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

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Operation Manual for the

Management Command and Control

Volume I: AIRNET/MIPS Host MCC

Loral Western Development Labs
Electronic Defense Systems Software Department
Software Engineering Laboratory
3200 Zanker Road
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November 30, 1993

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Naval Training Systems Center
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This manual describes 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).

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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 (Fort 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 MCCs and the RWAs.
- (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 RWAs.

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 to aid in the understanding of the MCC system. 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. (June 26, 1992). BBN Report No. 7734, BBN.

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

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 Protocols. (June 1991). Report No. 7627, Arthur R. Pope, Prepared for DARPA by Bolt, Barenek and Newman, Inc.

3 MCC Workstation Screen Conventions.

3.1 Console and Screen Title.

Many screens on the 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.

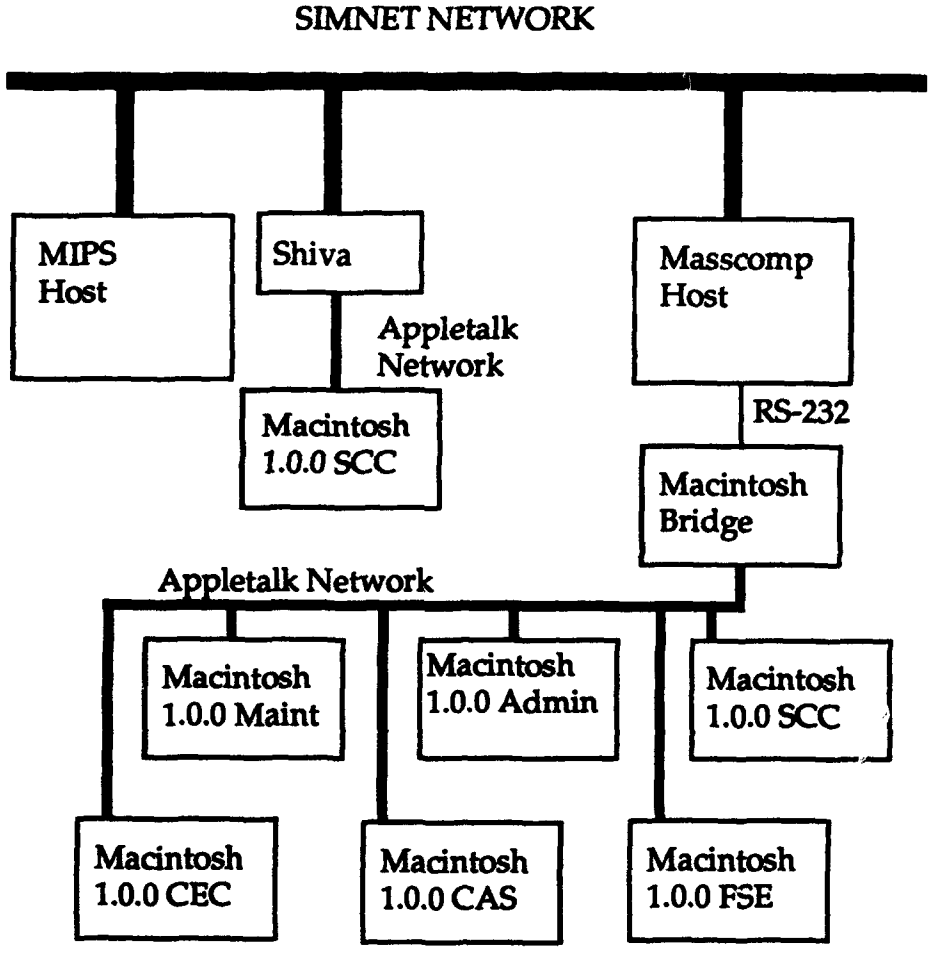

Figure 4.1. MCC System Top Level Hardware Configuration

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:

a. If the MIPS phantom is running, then exit the program by typing **quit** at the command line.
b. On the MIPS, type **cd /usr3/saf/bin** command.
c. 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

d. Wait for a couple of seconds for the phantom process to get to the MCC prompt.
e. 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**. 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. At this point, log into the filesystem as a guest and with no password. Click on the OK button in the Chooser dialog to mount the filesystem and click on the icon to open the window.

f. 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.

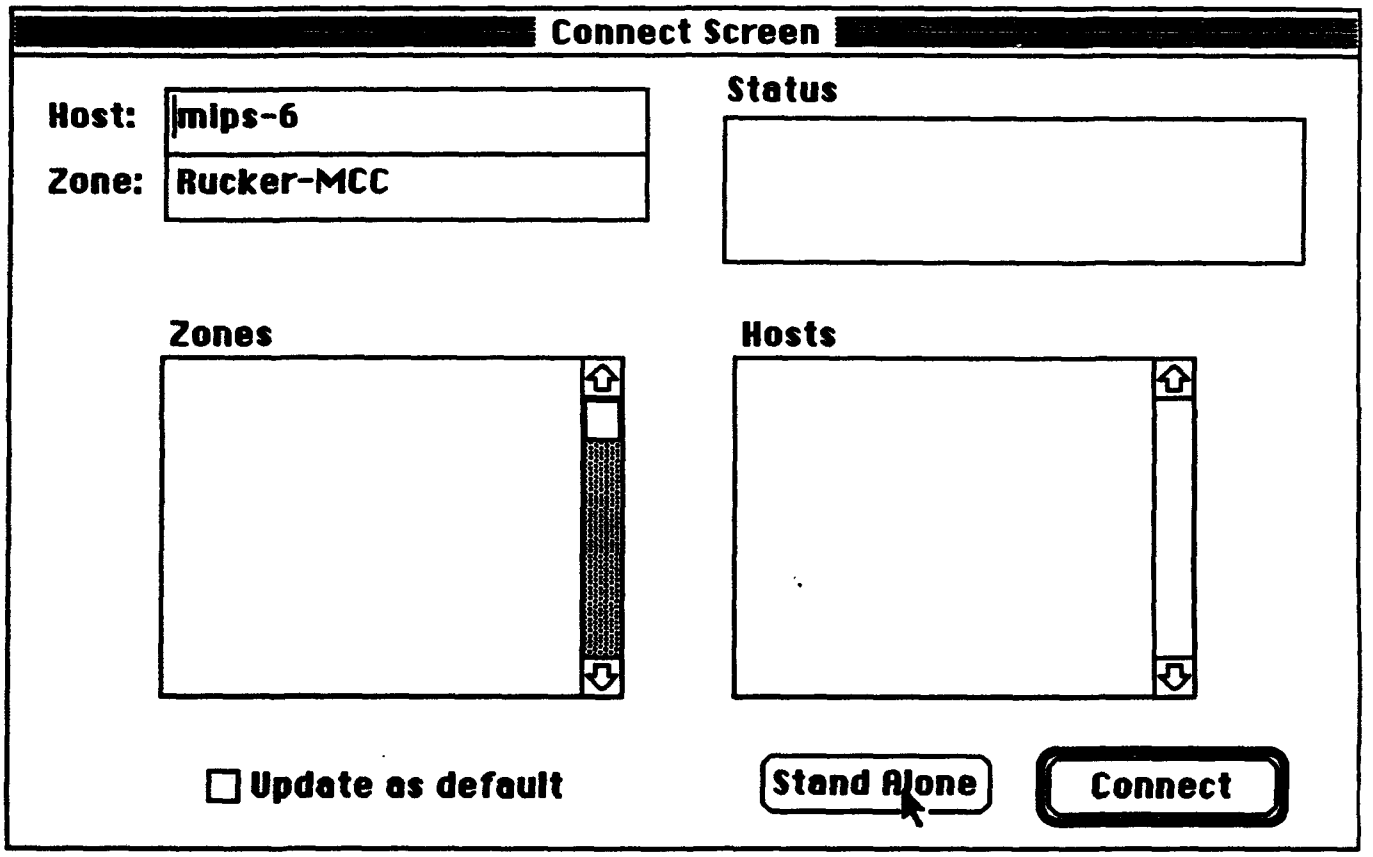

Figure 5.1.1. Connect Screen

The Connect Screen (Figure 5.1.1) 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.

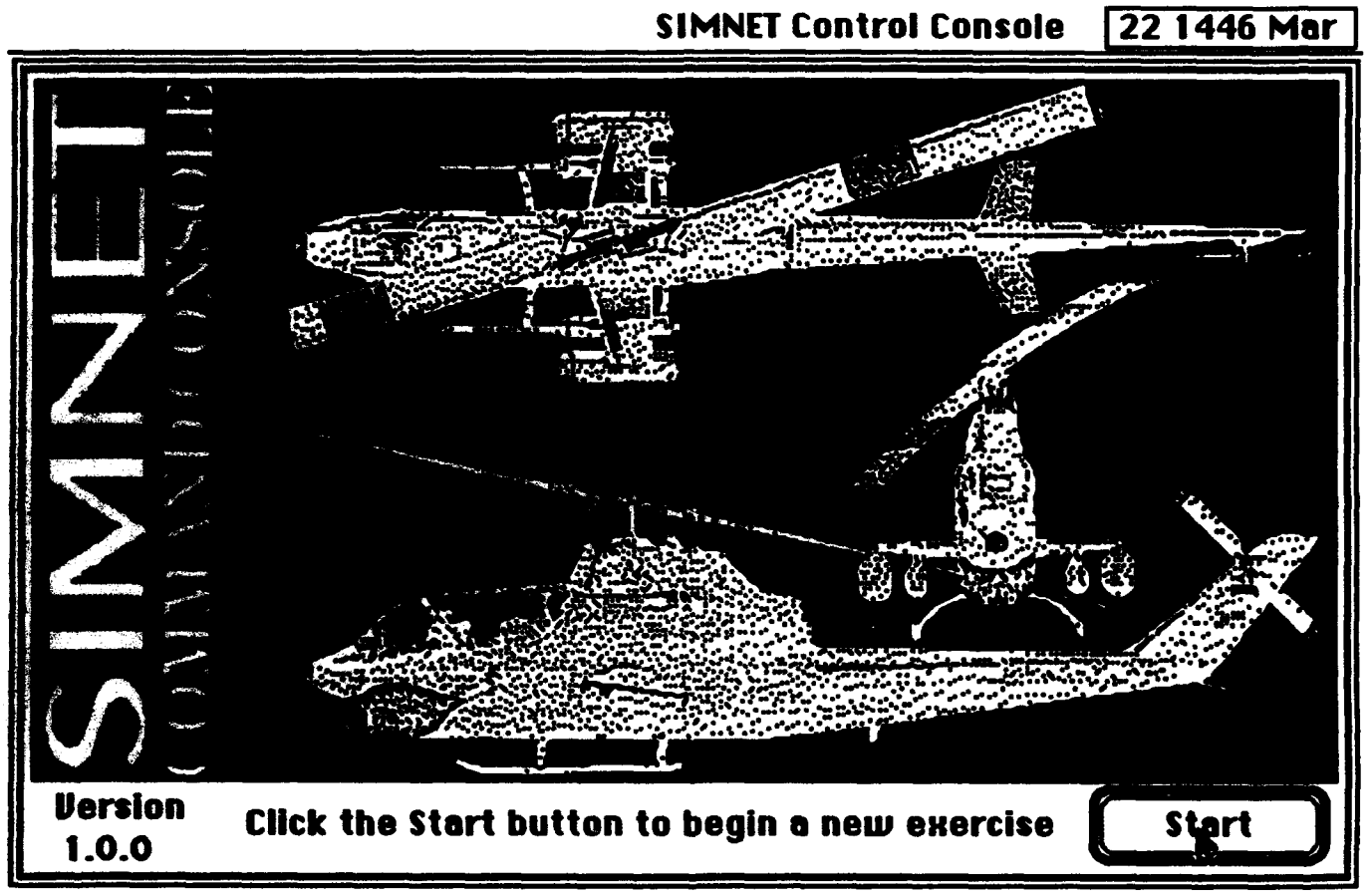

Figure 5.1.2. Simulation Start

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.

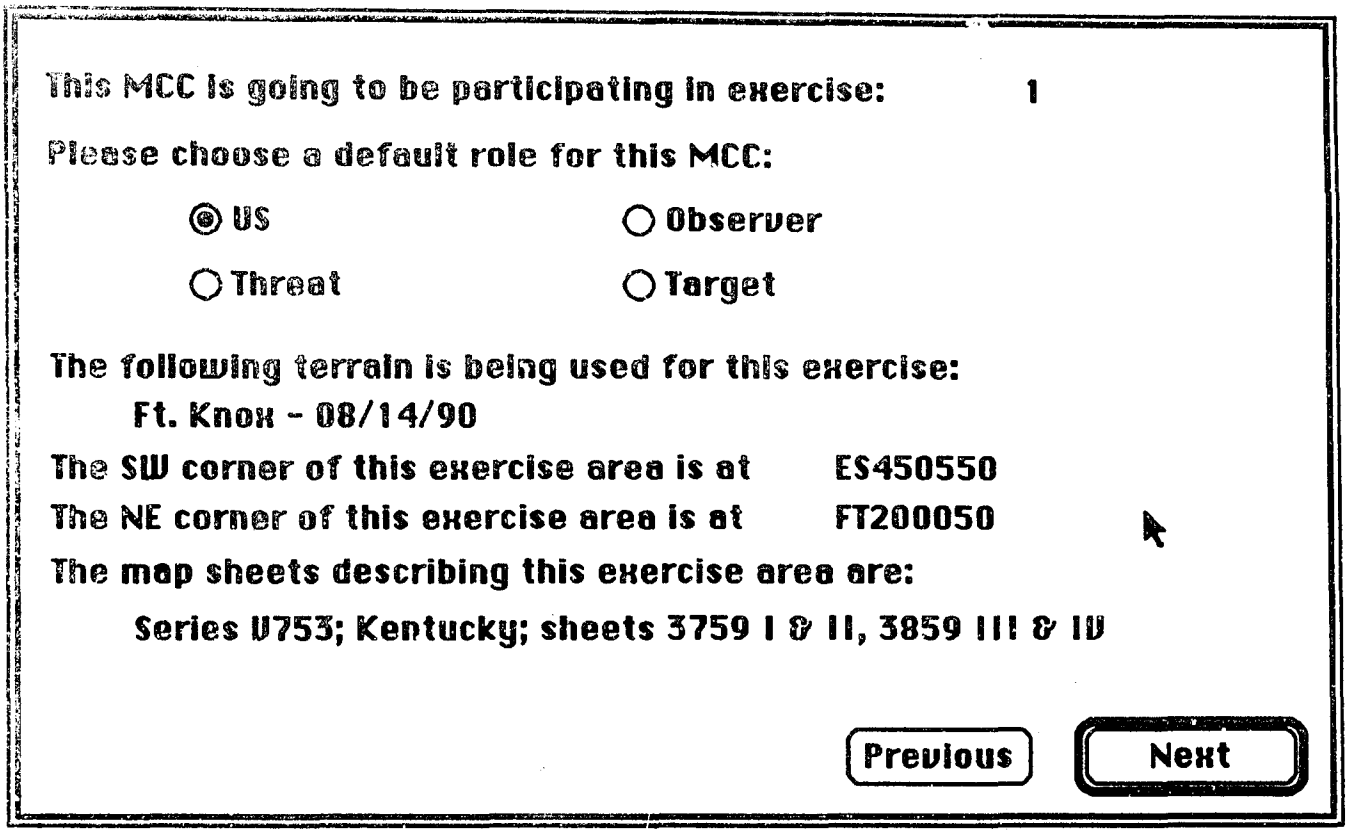

Figure 5.1.3. Role/Terrain

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.

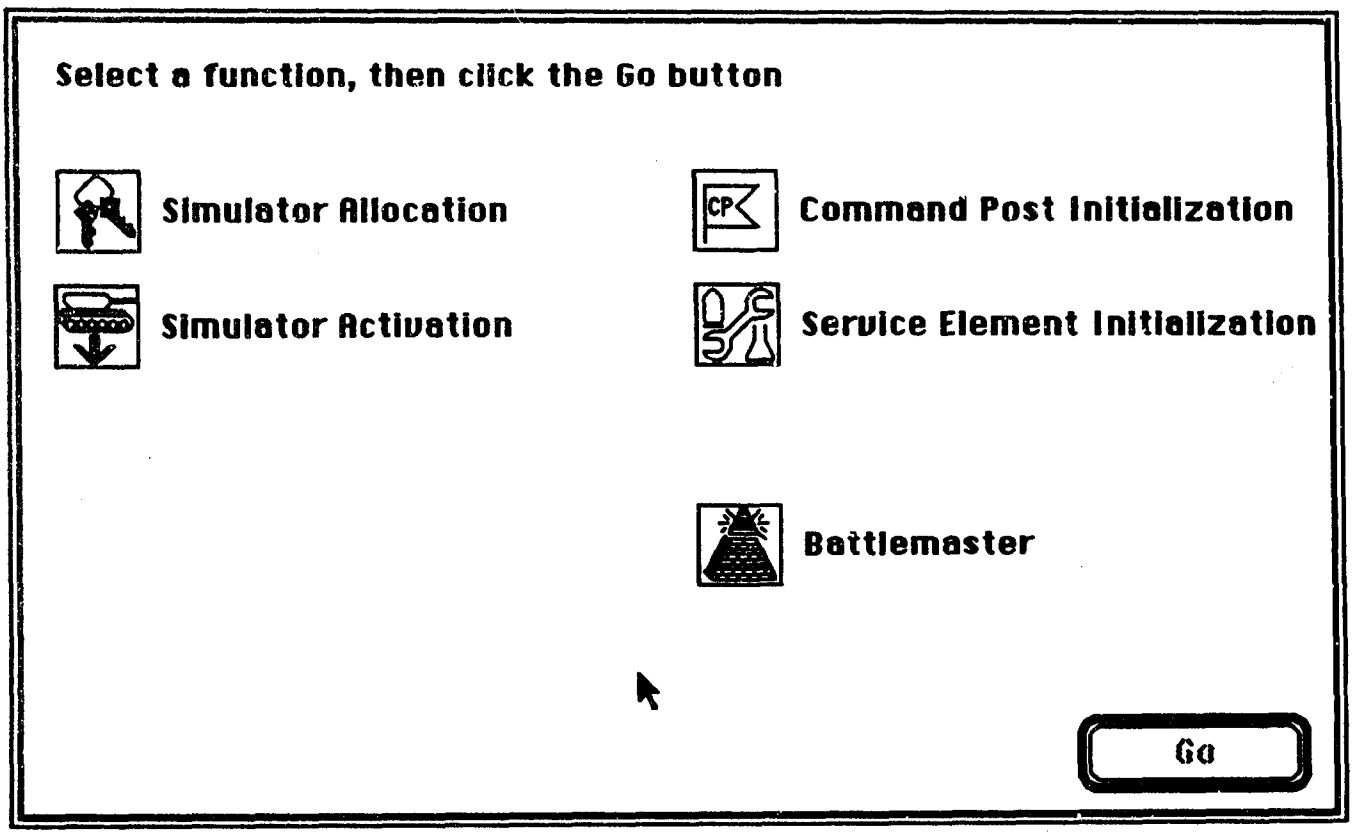

Figure 5.1.4. Functions Overview

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 ensure 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 cannot 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.

5.2 Simulator Allocation.

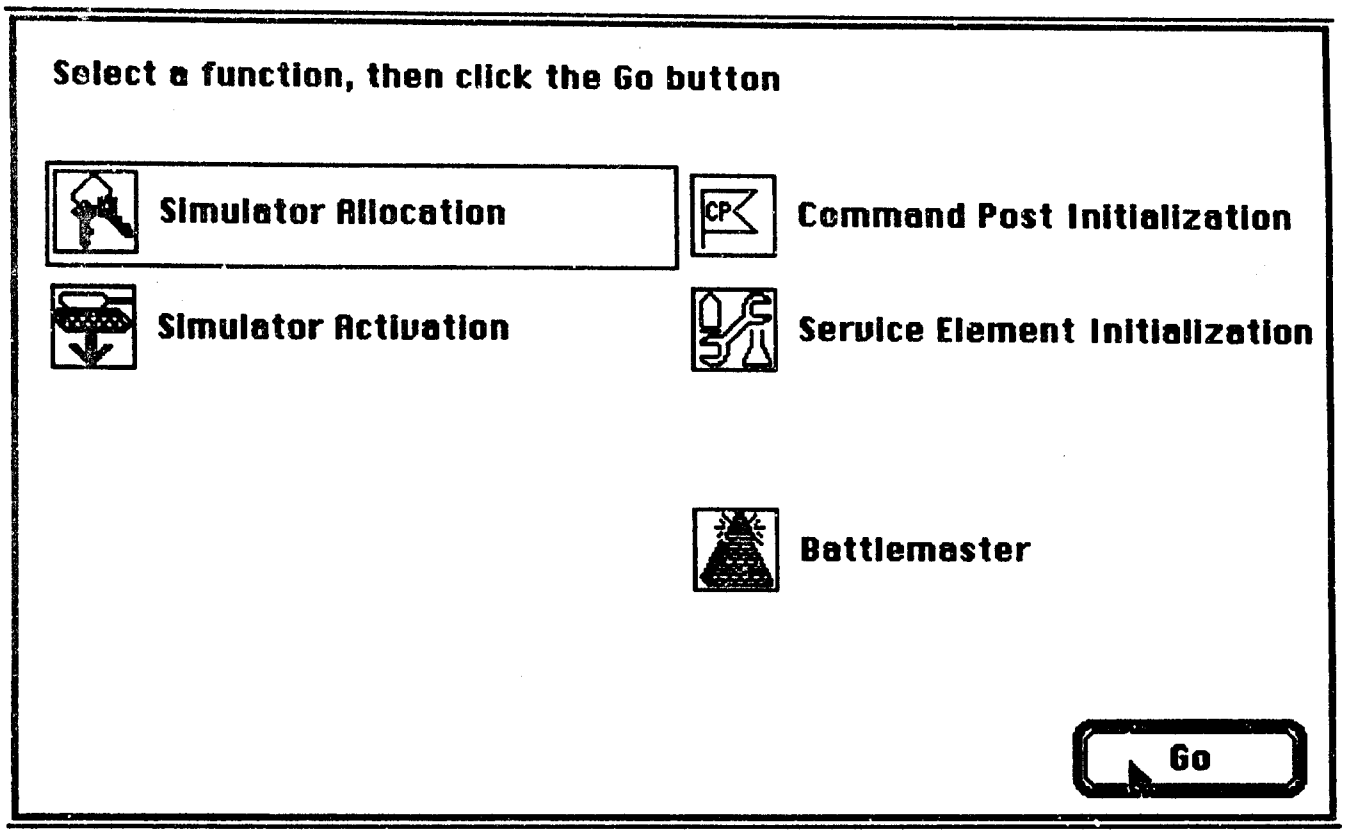

Figure 5.2. Simulator Allocation selection

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.

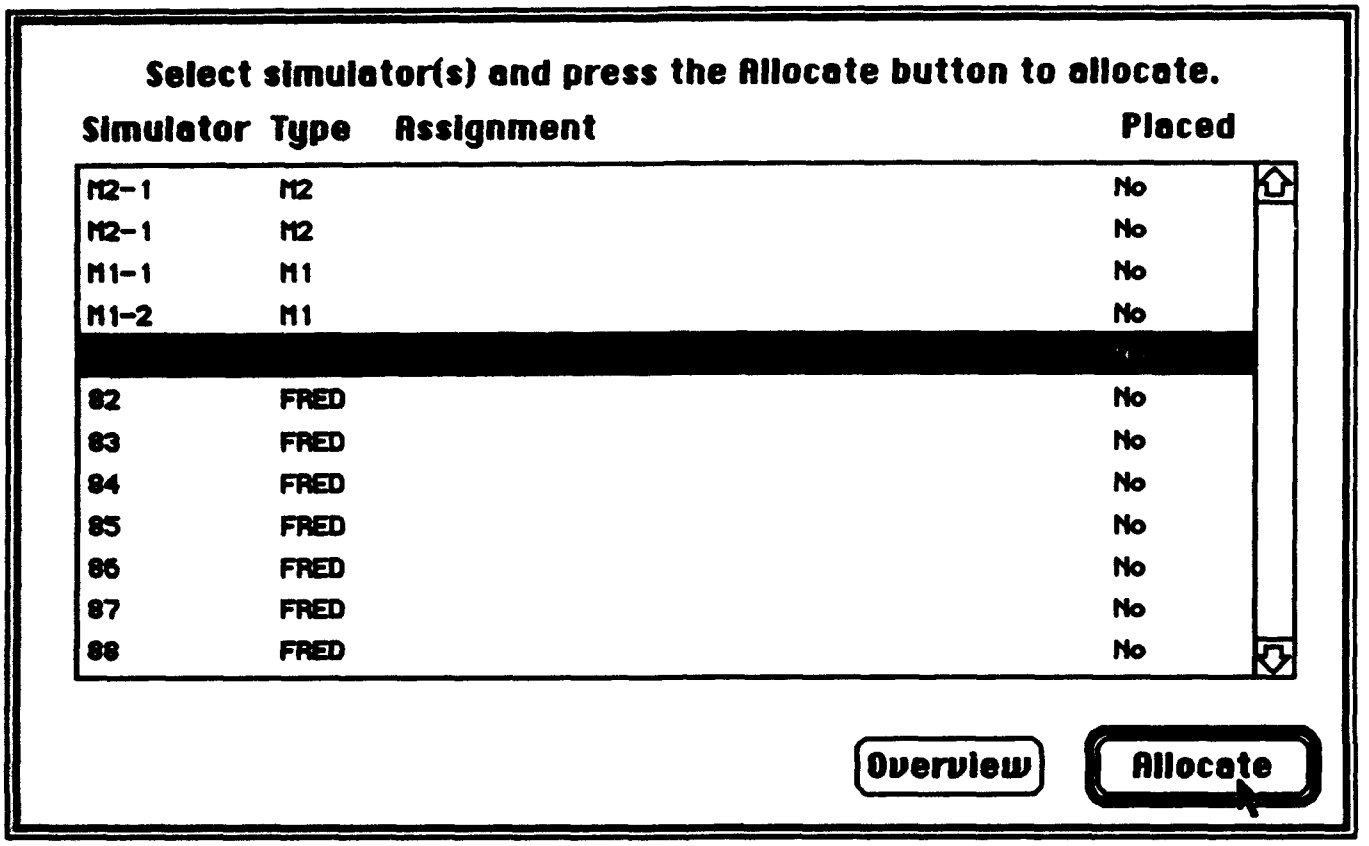

Figure 5.2.1. Simulator Allocation Worksheet

By selecting the Simulator Allocation icon and clicking the GO button from the Functions Overview menu, the 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, and 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.

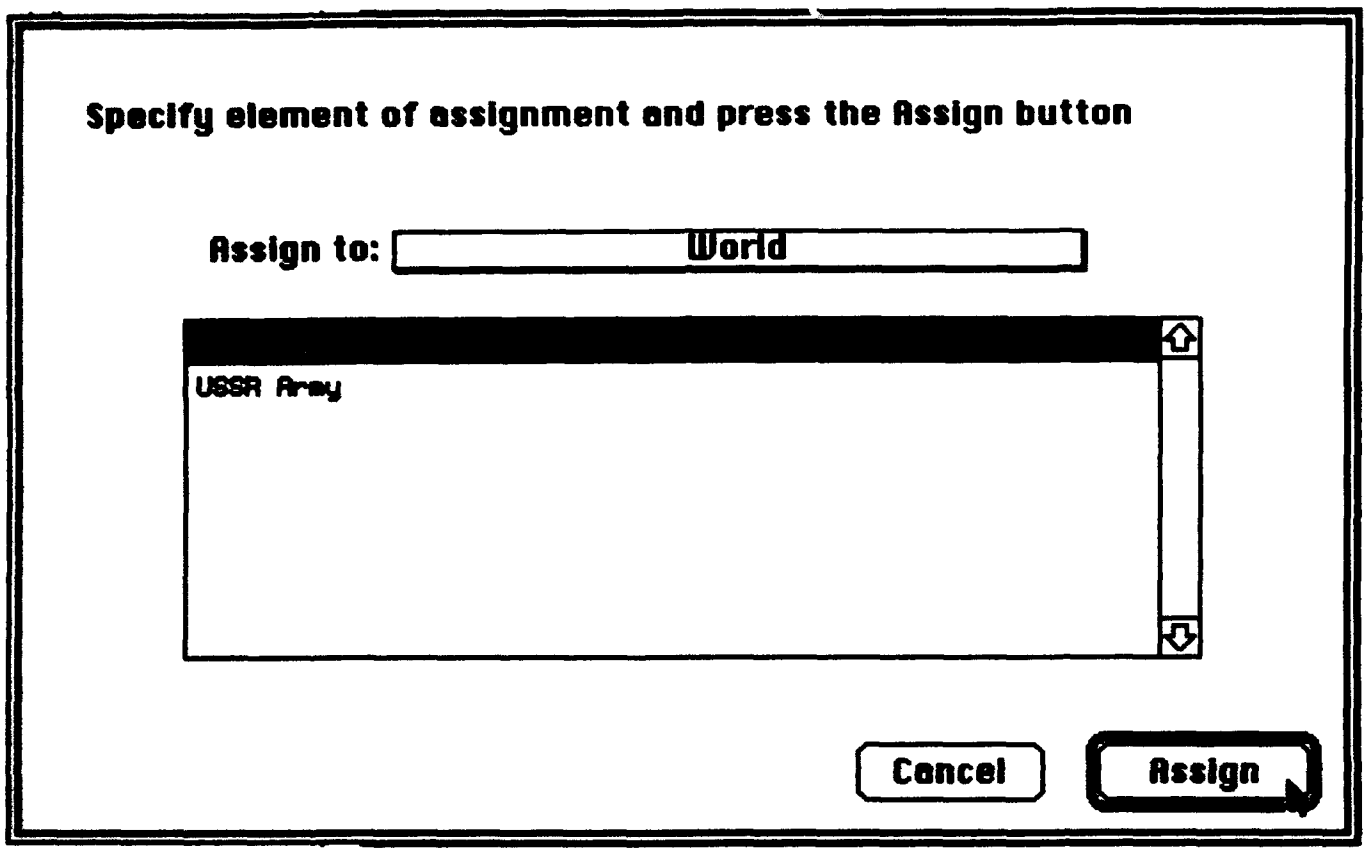

Figure 5.2.2. Allocation to Operational Elements

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 (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.

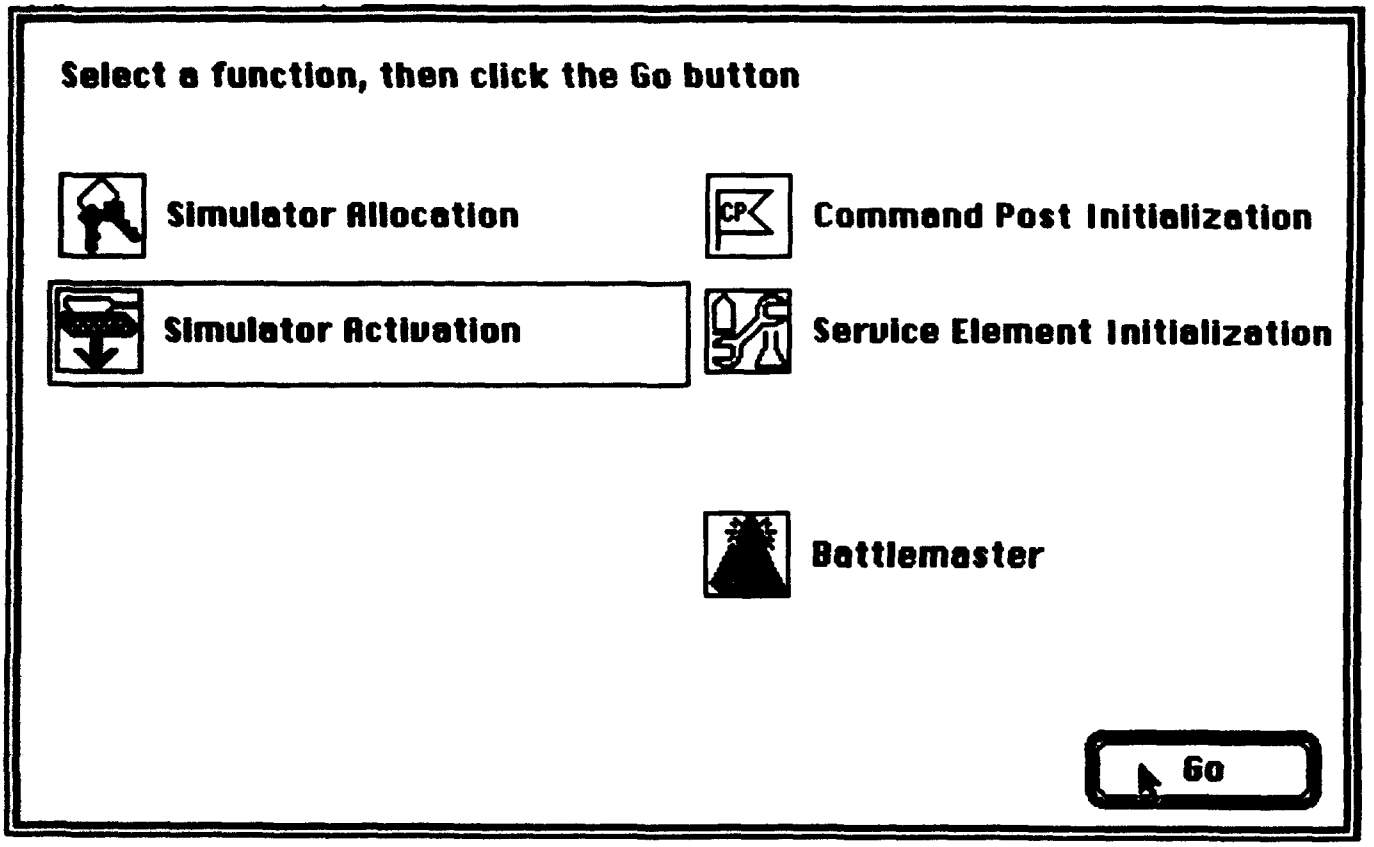

Figure 5.3. Simulator Activation Selection

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

5.3.1 Elements Activation.

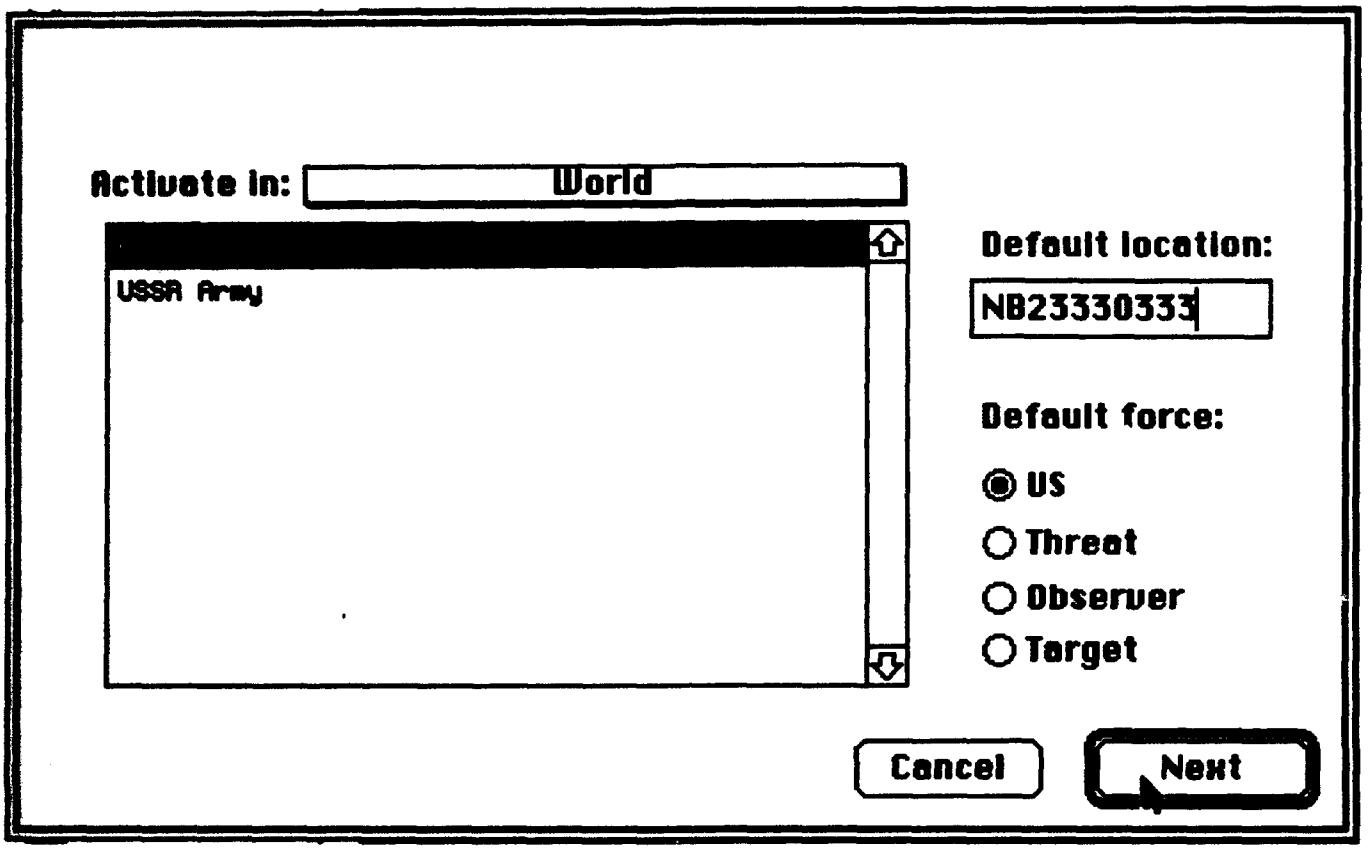

Figure 5.3.1. Elements Activation

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 paragraph 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 placing the cursor and clicking 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 the user to the Functions Overview menu.

5.3.2 Simulator Activation.

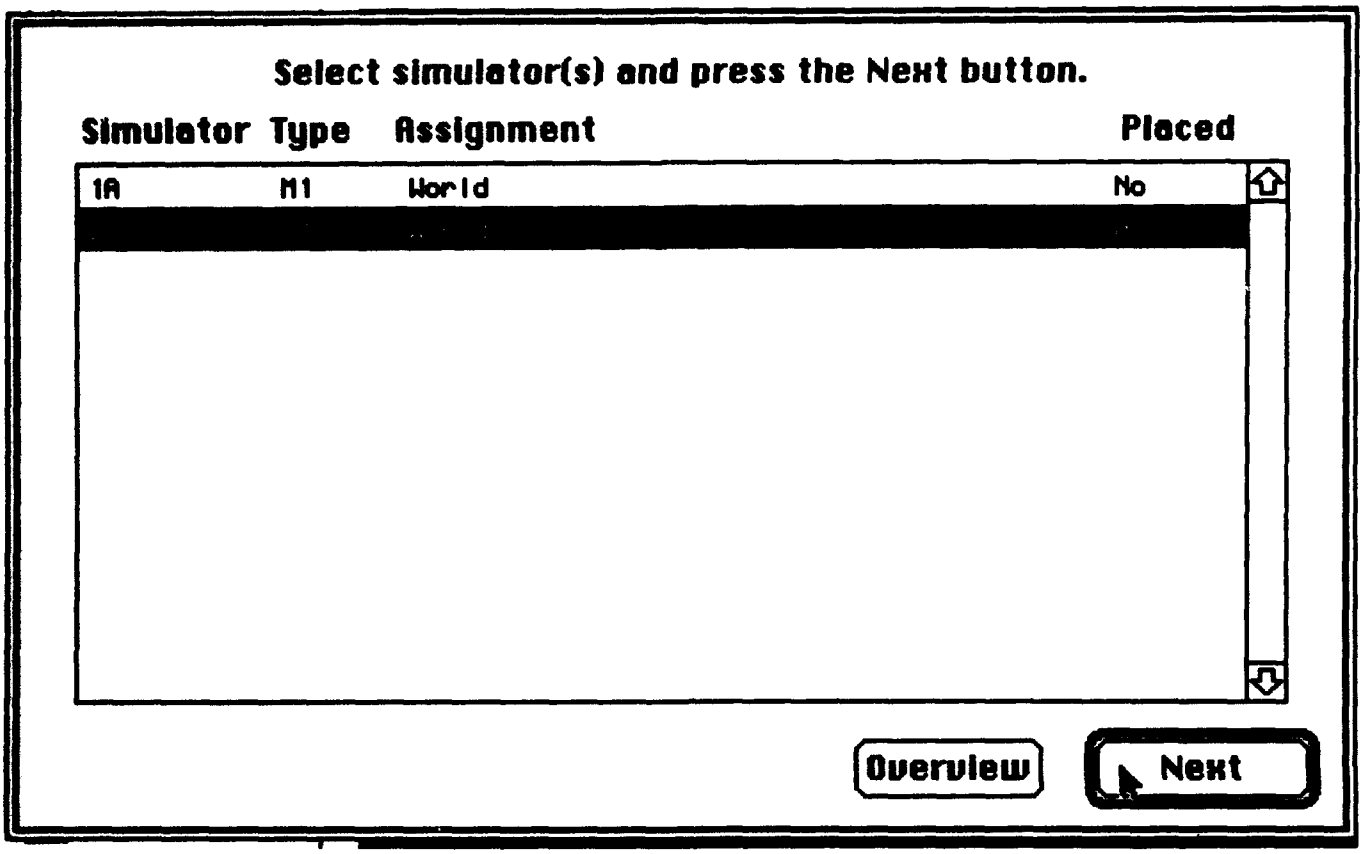

Figure 5.3.2. Simulator Status

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 the user 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 (Figures 5.3.2-1a and 1b).

NOTE

When the MIPS-hosted MCC has been used to intialize a vehicle, it cannot be resupplied from the Masscomp-hosted MCC or be resupplied from the MIPS-hosted MCC. In order to resupply a vehicle which has been initialized from the MIPS-hosted MCC, the vehicle must be reconstituted by the BattleMaster. Be aware that if a vehicle is reconstituted with less munitions and/or fuel than it was originally initialized with, the new values become the maximum values with which it can be reconstituted the next time. This applies to the Aviation Test Bed Facility, which is presently the only site with a MIPS-hosted MCC.

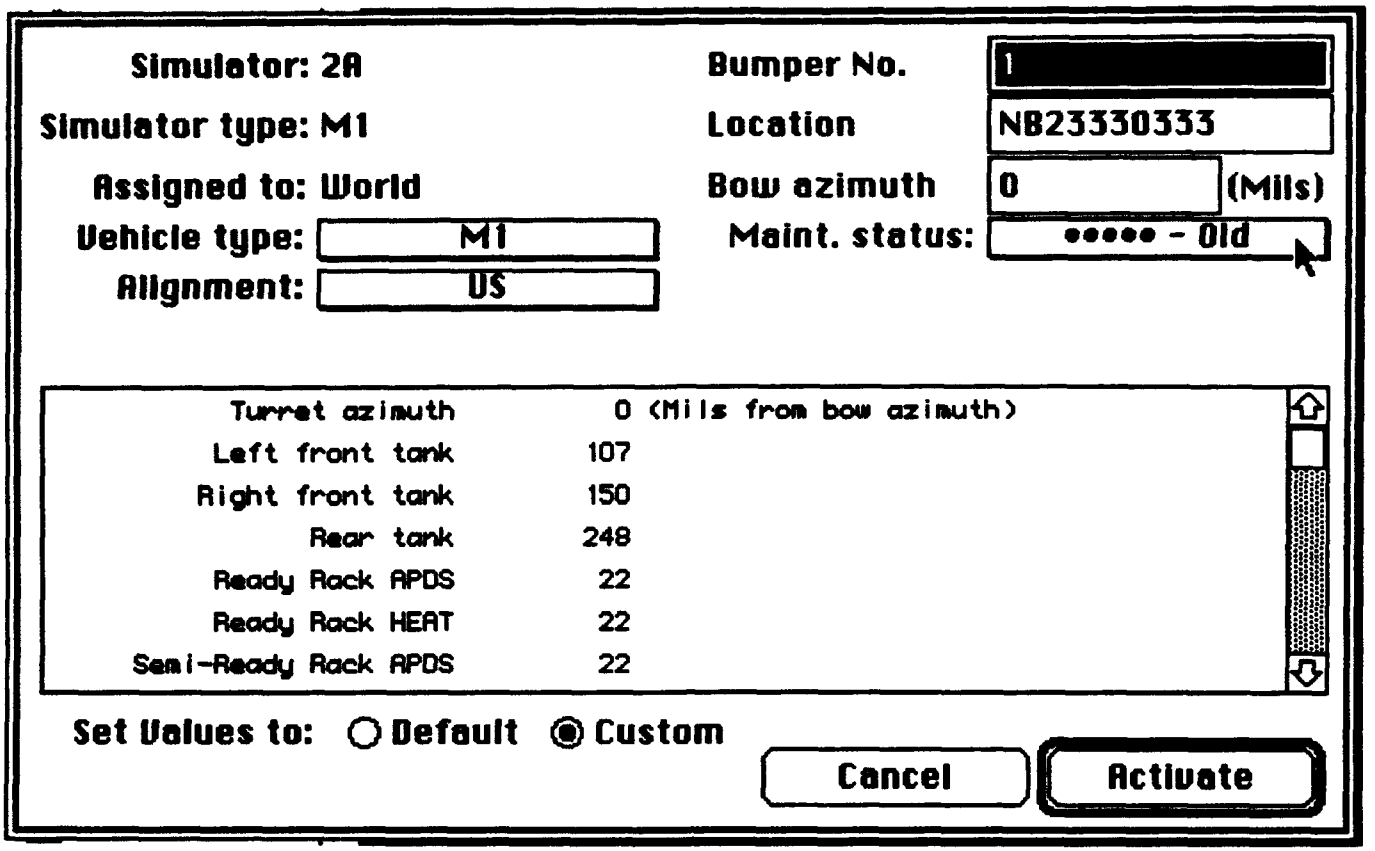

Figure 5.3.2-1a. Simulator Specifications

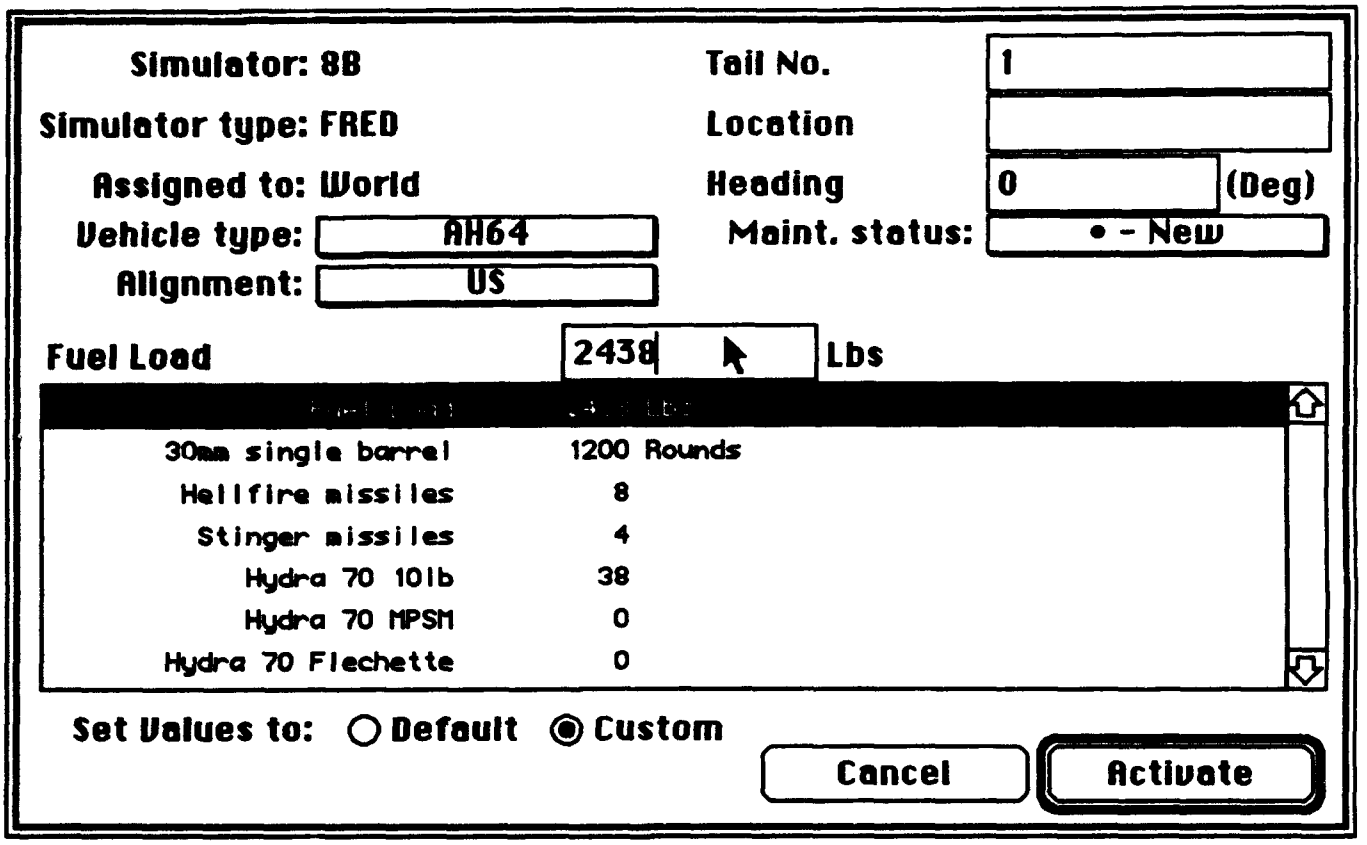

Figure 5.3.2-1b. Simulator Specifications

The Simulator Specification screen initially shows the Simulator ID, Type, Assigned 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 (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 highlighted. 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. The two-letter grid zone designator is entered in this box. The MCC will separate all vehicles (a distance predefined in the sofware) 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.

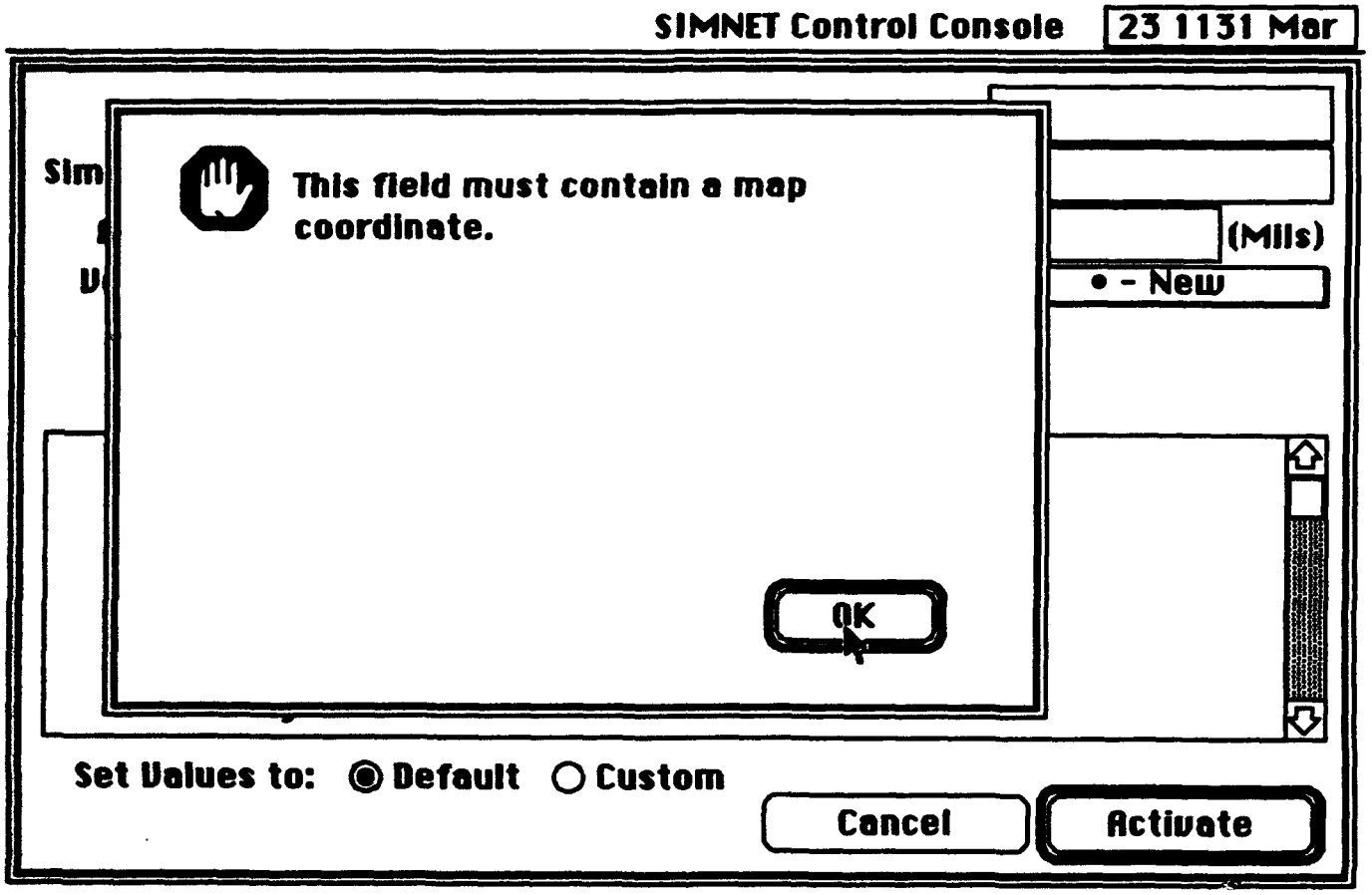

Figure 5.3.3. Error Dialog Sample

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.

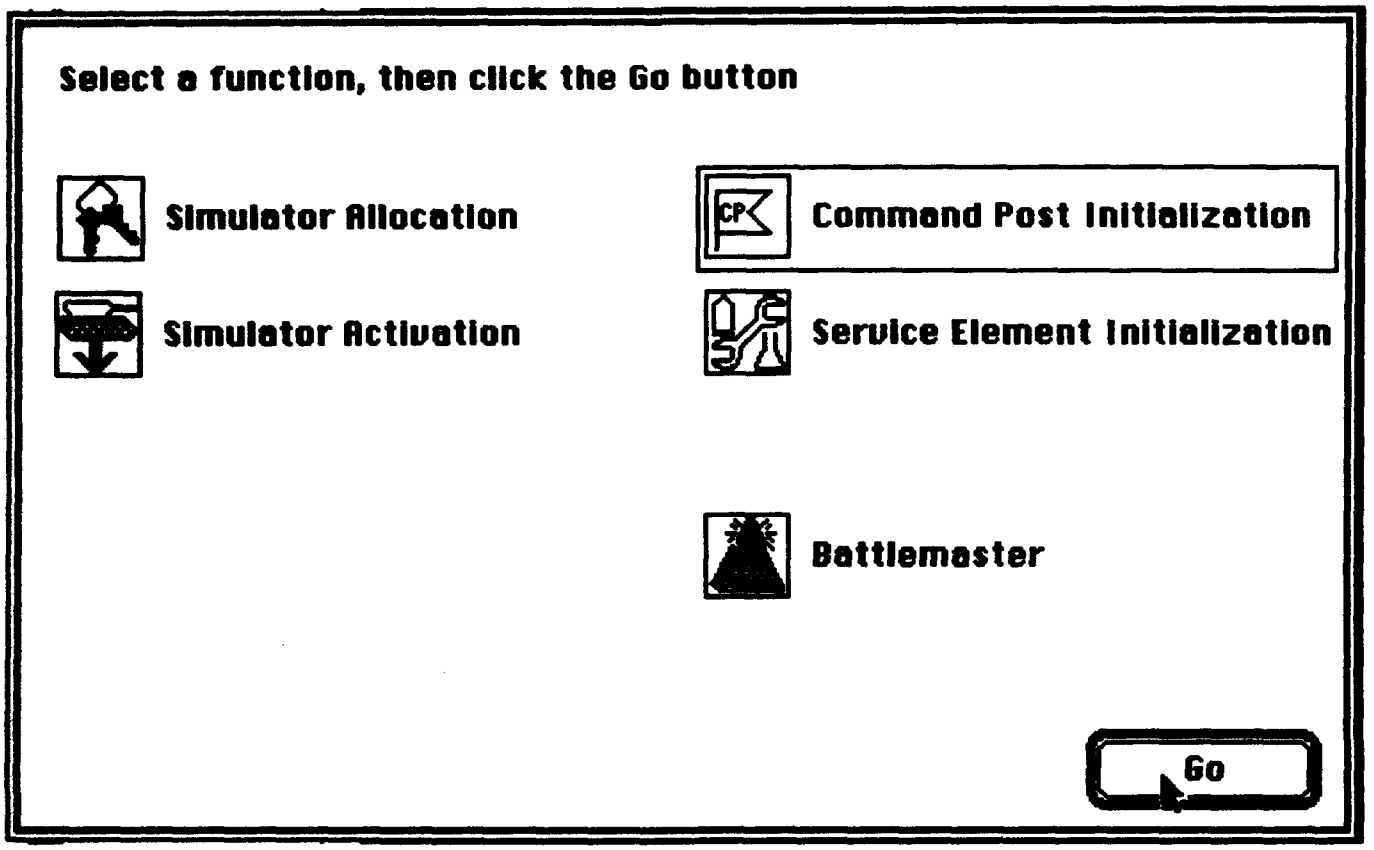

Figure 5.4. Command Post Initialization Selection

Selecting the Command Post Initialization icon causes a box to surround this icon (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.

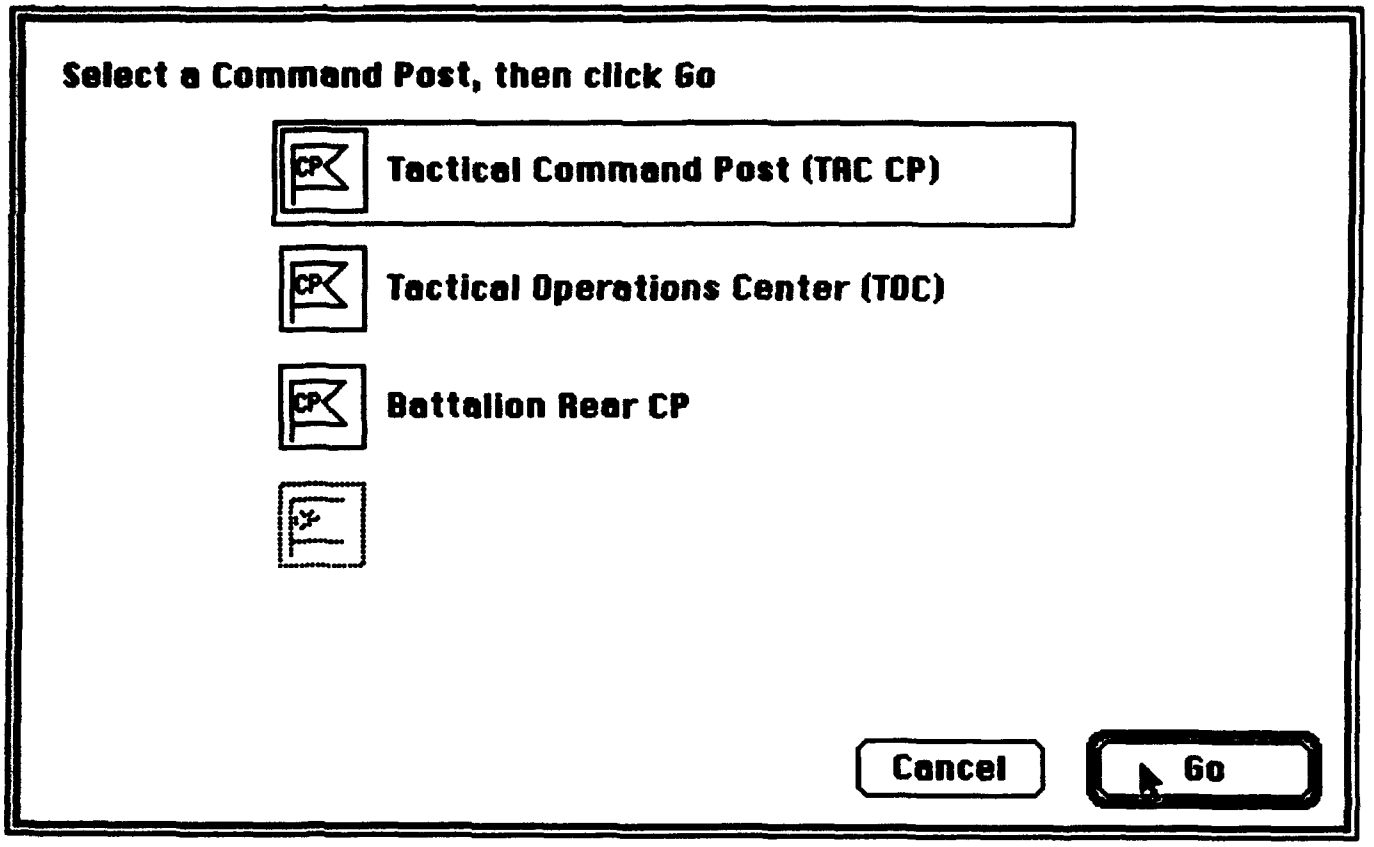

Figure 5.4.1. Tactical Command Post Selection

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.

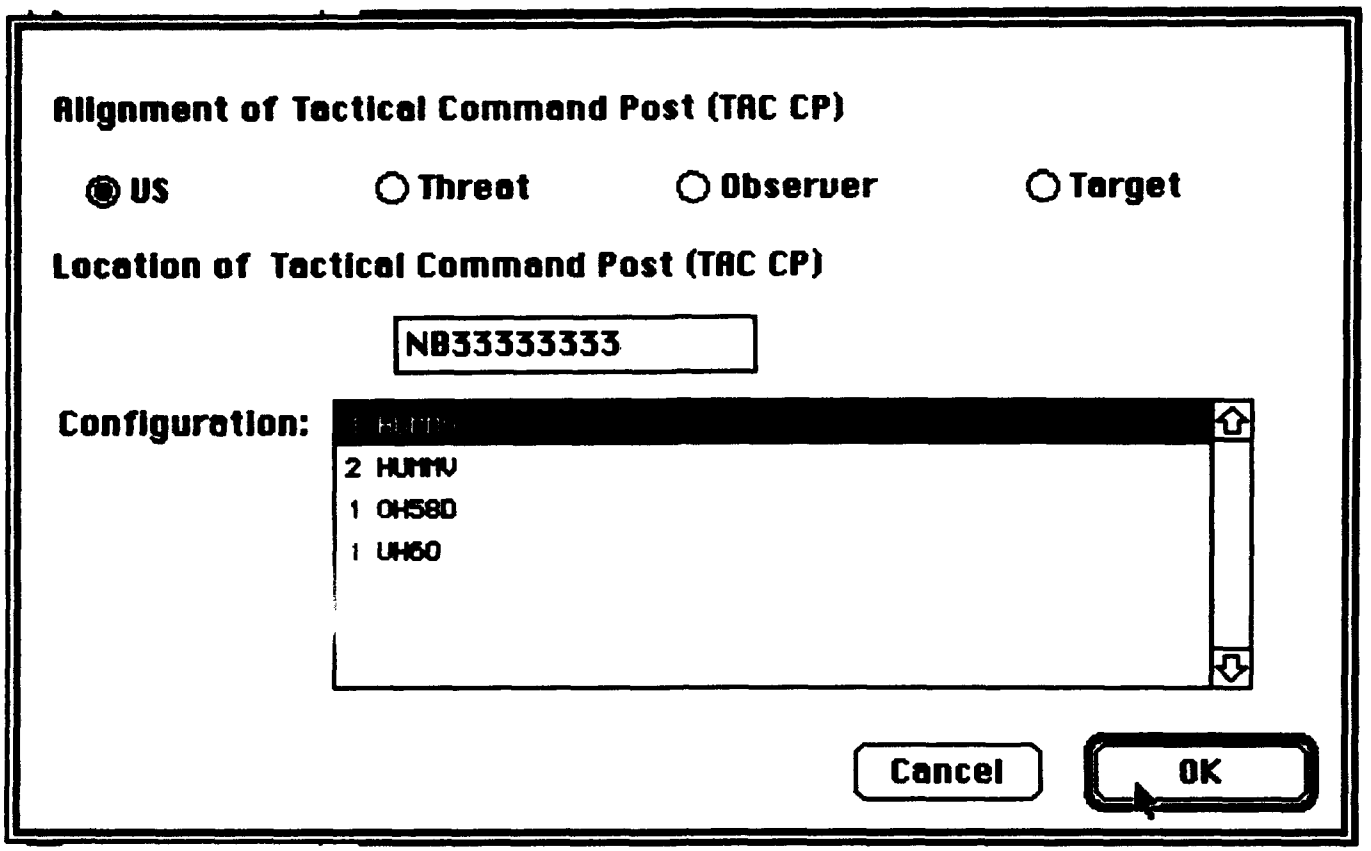

Figure 5.4.1-1. Alignment of Tactical Command Post

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, and 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 appear "grayed," at which stage they cannot be changed.

Table 5.4.1. TAC CP Default Configuration

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

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

5.4.2 Tactical Operation Center Initialization.

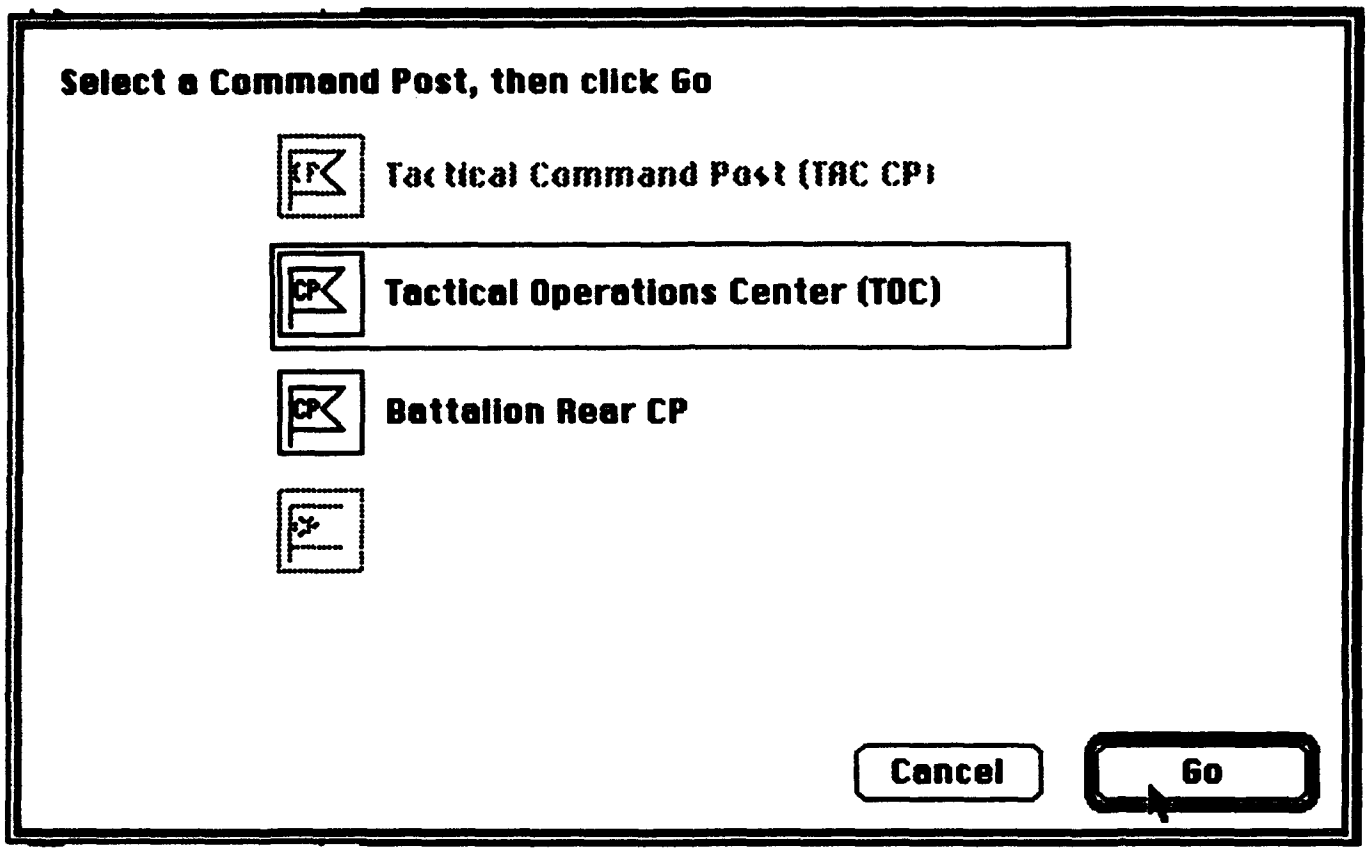

Figure 5.4.2. Tactical Operation Center Selection

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 (Figure 5.4.2). 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.

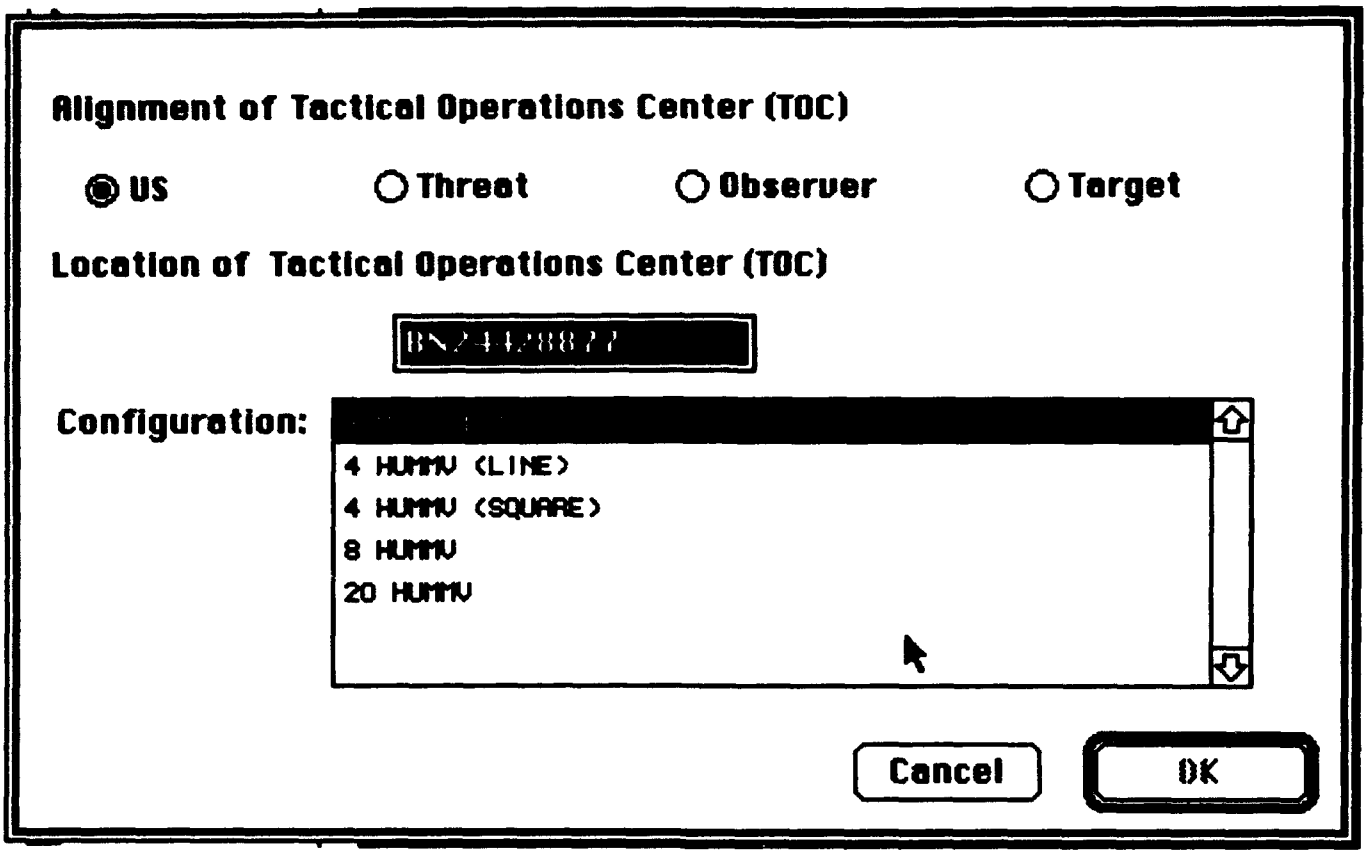

Figure 5.4.2-1. Alignment of Tactical Operation Center

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, and 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 appear "grayed," at which stage they cannot be changed.

Table 5.4.2. TOC Default Configuration

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

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

5.4.3 Battalion Rear Command Post Initialization.

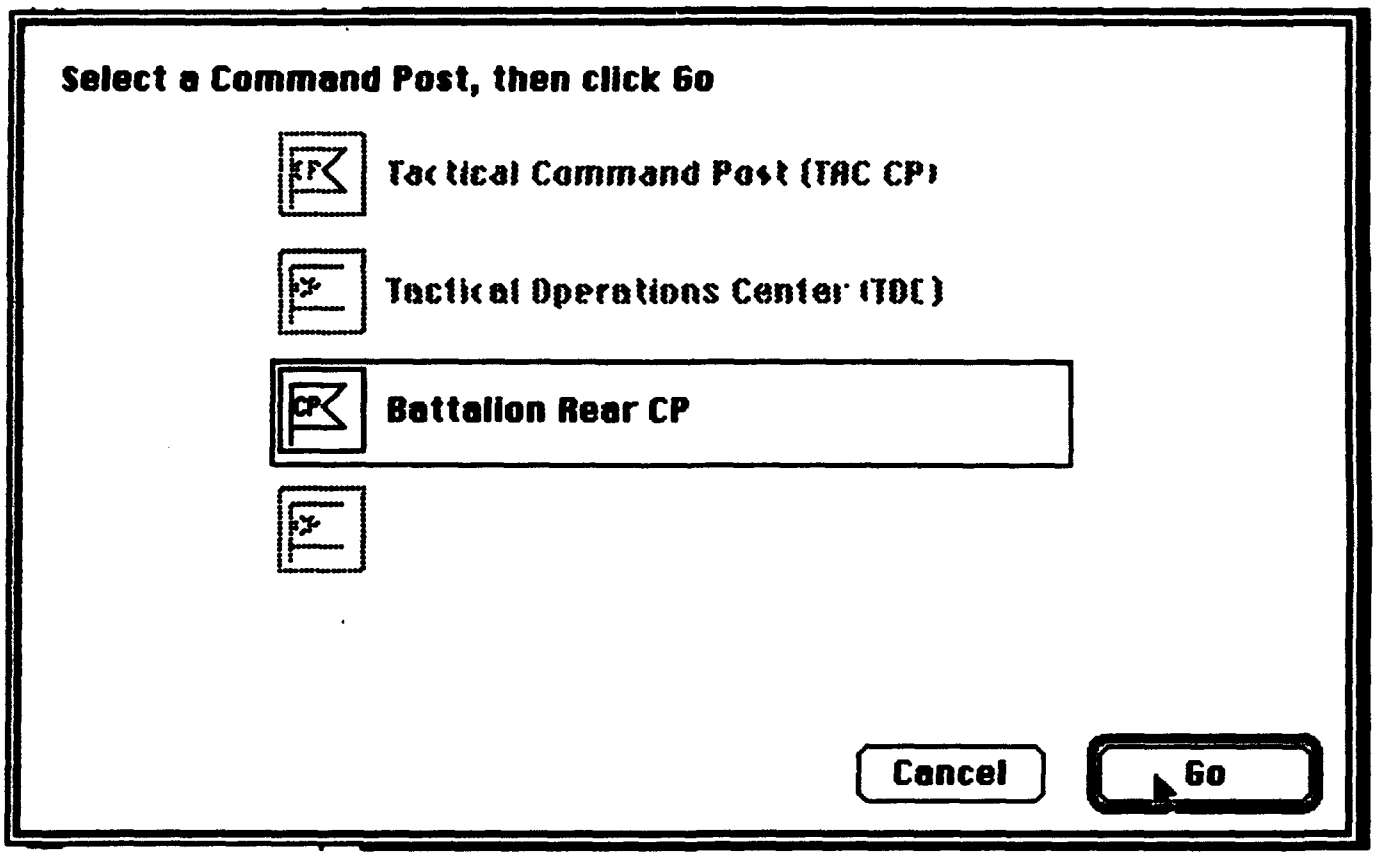

Figure 5.4.3. Battalion Rear CP Selection

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.

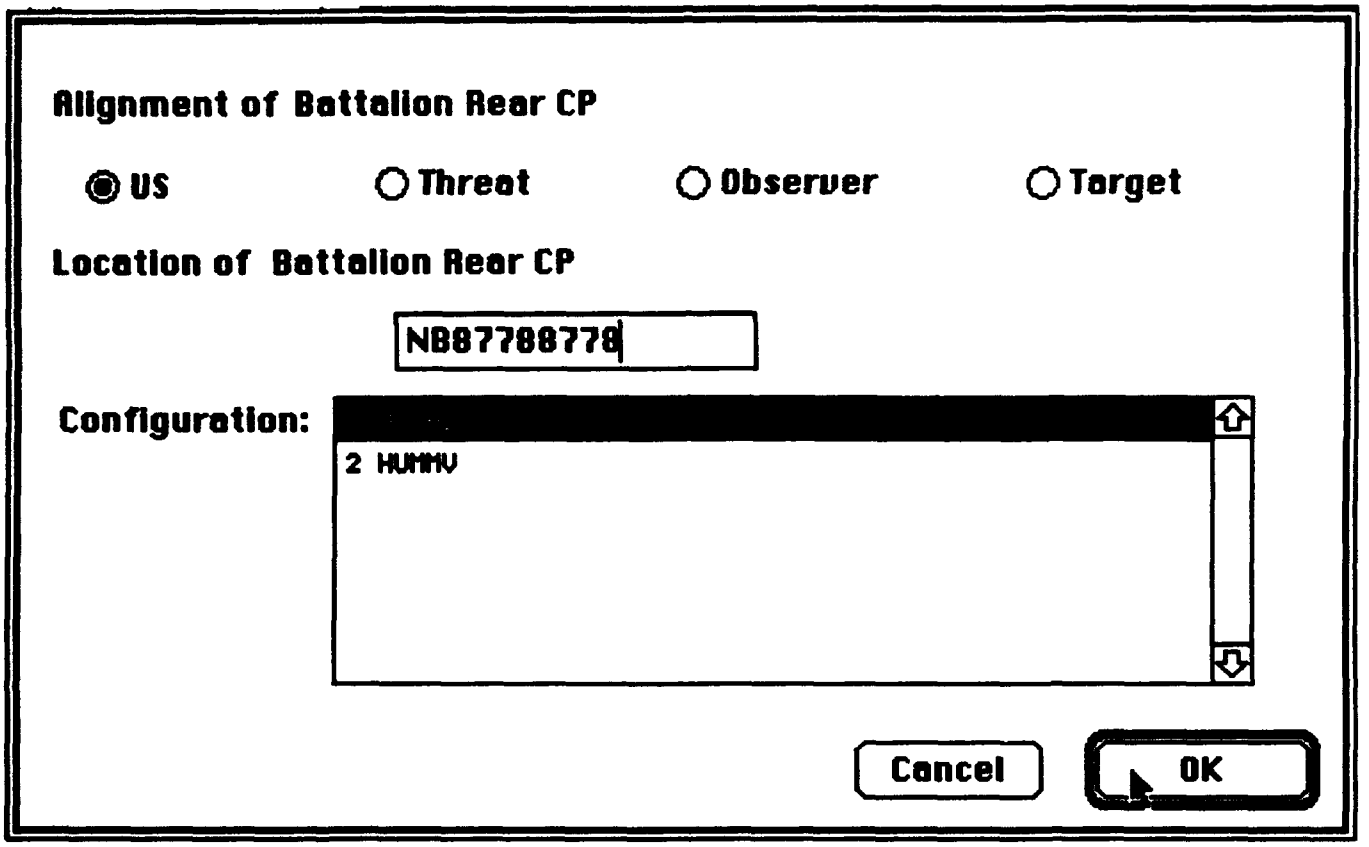

Figure 5.4.3-1. Alignment of Battalion Rear CP

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 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 appear "grayed," at which stage they cannot be changed.

Table 5.4.3. Battalion Rear CP Default Configuration

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

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

5.5 Service Element Initialization.

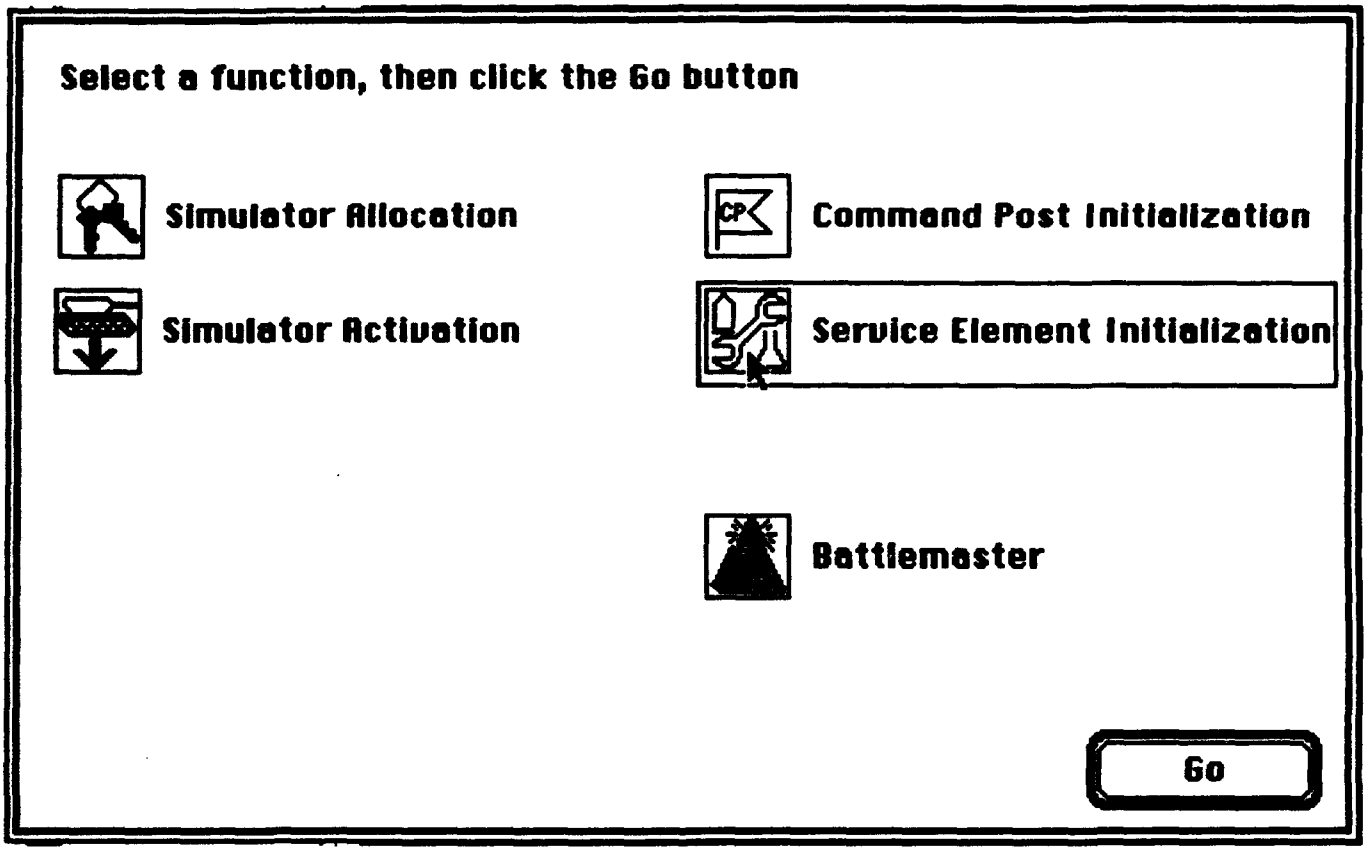

Figure 5.5. Service Elements Initialization Selection

Selecting the Service Element Initialization icon from the Functions Overview menu (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 (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.

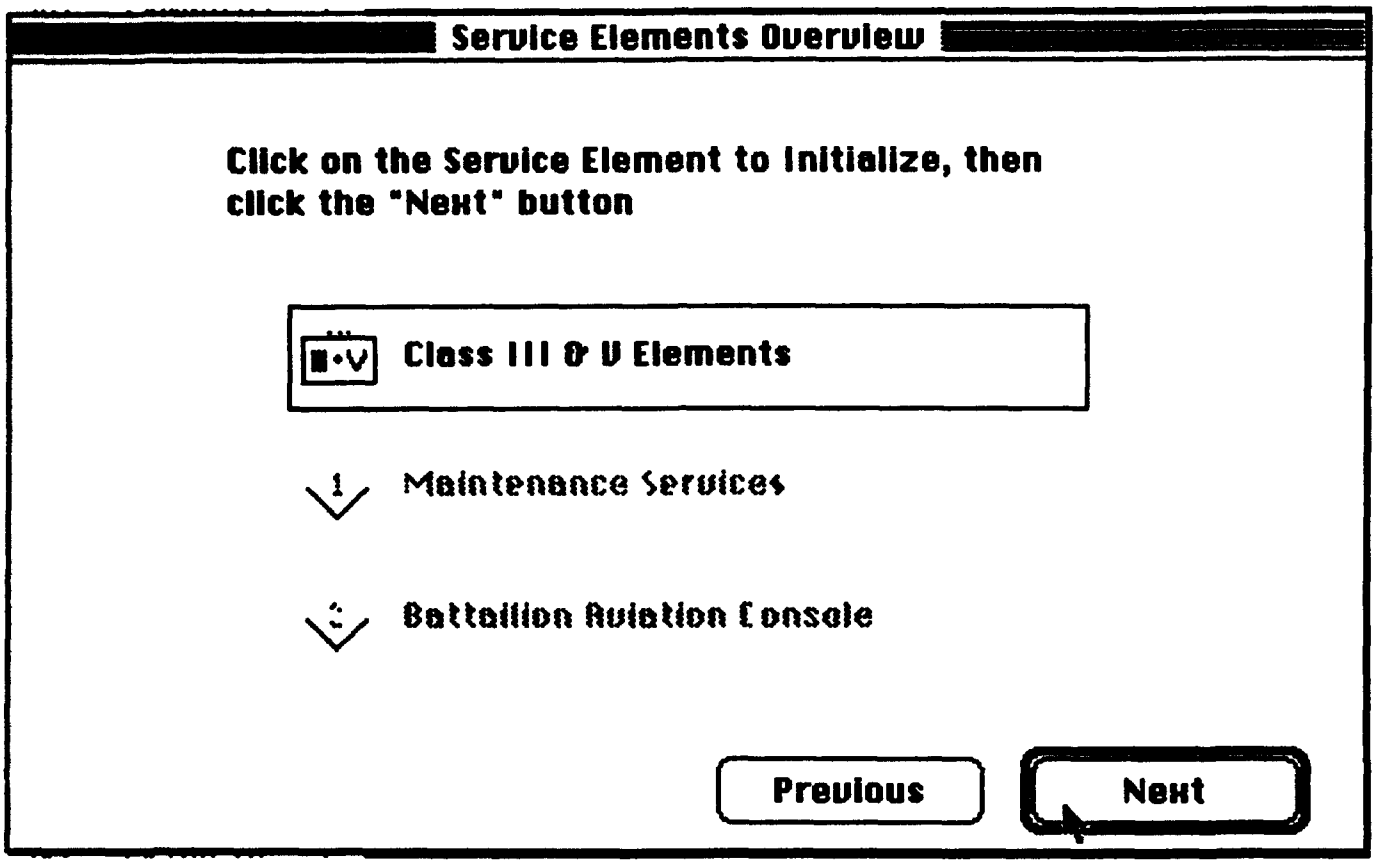

Figure 5.5.1. Service Elements Overview

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.

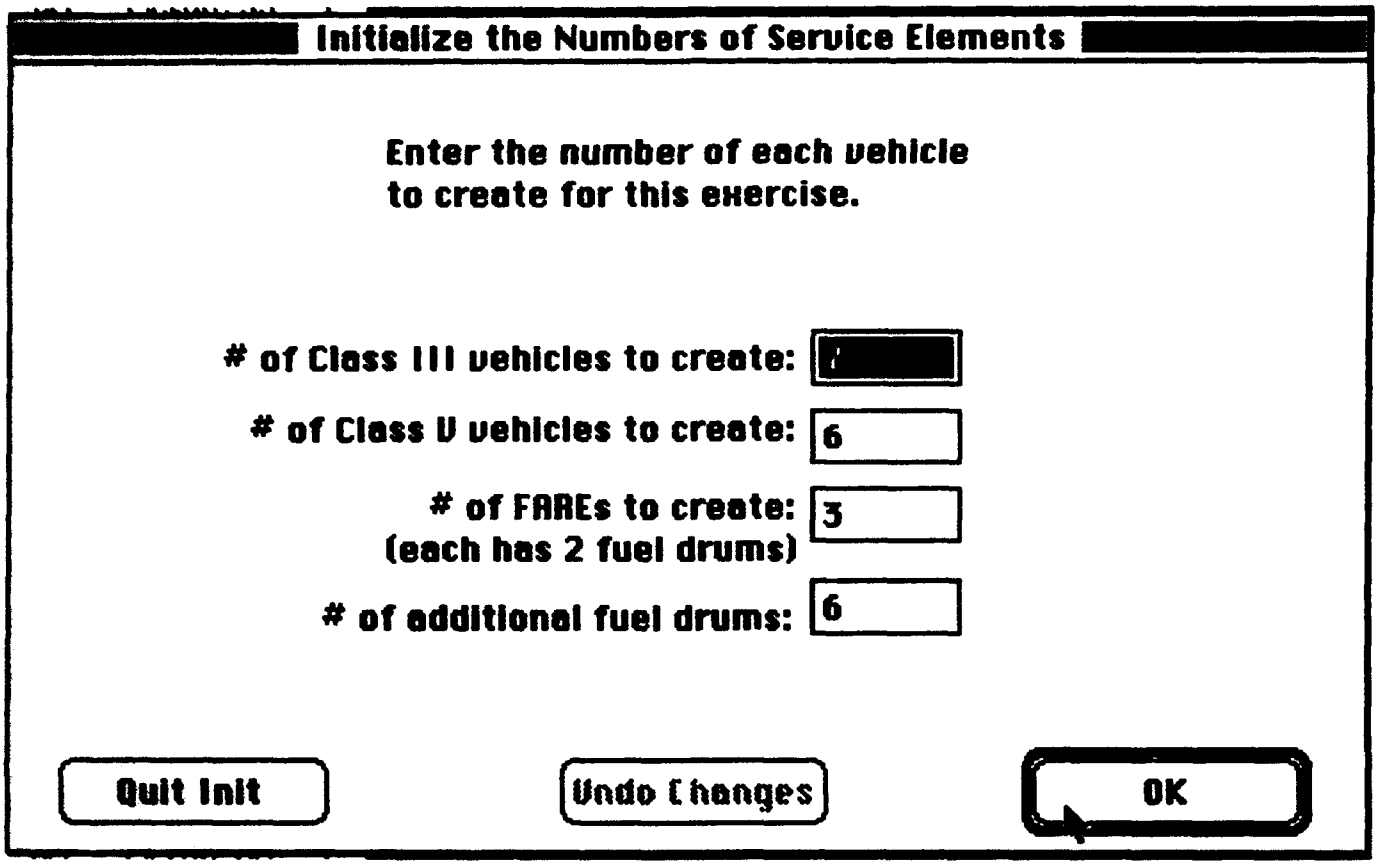

Figure 5.5.2. Number of Service Elements

Selecting the Class III & V Elements icon from the Service Elements Overview screen (Figure 5.5.1), and then clicking the Next button, brings up the Number of Service Elements initialization screen (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.

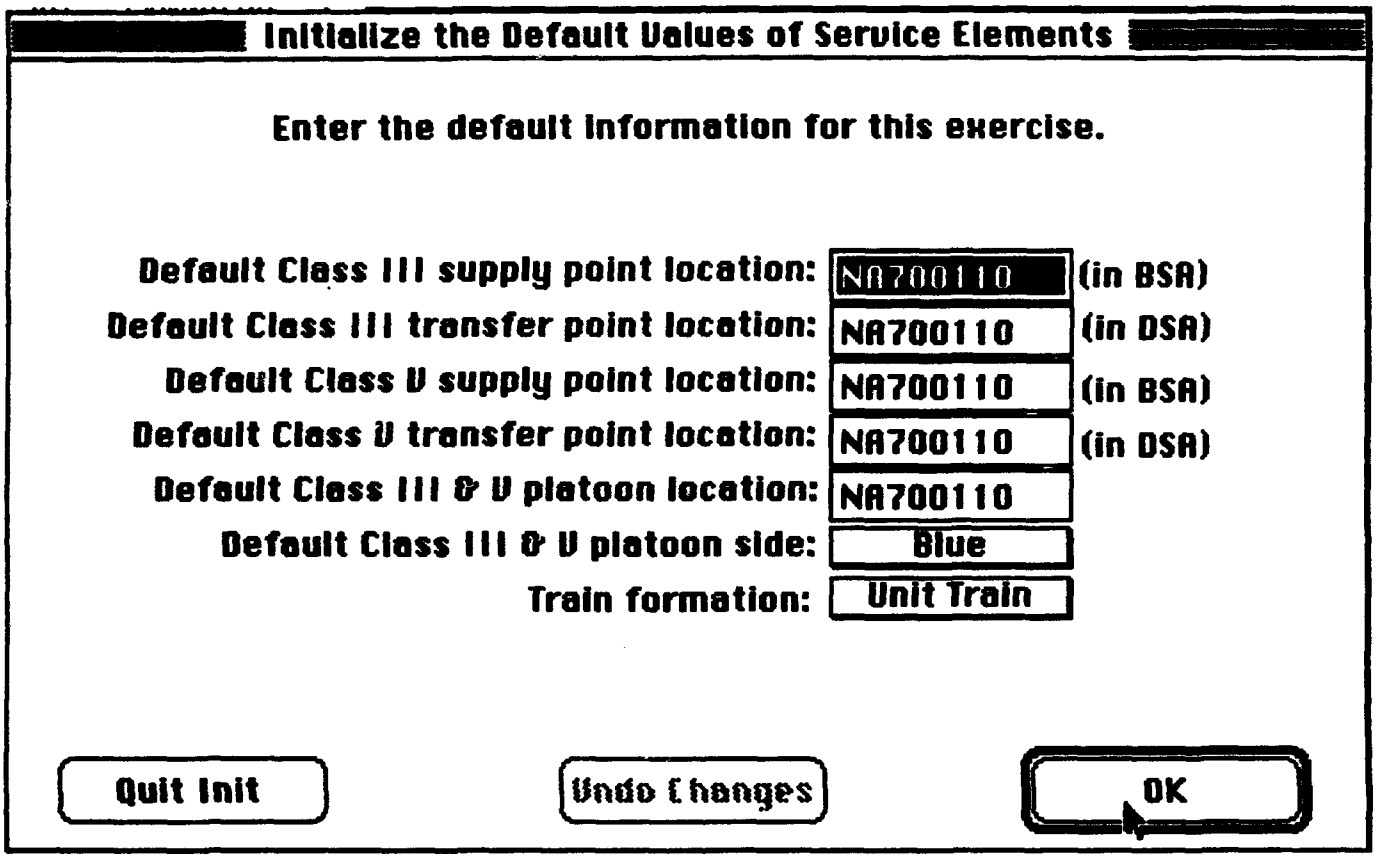

Figure 5.5.3. Service Elements Default Values

Clicking the OK button on Figure 5.5.2 brings up the Default Values of Service Elements screen (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, Red, or as Shared by 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.

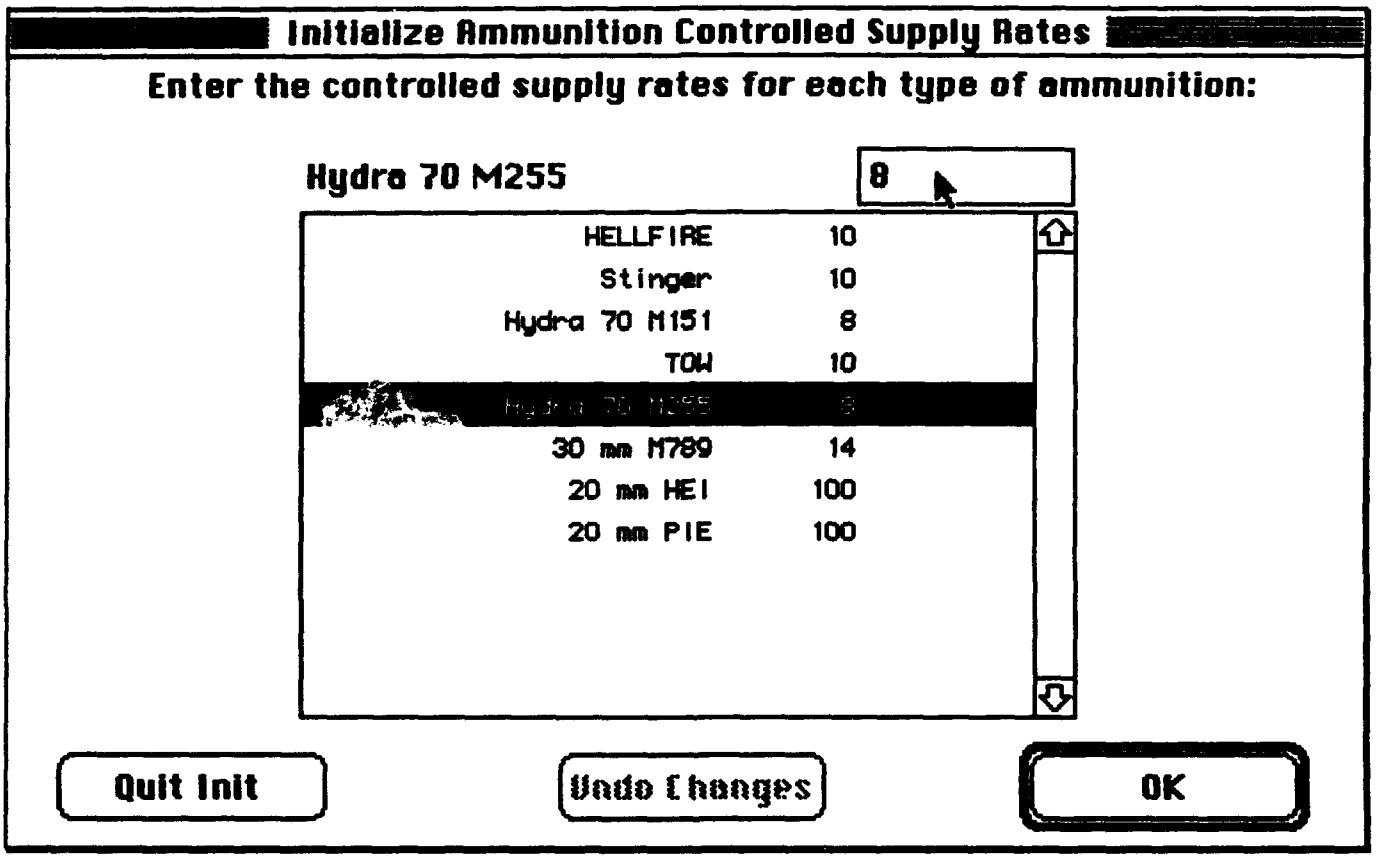

Figure 5.5.4. Ammunition Controlled Supply Rates

Clicking the **OK** button on Figure 5.5.3 brings up the Ammunition Controlled Supply Rates initialization screen (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.

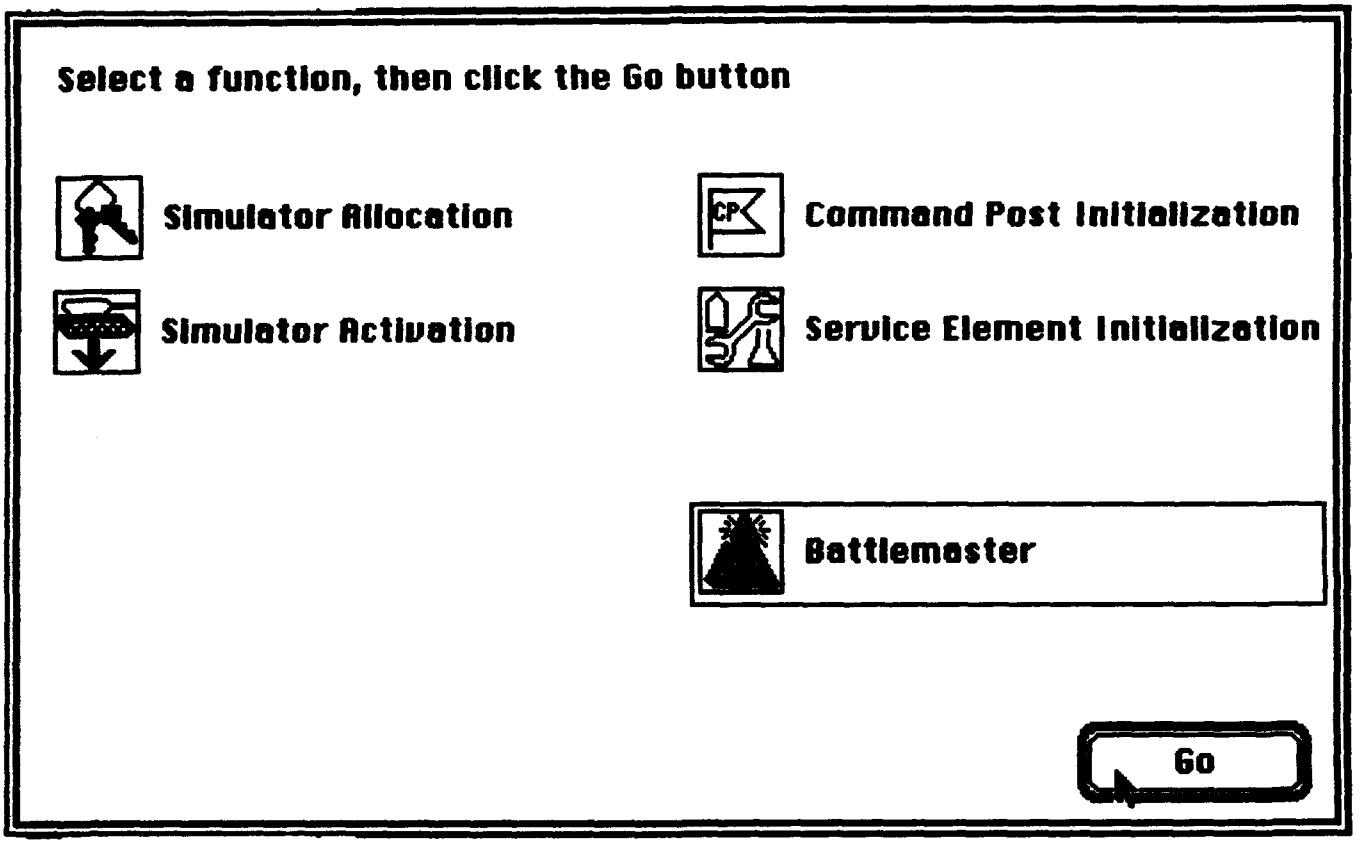

Figure 5.6. BattleMaster Selection

Clicking the **Previous** button on the Service Elements Overview screen (Figure 5.5.1) brings back the MCC Overview menu (Figure 5.6). The user may select the BattleMaster icon from this screen at 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 (Figure 5.6.1). Incorrect passwords will produce a dialog box reflecting that fact.

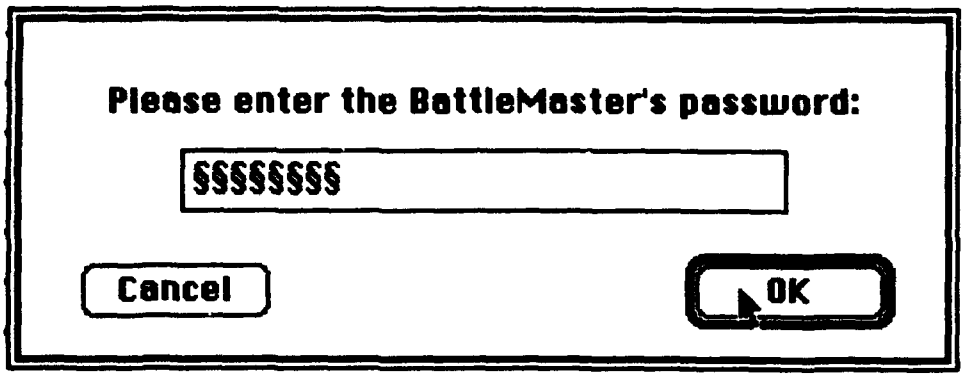

Figure 5.6-1. BattleMaster Password

The BattleMaster Functions menu (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.

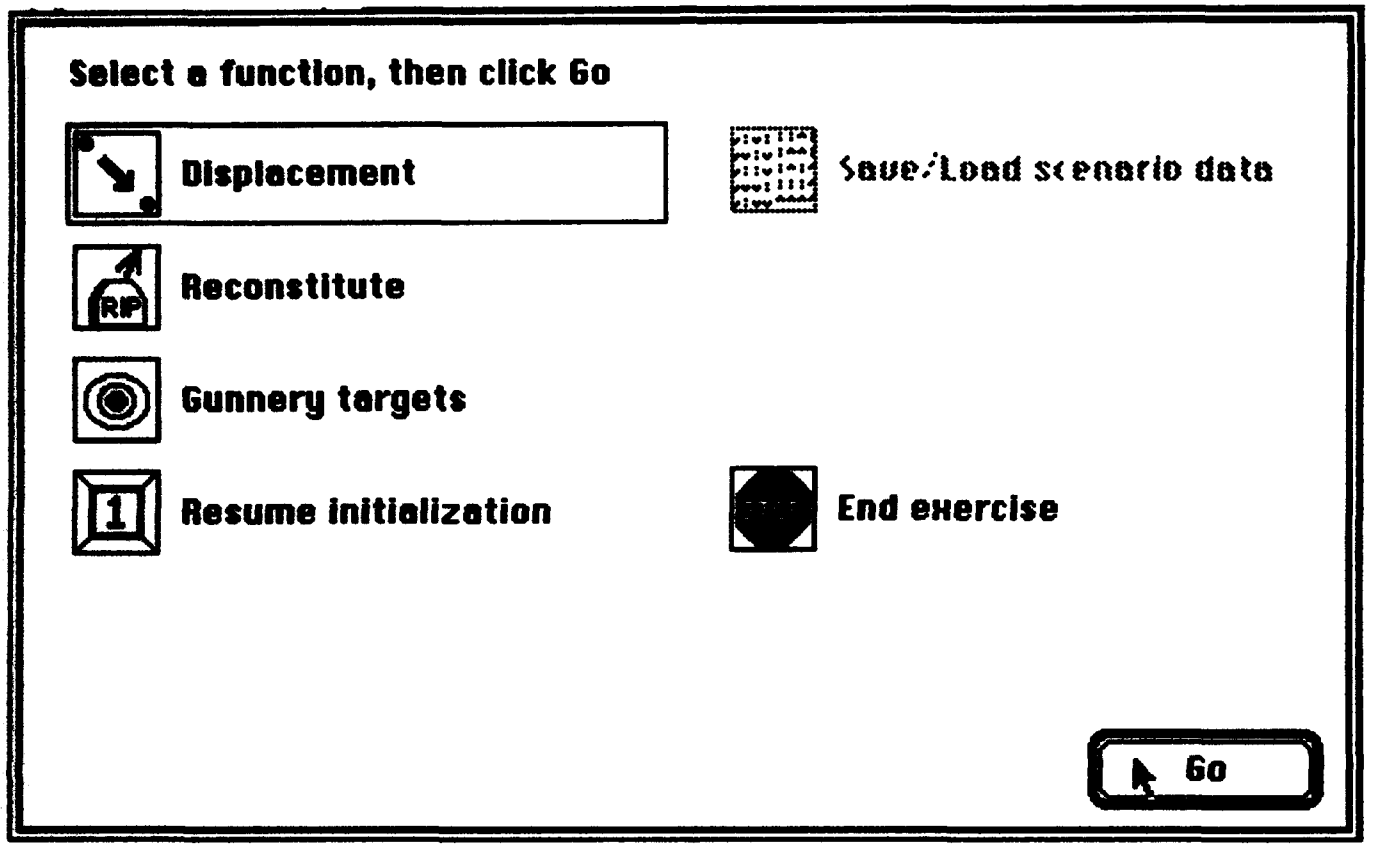

Figure 5.6.1. Displacement Selection

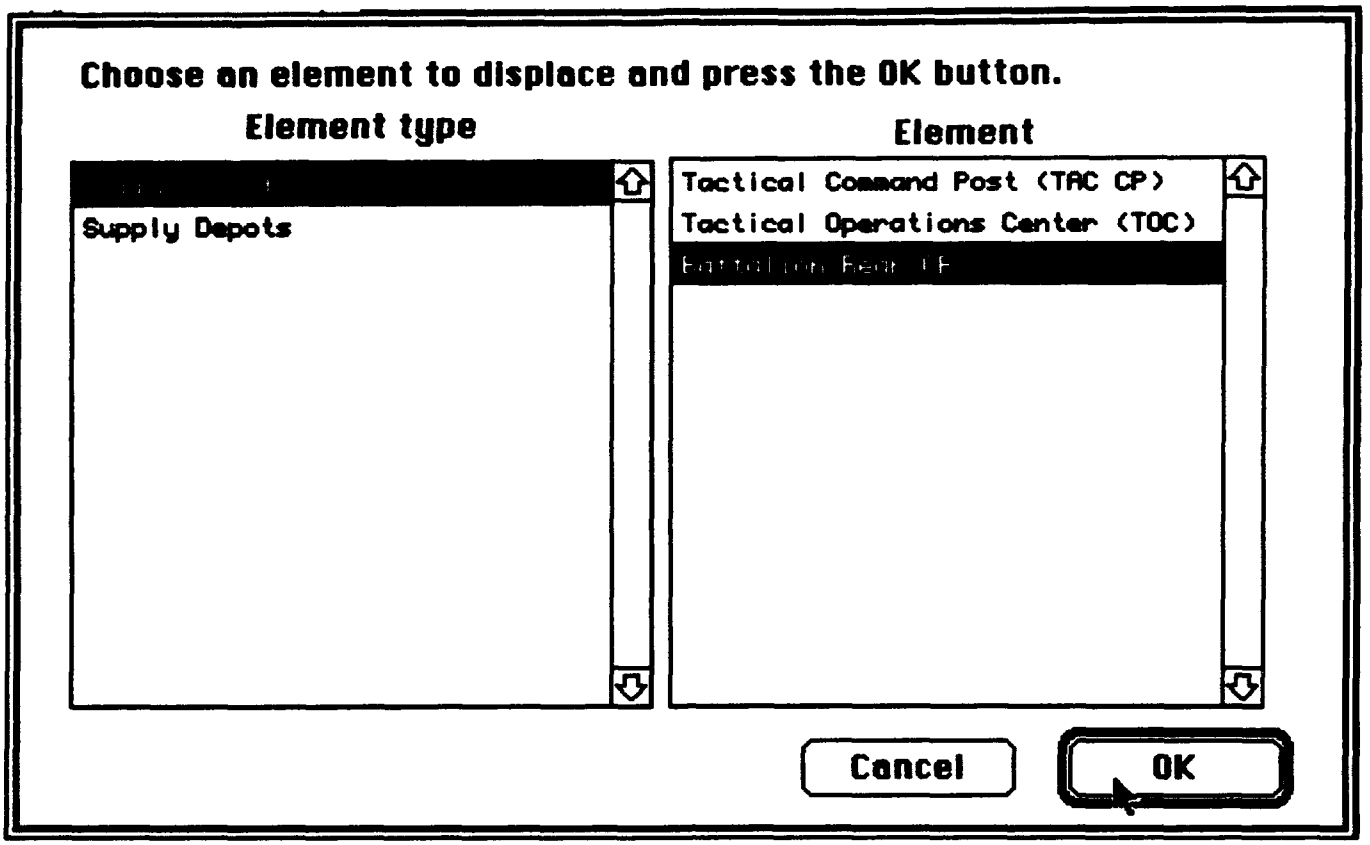

Figure 5.6.1-1. Elements Selection

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 (Figure 5.6.1-2). 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.

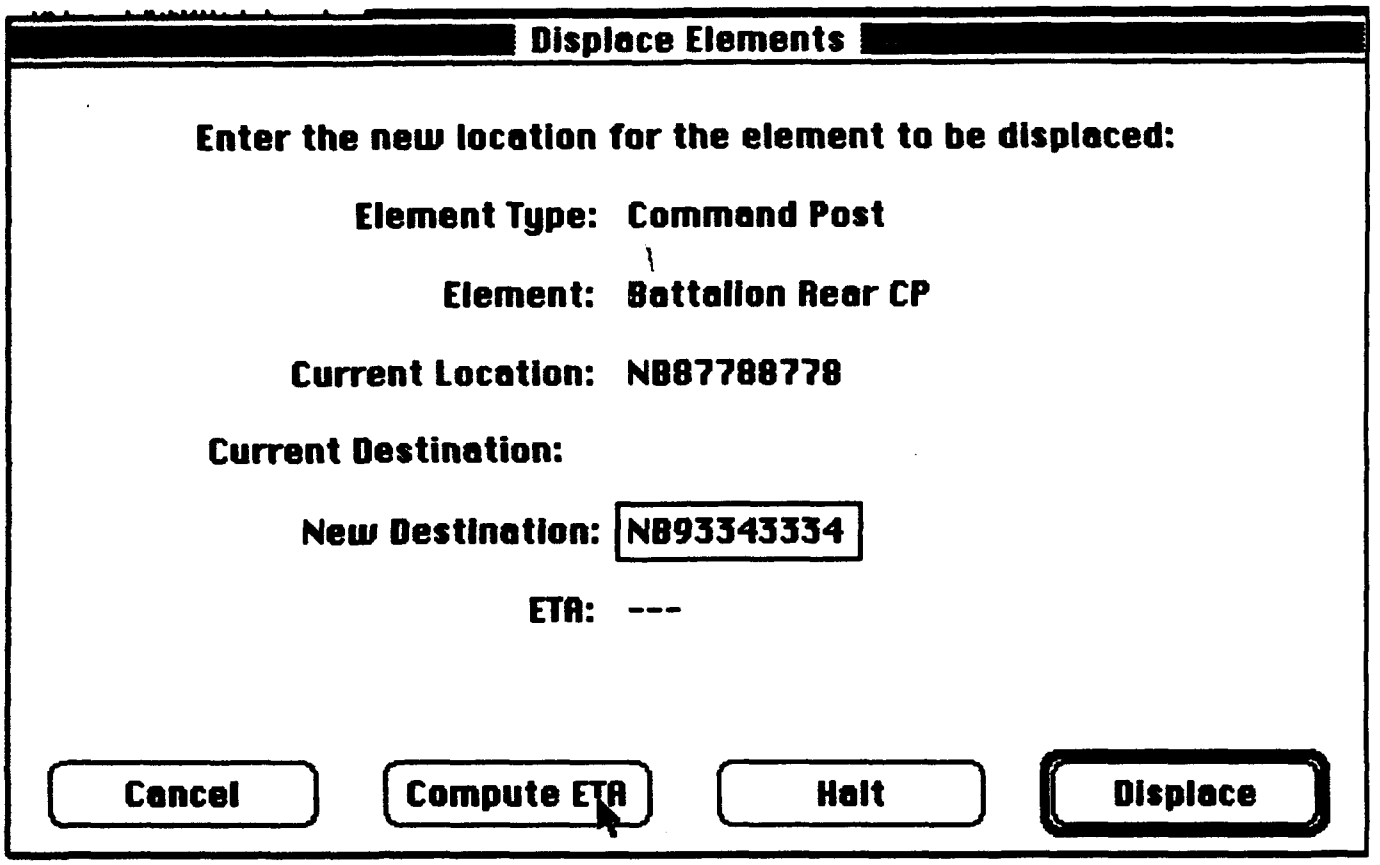

Figure 5.6.1-2. Command Post Displacement

Clicking the **OK** button on Figure 5.6.1-1 with an element selected brings up the Displace Elements screen (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.

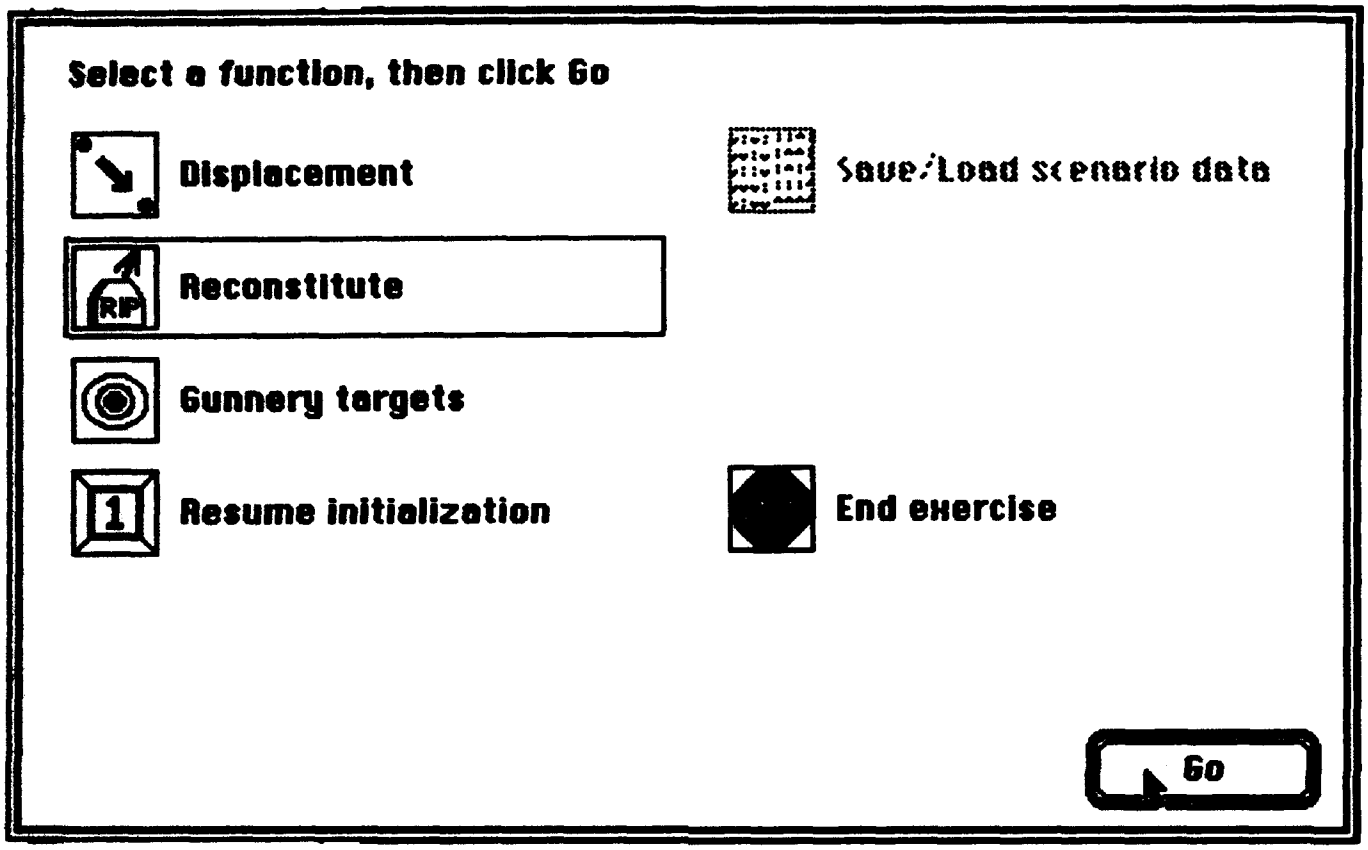

Figure 5.6.2. Reconstitution Selection

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 (Figure 5.6.2). 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, select 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.

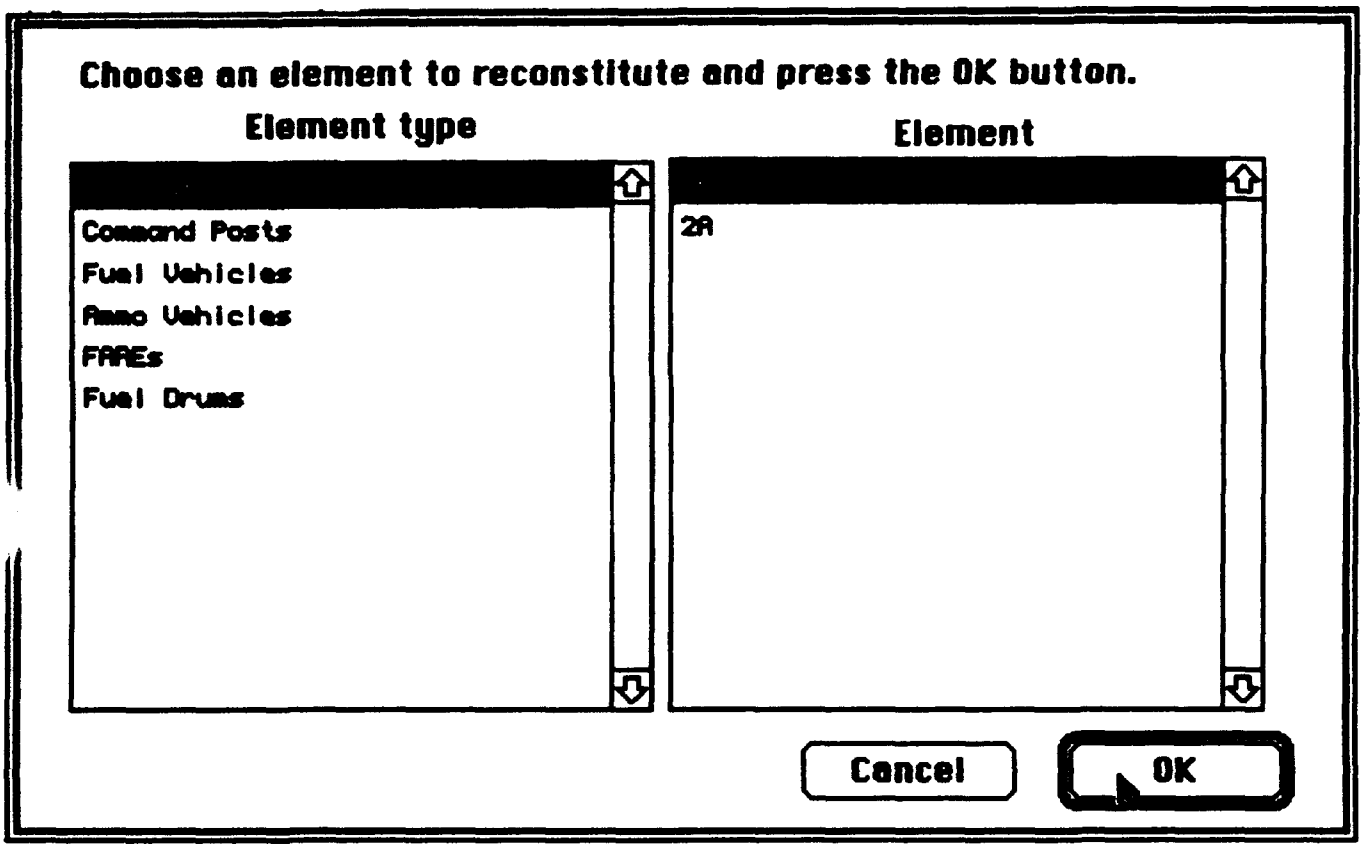

Figure 5.6.2.1. Reconstitute Simulators Selection

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

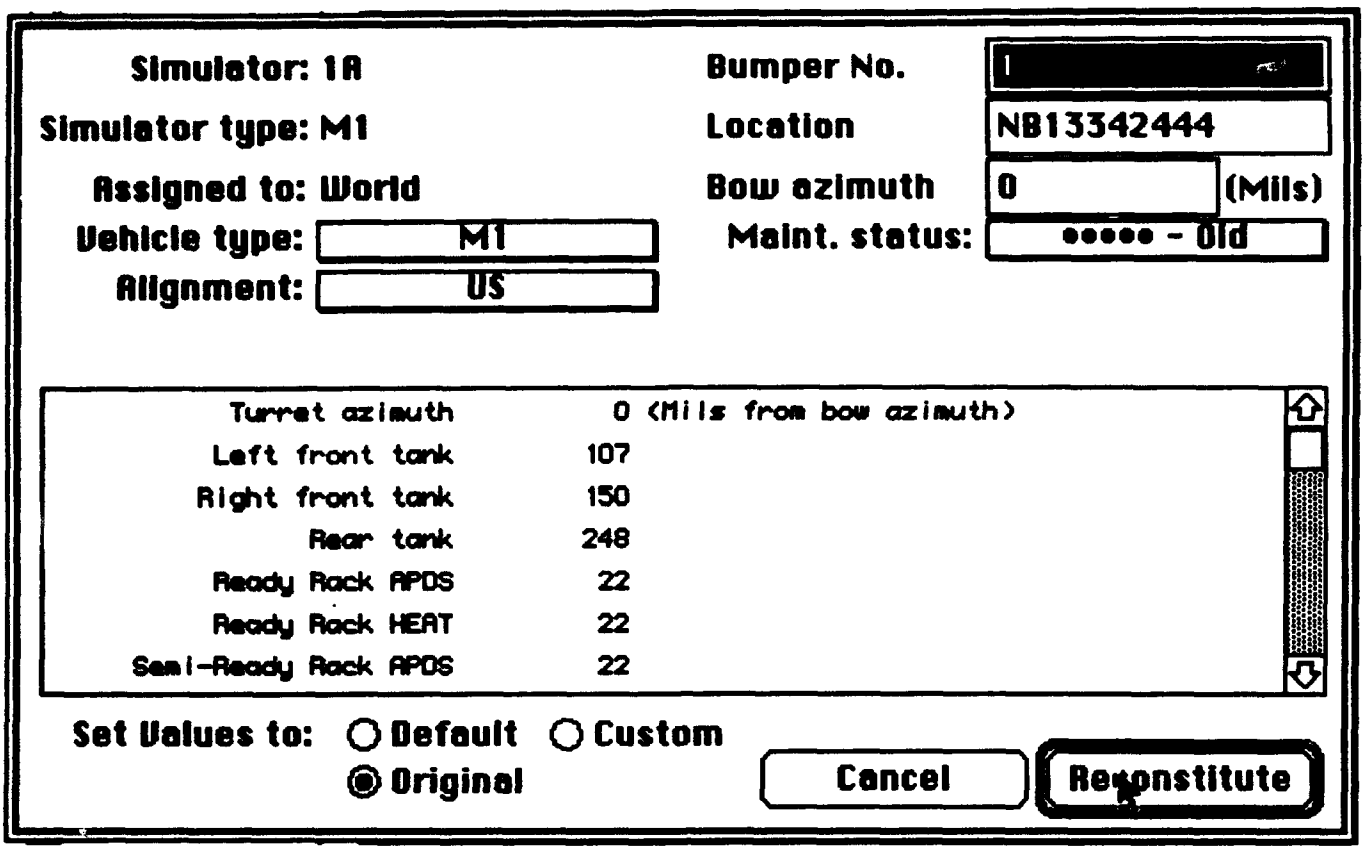

Figure 5.6.2.1-1. Simulator Status

Any of the vehicle's 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 its 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 highlighted.

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 its 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.

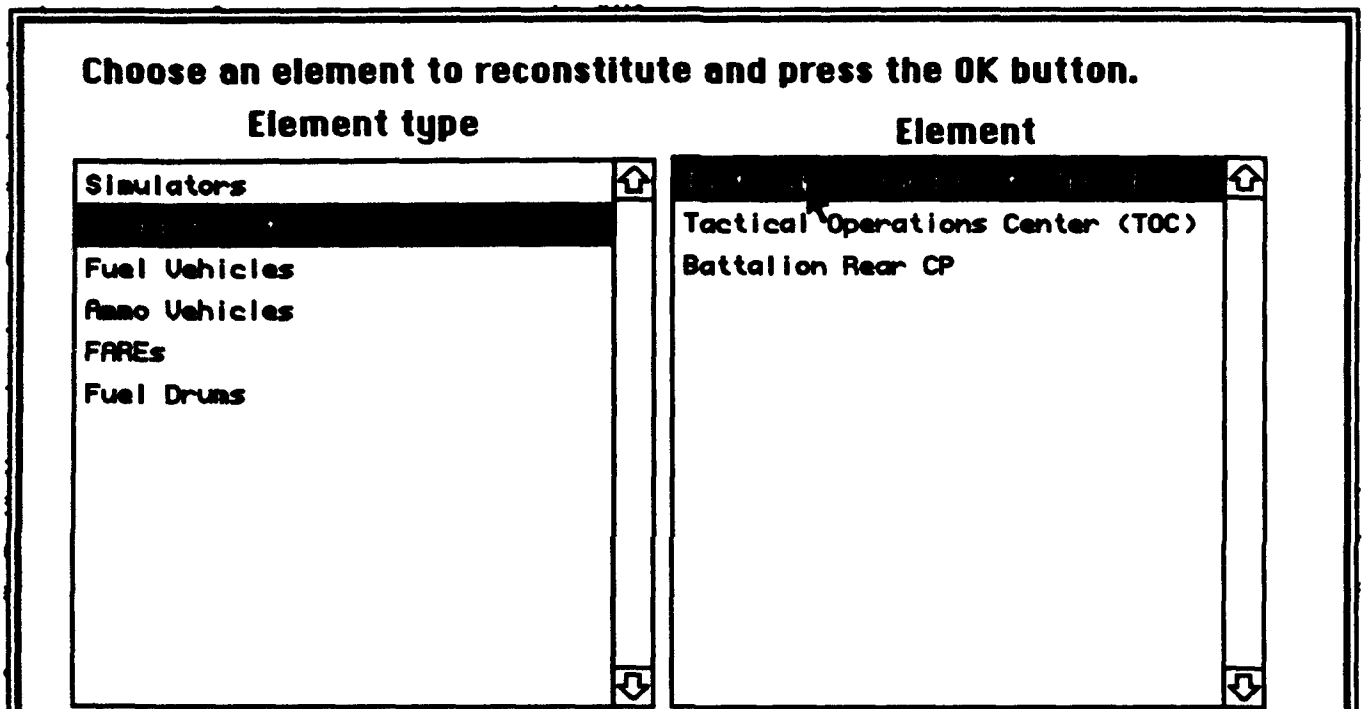

Figure 5.6.2.2. Reconstitute Command Post Selection

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), 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.

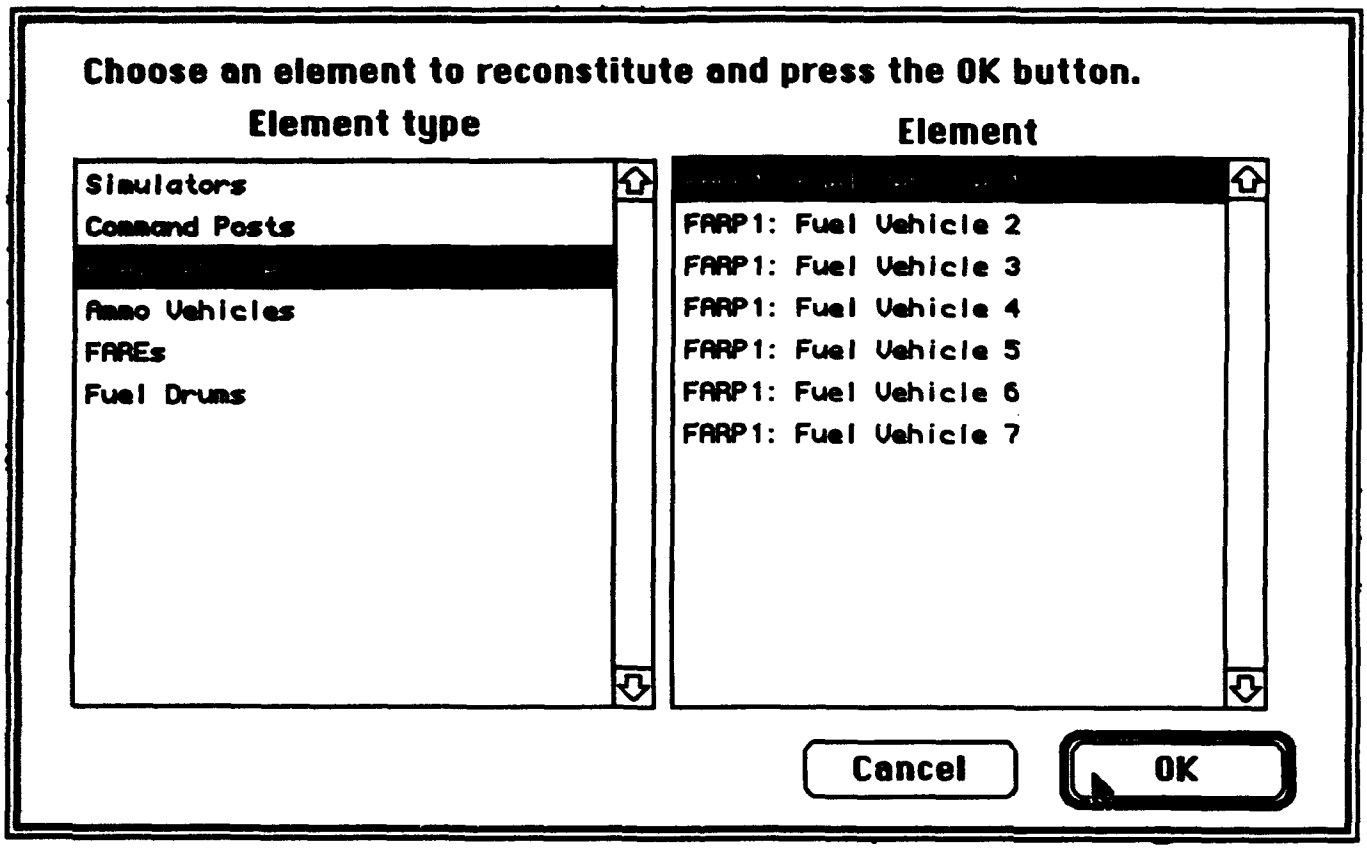

Figure 5.6.2.3. Reconstitute Fuel Vehicles Selection

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

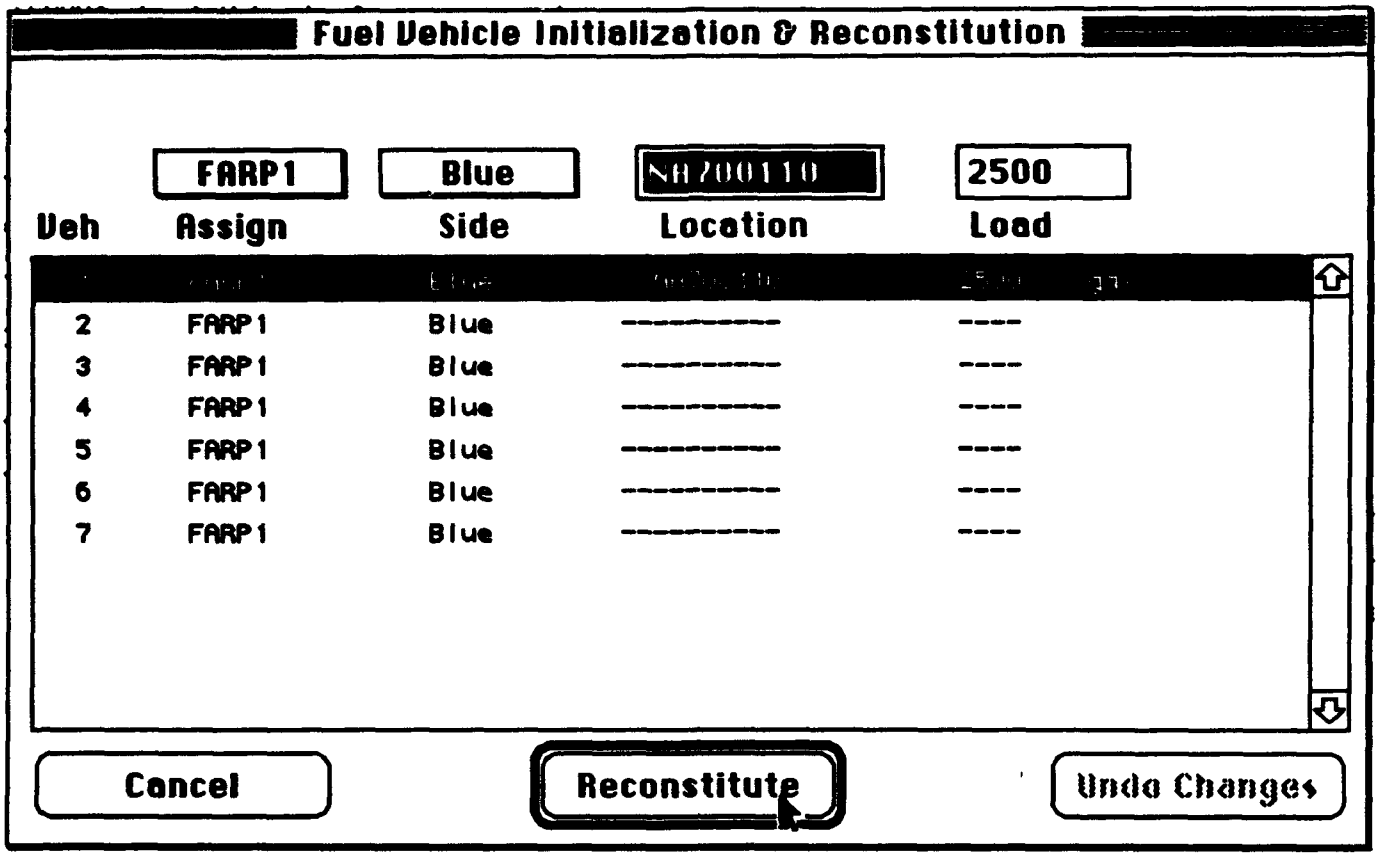

Figure 5.6.2.3-1. Fuel Vehicle Status

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), 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.

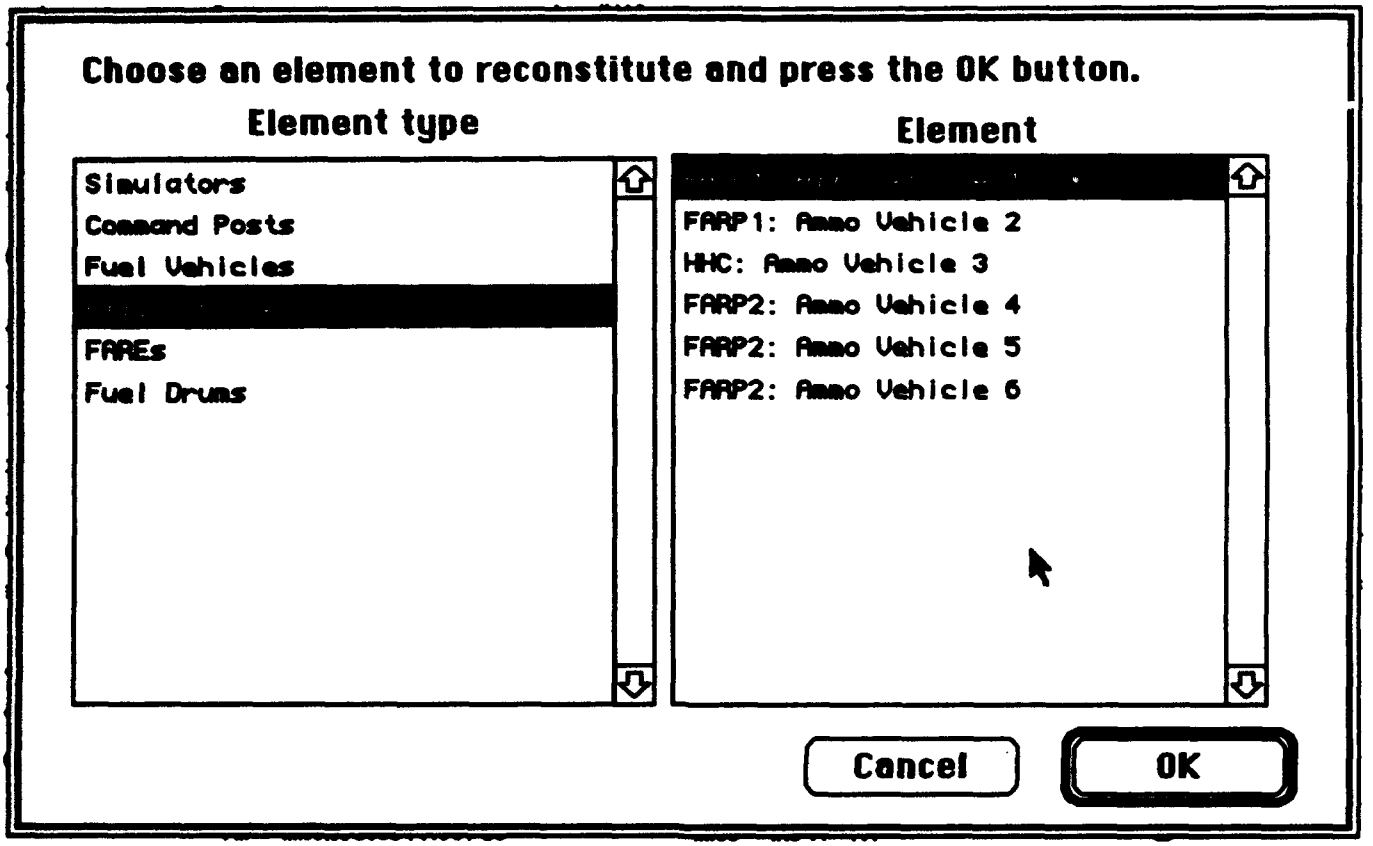

Figure 5.6.2.4. Reconstitute Ammo Vehicles Selection

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.

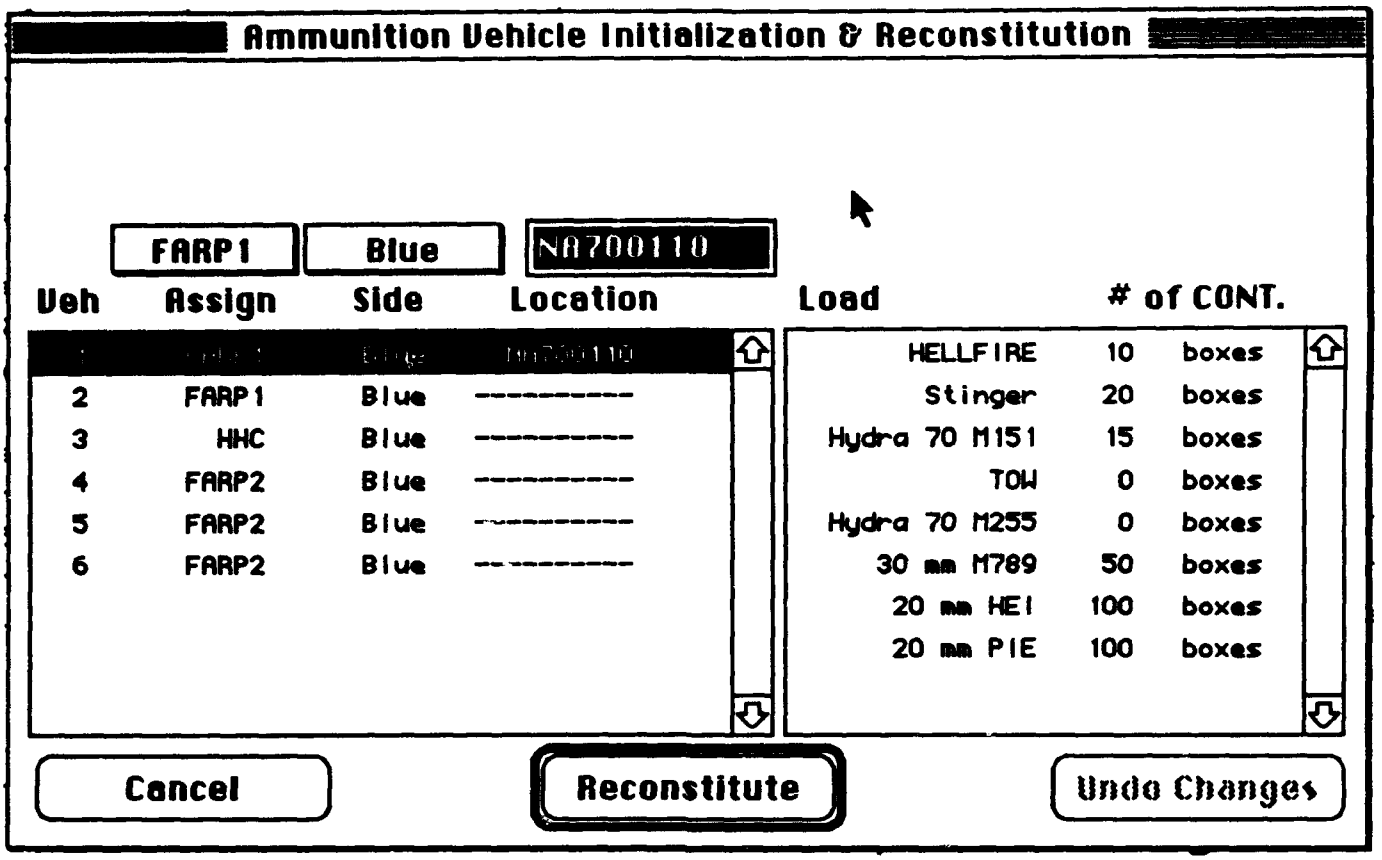

Figure 5.6.2.4-1. Ammo Vehicle Status

Figure 5.6.2.4-1 provides two separate scrollable sections. One section contains vehicle ID, company assignment, side and location, and 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), 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.

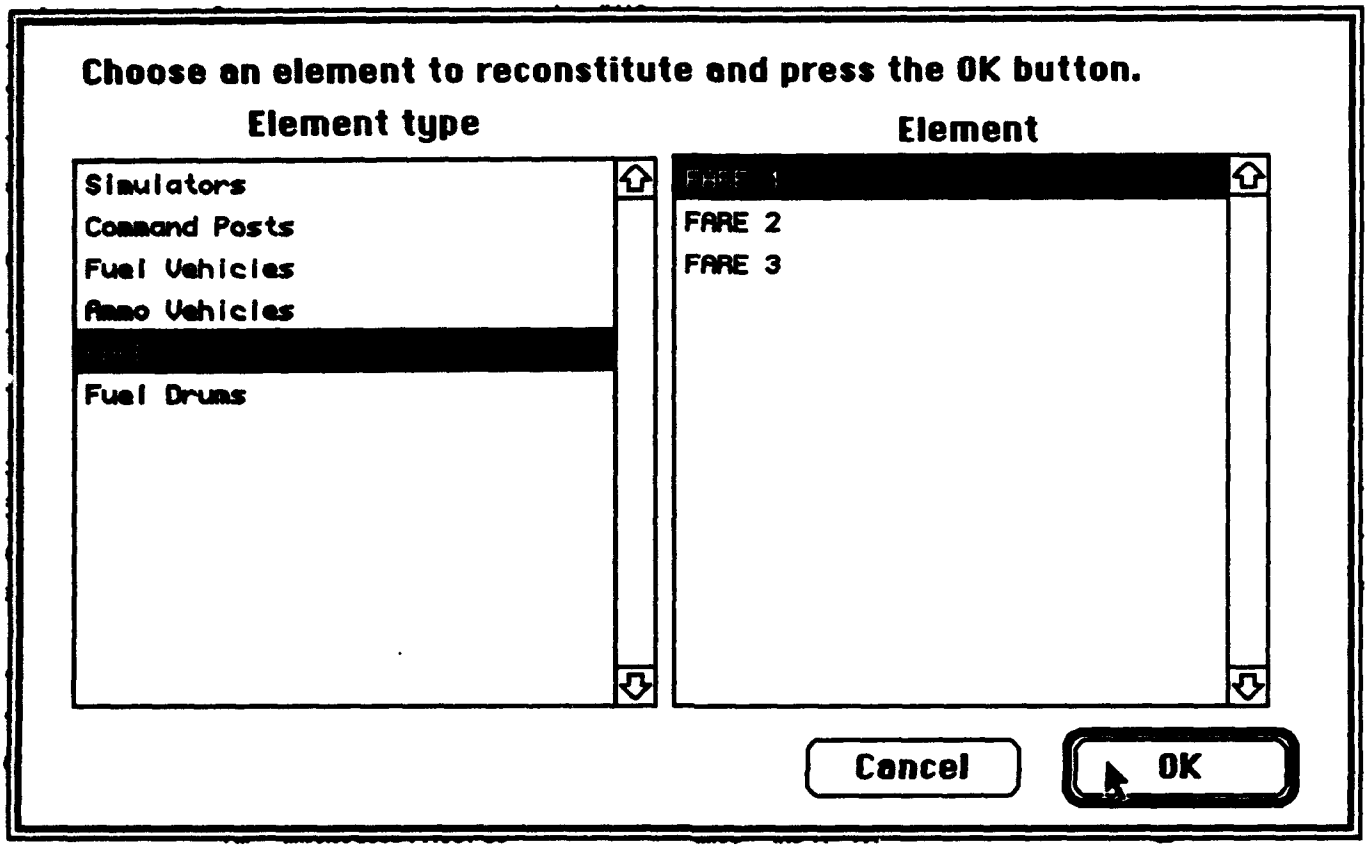

Figure 5.6.2.5. Reconstitute FAREs Selection

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

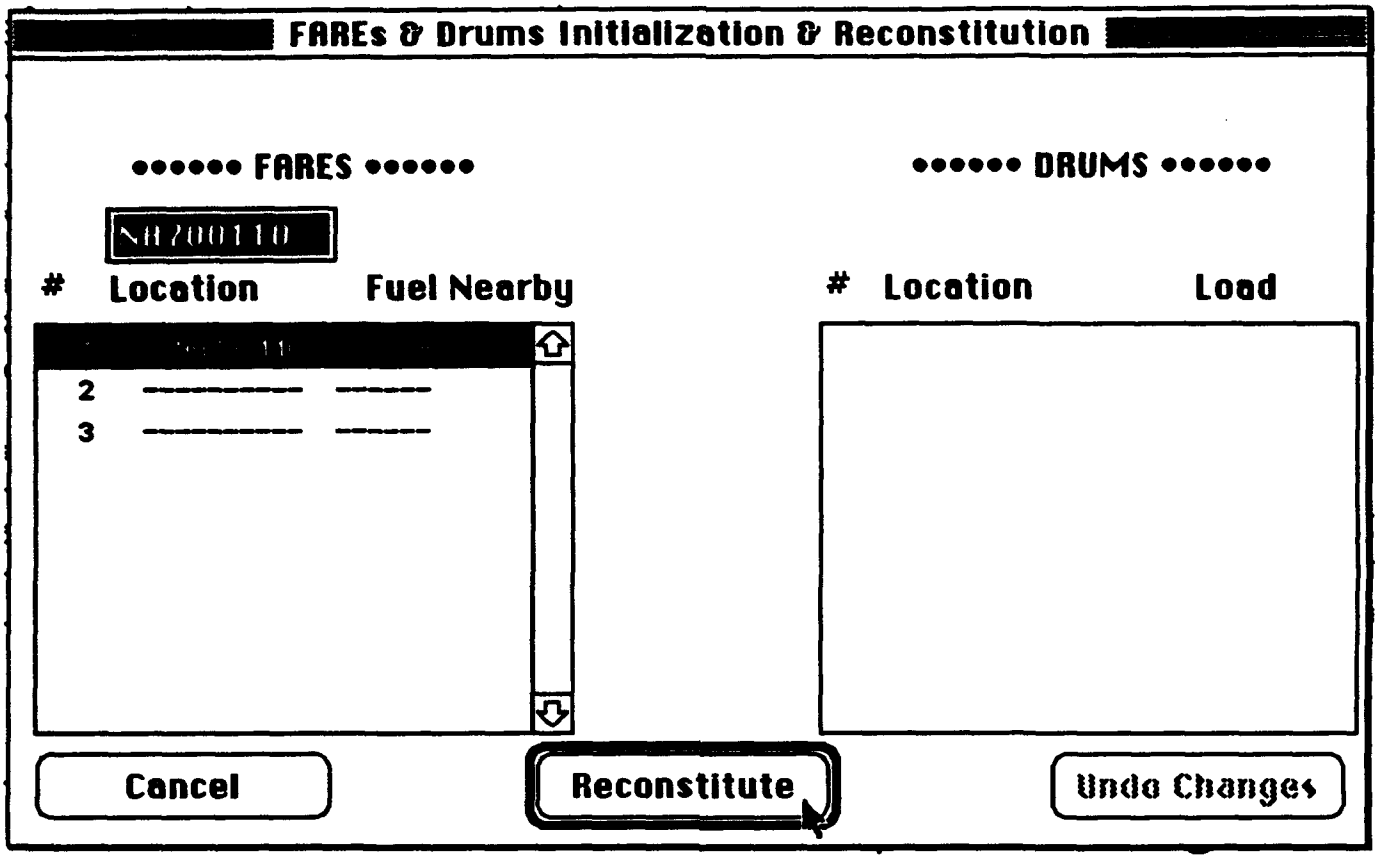

Figure 5.6.2.5-1. FAREs Status

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), 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.

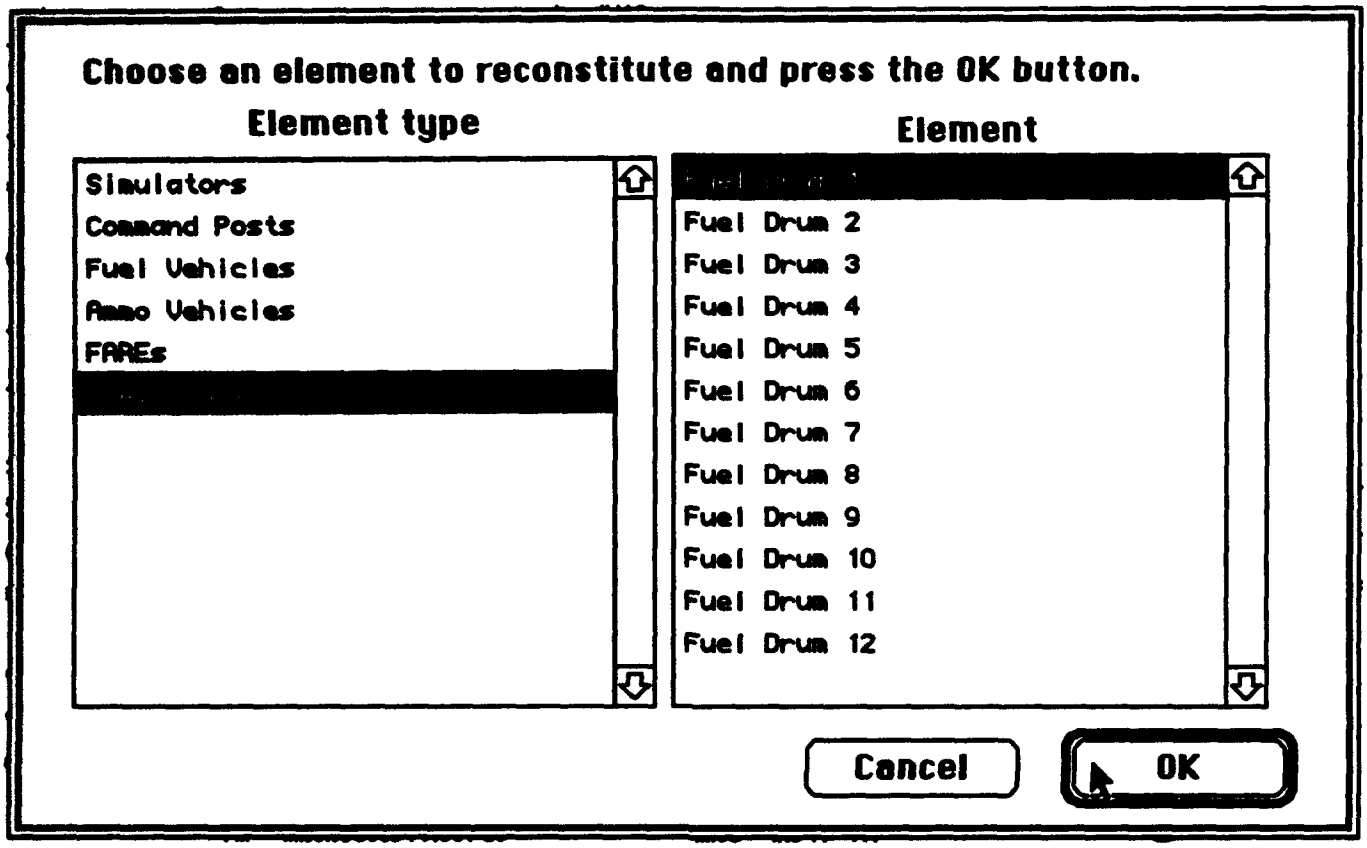

Figure 5.6.2.6. Reconstitute Fuel DRUMs

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

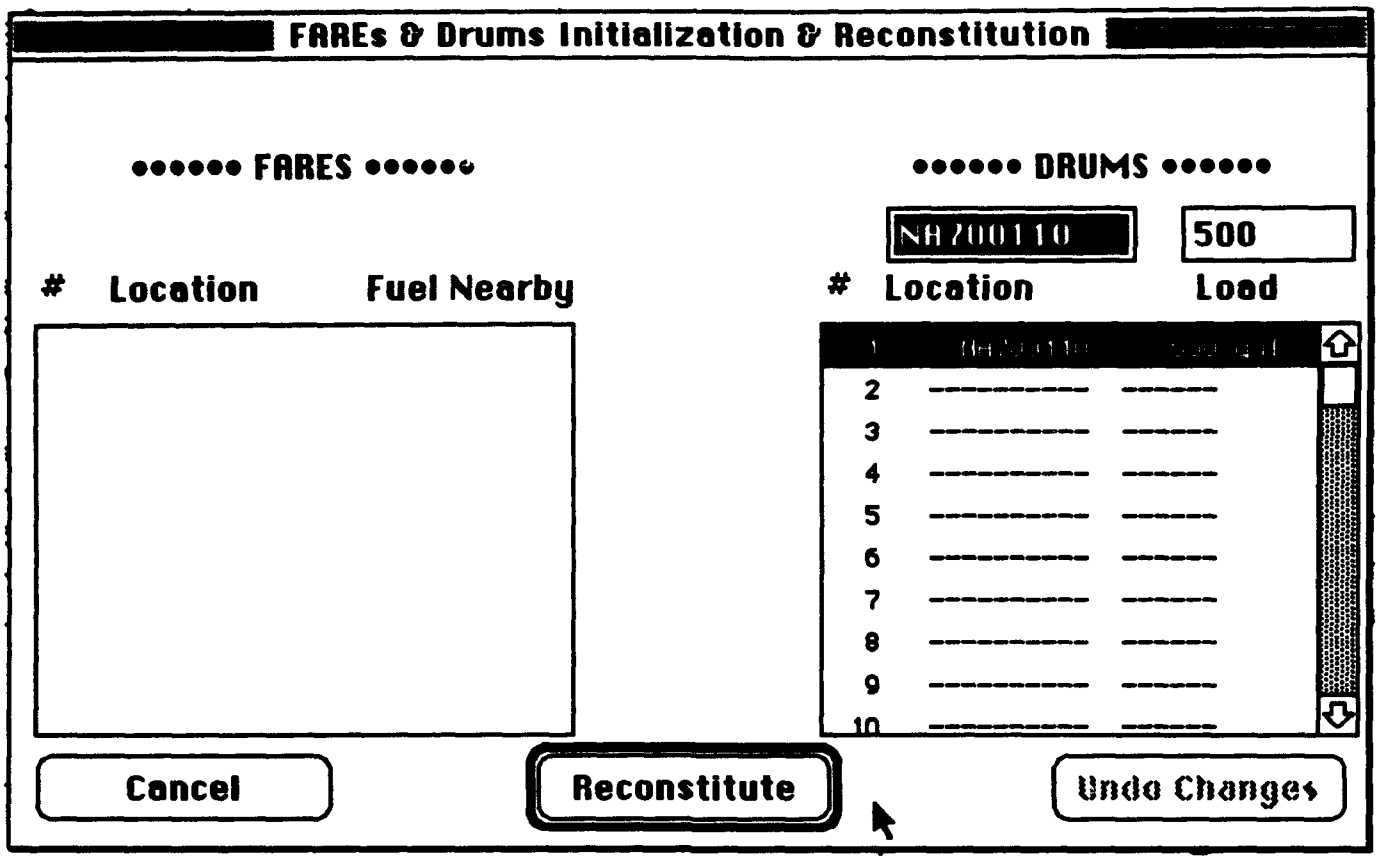

Figure 5.6.2.6-1. Fuel DRUM Status

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 5.6.2.6-2), 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.

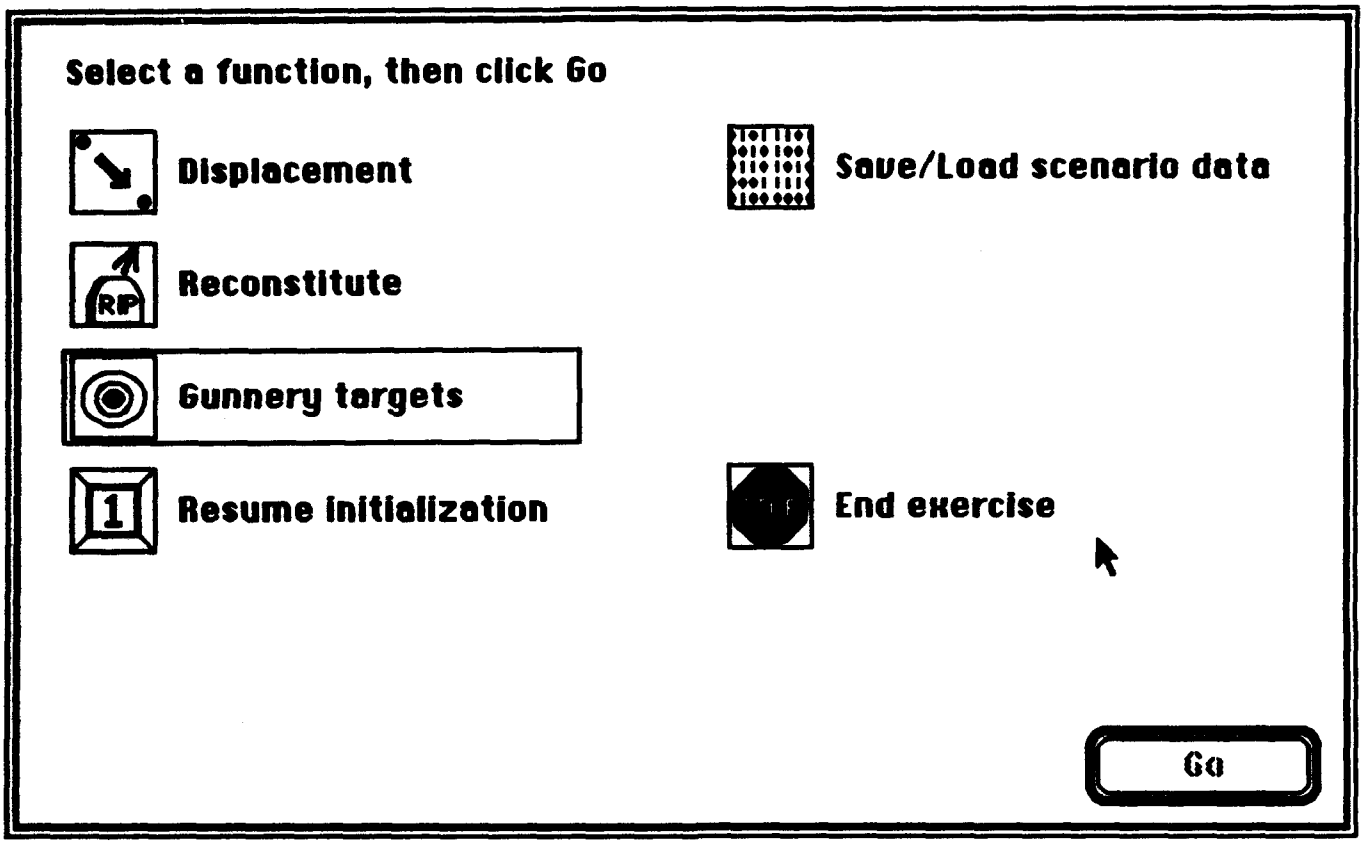

Figure 5.6.3. Gunnery Targets Selection

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 (Figure 5.6.3) brings up the Gunnery Target Worksheet (Figure 5.6.3-1).

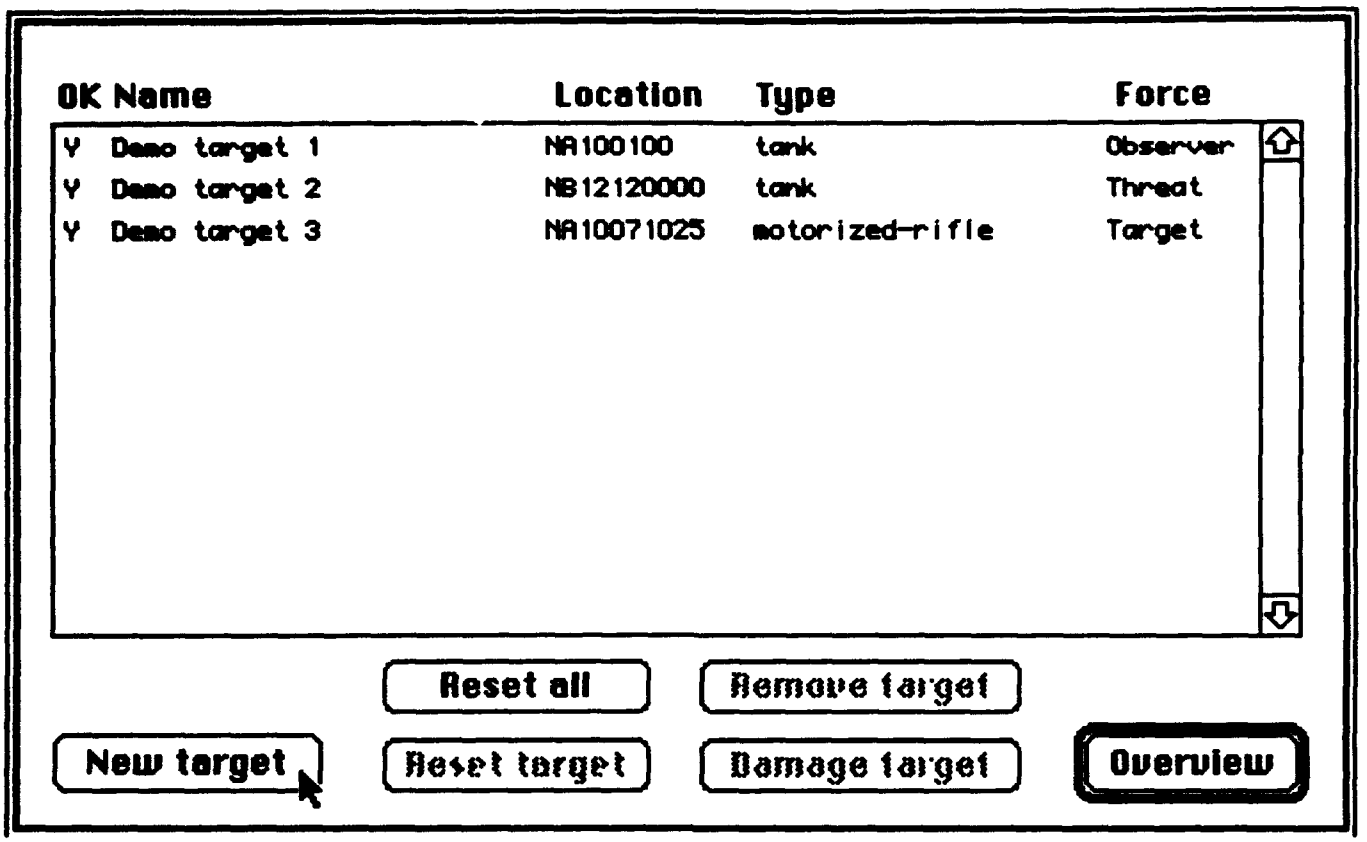

Figure 5.6.3-1. Gunnery Targets Worksheet

The Gunnery Target Worksheet screen first comes up with **New target, Reset all** (if targets are placed), **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 Ns 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.

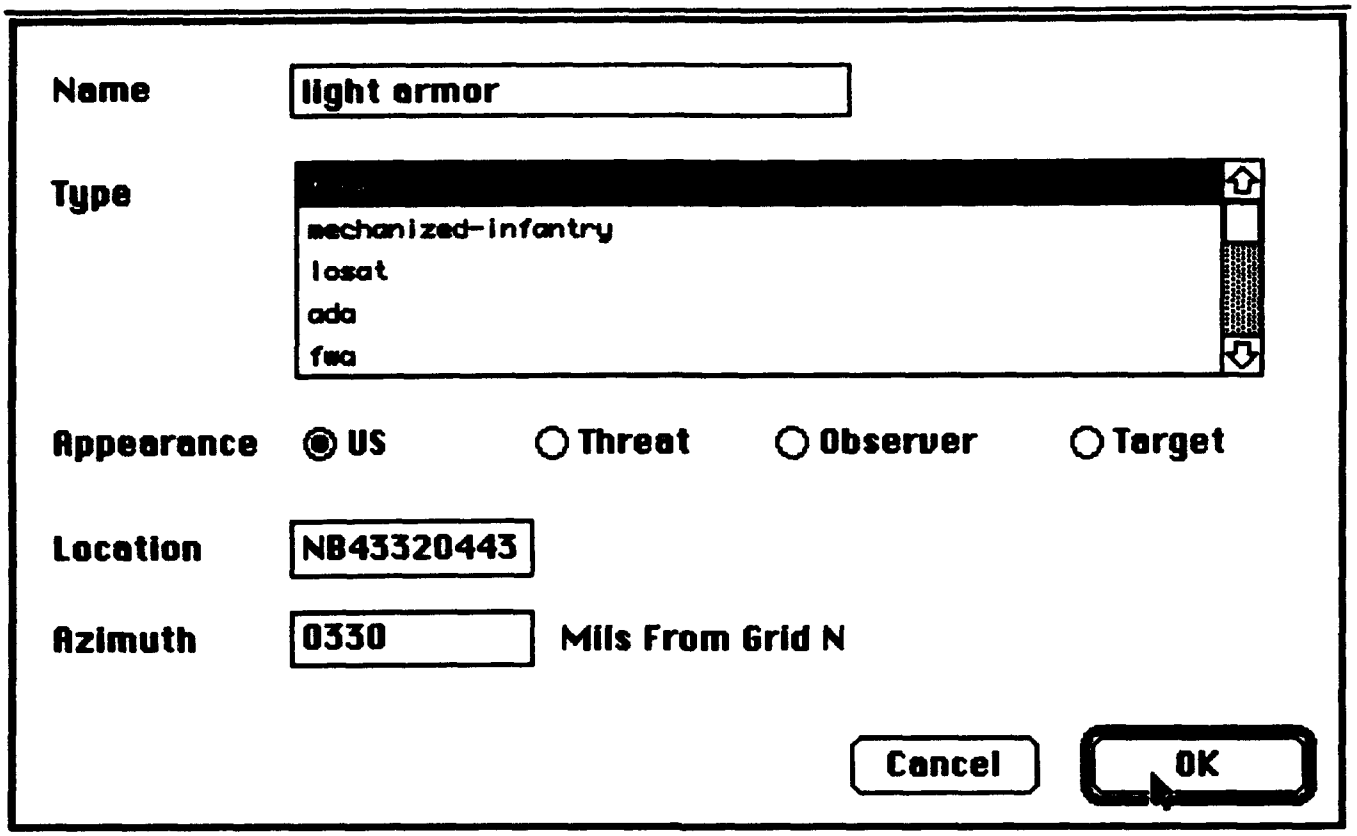

Figure 5.6.3-2. Gunnery Target Initialization

Clicking the **New target** button causes the Gunnery Target Initialization screen (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 the **OK** button will cause the target to be activated and become visible on the terrain database, and lists the target on the next open line on the Gunnery Target Worksheet screen (Figure 5.6.3-1).

Table 5.6.3. Default Target Type

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	

5.6.4 Resume Initialization.

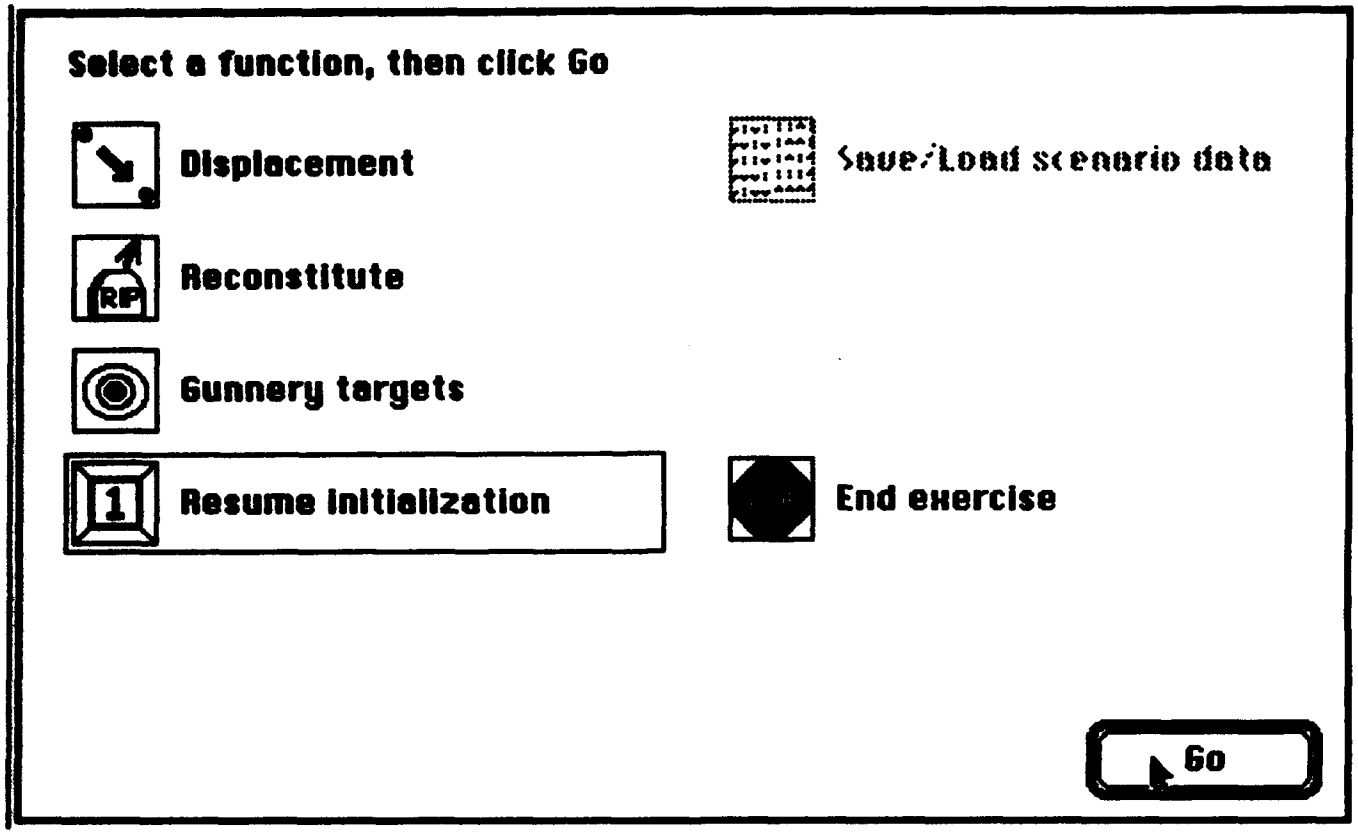

Figure 5.6.4. Resume Initialization Selection

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 the user 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.

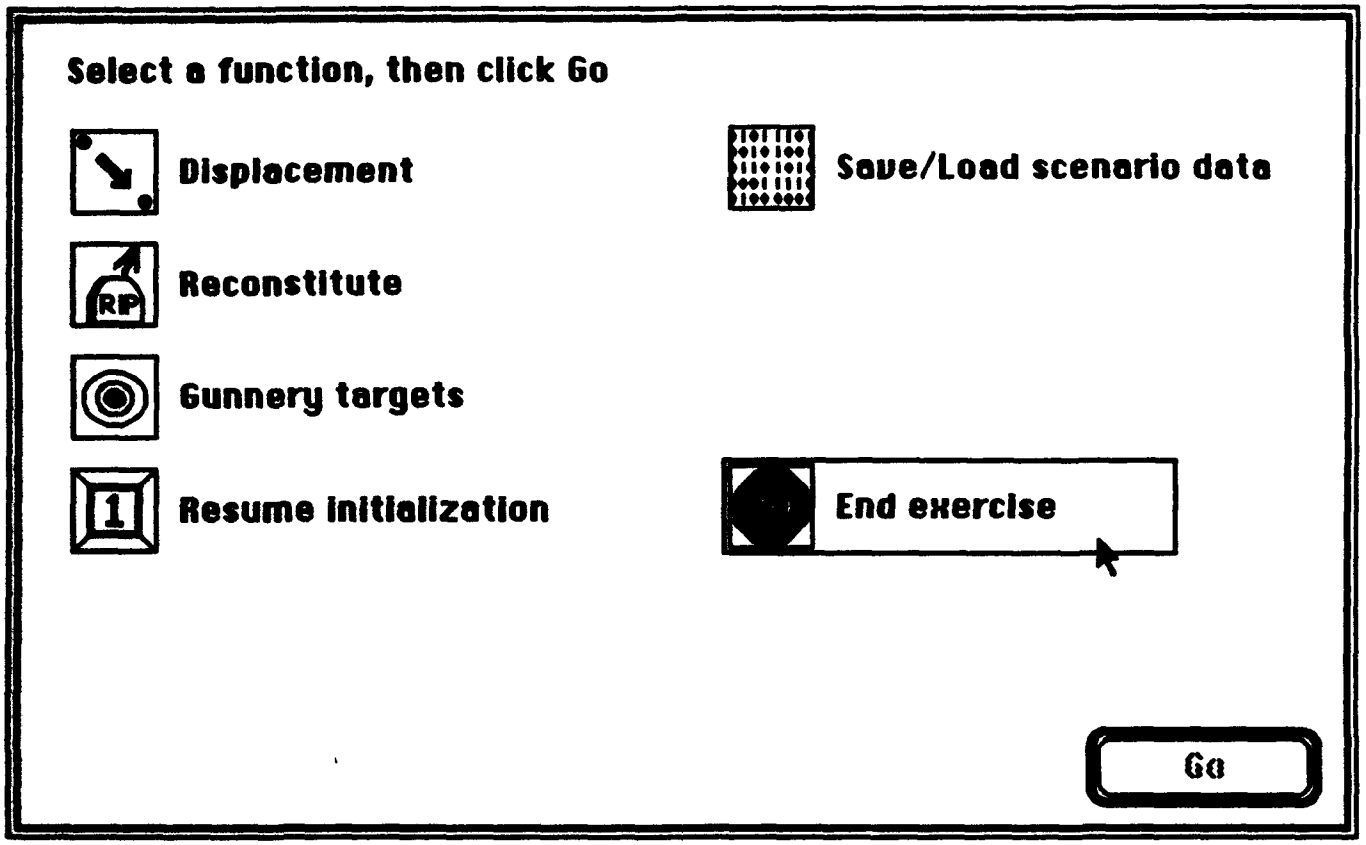

Figure 5.6.5. End Exercise Selection

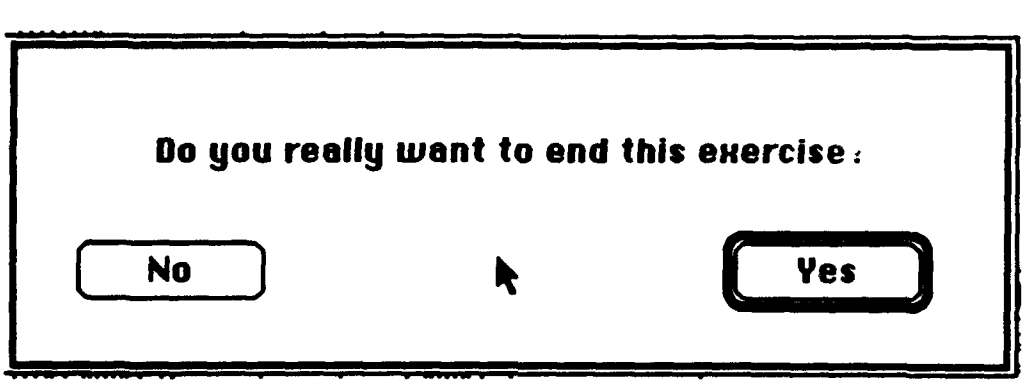

Figure 5.6.5-1. End Exercise Confirmation Dialog

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 confirms the termination, causes all elements under the MCC control to be deactivated, and sends deactivation requests 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

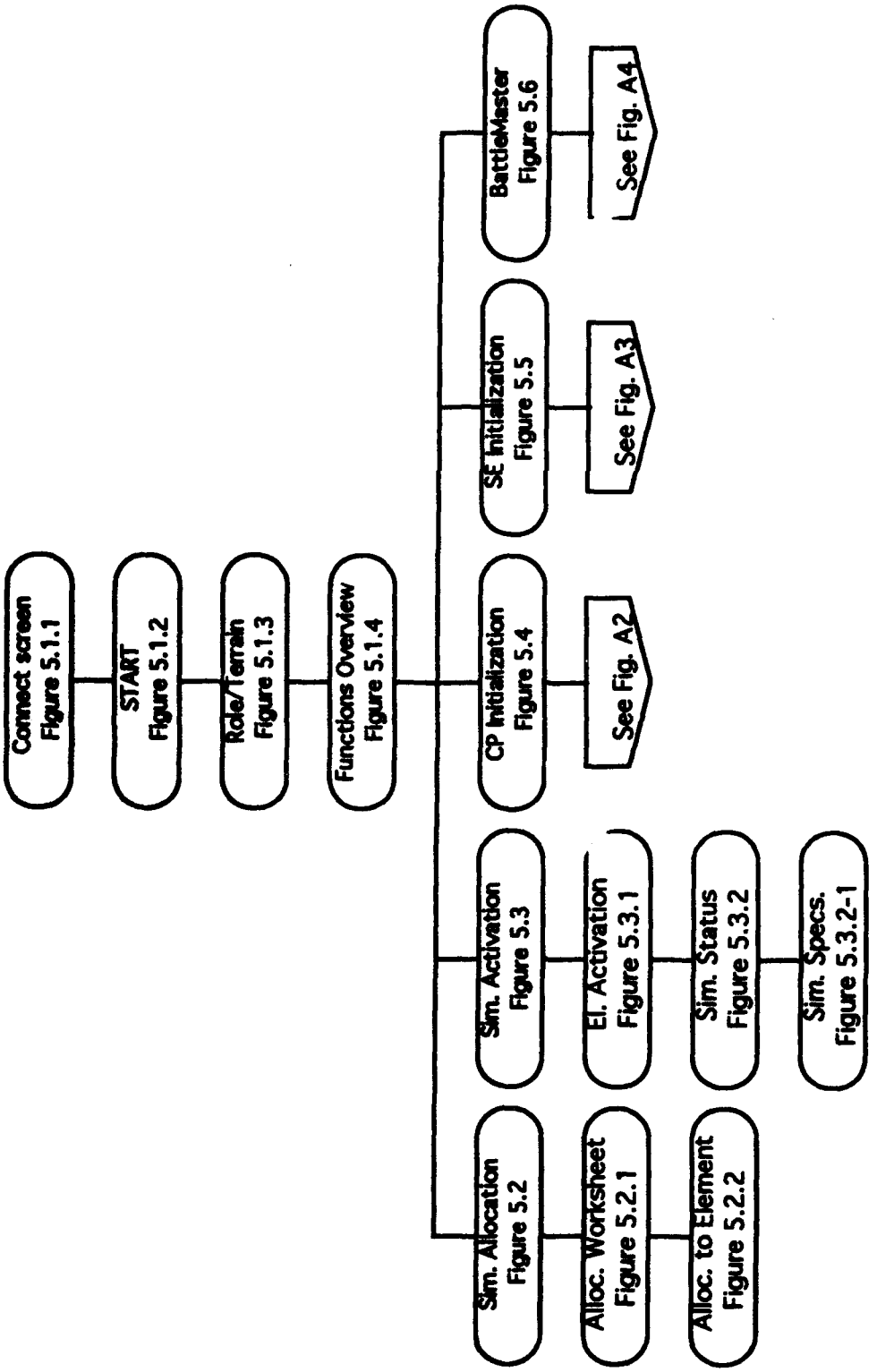

Figure A1 Management Command & Control Screens Flow Diagram

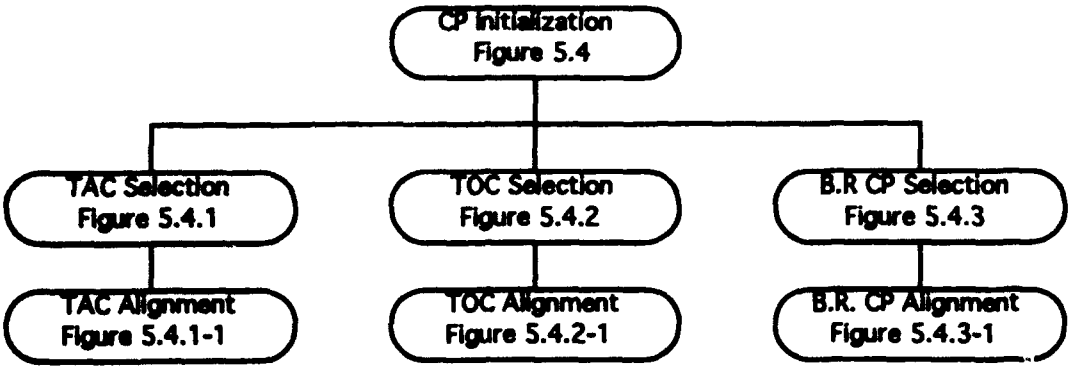

Figure A2 Command Post Initialization Screens Flow Diagram

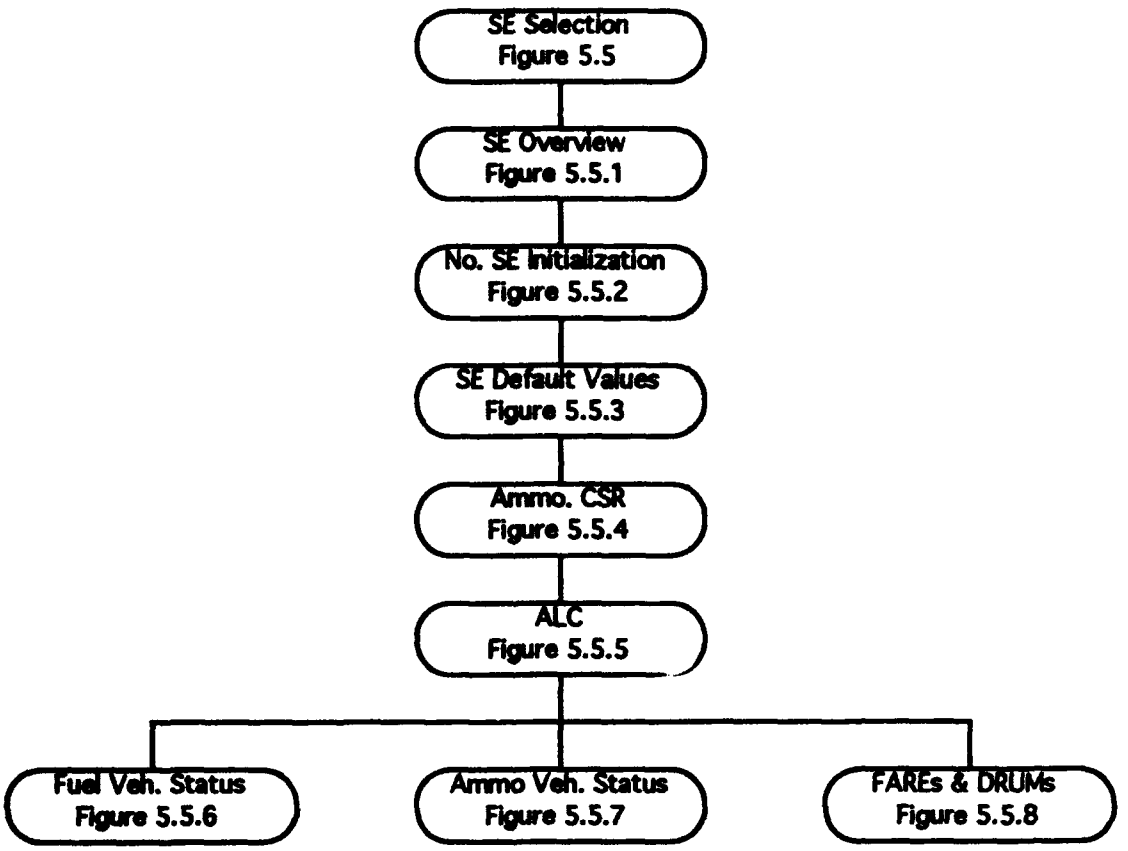

Figure A3 Service Elements Initialization Screen Flow Diagram

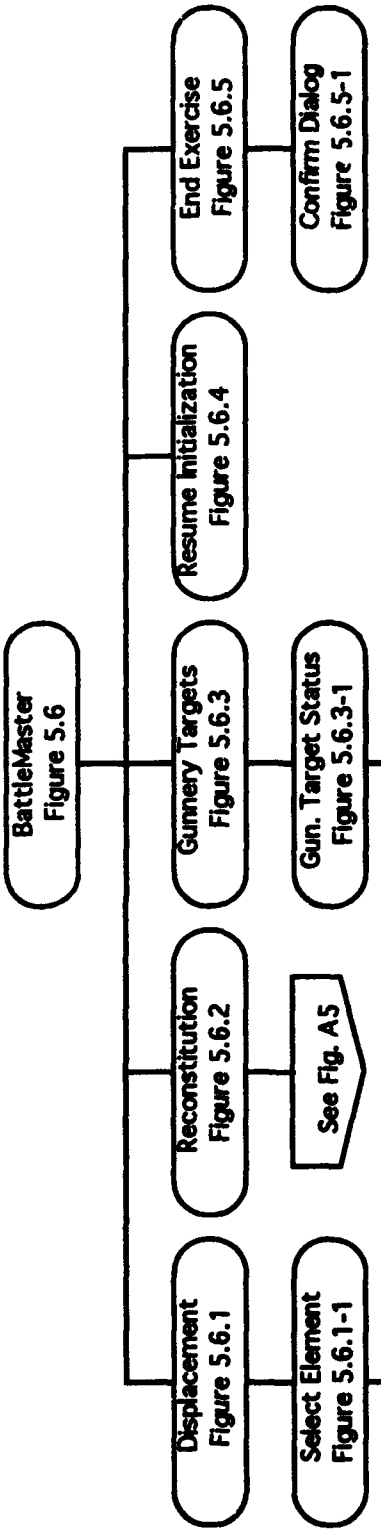

Figure A4 BattleMaster Functions Screens Flow Diagram

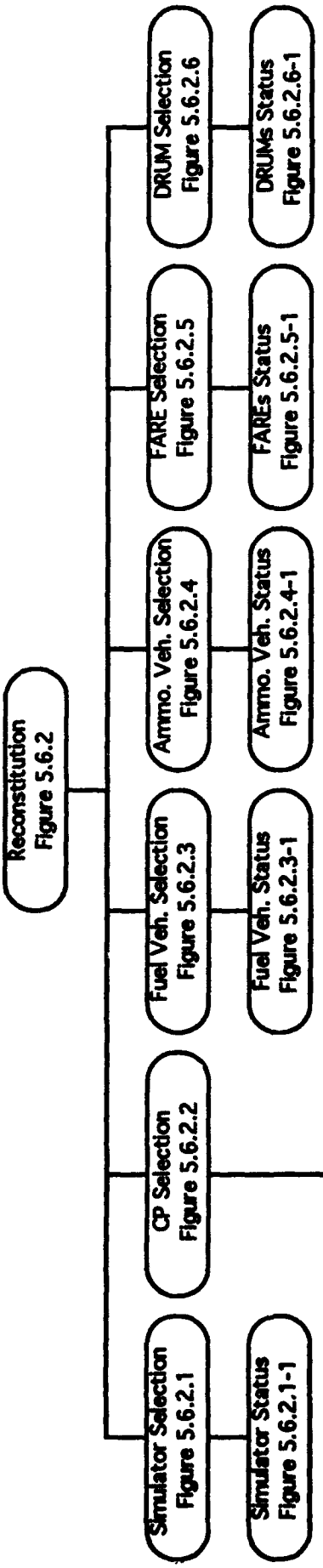

Figure A5 Reconstitution Function Screens Flow Diagram