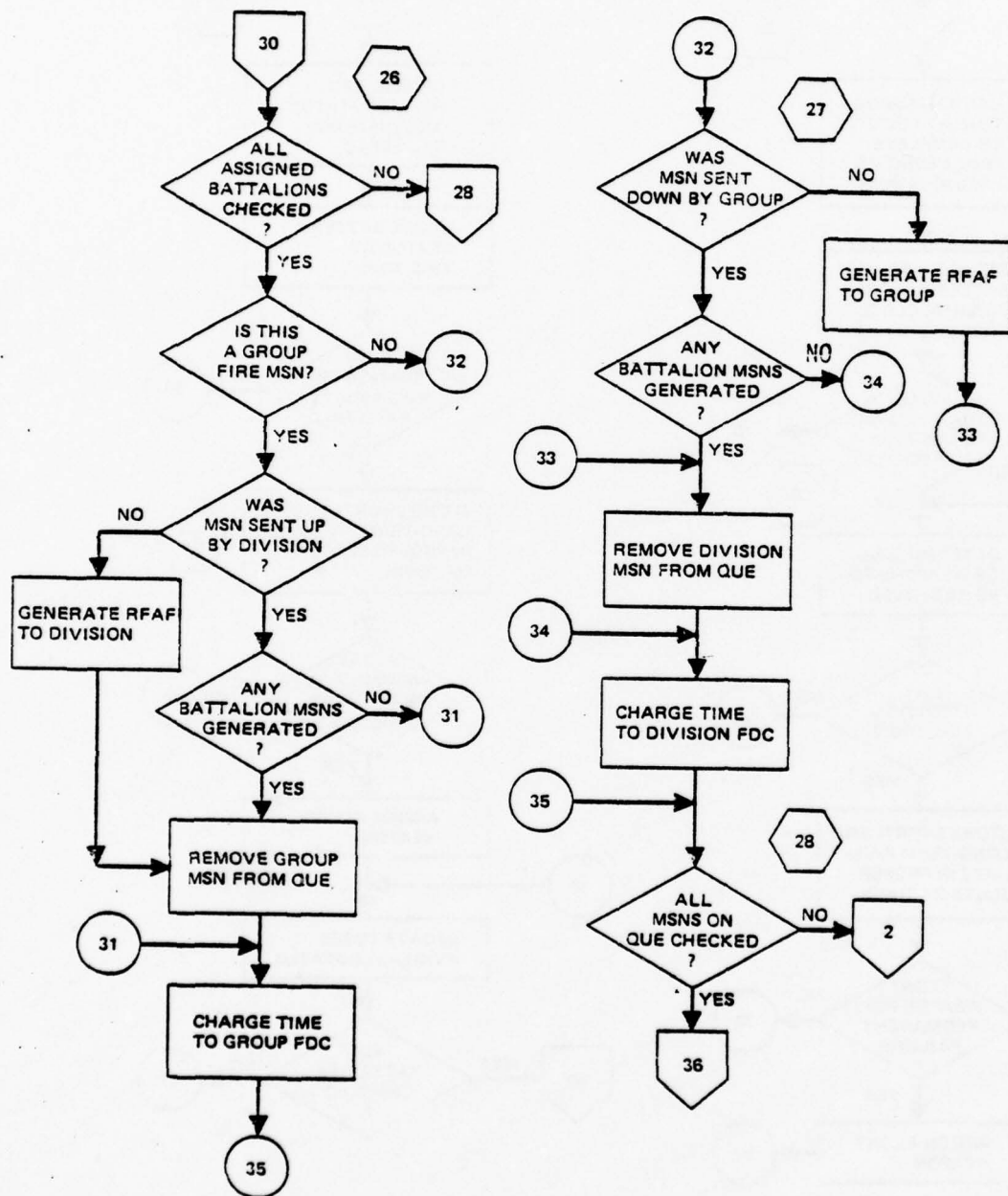


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 8 of 10)

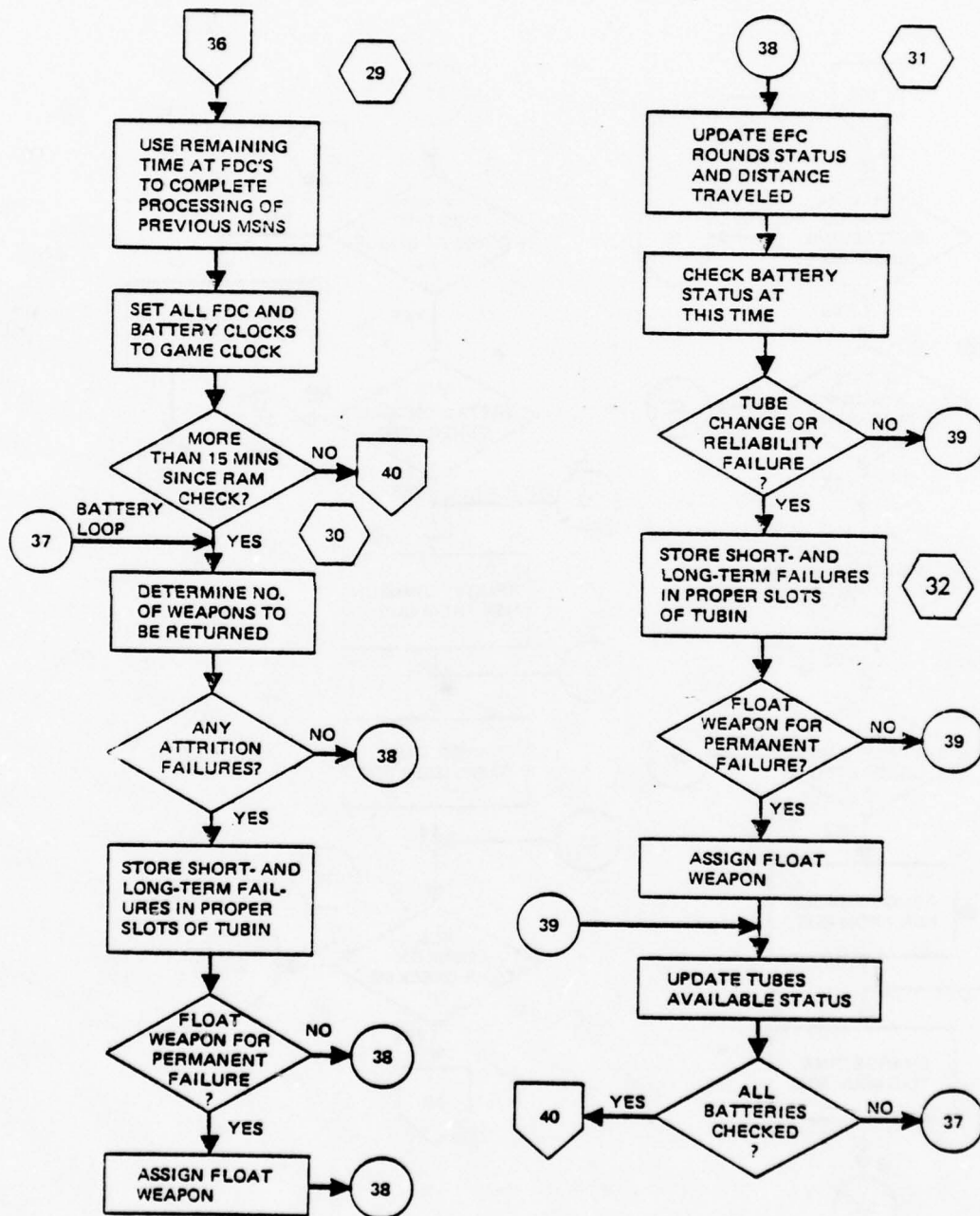


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 9 of 10)

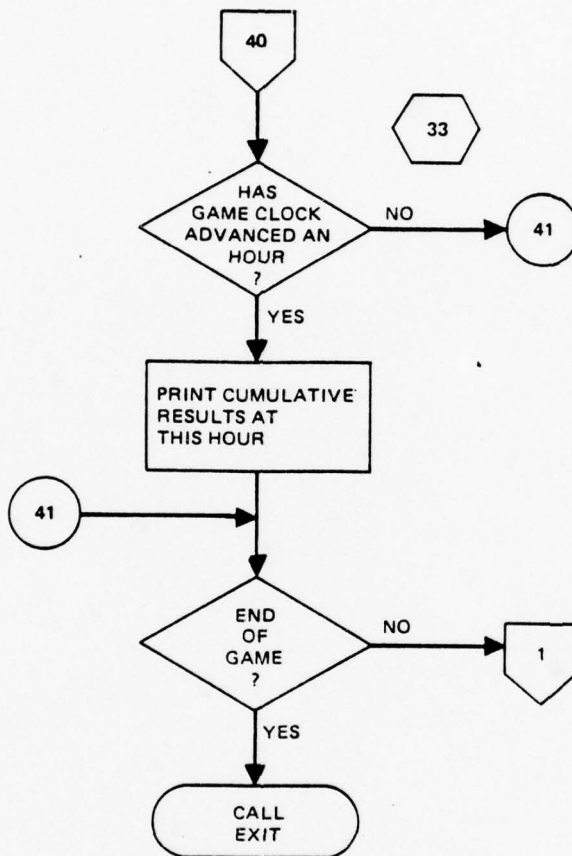


Figure 2-1. Conceptual Flowchart, AFSM Program (Page 10 of 10)

## 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 $i^{\text{th}}$ Red battalion
SURVBN(9,I)	F8.2	---	Total no. of personnel in $i^{\text{th}}$ Red battalion
SURVBN(10,I)	F8.2	---	Total no. of tanks in $i^{\text{th}}$ Red battalion
SURVBN(11,I)	F8.2	---	Total no. of APCs in $i^{\text{th}}$ Red battalion
SURVBN(12,I)	F8.2	---	Total no. of trucks in $i^{\text{th}}$ Red battalion
SURVBN(13,I)	F8.2	---	Total no. of artillery tubes in $i^{\text{th}}$ Red battalion
SURVBN(14,I)	F8.2	---	Total no. of radars in $i^{\text{th}}$ Red battalion
SURVBN(15,I)	F8.2	---	Total no. of missile launchers in $i^{\text{th}}$ Red battalion
SURVBN(16,I)	F8.2	---	Total no. of companies in $i^{\text{th}}$ 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 $i^{\text{th}}$ individual Red target
SURVNA(9,I)	F8.2	---	Total no. of personnel in $i^{\text{th}}$ Red target
SURVNA(10,I)	F8.2	---	Total no. of tanks in $i^{\text{th}}$ Red target
SURVNA(11,I)	F8.2	---	Total no. of APCs in $i^{\text{th}}$ Red target
SURVNA(12,I)	F8.2	---	Total no. of trucks in $i^{\text{th}}$ Red target
SURVNA(13,I)	F8.2	---	Total no. of artillery tubes in $i^{\text{th}}$ Red target
SURVNA(14,I)	F8.2	---	Total no. of radars in $i^{\text{th}}$ Red target
SURVNA(15,I)	F8.2	---	Total no. of missile launchers in $i^{\text{th}}$ Red target
SURVNA(16,I)	F8.2	---	Total no. of next lower level subunits in $i^{\text{th}}$ 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 ( $<12.$ 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.

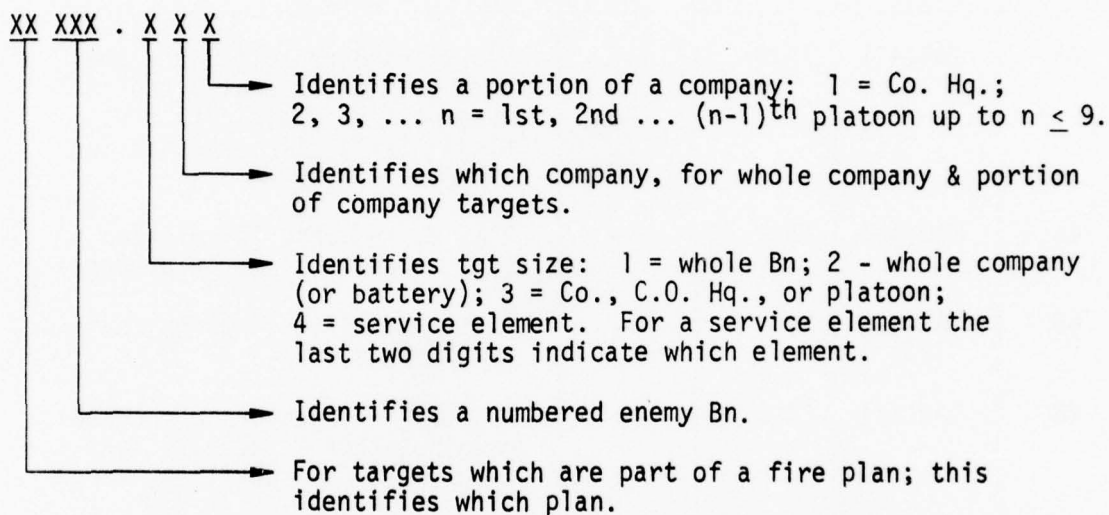
Data Pt.	Parameter	Format	Units	Definition
32	TAR(30)	F4.0	---	Original number of personnel in the target
33	TAR(31)	F4.0	---	Original number of tanks in the target
34	TAR(32)	F4.0	---	Original number of APCs in the target
35	TAR(33)	F4.0	---	Original number of trucks in the target
36	TAR(34)	F4.0	---	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)--Concl'd.

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)--Concl'd.

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)--Concl'd.

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 $j^{\text{th}}$ target in fire plan
2	TFP(2,J)	F4.0	kilometers	$j^{\text{th}}$ target distance from FEBA
3	TFP(3,J)	F4.0	---	$j^{\text{th}}$ target identification code ( $\geq 101.$ and $\leq 112.$ or $\geq 117.$ and $\leq 124.$ )
4	TFP(4,J)	F4.0	---	FDC number to which $j^{\text{th}}$ 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 $j^{\text{th}}$ target
7	TFP(7,J)	F7.2	kilometers	y - coordinate of $j^{\text{th}}$ target
8	TFP(8,J)	F5.0	meters	$j^{\text{th}}$ target location error (CPE)
9	TFP(9,J)	F3.0	---	Estimated posture of $j^{\text{th}}$ target
10	TFP(10,J)	F5.1	---	Estimated fractional portion of $j^{\text{th}}$ target in open environment
11	TFP(11,J)	F5.1	---	Estimated fractional portion of $j^{\text{th}}$ target in wooded environment
12	TFP(12,J)	F5.1	---	Estimated fractional portion of $j^{\text{th}}$ target in town environment
13	TFP(13,J)	F5.1	---	Estimated fractional portion of $j^{\text{th}}$ target in grassy environment
14	TFP(14,J)	F5.0	meters	Estimated radius of $j^{\text{th}}$ target
15	TFP(15,J)	F6.0	minutes	Estimated arrival time of $j^{\text{th}}$ 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 $j^{\text{th}}$ target from sensed position
17	TFP(17,J)	F7.2	---	Estimated military worth of $j^{\text{th}}$ target
18	TFP(18,J)	F3.0	---	Actual posture of $j^{\text{th}}$ target
19	TFP(19,J)	F5.1	---	Actual fractional portion of $j^{\text{th}}$ target in open environment
20	TFP(20,J)	F5.1	---	Actual fractional portion of $j^{\text{th}}$ target in wooded environment
21	TFP(21,J)	F5.1	---	Actual fractional portion of $j^{\text{th}}$ target in town environment
22	TFP(22,J)	F5.1	---	Actual fractional portion of $j^{\text{th}}$ target in grassy environment
23	TFP(23,J)	A6	meters	Actual radius of $j^{\text{th}}$ target
24	TFP(24,J)	A4	minutes	Actual arrival time of $j^{\text{th}}$ target at sensed position
25	TFP(25,J)	F4.0	minutes	Actual departure time of $j^{\text{th}}$ target from sensed position
26	TFP(26,J)	F5.0	---	Actual military worth of $j^{\text{th}}$ target
27	TFP(27,J)	F5.0	---	Request for additional fire (RFAF) flag against $j^{\text{th}}$ target
28	TFP(28,J)	F7.2	---	FDC number that processes fire mission against $j^{\text{th}}$ 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 $j^{\text{th}}$ target

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

Data Pt.	Parameter	Format	Units	Definition
31	TFP(31,J)	F3.0	---	Original number of tanks in j <sup>th</sup> target
32	TFP(32,J)	F4.0	---	Original number of APCs in j <sup>th</sup> target
33	TFP(33,J)	F4.0	---	Original number of trucks in j <sup>th</sup> target
34	TFP(34,J)	F4.0	---	Original number of artillery tubes in j <sup>th</sup> target
35	TFP(35,J)	F4.0	---	Original number of radars in j <sup>th</sup> target
36	TFP(36,J)	F4.0	---	Original number of missile launchers in j <sup>th</sup> target
37	TFP(37,J)	F4.0	---	j <sup>th</sup> target movement code (= 0., stationary; = 1., moving)
38	TFP(38,J)	F4.0	---	j <sup>th</sup> 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				
ID	A 1 2 3 4 5 6 7 8 9	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
Parameter	Units	Format	Columns	Description													
A	CXID(1)	---	A5	1-5	<p>Alphanumeric information identifying type of mix being played. Used for information only.</p> <p>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.</p>												
B	CXID(2)	---	A5	6-10													
C	CXID(3)	---	A5	11-15													
.	.	.	.	.													
.	.	.	.	.													
.	.	.	.	.													
0	CXID(15)	---	A5	71-75													
P	CXID(16)	---	A5	76-80													

PROGRAM CONTROL FLAGS							Card: 2
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	
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
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
ID	Parameter	Units	Format	Columns
A	CLGPSF(1)	---	F6.1	1-6
B	CLGPSF(2)	---	F6.1	7-12
C	CLGPSF(3)	---	F6.1	13-18
				Description
				Scale factor for computing number of Red tanks killed by CLGP rounds
				Scale factor for computing number of Red APCs killed by CLGP rounds
				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
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
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
										Card: 11a
										Card: 11a
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 $\leq$ 8 km against a towed battery target					
B	COF122(1,2)	kilo-meters <sup>-2</sup>	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)	kilo-meters <sup>-4</sup>	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 $\geq$ 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 $\leq$ 8 km against a self-propelled unarmored battery target					
F	COF122(2,2)	kilo-meters <sup>-2</sup>	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)	kilo-meters <sup>-4</sup>	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					

RED WEAPON SYSTEM/RANGE COEFFICIENTS										Card: 11a
										<del>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</del>
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 $\geq$ 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 $\leq$ 8 km against a self-propelled armored battery target					
J	COF122(3,2)	kilo-meters <sup>-2</sup>	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
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 $\geq 16$ km against a self-propelled armored battery target

Card: 11b

TARGET ENVIRONMENTS, ELEMENTS, AND POSTURES				Card: 12
ID	Parameter	Units	Format	Columns
A	NEV	---	I5	1-5
B	NE	---	I5	6-10
C	NPOST	---	I5	11-15
Description				
Number of target environments in scenario ( $2 \leq NEV \leq 4$ )				
Number of target elements in scenario ( $\leq 9$ )				
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	B		C		D		E		F		G		H		I	
ID	Parameter	Units	Format	Columns	Description											
A	POST(1,J)	---	F8.3	1-8	Fraction of unwarned personnel standing for j <sup>th</sup> posture											
B	POST(2,J)	---	F8.3	9-16	Fraction of unwarned personnel prone for j <sup>th</sup> posture											
C	POST(3,J)	---	F8.3	17-24	Fraction of unwarned personnel crouching for j <sup>th</sup> 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
ID	Parameter	Units	Format	Columns	Description														
I	POST(9,J)	---	F8.3	55-72	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
ID	Parameter	Units	Format	Columns	Description								
A	POST(10,J)	---	F8.3	1-8	Fraction of warned personnel standing for j <sup>th</sup> posture								
B	POST(11,J)	---	F8.3	9-16	Fraction of warned personnel prone for j <sup>th</sup> posture								
C	POST(12,J)	---	F8.3	17-24	Fraction of warned personnel crouching for j <sup>th</sup> 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	<p>POST(I,J) = 1.0 for <math>I \geq 13</math> indicates that element (I-2) is critical element for posture J</p> <p>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.</p>					

Card: 14

NUMBER OF ESTIMATED POSTURES					Card: 15
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
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	
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	B	C	D	E	F	G	H													
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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
ID	Parameter	Units	Format	Columns	Description
A	NFPTM	---	I5	1-5	<p>Number of fire plans on target list (current maximum value of 15)</p> <p>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 IMXFP array on card set 21.</p>

Card: 20

FIRE PLAN TIME DATA										Card: 21a					
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I	J
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 1 2 3 4 5 6 7	B 8 9 10 11 12 13 14 15 16 17	C 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	D 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	E 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	F 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	G 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	H 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	I 71 72 73 74 75 76 77 78 79 80	J 81 82 83 84 85 86 87 88 89 90	
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	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
ID	Parameter	Units	Format	Columns	Description														
J	TMXFP(2,7)	minutes	F8.2	73-80	<p>Time at which fire plan will be force-processed by Division or Corps FDC</p> <p>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.</p>														

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	
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									
ID	Parameter	Units	Format	Columns	E	F	G	H	J
A	TMXFP(1,11)	---	F8.2	1-8					
B	TMXFP(2,11)	minutes	F8.2	9-16					
C	TMXFP(3,11)	minutes	F8.2	17-24					
D	TMXFP(1,12)	---	F8.2	25-32					
E	TMXFP(2,12)	minutes	F8.2	33-40					
F	TMXFP(3,12)	minutes	F8.2	41-48					
G	TMXFP(1,13)	---	F8.2	49-56					
H	TMXFP(2,13)	minutes	F8.2	57-64					
I	TMXFP(3,13)	minutes	F8.2	65-72					

Eleventh fire plan identification number  
 Time at which fire plan will be force-processed  
 by Division or Corps FDC

Time at which fire plan will be force-processed  
 by battalion FDC

Twelfth fire plan identification number  
 Time at which fire plan will be force-processed  
 by Division or Corps FDC

Time at which fire plan will be force-processed  
 by battalion FDC

Thirteenth fire plan identification number  
 Time at which fire plan will be force-processed  
 by Division or Corps FDC

Time at which fire plan will be force-processed  
 by battalion FDC

Card: 21d

FIRE PLAN TIME DATA										Card: 21d								
A 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	B 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		C 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		D 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		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 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60		F 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		G 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		H 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		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		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	
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
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

AD-A071 478

ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY ABERDEEN PROV--ETC F/G 9/2  
ARTILLERY FORCE SIMULATION MODEL USER MANUAL.(U)

JAN 79 R S SANDMEYER  
AMSAA-TR-263

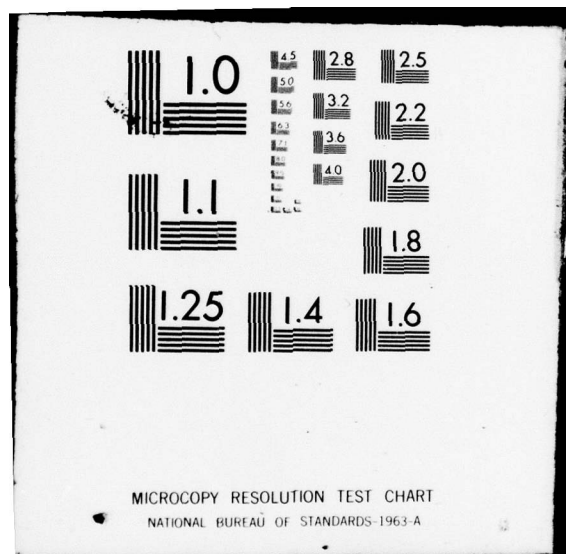
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2 of 4

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NUMBER OF COMMUNICATIONS JAMS				Card: 22	
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			
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 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	K 11	L 12	M 13	N 14	O 15	P 16
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 N-SYS-N systems must be Red.																

WEAPON SYSTEMS SELECTION					Card: 25b
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																			
													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
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					
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I	J
A	SYSID(I)	---	F8.2	1-8	Identification number for $i^{\text{th}}$ system (xx.1 = towed; xx.2 = self-propelled unarmored; xx.3 = self-propelled armored)	1	2	3	4	5	6	7	8	9	10
B	TPFU(I)	---	F8.2	9-16	Number of tubes or launchers per fire unit for $i^{\text{th}}$ system	11	12	13	14	15	16	17	18	19	20
C	SROF(I)	rounds per minute	F8.2	17-24	Static rate of fire per tube for $i^{\text{th}}$ system	21	22	23	24	25	26	27	28	29	30
D	DROF(I)	rounds per minute	F8.2	25-32	Dynamic rate of fire per tube for $i^{\text{th}}$ system	31	32	33	34	35	36	37	38	39	40
E	HNMX(I)	rounds per tube per hour	F8.2	33-40	Maximum number of rounds per tube per hour for $i^{\text{th}}$ system (for Red systems, this is the number of tubes per launcher; i.e., 1 for cannon, 40 for 122-mm MRL, etc.)	41	42	43	44	45	46	47	48	49	50
F	STYP(I)	---	F8.2	41-48	Weapon system type (1.0 = cannon; 2.0 = guided missile; = 3.0, multiple rocket launcher)	51	52	53	54	55	56	57	58	59	60
G	RNGMAX(I)	kilo-meters	F8.2	49-56	Maximum range of $i^{\text{th}}$ system	61	62	63	64	65	66	67	68	69	70
H	AXVOL(I)	---	F8.2	57-64	Maximum number of volleys per mission per battery for $i^{\text{th}}$ system	71	72	73	74	75	76	77	78	79	80

WEAPON SYSTEM DATA										Card: 26b
ID	Parameter	Units	Format	Columns	E	F	G	H	I	J
					Description					
I	TBM(I)	minutes	F8.2	65-72	Time between fire missions for i <sup>th</sup> system					
J	SBLD(I)	---	F8.2	73-80	Number of rounds in basic load per battery for i <sup>th</sup> system.					
<p>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).</p>										

Card: 26b

WEAPON SYSTEM DATA										Card: 26c
ID	Parameter	Units	Format	Columns	Description					
A	SRSPLY(I)	---	F8.2	1-8	Battery resupply rate in rounds per hour for $i^{\text{th}}$ system					
B	FPVOL(I)	---	F8.2	9-16	Maximum number of volleys per battery on a fire plan target for $i^{\text{th}}$ system					
C	FPRAT(I)	---	F8.2	17-24	Ratio of volleys per battery for $i^{\text{th}}$ 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 $i^{\text{th}}$ system					
E	TUBMIN(I)	---	F8.2	33-40	Minimum number of tubes per battery for battery to be considered available for $i^{\text{th}}$ 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	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
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
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
ID	Parameter	Units	Format	Columns	Description					
J	TOTATR(I)	---	F8.3	73-80	<p>Fractional tube damage enemy counterfire (five battalion volleys of a weighted ammo mix) would inflict on a Blue battery having this system</p> <p>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).</p>					

Card: 26d

WEAPON SYSTEM DATA				Card: 26e
ID	Parameter	Units	Format	Columns
A	CBDAMS(I)	---	F8.3	1-8
B	CBDAML(I)	---	F8.3	9-16
C	CBDAMP(I)	---	F8.3	17-24
				Description
				Fraction of TOTATR(I) value that would be short-term tube damage
				Fraction of TOTATR(I) value that would be long-term tube damage
				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
ID	Parameter	Units	Format	Columns	Description
A	NRS	---	I5	1-5	<p>Number of round types to be read from punched cards</p> <p>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.</p>

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												
.	.	.	.	.												
.	.	.	.	.												
.	.	.	.	.												
0	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				
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I
A	RNDID(I)	---	F8.2	1-8	Round caliber ID number for <i>i</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)	1	2	3	4	5	6	7	8	9
B	WGT(I)	metric tons	F8.2	9-16	Crated unit weight for <i>i</i> th round type	10	11	12	13	14	15	16	17	18
C	CST(I)	kilo-dollars	F8.2	17-24	Cost per round in thousands of dollars for <i>i</i> th round type	19	20	21	22	23	24	25	26	27
D	RMX(I)	kilo-meters	F8.2	25-32	Maximum range of <i>i</i> th round type	28	29	30	31	32	33	34	35	36
E	REL(I)	---	F8.2	33-40	In-flight reliability of <i>i</i> th round type	37	38	39	40	41	42	43	44	45
F	RTP(I)	---	F8.2	41-48	Type of round (1.0 = ICM; 2.0 = HE; 3.0 = CLGP)	46	47	48	49	50	51	52	53	54
G	BLD(I)	rounds	F8.2	49-56	Basic load per battery for <i>i</i> th round type	55	56	57	58	59	60	61	62	63
H	RGPY(I)	rounds per hr	F8.2	57-64	Resupply rate per battery for <i>i</i> th round type	64	65	66	67	68	69	70	71	72
I	RDAM(I)	meters	F8.2	65-72	Estimated radius of effects per battery volley for <i>i</i> th round type	73	74	75	76	77	78	79	80	81

Card: 29

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.

ROUND INFORMATION (ICM AND HE TYPES)										Card: 30a					
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I	J
A	RG(I,1)	kilo-meters	F8.2	1-8	First range value for range versus error and EFC tables for ith round type	1	2	3	4	5	6	7	8	9	10
B	RG(I,2)	kilo-meters	F8.2	9-16	Second range value for range versus error and EFC tables for ith round type	11	12	13	14	15	16	17	18	19	20
C	RG(I,3)	kilo-meters	F8.2	17-24	Third range value for range versus error and EFC tables for ith round type	21	22	23	24	25	26	27	28	29	30
D	RG(I,4)	kilo-meters	F8.2	25-32	Fourth range value for range versus error and EFC tables for ith round type	31	32	33	34	35	36	37	38	39	40
E	RG(I,5)	kilo-meters	F8.2	33-40	Fifth range value for range versus error and EFC tables for ith round type	41	42	43	44	45	46	47	48	49	50
F	RG(I,6)	kilo-meters	F8.2	41-48	Sixth range value for range versus error and EFC tables for ith round type	51	52	53	54	55	56	57	58	59	60
G	RG(I,7)	kilo-meters	F8.2	49-56	Seventh range value for range versus error and EFC tables for ith round type	61	62	63	64	65	66	67	68	69	70
H	RG(I,8)	kilo-meters	F8.2	57-64	Eighth range value for range versus error and EFC tables for ith round type	71	72	73	74	75	76	77	78	79	80
I	RG(I,9)	kilo-meters	F8.2	65-72	Ninth range value for range versus error and EFC tables for ith round type	81	82	83	84	85	86	87	88	89	90

Card: 30a

ROUND INFORMATION (ICM AND HE TYPES)										Card: 30a
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16 17 18 19	C 20 21 22 23 24 25 26 27 28 29 30	D 31 32 33 34 35 36 37 38 39 40	E 41 42 43 44 45 46 47 48 49 50	F 51 52 53 54 55 56 57 58 59 60	G 61 62 63 64 65 66 67 68 69 70	H 71 72 73 74 75 76 77 78 79 80	I 81 82 83 84 85 86 87 88 89 90	J 91 92 93 94 95 96 97 98 99 100
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 ith round type					
<p>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.</p>										

Card: 30a

ROUND INFORMATION (ICM AND HE TYPES)										Card: 30b					
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I	J
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.

ROUND INFORMATION (ICM AND HE TYPES)										Card: 30C					
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I	J
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										

Card: 30c

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.

ROUND INFORMATION (ICM AND HE TYPES)										Card: 30d
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 <sup>2</sup>	F8.2	1-8	Lethal area per round versus standing personnel target at first range value in an open environment					
B	AL(2)	meters <sup>2</sup>	F8.2	9-16	Lethal area per round versus standing personnel target at second range value in an open environment					
C	AL(3)	meters <sup>2</sup>	F8.2	17-24	Lethal area per round versus standing personnel target at third range value in an open environment					
D	AL(4)	meters <sup>2</sup>	F8.2	25-32	Lethal area per round versus standing personnel target at fourth range value in an open environment					
E	AL(5)	meters <sup>2</sup>	F8.2	33-40	Lethal area per round versus standing personnel target at fifth range value in an open environment					
F	AL(6)	meters <sup>2</sup>	F8.2	41-48	Lethal area per round versus standing personnel target at sixth range value in an open environment					
G	AL(7)	meters <sup>2</sup>	F8.2	49-56	Lethal area per round versus standing personnel target at seventh range value in an open environment					
H	AL(8)	meters <sup>2</sup>	F8.2	57-64	Lethal area per round versus standing personnel target at eighth range value in an open environment					
I	AL(9)	meters <sup>2</sup>	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)										
ID	Parameter		Units	Format	Columns	E	F	G	H	Description
	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	A B								
J	AL(10)		meters <sup>2</sup>	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 depends on the value. The number of cards 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)  
 -- Concl'd.

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
ID	Parameter	Units	Format	Columns	Description		
A	SRE	meters per kilo- meters	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	SR0	---	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
										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	AL(1)	meters <sup>2</sup>	F8.2	1-8	Lethal area per submissile for standing personnel target in an open environment					
B	AL(2)	meters <sup>2</sup>	F8.2	9-16	Lethal area per submissile for prone personnel target in an open environment					
C	AL(3)	meters <sup>2</sup>	F8.2	17-24	Lethal area per submissile for crouching personnel target in an open environment					
D	AL(4)	meters <sup>2</sup>	F8.2	25-32	Lethal area per submissile for tank target in an open environment					
E	AL(5)	meters <sup>2</sup>	F8.2	33-40	Lethal area per submissile for APC target in an open environment					
F	AL(6)	meters <sup>2</sup>	F8.2	41-48	Lethal area per submissile for truck target in an open environment					
G	AL(7)	meters <sup>2</sup>	F8.2	49-56	Lethal area per submissile for artillery tube target in an open environment					
H	AL(8)	meters <sup>2</sup>	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
	A 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	B	C	D	E	F	G	H	I	
ID	Parameter	Units	Format	Columns	Description					
I	AL(9)	meters <sup>2</sup>	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	B	C	D	E	F	G	H	I
A	AL(10)	meters <sup>2</sup>	F8.2	1-8	Lethal area per submissile for standing personnel target in wooded environment									
B	AL(11)	meters <sup>2</sup>	F8.2	9-16	Lethal area per submissile for prone personnel target in wooded environment									
C	AL(12)	meters <sup>2</sup>	F8.2	17-24	Lethal area per submissile for crouching personnel target in wooded environment									
D	AL(13)	meters <sup>2</sup>	F8.2	25-32	Lethal area per submissile for tank target in wooded environment									
E	AL(14)	meters <sup>2</sup>	F8.2	33-40	Lethal area per submissile for APC target in wooded environment									
F	AL(15)	meters <sup>2</sup>	F8.2	41-48	Lethal area per submissile for truck target in wooded environment									
G	AL(16)	meters <sup>2</sup>	F8.2	49-56	Lethal area per submissile for artillery tube target in wooded environment									
H	AL(17)	meters <sup>2</sup>	F8.2	57-64	Lethal area per submissile for radar target in wooded environment									

Card: 34

ICM LETHAL AREAS IN WOODED ENVIRONMENT										Card: 34	
A 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	B	C	D	E	F	G	H	I	Description		
ID	Parameter	Units	Format	Columns	Description						
I	AL(18)	meters <sup>2</sup>	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 ≥ 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

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

Card: 35

ICM LETHAL AREAS IN TOWN ENVIRONMENT										Card: 35
	A 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	B	C	D	E	F	G	H	I	
ID	Parameter	Units	Format	Columns	Description					
I	AL(27)	meters <sup>2</sup>	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 ≥ 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 <sup>2</sup>	F8.2	1-8	Lethal area per submissile for standing personnel target in grassy environment					
B	AL(29)	meters <sup>2</sup>	F8.2	9-16	Lethal area per submissile for prone personnel target in grassy environment					
C	AL(30)	meters <sup>2</sup>	F8.2	17-24	Lethal area per submissile for crouching personnel target in grassy environment					
D	AL(31)	meters <sup>2</sup>	F8.2	25-32	Lethal area per submissile for tank target in grassy environment					
E	AL(32)	meters <sup>2</sup>	F8.2	33-40	Lethal area per submissile for APC target in grassy environment					
F	AL(33)	meters <sup>2</sup>	F8.2	41-48	Lethal area per submissile for truck target in grassy environment					
G	AL(34)	meters <sup>2</sup>	F8.2	49-56	Lethal area per submissile for artillery tube target in grassy environment					
H	AL(35)	meters <sup>2</sup>	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																				
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
ID	Parameter	Units	Format	Columns	Description																														
I	AL(36)	meters <sup>2</sup>	F8.2	65-72	<p>Lethal area per submissile for missile launcher target in grassy environment</p> <p>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.</p>																														

Card: 36

NUMBER OF INTERPOLATION POINTS FOR CLGP ROUND					Card: 37
ID	Parameter	Units	Format	Columns	Description
A	NIP	---	I5	1-5	<p>Number of interpolation points for CLGP data (current maximum value of 15)</p> <p>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.</p>

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 ( $j^{\text{th}}$ interpolation point)
B	XNRF(J)	---	F8.2	9-16	Number of CLGP's fired within time available interval based on 2 tubes ( $j^{\text{th}}$ interpolation point)
C	VK1(J)	---	F8.2	17-24	Number of tanks destroyed within time available interval ( $j^{\text{th}}$ interpolation point)
D	VK2(J)	---	F8.2	25-32	Number of APCs destroyed within time available interval ( $j^{\text{th}}$ interpolation point)
E	VK3(J)	---	F8.2	33-40	Number of trucks destroyed within time available interval ( $j^{\text{th}}$ 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
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 ith round type					
B	RG(I,2)	kilo-meters	F8.2	9-16	Second range value for range versus EFC table for ith round type					
C	RG(I,3)	kilo-meters	F8.2	17-24	Third range value for range versus EFC table for ith round type					
D	RG(I,4)	kilo-meters	F8.2	25-32	Fourth range value for range versus EFC table for ith round type					
E	RG(I,5)	kilo-meters	F8.2	33-40	Fifth range value for range versus EFC table for ith round type					
F	RG(I,6)	kilo-meters	F8.2	41-48	Sixth range value for range versus EFC table for ith round type					
G	RG(I,7)	kilo-meters	F8.2	49-56	Seventh range value for range versus EFC table for ith round type					
H	RG(I,8)	kilo-meters	F8.2	57-64	Eighth range value for range versus EFC table for ith 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 ith round type					
J	RG(I,10)	kilo- meters	F8.2	73-80	Tenth range value for range versus EFC table for ith round type					
<p>NOTE: A Card of this type must follow a set of type 38 cards whenever a CLGP round is specified on card type 29.</p>										

Card: 39

EQUIVALENT FULL CHARGE VALUE AT EACH RANGE VALUE (CLGP)										Card: 40	
										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						Card: 40
A	CHG(I,1)	---	F8.2	1-8	Equivalent full charge value at first range value for ith round type						
B	CHG(I,2)	---	F8.2	9-16	Equivalent full charge value at second range value for ith round type						
C	CHG(I,3)	---	F8.2	17-24	Equivalent full charge value at third range value for ith round type						
D	CHG(I,4)	---	F8.2	25-32	Equivalent full charge value at fourth range value for ith round type						
E	CHG(I,5)	---	F8.2	33-40	Equivalent full charge value at fifth range value for ith round type						
F	CHG(I,6)	---	F8.2	41-48	Equivalent full charge value at sixth range value for ith round type						
G	CHG(I,7)	---	F8.2	49-56	Equivalent full charge value at seventh range value for ith round type						
H	CHG(I,8)	---	F8.2	57-64	Equivalent full charge value at eighth range value for ith round type						

EQUIVALENT FULL CHARGE VALUE AT EACH RANGE VALUE (CLGP)													Card: 40
	A	B	C	D	E	F	G	H	I	J			
ID	Parameter	Units	Format	Columns	Description								
I	CHG(I,9)	---	F8.2	65-72	Equivalent full charge value at ninth range value for ith round type								
J	CHG(I,10)	---	F8.2	73-80	Equivalent full charge value at tenth range value for ith 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
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
ID	Parameter	Units	Format	Columns	Description								
A	NSITEF(1)	---	I5	1-5	Number of emplacements for ith FDC ( $\leq 10$ )								
B	NB	---	I5	6-10	Number of batteries assigned to ith FDC ( $\leq 6$ )								
C	BNXID(1)	---	A5	11-15	} Alphanumeric description of ith FDC								
D	BNXID(2)	---	A5	16-20									
.	.	.	.	.									
.	.	.	.	.									
0	BNXID(13)	---	A5	71-75	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.								
P	BNXID(14)	---	A5	76-80									

Card: 42

FDC EMPACEMENT DATA (GROUP OR DIVISION)					Card: 43
ID	Parameter	Units	Format	Columns	Description
A	TAF(J,I)	minutes	F8.2	1-8	Arrival time at j <sup>th</sup> emplacement of i <sup>th</sup> FDC
B	TDF(J,I)	minutes	F8.2	9-16	Departure time from j <sup>th</sup> emplacement of i <sup>th</sup> FDC
C	XSF(J,I)	kilo- meters	F8.2	17-24	x-coordinate of j <sup>th</sup> emplacement of i <sup>th</sup> FPC
D	YSF(J,I)	kilo- meters	F8.2	25-32	y-coordinate of j <sup>th</sup> emplacement of i <sup>th</sup> 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(1)	---	I5	1-5	Number of emplacements for 1th friendly battery								
B	BNXID(1)	---	I5	6-10	Must be left blank								
C	BNXID(2)	---	A5	11-15	Alphanumeric description of 1th 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
<small>           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         </small>				
ID	Parameter	Units	Format	Columns
A	BRYID(I)	---	F8.2	1-8
Identification number of ith 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 EMPACEMENT DATA					Card: 46
ID	Parameter	Units	Format	Columns	Description
A	TA(J,I)	minutes	F8.2	1-8	Time of arrival at jth emplacement of ith Blue battery
B	TD(J,I)	minutes	F8.2	9-16	Time of departure from jth emplacement for ith Blue battery
C	XS(J,I)	kilo-meters	F8.2	17-24	x-coordinate of jth emplacement for ith Blue battery
D	YS(J,I)	kilo-meters	F8.2	25-32	y-coordinate of jth emplacement for ith Blue battery
E	DEPTH(J,I)	kilo-meters	F8.2	33-40	Distance from FEBA of jth emplacement for ith 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 <sup>th</sup> posture in an open environment	
C	NRW(J)	---	I5	11-15	Number of round types allowed for j <sup>th</sup> posture in a wooded environment	
D	NRT(J)	---	I5	16-20	Number of round types allowed for j <sup>th</sup> posture in a town environment (=0 if NEV <3)	
E	NRG(J)	---	I5	21-25	Number of round types allowed for j <sup>th</sup> posture in a grassy environment (=0 if NEV = 3)	
<p>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.</p>						Card: 47

ROUND IDS FOR J <sup>th</sup> POSTURE FOR AN OPEN ENVIRONMENT										Card: 48
ID	Parameter	Units	Format	Columns	Description					
A	ORVM(1,J)	---	F8.2	1-8	First round ID for an open environment for j <sup>th</sup> posture					
B	ORVM(2,J)	---	F8.2	9-16	Second round ID for an open environment for j <sup>th</sup> posture					
C	ORVM(3,J)	---	F8.2	17-24	Third round ID for an open environment for j <sup>th</sup> posture					
D	ORVM(4,J)	---	F8.2	25-32	Fourth round ID for an open environment for j <sup>th</sup> posture					
E	ORVM(5,J)	---	F8.2	33-40	Fifth round ID for an open environment for j <sup>th</sup> posture					
F	ORVM(6,J)	---	F8.2	41-48	Sixth round ID for an open environment for j <sup>th</sup> posture					
G	ORVM(7,J)	---	F8.2	49-56	Seventh round ID for an open environment for j <sup>th</sup> posture					
H	ORVM(8,J)	---	F8.2	57-64	Eighth round ID for an open environment for j <sup>th</sup> posture					

Card: 48

ROUND IDS FOR J <sup>th</sup> POSTURE FOR AN OPEN ENVIRONMENT													Card: 48
ID	Parameter	Units	Format	Columns	Description								
I	ORVM(9,J)	---	F8.2	65-72	Ninth round ID for an open environment for j <sup>th</sup> posture								
J	ORVM(10,J)	---	F8.2	73-80	Tenth round ID for an open environment for j <sup>th</sup> posture								
<p>NOTE: 10 &lt; NR0(J) ≤ 20, one additional card required;            20 &lt; NR0(J) ≤ 30, two additional cards required;            30 &lt; NR0(J) ≤ 40, three additional cards required;            40 &lt; NR0(J) ≤ 45, four additional cards required.</p> <p>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.</p>													

Card: 48

ROUND IDS FOR J <sup>th</sup> POSTURE FOR A WOODED ENVIRONMENT													Card: 49
	A	B	C	D	E	F	G	H	I	J			
	1	2	3	4	5	6	7	8	9	10	11	12	
ID	Parameter	Units	Format	Columns	Description								
A	WRVM(1,J)	---	F8.2	1-8	First round ID for a wooded environment for j <sup>th</sup> posture								
B	WRVM(2,J)	---	F8.2	9-16	Second round ID for a wooded environment for j <sup>th</sup> posture								
.	.	.	.	.	.								
.	.	.	.	.	.								
.	.	.	.	.	.								
I	WRVM(9,J)	---	F8.2	65-72	Ninth round ID for a wooded environment for j <sup>th</sup> posture								

Card: 49

ROUND IDS FOR J <sup>th</sup> POSTURE FOR A WOODED ENVIRONMENT										Card: 49
ID	Parameter	Units	Format	Columns	Description					
J	WRVM(10,J)	---	F8.2	73-80	<p>Tenth round ID for a wooded environment for j<sup>th</sup> posture</p> <p>NOTE: 10 &lt; NRW(J) ≤ 20, one additional card required;            20 &lt; NRW(J) ≤ 30, two additional cards required;            30 &lt; NRW(J) ≤ 40, three additional cards required;            40 &lt; NRW(J) ≤ 45, four additional cards required.</p> <p>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.</p>					

Card: 49

ROUND IDS FOR J <sup>th</sup> POSTURE FOR A TOWN ENVIRONMENT										Card: 50
	A	B	C	D	E	F	G	H	I	J
ID	Parameter	Units	Format	Columns						
A	TRVM(1,J)	---	F8.2	1-8						
B	TRVM(2,J)	---	F8.2	9-16						
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.	.	.	.	.						
.	.	.	.	.						
I	TRVM(9,J)	---	F8.2	65-72						
Description										
First round ID for a town environment for j <sup>th</sup> posture										
Second round ID for a town environment for j <sup>th</sup> posture										
Ninth round ID for a town environment for j <sup>th</sup> posture										

Card: 50

ROUND IDS FOR J <sup>th</sup> 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 17	C 18 19 20 21 22 23 24 25 26 27	D 28 29 30 31 32 33 34 35 36 37	E 38 39 40 41 42 43 44 45 46 47	F 48 49 50 51 52 53 54 55 56 57	G 58 59 60 61 62 63 64 65 66 67	H 68 69 70 71 72 73 74 75 76 77	I 78 79 80 81 82 83 84 85 86 87	J 88 89 90 91 92 93 94 95 96 97
ID	Parameter	Units	Format	Columns	Description					
J	TRVM(10,J)	---	F8.2	73-80	Tenth round ID for a town environment for j <sup>th</sup> posture					
<p>NOTE: 10 &lt; NRT(J) ≤ 20, one additional card required;  20 &lt; NRT(J) ≤ 30, two additional cards required;  30 &lt; NRT(J) ≤ 40, three additional cards required;  40 &lt; NRT(J) ≤ 45, four additional cards required.</p> <p>Ten sets of this type card are required, one for each posture type, only if NEV ≥ 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.</p>										

Card: 50 Contd.

ROUND IDS FOR J <sup>th</sup> 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 <sup>th</sup> posture					
B	GRVM(2,J)	---	F8.2	9-16	Second round ID for a grassy environment for j <sup>th</sup> posture					
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.	.	.	.	.	.					
.	.	.	.	.	.					
I	GRVM(9,J)	---	F8.2	65-72	Ninth round ID for a grassy environment for j <sup>th</sup> posture					

Card: 51

ROUND IDS FOR J <sup>th</sup> POSTURE FOR A GRASSY ENVIRONMENT											Card: 51									
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	
ID	Parameter	Units	Format	Columns	Description															
J	GRVM(10,J)	---	F8.2	73-80	Tenth round ID for a grassy environment for j <sup>th</sup> posture															
NOTE:						<p>10 &lt; NRG(J) ≤ 20, one additional card required;</p> <p>20 &lt; NRG(J) ≤ 30, two additional cards required;</p> <p>30 &lt; NRG(J) ≤ 40, three additional cards required;</p> <p>40 &lt; NRG(J) ≤ 45, four additional cards required;</p> <p>Ten sets of this type card are required, one for each posture type, only when NEV = 4.</p> <p>The first card of each set of this type must be preceded by the last card of a type 50 set.</p> <p>For personnel postures, a single card with any round ID will suffice.</p>														

Card: 51

SCENARIO 3 BOUNDARY X-COORDINATES										Card: 52
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						
A	B		C		D		E		F		G		H		I	
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	A 1 2 3 4 5 6 7	B 8 9 10 11 12 13 14 15 16 17	C 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	D 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	E	F	G	H	I	J
		Description									
A	A(1,J)	x-coordinate of first end point of j <sup>th</sup> FEBA trace									
B	B(1,J)	y-coordinate of first end point of j <sup>th</sup> FEBA trace									
C	A(2,J)	x-coordinate of second end point of j <sup>th</sup> FEBA trace									
D	B(2,J)	y-coordinate of second end point of j <sup>th</sup> FEBA trace									
E	A(3,J)	x-coordinate of third end point of j <sup>th</sup> FEBA trace									
F	B(3,J)	y-coordinate of third end point of j <sup>th</sup> FEBA trace									
G	A(4,J)	x-coordinate of fourth end point of j <sup>th</sup> FEBA trace									
H	B(4,J)	y-coordinate of fourth end point of j <sup>th</sup> FEBA trace									
I	A(5,J)	x-coordinate of fifth end point of j <sup>th</sup> FEBA trace									
J	B(5,J)	y-coordinate of fifth end point of j <sup>th</sup> 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.

TIME OF FEBA TRACE										Card: 56
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		
ID	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
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 GRS batteries allowed to mass fire on any one fire mission										

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	
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
ID	Parameter	Units	Format	Columns	Description											
0	FU0D(15)	---	F5.0	71-75	Priority of battery of battalion											
P	FU0D(16)	---	F5.0	76-80	Priority of battery of battalion											
<p>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.</p> <p>NOTE 2: FU0D(N) is priority of Jth battery of battalion K where:</p> $N = J + \sum_{I=1}^{K-1} \text{NBAT}(I, I)$ <p>NBAT(I, I) = number of batteries in Ith battalion (<math>1 \leq \text{NBAT}(I, I) \leq 6</math>)</p>						Card: 58a										

BATTERY PRIORITY VALUES													Card: 58b		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
ID	Parameter	Units	Format	Columns	Description										
A	FU0D(17)	---	F5.0	1-5	Priority of battery of battalion										
B	FU0D(18)	---	F5.0	6-10	Priority of battery of battalion										
C	FU0D(19)	---	F5.0	11-15	Priority of battery of battalion										
D	FU0D(20)	---	F5.0	16-20	Priority of battery of battalion										
E	FU0D(21)	---	F5.0	21-25	Priority of battery of battalion										
F	FU0D(22)	---	F5.0	26-30	Priority of battery of battalion										
G	FU0D(23)	---	F5.0	31-35	Priority of battery of battalion										
H	FU0D(24)	---	F5.0	36-40	Priority of battery of battalion										
I	FU0D(25)	---	F5.0	41-45	Priority of battery of battalion										
J	FU0D(26)	---	F5.0	46-50	Priority of battery of battalion										
K	FU0D(27)	---	F5.0	51-55	Priority of battery of battalion										
L	FU0D(28)	---	F5.0	56-60	Priority of battery of battalion										
M	FU0D(29)	---	F5.0	61-65	Priority of battery of battalion										
N	FU0D(30)	---	F5.0	66-70	Priority of battery of battalion										

Card: 58b

BATTERY PRIORITY VALUES																Card: 58b
																Card: 58b
																Card: 58b
ID	Parameter	Units	Format	Columns	Description											
0	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.																

BATTERY PRIORITY VALUES													Card: 58c								
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	FU0D(33)	---	F5.0	1-5	Priority of battery of battalion																
B	FU0D(34)	---	F5.0	6-10	Priority of battery of battalion																
	:	:	:	:	:																
	:	:	:	:	:																
	:	:	:	:	:																
P	FU0D(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
												Card: 59
ID	Parameter	Units	Format	Columns	Description							
A	FD(1,1)	---	F5.0	1-5	Placement number of FDC laterally backing up Division FDC							
B	FD(1,2)	---	F5.0	6-10	Placement number of FDC laterally backing up Group FDC							
C	FD(1,3)	---	F5.0	11-15	Placement number of FDC laterally backing up first battalion FDC							
D	FD(1,4)	---	F5.0	16-20	Placement number of FDC laterally backing up second battalion FDC							
E	FD(1,5)	---	F5.0	21-25	Placement number of FDC laterally backing up third battalion FDC							
F	FD(1,6)	---	F5.0	26-30	Placement number of FDC laterally backing up fourth battalion FDC							
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.	.	.	.	.	.							
L	FD(1,12)	---	F5.0	56-60	Placement number of FDC laterally backing up tenth battalion FDC							

LATERAL BACKUP OF FDCS											Card: 59	
A	B	C	D	E	F	G	H	I	J	K	L	M
1	2	3	4	5	6	7	8	9	10	11	12	13
ID	Parameter	Units	Format	Columns	Description							
M	FDCD(1,13)	---	F5.0	61-65	<p>Placement number of FDC laterally backing up eleventh battalion FDC</p> <p>NOTE: This card follows a 58a, 58b, or 58c card as indicated. It is always followed by a type 60 card.</p>							

Card: 59

REINFORCING FDCS													Card: 60
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								
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.	.	.	.	.	.								
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								

Card: 60

NOTE: This card is always preceded by card type 59 and followed by card type 61.

GENERAL SUPPORT REINFORCING FDCS														Card: 61	
ID	Parameter	Units	Format	Columns	Description										
						A	B	C	D	E	F	G	H	I	J
<small>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</small>															
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										
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.	.	.	.	.	.										
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										

Card: 61

NOTE: This card is always preceded by card type 60 and followed by card type 62.

FIRE PLAN ASSIGNMENT OF FDCA													Card: 62
	A	B	C	D	E	F	G	H	I	J	K	L	M
	1	2	3	4	5	6	7	8	9	10	11	12	13
ID	Parameter	Units	Format	Columns	Description								
A	FDCA(4,1)	---	F5.0	1-5	Fire plan assignment of Division FDC to Division or Group								
B	FDCA(4,2)	---	F5.0	6-10	Fire plan assignment of Group FDC to Division or Group								
C	FDCA(4,3)	---	F5.0	11-15	Fire plan assignment of first battalion FDC to Division or Group								
D	FDCA(4,4)	---	F5.0	16-20	Fire plan assignment of second battalion FDC to Division or Group								
E	FDCA(4,5)	---	F5.0	21-25	Fire plan assignment of third battalion FDC to Division or Group								
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L	FDCA(4,12)	---	F5.0	56-60	Fire plan assignment of tenth battalion FDC to Division or Group								
M	FDCA(4,13)	---	F5.0	61-65	Fire plan assignment of eleventh battalion FDC to Division or Group								

Card: 62

(=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.

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					
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.	.	.	.	.	.					
.	.	.	.	.	.					
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 Division; =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								
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.	.	.	.	.	.								
.	.	.	.	.	.								
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								

Card: 64

(=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.



T/F UP TO T/F UP TRANSMISSION TIME DATA											Card: 65a
A	B	C	D	E	F	G	H	I	J	K	
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											<input checked="" type="checkbox"/>
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
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	A 1 2 3 4 5 6 7	B 8 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	D 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	E 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	F 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120	G 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140	H 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160	I 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180	J 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200	K 201 202 203 204 205 206 207 208 209 210
Parameter	Units	Format	Columns	Description							
A TIM(1,2,1)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for M/F up to T/F up computers</p>							
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								

Card: 66a

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

M/F UP TO T/F UP TRANSMISSION TIME DATA													Card: 66b
	L	M	N	O	P	Q	R	S	T	U			
ID	Parameter	Units	Format	Columns	Description								
L	TIM(12,2,1)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F up to T/F up computers</p>								
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	<p>Same type of data as entered on card 65a, except data are for T/F down to T/F up computers</p>						
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							

Card: 67a

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

T/F DOWN TO T/F UP TRANSMISSION TIME DATA													Card: 67b
	L	M	N	O	P	Q	R	S	T	U			
ID	Parameter	Units	Format	Columns	Description								
L	TIM(12,3,1)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for T/F down to T/F up computers</p>								
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.

M/F DOWN TO T/F UP TRANSMISSION TIME DATA													Card: 68a					
ID	Parameter	Units	Format	Columns	Description	A	B	C	D	E	F	G	H	I	J	K		
A	TIM(1,4,1)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for M/F down to T/F up computers</p>	1	2	3	4	5	6	7	8	9	10	11	12	
B	TIM(2,4,1)	minutes	F7.2	8-14		13	14	15	16	17	18	19	20	21	22	23	24	25
C	TIM(3,4,1)	minutes	F7.2	15-21		26	27	28	29	30	31	32	33	34	35	36	37	38
D	TIM(4,4,1)	minutes	F7.2	22-28		39	40	41	42	43	44	45	46	47	48	49	50	51
E	TIM(5,4,1)	minutes	F7.2	29-35		52	53	54	55	56	57	58	59	60	61	62	63	64
F	TIM(6,4,1)	minutes	F7.2	36-42		65	66	67	68	69	70	71	72	73	74	75	76	77
G	TIM(7,4,1)	minutes	F7.2	43-49		78	79	80	81	82	83	84	85	86	87	88	89	90
H	TIM(8,4,1)	minutes	F7.2	50-56		91	92	93	94	95	96	97	98	99	00	01	02	03
I	TIM(9,4,1)	minutes	F7.2	57-63		04	05	06	07	08	09	10	11	12	13	14	15	16
J	TIM(10,4,1)	minutes	F7.2	64-70		17	18	19	20	21	22	23	24	25	26	27	28	29
K	TIM(11,4,1)	minutes	F7.2	71-77		30	31	32	33	34	35	36	37	38	39	40	41	42

Card: 68a

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

M/F DOWN TO T/F UP TRANSMISSION TIME DATA													Card: 68b
	L	M	N	O	P	Q	R	S	T	U			
	1	2	3	4	5	6	7	8	9	10	11	12	
ID	Parameter	Units	Format	Columns	Description								
L	TIM(12,4,1)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F down to T/F up computers</p>								
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	A 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	B	C	D	E	F	G	H	I	J	K	Card: 69a
Parameter	Units	Format	Columns	Description								
A	TIM(1,1,2)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a except data are for T/F up to M/F up computers</p>							
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.

T/F UP TO M/F UP TRANSMISSION TIME DATA										Card: 69b
	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 71 72 73 74 75 76 77 78 79 80								
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						

Card: 69b

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

M/F UP TO M/F UP TRANSMISSION TIME DATA													Card: 70a											
													F	G	H	I	J	K						
													1	2	3	4	5	6	7	8	9	10	11	12
ID	Parameter	Units	Format	Columns	Description																			
A	TIM(1,2,2)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for M/F up to M/F up computers</p>																			
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																				

Card: 70a

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

M/F UP TO M/F UP TRANSMISSION TIME DATA												Card: 70b
	L	M	N	O	P	Q	R	S	T	U		
ID	Parameter	Units	Format	Columns	Description							
L	TIM(12,2,2)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F up to M/F up computers</p>							
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	<p>Same type of data as entered on card 65a, except data are for T/F down to M/F up computers</p>								
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									

Card: 71a

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

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	<p>Same type of data as entered on card 65b, except data are for T/F down to M/F up computers</p>								
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	
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16 17	C 18 19 20 21 22 23 24 25 26	D 27 28 29 30 31 32 33 34 35	E 36 37 38 39 40 41 42 43 44	F 45 46 47 48 49 50 51 52 53	G 54 55 56 57 58 59 60 61 62	H 63 64 65 66 67 68 69 70 71	I 72 73 74 75 76 77 78 79 80	J 81 82 83 84 85 86 87 88 89	K 90 91 92 93 94 95 96 97 98	Card: 72a
ID	Parameter	Units	Format	Columns	Description							
A	TIM(1,4,2)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for M/F down to M/F up computers</p>							
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.

M/F DOWN TO M/F UP TRANSMISSION TIME DATA													Card: 72b
	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, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80									
ID	Parameter	Units	Format	Columns	Description								
L	TIM(12,4,2)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F down to M/F up computers</p>								
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									

Card: 72b

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

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	<p>Same type of data as entered on card 65a, except data are for T/F up to T/F down computers</p>						
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							

Card: 73a

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

T/F UP TO T/F DOWN TRANSMISSION TIME DATA													Card: 73b
	L	M	N	O	P	Q	R	S	T	U			
ID	Parameter	Units	Format	Columns	Description								
L	TIM(12,1,3)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for T/F up to T/F down computers</p>								
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

AD-A071 478

ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY ABERDEEN PROV--ETC F/G 9/2  
ARTILLERY FORCE SIMULATION MODEL USER MANUAL.(U)

JAN 79 R S SANDMEYER

N00123-76-C-0960

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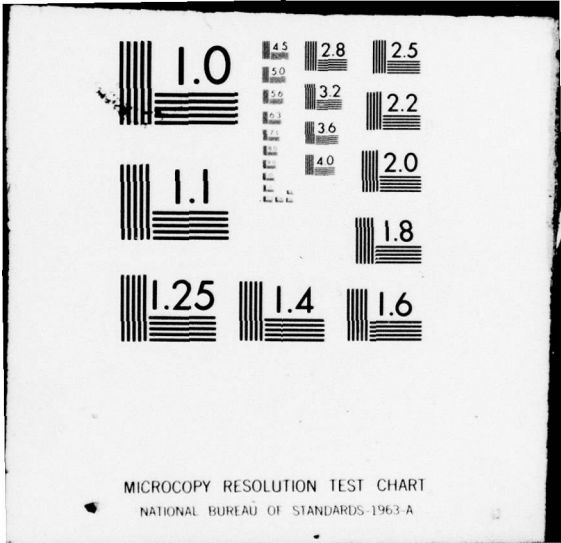
AMSAA-TR-263

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M/F UP TO T/F DOWN TRANSMISSION TIME DATA											Card: 74a
	A 1 2 3 4 5 6 7 8	B 9 10 11 12 13 14 15 16 17 18 19	C 20 21 22 23 24 25 26 27 28 29 30 31 32	D 33 34 35 36 37 38 39 40 41 42 43 44 45	E 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	F	G	H	I	J	K
ID	Parameter	Units	Format	Columns	Description						
A	TIM(1,2,3)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for M/F up to T/F down computers</p>						
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							

Card: 74a

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

M/F UP TO T/F DOWN TRANSMISSION TIME DATA										Card: 74b
	L 1, 2, 3, 4, 5, 6, 7	M 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	N 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	O 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	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	Q 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	R 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	S 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	T 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	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, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80
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
	A 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	B	C	D	E	F	G	H	I	J	K		
ID	Parameter	Units	Format	Columns	Description								
A	TIM(1,3,3)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for T/F down to T/F down computers</p>								
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									

Card: 75a

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

T/F DOWN TO T/F DOWN TRANSMISSION TIME DATA													Card: 75b
	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 71 72 73 74 75 76 77 78 79 80							
ID	Parameter	Units	Format	Columns	Description								
L	TIM(12,3,3)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for T/F down to T/F down computers</p>								
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									

Card: 75b

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

M/F DOWN TO T/F DOWN TRANSMISSION TIME DATA													Card: 76a
		A	B	C	D	E	F	G	H	I	J	K	
		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									
ID	Parameter	Units	Format	Columns	Description								
A	TIM(1,4,3)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F down to T/F down computers</p>								
B	TIM(2,4,3)	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									

Card: 76a

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

M/F DOWN TO T/F DOWN TRANSMISSION TIME DATA											Card: 76b
	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 71 72 73 74 75 76 77 78 79 80								
ID	Parameter	Units	Format	Columns	Description						
L	TIM(12,4,3)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F down to T/F down computers</p>						
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	
	A 1 2 3 4 5 6 7 8 9	B 10 11 12 13 14 15 16 17 18 19	C 20 21 22 23 24 25 26 27 28 29	D 30 31 32 33 34 35 36 37 38 39	E 40 41 42 43 44 45 46 47 48 49	F 50 51 52 53 54 55 56 57 58 59	G 60 61 62 63 64 65 66 67 68 69	H 70 71 72 73 74 75 76 77 78	I 79 80 81 82 83 84 85 86 87	J 88 89 90 91 92 93 94 95 96	K 97 98 99 100	Card: 77a
ID	Parameter	Units	Format	Columns	Description							
A	TIM(1,1,4)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for T/F up to M/F down computers</p>							
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.

T/F UP TO M/F DOWN TRANSMISSION TIME DATA													Card: 77b
													U
													<del>U</del>
ID	Parameter	Units	Format	Columns	Description								Card: 77b
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								NOTE: This card is always preceded by card 77a and followed by card 78a.
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									

M/F UP TO M/F DOWN TRANSMISSION TIME DATA													Card: 78a
ID	Parameter	Units	Format	Columns	Description								
A	TIM(1,2,4)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65a, except data are for M/F up to M/F down computers</p> <p>NOTE: This card is always preceded by card 77b and followed by card 78b.</p>								
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									

Card: 78a

M/F UP TO M/F DOWN TRANSMISSION TIME DATA										Card: 78b	
	L 1 2 3 4 5 6 7	M 8 9 10 11 12 13 14 15 16 17	N 18 19 20 21 22 23 24 25 26 27	O 28 29 30 31 32 33 34 35 36 37	P 38 39 40 41 42 43 44 45 46 47	Q 48 49 50 51 52 53 54 55 56 57	R 58 59 60 61 62 63 64 65 66 67	S 68 69 70 71 72 73 74 75 76 77	T 78 79 80 81 82 83 84 85 86 87	U 88 89 90 91 92 93 94 95 96 97	Card: 78b
ID	Parameter	Units	Format	Columns	Description						
L	TIM(12,2,4)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F up to M/F down computers</p>						
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.

T/F DOWN TO M/F DOWN TRANSMISSION TIME DATA													Card: 79a								
A		B		C		D		E		F		G		H		I		J		K	
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	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																	

Card: 79a

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

T/F DOWN TO M/F DOWN TRANSMISSION TIME DATA											Card: 79b
	L	M	N	O	P	Q	R	S	T	U	
ID	Parameter	Units	Format	Columns	Description						
L	TIM(12,3,4)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for T/F up to M/F down computers</p>						
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
											Card: 80a
											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.

M/F DOWN TO M/F DOWN TRANSMISSION TIME DATA													Card: 80b
	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 71 72 73 74 75 76 77 78 79 80												
ID	Parameter	Units	Format	Columns	Description								
L	TIM(12,4,4)	minutes	F7.2	1-7	<p>Same type of data as entered on card 65b, except data are for M/F down to M/F down computers</p>								
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									

Card: 80b

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

NUMBER OF FDC EQUIPMENT FAILURES				Card: 81
ID	Parameter	Units	Format	Columns
A	NFAIL	---	I5	1-5
				Description
				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(1,1)	---	F8.2	1-8	Number of FDC at which $i^{\text{th}}$ failure occurred
B	RAMIN(1,2)	minutes	F8.2	9-16	Time at which $i^{\text{th}}$ failure occurred
C	RAMIN(1,3)	minutes	F8.2	17-24	Time at which repair of $i^{\text{th}}$ failure is completed
D	RAMIN(1,4)	---	F8.2	25-32	Type of $i^{\text{th}}$ failure
E	RAMIN(1,5)	minutes	F8.2	33-40	Time duration of $i^{\text{th}}$ failure

Card: 82

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.

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
B	REDECH(1,2)	---	F10.4	11-20	Total number of Red battalions that are equipped with $i^{\text{th}}$ 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>i</i> <sup>th</sup> 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

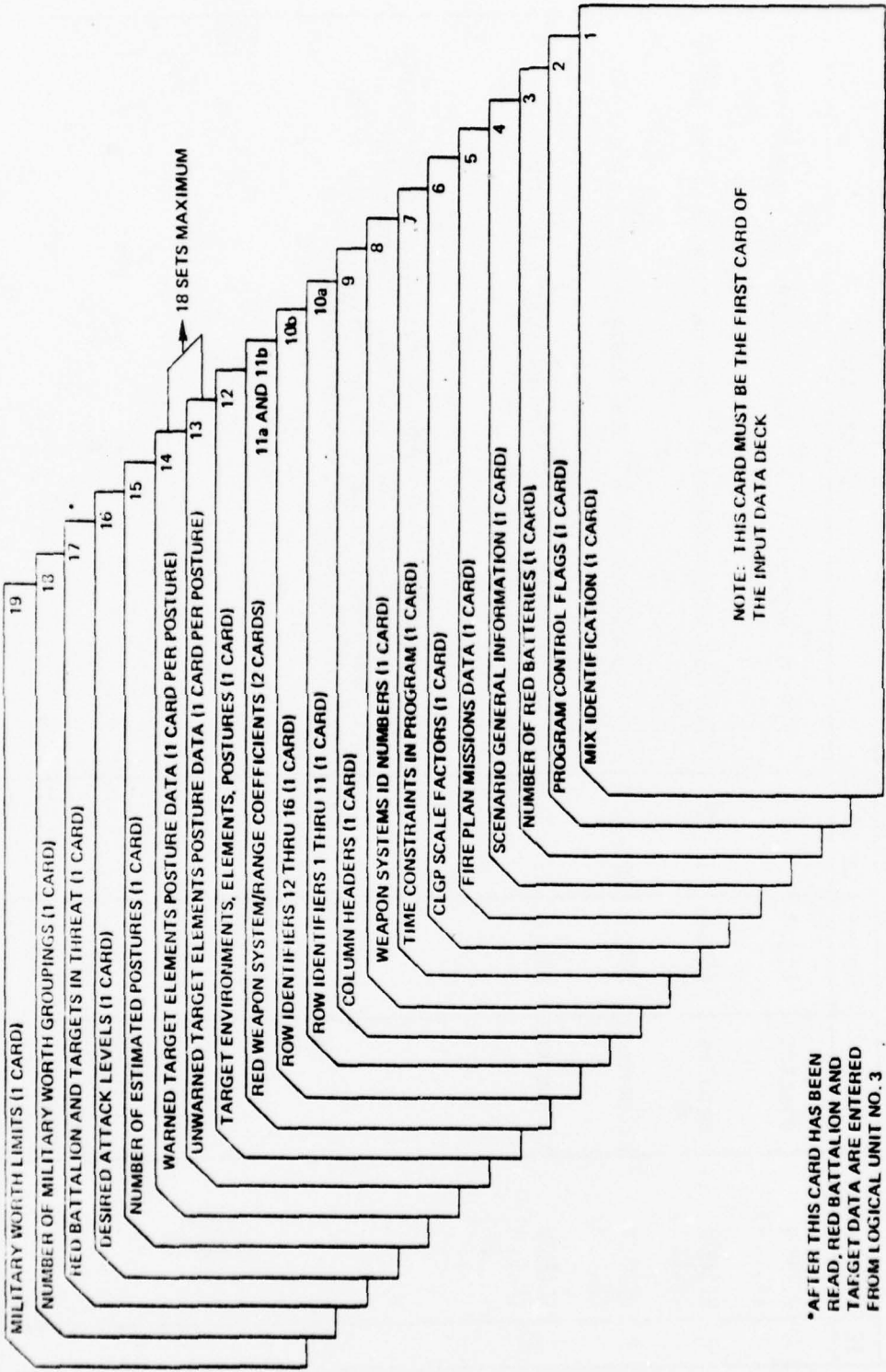
RED BATTERY DATA										Card: 86
ID	Parameter	Units	Format	Columns	Description					
A	REDBAT(K,1)	---	F10.4	1-10	Red battalion number to which k <sup>th</sup> battery belongs					
B	REDBAT(K,2)	---	F10.4	11-20	Number of tubes up in k <sup>th</sup> battery					
C	REDBAT(K,3)	minutes	F10.4	21-30	Time that k <sup>th</sup> battery can begin next mission					
D	REDBAT(K,4)	---	F10.4	31-40	k <sup>th</sup> 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 <sup>th</sup> battery's ID number (as a Blue target)					
G	REDBAT(K,7)	---	F10.4	61-70	Number of rounds fired by k <sup>th</sup> battery up to present					
H	REDBAT(K,8)	---	F10.4	71-80	Number of sites for k <sup>th</sup> 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
ID	Parameter	Units	Format	Columns	Description
A	REDMOV (K,L,1)	minutes	F10.4	1-10	Time of arrival of $k^{\text{th}}$ Red battery at its $l^{\text{th}}$ site
B	REDMOV (K,L,2)	minutes	F10.4	11-20	Time of departure of $k^{\text{th}}$ Red battery from its $l^{\text{th}}$ site
C	REDMOV (K,L,3)	kilometers	F10.4	21-30	x - coordinate of $k^{\text{th}}$ Red battery's $l^{\text{th}}$ site
D	REDMOV (K,L,4)	kilometers	F10.4	31-40	y - coordinate of $k^{\text{th}}$ Red battery's $l^{\text{th}}$ 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.

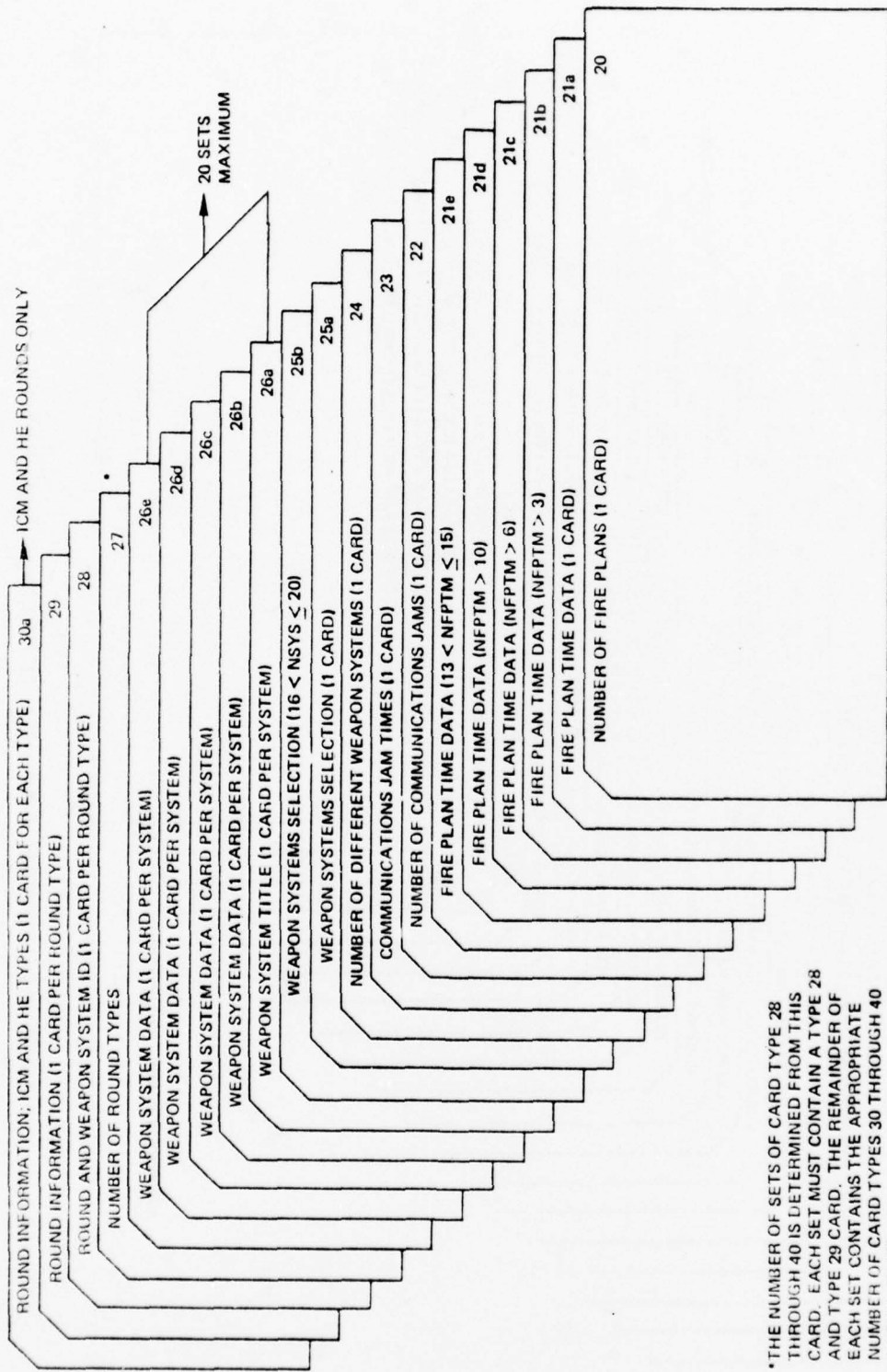
Card: 87



\*AFTER THIS CARD HAS BEEN READ, RED BATTALION AND TARGET DATA ARE ENTERED FROM LOGICAL UNIT NO. 3

NOTE: THIS CARD MUST BE THE FIRST CARD OF THE INPUT DATA DECK

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



\* THE NUMBER OF SETS OF CARD TYPE 28 THROUGH 40 IS DETERMINED FROM THIS CARD. EACH SET MUST CONTAIN A TYPE 28 AND TYPE 29 CARD. THE REMAINDER OF EACH SET CONTAINS THE APPROPRIATE NUMBER OF CARD TYPES 30 THROUGH 40 AS REQUIRED.

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

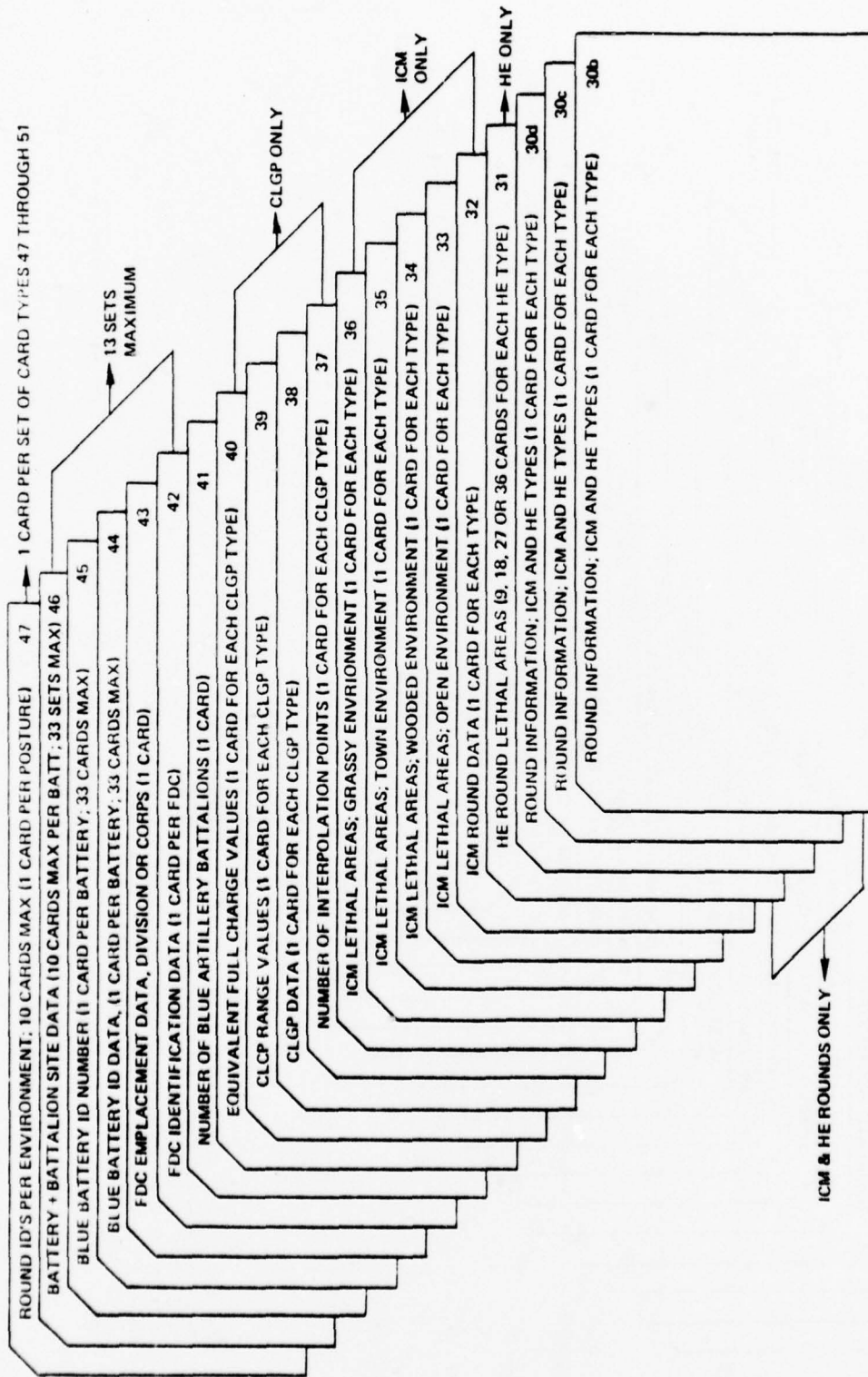


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 3 of 6).

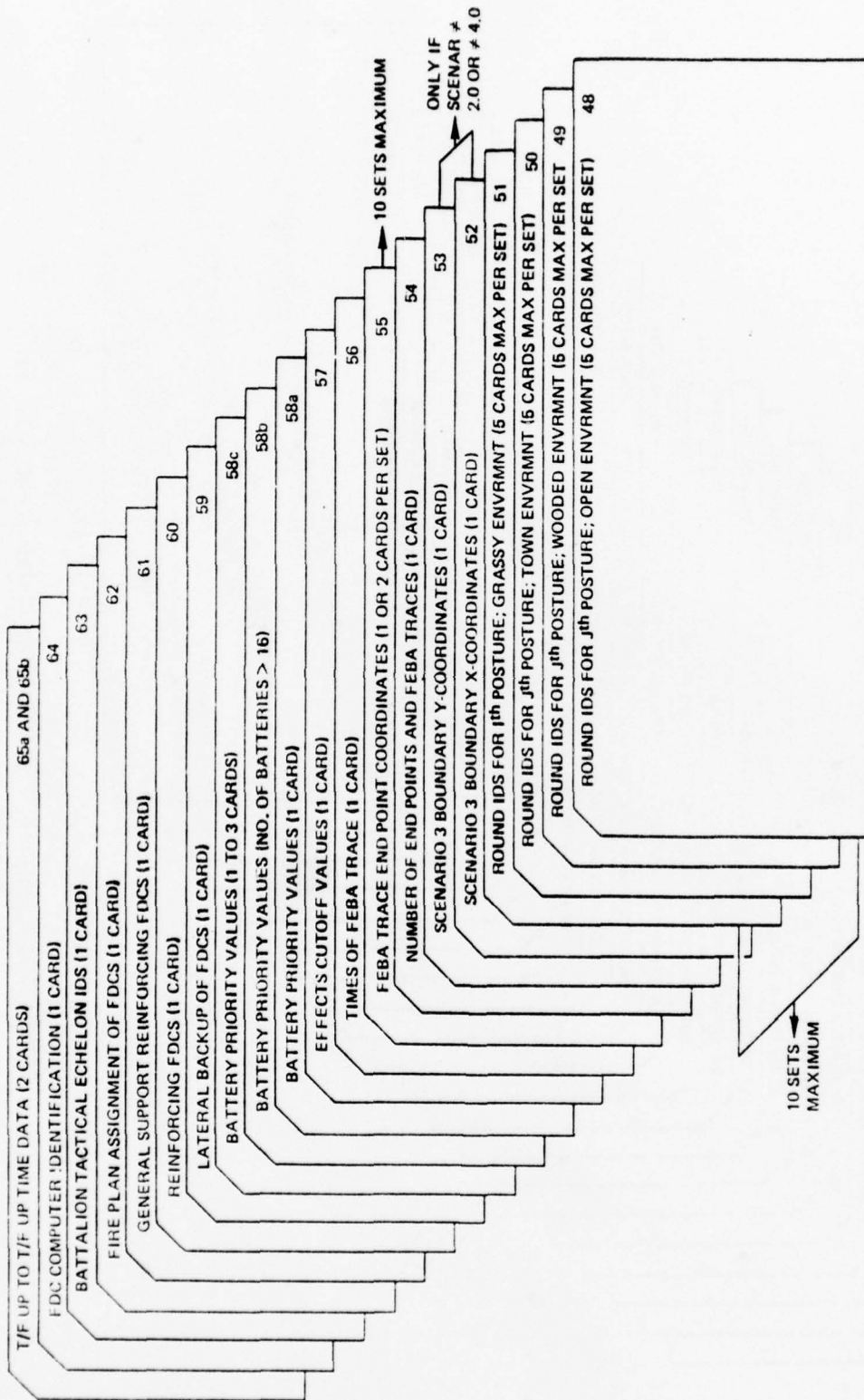


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 4 of 6).



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

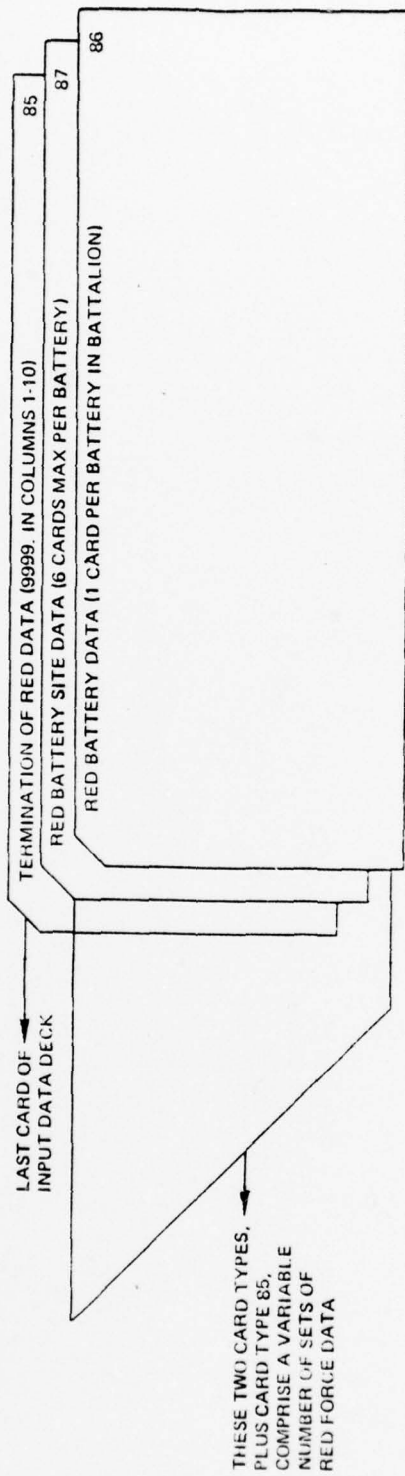


FIGURE 3-1. Typical AFSM Data Deck Setup (Page 6 of 6).

## 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  ,  
*1  
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	20.00	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	1000.00	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	3000.00	0.00	99999.00	.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	99999.00	.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
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
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	3.00	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 .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. 400.
3102.2 .150 .523 30.0 .950 2. 400.
3103.2 .100 .180 22.0 .980 2. 600.
4001.2 2.300 100.300 60.0 .950 1. 30.
5001.2 .080 .390 25.0 .950 1. 90.
12001.2 1.000 1.000 80.0 .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		DIVARTY FDC			
2	J				
0.00	875.00	01.00	63.00		
420.00	1700.00	14.00	57.00		
2		CORPS FDC			
2	J				
0.00	370.00	01.00	70.00		
715.00	1700.00	14.00	64.00		
7		BN FDC BN1 XM155 DS			
7	J				
0.00	180.00	02.00	72.40		
160.00	270.00	01.80	71.90		
300.00	340.00	00.50	71.50		
610.00	460.00	00.00	71.30	10.00	
990.00	1170.00	00.00	69.50	8.00	
1120.00	1480.00	01.30	68.50		
1500.00	1630.00	01.20	68.10		
7		BATTERY IN BN 1			
7	J				
1200.00					
0.00	180.00	02.00	72.40	4.00	
160.00	270.00	01.80	71.90	4.00	
300.00	340.00	00.50	71.50	8.00	
610.00	460.00	00.00	71.30	10.00	
990.00	1170.00	00.00	69.50	8.00	
1120.00	1480.00	01.30	68.50	8.00	
1500.00	1630.00	01.20	68.10	4.00	
7		A BTRY BN1 XM155 DS			
7	O				
1200.00					
0.00	140.00	03.00	73.90	4.00	
160.00	230.00	03.30	73.40	4.00	
280.00	370.00	00.00	73.00	8.00	
340.00	900.00	00.30	72.80	10.00	
930.00	1130.00	00.50	71.00	8.00	
1180.00	1460.00	03.00	70.00	8.00	
1480.00	1630.00	02.70	69.60	4.00	
7		C BTRY BN1 XM155 DS			
7	O				
1200.00					
0.00	120.00	05.00	75.40	4.00	
140.00	230.00	04.80	74.90	4.00	
260.00	350.00	01.50	74.50	8.00	
370.00	430.00	01.00	74.30	10.00	
960.00	1130.00	00.00	72.50	8.00	
1160.00	1440.00	04.00	71.50	8.00	
1460.00	1630.00	04.20	71.40	4.60	
7		BN FDC BN2 XM155 DS			
7	J				
0.00	110.00	07.20	69.60		
130.00	290.00	07.00	69.10		
270.00	400.00	00.90	69.10		
420.00	710.00	00.10	64.90		
740.00	1100.00	02.00	64.80		
1130.00	1310.00	01.70	63.50		
1340.00	1630.00	00.90	62.30		
7		BATTERY IN BN 2			
7	J				
1200.00					
0.00	110.00	07.20	69.60	8.00	
130.00	290.00	07.00	69.10	8.00	
270.00	400.00	00.90	69.10	9.00	
420.00	710.00	00.10	64.90	8.00	
740.00	1100.00	02.00	64.80	12.00	
1130.00	1310.00	01.70	63.50	10.00	
1340.00	1630.00	00.90	62.90	12.00	

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

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```

7 0 A BTRY BN2 XM155 DS
1200.30
0.00 0.00 68.70 67.10 8.00
110.00 230.00 68.50 68.00 8.00
250.00 380.00 68.00 68.60 5.00
430.00 600.00 67.60 68.40 8.00
720.00 1000.00 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 8.00
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
1090.00 1270.00 64.70 66.00 10.00
1300.00 1600.00 59.50 65.50 12.00
6 3 BN FDC BN3 XM155 DS
0.00 350.00 70.50 57.80
370.00 610.00 70.30 57.30
630.00 890.00 69.60 57.10
720.00 990.00 67.00 56.00
1100.00 1290.00 65.60 55.70
1320.00 1630.00 63.50 55.70
BATTERYS IN BN 3
6 0 B BTRY BN3 XM155 DS
1200.30
0.00 350.00 70.50 57.80 8.00
370.00 610.00 70.30 57.30 5.00
630.00 890.00 69.60 57.10 4.00
720.00 990.00 67.00 56.00 5.00
1100.00 1290.00 66.50 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 8.00
350.00 590.00 71.80 58.80 5.00
610.00 870.00 71.30 58.60 4.00
700.00 970.00 69.50 57.50 5.00
990.00 1270.00 68.10 57.20 8.00
1300.00 1630.00 65.00 57.20 8.00
5 0 C BTRY BN3 XM155 DS
1200.30
0.00 320.00 73.50 60.80 8.00
330.00 570.00 73.00 60.30 5.00
590.00 850.00 72.80 60.10 4.00
680.00 950.00 70.00 59.00 5.00
970.00 1250.00 69.80 58.70 8.00
1290.00 1630.00 66.00 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 66.00 66.80
1230.00 1630.00 62.50 64.50
BATTERYS 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 66.80 66.80 5.00
1230.00 1630.00 62.50 64.50 6.00

```

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

THIS PAGE IS BEST QUALITY PRACTICABLE  
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```

5 0 A BTRY BN4 M123A4 REINF TO BN 2
3100.20
0.00 190.00 66.20 66.30 12.00
210.00 510.00 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
1290.00 1630.00 61.60 62.00 8.00
5 0 C BTRY BN4 M123A4 REINF TO BN 2
3100.20
0.00 210.00 64.70 64.80 12.00
210.00 630.00 64.50 64.30 12.00
630.00 930.00 64.00 64.10 5.00
930.00 1240.00 63.00 63.80 5.00
1270.00 1630.00 54.50 51.50 8.00
0 0 BN FDC BN3 M123A4 GSR TO BN 3
0.00 230.00 75.00 54.30
250.00 520.00 75.40 58.80
970.00 1230.00 71.60 56.20
1290.00 1410.00 71.30 59.80
1440.00 1630.00 66.30 56.30
3 BATTERYS IN BN 5
6 0 B BTRY BN5 M123A4 GSR TO BN 3
3100.20
0.00 230.00 75.60 54.30 4.00
230.00 520.00 75.40 58.60 4.00
550.00 950.00 72.00 56.60 4.00
970.00 1230.00 71.60 56.20 4.00
1290.00 1410.00 71.30 59.80 6.00
1440.00 1630.00 66.30 56.30 6.00
5 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
930.00 1210.00 70.10 54.70 4.00
1230.00 1390.00 69.60 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 55.30 4.00
590.00 910.00 69.00 53.50 4.00
930.00 1190.00 68.80 53.20 4.00
1210.00 1370.00 68.30 52.60 6.00
1400.00 1630.00 63.30 53.30 6.00
7 0 BN FDC BN6 FARSS GS AT O/A
0.00 190.00 60.80 70.50
210.00 460.00 60.60 70.00
460.00 810.00 60.10 69.80
830.00 940.00 59.70 69.50
970.00 1190.00 58.50 67.00
1220.00 1430.00 55.50 66.50
1460.00 1630.00 53.70 66.70
3 BATTERYS IN BN 6
7 0 B BTRY BN6 FARSS GS AT O/A
5000.20
0.00 190.00 60.80 70.50 8.00
210.00 460.00 60.60 70.00 6.00
460.00 810.00 60.10 69.80 8.00
830.00 940.00 59.70 69.50 6.00
970.00 1190.00 58.50 67.00 5.00
1220.00 1430.00 55.50 66.50 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).

THIS PAGE IS BEST QUALITY PRACTICALLY  
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```

7 0 A BTRY BN6 FARSS GS AT D/A
5000.20
0.00 170.00 62.30 72.00 8.00
193.00 440.00 62.10 71.30 6.00
463.00 740.00 61.60 72.30 8.00
810.00 920.00 61.20 71.00 6.00
990.00 1170.00 58.00 70.50 5.00
1200.00 1410.00 57.00 68.00 10.00
1440.00 1630.00 55.20 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
793.00 930.00 62.70 72.50 6.00
930.00 1150.00 59.50 72.00 5.00
1180.00 1390.00 56.50 64.50 10.00
1420.00 1630.00 55.70 62.70 4.00
5 3 BN FOC BN7 M12344 GSR TO D/A FROM CORPS
0.00 480.00 62.00 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
3 BATTERYS IN BN 7
5 0 B BTRY BN7 M12344 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 M12344 GSR TO D/A FROM CORPS
3100.20
0.00 450.00 63.40 69.50 7.00
480.00 730.00 63.30 69.50 3.00
760.00 1100.00 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 M12344 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
1240.00 1630.00 50.70 58.90 0.00
1 2 BN FOC BN8 SPEAR GS AT CORPS
0.00 1630.00 57.50 65.00
2 BATTERYS IN BN 3
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 59.00 0.00
23 10
FURSTL = 100.0

```

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

THIS PAGE IS BEST QUALITY PRINT AVAILABLE  
FROM COPY FURNISHED TO DDC

13	10									
59.00	83.00	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	74.00	56.00	79.00	53.00	
65.00	80.00	60.00	77.00	68.00	74.00	71.00	71.00	73.00	68.00	
73.00	63.00	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	65.00	76.00	62.00	76.00	54.00	74.00	56.00	79.00	53.00	
64.00	60.00	64.00	77.00	66.00	74.00	70.00	71.00	71.00	68.00	
73.00	63.00	75.00	62.00	75.00	59.00	79.00	56.00	79.00	53.00	
63.00	60.00	64.00	77.00	68.00	74.00	70.00	71.00	71.00	68.00	
73.00	65.00	75.00	62.00	75.00	59.00	76.00	56.00	76.00	53.00	
62.00	60.00	63.00	77.00	64.00	74.00	69.00	71.00	70.00	68.00	
72.00	65.00	71.00	62.00	74.00	59.00	75.00	56.00	75.00	53.00	
61.00	60.00	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	60.00	62.00	77.00	61.00	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	60.00	61.00	77.00	58.00	74.00	59.00	71.00	61.00	68.00	
69.00	65.00	71.00	62.00	71.00	54.00	72.00	56.00	75.00	53.00	
60.00	60.00	61.00	77.00	57.00	74.00	58.00	71.00	64.00	69.00	
69.00	65.00	70.00	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.



## 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	4134						
1.0000	1.0000	10.0000					
2.0000	2.0000	11.0000					
4.0000	1.0000	12.0000					
5.0000	12.0000	13.0000					
757.0000	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	
763.0000	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	
710.0000	1.0000	6.0000	8.0000	27.0000	0.0000	1.0000	
720.0000	1.0000	6.0000	8.0000	28.0000	0.0000	1.0000	
791.0000	3.0000	6.0000	8.0000	29.0000	0.0000	1.0000	
792.0000	3.0000	6.0000	8.0000	32.0000	0.0000	1.0000	
806.0000	1.0000	6.0000	8.0000	35.0000	0.0000	1.0000	
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.

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 anti-aircraft 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.

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	14869.96
PERSONNEL	361.80	376.03	315.34	43.68	315.10	30.98	595.69	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
KADARS	.56	0.00	.55	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  
 RND ID

ROUND TOTALS

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	364.00	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 RND	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	804.76
TOTAL COST	1742.98	1523.47	1128.69	73.80	201.60	23.76	510.21	0.00	0.00	0.00	0.00	5207.51

NO. MSNS = 179. TANKS KILLED = 90.51 APCs KILLED = 113.50 TRUCKS KILLED = 3.34  
 C L E P T O T A L S

UNACCOMPLISHED MISSIONS

MISSION TYPE	REASONS
MSN DROPPED - QUE OVERLOADED	0
TARGET DEPARTED BEFORE FIRED	0
TGTS DROPPED-ALL BUSY	0
SCHED PLAN MSN CANT DO	0
HOUSEKEEPING MSN CANT DO	0
TGT OUT OF RANGE OF ALL UNITS	0
TOTAL	0
BATTERY BUSY	14
BTRY OUT OF AMMO	0
BN FDC BUSY	173
BN FDC OUT	0
D/A FDC BUSY	0
D/A FDC OUT	0
CORPS FDC BUSY	0
CORPS FDC OUT	0

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

MILITARY WORTH

(1215 - 151)		(150 - 5)		(150 - 11)		(10 - 0.5)		TOTALS				
OBS	M-OBS	PLAN	OBS	N-OBS	PLAN	OBS	M-OBS	PLAN	OBS	M-OBS	PLAN	
BN FIRE MS	87	42	10	95	0	153	0	0	388	57	10	
MSMS DFED	20	0	1	16	0	63	0	0	106	7	1	
ARTY RW	7959.	1955.	417.	1903.	912.	0.	1650.	0.	0.	11507.	2866.	417.

FIRE PLANS

PLAN	PLAN ID	MO.	TGTS	SCHEDULED	MO.	MSMS	SCHEDULED	MO.	MSMS	FIRE	MO.	MBS	FIRE	MO.	MBS	PROCESS	TIME
1.	1000.	10.	10.	10.	10.	10.	10.	0.	0.	0.	0.00	0.00	60.00	0.00	0.00	2.40	
2.	1000.	0.	0.	0.	0.	0.	0.	2.	2.	0.	423.20	70.00	0.00	0.00	0.00	28	
3.	1000.	0.	0.	0.	0.	0.	0.	2.	2.	0.	423.20	84.00	0.00	0.00	0.00	28	
4.	1000.	0.	0.	0.	0.	0.	0.	2.	2.	0.	423.20	84.00	0.00	0.00	0.00	28	
5.	1000.	0.	0.	0.	0.	0.	0.	2.	2.	0.	423.20	84.00	0.00	0.00	0.00	28	
6.	1000.	0.	0.	0.	0.	0.	0.	1.	1.	0.	211.60	28.00	0.00	0.00	0.00	14	
7.	1000.	0.	0.	0.	0.	0.	0.	1.	1.	0.	211.60	28.00	0.00	0.00	0.00	14	

FIRE PLAN SCORE = 2116.00 (=100.00 PERCENT OF SCHEDULED AND 100.00 PERCENT OF INPUT)

TIME BREAKOUT

D/A COMPS BM 1 BM 2 BM 3 BM 4 BM 5 BM 6 BM 7 BM 8 BM 9 BM 10 BM 11

MINUTES BUSY	31.44	26.06	191.20	161.71	118.05	4.83	11.14	.55	31.49	1.10	0.00	0.00	0.00	0.00	0.00	0.00
MINUTES IDLE	1588.56	1593.94	1428.72	1458.29	1501.95	1615.17	1408.86	1619.45	1588.51	1618.90	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	0.00	0.00	0.00	0.00
PERCENT BUSY	.92	5.83	5.00	5.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

MINUTES BUSY	250.51	107.37	114.33	234.06	196.29	84.08	204.17	107.99	80.49	30.67	5.33	4.67	0.00	0.00	0.00	0.00
MINUTES IDLE	1365.49	1432.63	1505.67	1385.94	1423.71	1535.92	1415.83	1512.01	1509.51	1509.33	1614.67	1615.33	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	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	1.67	0.00	0.00	0.00	0.00	0.00

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	0.00	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	1620.00	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	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	0.00	0.00	0.00	0.00

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	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	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	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	0.00	0.00	0.00	0.00

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	602	1083	982	737	810	580	251	266	72	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1201.3022511724	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	0	0	0	0	0	0		
SUM RDS-	6014.																																	
1202.30	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	0	0		
1202.30	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	0	0	0	0	
SUM RDS-	96.																																	
1203.30	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	0	0	0	0
1203.30	0	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	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	0	0	0	0
1204.30	390	144	84	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	0	0	0	0
SUM RDS-	670.																																	

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



D A T A   B R E A K D O W N   B Y   S Y S T E M

	700	1100	1200	1300	1400	1500	2000	3100	4000	5000	5100	TOTL55
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
ARROR	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
BTNS	0.00	0.00	436.06	0.00	0.00	0.00	0.00	137.00	0.00	1.00	0.00	436.06
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 W6	0.00	0.00	629.54	0.00	0.00	0.00	0.00	175.30	0.00	1.92	0.00	629.54
RDEST	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 = .970

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

	MIL WTH	PERS	GSRs BREAKDOWN			TUBES	RADARS	LNCHES	ROS FIRED	RD WGT	RD COST	MSM FRD
			TANKS	APCS	TRUCKS							
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	24.000	1.920	23.760	1.000	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	24.000	1.920	23.760	1.000	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).



## 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
3.0  9.0  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 TOT150
M WTH PERS ARMOR TRUCKS TUBES RADARS LNCHRS BTYMSN NO FRD NO WGT RUCST
INFIRE ATTRIT RAMS TUBSUP AVG AV
190. 1.4375 .00019 470. 270. 2.6875 -0.008649 600. 310. 3.625
-0.004929 900.
3
  9 18
.5 .5 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
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 0.0 1.0 0.0 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 0.0 1.0 0.0 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 0.0 1.0 0.0 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 0.0 1.0 0.0
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. 0.
.5 .5 0. 0. 0. 0. 0. 0. 0. 0.
.75 .05 0. 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. 0. 0. 0.
.95 .05 0. 0. 0. 0. 0. 0. 0. 0.
0.0 .4 0. 0. 0. 0. 0. 0. 0. 0.
.25 0.0 .75 0. 0. 0. 0. 0. 0. 0.
0.0 .25 .75 0. 0. 0. 0. 0. 0. 0.
.6 0.0 .4 0. 0. 0. 0. 0. 0. 0.
0.0 .25 .75 0. 0. 0. 0. 0. 0. 0.
.5 .5 0. 0. 0. 0. 0. 0. 0. 0.
0.0 1.0 0. 0. 0. 0. 0. 0. 0. 0.
.5 .5 0. 0. 0. 0. 0. 0. 0. 0.
.25 .75 0. 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. 1930.

```

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



```

14
XM67804      IN XM155      (DUAL PURPOSE ICM ROUND)
1201.3 .081 .350 16.5 .954 1. 1200. 80.0 150.
0. 4. 6. 12. 16. 16.0
11. 11. 20. 24. 36. 55.
39. 39. 47. 75. 123. 154.
.19 .19 .31 .66 1.0 1.0
3.1 20. .90 .95 .95 0.0 92.
80. 50. 5.0 5.0 10.0 20.0 3.0 100.0 160.0
40. 25. 3.0 3.0 6.0 12.0 2.0 80.0 80.0
30. 20. 3.0 3.0 10.0 9.0 3.0 80.0 160.0
XM23427      IN XM155      (HE RAP ROUND)
1202.3 .081 .200 30.0 .950 2. 1200. 80. 140.
0. 5. 10. 15. 20. 20. 30.
12. 12. 21. 34. 46. 63. 82.
26. 26. 46. 73. 102. 142. 209.
.19 .19 .31 .66 1.0 1.0
100.0 100.0 80.0 90.0 90.0 120.0 120.0
50.0 50.0 40.0 45.0 45.0 60.0 60.0
10. 10. 8. 9. 9. 12. 12.
2. 2. 1.6 1.8 18. 24. 24.
4. 4. 3.2 3.6 30. 48. 48.
20. 20. 16. 18. 18.0 24.0 24.0
3. 3. 2.4 2.7 27. 36. 36.
80. 80. 64. 72. 72.0 96.0 96.0
300. 300. 240. 270. 270.0 360.0 360.0
50. 50. 40. 45. 45.0 60.0 60.0
25. 25. 20. 22.5 22.5 30.0 30.0
5. 5. 4. 4.5 4.5 6.0 6.0
1. 1. .8 .9 9. 12. 12.
2. 2. 1.6 1.8 18. 24. 24.
10. 10. 8. 9. 9.0 12.0 12.0
1.5 1.5 1.2 1.4 13.5 18. 18.
40. 40. 32. 36. 36.0 48. 48.
150. 150. 120. 135. 135.0 180. 180.
30. 30. 24. 27. 27.0 36. 36.
15. 15. 12. 13.5 13.5 18. 18.
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 27.0 36. 36.
1.8 1.8 1.5 1.5 16.2 21.6 21.6
20. 20. 16. 18. 18.0 24. 24.
80. 80. 75. 90. 90.0 120. 120.
XM34543      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. 75. 114. 141.
.19 .19 .31 .60 1.0 1.0
800. 800. 620. 630. 840. 900.
400. 400. 410. 415. 420. 400.
80. 80. 82. 83. 84. 90.
20. 20. 20. 20. 21. 24.
50. 50. 50. 50. 50. 60.
500. 500. 500. 500. 500. 600.
50. 50. 50. 50. 53. 60.
1000. 1000. 1000. 1000. 1050. 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.	14.		
400.	400.	400.	400.	400.	400.	400.		
1200.	1200.	1200.	1200.	1200.	1200.	1200.		
1204.3	.101	CLGP 2.97	IN XM193 17.0	.993	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	2.90	.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			
3101.2	.100	XM432E13	IN M123A4	W/ CHG 12	(DUAL PURPOSE ICM ROUND)			
0.	4.	8.	12.	16.	20.	23.0	70.	160.
13.	13.	17.	22.	29.	33.	39.		
34.	34.	47.	71.	96.	111.	144.		
.18	.18	.25	.44	.64	1.0	1.0		
3.3	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.
3102.2	.130	XM321E57	IN M123A4	W/ CHG 12	(HE RAP ROUND)			
0.	4.	.523	30.0	.950	2.	400.	50.	140.
15.	15.	9.	13.	18.	22.	27.	30.	
25.	25.	24.	33.	44.	58.	76.	88.	
.18	.18	.25	.44	.64	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.	24.	28.	
24.	24.	24.	24.	24.	240.	280.	360.	
2.4	2.4	2.4	2.4	2.4	24.	24.	28.	
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)

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80.	80.	80.	80.	80.	800.	860.	900.
3103.2	.10	.180	22.0	.980	2.	800.	70. 145.
0.	7.	8.	12.	16.	18.	22.0	
15.	15.	24.	33.	44.	51.	65.	
25.	25.	49.	70.	100.	119.	146.	
.18	.18	.25	.44	.69	1.0	1.0	
1500.	1500.	1550.	1500.	1700.	1800.	2000.	
800.	800.	900.	800.	900.	900.	1000.	
150.	150.	155.	160.	170.	180.	200.	
15.	15.	15.	18.	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.	900.	1000.	1200.	
1000.	1000.	1000.	1000.	1000.	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	50.0	.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	120.00	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.	
FAKSS -- ROCKET SYSTEM (ICM WARHEAD)							
5001.2	.030	.44	25.	.95	1.	90.0	12. 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	.95	.95	.95	800.	
120.	80.	3.	6.0	11.8	80.0	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.	157.	200.		
30.	40.	160.	270.	360.	450.		
60.	160.	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.	180.	240.
800.	400.	30.	75.	45.	30.	50.	180.	240.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
12001.2	T0A0-8 (SUBMISSILE WARHEAD)							
0.	16.	32.	48.	54.	90.	10.	6.	.
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.	180.	240.
800.	400.	30.	75.	45.	30.	50.	180.	240.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
13001.1	140 MM GUN HE PROJECTILE							
0.	6.	12.	18.	24.	30.	900.	300.	.
20.	30.	62.	98.	140.	190.	.	.	.
40.	60.	110.	170.	230.	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.	108.	.	.	.
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.	48.	.	.	.
9.	9.	9.	9.	9.	9.	.	.	.
16.	16.	16.	16.	15.	16.	.	.	.
11.	11.	11.	11.	11.	11.	.	.	.
11.	11.	11.	11.	11.	11.	.	.	.
40.	40.	40.	40.	40.	40.	.	.	.
0.	.	.	.	.	.	.	.	.
14001.2	110 MM MULTIPLE ROCKET LAUNCHER (HE WARHEAD)							
0.	4.	8.	12.	16.	240.	720.	.	.
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).



2	0			DIVARTY FDC
0.00	875.	61.	63.	12.
920.	1700.	54.	27.	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.	61.6	71.7	4.
300.	540.	58.2	71.5	8.
610.	960.	56.	71.3	10.
990.	1170.	55.	69.5	8.
1120.	1480.	51.5	68.5	8.
1500.	1630.	51.2	69.1	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.
1190.	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.	64.6	74.9	4.
260.	550.	61.5	74.5	6.
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			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	6.
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.	640.	67.6	66.4	8.
720.	1080.	65.5	66.1	12.
1110.	1270.	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.
1070.	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.	61J.	70.3	57.3	5.	
630.	690.	69.8	57.1	4.	
720.	990.	67.	56.	5.	
1100.	1240.	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.	66.1	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.	57.7	57.8	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.	63.8	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.	58.6	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.	
1250.	1390.	69.8	54.8	5.	
1420.	1530.	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.	490.	65.	71.	7.	
500.	750.	64.8	70.5	3.	
780.	1120.	54.5	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	70.5	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.	1060.	51.5	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. 1 1630. 57.5 65.
      BTRY BNB  SPEAR  GS AT CGRPS
4000.2      SPEAR
0. 1 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. 60. 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. 57. 74. 70. 71. 72. 68.
73. 65. 76. 62. 76. 59. 79. 56. 74. 53.
64. 80. 64. 77. 65. 74. 70. 71. 71. 68.

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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.	83.	64.	77.	66.	74.	70.	71.	71.	6P.
73.	65.	75.	62.	75.	59.	70.	50.	76.	53.
62.	80.	63.	77.	64.	74.	64.	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.	6P.
70.	65.	72.	62.	72.	59.	73.	56.	75.	53.
60.	80.	61.	77.	58.	74.	59.	71.	61.	6P.
69.	65.	70.	62.	71.	59.	72.	56.	75.	53.
60.	80.	61.	77.	57.	74.	58.	71.	59.	6P.
65.	65.	70.	62.	73.	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.
2.	1.	4.	3.	6.	5.	9.	7.	10.	8.				
			6.										
				7.									
1.	2.	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
0.28	0.27	0.80	1.07	1.00	0.55	3.60	0.60	3.60	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	0.25	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	0.25	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	0.80	1.07	1.00	0.55	3.60	0.60	3.60	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	0.25	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				
1													
2.	9999.												

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

THIS PAGE IS BEST QUALITY PRACTICABLE  
FROM COPY FURNISHED TO DDC

	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	430.000	83.700	79.300				
458.000	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	87.000	78.100				
455.000	625.000	85.300	77.300				
640.000	1208.000	83.300	76.900				
1238.000	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	674.000	89.600	71.300				
688.000	950.000	88.200	70.100				
1016.000	1086.000	80.400	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	251.000	87.900	66.700				
358.000	991.000	80.100	66.100				
1006.000	1099.000	86.200	67.700				
1121.000	1619.000	83.000	66.000				
901.000	3.000	6.000	2.000	5.000	.000	1.000	
2.000	0.000	.000	.000	.000	901.210	.000	6.000
60.000	424.000	79.000	79.200				
439.000	606.000	77.600	78.000				
633.000	444.000	73.100	76.000				
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	253.000	77.900	77.200				
573.000	995.000	74.000	77.200				
1022.000	1141.000	70.100	77.400				
1182.000	1619.000	64.100	76.200				
2.000	0.000	.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	74.500				
1352.000	1619.000	64.200	74.500				
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	75.800	73.300				
1040.000	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	74.500				
480.000	622.000	79.300	72.900				
541.000	1000.000	77.400	70.900				
1027.000	1154.000	73.700	70.500				
1164.000	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	72.400	65.400				
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				
661.000	459.000	76.900	74.200				
987.000	1198.000	72.300	73.400				
1218.000	1338.000	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	769.210	.000	7.000
60.000	470.000	82.900	73.200				
510.000	664.000	77.400	74.800				
669.000	959.000	74.700	76.000				
781.000	1133.000	71.900	77.000				
1155.000	1420.000	66.000	70.700				
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	442.000	81.800	72.200				
476.000	623.000	77.100	73.900				
634.000	767.000	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				
1550.000	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	73.400				
447.000	1044.000	72.200	73.500				
1064.000	1461.000	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	1476.000	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
634.000	720.000	92.500	71.500				
794.000	921.000	81.600	72.800				
1004.000	1190.000	75.600	77.300				
1229.000	1550.000	70.100	74.300				
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	613.000	99.600	74.500				
873.000	934.000	81.000	74.000				
968.000	1156.000	76.700	73.300				
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).

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1545.000	1619.000	70.300	71.900				
6.000	6.000	.000	.000	.000	843.230	.000	6.000
340.000	612.000	136.000	87.700				
764.000	756.000	110.500	78.300				
854.000	936.000	81.800	74.900				
972.000	1066.000	76.500	72.300				
1108.000	1253.000	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	75.100	79.100				
504.000	581.000	73.400	77.700				
603.000	919.000	70.900	78.100				
953.000	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	422.000	77.000	78.500				
432.000	616.000	73.500	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	78.300				
487.000	664.000	74.400	76.200				
674.000	491.000	73.600	75.200				
1021.000	1162.000	69.800	73.200				
1184.000	1619.000	66.200	72.400				
904.000	3.000	6.000	4.000	23.000	.000	2.000	
3.000	6.000	.000	.000	.000	904.210	.000	4.000
60.000	412.000	79.400	72.700				
442.000	1086.000	75.300	76.300				
1101.000	1228.000	73.500	71.200				
1557.000	1619.000	70.300	68.900				
6.000	6.000	.000	.000	.000	904.220	.000	4.000
60.000	449.000	79.900	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				
6.000	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	1213.000	73.300	66.600				
1520.000	1619.000	72.100	66.400				
705.000	1.000	6.000	4.000	25.000	.000	1.000	
7.000	6.000	.000	.000	.000	705.220	.000	5.000
60.000	570.000	68.500	75.900				
599.000	827.000	65.200	78.600				
861.000	925.000	45.400	77.100				
1012.000	1538.000	69.200	76.500				
1568.000	1519.000	65.300	74.100				
715.000	1.000	6.000	4.000	27.000	.000	1.000	
16.000	6.000	.000	.000	.000	715.220	.000	4.000
60.000	304.000	73.400	64.400				
316.000	1316.000	73.100	66.500				
1325.000	1474.000	72.600	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				
1453.000	1519.000	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	66.000				
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	76.800	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	66.900				
114.000	762.000	69.800	65.800				
436.000	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	5.000	.000	.000	.000	752.210	.000	8.000
60.000	63.000	74.900	76.800				
77.000	216.000	74.900	76.700				
259.000	480.000	68.200	78.100				
494.000	804.000	69.200	76.500				
311.000	1055.000	67.100	76.900				
1060.000	1244.000	66.000	75.900				
1257.000	1346.000	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	1353.000	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				
68.000	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	83.000				
1111.000	1354.000	117.800	83.300				
1373.000	1472.000	115.000	81.900				
1467.000	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	5.700				
679.000	767.000	93.700	79.200				
835.000	1004.000	73.400	76.000				
1039.000	1169.000	66.200	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	101.600	79.900				
824.000	929.000	74.100	77.200				
976.000	1160.000	67.300	77.500				
1188.000	1275.000	63.900	76.500				
1262.000	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	607.000	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	76.400	72.300				
1007.000	1026.000	73.100	70.500				
1555.000	1619.000	70.700	67.600				
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	70.500				
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	20.00	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	1000.00	1000.00	1000.00	1000.00	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	300.00	3000.00	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	
10.00	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									
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	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	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	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	SYSTEM LOADED PROPERLY									
14										
1201.3	.081	.300	16.5	.954	1.	1200.				
1202.3	.081	.200	10.0	.750	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.	600.				
3102.2	.150	.523	30.0	.950	2.	400.				
3103.2	.100	.160	22.0	.980	2.	600.				
4001.2	2.300	100.300	60.0	.955	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										
8	ROUND LOADED PROPERLY									
2	J	DIVARTY FDC								
0.00	375.00	61.00	63.00							
920.00	1700.00	24.00	57.00							
2	J	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							
280.00	270.00	61.60	71.90							
300.00	240.00	63.50	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	J	B BTRY BN1	XM150	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	71.20	8.00
610.00	950.00	58.00	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
3BATTERYS IN BN 1				
7	J	A BTRY BN1	XM150	DS
1200.30				
0.00	140.00	63.20	73.90	4.00
180.00	290.00	63.30	73.40	4.00
280.00	370.00	60.00	73.00	8.00
390.00	900.00	59.50	72.80	10.00
930.00	1130.00	56.50	71.00	8.00
1180.00	1450.00	53.00	70.00	8.00
1480.00	1630.00	52.70	69.60	4.00
3BATTERYS IN BN 1				
7	J	C BTRY BN1	XM150	DS
1200.30				
0.00	120.00	65.00	75.40	4.00
140.00	230.00	64.80	74.90	4.00
250.00	350.00	61.50	74.50	8.00
370.00	930.00	61.00	74.30	10.00
960.00	1130.00	58.00	72.50	8.00
1180.00	1440.00	54.50	71.50	8.00
1460.00	1630.00	54.20	71.40	4.60
3BATTERYS IN BN 2				
7	J	BN FDC BN2	XM150	DS
1200.30				
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	60.50	62.20	
3BATTERYS IN BN 2				
7	J	A BTRY BN2	XM150	DS
1200.30				
0.00	110.00	67.20	65.60	8.00
130.00	250.00	67.00	65.10	8.00
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	60.50	62.20	12.00
3BATTERYS IN BN 2				
7	J	C BTRY BN2	XM150	DS
1200.30				
0.00	70.00	70.20	65.00	8.00
90.00	210.00	70.00	63.10	8.00
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	60.50	12.00
0	3	BN FOC BN3	XM155	OS
0.00	350.00	70.50	57.80	
370.00	610.00	70.30	57.30	
630.00	870.00	69.80	57.10	
720.00	970.00	67.00	56.00	
1100.00	1240.00	65.60	55.70	
1320.00	1630.00	63.50	55.70	
BATTERYS IN BN 3				
0	0	B BTRY BN3	XM155	OS
1200.30				
0.00	330.00	70.50	57.80	6.00
370.00	610.00	70.30	57.30	5.00
630.00	870.00	59.60	57.10	4.00
720.00	970.00	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
0	0	A BTRY BN3	XM155	OS
1200.30				
0.00	330.00	72.00	59.30	6.00
350.00	590.00	71.80	58.80	5.00
610.00	870.00	71.30	58.60	4.00
700.00	970.00	69.50	57.50	5.00
940.00	1270.00	66.10	57.20	8.00
1300.00	1630.00	65.00	57.20	8.00
0	0	C BTRY BN3	XM155	OS
1200.30				
0.00	330.00	73.50	60.80	6.00
330.00	570.00	73.50	60.30	5.00
590.00	850.00	72.80	60.10	4.00
680.00	950.00	70.00	59.00	5.00
970.00	1230.00	69.60	58.70	8.00
1290.00	1630.00	66.50	58.70	8.00
0	3	BN FOC BN4	M123A4	REINF TO BN 2
0.00	170.00	67.70	67.80	
140.00	340.00	67.50	67.30	
610.00	840.00	67.00	67.10	
910.00	1140.00	66.50	66.80	
1230.00	1630.00	62.50	64.50	
BATTERYS IN BN 4				
0	0	B BTRY BN4	M123A4	REINF TO BN 2
3100.20				
0.00	170.00	67.70	67.80	12.00
190.00	340.00	67.50	67.30	12.00
610.00	840.00	67.00	67.10	5.00
910.00	1140.00	66.50	66.80	5.00
1230.00	1630.00	62.50	64.50	8.00
0	0	A BTRY BN4	M123A4	REINF TO BN 2
3100.20				
0.00	190.00	66.20	66.30	12.00
210.00	410.00	66.00	65.50	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	63.50	8.00
0	0	C BTRY BN4	M123A4	REINF TO BN 2
3100.20				
0.00	210.00	64.70	64.80	12.00
230.00	430.00	64.50	64.30	12.00
650.00	930.00	64.00	64.10	5.00
950.00	1240.00	63.00	63.80	5.00
1270.00	1630.00	59.50	61.50	8.00
0	3	BN FOC BN3	M123A4	GSK TO BN 3
0.00	230.00	75.00	59.30	
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		
1290.00	1410.00	71.30	55.80		
1440.00	1630.00	66.30	56.30		
3 BATTERYS 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	
1290.00	1410.00	71.30	55.80	6.00	
1440.00	1630.00	66.30	56.30	0.00	
5	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	0.00	
1420.00	1620.00	64.30	54.80	0.00	
5	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	920.00	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	1610.00	63.30	53.30	0.00	
7	0	BN FDC BN6	FARSS	GS AT D/A	
0.00	190.00	65.80	70.50		
210.00	460.00	65.60	70.00		
460.00	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		
3 BATTERYS IN BN 6					
7	0	B BTRY BN6	FARSS	GS AT D/A	
5000.20					
0.00	190.00	65.80	70.50	8.00	
210.00	450.00	65.60	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	61.90	71.00	0.00	
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	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	1150.00	59.50	72.00	5.00	
1190.00	1390.00	56.50	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	700.00	64.80	70.50						
780.00	1120.00	54.00	72.50						
1140.00	1310.00	54.00	72.30						
1330.00	1630.00	53.70	71.90						
3 BATTERYS IN BN 7									
5	J	B BTRY BN7	M123A4	GSR TO O/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	54.00	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	J	A BTRY BN7	M123A4	GSR TO O/A FROM CORPS					
3100.20									
0.00	480.00	63.40	59.50	7.00					
480.00	730.00	63.30	69.00	3.00					
760.00	1100.00	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	J	C BTRY BN7	M123A4	GSR TO O/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						
23 BATTERYS IN BN 5									
1	J	A BTRY BN8	SPEAR	GS AT CORPS					
4000.20									
0.00	1630.00	57.50	65.00	0.00					
1	J	B BTRY BN8	SPEAR	GS AT CORPS					
4000.20									
0.00	1630.00	65.00	65.00	0.00					
23	10								
FORNIZ = 100.00									
10	10								
55.00	80.00	69.00	77.00	73.00	74.00	74.00	71.00	76.00	68.00
76.00	95.00	79.00	82.00	80.00	79.00	79.00	76.00	79.00	53.00
55.00	80.00	68.00	77.00	68.00	74.00	71.00	71.00	73.00	68.00
73.00	95.00	76.00	82.00	77.00	79.00	79.00	76.00	79.00	53.00
54.00	80.00	64.00	77.00	67.00	74.00	70.00	71.00	72.00	68.00
73.00	95.00	76.00	82.00	76.00	79.00	79.00	76.00	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	95.00	75.00	82.00	75.00	79.00	79.00	76.00	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	95.00	75.00	82.00	75.00	79.00	79.00	76.00	79.00	53.00
62.00	80.00	63.00	77.00	64.00	74.00	70.00	71.00	70.00	68.00
72.00	95.00	73.00	82.00	74.00	79.00	79.00	76.00	79.00	53.00
61.00	80.00	62.00	77.00	61.00	74.00	70.00	71.00	70.00	68.00
72.00	95.00	73.00	82.00	73.00	79.00	79.00	76.00	79.00	53.00
51.00	80.00	62.00	77.00	59.00	74.00	70.00	71.00	70.00	68.00
70.00	95.00	72.00	82.00	72.00	79.00	79.00	76.00	79.00	53.00
60.00	80.00	61.00	77.00	58.00	74.00	70.00	71.00	70.00	68.00
69.00	95.00	73.00	82.00	71.00	79.00	79.00	76.00	79.00	53.00
50.00	80.00	61.00	77.00	57.00	74.00	70.00	71.00	70.00	68.00
65.00	95.00	73.00	82.00	70.00	79.00	79.00	76.00	79.00	53.00
3	.0010	.0010	.0010	.0010	.0010	.0010	.0010	.0010	.500
8									2
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.	13.	4.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	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.		1420.		852.		786.		001.
2		323.		435.		501.		1162.		315.		832.		1408.
3		280.		40.		926.		2210.		764.		107.		1323.
4		774.		260.		316.		240.		603.		114.		1000.
5		411.		503.		1335.		1762.		413.		797.		1235.
6		1412.		721.		757.		1642.		426.		67.		1161.
7		1482.		456.		1770.		678.		200.		944.		1504.
8		1239.		480.		1704.		1982.		943.		972.		1346.
9		197.		176.		1216.		1191.		721.		60.		1146.
10		700.		844.		6093.		1076.		200.		179.		1497.
11		170.		204.		6925.		605.		824.		70.		580.
12		607.		457.		1470.		1091.		804.		400.		4793.
13		209.		974.		520.		85.		117.		050.		4904.
14		1011.		477.		2901.		206.		751.		284.		2595.
15		47.		1373.		2244.		309.		219.		36.		5414.
16		120.		1347.		8440.		0.		284.		999.		5123.
17		209.		3005.		5877.		0.		219.		3644.		3642.
18		103.		3458.		7009.		0.		297.		645.		1709.
19		1222.		760.		2464.		210.		940.		717.		7707.
20		900.		272.		1672.		46.		602.		231.		4312.
21		1004.		1310.		325.		504.		950.		359.		7941.
22		62.		82.		37.		28659.		187.		738.		22499.
23		68.		145.		04.		11240.		151.		2003.		10600.
5.	7.	0.	1.	0.	3.	0.	0.	0.	0.	0.	0.	0.	3.	6.
6.	5.	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	5.
8.	7.	0.	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.	0.	1.
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
.23	.27	.80	1.07	1.00	.50	.60	.60	.60	.60	.25	.25			
.33	.33	5.00	0.00	.25	.20	.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	5.00	0.00	.25	.20	.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	5.00	0.00	.25	.20	.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	5.00	0.00	.25	.20	.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	5.00	0.00	.25	.20	.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					
2.00	9999.00	0.00	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
762.0000	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
841.0000	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
934.0000	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
712.0000	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	38.0000	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	40.0000	0.0000	0.0000

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

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	141.06	18.42	131.99	0.00	295.20	0.00	0.00	0.00	0.00	923.26
TANKS	19.99	18.00	5.05	.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	101.64
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
LCHMRS	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 MSMS	42	62	49	8	13	0	40	0	0	0	0	254

ROUND TOTALS

RND ID	TOTALS											
1261.30	642.00	966.00	929.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2937.00
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 RND5	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	61.60	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	66.40	0.00	258.12	0.00	0.00	0.00	0.00	2289.55

NO. MSNS = 93. TANKS KILLED = 37.81 APCS KILLED = 76.02 TRUCKS KILLED = 1.36

UNACCOMPLISHED MISSIONS

MISSION TYPE	REASONS
MSN DROPPED - QUE OVERLOADED	0
TARGET DEPARTED BEFORE FIRED	0
TGTS DROPPED-ALL BUSY	0
SCHED PLAN MSN CANT DO	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).





D A T A B R E A K D O W N B Y S Y S T E M

	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
BTMS	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 W6	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	5.00	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	PCRS	G-ARJ BREAKDOWN TANKS	APCS	TRUCKS	TUBES	PADARS	LNCHRS	RDS FIRED	RD WGT	RD COST	MSM FRD
BN 4	0.000	3.000	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	649.58	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
TURCS	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 MSMS	111	130	106	16	28	1	78	0	0	0	0	470

BATTERY NO. 13 DEFEATED

ROUND TOTALS

RND ID	DEFEATED	TOTALS
1201.30	2044.00	2078.00
1202.30	0.00	48.00
1203.30	0.00	36.00
1204.30	180.00	150.00
3101.20	0.00	156.00
3102.20	0.00	0.00
3103.20	0.00	0.00
4001.20	0.00	0.00
5001.20	0.00	0.00
TOTAL RND	2224.00	2311.00
TOTAL WGT	183.74	190.89
TOTAL CUST	1250.00	1286.35

NO. MSMS = 138, TANKS KILLED = 61.00 APCs KILLED = 97.00 TRUCKS KILLED = 2.10

CLGP TOTALS

MISSION TYPE	UNACCOMPLISHED MISSIONS	REASONS
MSM DROPPED - QUE OVERLOADED	0	BATTERY BUSY = 9
TARGET DEPARTED BEFORE FIRED	0	BTRY OUT OF ARMO = 0
TGTS DROPPED-ALL BUSY	0	BN FDC BUSY = 135
SCHED PLAN MSM CANT DO	0	BN FDC OUT = 0
HOUSEKEEPING MSM 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

	(1215 - 151)		(1150 - 5)		(150 - 11)		(110 - 0.5)		TOTALS			
	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	M-OBS	PLAN
BN FIRE MSN	76	36	10	66	14	0	125	0	0	39	0	0
MSMS DFTED	18	0	1	11	7	0	43	0	0	6	0	0
ARTY MW	7658.	1885.	417.	.1621.	.836.	0.	1337.	0.	0.	56.	0.	0.
											10673.	2723.
											417.	

FIRE PLANS

PLAN	PLAN ID	MO. TGTS	MO. TGTS SCHEDULED	MO. MSMS SCHEDULED	MO. MSMS FIRED	ARTY SCORE	MO. RDS FIRED	PROCESS TIME
1.	1000.	10.	10.	10.	0.	0.00	0.00	2.40
2.	1000.	0.	0.	2.	2.	423.20	40.00	.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 AND 100.00 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	27.64	.55	0.00	0.00	0.00
MINUTES IDLE	1056.61	1072.19	961.85	946.56	983.75	1075.17	1070.51	1079.45	1052.36	1079.45	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	3.58	0.00	23.37	7.53	0.00	2.58	1.83	0.00	3.67	0.00	0.00	0.00

MINUTES BUSY	BTRY1	BTRY2	BTRY3	BTRY4	BTRY5	BTRY6	BTRY7	BTRY8	BTRY9	BTRY10	BTRY12
MINUTES IDLE	894.10	951.97	1012.67	863.44	925.04	1624.67	917.83	977.68	1001.85	1052.33	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
PERCENT BUSY	54.17	23.33	15.00	20.28	12.78	5.28	0.00	5.28	3.61	3.33	0.00

MINUTES BUSY	BTRY13	BTRY14	BTRY15	BTRY16	BTRY17	BTRY18	BTRY19	BTRY20	BTRY21	BTRY22	BTRY23	BTRY24
MINUTES IDLE	1043.33	1051.00	1068.67	1065.00	1080.00	980.33	1007.00	1033.33	1080.00	1080.00	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	6.00	8.33	0.00	0.00	0.00	14.44	8.89	0.00	5.56	0.00	0.00	0.00

MINUTES BUSY	BTRY25	BTRY26	BTRY27	BTRY28	BTRY29	BTRY30	BTRY31	BTRY32	BTRY33	BTRY34	BTRY35	BTRY36
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

RANGE IN KILOMETERS

ROUND	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	650	698	390	209	162	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1201.30	17991462	846	678	772	76	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*	5835.																													
1202.30	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
1202.30	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*	96.																													
1203.30	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
1203.30	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*	36.																													
1204.30	0	0	8	13	32	48	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	245	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).



D A T A   B R E A K D O W N   B Y   S Y S T E M

	700	1100	1200	1300	1400	1500	2000	3100	4000	5000	5100	TOTLSS
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
BTMS	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
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	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 = .860

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	KD	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	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	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	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	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	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	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	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	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	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	376.03	315.34	43.68	315.10	30.98	585.69	0.00	0.00	0.00	0.00	2028.44
TANKS	89.49	22.94	11.15	.63	.19	0.00	2.73	0.00	0.00	0.00	0.00	117.12
APCS	32.07	83.34	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	158.83
TUBES	1.87	6.40	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
LYCHNS	2.52	2.38	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.54
RTY 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

	BN 1	BN 2	BN 3	BN 4	BN 5	BN 6	BN 7	BN 8	BN 9	BN 10	BN 11	TOTAL
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	278.00	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 BNS	2900.00	2719.00	1947.00	164.00	448.00	24.00	1141.00	0.00	0.00	0.00	0.00	9393.00
TOTAL M/T	240.48	224.86	164.40	16.40	44.80	1.92	114.10	0.00	0.00	0.00	0.00	806.76
TOTAL CDS	1743.98	1523.47	1126.69	73.80	201.60	23.76	510.21	0.00	0.00	0.00	0.00	5207.51

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

CLGP TOTALS

UNACCOMPLISHED MISSIONS

MISSION TYPE

MSM DROPPED - QUE OVERLOADED - 0  
 TARGET DEPARTED BEFORE FIRED - 0  
 TGT'S DROPPED-ALL BUSY - 0  
 SCHED PLAN MSN CANT DO - 0  
 HOUSEKEEPING MSN CANT DO - 0  
 TGT OUT OF RANGE OF ALL UNITS - 0  
 TOTAL - 0

REASONS

D/A FDC BUSY - 0  
 D/A FDC OUT - 0  
 CORPS FDC BUSY - 0  
 CORPS FDC OUT - 0

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

MILITARY WORTH

	(1215 - 151)		(1150 - 5)		(150 - 11)		(110 - 0.5)		TOTALS		
	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	OBS	N-OBS	PLAN	M-OBS	PLAN
WM FIRE MSN	87	42	10	95	15	0	153	0	0	388	57
MSMS DFTD	20	0	1	16	7	0	63	0	0	166	7
ARTY MW	7959.	1955.	417.	1903.	912.	0.	1650.	0.	0.	11587.	2866.
										417.	

FIRE PLANS

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

FIRE PLAN SCORE = 2116.00 (=100.00 PERCENT OF SCHEDULED AND 100.00 PERCENT OF INPUT)

TIME BREAKOUT

D/A	CORPS	BM 1	BM 2	BM 3	BM 4	BM 5	BM 6	BM 7	BM 8	BM 9	BM 10	BM 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
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
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	.42	5.83	5.00	5.00	8.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINUTES BUSY	250.51	187.37	116.33	234.06	196.29	84.08	204.17	80.49	30.67	5.33	4.87	1615.33
MINUTES IDLE	1369.49	1432.63	1505.67	1385.94	1423.71	1535.92	1415.83	1512.01	1536.51	1589.33	1615.67	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MINUTES BUSY	36.67	38.33	14.67	15.00	0.00	109.17	83.33	53.50	0.00	0.00	0.00	0.00
MINUTES IDLE	1581.33	1581.67	1605.33	1605.00	1620.00	1510.83	1536.67	1566.50	1620.00	1620.00	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	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 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	0	0
1201.3025	11724	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	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1202.30	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	0	0	0
	SUM RDS =	96.																														
1203.30	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	0	0
1203.30	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	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	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	0	0
	SUM RDS =	670.																														

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



D A T A   B R E A K D O W N   B Y   S Y S T E M

	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
AMMO	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	4.40	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
BTMS	0.00	0.00	436.00	0.00	0.00	0.00	0.00	137.00	0.00	1.00	0.00	436.00
RO 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
RO W6	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
ATTPI	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	.85	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			TUBES	RADARS	LMCHRS	RDS FIRED	RD MGT	RD COST	MSM FRD
			TANKS	APCS	TRUCKS							
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	24.000	1.920	23.760	1.000	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	24.000	1.920	23.760	1.000	1.000

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







## 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)

AFSM GLOSSARY

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 <sup>2</sup>	Lethal areas of the HE round being fired for nine target elements in three environments at current range
ARLETH	meters <sup>2</sup>	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)

AFSM GLOSSARY

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

AFSM GLOSSARY

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

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ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY ABERDEEN PROV--ETC F/G 9/2  
ARTILLERY FORCE SIMULATION MODEL USER MANUAL.(U)

JAN 79 R S SANDMEYER  
AMSAA-TR-263

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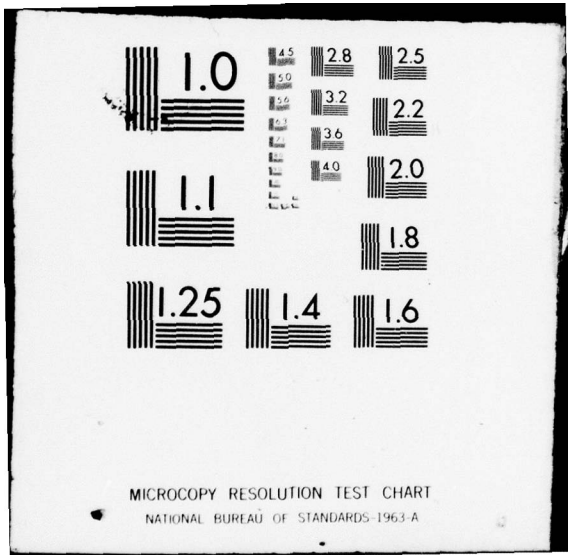
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AFSM GLOSSARY

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)	(kilo-dollars) <sup>-1</sup> or (metric tons) <sup>-1</sup>	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)	(kilo-dollars) <sup>-1</sup>	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)

AFSM GLOSSARY

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)

AFSM GLOSSARY

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 $i^{\text{th}}$ firing battery is shooting ICM on this mission; LHE(I)=1, if $i^{\text{th}}$ firing battery is shooting HE on this mission

AFSM GLOSSARY

Variable	Units	Definition
MASLT	---	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

AFSM GLOSSARY

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

AFSM GLOSSARY

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

AFSM GLOSSARY

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

AFSM GLOSSARY

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	---	$\pi$
PII	---	$-\frac{1}{\pi}$
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
PNDDET(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

AFSM GLOSSARY

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

AFSM GLOSSARY

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
REDSKD(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)

AFSM GLOSSARY

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)

AFSM GLOSSARY

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
SRSFY(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 counterbattery fire missions are scheduled; TIMSKY(1) is time of next counterbattery fire mission

AFSM GLOSSARY

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 counterbattery fire against each of up to 11 weapon systems

AFSM GLOSSARY

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

AFSM GLOSSARY

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

AFSM GLOSSARY

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
USED FP(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

AFSM GLOSSARY

Variable	Units	Definition
WGTI(25)	(metric tons) <sup>-1</sup>	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  $i^{\text{th}}$  round type

J is the  $j^{\text{th}}$  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<sup>2</sup>

=6, priority value of jth 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, ith 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<sup>th</sup> 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  $i^{\text{th}}$  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  $j^{\text{th}}$  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 } no longer used in program  
=8 }  
=9 }

\*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**

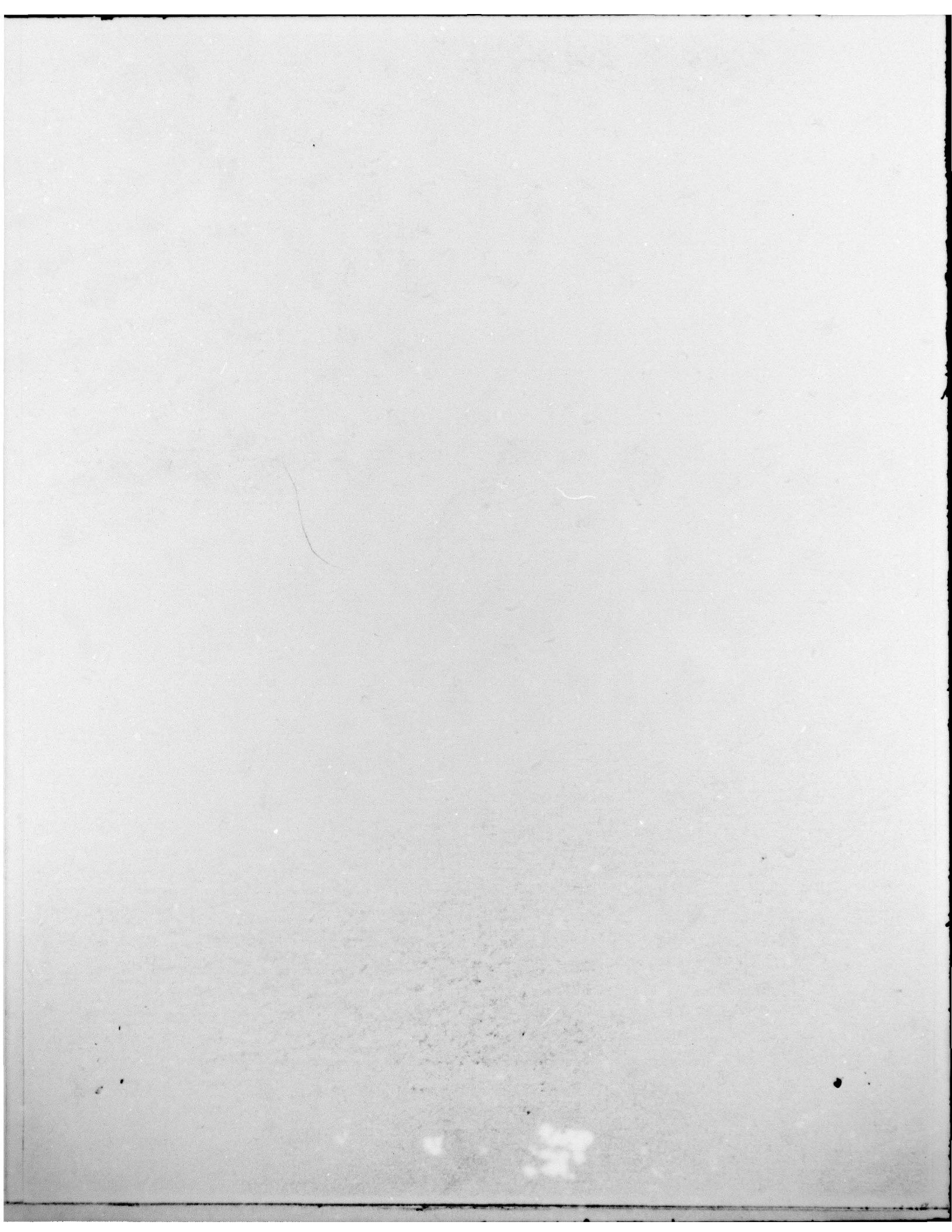
SYSORT(I,J)

(17,16)

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

I is as defined below:

- =1, total military worth of Red targets attrited by  $j^{\text{th}}$  Blue system type
- =2, total number of Red personnel attrited by  $j^{\text{th}}$  Blue system type
- =3, total number of Red armor attrited by  $j^{\text{th}}$  Blue system type
- =4, total number of Red trucks attrited by  $j^{\text{th}}$  Blue system type
- =5, total number of Red artillery tubes attrited by  $j^{\text{th}}$  Blue system type
- =6, total number of Red radars attrited by  $j^{\text{th}}$  Blue system type
- =7, total number of Red missile launchers attrited by  $j^{\text{th}}$  Blue system type
- =8, total number of battery missions fired by  $j^{\text{th}}$  Blue system type
- =9, total number of rounds fired by  $j^{\text{th}}$  Blue system type
- =10, total weight of rounds fired by  $j^{\text{th}}$  Blue system type, metric tons
- =11, total cost of rounds fired by  $j^{\text{th}}$  Blue system type, kilo-dollars
- =12, total number of incoming fires received by  $j^{\text{th}}$  Blue system type
- =13, total number of Blue artillery tubes of  $j^{\text{th}}$  Blue system type out due to attrition
- =14, total number of Blue artillery tubes of  $j^{\text{th}}$  Blue system type out due to RAM
- =15, total number of Blue artillery tubes up of  $j^{\text{th}}$  Blue system type
- =16, average fractional value of tubes available of  $j^{\text{th}}$  Blue system type
- =17, working slot for number of Blue artillery tubes up of  $j^{\text{th}}$  Blue system type [used for computation of SYSORT(16,I)]



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