

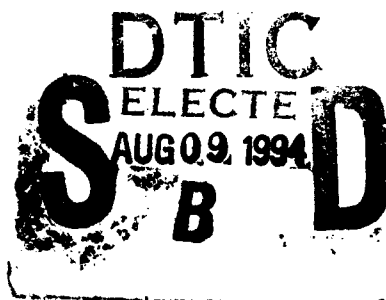
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ADST
Operation Manual for the
Management Command and Control
Volume I of II : AIRNET/MIPS Host MCC

Loral Western Development Labs
Electronic Defense Systems Software Department
Software Engineering Laboratory
3200 Zanker Road
San Jose, California 95161-9041



September 24, 1993

Contract No. N61339-91-D-0001
CDRL A00A

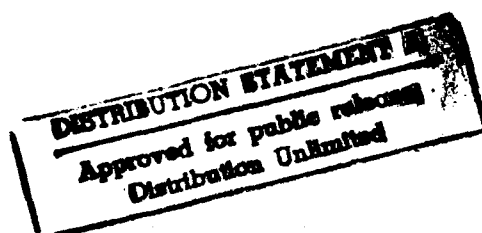
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Prepared for

Simulation Training and Instrumentation Command
Naval Training Systems Center
12350 Research Parkway
Orlando, FL 328266-3275



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TABLE of CONTENTS

1.	Scope	1
1.1	Identification.....	1
1.2	System Overview	1
1.3	Document Overview	1
2.	Referenced documents.	3
2.1	MCC Related Documents	3
2.2	SIMNET Related Documents	3
3.	MCC Workstation Screen Conventions	4
3.1	Console and Screen Title	4
3.2	Previous Option	4
3.3	Next Option	4
3.4	OK Option.....	4
3.5	Data Entry into Boxes	4
4.	Operation Preparations.....	5
4.1	Hardware Preparation.	5
4.2	Software Preparation.....	5
4.3	Other Preparations.....	6
4.4	MIPS Initialization.	6
5.	Operation Procedures.	7
5.1	Simulation Initialization.	7
5.1.1	Connect Screen.	8
5.1.2	Simulation Start.....	9
5.1.3	Role/Terrain.	10
5.1.4	Functions Overview.	11
5.2	Simulator Allocation.....	12
5.2.1	Simulator Allocation Worksheet.	13
5.2.2	Allocation to Operational Elements.	14
5.3	Simulator Activation.	15
5.3.1	Elements Activation.	16
5.3.2	Simulator Activation.	17
5.3.2.1	Bumper/Tail Number.	19
5.3.2.2	Location.	20
5.3.2.3	Bow azimuth/Heading	20
5.3.2.4	Maintenance Status.....	20
5.3.2.5	Vehicle type.	20
5.3.2.6	Alignment.	21
5.3.2.7	Fuel/Ammo load.	21
5.3.3	Error Dialogs.	22
5.4	Command Post Initialization.	23
5.4.1	Tactical Command Post Initialization.....	24
5.4.2	Tactical Operation Center Initialization.	26
5.4.3	Battalion Rear Command Post Initialization.	28
5.5	Service Element Initialization.	30
5.5.1	Service Elements Overview.....	31

5.5.2	Class III & V Elements Initialization.	32
5.5.3	Initialize the Default Values of Service Elements.	33
5.5.4	Initialize Ammunition Controlled Supply Rates.	34
5.6	Battlemaster.	35
5.6.1	Displacement.	37
5.6.1.1	Displace Elements.	39
5.6.2	Reconstitution.	40
5.6.2.1	Reconstitute simulators.	41
5.6.2.2	Reconstitute Command Posts.	43
5.6.2.3	Reconstitute Fuel Vehicles.	44
5.6.2.4	Reconstitute Ammo Vehicles.	46
5.6.2.5	Reconstitute FAREs.	48
5.6.2.6	Reconstitute DRUMs.	50
5.6.3	Gunnery Targets.	52
5.6.4	Resume initialization.	56
5.6.5	End exercise.	57
6.	Notes.	59
6.1	Abbreviations/ Acronyms	59
APPENDIX A		60

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Justification	
By _____	
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Availability Codes	
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A-1	

LIST of TABLES

Table 5.4.1	TAC CP Default Configuration	25
Table 5.4.2	TOC Default Configuration.....	27
Table 5.4.3	Battalion Rear CP Default Configuration.....	29
Table 5.6.3	Default Target Type.....	55

LIST of FIGURES

Figure 4.1	MCC System Top Level Hardware Configuration	5
Figure 5.1.1	Connect Screen	8
Figure 5.1.2	Simulation Start.....	9
Figure 5.1.3	Role/Terrain	10
Figure 5.1.4	Functions Overview	11
Figure 5.2	Simulator Allocation selection	12
Figure 5.2.1	Simulator Allocation Worksheet	13
Figure 5.2.2	Allocation to Operational Elements	14
Figure 5.3	Simulator Activation selection.....	15
Figure 5.3.1	Elements Activation	16
Figure 5.3.2	Simulator Status	17
Figure 5.3.2-1a	Simulator Specifications.....	18
Figure 5.3.2-1b	Simulator Specifications.....	19
Figure 5.3.3	Error Dialog sample	22
Figure 5.4	Command Post Initialization selection.....	23
Figure 5.4.1	Tactical Command Post selection.....	24
Figure 5.4.1-1	Alignment of Tactical Command Post.....	25
Figure 5.4.2	Tactical Operation Center selection	26
Figure 5.4.2-1	Alignment of Tactical Operation Center	27
Figure 5.4.3	Battalion Rear CP selection.....	28
Figure 5.4.3-1	Alignment of Battalion Rear CP.....	29
Figure 5.5	Service Elements Initialization selection	30
Figure 5.5.1	Service Elements Overview	31
Figure 5.5.2	Number of Service Elements	32
Figure 5.5.3	Service Elements Default values.....	33
Figure 5.5.4	Ammunition Controlled Supply Rates	34
Figure 5.6	BattleMaster selection	35
Figure 5.6-1	BattleMaster password.....	36
Figure 5.6.1	Displacement selection.....	37
Figure 5.6.1-1	Elements Selection	38
Figure 5.6.1-2	Command Post Displacement.....	39
Figure 5.6.2	Reconstitution selection	40
Figure 5.6.2.1	Reconstitute Simulators selection	41
Figure 5.6.2.1-1	Simulator Status	42
Figure 5.6.2.2	Reconstitute Command Post selection.....	43
Figure 5.6.2.3	Reconstitute Fuel Vehicles selection.....	44
Figure 5.6.2.3-1	Fuel Vehicle status	45
Figure 5.6.2.4	Reconstitute Ammo Vehicles selection	46
Figure 5.6.2.4-1	Ammo Vehicle status.....	47
Figure 5.6.2.5	Reconstitute FAREs selection	48
Figure 5.6.2.5-1	FAREs status	49
Figure 5.6.2.6	Reconstitute Fuel DRUMs.....	50
Figure 5.6.2.6-1	Fuel DRUM status	51
Figure 5.6.3	Gunnery Targets selection.....	52

Figure 5.6.3-1 Gunnery Targets Worksheet	53
Figure 5.6.3-2 Gunnery Target Initialization.....	54
Figure 5.6.4 Resume Initialization selection	56
Figure 5.6.5 End Exercise selection	57
Figure 5.6.5-1 End Exercise confirmation dialog.....	57

1. Scope

1.1 Identification

The purpose of this document is to describe the MIPS Management Command and Control (MCC) system operational procedures to be used for initializing the AIRNET Battle Simulation and for conducting battle exercises at the AIRNET facility (Ft. Rucker).

1.2 System Overview

The system needed for the AIRNET Battle Simulation includes:

- A SIMNET network like that at Fort Rucker (Site 4).
- MIPS workstation running the 1.0.0 MIPS AIRNET MCC with a Shiva Fastpath box and a 1.0.0 Macintosh SCC console. NOTE : The 7.X Macintosh ALC console is not used.
- Masscomp computer running the 1.0.0 MCC with a Macintosh Bridge console, a 1.0.0 SCC Macintosh Console, a 1.0.0 Admin Macintosh Console. 1.0.0 Maintenance Console (Maint), 1.0.0 Fire Support Element (FSE) and 1.0.0 Combat Engineering Console (CEC) Macintosh Consoles can also be used in AIRNET exercises.
- (Optional) A Data logger to capture the PDUs sent between the MCC's and the RWA's.
- (Optional) A PVD to see the vehicles on the SIMNET network and their positions on the terrain. The PVD is also recommended for determining the UTM coordinates at which to place the RWA's.

1.3 Document Overview

This document describes the MCC screen operations for the AIRNET Battle Simulation. It provides graphic representations of the available MCC screens that provide the data necessary for initializing the simulation and for conducting battle exercises. In addition, a general description of the sequence of initialization and exercise operation is provided.

The remainder of this document is organized as follows:

- Section 2, Referenced Documents, identifies all of the documents that are included in this document by reference or that provide additional information to support the MCC operational procedures described herein.
- ≥ Section 3, Describes the MCC Workstation Screen conventions.

- Section 4, Describes the hardware, software and other requirements to support battle exercise simulation.
- Section 5, Describes the MCC Workstation Screens operational procedures.
- Section 6, Notes, provides additional information that aids in understanding the MCC system described herein. It also includes a list of acronyms and definitions of terms used in this document.
- Appendix A, provides the MCC Screens flow diagrams.

2. Referenced documents.

The following documents are referenced in this document or provide supplementary information that may be useful in understanding the MIPS MCC's operation at the AIRNET Fort Rucker facility.

2.1 MCC Related Documents

Reconfigurable MCC, BBN Report No. 7734, BBN, June 26, 1992.

The SIMNET Management, Command and Control System, Report No. 6473, Bolt Beranek and Newman, March 1987.

The Software Requirements & Interface Specification for the AIRNET MCC Comanche Support and Digital Message/Communications Upgrade, December 18, 1992.

The System Specification for the RWA AIRNET Aeromodel and Weapons Conversion, June 5, 1992.

2.2 SIMNET Related Documents

The SIMNET Network and Protocols, Report No. 7627, Arthur R. Pope; Prepared for DARPA by Bolt, Beranek and Newman, Inc. June 1991.

3. MCC Workstation Screen Conventions

3.1 Console and Screen Title

Many screens on MCC console include a title in the title bar. This title is the name of the function that is to be performed and is worded identically to the function listed in the Overview Menu.

3.2 Previous Option

Each of the successive initialization screens contains a **Previous** button. Clicking this button brings back the previous screen in the current initialization sequence.

3.3 Next Option

Each of the successive initialization screens contains a **Next** button. The **Next** button is highlighted with heavy outline, indicating that the function can also be performed by pressing the RETURN key on the keyboard. Clicking the **Next** button causes the MCC program to store the entries made on a screen and bring up the next screen in the initialization sequence.

3.4 OK Option

Throughout the initialization and operation phases of the simulation exercise, detailed data boxes will be superimposed over various MCC screens. In each case, these data boxes offer an **OK** button at the lower right of the dialog box. The **OK** button is highlighted with a heavy outline, indicating that the function can also be performed by pressing the RETURN key on the keyboard. Clicking the **OK** button informs the MCC software that the user is satisfied with the data entered in the dialog box.

3.5 Data Entry into Boxes

Many MCC screens require that information and data be entered into boxes. On all such screens, as opposed to the screens where selections are made only by clicking, the MCC program will bring up the screen with default data entered (if available) and with the cursor positioned in the first data box. The operator may enter or change data in each box successively by using either the TAB key on the keyboard or the mouse. Successful operations will result in completion of data entry in all boxes. The MCC console operator can position the cursor in any box with the mouse.

4. Operation Preparations.

4.1 Hardware Preparation.

Figure 4.1 shows the equipment configuration for the MCC AIRNET Simulation at the AIRNET Fort Rucker facility.

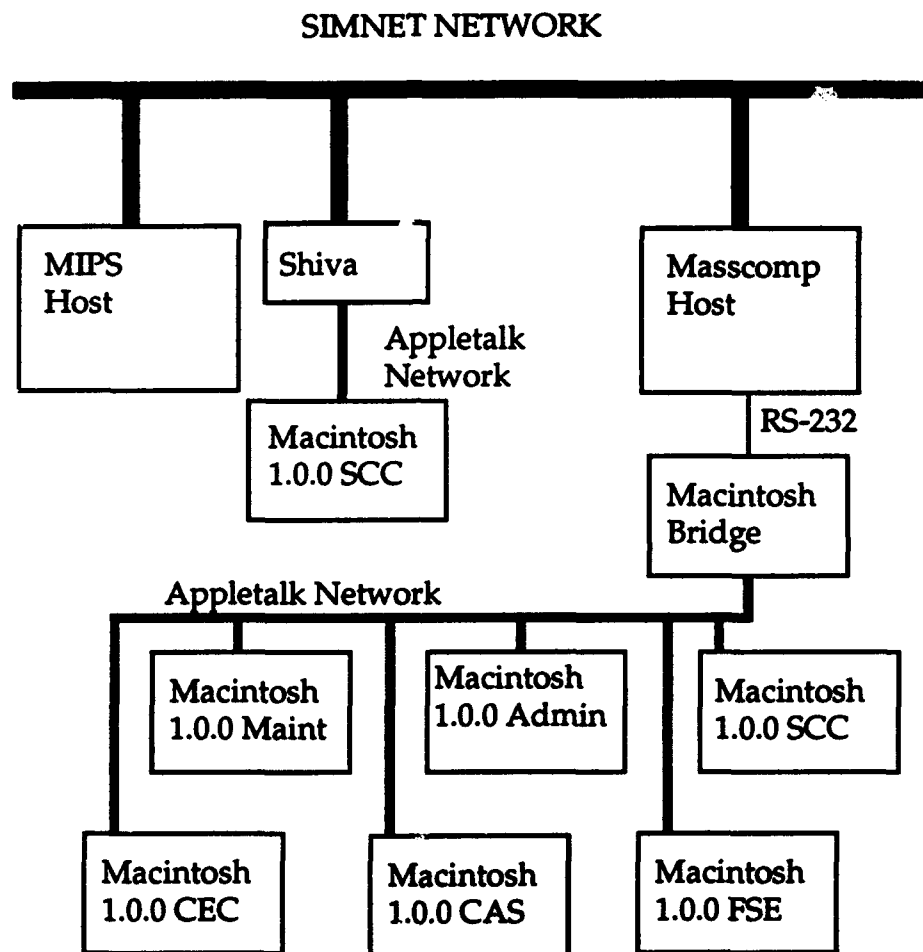


Figure 4.1 MCC System Top Level Hardware Configuration

4.2 Software Preparation.

The following Software must be specifically configured to support the MCC AIRNET Simulation:

MIPS MCC host software; MCC version 1.0.0 Phantom (SAF) version 4.0.4

MIPS OS version 4.51 (This information is obtained by typing `uname -r` at the MIPS console)

Macintosh SCC console software version 1.0.0
Macintosh OS : preferably version 6.0.5.
Shiva FastPath Manager II
Shiva K-STAR version 8.0.1

4.3 Other Preparations.

The following database must be available to support the MCC AIRNET Simulation:

saf/terrain/knox-0311 (Fort Knox database).

or

saf/terrain/hunter-0110 (optional alternate database).

4.4 MIPS Initialization.

The following steps must be accomplished to initialize the system:

1. If the MIPS phantom is running, then exit the program by typing quit at the command line.
2. On the MIPS, type `cd /usr3/saf/bin` command.
3. Type `/MCC` command at the UNIX prompt to restart the ethernet process (ringstart) and execute the phantom process using the Fort Knox terrain database. The following commands are actually executed:

```
/usr3/saf/bin/netstart  
cd /usr3/saf/MCC4.0.4  
dbx -c launch_phantom phantom
```

4. Wait for a couple of seconds for the phantom process to get to the MCC prompt.
5. Get on the 1.0.0 SCC console and make sure that the MCC folder is mounted on the SCC. The MCC folder will be beneath the hard drive folder and have the image of a owl on the folder icon.

If the MCC folder is not present, select the **Chooser** item from the **Apple** menu on the Macintosh menu bar. Once in the Chooser dialog, select the **AppleShare** icon in the upper left corner of the Chooser dialog. Then click on the **Appletalk Zone** in which the filesystem **MIPS-1 Aufs** exists. The user then will have the MCC filesystem as a choice for a volume to mount. The user must log into the filesystem as a guest and with no password. The user should then click on the **OK** button in the Chooser dialog to mount the filesystem and click on the icon to open the window.

6. The user is now at the First SCC screen which is the Connect Screen.

5. Operation Procedures.

5.1 Simulation Initialization.

The first sequence of MCC screens allows general initialization of the training exercise. It consists of designation of overall forces and locations and of the organic elements of the aviation unit to participate in the battle exercise.

5.1.1 Connect Screen.

Connect Screen

Host:

Zone:

Status

Zones

Hosts

☐ Update as default

Stand Alone

Connect

Figure 5.1.1 Connect Screen

The Connect Screen allows the user to connect with any MIPS MCC that is running and connected to the same SIMNET network. The user should choose the Zone that contains MIPS-1 as a host and double click on it immediately followed by a double click on the MIPS-1 host entry. Next the SCC should connect with the MIPS and start reading in parameter files. After the SCC has read the needed parameter (.lisp) files the Simulation Start window will come up.

Clicking the Update as default button causes the host and zone names to be saved as default.

Clicking the Stand Alone button causes the SCC to run without connecting to the MIPS MCC. The SCC has no control over a SIMNET exercise when in Stand Alone mode.

5.1.2 Simulation Start.

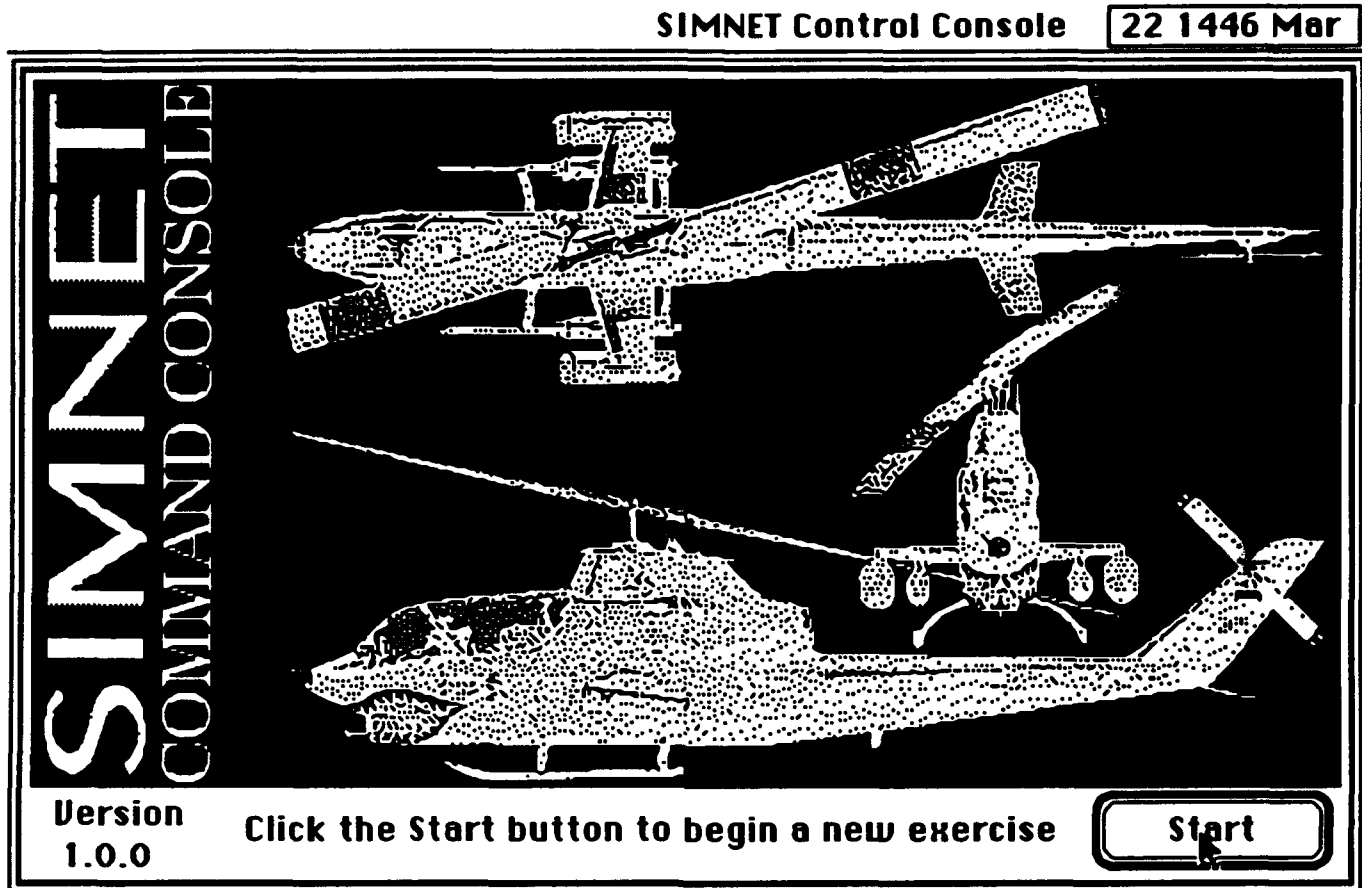


Figure 5.1.2 Simulation Start

After the SCC has connected to the MIPS Host and has read in the .lisp files an initial screen is displayed (Figure 5.1.2). This is the screen that begins the initialization of an exercise. The Version identification is displayed in the lower left corner of the screen.

Clicking the **Start** button on this screen brings up the Role/Terrain screen (Figure 5.1.3). Note that the **Start** button has a heavy outline, indicating that the function can also be performed by pressing the RETURN key on the keyboard.

5.1.3 Role/Terrain.

This MCC is going to be participating in exercise: 1

Please choose a default role for this MCC:

☒ **US** ☐ **Observer**

☐ **Threat** ☐ **Target**

The following terrain is being used for this exercise:

Ft. Knox - 08/14/90

The SW corner of this exercise area is at ES450550

The NE corner of this exercise area is at FT200050

The map sheets describing this exercise area are:

Series U753; Kentucky; sheets 3759 I & II, 3859 III & IV

Previous **Next**

Figure 5.1.3 Role/Terrain

Clicking the Start button of Figure 5.1.2 brings up the second screen as shown in Figure 5.1.3. This screen of the initialization sequence allows the user to specify the role of the MCC as being the US, Threat, Observer or Target by simply placing the cursor and clicking one of the circles. The screen displays the SW and NE corners of the exercise area and the map sheet coverage for the exercise area.

Clicking the Next button on this screen causes the data to be stored in the MCC database and brings up the Functions Overview screen (Figure 5.1.4). Note that the Next button has a heavy outline, indicating that the function can also be performed by pressing the RETURN key on the keyboard.

Clicking the Previous button returns to the Simulation Start screen.

5.1.4 Functions Overview.

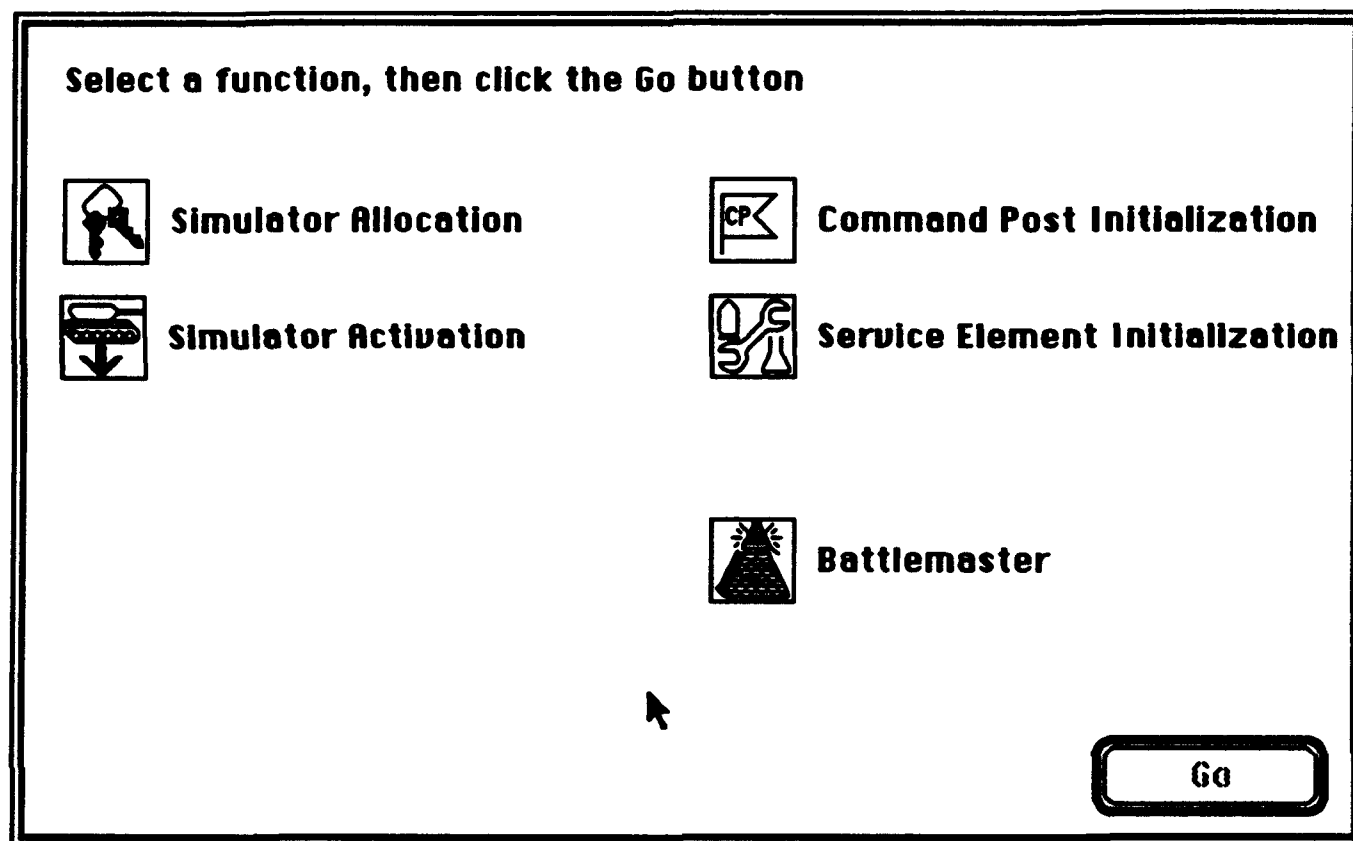


Figure 5.1.4 Functions Overview

The Functions Overview menu is the basic screen on the SCC from which all other functions are selected. Its purpose is to group force element initialization into specific functional areas to assure that all data necessary for the simulation exercise is input to the MCC program in an orderly manner. Figure 5.1.4 portrays the Functions Overview menu. Note that the function icon is "boxed" when it has been selected. A particular function previously selected and completed on the Command Post Initialization or the Service Element Initialization screens can not be selected again for further initialization. These previously initialized Command Posts or Service Elements will be grayed-out.

The user can activate any function by simply selecting the function icon and then clicking the GO button.

September 24, 1993

5.2 Simulator Allocation.

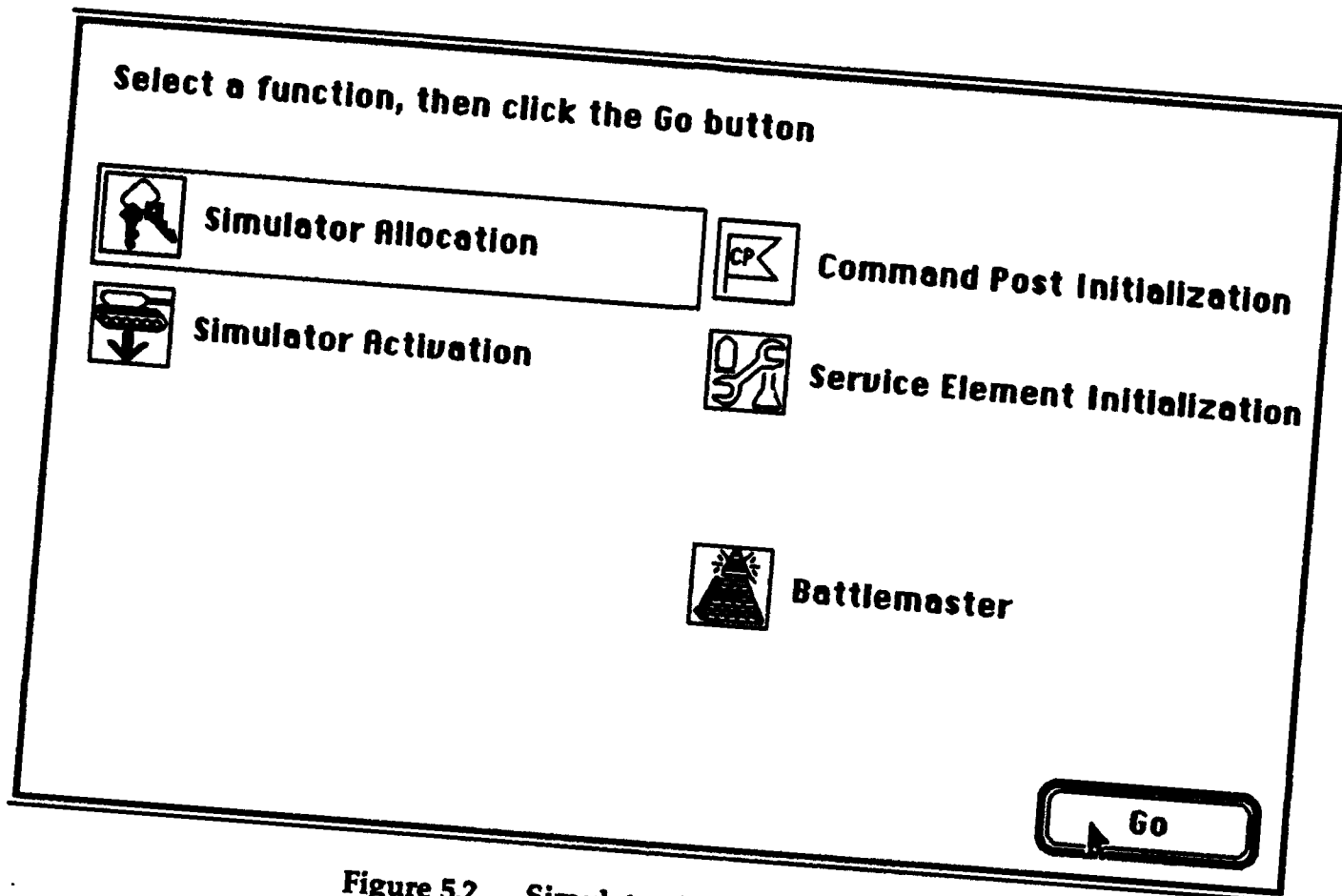


Figure 5.2 Simulator Allocation selection

By choosing the Simulator Allocation icon and clicking the GO button from the Functions Overview menu as shown in Figure 5.2, the user can begin to individually allocate simulators on the exercise terrain.

5.2.1 Simulator Allocation Worksheet.

Select simulator(s) and press the Allocate button to allocate.

Simulator Type	Assignment	Placed
M2-1	M2	No
M2-1	M2	No
M1-1	M1	No
M1-2	M1	No
81	FRED	No
82	FRED	No
83	FRED	No
84	FRED	No
85	FRED	No
86	FRED	No
87	FRED	No
88	FRED	No

Overview Allocate

Figure 5.2.1 Simulator Allocation Worksheet

By selecting the Simulator Allocation icon and clicking the GO button from the Functions Overview menu, user can begin to allocate each available simulator to an echelon. Figure 5.2.1 shows the Simulator Allocation Worksheet as it appears when first brought up, the screen is scrollable and lists all the simulators installed at the local AIRNET site, regardless of simulator type. Rotary wing simulators are listed as FRED (Fully Reconfigurable Device). Fixed wing simulators are listed as F/W, and ground combat vehicle simulators are listed as M1, M2, M3. A No in the Placed column means that the vehicle has not yet been placed. Only those simulators actually installed at the AIRNET facility are displayed on this screen.

The user can select a simulator for allocation by clicking anywhere on the line relating to the desired simulator and then clicking the Allocate button. By holding the shift key down when this device is selected, any sequential number of available devices may be selected at one time.

Clicking the Overview button returns to the Functions Overview menu.

5.2.2 Allocation to Operational Elements.

Specify element of assignment and press the Assign button

Assign to:

USSR Army

Figure 5.2.2 Allocation to Operational Elements

Clicking the Allocate button with a simulator selected from the Simulator Allocation Worksheet (Figure 5.2.1) brings up the simulator Allocation to Operational Elements screen as shown in Figure 5.2.2 that provides for input of data necessary for assignment of that simulator to an AIRNET element. There are three companies(A-C) organic to each standard ATKHB which can be accessed by double-clicking any display line which contain data in the scrollable display section. Any or all of the companies may be designated for operation in a given battle exercise, but at least one must be designated.

Clicking the Assign button on this screen assigns the simulator to the selected Element, causes the data to be stored in the MCC database and returns the user to the Simulator Allocation Worksheet (Figure 5.2.1) for selection of another simulator for allocation. Changes to allocation data can be made at this time by simply repeating the process for the desired simulator. Note the update to the Assignment of the selected simulator on the Simulator Allocation Worksheet (Figure 5.2.1).

Clicking the Cancel button returns to the Simulator Allocation Worksheet.

5.3 Simulator Activation.

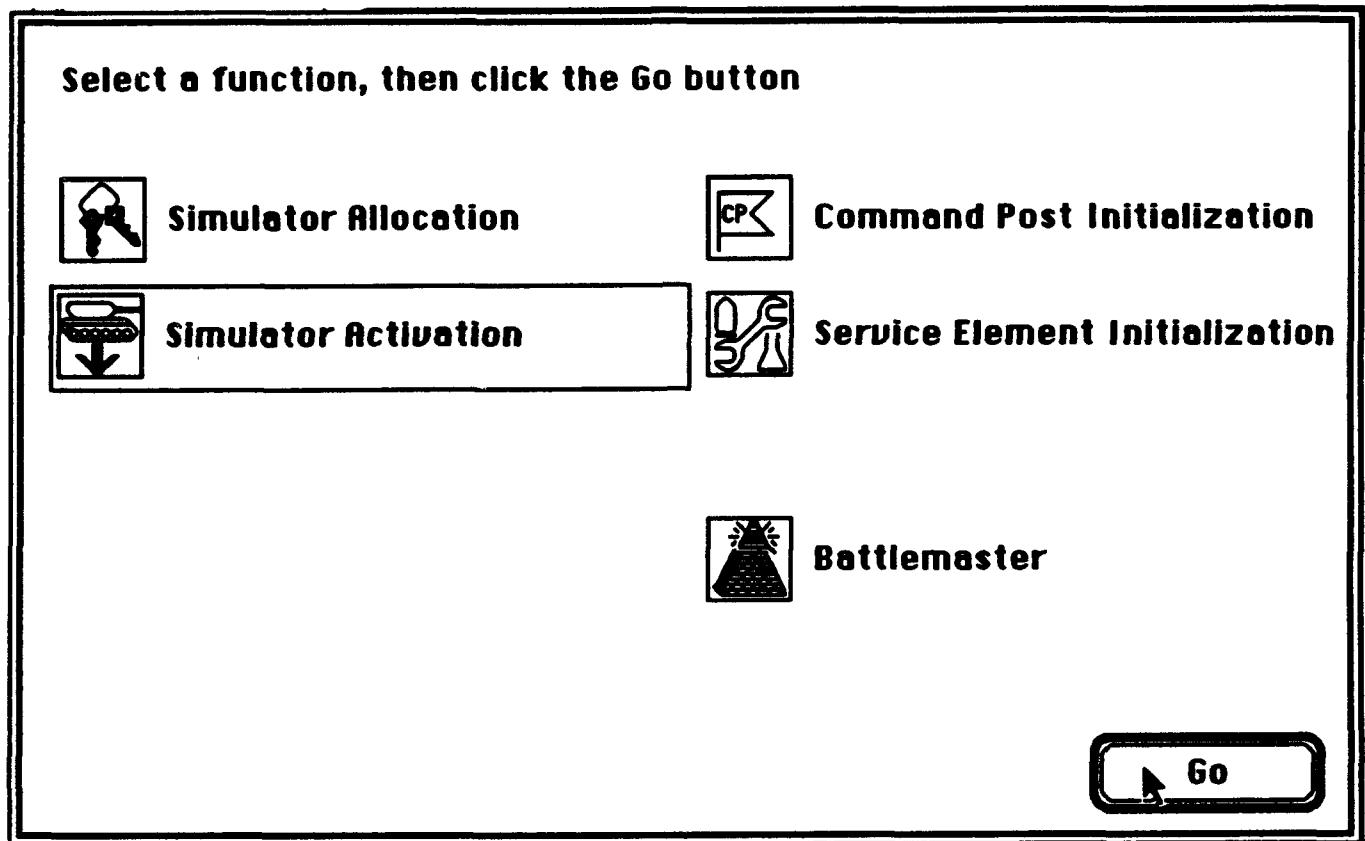


Figure 5.3 Simulator Activation selection

By choosing the Simulator Activation icon and clicking the GO button from the Functions Overview menu as shown in Figure 5.3, the user can begin to individually activate the allocated simulators on the exercise terrain.

5.3.1 Elements Activation.

Activate in:

☐ US Army
☐ USSR Army

Default location:

Default force:

☒ US
☐ Threat
☐ Observer
☐ Target

Figure 5.3.1 Elements Activation

Clicking the GO button on the Functions Overview menu (Figure 5.3) then brings up the Elements Activation screen as shown in Figure 5.3.1. The user can begin to select in turn each element to which simulators have been previously allocated. The scrollable section of this screen operates in the same manner as that discussed in Section 5.2.1. The Default location if entered here will be used by all simulators as defaults. This screen also allows the user to specify the role of the local simulator as being the US, Threat, Observer or Target by simply place the cursor and click one of the circles.

Clicking the Next button on this screen causes the data to be stored in the MCC database and brings up the Simulator Status screen as shown in Figure 5.3.2 for selection of individual simulators for activation.

Clicking the Cancel button returns to the Functions Overview menu.

5.3.2 Simulator Activation.

Select simulator(s) and press the Next button.

Simulator	Type	Assignment	Placed
1A	M1	World	No
2A	M1	World	No

Overview Next

Figure 5.3.2 Simulator Status

Figure 5.3.2 displays all simulators assigned to the selected Element and allows the individual simulator to be selected for activation. Clicking the Overview button returns to the Functions Overview menu. Clicking the Next button from this screen with a selected simulator brings up the Simulator Specifications screen for the selected simulator as shown in Figure 5.3.2-1a.

Simulator: 8B		Tail No.	1
Simulator type: FRED		Location	
Assigned to: World		Heading	0 (Deg)
Vehicle type:	AH64	Maint. status:	• - New
Alignment:	US		
Fuel Load	2438	Lbs	

Fuel Load	2438 Lbs
30mm single barrel	1200 Rounds
Hellfire missiles	8
Stinger missiles	4
Hydra 70 10lb	38
Hydra 70 MPSM	0
Hydra 70 Flechette	0

Set Values to: ☐ Default ☒ Custom

Cancel **Activate**

Figure 5.3.2-1b Simulator Specifications

The Simulator Specification screen initially shows the Simulator ID, Type, Assign 1 to, Vehicle type, Alignment, Bumper/Tail number, Location, Bow azimuth/Heading, Maintenance status, and the vehicle load data. The Bumper/Tail number, Location and Bow azimuth/Heading are modifiable by placing the cursor in the individual data block and overtyping the data. The Vehicle type, Alignment and Maintenance status fields offer a pull-down menu from which the response can be selected. Clicking anywhere on the vehicle data line in the scrollable display block brings up the Data Edit line as shown in Figure 5.3.2-1b where modification can be done. Slightly different formats are available for different types of simulators as shown in Figure 5.3.2-1a and Figure 5.3.2-1b.

Changing any data on this screen causes the Custom circle to be high lighted. Placing the cursor and clicking the Default circle resets the default data.

Clicking the Activate button activates the simulator.

Clicking the Cancel button returns to the Simulator Status screen.

5.3.2.1 Bumper/Tail Number.

The vehicle tail (bumper) number box will accept any two (2) digit numeric only, combination--no alpha, and only 2 digits {0,1,2,3,4,5,6,7,8,9}. It can be the bumper number of actual vehicles assigned to the exercise unit, unit call numbers, or any other desired combination. Should this

box be left blank when the Activate button is clicked, it defaults to the simulator number as shown on the Simulator Allocation Worksheet.

5.3.2.2 Location.

The location entry is mandatory. When each simulator is activated, it will appear on the terrain data base at the site of the six or eight-digit coordinates and two letter grid zone designator is entered in this box. The MCC will separate all vehicles (a distance predefined in the software) from each other, even though identical coordinates may have been entered in the location block. Should this box be left blank when the Activate button is clicked, an error dialog box will appear.

5.3.2.3 Bow azimuth/Heading.

The bow azimuth entry provides the orientation of the vehicle upon activation. It is a mandatory entry since it specifies the initial reading on the simulator heading indicator, and all subsequent movement during the exercise is related to this initial orientation. A default value of zero degrees appears in the Bow azimuth.

5.3.2.4 Maintenance Status.

The Maintenance Status entry determines the vehicle status at the time of initialization. The following are available responses:

- * - New
- **
- ***
- ****
- ***** - Old

5.3.2.5 Vehicle type.

The Vehicle type entry determines the vehicle type at the time of initialization. The available responses are offered through a pull-down menu defined for each simulator type. The following responses are available:

For FRED: AH64, AH1, OH58C, OH58D-1, OH58D-2, OH58D-3, RAH66, CH47, UH60, Mi28, Mi8, Mi17, Mi24D, Mi24F, SA342.

For M1: M1.

For M2/3: M2, M3.

5.3.2.6 Alignment.

The Alignment entry determines the side from which the simulator will operate during an exercise. The following are available responses offered by the pull-down menu:

- US
- Threat
- Observer
- Target
- No change

5.3.2.7 Fuel/Ammo load.

The Fuel/Ammo load block displays the initial load of the simulator. The user may change any of the load amount as required.

5.3.3 Error Dialogs.

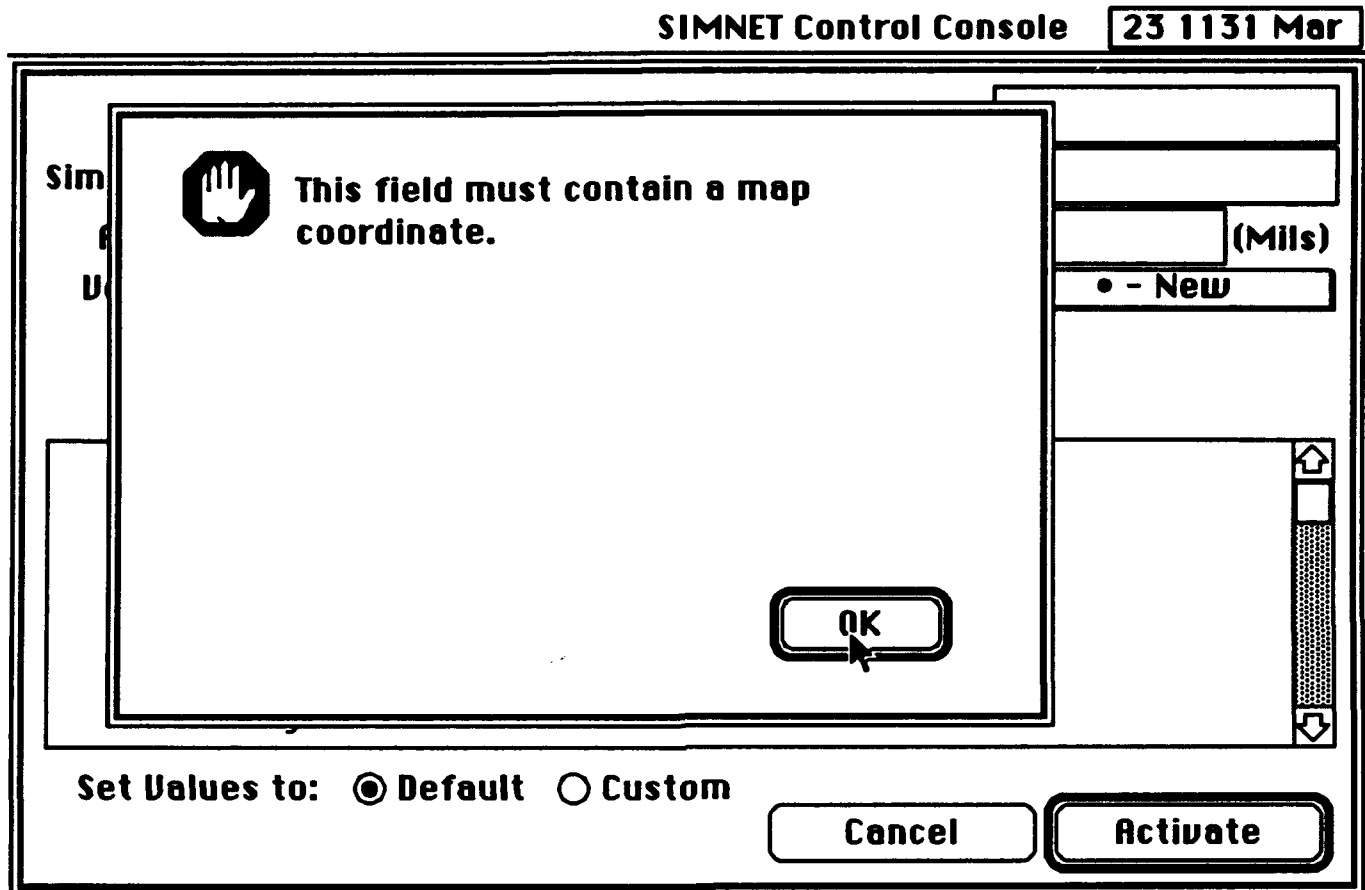


Figure 5.3.3 Error Dialog sample

An erroneous or missing entry may cause an appropriate dialog box to appear identifying the error condition and requiring a corrected entry for continued initialization. Figure 5.3.3 portrays a sample error dialog. The user must click the OK button to get back to the data screen.

5.4 Command Post Initialization.

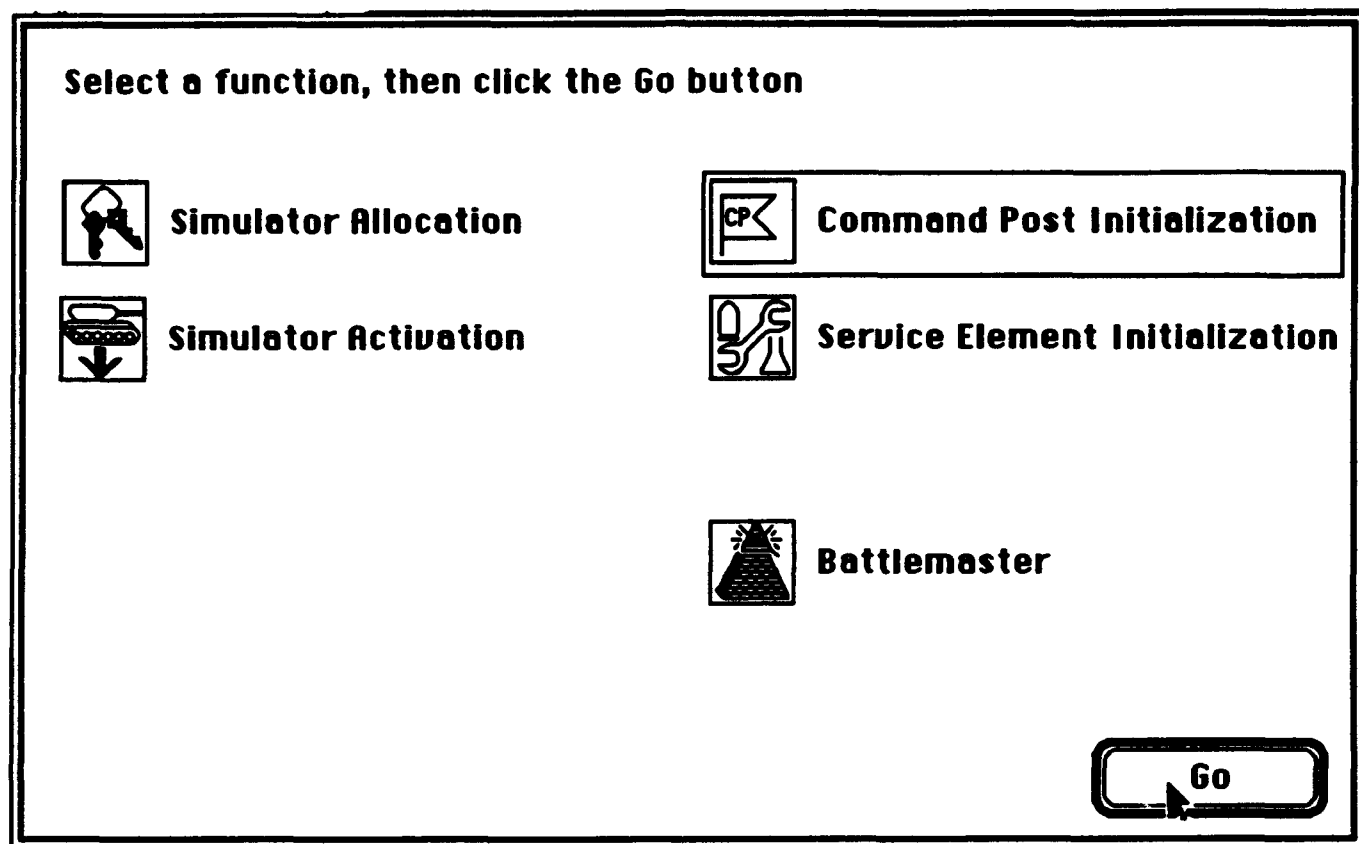


Figure 5.4 Command Post Initialization selection

Selecting the Command Post Initialization icon causes a box to surround this icon as shown in Figure 5.4 indicating that this is the next element to be initialized. Clicking the GO button then brings up a Command Post Initialization Options screen (Figure 5.4.1) which allows the user to select for initialization those command posts that are designated for inclusion in the battle exercise. When the screen first appears, the GO button is "disabled" precluding advancement to the next screen until a command post is selected. Selection of a CP element causes a box to form around the selected element and enables the GO button.

5.4.1 Tactical Command Post Initialization.

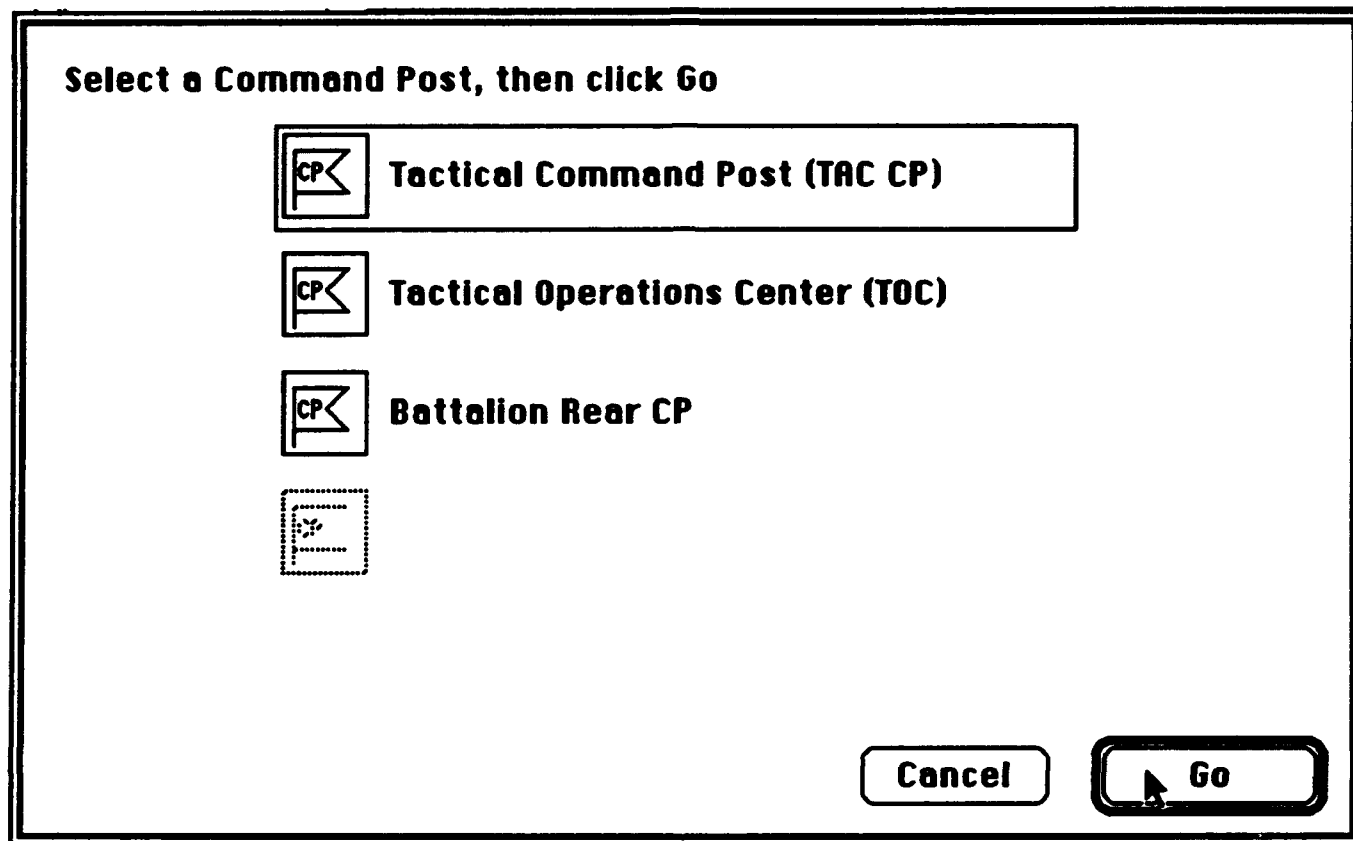


Figure 5.4.1 Tactical Command Post selection

Selecting the Tactical Command Post (TAC CP) from the Command Post Initialization Options screen causes a box to form around the selected icon and enables the GO button. Clicking the Cancel button returns to the Functions Overview menu. Clicking the GO button then brings up the Alignment of Tactical Command Post screen as shown in Figure 5.4.1-1.

Alignment of Tactical Command Post (TAC CP)

☒ US
 ☐ Threat
 ☐ Observer
 ☐ Target

Location of Tactical Command Post (TAC CP)

NB33333333

Configuration:

1 HUMMV	
1 OH58D	
1 UH60	

Figure 5.4.1-1 Alignment of Tactical Command Post

On the Alignment of Tactical Command Post screen, the Location coordinates is a mandatory entry. The Initial Configuration is defaulted to vehicles listed in Table 5.4.1. Note that the Alignment/Configuration by which the TAC CP will function may be designated at this stage by placing the cursor over and clicking one of the circles designated as US, Threat, Observer or Target then selecting an applicable Configuration. After completion of data entries, the user may click the OK button to store the data and return to the Command Post Initialization Options screen for selection of another CP for initialization. Command Post icons for which initialization data has been entered in the MCC memory appears "grayed", at this stage they can not be changed.

Clicking the Cancel button returns to the Command Post Initialization selection screen.

US/OBSERVER	THREAT/TARGET
1 HUMMV	1 BMP2
2 HUMMV	2 BMP2
1 OH58D	1 M124
1 UH60	

Table 5.4.1 TAC CP Default Configuration

5.4.2 Tactical Operation Center Initialization.

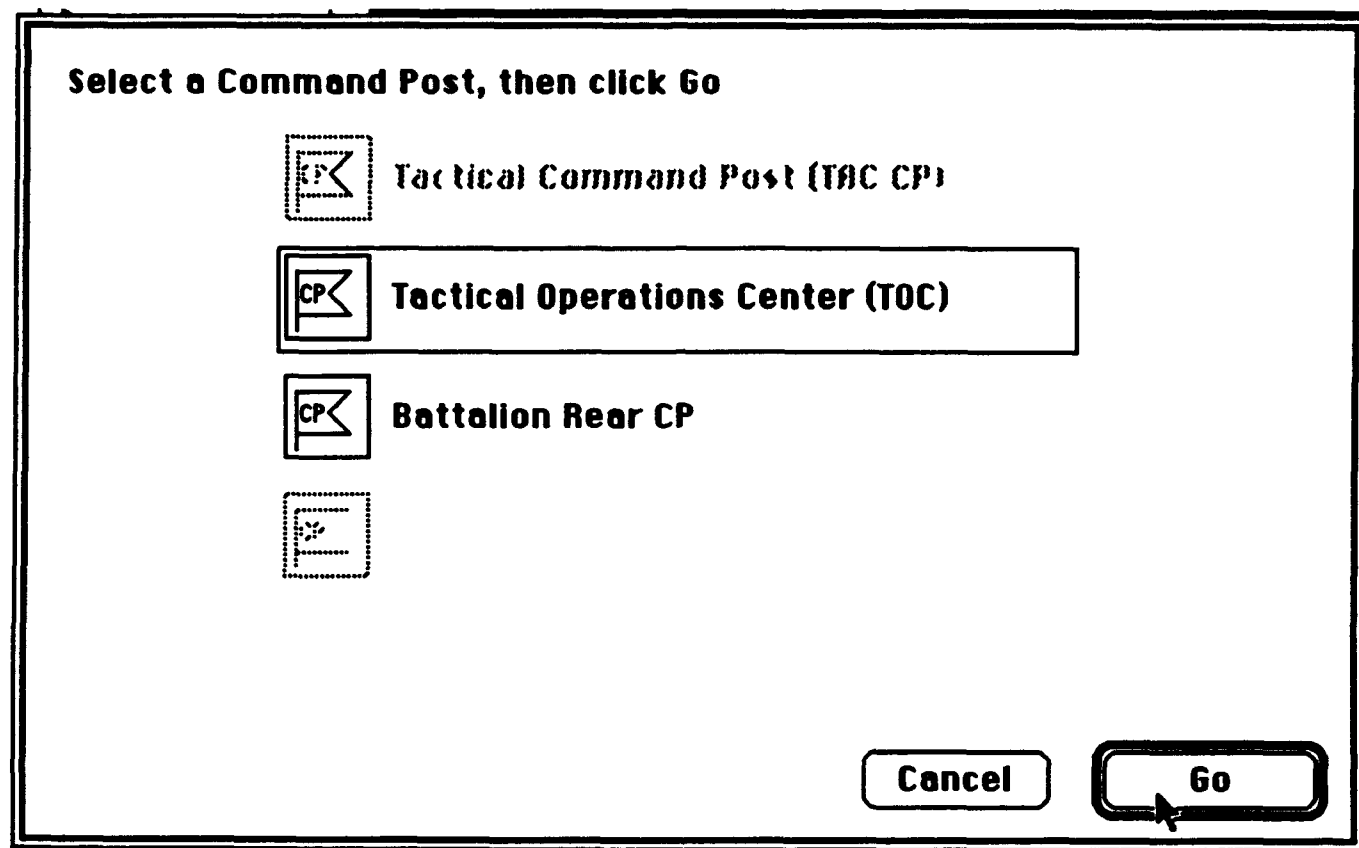


Figure 5.4.2 Tactical Operation Center selection

Selecting the Tactical Operations Center (TOC) from the Command Post Initialization Options screen causes a box to form around the selected icon and enables the GO button. Clicking the Cancel button returns to the Functions Overview menu. Clicking the GO button then brings up the Alignment of Tactical Operation Center screen as shown in Figure 5.4.2-1.

Alignment of Tactical Operations Center (TOC)

☒ US
 ☐ Threat
 ☐ Observer
 ☐ Target

Location of Tactical Operations Center (TOC)

BN 2448877

Configuration:

4 HUMV (LINE)
 4 HUMV (SQUARE)
 8 HUMV
 20 HUMV

Figure 5.4.2-1 Alignment of Tactical Operation Center

On the Alignment of Tactical Operation Center screen, the Location coordinates is a mandatory entry. The Initial Configuration is defaulted to vehicles listed in Table 5.4.2. Note that the Alignment/Configuration by which the TOC will function may be designated at this stage by placing the cursor over and clicking one of the circles designated as US, Threat, Observer or Target then selecting an applicable Configuration. After completion of data entries, the user may click the OK button to store the data and return to the Command Post Initialization Options screen for selection of another CP for initialization. Command Post icons for which initialization data has been entered in the MCC memory appears "grayed", at this stage they can not be changed.

Clicking the Cancel button returns to the Command Post Initialization selection screen.

US/OBSERVER	THREAT/TARGET
3 M577/1 M3	3 BMP 1K/1 BMP2
4 HUMMV (LINE)	4 BMP2 (LINE)
4 HUMMV (SQUARE)	4 BMP2 (SQUARE)
8 HUMMV	8 BMP2
20 HUMMV	20 BMP2

Table 5.4.2 TOC Default Configuration

5.4.3 Battalion Rear Command Post Initialization.

Select a Command Post, then click Go

☐ Tactical Command Post (TAC CP)

☐ Tactical Operations Center (TOC)

☒ Battalion Rear CP

☐

Cancel **Go**

Figure 5.4.3 Battalion Rear CP selection

Selecting the Battalion Rear Command Post from the Command Post Initialization Options screen (Figure 5.4.3) causes a box to form around the selected icon and enables the GO button. Clicking the GO button then brings up the Alignment of Battalion Rear CP screen as shown in Figure 5.4.3-1.

Alignment of Battalion Rear CP

☒ US
 ☐ Threat
 ☐ Observer
 ☐ Target

Location of Battalion Rear CP

NB87788778

Configuration:

3 M35A2	↑ ↓
2 HUMV	

Figure 5.4.3-1 Alignment of Battalion Rear CP

On the Alignment of Battalion Rear CP screen, the Location coordinates is a mandatory entry. The Initial Configuration is defaulted to vehicles listed in Table 5.4.3. Note that the Alignment/Configuration by which the Battalion Rear CP will function may be designated at this stage by placing the cursor over and clicking one of the circles designated as US, Threat, Observer or Target and then select an applicable Configuration. After completion of data entries, the user may click the OK button to store the data and return to the Command Post Initialization Options screen for selection of another CP for initialization. Command Post icons for which initialization data has been entered in the MCC memory appears "grayed", at this stage they can not be changed.

Clicking the Cancel button returns to the Command Post Initialization selection screen.

US/OBSERVER	THREAT/TARGET
3 M35A2	3 GAZ66
2 HUMMV	2 BMP2

Table 5.4.3 Battalion Rear CP Default Configuration

5.5 Service Element Initialization.

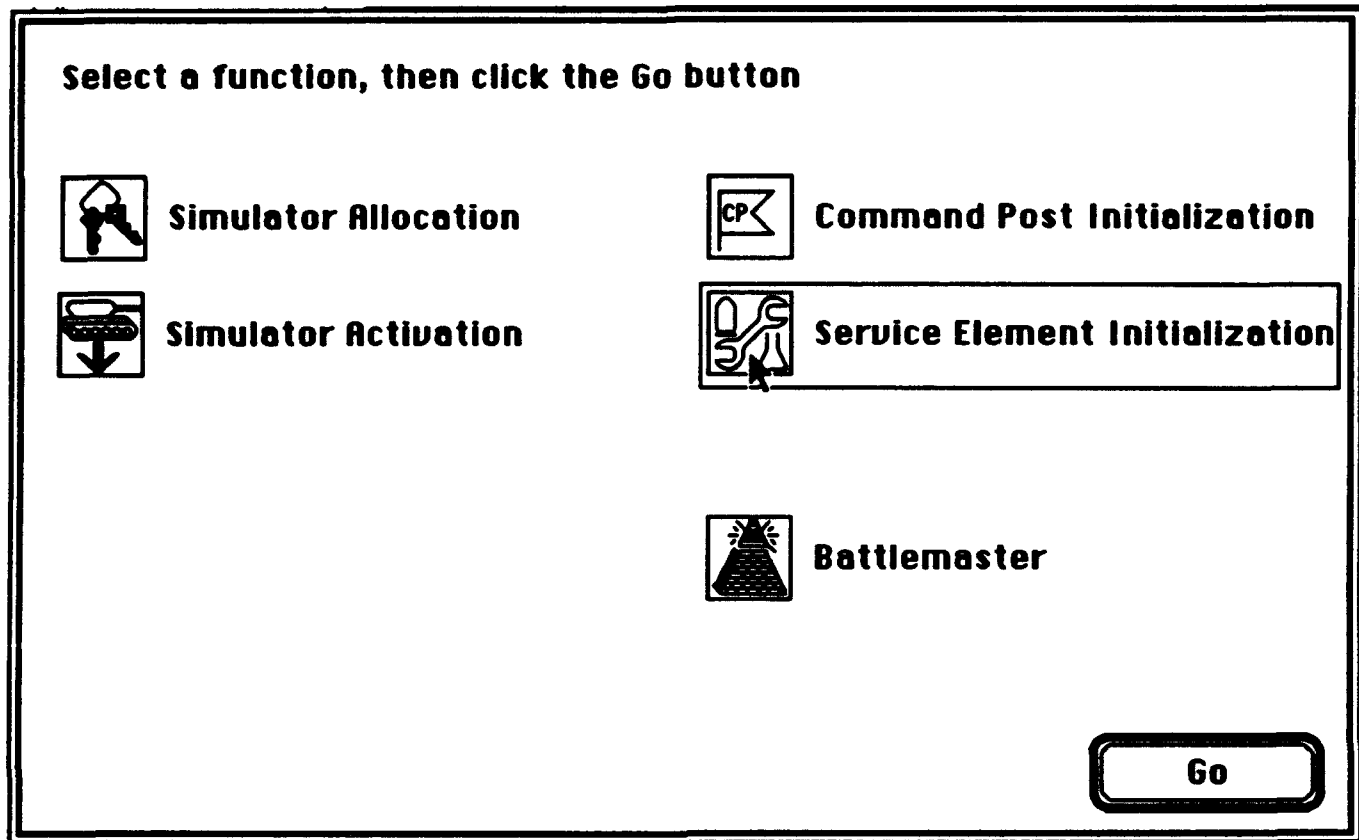


Figure 5.5 Service Elements Initialization selection

Selecting the Service Element Initialization icon from the Functions Overview menu as shown in Figure 5.5 also causes a box to surround it indicating that this is the next element to be initialized. Clicking the GO button brings up the Service Element Overview screen as portrayed in Figure 5.5.1 which allows the user to select for initialization of those service elements that are designated for inclusion in the battle exercise.

5.5.1 Service Elements Overview.

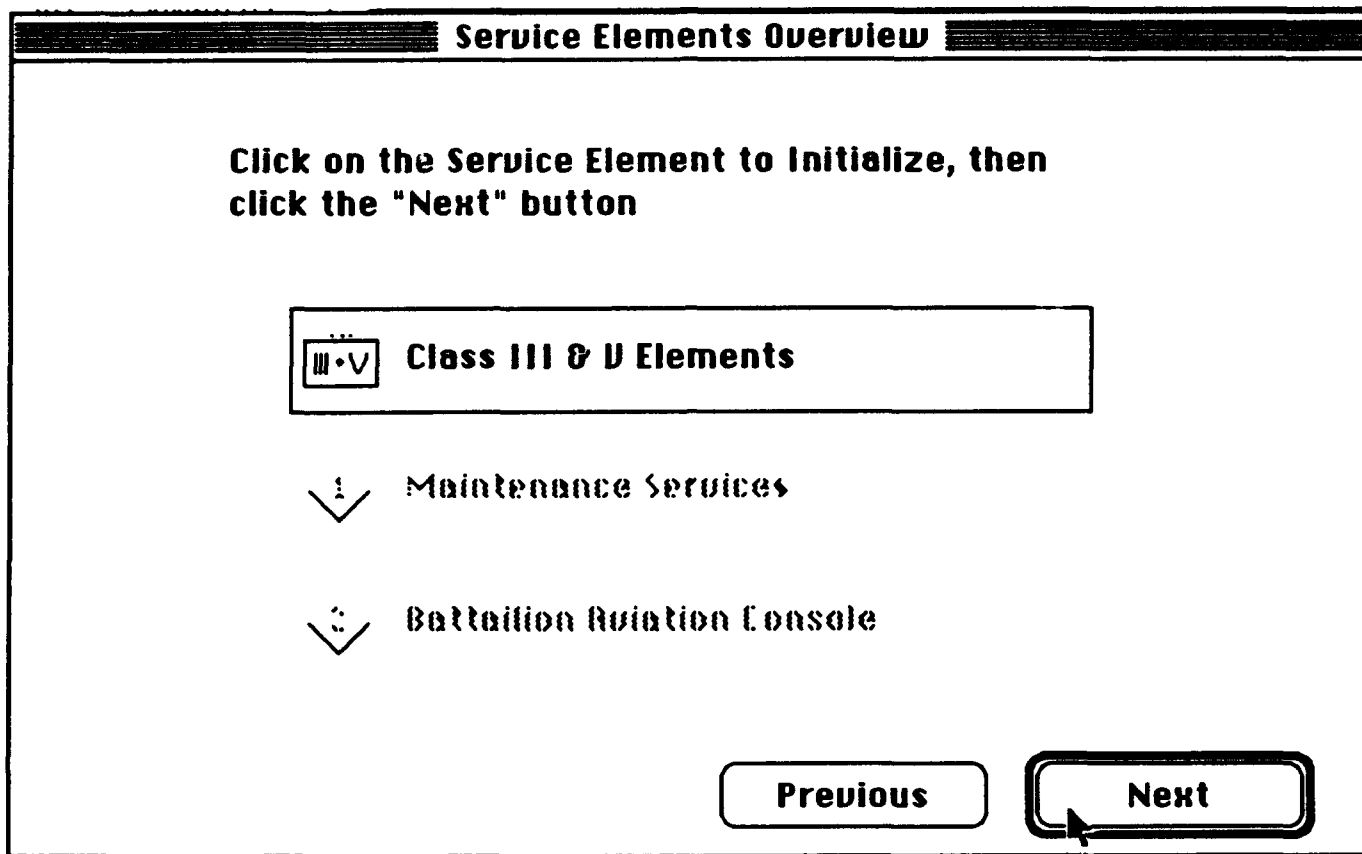


Figure 5.5.1 Service Elements Overview

When the Service Element Overview screen (Figure 5.5.1) first appears, the Next box is "faded" precluding advancement to the next screen until a support element is selected. Selection of an element causes a box to surround the selected icon and enables the Next button. Note that the only choice currently offered is Class III & V Elements.

Clicking the Next button brings up the Class III & V Elements initialization screen.

Clicking the Previous button returns to the Functions Overview screen.

5.5.2 Class III & V Elements Initialization.

Initialize the Numbers of Service Elements

Enter the number of each vehicle to create for this exercise.

of Class III vehicles to create:

of Class V vehicles to create:

of FAREs to create:
(each has 2 fuel drums)

of additional fuel drums:

Figure 5.5.2 Number of Service Elements

Selecting the Class III & V Elements icon from the Service Elements Overview screen as shown in Figure 5.5.1 and then clicking the Next button brings up the Number of Service Elements initialization screen as shown in Figure 5.5.2. On this screen, the user may modify the number of service element vehicles used with the Admin/Logistics Console (ALC) by placing the cursor in one of the boxes and entering the new data.

Clicking the OK button after completion of data entries leads to the next step in the process.

Clicking the Undo Changes button restores the default data.

Clicking the Quit Init button returns to the Service Element Overview screen.

Note: Since the AIRNET ALC is not used, the only way to move these service elements is through the Displacement option available to the BattleMaster.

5.5.3 Initialize the Default Values of Service Elements.

Initialize the Default Values of Service Elements		
Enter the default information for this exercise.		
Default Class III supply point location:	NA700110	(in BSA)
Default Class III transfer point location:	NA700110	(in DSA)
Default Class V supply point location:	NA700110	(in BSA)
Default Class V transfer point location:	NA700110	(in DSA)
Default Class III & V platoon location:	NA700110	
Default Class III & V platoon side:	Blue	
Train formation:	Unit Train	
Quit Init Undo Changes OK		

Figure 5.5.3 Service Elements Default values

Clicking the OK button on Figure 5.5.2 brings up the Default Values of Service Elements screen as shown in Figure 5.5.3. The Location entries are mandatory, the MCC will only accept coordinates within the terrain base. These Locations are retained in MCC memory for use in computing Estimated Time of Arrival (ETA) and time delays during the operation phase of the battle exercise. The Side on which the service element will function can be designated as Blue or Red, or as Shared using a pull-down menu, which means that it will be available for both the blue and red forces.

Clicking the OK button after completion of data entries leads to the next step in the process.

Clicking the Undo Changes button restores the default data.

Clicking the Quit Init button returns to the Service Element Overview screen.

5.5.4 Initialize Ammunition Controlled Supply Rates.

Initialize Ammunition Controlled Supply Rates

Enter the controlled supply rates for each type of ammunition:

Hydra 70 M255

HELLFIRE	10
Stinger	10
Hydra 70 M151	8
TOW	10
Hydra 70 M255	8
30 mm M789	14
20 mm HEI	100
20 mm PIE	100

Figure 5.5.4 Ammunition Controlled Supply Rates

Clicking the OK button on Figure 5.5.3 brings up the Ammunition Controlled Supply Rates initialization screen as shown in Figure 5.5.4. If desired, a Controlled Supply rate (CSR) can be established for any or all of the available ammunition types used in the battle exercise. To establish a CSR, the user may enter the appropriate figures from the exercise Operation Order (OPORD). Clicking anywhere on a data line inside the scrollable display section causes the data edit line containing the selected data to appear allowing the user to change the data as required. A CSR value entered on this screen sets the MCC to a daily limit on the amount of ammunition for each ammunition type for the battalion as a whole. The limit is derived internally in the MCC.

Clicking the OK button after completion of data entries leads to the next step in the process.

Clicking the Undo Changes button restores the default data.

Clicking the Quit Init button returns to the Service Element Overview screen.

5.6 Battlemaster.

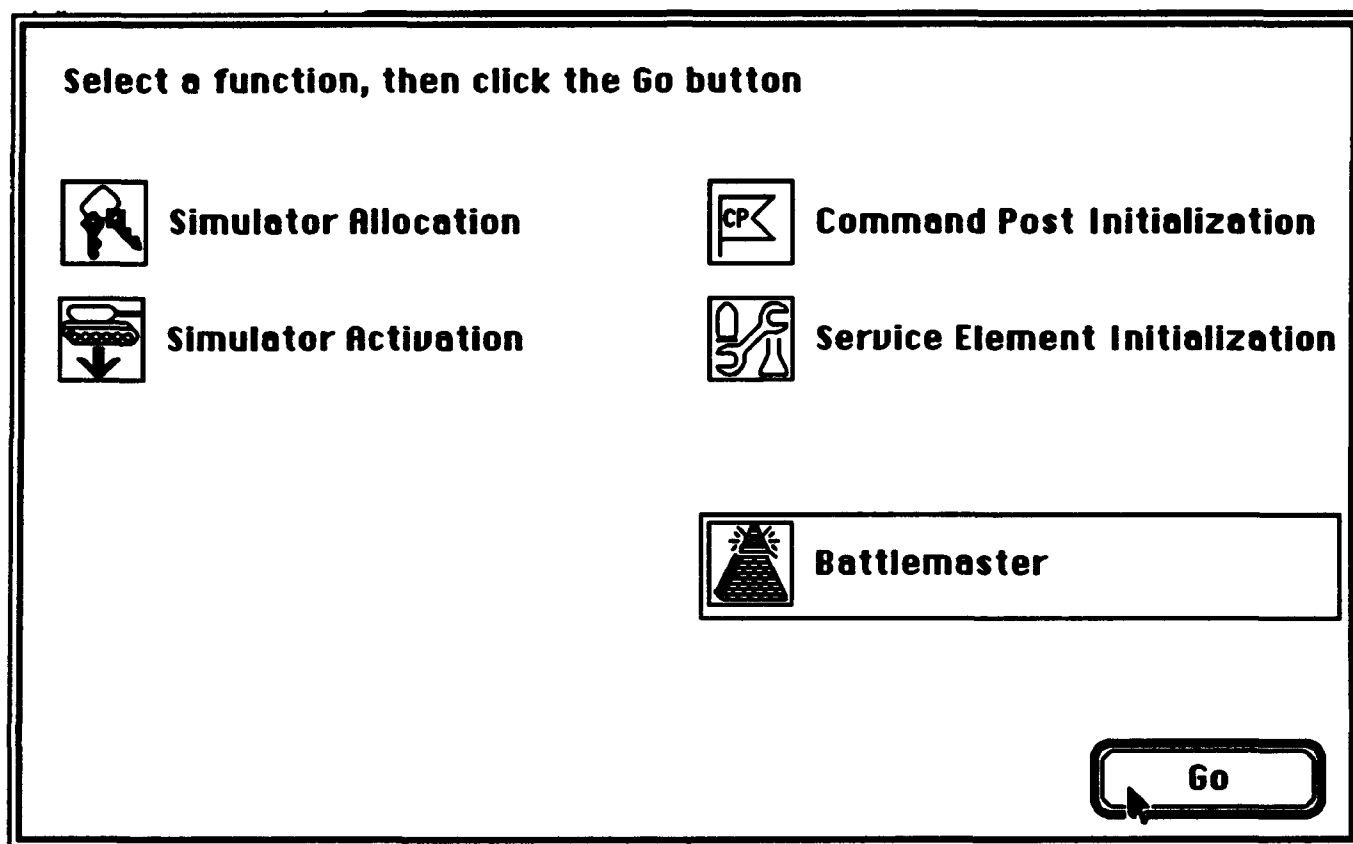
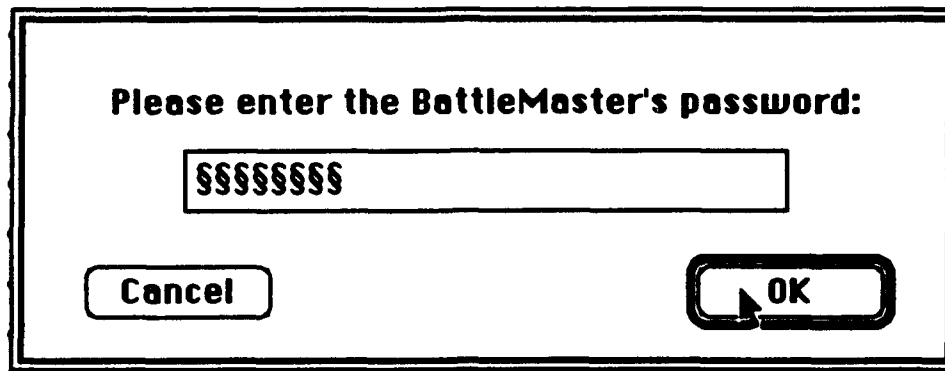


Figure 5.6 BattleMaster selection

Clicking the **Previous** button on the Service Elements Overview screen (Figure 5.5.1) brings back the MCC Overview menu as shown in figure 5.6. The user may select the **BattleMaster** icon from this screen any time during initialization and the conduct of the battle exercise.

Clicking the **GO** button on the Functions Overview menu with the **BattleMaster** icon selected causes a password box (Figure 5.6-1) to appear. With the proper password entered, clicking the **GO** button on the entry box will open the **BattleMaster** Functions menu as shown in Figure 5.6.1. Incorrect passwords will produce a dialog box reflecting that fact.



A screenshot of a password entry dialog box. The dialog box has a double-line border. At the top, it says "Please enter the BattleMaster's password:". Below this is a rectangular input field containing eight dollar signs (\$\$\$\$\$\$). At the bottom left is a button labeled "Cancel". At the bottom right is a button labeled "OK" with a mouse cursor icon pointing at it.

Figure 5.6-1 BattleMaster password

The BattleMaster Functions menu as shown in Figure 5.6.1 allows the BattleMaster to perform the functions shown on the screen. As in earlier initialization phases, selecting a function causes that function to be enclosed in a box, and clicking the GO button opens the follow-on screens that allow input of data necessary to execution of the function.

5.6.1 Displacement.

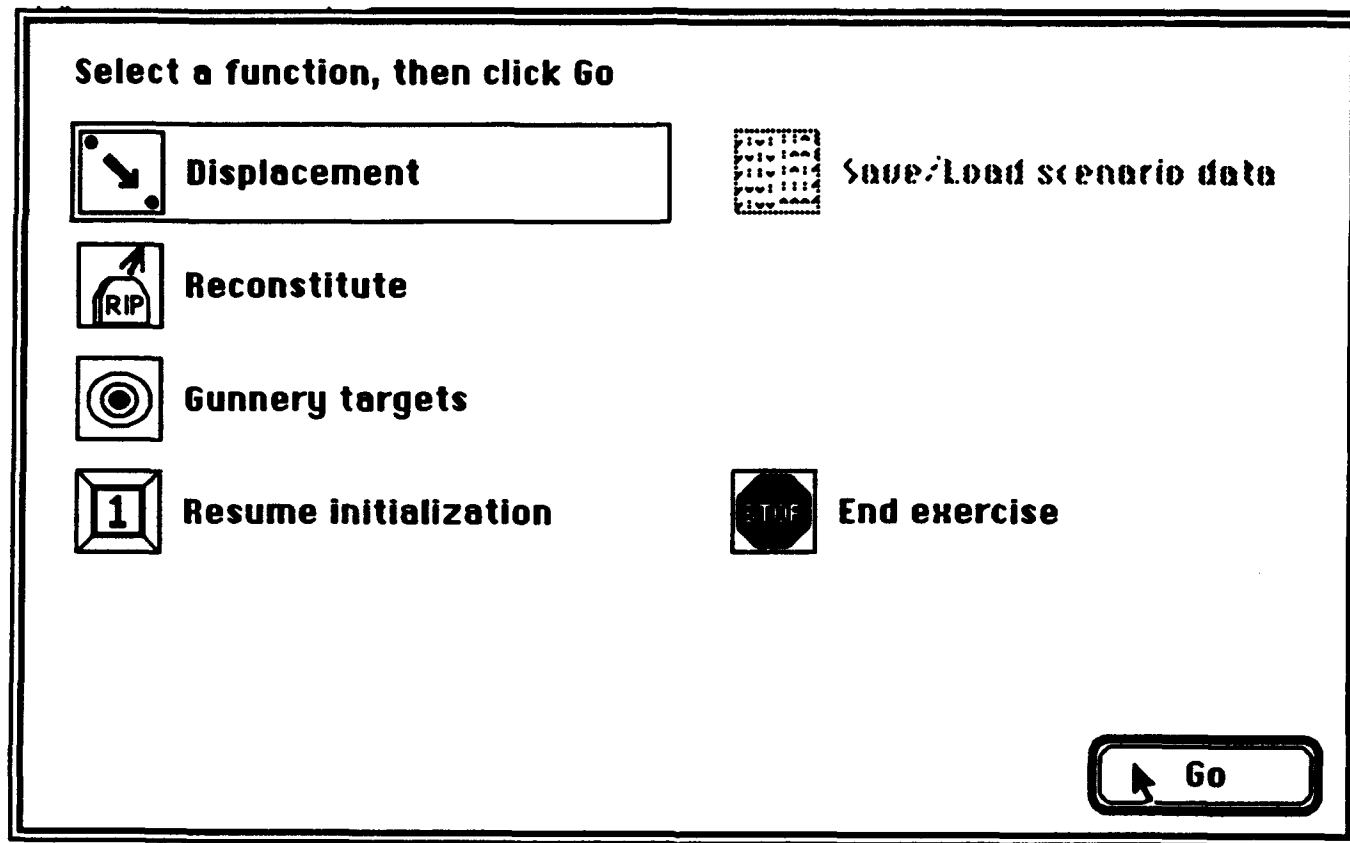


Figure 5.6.1 Displacement selection

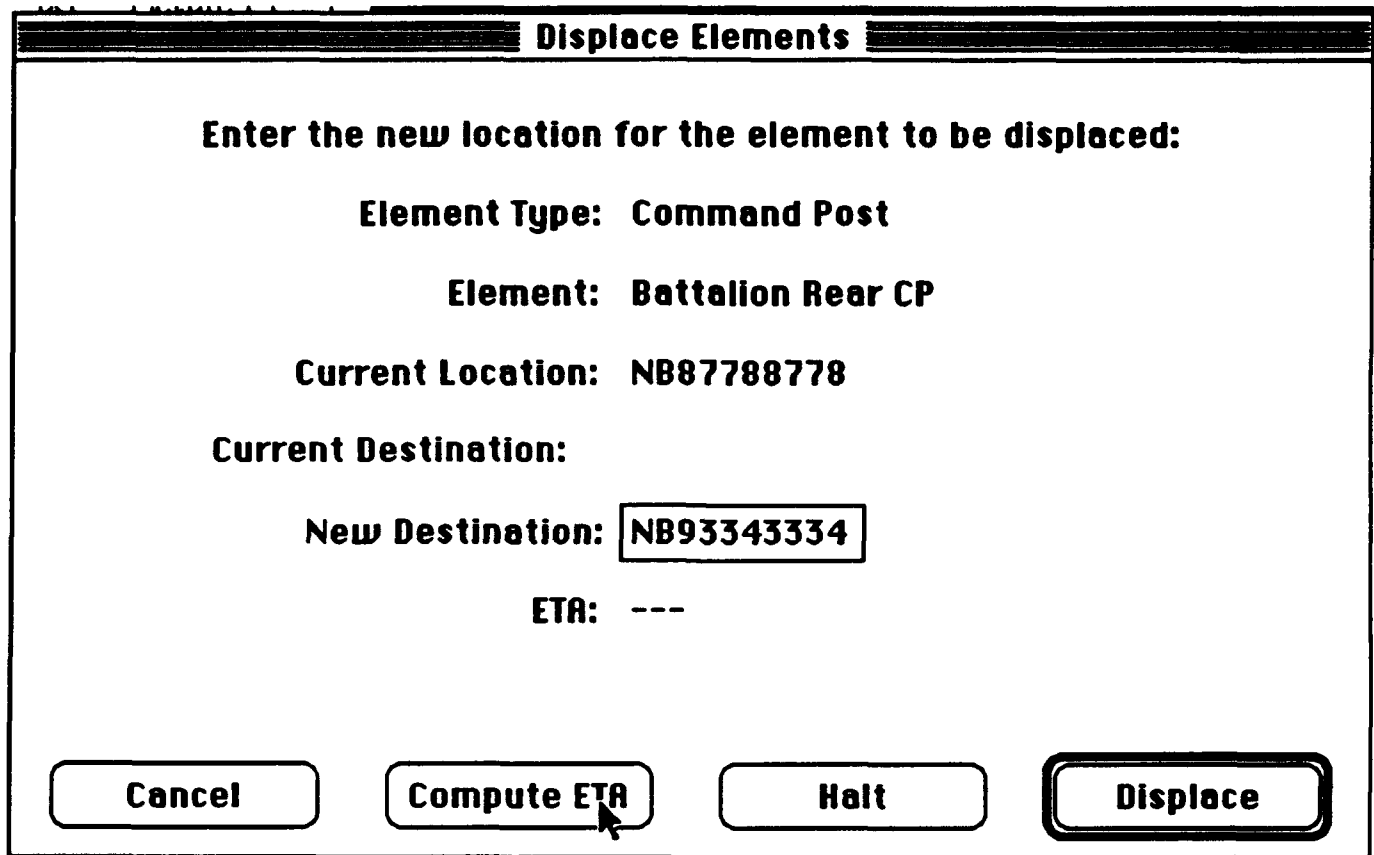
Choose an element to displace and press the OK button.

Element type	Element
Command Post	Tactical Command Post (TAC CP)
Supply Depots	Tactical Operations Center (TOC)
	Extraction Point (EP)

Cancel OK

Figure 5.6.1-1 Elements Selection

This function allows the displacement of exercise elements including Command Posts and Supply Depots during the course of the battle simulation. Since the commander and his operations element do not have direct access to the MCC, the BattleMaster must effect these displacements in response to written or oral OPORDs or FRAGOs. Selecting the Displacement icon and clicking the GO button on the BattleMaster Functions menu brings up the Elements Displacement screen as shown in Figure 5.6.1-1. This screen allows selection of an Element from a chosen Element Type to be displaced. The list of displayed Elements associated with an Element type is automatically updated when another Element type is selected.

5.6.1.1 Displace Elements.

Displace Elements

Enter the new location for the element to be displaced:

Element Type: Command Post

Element: Battalion Rear CP

Current Location: NB87788778

Current Destination:

New Destination: NB93343334

ETA: ---

Cancel **Compute ETA** **Halt** **Displace**

Figure 5.6.1-2 Command Post Displacement

Clicking the OK button on Figure 5.6.1-1 with an element selected brings up the Displace Elements screen as shown in Figure 5.6.1-2. This screen allows specification of the new location coordinates.

Clicking the Compute ETA button calculates and displays the Estimated Time of Arrival.

Clicking the Halt button halts the vehicle displacement process at the current location.

Clicking the Displace button starts the element displacement process.

Clicking the Cancel button returns to the BattleMaster Function menu.

5.6.2 Reconstitution.

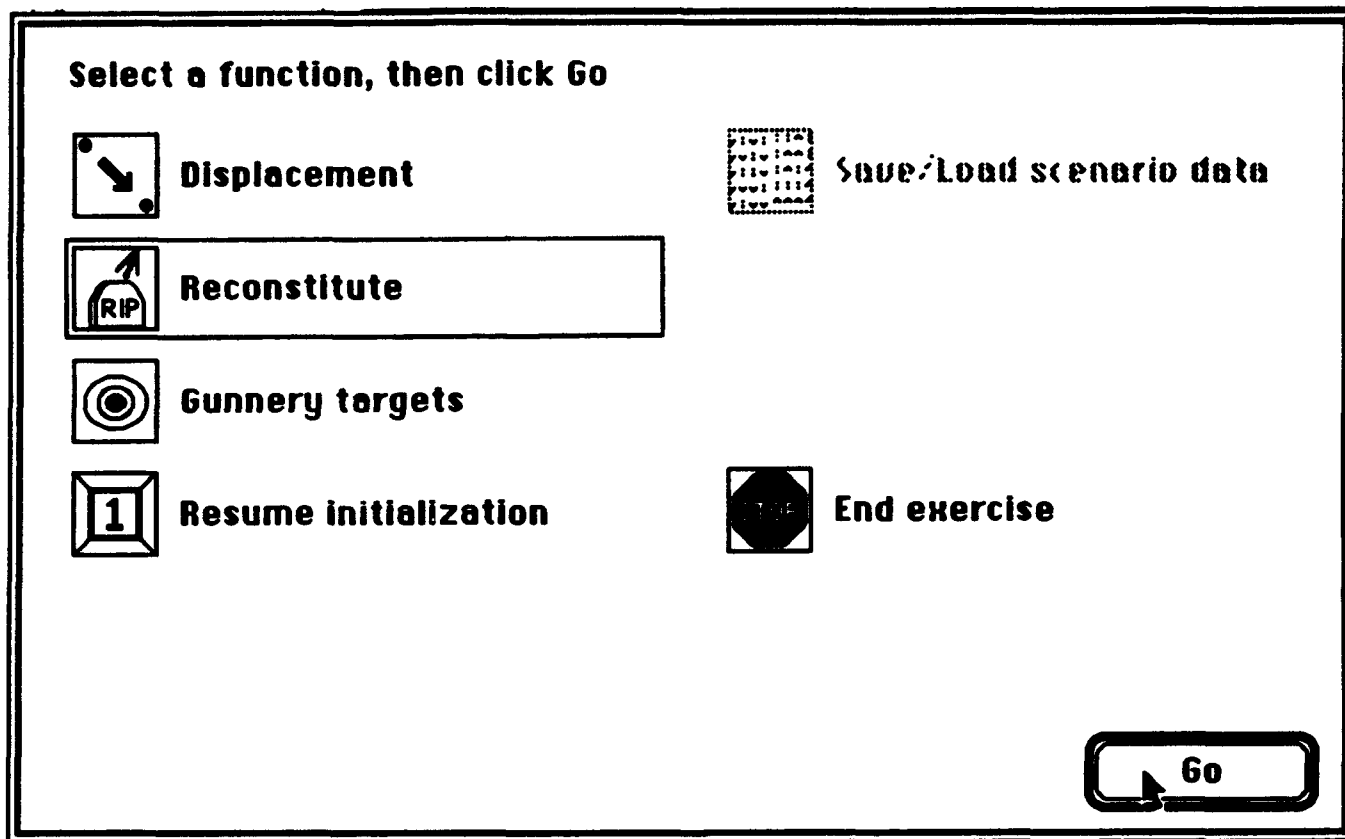


Figure 5.6.2 Reconstitution selection

The SIMNET Control Console gives the BattleMaster the ability to restore to full operation any previously initialized simulated elements, be it a crewed combat vehicle or a MCC computer-controlled vehicle. Selecting the Reconstitute icon and clicking the GO button on the BattleMaster Functions menu brings up the Reconstitute Elements screen as shown in Figure 5.6.2.1. This screen allows selection of an Element from a chosen Element type to be reconstituted. Select an element by first selecting the simulator from the Element type column then the element itself.

Clicking the OK button with a selected element brings up a subsequent screen appropriate to the Element type selected.

Clicking the Cancel button brings back the BattleMaster Function menu.

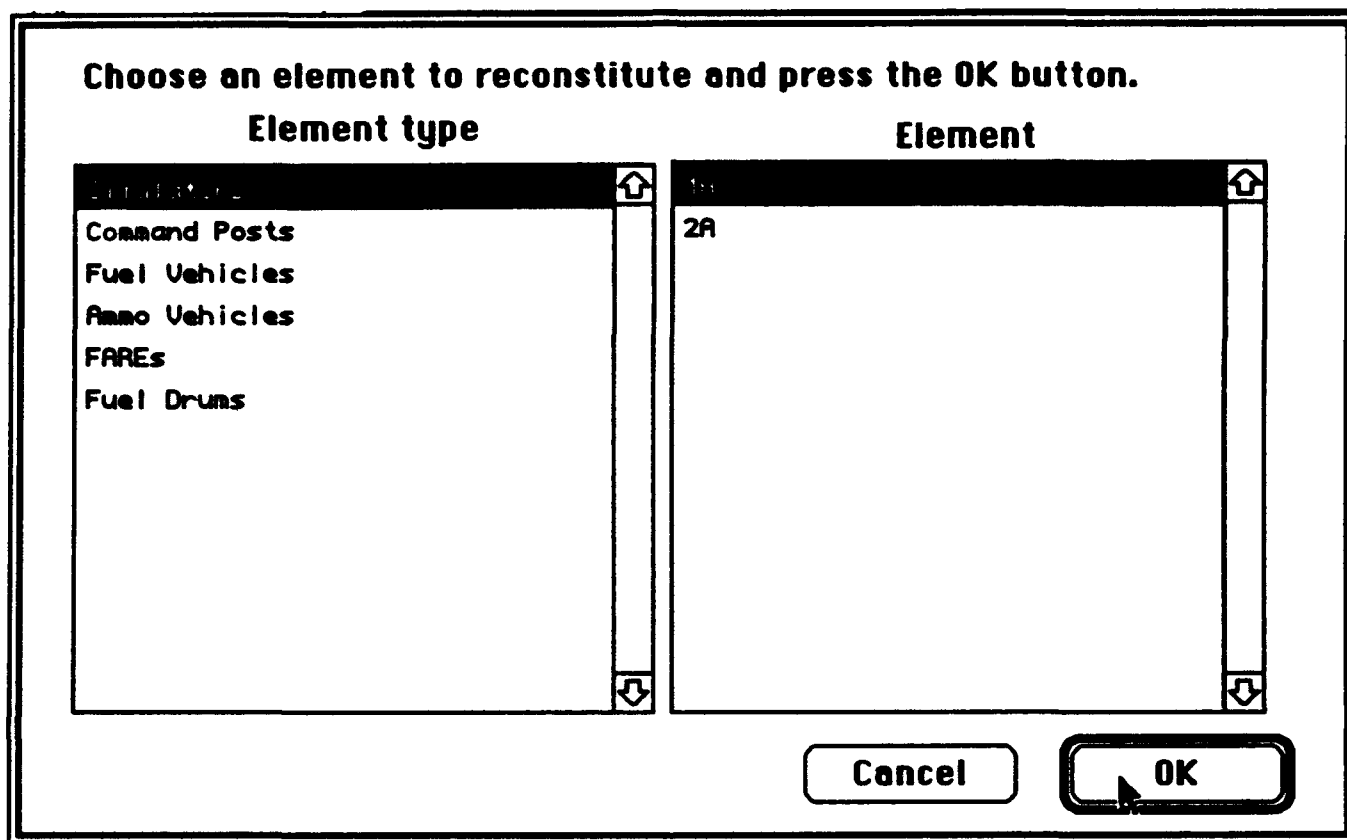
5.6.2.1 Reconstitute simulators.

Figure 5.6.2.1 Reconstitute Simulators selection

Clicking the OK button with a selected Element of the Simulators type on the Reconstitute Elements screen as shown in Figure 5.6.2.1 brings up the Simulator Status screen as shown in Figure 5.6.2.1-1.

Simulator: 1A		Bumper No.	1
Simulator type: M1		Location	NB13342444
Assigned to: World		Bow azimuth	0 (Mils)
Vehicle type:	M1	Maint. status:	 - Old
Alignment:	US		

Turret azimuth	0 (Mils from bow azimuth)
Left front tank	107
Right front tank	150
Rear tank	248
Ready Rack APDS	22
Ready Rack HEAT	22
Semi-Ready Rack APDS	22

Set Values to: ☐ Default ☐ Custom ☒ Original

Cancel Reconstitute

Figure 5.6.2.1-1 Simulator Status

Any of the vehicle parameters, such as its location or quantity of supplies, may be changed before it is reconstituted. If the vehicle is damaged, suffering some failure, or even destroyed, it will be returned to perfect health. It will be rearmed and refueled with the originally initialized values and placed at it's originally initialized location unless changed by the operator. Clicking any data line in the scrollable section causes the data edit line containing the selected data to appear and allows the user to change any data as required. Other data can be changed in the preallocated blocks. Any modification to the data causes the Custom circle to be high lighted.

Clicking the **Default** circle resets the default data.

Clicking the **Original** circle brings back the original data selected at activation/reconstitution.

Clicking the **Reconstitute** button reactivates the simulator with updated specifications at it's initially placed location.

Clicking the **Cancel** button returns to the Reconstitute Elements screen.

Note: Each time a vehicle is initialized or reconstituted, the load values used become the maximum load values that can subsequently be used in later reconstitutions.

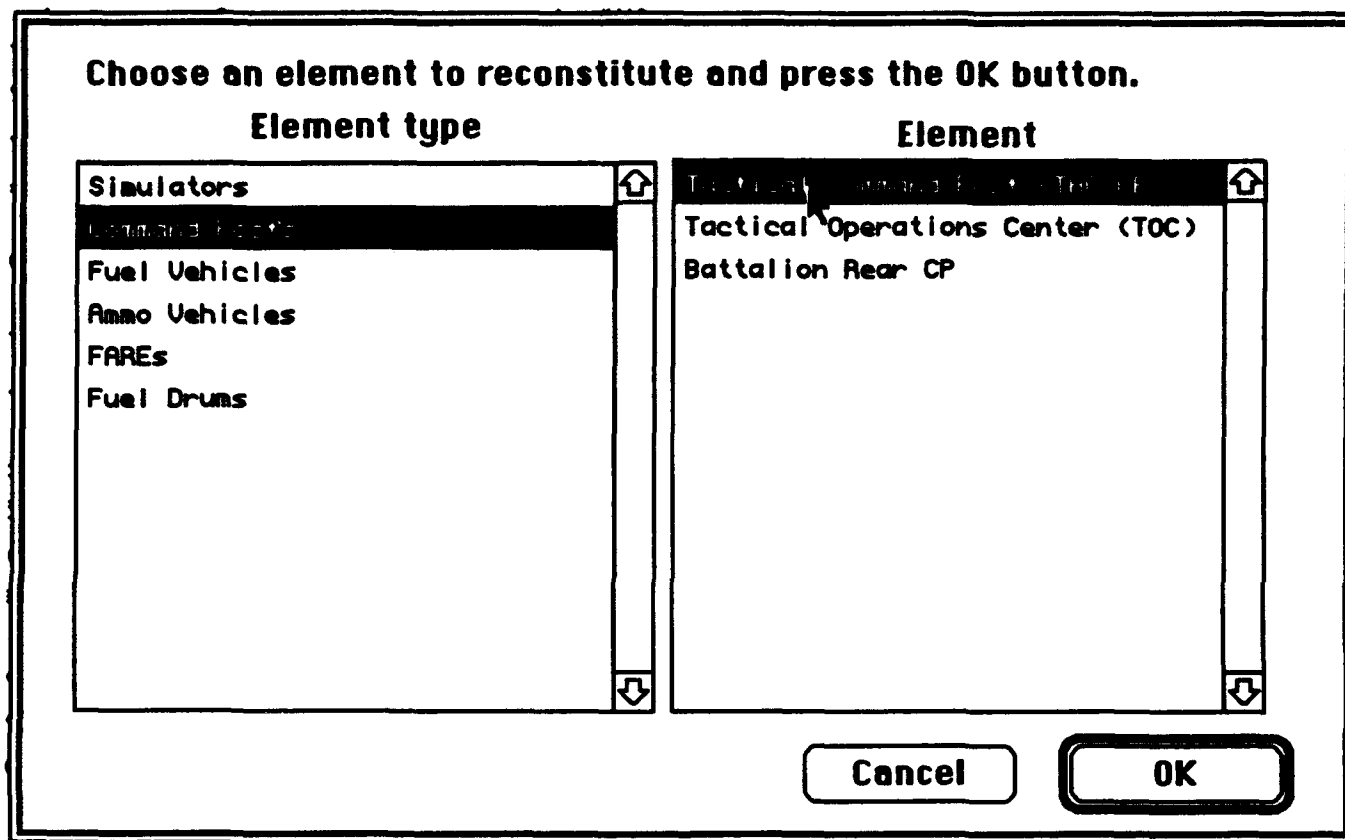
5.6.2.2 Reconstitute Command Posts.

Figure 5.6.2.2 Reconstitute Command Post selection

Clicking the OK button with a selected Element of the Command Posts Element type on Figure 5.6.2.2 brings up either the Alignment of Tactical Command Post screen (Figure 5.4.1-1), or the Alignment of Tactical Operation Center screen (Figure 5.4.2-1), or the Alignment of Battalion Rear CP screen (Figure 5.4.3-1). From these screens, any of the displayed parameters, such as Location, Alignment, Side, and Configuration may be changed before the Command Post is reconstituted.

Clicking the OK button activates the command post with updated specifications.

Clicking the Cancel button returns to the Reconstitute Elements screen.

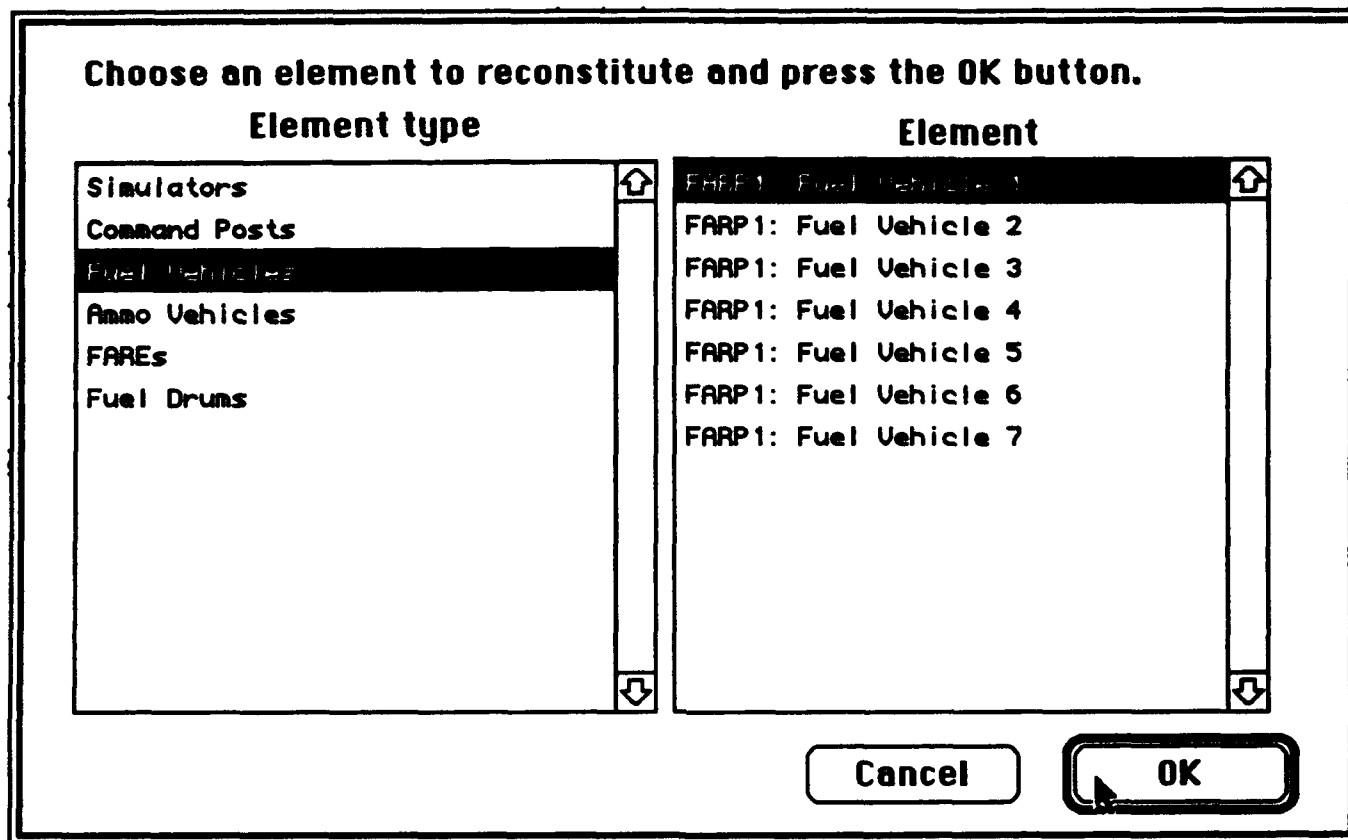
5.6.2.3 Reconstitute Fuel Vehicles.

Figure 5.6.2.3 Reconstitute Fuel Vehicles selection

Clicking the OK button with a selected Element of the Fuel Vehicles Element type on Figure 5.6.2.3 brings up Figure 5.6.2.3-1.

Fuel Vehicle Initialization & Reconstitution				
FARP1		Blue	NA700110	2500
Ueh	Assign	Side	Location	Load
1	FARP1	Blue	NA700110	2500
2	FARP1	Blue	-----	----
3	FARP1	Blue	-----	----
4	FARP1	Blue	-----	----
5	FARP1	Blue	-----	----
6	FARP1	Blue	-----	----
7	FARP1	Blue	-----	----

Figure 5.6.2.3-1 Fuel Vehicle status

Any of the vehicle parameters, such as its location, company assignment, side, and fuel load may be changed before it is reconstituted. If the vehicle is damaged, suffering some failure, or even destroyed, it will be returned to perfect health. Clicking any data line in the scrollable section causes a Data Edit line containing the selected data to appear (the Data Edit line appears above the header line as shown in Figure 5.6.2.3-1) and allowing the user to make changes to any data entries as required.

Clicking the Undo Changes button brings back the original data.

Clicking the Reconstitute button activates the Fuel Vehicle with updated specifications.

Clicking the Cancel button returns the Reconstitute Elements screen.

5.6.2.4 Reconstitute Ammo Vehicles.

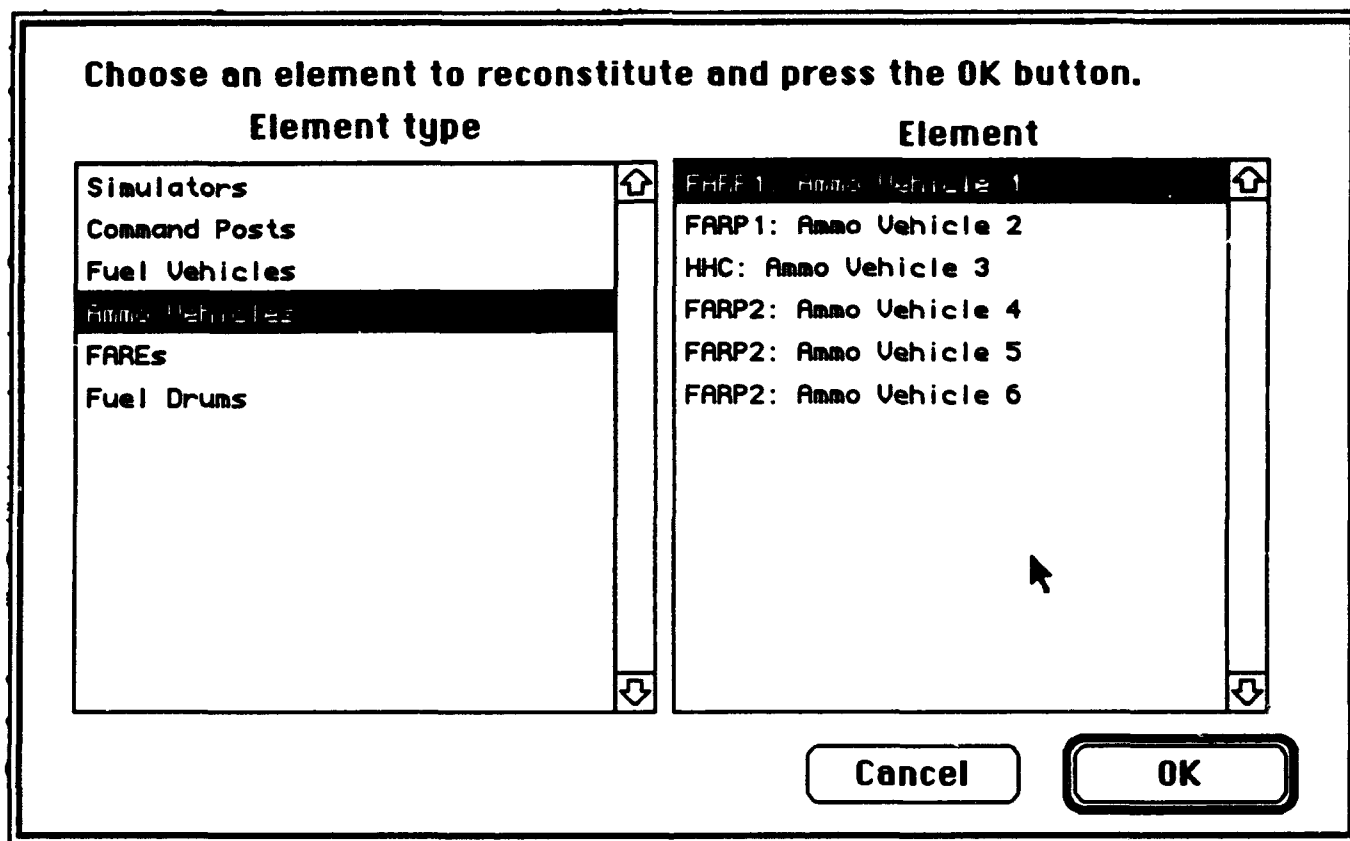


Figure 5.6.2.4 Reconstitute Ammo Vehicles selection

Clicking the OK button with a selected Element of the Ammo Vehicles Element type on Figure 5.6.2.4 brings up Figure 5.6.2.4-1. Any of the vehicle parameters, such as its location, company assignment, side, and ammo load may be changed while it is being reconstituted.

Ammunition Vehicle Initialization & Reconstitution

FARP1

Blue

NA700110

Veh	Assign	Side	Location	Load	# of CONT.
1	FARP1	Blue	NA700110	HELLFIRE	10 boxes
2	FARP1	Blue	-----	Stinger	20 boxes
3	HHC	Blue	-----	Hydra 70 M151	15 boxes
4	FARP2	Blue	-----	TOW	0 boxes
5	FARP2	Blue	-----	Hydra 70 M255	0 boxes
6	FARP2	Blue	-----	30 mm M789	50 boxes
				20 mm HEI	100 boxes
				20 mm PIE	100 boxes

Cancel

Reconstitute

Undo Changes

Figure 5.6.2.4-1 Ammo Vehicle status

Figure 5.6.2.4-1 provides two separate scrollable sections, one contains vehicle ID, company assignment, side and location, the other contains the ammo load. Clicking any data line in either scrollable section causes a Data Edit line to appear (the Data Edit line appears above the header line as shown in Figure 5.6.2.4-1) and allowing the user to make changes to any data entries as required.

Clicking the **Undo Changes** button brings back the original data.

Clicking the **Reconstitute** button activates the Ammo Vehicle with updated specifications.

Clicking the **Cancel** button returns to the Reconstitute Elements screen.

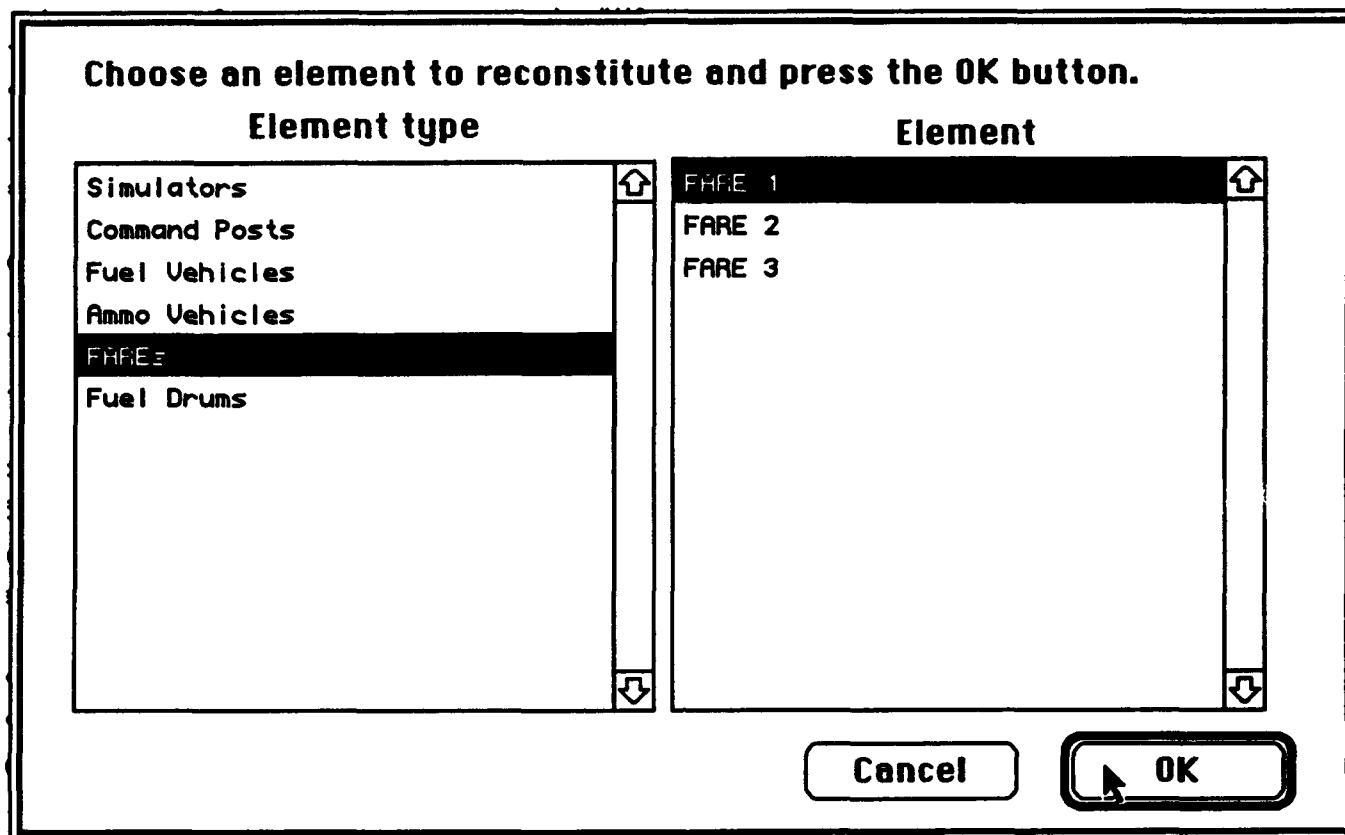
5.6.2.5 Reconstitute FAREs.

Figure 5.6.2.5 Reconstitute FAREs selection

Clicking the OK button with a selected Element of the FAREs Element type on Figure 5.6.2.5 brings up Figure 5.6.2.5-1.

FARES & Drums Initialization & Reconstitution

..... FARES

NA700110

#	Location	Fuel Nearby
1	NA700110	-----
2	-----	-----
3	-----	-----

..... DRUMS

#	Location	Load
---	----------	------

Cancel

Reconstitute

Undo Changes

Figure 5.6.2.5.-1 FAREs status

The FAREs location may be changed while it is being reconstituted. Clicking any data line in the scrollable section causes the Data Edit line containing the selected data to appear (the Data Edit line appears above the header line as shown in Figure 5.6.2.5-1) and allowing the user to make changes to any data entries as required.

Clicking the Undo Changes button brings back the original data.

Clicking the Reconstitute button activates the FARE with updated specifications.

Clicking the Cancel button returns to the Reconstitute Elements screen.

5.6.2.6 Reconstitute DRUMs.

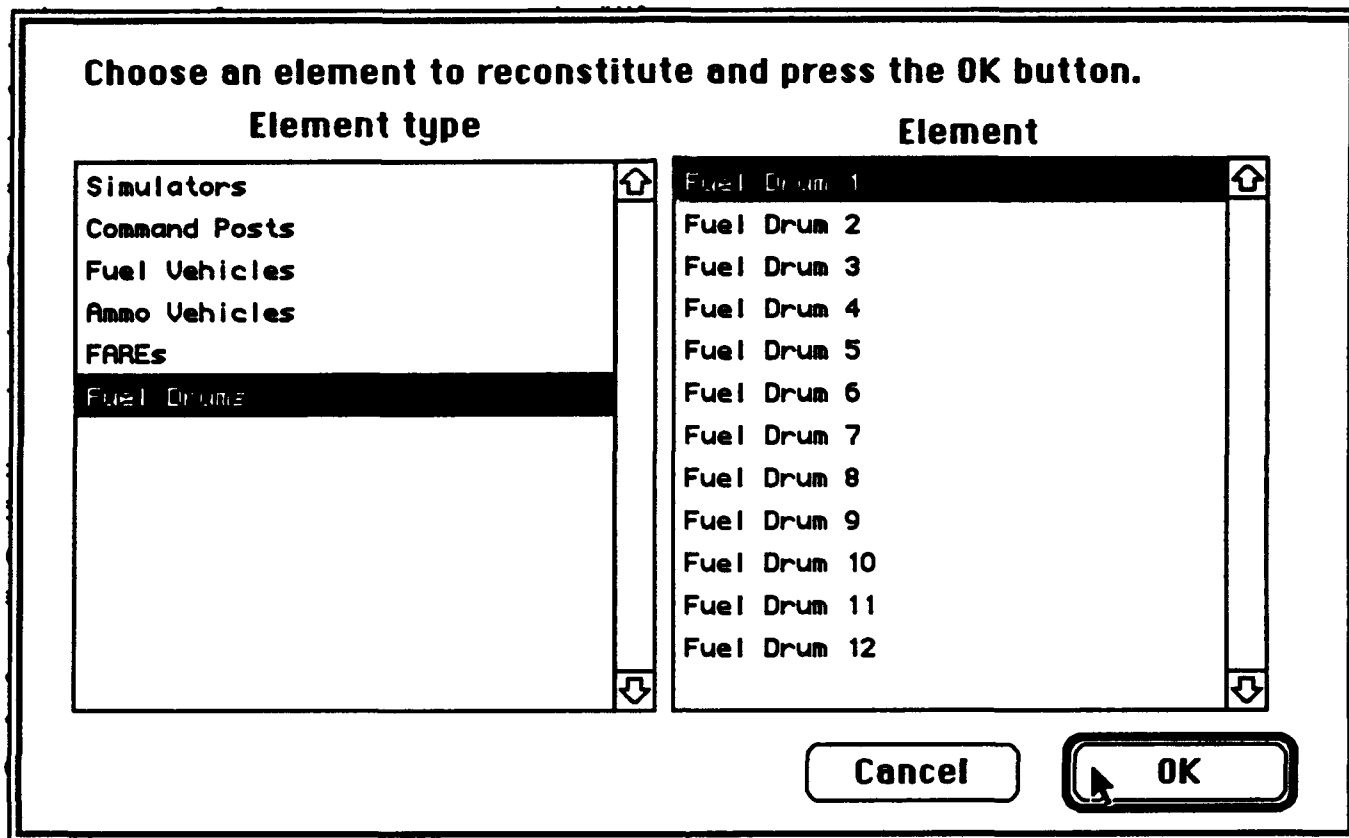


Figure 5.6.2.6 Reconstitute Fuel DRUMs

Clicking the OK button with a selected Element of the Fuel Drums Element type on Figure 5.6.2.6 brings up Figure 5.6.2.6-1.

FAREs & Drums Initialization & Reconstitution			
..... FARES		 DRUMS	
		NA700110	500
#	Location	Fuel Nearby	# Location Load
			1 NA700110 500 gal
			2 -----
			3 -----
			4 -----
			5 -----
			6 -----
			7 -----
			8 -----
			9 -----
			10 -----
Cancel		Reconstitute	Undo Changes

Figure 5.6.2.6-1 Fuel DRUM status

The Fuel Drums location and load may be changed while it is being reconstituted. Clicking any data line in the scrollable section causes the Data Edit line containing the selected data to appear (the Data Edit line appears above the header line as shown in Figure 5.6.2.6-1) and allowing the user to make changes to any data entries as required.

Clicking the Undo Changes button brings back the original data.

Clicking the Reconstitute button activates the DRUM with updated specifications.

Clicking the Cancel button returns to the Reconstitute Elements screen.

5.6.3 Gunnery Targets.

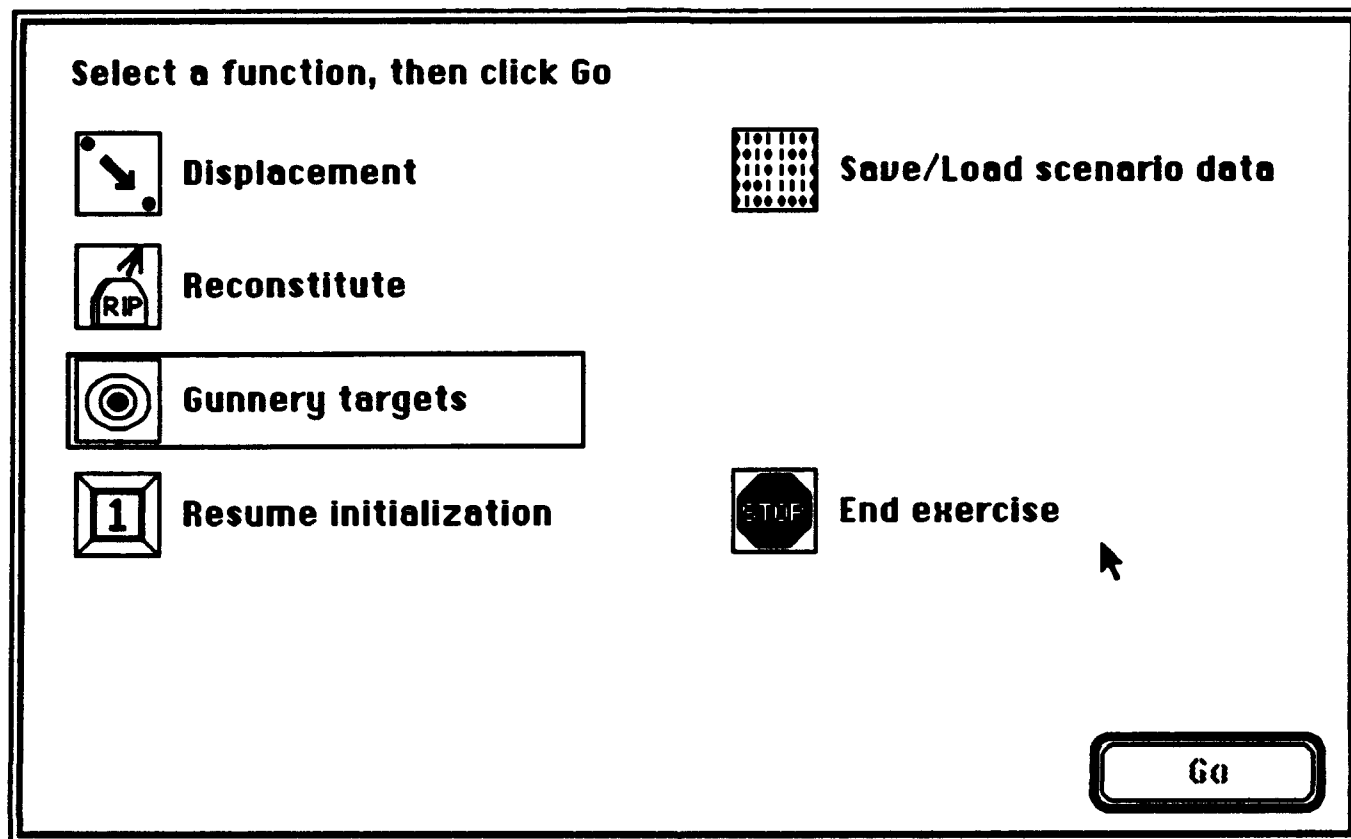


Figure 5.6.3 Gunnery Targets selection

The BattleMaster is the authority to place unmanned stationary targets on the terrain database to more readily support a particular training requirement. Selecting the Gunnery Targets icon and clicking the GO button on the BattleMaster Function menu as shown in Figure 5.6.3 brings up the Gunnery Target Worksheet as shown in Figure 5.6.3-1.

OK	Name	Location	Type	Force
Y	Demo target 1	NA100100	tank	Observer
Y	Demo target 2	NB12120000	tank	Threat
Y	Demo target 3	NA10071025	motorized-rifle	Target

New target
Reset all
Remove target
Reset target
Damage target
Overview

Figure 5.6.3-1 Gunnery Targets Worksheet

The Gunnery Target Worksheet screen first comes up with **New target**, **Reset all** (if targets are placed), and **Overview** buttons enabled and the entered targets as shown in Figure 5.6.3-1. Clicking anywhere on the target line enables the rest of the icons.

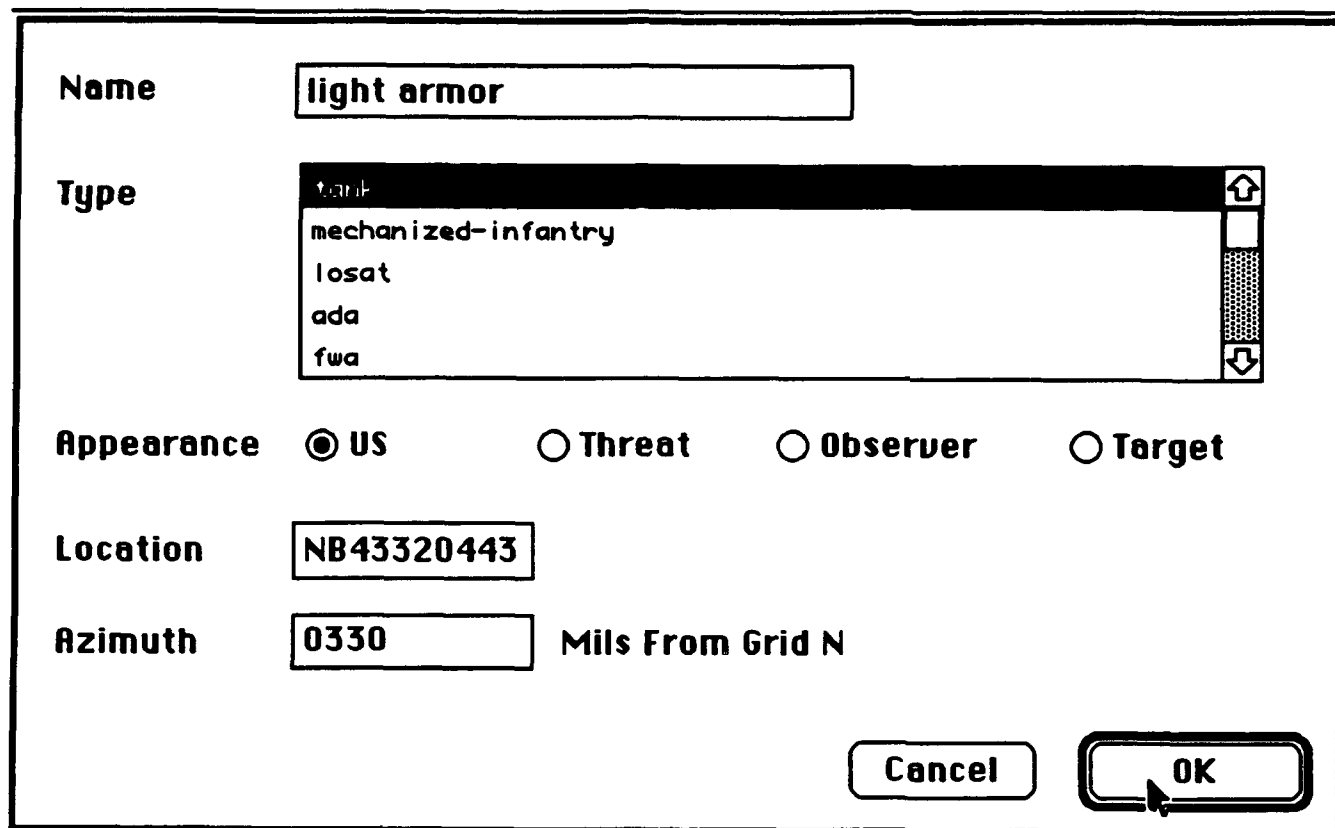
Clicking the **Reset all** button reactivates all targets listed on the Gunnery target screen, this action also changes all N's in the OK column to Ys.

Clicking the **Reset target** button with a target line selected reactivates that target, this action also changes N in the OK column to Y.

Clicking the **Remove target** button with a target line selected removes that target from the Gunnery target screen and the exercise.

Clicking the **Damage target** button with a target line selected damages that target, this action also changes Y in the OK column to N.

Clicking the **Overview** button returns to the BattleMaster Functions Menu.



The image shows a software window titled "Gunnery Target Initialization". It contains several input fields and a list box. The "Name" field contains "light armor". The "Type" list box has "tank" selected, with other options being "mechanized-infantry", "losat", "ada", and "fwa". The "Appearance" section has four radio buttons: "US" (selected), "Threat", "Observer", and "Target". The "Location" field contains "NB43320443". The "Azimuth" field contains "0330", followed by the text "Mils From Grid N". At the bottom right are "Cancel" and "OK" buttons.

Name	light armor
Type	tank mechanized-infantry losat ada fwa
Appearance	☒ US ☐ Threat ☐ Observer ☐ Target
Location	NB43320443
Azimuth	0330 Mils From Grid N

Cancel OK

Figure 5.6.3-2 Gunnery Target Initialization

Clicking the New target button causes the Gunnery Target Initialization screen as shown in Figure 5.6.3-2 to appear. This screen provides the basic format for generating or changing all types of targets. Specification as to Name, Type, Appearance, Location, and Azimuth(0-6400 Mils from Grid N) are available. Note that the Appearance of the target should be designated by placing the cursor over and clicking one of the circles designated as US, Threat, Observer or Target before selecting an applicable Type from a predefined list of selections assigned to each Appearance group. Table 5.6.3 provides the default Types of targets. When the necessary data has been entered for a new target, clicking OK button will cause the target to be activated and become visible on the terrain data base and lists the target on the next open line on the Gunnery Target Worksheet screen (Figure 5.6.3-1).

US/OBSERVER	THREAT/TARGET
tank	tank
mechanized-infantry	motorized-rifle
losat	ada
ada	hind
fwa	havoc
attack-rwa	fwa
scout-rwa	gaz66
m977	ural375c
m978	ural375f
m113a2	
m577	
m88a1	

Table 5.6.3 Default Target Type

5.6.4 Resume initialization.

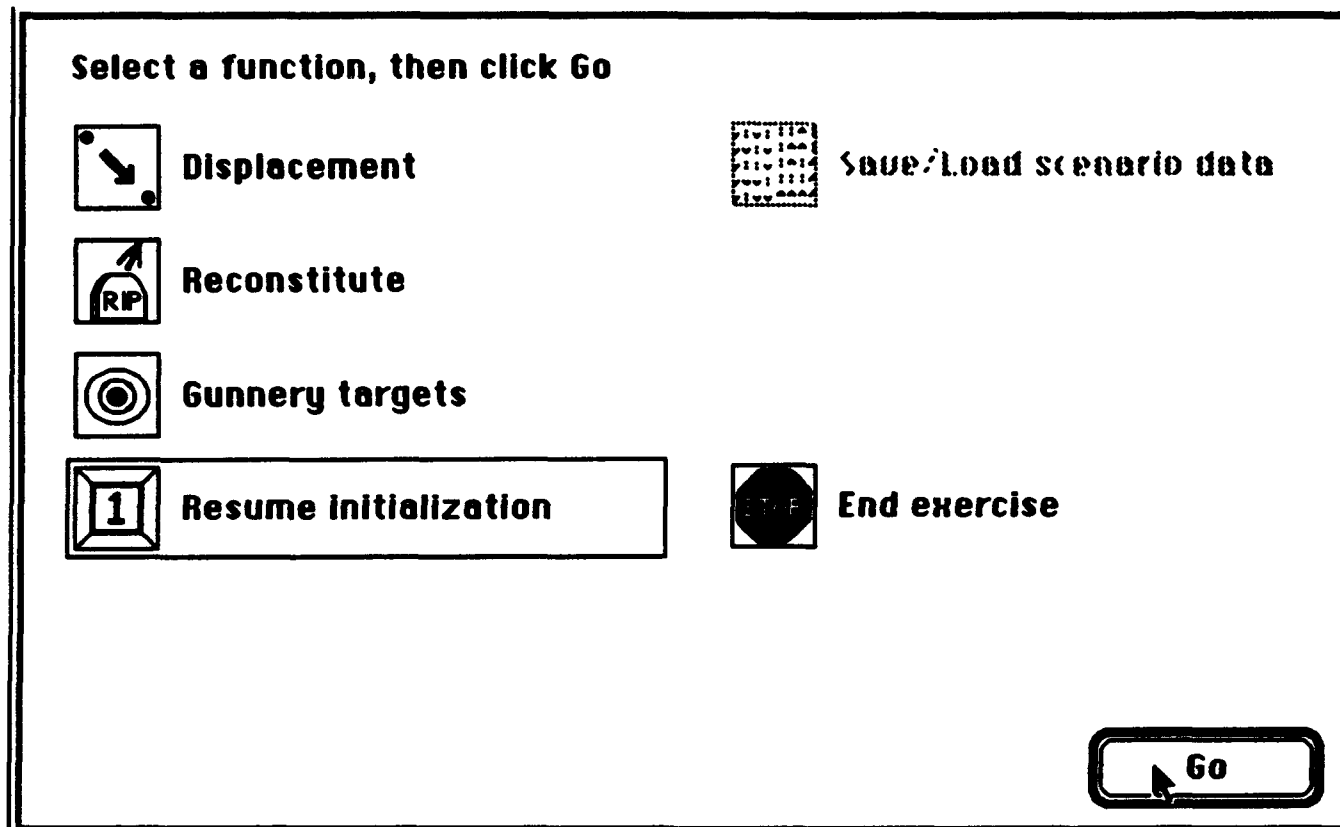


Figure 5.6.4 Resume Initialization selection

The Resume initialization function provides the BattleMaster with the capability to add elements that were not originally initialized to a simulation exercise. Selecting the Resume initialization icon and clicking the GO button on the BattleMaster Function menu as shown in Figure 5.6.4 returns to the Initialization Overview Menu to the Battle Support Station console. This function can be activated as many time as necessary during a given simulation exercise.

5.6.5 End exercise.

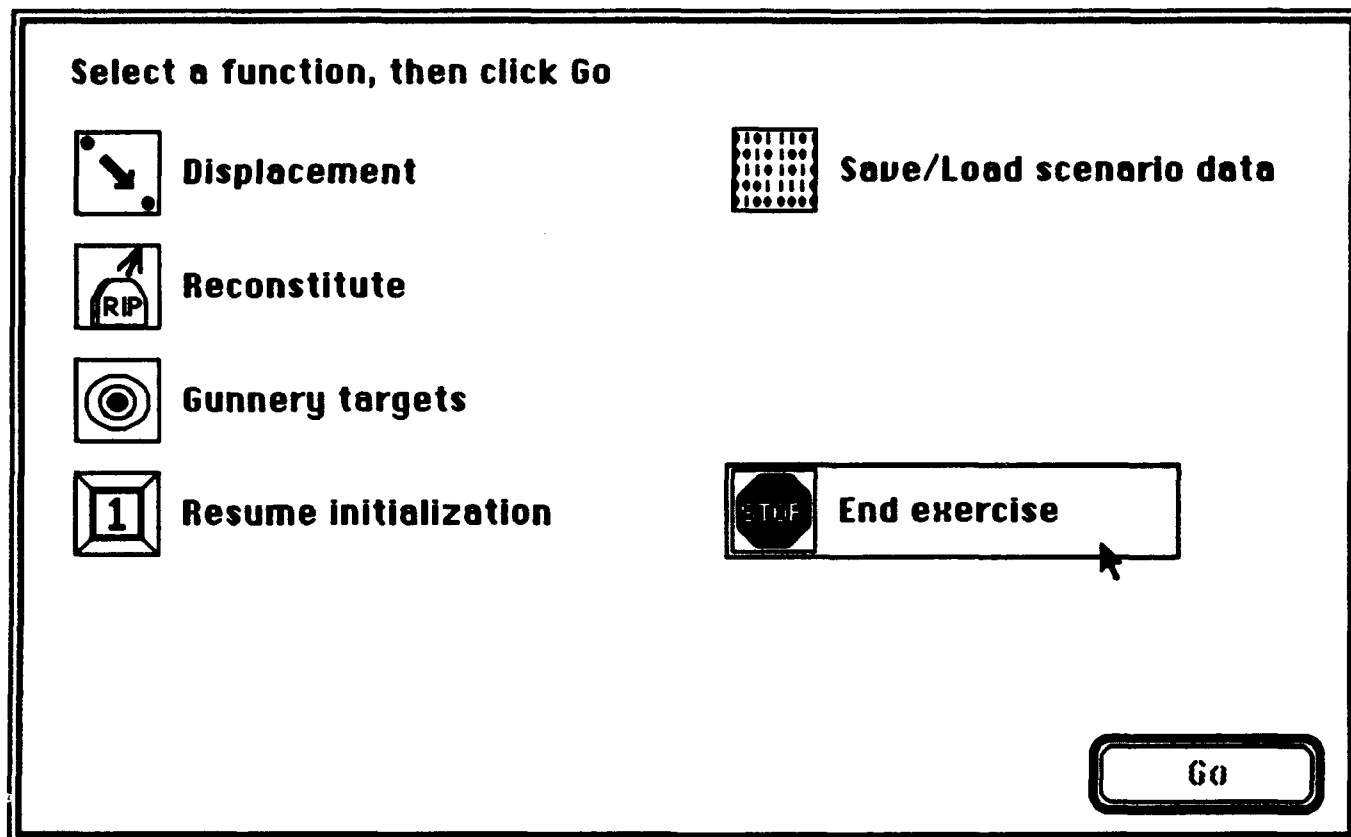


Figure 5.6.5 End Exercise selection

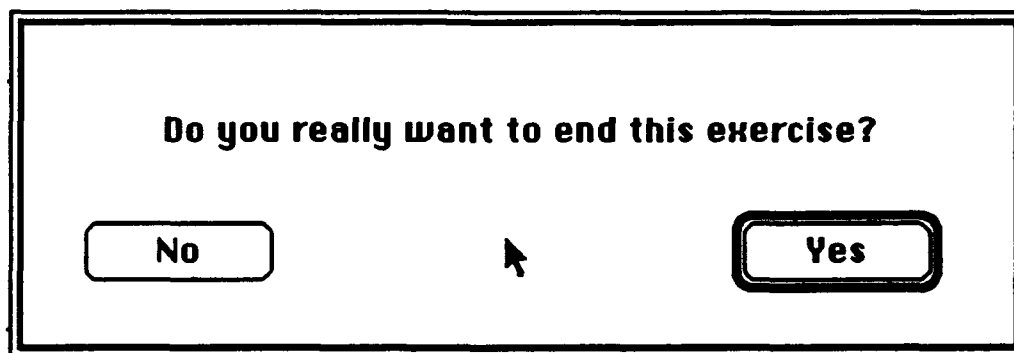


Figure 5.6.5-1 End Exercise confirmation dialog

Only the BattleMaster can formally end a simulation exercise. Clicking the GO button with the End exercise icon selected on the BattleMaster Function menu (Figure 5.6.5) brings up a confirmation dialog box as shown in Figure 5.6.5-1 to preclude an inadvertent ending of the simulation exercise. Clicking the Yes button on the End Exercise confirmation dialog box

September 24, 1993

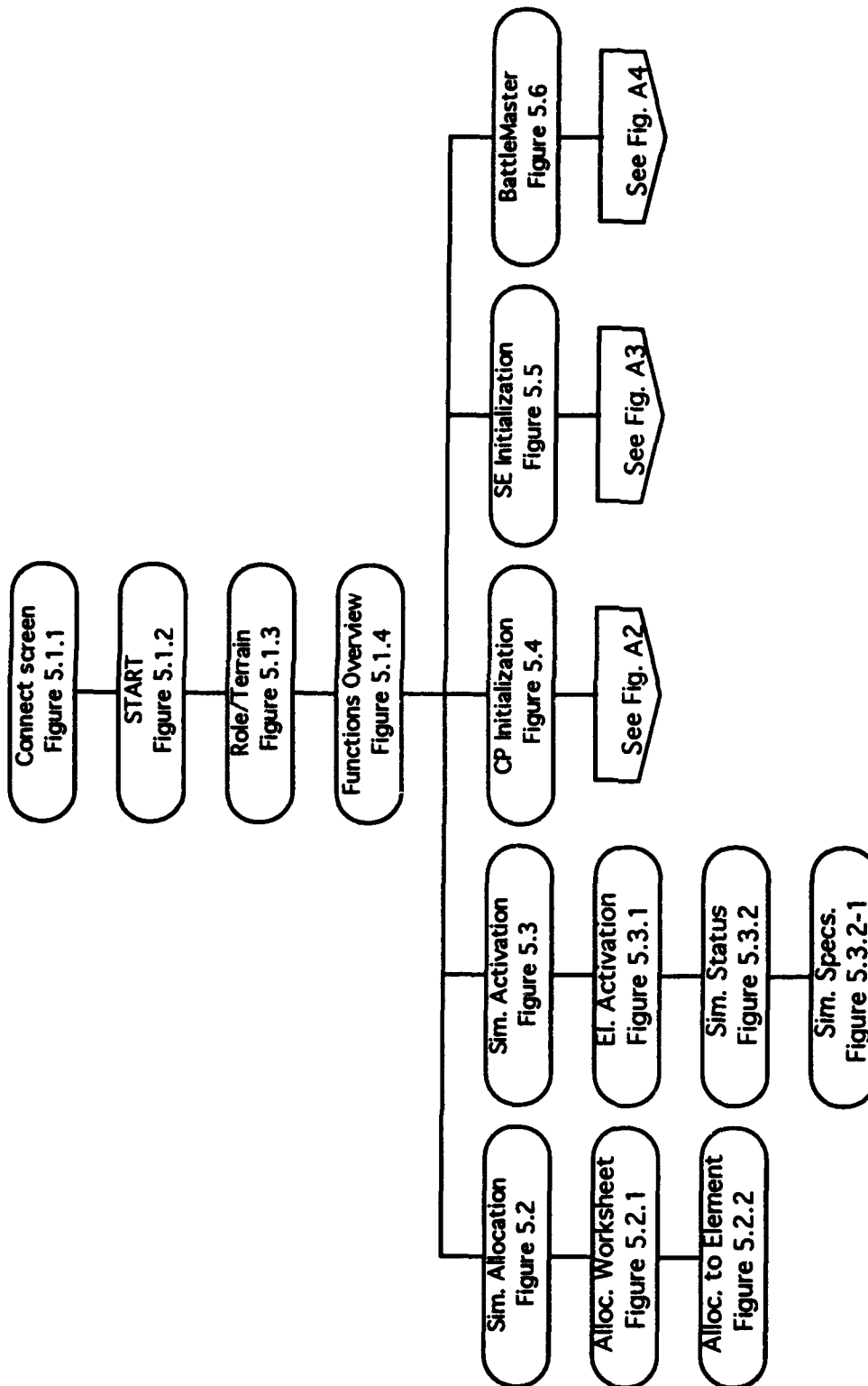
confirms the termination, causes all elements under the MCC control to be deactivated and deactivations requests to be sent to all other consoles controlling exercise elements.

6. Notes.

6.1 Abbreviations/Acronyms

AIRNET	Simulation Network with Aircraft simulation capability
ALC	Administration/Logistics (Macintosh) Console.
ATKHB	US Army Attack Helicopter Battalion
BBN	Bolt, Beranek and Newman
CAS	MCC Close Air Support (Macintosh) Console
CEC	MCC Combat Engineering (Macintosh) Console
CP	Command Post
CSR	Controlled Supply Rate
ETA	Estimated Time of Arrival
FARE	Forward Area Refueling Equipment
FARP	Forward Area Refueling Point
FRAGO	Fragmentary Order
FRED	Fully REconfigurable Device
FSE	MCC Fire Support (Engineering) (Macintosh) Console
F/W	Fixed Wing
MCC	Management Command Console
MIPS	A workstation and chip vendor.
NE	North East
OP	Operating System
OPORD	Operation Order
PDU	Protocol Data Unit
PVD	Plan View Display
RWA	Rotary-Wing Aircraft (helicopter)
SAF	Semi Automated Force
SCC	SIMNET Control Console
SIMNET	SIMulation NETwork (protocol)
SW	South West
TAC CP	Tactical Command Post
TOC	Tactical Operation Center
UTM	Universal Transverse Mercator (map coordinates)

APPENDIX A

Figure A1 Management Command & Control Screens
Flow Diagram

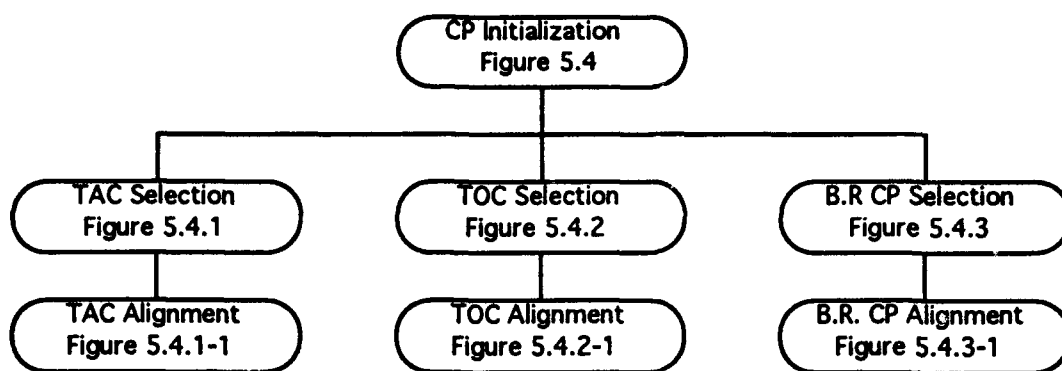


Figure A2 Command Post Initialization Screens
Flow Diagram

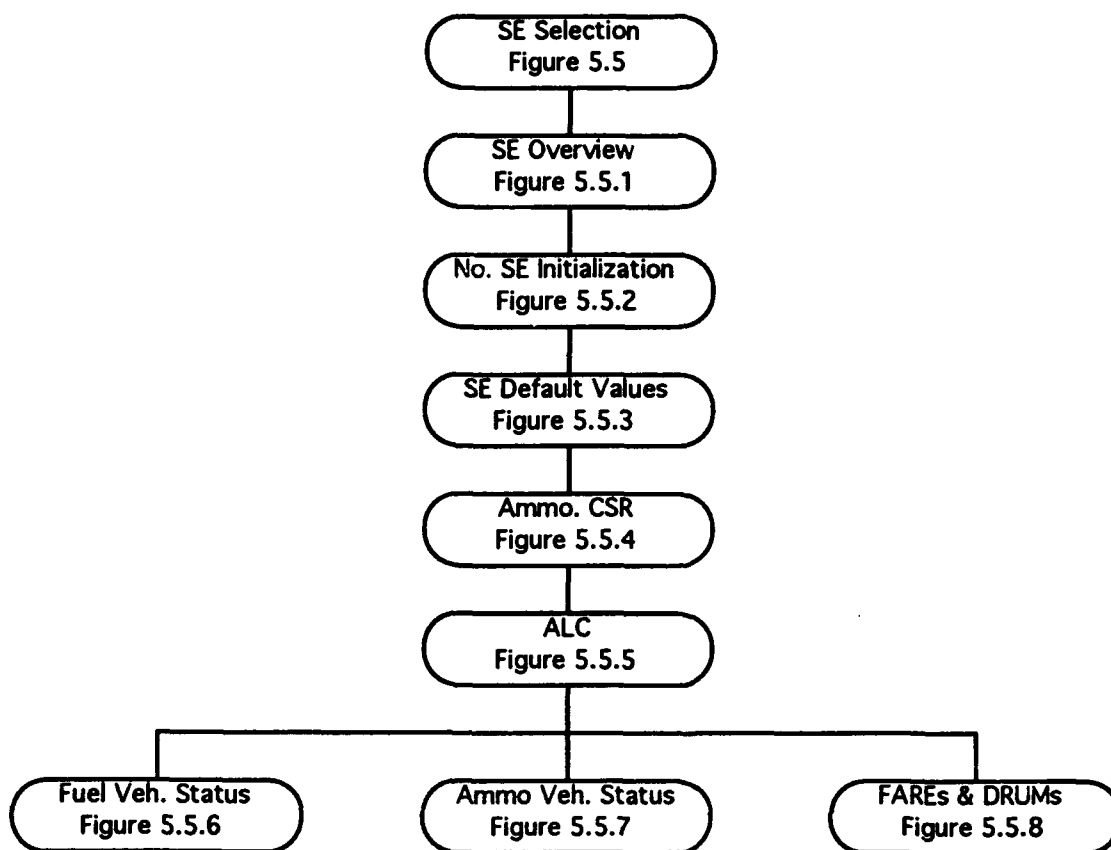


Figure A3 Service Elements Initialization Screen
Flow Diagram

September 24, 1993

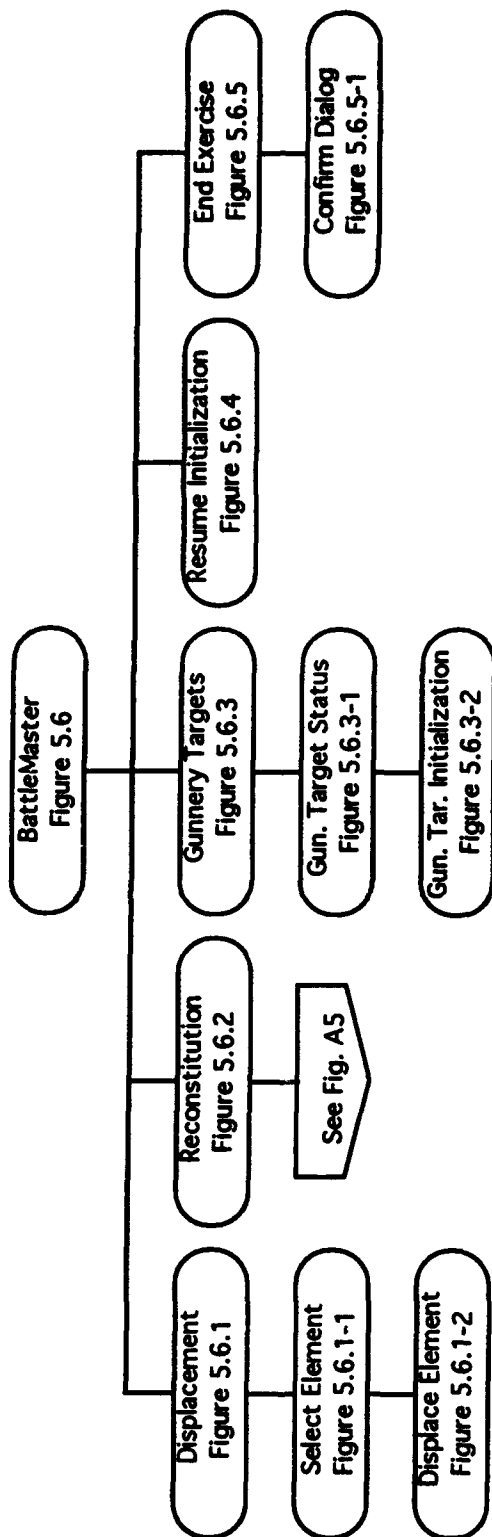


Figure A4 BattleMaster Functions Screens
Flow Diagram

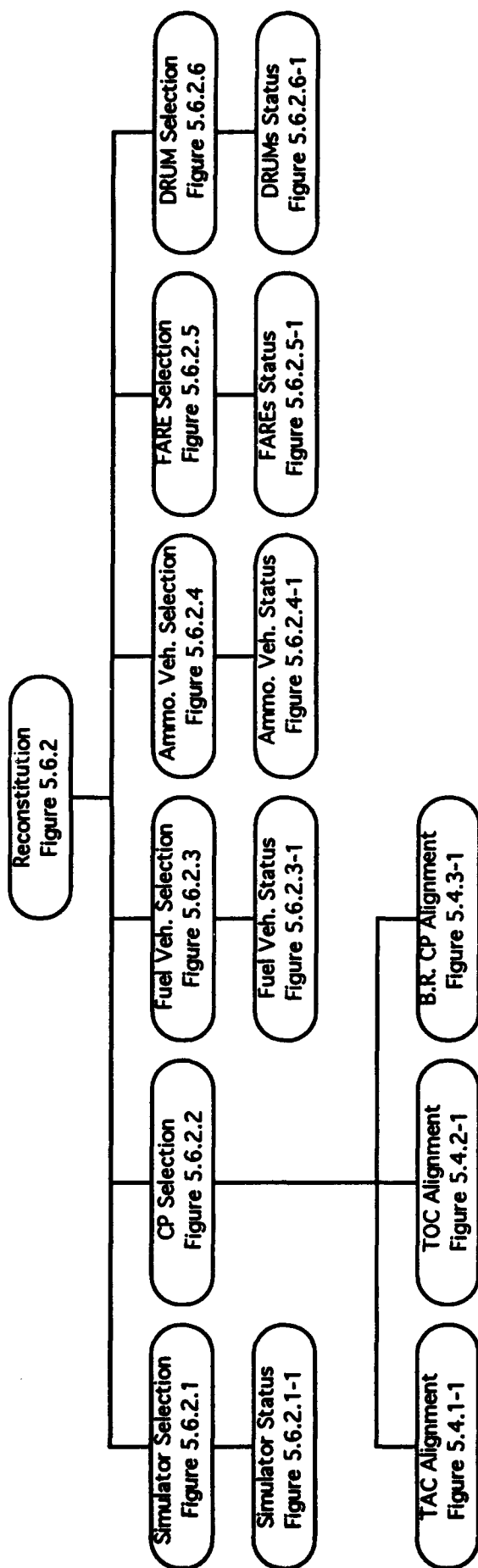


Figure A5 Reconstitution Function Screens
Flow Diagram