

SoftKey Presents...

Harpoon Classic For Windows/ MAC

Harpoon Operations Manual

Designer's Series I

Designer's Series II & III

Installing from the CD

For PC Users:

This CD contains a Master Installer program that provides a easy and convenient way to install the programs on the CD. Follow these instructions to use the Master Installer.

1. Insert the program CD into the CD-ROM drive.
2. From the Windows Program Manager, click once in the **File** menu option to display the File menu and select *Run...*
3. In the Run dialog box, type **D:\INSTLLE.EXE** (note the spelling, no "A"), and press Enter. If your CD-ROM drive letter is not D, substitute accordingly.
4. The Master Installer main screen is displayed and you are presented with a list of products to choose from. Make your selections from the list and click on Install to continue. Master Installer will launch the individual installers for each of the product selected, and return to the Master Installer screen. Follow the on-screen instructions to complete the installation for each program. Please note that some installations may restart your Windows session.

If you encounter problems installing several programs at once, quit the Master Installer program, and restart it. Install one at a time.

For Macintosh Users:

1. Place the CD in your CD-ROM drive and double click on the Harpoon CD-ROM icon to open it.
2. Double click on the Harpoon Folder.
3. Choose one of the following installation options:

Large Install- Play from your hard drive, space required is 24.3MB of hard drive space.

Small Install- Play from CD-ROM, requires 3 MB of hard drive space.

NOTE: The Small Install will require you to find Battlesets. To do so please follow the instructions below:

1. Click the Find Battleset button OR hit the 'F' key.
2. From the menu switch to the desktop and locate the Harpoon CD icon. Double click on it.
3. Choose one of the Battlesets listed. They are as follows:

GIUK.RES	Greenland, Iceland, United Kingdom Gap
HDS1.RES	Harpoon Designer's Series Battleset 1
HDS2.RES	Harpoon Designer's Series Battleset 2
HDS3.RES	Harpoon Designer's Series Battleset 3
HDS9.RES	Harpoon Designer's Series III GIUK
HDSA.RES	Harpoon Designer's Series III NACU
HDSB.RES	Harpoon Designer's Series III MEDC
HDSC.RES	Harpoon Designer's Series III IPOG
IOPG.RES	The Indian Ocean Battleset
MEDC.RES	The Mediterranean Conflict
NACV.RES	The North Atlantic Convoys

On-Line Documentation Viewer For Macintosh Users:

You must install the viewer first in order to access the On-Line Manuals.

1. Follow the above Installation instructions 1 and 2.
2. Double click on the ACROREAD.MAC icon and follow the on screen instructions. See below for further details.

The On-Line User's Guide

Documentation for these products have been provided in an on-line format, along with a Viewer utility. To view the manual, you must first install the Viewer program from the CD. To do this, follow the instructions above. The last option shown in the Master Installer list box installs the Viewer program to your hard drive. Please note that this installation restarts your Windows session.

After the installation is complete, run the Viewer program and from the Open File Dialog box, select the file called **MANUAL.PDF** which is located in the **MANUALS** directory of the program CD (e.g. D:\MANUALS\MANUAL.PDF). There are also two additional files called **MANUAL2.PDF** and **MANUAL3.PDF**. These files are notes and histories on each mission in Harpoon. The Viewer also contains a full and comprehensive help system to assist you in learning how to use the documentation.

[Main Menu](#)

HARPOON CLASSIC

Operations Manual



**Also Includes
BattleSet Notes and
Scenario Editor**

Credits

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Harpoon Classic Publisher's Note

Our goal in creating Harpoon Classic on CD-ROM was to update this classic title and bring people all of the original *Harpoon* they could ever want. Like all versions of Harpoon, Harpoon Classic was the result of effort of many people. Rob Brannon and myself programmed the PC and Macintosh updates while John Keene handled the new Windows version. Don Gilman and Jay Littman coordinated the beta testing. B.I. Hutchinson created the *Harpoon* Designer Series III scenarios under Don Gilman's management and Jim Masterson brought the manuals up to date.

Dale and Jimmie Homburg did all of the artwork updates we required, and Debbie Vanskike designed our new box.

I want to thank Tom Frisina for his work in marketing and promoting Harpoon while it was published at Three-Sixty Pacific. *Harpoon* would not have become the success it is today without his commitment and efforts. I also want to thank all of the Harpoon Classic beta testers who persevered through the process of updating the program. Last but not least, I would like to thank Larry Bond for creating the ruleset which Harpoon Classic is built on and for his help in bringing it to market.

Gordon Walton, *President*
Alliance Interactive Software, Inc.
September 1994

ORGANIZATION of this Manual

Welcome to the most realistic naval war simulation on the market! To help you get started, we want to review the organization of this manual so that you will get the most enjoyment from the game simulation.

The introductory material will familiarize you with the basic concepts around which *Harpoon* is designed. You will find instructions on how to load it, a description of the screens on which it is played, and some things that you'll need to keep in mind when playing. We have included a sample scenario in Quick Start. If you are particularly anxious to play we suggest that you first follow along with this sample scenario before attempting the more complicated scenarios.

Appendix A provides background information on the realities of geopolitics as related to modern conventional warfare, the capabilities of today's weaponry, and the real-world strategies which would be employed by both NATO and the Soviet Union in the event of actual hostilities. This appendix is somewhat technical in nature and will probably appeal mostly to the wargaming aficionado. But, while this section is not critical to being able to play *Harpoon* the information will help you to get the most enjoyment from it because it will help you to understand what the basis is for modern tactics. It is important to remember that since *Harpoon* is a simulation and not an arcade style game, it is designed to reproduce actual tactics. For instance, you might order an ASW (anti-submarine warfare) helicopter to attack a submarine, yet it might appear that the helo is aimlessly wandering around instead of carrying out its attack order. But if you read Appendix A, you will understand how things really work in modern warfare. That is, you would realize that the helo is actually flying to different locations, dipping its on-board sonar into the water, and trying to get a solid fix on the sub's location so that an attack can be launched. So take some time to read this Appendix if you want to understand the basis on which *Harpoon* is designed.

Appendix B is a glossary of the terms, abbreviations, and acronyms found in this manual. Please refer to it if you have questions.

Since *Harpoon* is mouse and menu-driven, the technical aspects of controlling it are fairly easy. However, the realistic situations you will encounter, combined with user-selected options and variable screens, make *Harpoon* a continuing challenge even for the seasoned expert.

ORIGINAL Publishers Note

The development of the *Harpoon* computer simulation is the result of the combined efforts of many people over the last 30 months.

While many individuals played a role in this ambitious project, we would like to acknowledge and for you to recognize those few who, without their efforts, *Harpoon* could not have become a reality.

Gordon Walton, who performed as our crisis manager as well as a programmer and designer, was instrumental in leading the development team during the last nine months of the project. Of the team members in particular, Mike Jones and Becky McGuire gave an exceptional effort under very difficult working circumstances.

Our artists, Dale and Jimmie Homburg, gave the *Harpoon* simulation vibrant and detailed art. Les Hill, a programmer, stuck to it during the entire two and one-half years of the project. Rob Brannon's elegant menu interface has become an important feature of *Harpoon*.

Larry Bond and Tom Clancy had important roles, also. Larry, the designer of the *Harpoon* board game which is used to model the computer simulation, has provided considerable personal, professional, and financial support to each member of the project throughout its entire length. Tom Clancy has indeed "given something back to America" with his financial assistance on the project and his well appreciated words of encouragement.

Don and Bruce Gilman of Applied Computing Services, Inc., had the faith in Three-Sixty to choose us as the Publisher of the *Harpoon* computer simulation from rights granted to them from Game Designers' Workshop. Thank you, Bruce and Don, for giving us the opportunity to create this magnificent product.

Tom Frisina, *President*
Three-Sixty Pacific, Inc.
December 1989

FOREWORD - by Tom Clancy

I met Larry Bond as the result of an accident. Soon after joining the U.S. Naval Institute, I saw in their monthly journal, *Proceedings*, a small advertisement for the original *Harpoon*. I hadn't played wargames since college days, but I knew that there had to be something better than those, and I figured that for ten dollars or so, I couldn't go too far wrong. On receiving the game, and reading it over a period of days, I availed myself of the comment sheet tucked in the back to offer a suggestion. I saw what I thought was an error in the damage points section, and pointed it out, along with some complimentary remarks on the overall quality of the concept. Larry replied almost at once, confirming that there was a goof in his numbers (he was in the process of doing a correction). The ready admission of error told me everything about Larry that I'd ever need to know. Larry Bond is a serious student of this subject, a man for whom accuracy is more important than ego. In a word, Larry is someone of integrity. I know no higher praise.

Harpoon was a priceless asset in the preparation of my first novel, *The Hunt For Red October*. There are several reasons for this. First of all, the technical database included in the ship specification book is easily the equivalent of \$5,000 in reference books, superbly organized. More importantly, however, the game rules explain, with the astounding combination of simplicity and detail, the mechanics of ships, sensors, and weapons. The principles explained can be easily applied to specific ships, called "platforms" by insiders, found in the ship specification book. *Harpoon* is a tool for understanding things that happen in the real world. The player can use this game to simulate reality. How closely, you ask? Closely enough that every naval officer I meet in more than one navy asks where I got my information, and frequently they don't believe my answer. The net result, however, is that *Red October* is now used as an introductory textbook at the Naval War College, Newport, RI. A lot of credit for this goes to Larry Bond. In short, *Harpoon* is almost certainly the best naval simulation available to the public. The only games more detailed are classified, which does not necessarily mean "better," by the way, and a lot more expensive. It is the perfect starting point for discovering what navies do, and how. It worked for me.

Tom Clancy
Prince Frederick, MD
September 19, 1989

FINAL NOTE from Larry Bond

Harpoon, the computer product, is a sophisticated version of the award winning wargame published by Games Designers' Workshop. You will assume the role of a fleet commander, making the same type of decisions he has to make, using the same type and quality of information he might expect to get in wartime. This does not mean worrying about the fuel state of a helicopter somewhere, or the present course and speed of a maneuvering ship. You are trying to keep the Big Picture, and move the course of the war in the direction desired.

We want you to have fun playing *Harpoon*. After all, that's why you bought it. But with that requirement satisfied, we want you to see some of the tactical and strategic problems that a modern formation commander faces. A modern carrier battle group has tremendous combat power, but also some very real limitations.

Larry Bond and **Don Gilman**, September 1, 1989

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Introduction to Harpoon

THE CONTEMPORARY NAVAL WARGAME

There are two types of wargames which rely on the use of actual data: historical and contemporary. Historical wargames re-enact encounters set in the past, the object being to see how your decisions might have affected the course of history. Historical naval wargames benefit from hindsight and the historical record. On the other hand, a contemporary naval wargame can be defined as a set of rules that simulates naval combat of the current era. There is little historical data from which one can benefit. Mostly, there is only raw unclassified data on the capabilities of the contestants. There is no history as to what might constitute a “good” decision or a “bad” one; the results of the contest itself will bear the answer. Consequently, there are two tests a contemporary naval wargame must meet: whether it can accurately duplicate existing naval scenarios, and whether it can accurately predict future ones. In this regard, *Harpoon* is the most sophisticated and realistic contemporary wargame available to the public at this time.

Larry Bond’s original naval wargame appeared in 1980 as a board game. It drew on the experiences of the past in an effort to produce a true contemporary naval wargame. Designed by an experienced naval officer, the game combined a simple game system with the specific details of a variety of naval weaponry. Because it was deliberately conceived as an open-ended game system, Bond’s game could be fitted with new rules, statistics, or data as they became available, virtually guaranteeing that it would remain a viable, valuable resource for naval wargamers. In 1988 Larry Bond’s board version of the game set the standard by winning a second N. C. Wells award at the prestigious Origins Wargaming Convention, the only game to ever do so.

Bond’s game system is, at its heart, a simple one. Damage point values for ships are based on their tonnage (with suitable modifications for ship type or construction), damage inflicted by warheads and guns is based on the weight and type of the explosive.

Your computer version of *Harpoon* is identical in concept to the original game. However, it also incorporates a few convenient features which allow for greater flexibility. Some of the main differences between the board game and this computerized version are as follows:

1. The most obvious time-saving feature is that the computer will handle all the “number crunching” which is inherent in playing the board game.
2. A “layered” approach has been taken to the design of the computer version. That is, the player can choose the amount of realism and/or detail he or she desires, thus making this product an attractive challenge to both expert and novice wargamers, alike. Towards this end, you have been furnished with a “Staff Assistant.” Normally, Task Force Commanders have staffs to help them keep track of the details regarding the conditions of the fleet, as well as intelligence concerning the enemy. Your Staff Assistant

attempts to perform the same function. When you give an order, or ask for information, he will take care of it for you.

3. The computer allows you to command many task forces instead of just a single one.

4. The computerized version incorporates a "time-compression" feature. Normally, naval engagements in the "real world" might require several days to resolve as units travel from one point to another. To alleviate this dead-time, you can speed up computer time when nothing important is happening. The computer will automatically return you to "real time" once contact is made with the enemy. Or, you can slow *Harpoon* down whenever you want.

5. An exciting feature, especially for the wargame aficionado, is the vast amount of detailed information available on both friendly and enemy units. With the press of a key, the user can call-up various screens which detail all sorts of data on NATO and Soviet units. This makes *Harpoon* a valuable learning experience, in addition to being a challenging wargame simulation.

Harpoon comes with four BattleSets and three *Harpoon* Designer Series, which offer new scenarios for each of the four BattleSets. In total you have over 200 different scenarios, offering literally thousands of hours of game play.

In short, the computerized version of *Harpoon* can assist the player in making the kinds of decisions that must be made by a ship commander or battle group commander in a modern sea battle. It shows what information the commander has, and how he uses it to make those decisions. Most importantly, it allows the player to make those decisions, and to see their results in a simulated combat setting.

While *Harpoon* is a "game," there is no built-in play balance. *Harpoon* is more accurately a simulation. The data is a reflection of real-world weapons and equipment, used with a computer system which allows them to interact. We cannot say that you will win 50% of the time. The vagaries of modern warfare do not allow for such niceties; neither does *Harpoon*. In fact, each time a scenario is played it will be different. Whether or not you win will depend on the initial situation presented to you by the computer, and how well you meet the challenges of those situations.

The Harpoon Computer Interface

Using Buttons

Buttons are used on many screens within the program. Buttons can be clicked on or, sometimes activated by a key. So a button labeled **E**xecute is activated by the “E” key, while the button labeled **F**ull Report is activated by the “F” key.

Using the Menus

To operate the menus using a mouse, move the mouse pointer to the menu heading desired, then press the left mouse button.

Certain menu items are not always available. When a menu item is not available, then it will be “dimmed.”

PC	Game	Orders	Settings	Reports	Misc
		Attack		F1	
		Set Group Speed		F2	
		Enter Group Course		F3	
		Formation Editor		F4	
		Ready Aircraft		F5	
		Launch Aircraft		F6	
		Join Group		F7	
		Split Group		F8	
		Sensors		F9	
		Enter Staff Note		F10	

The Orders menu is always directly linked to the selected Group or Unit in the currently active window (i.e. if the Group Window is active, the selected Group and if the Unit Window is active, the currently selected Unit). Note that most of the Order items do not work for Units.

Using Dialogs

Many times during the operation of the program you will be presented with Dialog Boxes. Use the mouse cursor to move between items within the dialog. Items within a dialog are grouped into logical “families.”

There are four different kinds of items in Dialogs. The first is the Radio Button item. Only one radio button item within a family can be turned on, similar to a car radio’s station selection buttons. These are represented as a small circle, and if “ON” the circle is filled in. The second type of item is the Check Box item. A Check Box item is either off or on. If it is off, it is blank inside the box, and if on it will have an “X” in the box. The third type of item is a Text Edit box. You can enter either numeric and/or alphabetic text in this type of dialog item. Finally, there are buttons, as described above, normally used to accept or reject the entries you make within a dialog.

Using Scroll Boxes

Scroll Boxes appear at various points within the program. When a Scroll Box is visible on the screen, the up and down arrow keys move the selection bar within the current Scroll Box. If more than one Scroll Box is visible on the screen, the Tab key switches between them, with the active Scroll Box having a yellow frame (a Selection Border) around it. When using a mouse, you can simply click on a text item to select it, and if two or more Scroll Boxes are visible, clicking on any item in a Scroll Box makes that the active Scroll Box.

Quick Start

The following is a step-by-step walk-through of the “Gauntlet” scenario, the second scenario in the original GIUK Battleset. We suggest that when following the steps in this demonstration that you load the “Gauntlet” scenario in *Harpoon* and play along with the instructions. This may be the quickest way for you to learn how *Harpoon* is played. Please bear in mind, however, that the strategy suggested in this demonstration is not necessarily the best one; rather, our main purpose is to demonstrate how the game operates.

At various points during the simulation, the Staff Assistant will appear, notifying you of sensor contacts. We cannot say at exactly what point this will occur since it will vary somewhat each time you play. *Harpoon* scenarios are generally the same each time you play, but both friendly and enemy Groups may start in different positions each time, have different compositions and take different routes, making each game a continuing challenge!

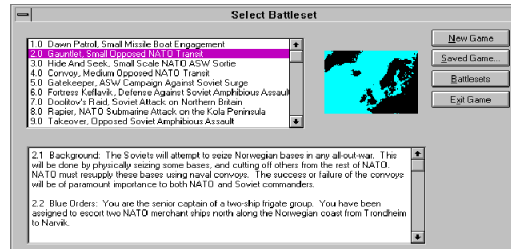
Note:

When you do get a new contact, you will see on the screen an indication of how precisely that contact is located. If you see a diamond-shaped or rectangular figure surrounding your contact, that tells you that the contact is somewhere in the diamond-shaped “uncertainty zone,” and the wider the diamond the greater the degree of uncertainty. This uncertain contact can either be an area contact or a bearing-only contact. You probably have a bearing-only contact with the enemy. Bearing-only contacts are usually made by the passive sensors on your unit. If you set your sensors to “active,” and if the contact is within range of your active sensor, then the diamond will disappear and you will see only the enemy group or unit icon. When this happens, you have a “solid” (i.e. exact) contact. When you lose a contact, it will degrade into an area contact, with the uncertainty zone growing over time, until you either re-acquire the contact or it is lost completely!

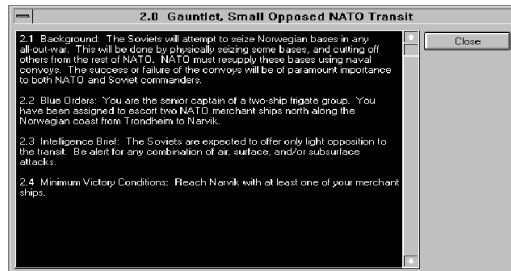
To follow along with this sample scenario, select the original GIUK BattleSet, then make sure you select ‘NO’ for the “Auto Formation Air Cover” on the Select Game Options screen. Note: Normally we recommend selecting YES for this option.



Then select the “Gauntlet” scenario (number 2.0 in GIUK) by double clicking on it.

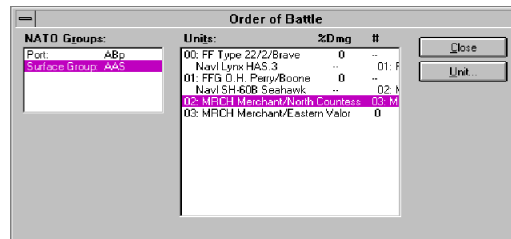


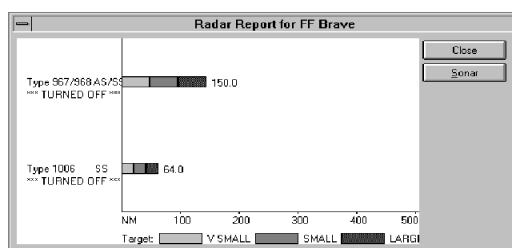
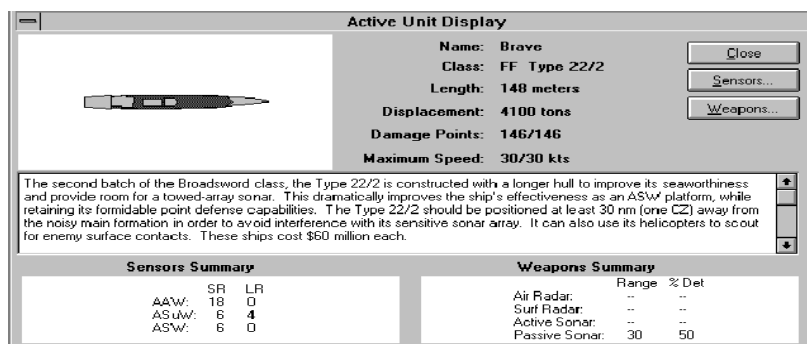
1. After loading any scenario your should review your Orders (ctrl+E) and your Order of Battle (ctl+B).



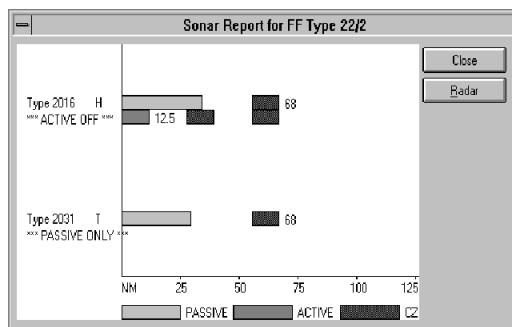
In this scenario, you are escorting two merchant ships to Narvik. Your Order of Battle shows the port of Narvik, two frigates (Type 22/2 and O. H. Perry classes), two merchant ships and four helicopters (on the two frigates). Select the surface group with call sign AAS, use your mouse to click on the first Unit.

Now you can get a unit report on the Type 22/2 use your mouse to click on the Unit Report button. Notice that all sensors are off except your Passive Sonar and that you have only short range (SR) ASW weapons (Short range weapons for ships, are generally under 30 nm in range.). Check your sensors by pressing ‘S’ (or clicking on the Sensors button). You will get your Radar Report screen.

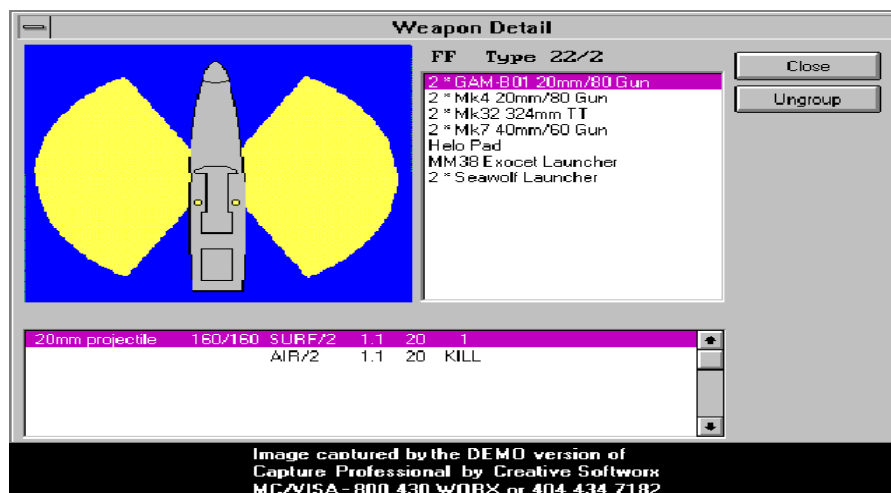




As you can see both radars are turned off. You have two different radar sets: one combination air and surface search radar (AS/SS), the other a surface search radar (SS). The range of the radar against different sizes of targets. Also remember that Radar is limited by the Radar Horizon, regardless of the range it can potentially reach.



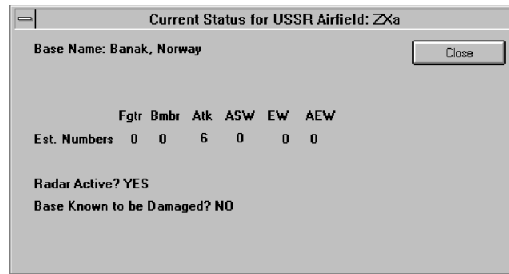
Now we can look at our sonar by clicking your mouse on the **Show Sonar** button. Notice the active sonars are off. You have two different sonars, one a hull sonar (H) that has both an active and passive mode. The other sonar is a towed sonar (T) that is passive only. The direct path range is shown for each sonar and mode, and the sonar's convergence zone (CZ) range is also shown. From this screen we can return to the main ship display click on the <Ship>



button. Once back at the unit display screen, click the mouse on the **Weapons** button.

Using the weapons display, you can check all your weapons and current ammo levels. This screen tells you all the information about your weaponry. Selecting each weapon shows you its arc of fire, weapon name, current ammo/initial magazine load, type of target it can engage, maximum range, % fired that will hit a target (if it finds a target) and number of damage points it can do if it does hit. Now click your mouse on the Ungroup Same Type **Weapon** button, this allows you to look at the individual weapon's mounts, instead of a combined display for all weapons of a given type. Now click on Group Same **Weapon** type. Once you have examined all your weapons, you can either return to the ship display by clicking your mouse on the **Ship** button or directly back to the Order of Battle by selecting **Exit**. Now you can examine your other platforms, just like we did for the Type 22/2 Brave. Examining and understanding the capabilities of your platforms is absolutely key to effectively fighting them.

2. After reviewing your forces you will notice that the Designation Square and the Unit Window on the Group Map are centered on NATO Port with call sign ABp in Narvik, Norway. This is your destination, as stated in your scenario Orders. Notice that to your north is a red triangular figure. Click on it. When you do, you will notice from the small Reports Window that it is USSR Airfield with call sign ZXa in Banak, Norway. Click your mouse on the **Full Report** button.

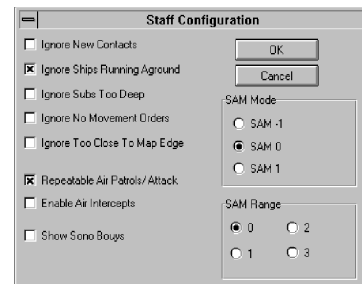


As you can see, Banak has an estimated 6 enemy attack aircraft, active radar and no known damage.

3. Press the BACKSPACE key. The Designation Square will cycle to a group of ships to the south. The small Reports Window shows that this is NATO Surface Group with call sign AAS, comprised of 4 ships and 4 helicopters.

4. Press the “C” key. The Unit Window indicator on the Group Map will immediately center itself around your selected surface group, and the group will be shown on the Unit Map. Give the **F**ull Report command; a report will appear in the report window indicating that your groups’ radars are in STANDBY and that our sonars are in PASSIVE mode.

5. You need to select your Staff Options from the Settings menu (ctl+M). Note that you can select and deselect certain Staff options. Make sure that the “Repeatable Air Patrols/Attacks” is ‘x’ed and that the “Enable Air Intercepts” is empty by clicking on it. After turning these options on, press the ENTER key to accept your Staff Option changes.



6. Now we must make our first tactical decision. What do we want to do with our radar and sonar? If we leave them off then we will be operating with just our passive sensors, that is, we will be “listening” but not “seeing.” The advantage of running with sensors deactivated is that the enemy cannot detect our emissions, and as shown in section on Sensors, we can detect his emissions long before he can detect ours. On the other hand, it is possible that the enemy is running with his sensors off. Also, even if we do happen to detect an enemy’s sensors we will have only moderately reliable range and bearing information. But, let’s leave our radar off for the time being.

7. We have a slightly different problem with regard to our sonar. It is difficult to judge at exactly what distance we could expect to detect an enemy, either with our active or our passive sonar. Antisubmarine warfare is extremely complex and

problematical because the ocean has temperature layers (thermoclines) which can distort or block sound waves. No doubt the enemy's subs can pick up the noise from our convoy's screws (propellers) long before we could ever hope to detect him with our own sonar. On the other hand, the noise from our own screws are very liable to mask any noise we could hear from an enemy sub, particularly if we are traveling at the rather brisk speed of 18 knots. Now, let us slow down our convoy so that we can increase our chances of detecting the enemy. Select Speed. The Set Speed box will appear in the Reports Window. Use the BACKSPACE key to erase 20 kts from the Speed line, then type in the number 16. This should increase our probability of detection without slowing down our group too much. We will also leave our sonar in passive mode for the time being.

8. Since our intelligence brief on the Scenario Selection Screen told us that we could expect surface, air, and subsurface threats, we will want to position our units so that we can protect our convoy of transports. Also, we will want to make sure that the helicopters have a load-out appropriate to the situations we can expect to face.

- a. First, let us see what load-out our helicopters currently have. Select Ready Aircraft. You will then be presented with the Ready Aircraft screen.

You can immediately see that all of your helicopters are equipped for antisubmarine warfare and are in a "Ready 5" status (can be launched in 5 minutes or less). Now we need to make a tactical decision. Do we want to commit all our helicopters to ASW duties, or do we want to load one or more out for a possible surface threat? We will loadout one with surface missiles and have it ready to launch, and use another as an early warning picket.

Ready Aircraft

#	Type Aircraft	Loadout	Status	Time
2	Navl Lynx HAS-3	AntiSub	Ready 5	0
2	Navl SH-60B Seahawk	AntiSub	Ready 5	0

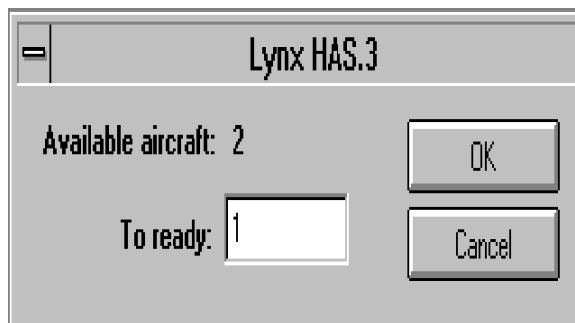
OK

Cancel

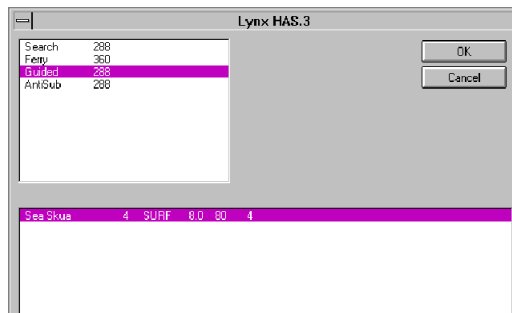
Ready...

Weapons:

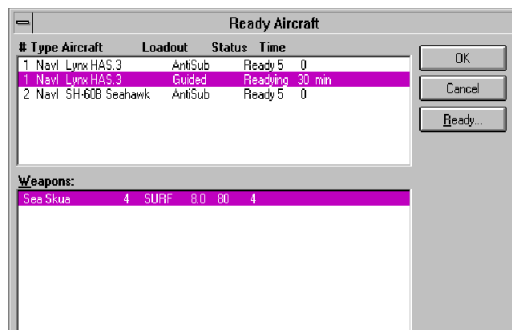
Stingray Torpedo	2	SUB	6.0	70	23
Sonobuoy	12	N/A	N/A	N/A	N/A



b. Select the Navl Lynx HAS.3, then give the **R**eady command. A small dialog box will appear in the middle of the screen. Use the BACKSPACE key to erase the number 2 on the “To ready” line, then type in the number “1.” (We want only one helicopter loaded to attack surface ships.)



Then select [OK]. When you do, another box will appear which lists the types of missions a Lynx can accomplish. Use the cursor to highlight “Guided” and again select [OK].

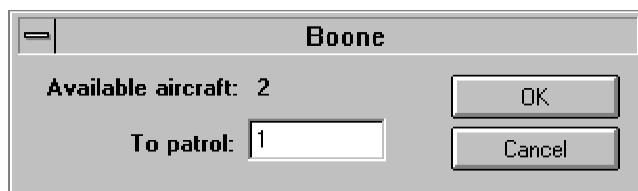


Once you do, you will be returned to the Ready Aircraft screen. Notice that your Lynx which has the guided mission will be ready in 30 minutes.

Now select the other Lynx and give the **R**eady command. When the mission loadout selection screen appears, select the “Search” Loadout. Note that it has the same range (288 nautical miles) as the AntiSub Loadout which is already loaded! Let’s leave this one the way it is and we will send it out as a scout with an AntiSub Loadout. Click on

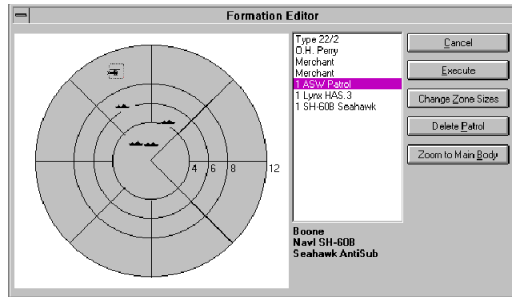
the <Cancel> command to return to the Ready Aircraft screen, then press ENTER to exit to the Main Screen.

c. Now we can launch a helicopter within our formation to perform ASW patrol duties. Select Formation. With your mouse select “2 SH-60B Seahawk,” then select Set Air Patrol.

A screenshot of a software dialog box titled "Boone". Inside the box, the text "Available aircraft: 2" is displayed. Below this, the text "To patrol:" is followed by a small rectangular input field containing the number "1". To the right of the input field are two buttons: "OK" and "Cancel".

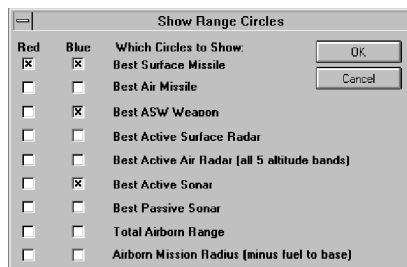
The selection for how many aircraft to patrol will be shown. BACKSPACE over the “2” and type in “1” as shown above. Select [OK] to accept one aircraft for the patrol.

Now you will see a helo symbol appear in the middle of the formation and a new entry will appear in the scroll box labeled “ASW Patrol.”



Locate this helo in the outer sector (Picket Ring) of the same ring as the Brave by clicking in the sector with your mouse.

Now select **E**xecute. You will be returned to the main screen where you can see in the Unit Window that the helo has been launched.



9. Now we should set up the Range Circles so we can play effectively. Pull down the Range Circle menu item under Settings. For now, let's set them as indicated below:

Best Surface Missile for both Blue and Red.

Best ASW Weapon for Blue

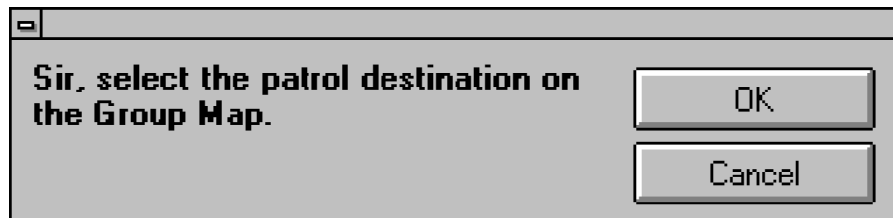
Best Passive Sonar for Blue

10. Now that we have things set up the way we want them, slowly compress time to speed up the game a little bit. Click on FAST until time compression is set at "5 min." In a few seconds your message will appear on the message bar to let you know that your Lynx on the Brave is ready. Since we will want to send it off on a search mission, press the ENTER key to return to a 1:1 time ratio.

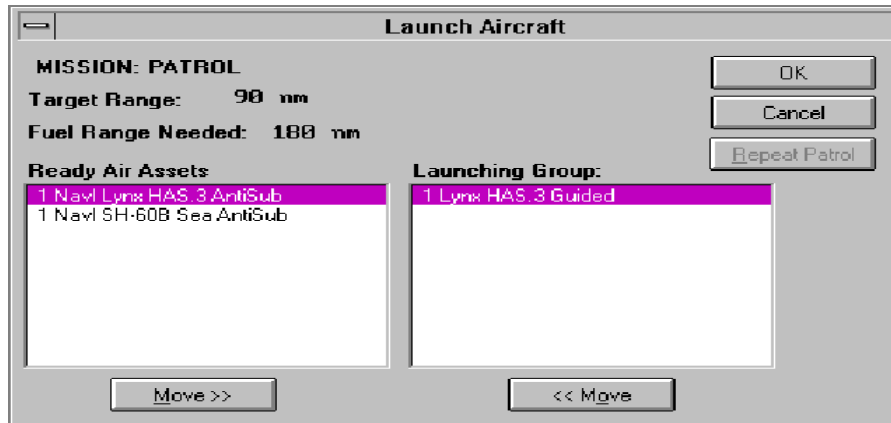
11. Now launch this Lynx on its search mission. Select Launch Aircraft. A box will appear in the Reports Window listing the three possible launch aircraft missions.



Select Patrol, then give the [OK] command. Next to appear is a dialog requesting you to enter the position for your patrol. The Circle you see is the range of your longest range aircraft. Click the mouse to about half the radius of the circle, directly North of your Group.

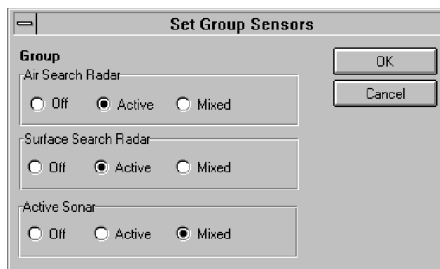


The next screen to appear is the Launch Aircraft screen.



Highlight the Lynx with the AntiSub mission in the Ready Air Assets box, then move it to the Launching Group box by clicking on MOVE>>. Now select [OK].

12. Notice on the Group Map that a helo symbol begins to separate itself from the ship symbol. Use the BACKSPACE or SPACEBAR key to select the helo. The report window shows that it is NATO Helicopter Group with call sign ACH.



a. Since we are trying to find a surface enemy, let's turn the radar on for this helicopter. Since it is already the selected Group, select the Sensors item.

You will get the Set Group Sensors dialog as shown. Set the Surface Search Radar to Active then select [OK].

b. At this point, increase time compression to "1 min." After a minute or two, your staff assistant will appear to inform you that a Soviet Nanuchka has been detected. The Group window will show a red surface symbol enclosed in a red square. This red square is the "uncertainty zone," meaning that the vessel was detected by passive sensors and that its exact location is uncertain. But you know the enemy is out there somewhere in the general vicinity! Select [1:1 TIME] by pressing the ENTER key.

13. Continue closing until you have a solid fix on the enemy, then use the Set Altitude and Speed order to hover your helicopter. This gives you targeting information on the enemy ships and will allow you to attack them using other means.

14. Since we are too far away to shoot our shipborne missiles, launch the helicopter we have ready with the Guided Loadout. Select your ship group, then select the Launch Aircraft order. Select Attack for the launch mode, and the enemy ship group as the target. Then launch the Lynx with the Guided Loadout.

15. Once your Lynx with the Guided Loadout is airborne select it using either the mouse or the space/backspace keys. Set it's speed to military to get it to the target faster and make sure it has all sensors OFF so that the enemy ships do not detect it as quickly. Once you get close to the enemy ships (about 20 miles) you may want to set your altitude to VLow (very low) to avoid radar detection for as long as possible.

At this point, we cannot guide you any further because the game you are playing may not proceed exactly the same from this point onward. However, you can play around with the various commands and menus. Use this opportunity to see just what you can and cannot do.

The more you play *Harpoon* the more you will discover the various uses of the commands. There is such a wealth of detail built into the internals of the simulation that it may require you to play scenarios 1 through 4 many times just to discover *Harpoon's* capabilities. We recommend that you become comfortable with the first four scenarios before you attempt the more complicated ones.

Once you feel that you are familiar with how *Harpoon* is played, you will be ready for the greater challenges presented by the more difficult scenarios. You might want to play these scenarios in numerical order. This order is roughly equivalent to the order of the situations which might be faced by NATO forces according to the US Navy's Maritime Strategy. It will give you a good feel for how a war really might be conducted in a real-life situation. Also, the later scenarios are generally laid out in order of graduating difficulty and complexity.

Of course, if you "lose" a particular scenario it will have no effect on the outcome of any subsequent scenario, and you can replay any scenario as many times as you wish. Keep in mind, however, that even though you may replay a certain scenario, the computer will not necessarily set up the situations or the forces in exactly the same way each time. Consequently, you cannot always be sure that the tactics you used for winning a scenario one time will always work each succeeding time.

Good luck to you. Your alliance depends upon your skill!

An Overview of Harpoon's Operation

GAME ELEMENTS

YOUR ROLE

In computer *Harpoon* you play the role of a Side Commander, commanding all naval and air units for one Side of a scenario. Because the scenarios can vary from a single ship Group to multiple ship Groups and bases, the scope of the role you play can vary immensely. Your job is to direct all the Groups within your control to achieve the task set in your scenario orders.

GROUPS, UNITS & CLASSES

Understanding Groups, Units and Classes is the key to effectively playing *Harpoon*.

A Class is a single platform type, such as an Iowa Class Battleship, an F-15 Fighter or a Nimitz Class Aircraft Carrier.

A ship or submarine Unit consists of a single (named) individual class member, such as the New Jersey, an Iowa Class Battleship. In an aircraft or missile Unit, a single Unit may contain multiple members (i.e. six F-15 Fighters with the same Air-to-Air Loadout, or nine Tomahawk Missiles launched from the same ship at the same target would be represented by a single Unit).

A Group is the primary unit of control in *Harpoon* and is defined as one or more units. An example ship Group might contain one battleship Unit and two destroyer Units. As the Side Commander, you will give orders to Groups, and the (computerized) Group commander uses the individual Units to carry them out.

SIDES & COUNTRIES

Two sides are modeled in each of the *Harpoon* BattleSets. Sides typically represent alliances (such as NATO, Warsaw Pact, SEATO, etc...) made up of multiple countries. These two sides are labeled BLUE and RED and all of their groups and units will be colored accordingly within the game. Note: An uncertain contact will show up as the enemy side/color until you establish an exact contact, this is because within the game you can only shoot at enemy contacts. Each side can have multiple countries represented, as in the first BattleSet, GIUK, where the BLUE side has the USA, United Kingdom and Norwegian countries aligned together, while other countries may be in the alliance. Only countries with Classes used in the battleset are represented in *Harpoon*. Countries have many variables associated with them, including the percentage of breakdowns their equipment will experience, how effective their repair capability is, how effective their bearing only weapons are, and more!

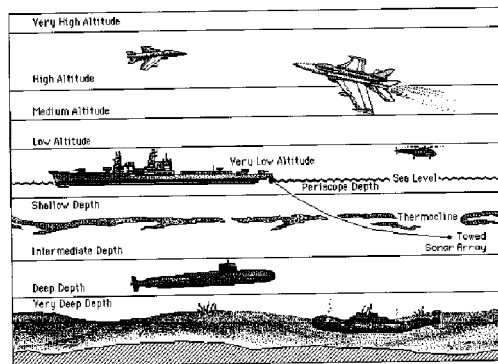
In *Harpoon*, you can either play the RED or BLUE side. This allows you to see the conflict and it's tactical nuances dictated by differing missions and equipment from both sides.

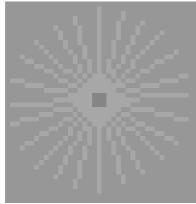
ENVIRONMENT

In *Harpoon* the environment consists of several elements. The first element is altitude (or depth). To simplify the range of possibilities, altitude bands (alt bands) are used.

Vhigh	Very High altitude is 20,000 meters and higher. Only some jet aircraft have the capability to fly at this altitude.
High	High altitude is between 3,500 and 20,000 meters.
Medium	Medium altitude is between 600 meters and 3,500 meters. This is the maximum altitude for all helicopters.
Low	Low altitude is between 30 meters and 600 meters.
Vlow	Very Low, is 'wave height' or 'terrain following' flying, keeping your aircraft below 30 meters. In a fixed wing aircraft (not a helicopter), there is a significant chance that you will hit the water due to pilot error and the aircraft will be lost. The advantage is that aircraft flying at the VLow altitude can only be detected at less than half the range of an aircraft flying at Low altitude.
Sea Level	The surface of the ocean.
Periscope	Right below the surface where you can see out your periscope, but use with caution because you can be spotted by low flying aircraft.
Shallow	Above the thermal layer, deeper than Periscope depth.
Intermediate	Below the thermal layer, but shallower than the max safe depth for most submarines. Submarines are harder to detect when at this depth or deeper. Speeds up to 24 knots are possible without cavitating at this depth.
Deep	The maximum safe depth for most submarines, used to evade detection. Submarines can go up to 29 knots without cavitating at this depth.
Very Deep	Can only be achieved by a few submarine classes, and eliminates all cavitation noise.
Too Deep	Too Deep is deeper than any submarine can go, extending to the ocean floor.

In computer *Harpoon* all the land is of uniform height, so you do not have to worry about your planes crashing into mountains. Water depth is directly relative to how close you are to land (i.e. no realistic undersea maps). In general the higher you go, the easier it is to be spotted by the enemy. So Submarines tend to stay as deep as they can unless attacking and planes tend to fly low unless searching for the enemy or trying to improve endurance.



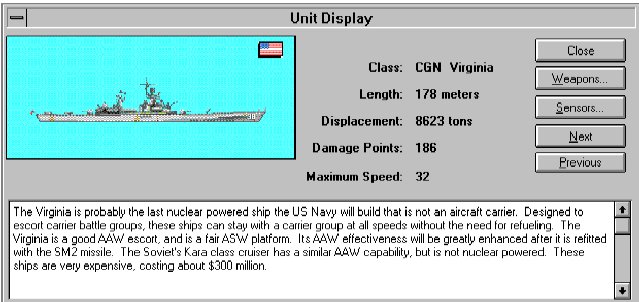


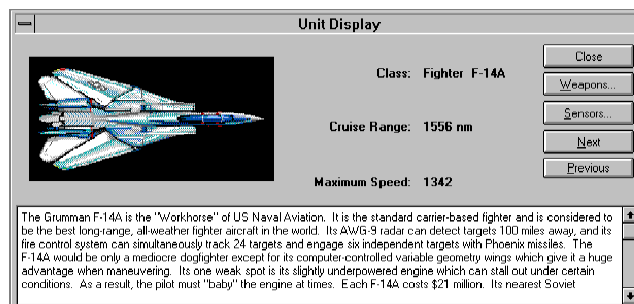
Weather systems or cells can appear in *Harpoon*, and your groups and units can be affected while within the range of the Weather Icon. Some weapons cannot be used at certain Sea States (which are directly linked to the strength of the weather cell) and you may not be able to launch some aircraft. Weather also affects sensors making visual, radar and sonar contacts more difficult.

WEAPONS

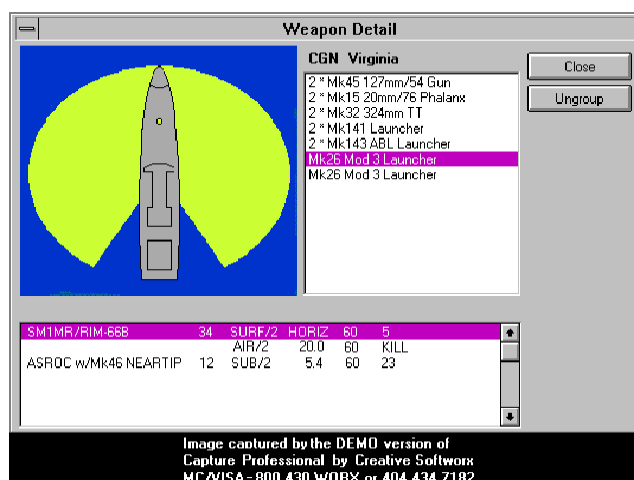
Weapons within *Harpoon* are designated by the term Mount. Each Mount contains one or more weapons. A Mount also has an associated number of barrels/rails/tubes, an ammunition amount, a weapon firing arc and possibly a specific sensor for the Mount, called a director. Directors direct weapons to specific target(s), and if they are damaged the Mount may not be capable of firing at all! Note that directors can only track a limited number of targets, so a major factor in maximizing the effectiveness of your attacks is overwhelming the capacity of the defending Mounts.

To examine your weapons in computer *Harpoon* use the Unit Full Report or Display options to get to a Platform Display screen.

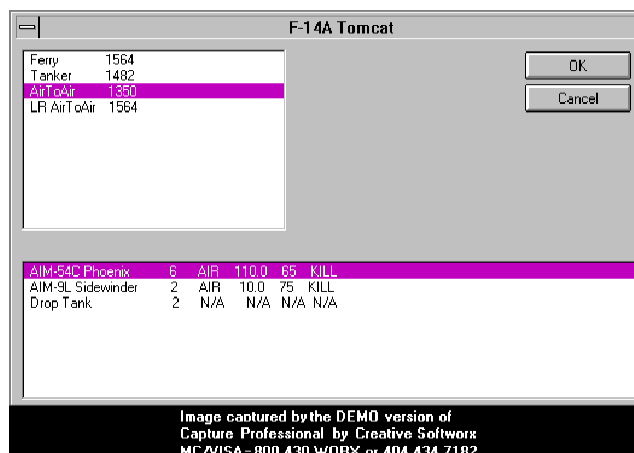




Choose the **Weapons** option to get to the weapons screen. For ships and submarines you get a screen that looks like this:



For aircraft you get a screen that looks like this:



The column descriptions in the two different weapon reports are:

Ammunition	The type of ammunition this mount fires or carries.
Qty	The maximum quantity of this ammo in the mount.
Target	The type of target this mount/ammunition can shoot. It will be labeled AIR (flying targets), SURF (surface targets), SUB (submarines) or N/A (not applicable). The number following the "/" is the number of Targets that the director can track concurrently.
Range	The range in nautical miles that the weapon can hit targets. If HORIZ is listed, the lesser of your current radar horizon or weapon range is the weapons maximum range.
Hit %	The percentage chance that this weapon will hit if fired at a target that is within range (and if it is not shot down by the target as in the case of a missile).
Damage	The maximum number of damage points that this weapon can inflict if it hits a target. Some weapons have KILL listed, meaning if they hit the target type, they will kill it. Another special damage type is NUKE, where nuclear explosion damage is done to the target and nearby units.

Nuclear weapons are only available in computer *Harpoon* after you have been granted nuclear release. At some point in the game, if you choose "YES" to the Possible nuclear release option, you may receive nuclear release. If the enemy uses a nuclear weapon, you are automatically granted nuclear release. Any nuclear weapons carried and/or aircraft loadouts will now be available for use.

SENSORS

General Sensor & Detection Information

In computer *Harpoon*, enemy and neutral Groups and Units are hidden until you detect them in some fashion. Detection is always by a sensor, and the module within *Harpoon* that does the detection is called Search. Every 30 seconds of game time, each sensor on each Unit 'Searches' to see if a non-friendly Unit has been detected. Variables that affect this search process include distance, absolute size, altitude/depth, weather, and speed of both the searching and detected Units. In general, Units which are larger in size, faster moving and radiating energy (via propulsion noise or active radar or sonar) are easier to detect. A larger Unit is easier to see, and returns more energy if 'painted' or hit by radar or sonar waves. A faster moving Unit is radiating more sound energy, and the air/water it disturbs at high speeds also increases that Units' size for radar/sonar detection. Finally, a radiating Unit (radar or sonar) can always be passively detected beyond the effective range of whatever active sensor is used.

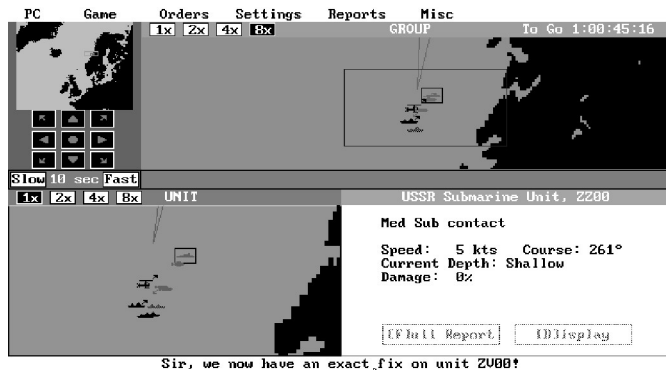
Passive & Active Contacts

Contacts are either passive or active, meaning either you are detecting radiated energy or you are detecting reflections of your own radiated energy. When you detect a radiating target (i.e. their radar or sonar is on or they are making noise based on their movement) you have a passive detection. If you are radiating (i.e. your radar or sonar is on) and detect a target, this is an active detection.

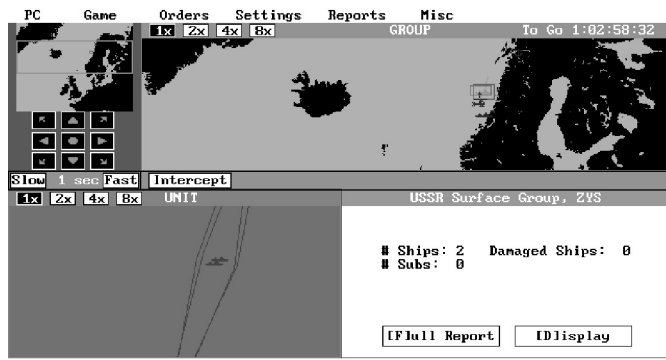
Types of Contacts

Detection of either the passive or active type can be exact, area or bearing-only. An exact detection means you know exactly where the detected unit is. An area detection means you know that the unit exists in a given area. This area is defined by a uncertainty zone or region represented by a colored diamond shape which surrounds the icon. A bearing-only detection is a special case of an area detection in which you know that a contact is a certain bearing from your position, but you only know the minimum and maximum distance it might be from you. All detections degrade over time if not repeated. As contacts degrade, the area of uncertainty will grow at the rate the detected unit could move since the last detection.

Notice that the submarine shown is an exact detection, with no uncertainty area shown.



Notice the long diamond shaped uncertainty zones that indicate bearing-only detection.





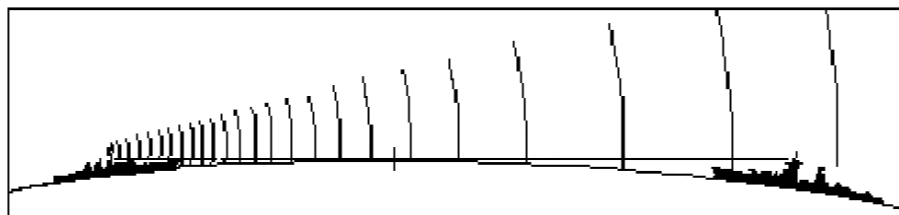
Notice the large diamond shaped uncertainty region indicating an area contact. This uncertainty region will decrease in size as the contact's position becomes more certain or increase as the contact's position becomes less certain.

Fire Control Solutions

Fire control solutions in computer *Harpoon* are either exact, nearly exact or bearing-only. Whether a detection is from passive or active sensors is immaterial, only the accuracy and type of solution is important. Some weapons require an exact detection, others a bearing-only or nearly exact area detection. The computer determines whether you have a sufficient detection level to attack with your current weapons, and will either let you attack or inform you of an inadequate fire control solution.

Radar

Radar is the use of airborne radio waves sent out at a certain frequency, combined with a detector that listens for 'returns' of this same frequency, caused by this energy bouncing off a potential target. Radars in *Harpoon* are divided into two



classes, air and surface search.

Radars are limited in the distance they can be effective by the Radar Horizon.

The Radar Line of Sight table shows you the maximum distance you can pick up targets given the altitude of

RADAR LINE OF SIGHT (nm)										
	Uhl	High	Med	Low	Ulow	Ship	Med	Sm	Ship	Peris
Uhl	706	582	446	389	362	364	362	360	351	
High	582	460	325	242	219	264	242	340	251	
Med	446	325	191	134	108	109	107	105	96	
Low	389	242	134	78	51	53	50	48	40	
Ulow	362	219	108	51	25	26	24	22	13	
Ship	364	264	109	53	26	28	26	24	15	
Med	362	242	107	50	24	26	24	22	13	
Sm	360	340	105	48	22	24	22	19	10	
Peris	351	251	96	40	13	15	13	10	1.23	
	Aircraft					Ships/subs				

your radar transmitter and altitude of the target, assuming the radar would be strong enough to reach that far.

Air Search Radar

Air Search (AS) radar is used to locate and track airborne targets, such as missiles, planes and helicopters. Air Search radar is generally used to detect targets at Medium altitude or higher. These radars can be effective against targets at Low or Very Low altitude, but only at 5% or less of their maximum range. Three special purpose Air Search radars are the Height Finding (HF), Range Only (RO) and the Look Down/Shoot Down (LD/SD) radars. A Height-Finding (HF) radar not only detects airborne contacts, but also determines which altitude they are at. It can also detect surface contacts. A Range Only (RO) radar can only detect targets directly in front of it, and is mainly used in aircraft as a gunsight radar. A Look Down/Shoot Down (LD/SD) radar is an air search radar (mounted on an aircraft) that has much greater capabilities than a normal airborne radar.

Surface Search Radar

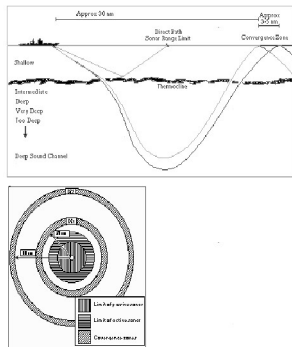
Surface Search (SS) radar is used to detect surface Units and airborne targets at Low and Very Low altitudes. A special surface search radar is the Periscope Radar (PR) which is mounted on the periscope of a submarine and is used to help target-ing submarine weapons against surface targets.

Sonar

General Sonar Information

Sonar is the use of sound energy traveling through the water to detect and track surface ships or submarines. Sonar can be passive or active. Sound travels under-water in strange ways as shown in this illustration

As you can see, your direct sonar reflects off of the Thermocline (also called the Thermal Layer) and this limits it's range. Sound that makes it through the Thermocline 'bends' back to the surface due to the immense pressure of the ocean at depths over 1,000 fathoms, then may reflect off the surface and repeat the process.



This area where you can detect distant targets is called a convergence zone (or CZ). Modern sonar can sometimes detect targets out to 3 CZ's. This illustration shows the areas where you might pick up a target, and the corresponding 'blind' zones. If the water is not Very Deep, you will not get convergence zone detections.

Passive Sonar

Passive Sonar work by listening to sounds traveling in the water, classifying them and refining the contact. The primary advantage of a passive sonar is that it does not give away your position. The main disadvantage is that it often takes a longer time to classify a target, and get an exact location on it.

Active Sonar

Active sonar work similarly to radar in that they send out sound energy and then listen for reflected returns of this sound off possible targets. The main advantage of an active sonar is that it gives exact distance and bearing information on any contact it detects. The disadvantage is that enemy Units can detect the sound energy used in active mode at 2-3 times the range an active sonar can detect a target. A common tactic is to use passive sonar to generate an initial contact, then turn on active sonar just long enough to generate an exact contact for your fire control solution.

Hull Sonar

Hull Sonar (H) is built into the hull of a ship or submarine. They usually have both active and passive sonar capability. Hull sonar have two restrictions, the first being the 'blind spot' in the Baffles, caused by propulsion noise and turbulence. The second restriction is that when you travel at or above 20 knots, the flow noise caused by water flowing over the sonar eliminates the ability to detect anything.

Towed Sonar

Towed Sonar (T) is trailed behind some ships and submarines on a long cable. Most towed sonar are always below the thermal layer, but Units with Variable Depth Sonar (VDS) can change the towed sonar depth to either above or below the layer. Towed sonar greatly increases the effectiveness of a Unit, as you have a much better chance of detecting targets below the layer. In computer *Harpoon* all towed sonar deployment and retrieval is automatic. Each time you change course a towed sonar will stop working or work at greatly reduced effectiveness until it can straighten back out.

Dipping Sonar

Dipping Sonar (D) is used on helicopters. They are suspended on a cable and lowered into the water while the helicopter hovers. In computer *Harpoon* use of dipping sonar is mainly automatic, as any helicopter with this capability will use it if assigned to a patrol zone within the formation editor. To manually dip your sonar, hover your helicopter at very low altitude and if your unit has a dipping sonar it will automatically lower it.

Mine Hunting Sonar

Mine Hunting Sonar (M) are used only to hunt mines, although *Harpoon* does not employ mines.

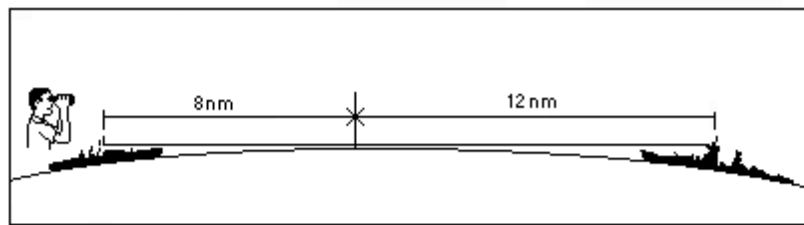
Sonobuoys

Sonobuoys (S) are small sonar sensors combined with a short range radio transmit-

ter. Sonobuoys are dropped into the water in 'fields' of 6-12 sonobuoys by aircraft then monitored. Fields of sonobuoys only last a few hours then turn themselves off and sink to the bottom of the ocean. In computer *Harpoon*, this process is automatic if an aircraft with sonobuoys is in a patrol zone within the formation editor. To manually lay a sonobuoy field, hover/loiter your aircraft, and it will lay a sonobuoy field and begin to monitor it.

Visual Detection

Prior to modern times, human vision was the only way to detect distant threats. Human vision is limited to the Visual Line of sight and modified by time of day and weather conditions. In today's environment there are several visual methods of



detection available.

The Visual Line of Sight table shows you the maximum distance you can pick up targets given your ALTITUDE and the target's altitude, assuming the perfect visibility.

A technological addition to vision is the detection of infrared (IR) radiation (i.e. heat). On some aircraft, Forward-Looking Infrared (FLIR) and Infrared Search and Track (IRST) sensors are available. These sensors can spot surface ships and submarines on the surface or snorkling. Ships may also have passive IR sensors to detect other ships or aircraft.

U I S U A L A L T I T U D E	VISUAL LINE OF SIGHT (nm)								
	Ht	Uhi	High	Med	Low	Ulow	Lrg Ship	Med Ship	Sm Ship Peris
Uhi	521	434	332	290	270	269	267	266	261
High	434	345	243	181	164	180	178	177	173
Med	332	243	143	101	81	80	77	76	72
Low	290	181	101	59	38	37	35	34	30
Ulow	270	164	81	38	19	17	15	14	10
Lrg	269	180	80	37	17	19	17	15	11
Med	267	178	77	35	15	17	14	12	6
Sm	266	177	76	34	14	15	12	10	5
Peris	261	173	72	30	10	11	6	5	1
		Aircraft					Ships/Subs		

Other Detection Methods

The other detection methods supported in computer *Harpoon* are described below:

Electromagnetic Intercept / Electronic Support Measures (ESM). All combat ships of frigate size or better have ESM capability allowing them to rapidly detect any (active radar) radiating target within 110% of your current radar horizon (against the target). This is considered a passive radar detection, comparable to a passive sonar detection.

Magnetic Anomaly Detectors (MAD). Some ASW aircraft carry a sensor which can detect large metal objects which are close beneath them under the surface of the water. The aircraft must be at low or very low altitude for this sensor to be effective. Some submarines have titanium hulls which greatly reduce the effectiveness of this sensor.

SOSUS/Caesar. In the GIUK Battleset, the NATO SOSUS system and USSR Caesar systems may generate detections. These systems are large fields of seabed sensors laid in the North Sea to track enemy vessels through advanced passive sonar techniques. Occasionally, you may be notified of a contact using this detection method, giving you an advanced warning of a threat.

Aircraft

Aircraft are the primary scouts and a major portion of the offensive power available to today's naval forces. Effective use of aircraft is essential if you want to succeed in *Harpoon*.

Aircraft in *Harpoon* carry a selection of weapons/sensors/fuel pods for a specific mission in a grouping called a Loadout.

The types of Loadouts are:

Search

Aircraft assigned only to look for the enemy do not carry anything but fuel, sensors and crew. Some of these sensors may detect other aircraft, surface shipping, or even submarines.

Ferry

Normally has minimal or no weapons set up for a one way trip to another base. Typically carrying external tanks full of fuel.

Tanker

This configuration consists of many external or internal tanks and a special attachment so other planes can draw fuel. In order for a tanker to refuel a group it must be part of that group. It can originate with that group or join that group while in flight. When a plane reaches approximately 25% of its fuel capacity it will be refueled by the tanker, or the plane group can be forced to refuel by pressing the CTRL + R/☞ + R. A tanker can only refuel once.

Patrol

Used for Electronic Warfare and Early Warning aircraft.

Nuclear or Strike

This loadout contains Nuclear weapons ready to do massive damage to the enemy. The type of weapon depends on aircraft type and country.

Standoff

Cruise missiles which fly the distance from release to target without requiring

guidance from the aircraft, thus reducing the risk to the launching aircraft.

LR Standoff

Same as above, but some cruise missiles (and/or AAM's) will be replaced with fuel tanks to extend your range.

Anti-Radar

A special type of weapon, normally a missile, that looks for any enemy radar that is turned on. If it hits, the radar is destroyed. If used against ships, a great deal of additional damage may be caused. If the radar is turned off, most of these weapons will "go stupid" and self destruct while others home in on the last broadcasting location.

LR Anti-Radar

Same as above, but some anti-radar missiles (and/or AAM's) will be replaced with fuel tanks.

Guided

These are "Smart Bombs" or shorter range missiles which are guided by the launching aircraft to the target. Unlike cruise missiles they have very short ranges, but can do more damage. They also cost a lot less, so a country is likely to have more of these than cruise missiles.

LR Guided

Same as above, but some smart bombs (and/or AAM's) will be replaced with fuel tanks.

Unguided

This loadout represents rockets, cluster bombs, fuel-air explosives and other "area" weapons. Typically, many unguided weapons are in a loadout due to their small size. These function like a grenade, spewing fragments over a wide area.

LR Unguided

Same as above, but some of the "area" weapons (and/or AAM's) will be replaced with fuel tanks.

IronBomb

This is what most countries used in WWII. It is a simple weapon that is "thrown" at or dropped on the target based on the movement of the aircraft, the wind and temperature. These weapons are very potent (they are all explosives and metal case) but are very difficult to target effectively.

LR IronBomb

Same as above, but some bombs (and/or AAM's) will be replaced with fuel tanks.

Air to Air

Fighters and some better attack aircraft will load with infrared and radar guided missiles to destroy other aircraft and helicopters. Some extra fuel is carried for some

aircraft types.

LR Air to Air

If the target is far away or the fighters must stay aloft for a long time, some missiles will be replaced with additional fuel tanks.

AntiSub

Submerged submarines are only killed by torpedoes and depth charges. Some aircraft may be able to do this with nuclear depth charges (see Nuclear loadout).

LR AntiSub

Same as above, but some ASW weapons will be replaced with extra fuel tanks. In the case of helicopters that cannot carry extra fuel tanks, weapons will be dropped to reduce weight and increase airborne endurance.

AntiRunway

To destroy an enemy runway, iron bombs, guided weapons, or special “runway busting” weapons can be used. (The type used depends on the aircraft and the country which owns it.)

LR AntiRunway

Same as above, but some anti-runway ordinance (and/or AAM's) will be replaced with fuel tanks.

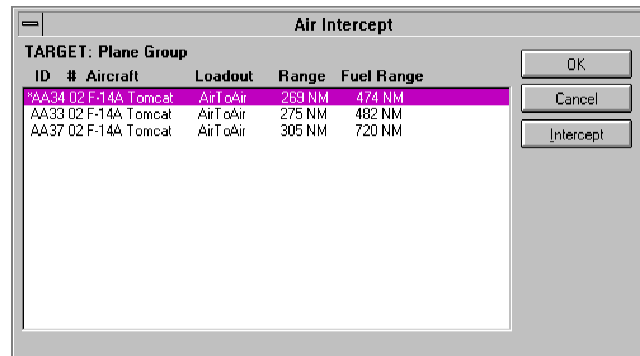
Most aircraft only have a limited number of possible and/or available Loadouts. All aircraft have a Ferry Loadout available while other Loadouts are subject to both the missions which the aircraft are designed for and availability.

If you see some “extra” weapons in a loadout do not be surprised. For example, the UK Nimrod can carry torpedoes. *Harpoon* ASM's and Sidewinder AAM's mixed on its various loadouts.

Airborne Threat Detection

Sometimes in computer *Harpoon* a new threat which can be countered by patrolling aircraft will be detected. Instead of having to launch new aircraft or selecting a group with patrolling aircraft and splitting them off to attack the threat, we provide the Intercept Screen.

Each available unit is shown, including their current distance to the target that needs to be intercepted. Move to the Unit(s) you want to use to intercept the threat and click your mouse on the **Inter-**cept button. Selected intercept aircraft will have a “*” show up to the left of the # of aircraft. When you have selected the units to use to intercept, select the [OK] button.



Bases

There are 3 different kinds of Bases available in *Harpoon* and each is described below:

Airfield An airfield.

Port A port facility for submarines and surface craft.

Port & Airfield A combination of both a port and an airfield.

Bases typically have various radar sensors and defense weapons mounts that automatically defend against attacking enemy targets. (i.e. you don't have to make your bases attack using the attack order)

Damage & Repairs

Within *Harpoon* there is a simple Damage Point system used to represent the possible damage to Units. Each primary Unit Class in *Harpoon* has a certain number of Damage Points it can absorb before being destroyed. Each weapon can deliver a certain number of Damage Points. In addition to Damage Points, all

Bases, Ship and Submarine Classes have the possibility of receiving Critical Hits.

The categories of Critical Hits and which types of platforms they can apply to are shown below:

	Base	Ship	Carrier	Submarine
Weapon Mount(s)	X	X	X	X
Sensor(s)	X	X	X	X
Flooding		X	X	X
Fire	X	X	X	X
Engineering		X	X	X
Bridge/CIC		X	X	X
Rudder		X	X	X
Flight Deck/Runways	X		X	
Hanger	X		X	
Cargo		X		
Pressure Hull				X
Keel		X	X	X
Sonar		X	X	X
Aircraft	X	X	X	

Most of the Critical Hits have a chance of being repaired within 48 hours. Fire and Flooding Critical Hits are the most distressing as either may spread and cause additional damage and critical hits, destroying the unit.

Your unit reports will show both your current Damage Points and current Critical Hits. Note that in *Harpoon* all repairs are automatic and require no input from the Side Commander. If a surface or submarine unit is severely damaged, you may want to split it off from your group into its own group.

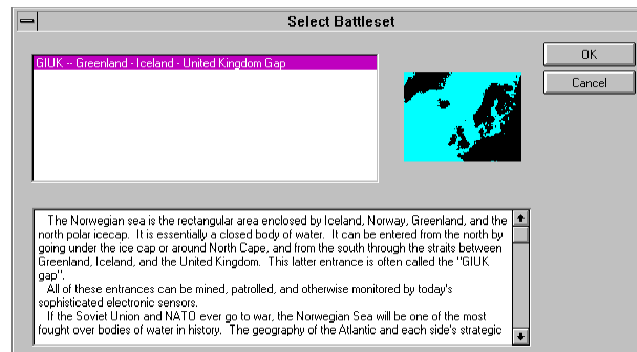
Aircraft in *Harpoon* can only be killed so they have no Damage Points or Critical

Hit areas.

Set-Up Screens

THE BATTLESET SELECTION SCREEN

A “Battleset” is a series of scenarios which simulates various naval engagements in a particular part of the world. The Battleset Selection Screen allows you to select any Battleset you have loaded into your computer.



Once you have brought up *Harpoon*, you will be presented with a Battleset Selection Screen. With the mouse cursor, click once on a particular Battleset and a description of that Battleset will appear in the accompanying box. Double click on the desired Battleset to load the selected Battleset. If you decide not to play, press the “Q” key to **QUIT**.

SELECT GAME OPTIONS SCREEN

After the Battleset has been selected, the Options screen will appear.

Use the mouse, point to the different options and ‘click’ the left button to toggle that option. Press ENTER to activate [OK] when you have decided which options you will use. The following is an explanation of each option:



PLAY WHICH SIDE?—Your options are “NATO” and “USSR”. NATO is the default setting, and will allow you to control all NATO forces which are a part of the scenario you will select on the next screen. If you wish, you can also choose to

be the Soviet admiral in charge of Soviet task forces. For other BattleSets it may be “RED” or “BLUE.”

POSSIBLE NUCLEAR RELEASE?—Your options are “YES” and “NO”. The default setting is NO. If a scenario contains a nuclear release, this option will enable it. Some scenarios start with a “nuclear weapons free”, while others may not give you release until later in the scenario. If one side uses nuclear weapons, the other side is granted immediate nuclear release. Whichever option you choose has profound implications for your tactics. For one thing, you will have to spread out the units which form your groups¹ so that they will not be vulnerable to a single nuclear weapon. However, if you do so, then you are leaving them more open to attack by submarines.

SNORKELING SUBMARINES?—Your options are “YES” and “NO”. Diesel powered submarines must take in air to run their engines. If they need to go deep they will run on batteries. If you choose YES, then your radar and infra-red sensors may be able to detect the snorkels of diesel subs when they are snorkeling. If you select NO, then you will only be able to detect submarines with your sonar. (NOTE: If you do choose NO, the diesel subs will act like nuclear subs and never snorkel. If your active or passive sonar detects a sub, you can give the Display command from the Reports Window to learn if it is diesel or nuclear powered).

REALISTIC WEATHER?—Your options are “YES” and “NO”. Weather can be a powerful factor in a naval engagement, especially in the Norwegian Sea which is constantly whipped by gale-force winds. In high seas, your ships will not be able to travel at maximum speed. Also, the seas will prevent your surface search radar from detecting targets at the same range they normally would under calm conditions. Also, some weapons cannot be fired in sea states of 5 or greater (see description of the “Weather Report” command on the Reports Menu). We recommend that you play the NO option until you become familiar with the game and are able to operate under full simulation.

NORMAL MAINTENANCE FAILURES?—Your options are “YES” and “NO.” In the real world, nothing works perfectly all the time. A modern naval vessel or aircraft is packed with electronic gear and high-tech weapons. Periodic breakdown of systems happens often. If you choose the YES option, some of your units may experience electrical and/or mechanical failures during the course of the game just as they certainly would in real warfare. Use the YES option for maximum simulation and the NO option while you are becoming familiar with *Harpoon*.

START WITH FULL ORDINANCE?—Again, your options are “YES” and “NO”. Real warfare is an exercise in logistics. That is, supplies, fuel and ammunition must be transported from the supply bases to the combat units. When war breaks out, ships must begin with whatever they have on board. Often, they are not up to full strength. If you choose the NO option you are working under real-world conditions.

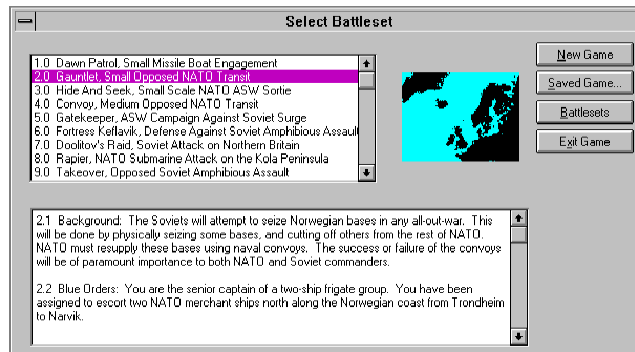
¹A unit is any single platform—ship, airplane, submarine or base. A group is a formation of units.

A NO setting in *Harpoon* means that you have a 50% chance that your missile and/or torpedo loadout of any particular unit is 80% - 99% of full capacity. Beginners should initially start with full ammunition load-outs by selecting the YES option.

AUTO FORMATION AIR COVER?—If this option is selected, the computer staff will automatically put up AAW, AEW and ASW patrols for your groups that have this capability. If you do not select this option, you are responsible for all patrolling air asset deployment.

SCENARIO SELECTION

Once the options have been selected, the next screen to appear will be the Scenario Selection screen associated with that Battleset. The Scenario Selection Screen for GIUK allows you to choose to engage in one of twelve simulated scenarios. These scenarios generally become more difficult as you progress from the first one listed to the last.



Click on the up/down arrow , located on the menu bar, to move to the various scenarios. Text describing that scenario will appear in the box at the bottom of the screen. This text is divided into three paragraphs:

Blue Orders (or Red Orders, if you have elected to play the part of the Soviet commander). These orders instruct you on what you are to do to successfully accomplish your mission.

Intelligence Brief. This paragraph gives you a description of what is known about the enemy's intentions.

Background. This paragraph gives you an overview of the strategic importance of the scenario and any other pertinent background information.

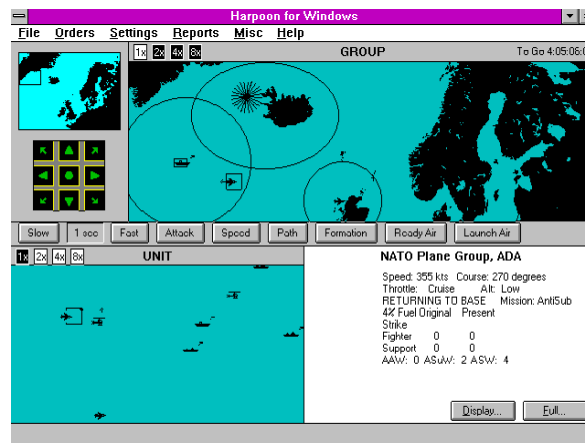
Press **ENTER** to activate the [NEW] command. This will select the highlighted scenario.

How Harpoon Works

Harpoon's interface consists of command & control bar, a main screen showing a map of the area where the battles will be fought, and various dialog boxes, pull down menus and report screens which will appear during the course of the contest.

THE MAIN SCREEN

The Main Screen associated with the scenario which you have selected will appear once you have activated the [NEW] command on the Scenario Selection screen. This is the arena in which *Harpoon* is played, and it is comprised of three primary areas: Command & Control Bar, maps and a Reports Window.



COMMAND & CONTROL BAR

The Command & Control bar contains frequently used orders, most of your commands should be initiated from here. Commands are only available when in the Group window: Attack (or intercept), Speed, Course, Formation, Ready Air, Launch Air, Sensors and the Time compression utility. When in the Unit window only the sensors command is available for friendly units. You will notice that not all commands are available.

PULL-DOWN MENUS

Across the top of the screen are six pull-down menus: PC, Game, Orders, Settings, Reports, and Misc.

Use the mouse cursor, press the left button, drag the cursor across the menu bar to highlight the menu you want. This will cause the menu to drop down from the menu bar. Keep the button depressed, drag the cursor down the menu, and highlight your desired selection. Release the button to activate the selected command. The menu bar may also be selected by pressing the ESC key and navigate using the arrow keys.

To the right of a pull down menu item, you will see keyboard characters. This indicates that the menu item can be selected by pressing the indicated key(s). (Refer to the Detailed Command Summary section for a detailed description of all commands and functions.)

MAPS

There are three maps on the Main Screen: the Strategic Map, the Group Map, and the Unit Map.

The Strategic Map

The Strategic map is the small map located in the upper-left of the Main Screen. It represents the entire geographical area for the current Battleset. A rectangular box, called the Group Window, appears on this map. The area within the group window appears on the large map to the right of the Strategic Map (i.e., the Group Map, as discussed later).

Directly beneath the Strategic Map is a representation of a numeric keypad. Use the corresponding arrows on your keyboard to position the Group Window box which appears on the Strategic Window. This will allow you to view details of the enclosed area on the Group Map.

Using the mouse, you can simply point to an area on the strategic map, “click” the left mouse button, and the green square will center itself around the area to which you have pointed.

Also appearing on the Strategic Map (but perhaps almost too small to immediately notice) is the Unit Window. The Unit Window appears as a tiny box, or maybe even as a tiny dot. depending upon the resolution of your screen. The area surrounded by the Unit Window appears on the Unit Map (see below for information on the Unit Window).

The Group Map

The Group Map is the large map located on the upper-right of the screen. It is primarily comprised of two parts: a map showing the location of some, or all, of your groups, and the Group Map Control Bar.

1. This represents the area enclosed by the Group Window on the Strategic Window. On this map you will see symbols indicating the various groups which you will control during the scenario. When you first start a scenario, you will see a box surrounding one of your groups. The units in this group can be viewed on the Unit Map (we will talk about the Unit Map a little

later).

2. The Group Map Control Bar. This is the green bar across the top of the Group Map. It is one color when the Group Map is “active” and another when the Unit Map is “active.” On the left portion of the green bar are four “Zoom” boxes, marked X, 1X, 2X 4X, and 8X, with the default setting being 1X. Press the “Z” key to zoom in on the Group Map, and press the “X” key to zoom out.

NOTE: *Using the mouse, point to the desired zoom setting and press the left mouse button.*

To the right on the Control Bar is a date and time representation. When you begin, the time shown on this display is the Greenwich Mean Time (GMT) which corresponds to actual date and time as determined by your computer clock. (However, this “real time” can be compressed, as will be discussed later).

The Unit Map

The Unit Map is in the lower left of the Main Screen. It is also comprised of two parts.

Note:

To make anything happen on the Unit Map, you must first select that map, by moving the cursor to that window and click the left mouse button or by pressing the TAB key. When the Unit map is selected, the gray control bar will change color, indicating that the Unit Map is now the “active” one. To make the Group Map active, move the cursor to the Group Map and click the left mouse button or press the TAB key again.

1. The Unit Map. This is similar to the Group Map, but is used for close-in viewing of a specific tactical situation. Symbols appearing on this map indicate individual units, not groups.
2. The Unit Map Control Bar. This is the bar across the top of the Unit Map. Like the Group Control Bar, there are zoom setting boxes labeled 1X, 2X, 4X, and 8X. These are used to zoom in on individual units independently of the zoom setting on the Group Map Control Bar.

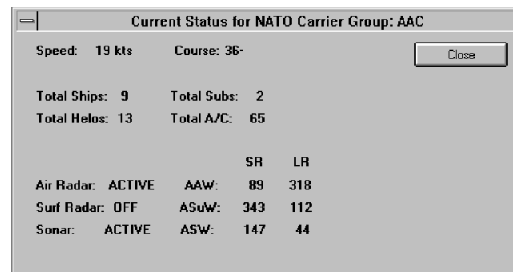
Above the zoom boxes is the Time Compression Indicator Box whose default setting is labeled “1 sec” . This indicates that one second of simulation time is equivalent to one second of real time. When *Harpoon* is set to a time compression of other than real time, the number appearing in this box indicates how much simulation time passes for each second of real time. For instance, if time compression is set to “30 sec”, then one second of real time equals 30 seconds of simulation time (i.e., *Harpoon* is set to operate 30 times faster than real time). To increase the time

compression, position the mouse cursor over FAST and click the left mouse button. To decrease the time compression, position the cursor over SLOW and press the left mouse button. (The “+” and “-” keys have the same effect.) NOTE: *Game updates do not always occur each second, especially in the more complex scenarios.*

THE REPORT WINDOW

The Report Window is located in the lower right of the Main Screen. When an item is selected from a menu, options or information related to that item will appear in the window. Also, the Report Window serves as an “animation” window. That is, when an engagement between units occurs, an animation of the unit launching its point defense weapons and missile strikes will appear. Also, you will see animations of weapons arriving on their targets.

When you initially begin *Harpoon*, the Report Window will contain information on a selected group. To view information on other groups, you must first select them.



To select other groups, press the spacebar to cycle the Designation Square to the next group south, and the backspace key to cycle it to the next group north. If you are using a mouse, just point to the group you want to designate and press the left button. Along the bottom of the Reports Window are boxes for two informational

choices, **F**ull Report and **D**isplay.

The **F**ull Report selection allows you to get a report on the currently selected group or unit (depending on which window is active). Group reports will show up on the bottom half of the screen and are extended versions of the mini-reports normally shown in the lower right quarter of the screen. Unit reports resemble the **P**latform Display for a class of units; but it also displays the unit’s current status including damage, armament loads, and sensor status.

The **D**isplays selection is the same option as the Reports menu item called Platform Display. The only difference is that if you are in the group window you will get the normal platform display selection screen, allowing you to choose between ships/subs/aircraft and all classes in the scenario or Battleset. In the Unit Window, the platform display for the current unit's class will be brought up directly.

Detailed Command Summary

This section contains detailed information on the commands used to operate *Harpoon*. These commands can be accessed by the menu bar across the top of the Main Screen. (However, we haven't given any information on the PC MENU selection since it just allows you to view credits for the design and publication of *Harpoon*). It is not necessary to memorize each and every item since many of the selections are self-explanatory. However, you can refer to this summary if you have any questions which may arise in the course of a contest. Table 3 is a complete list of the keyboard commands which you might want to use even if you are using a mouse.

FILE MENU

This menu contains commands related to the interface between *Harpoon* and the player. It has little to do with the actual playing of the simulation itself. Commands contained in this menu are as follows:

Game	
Pause	ctl+S
New Game	alt+N
Load Game	alt+L
Save Game	alt+S
Load User Scenario	ctl+L
Game Status	alt+Q
Quit	ctl+Q

PAUSE (CTL+P)

Use when you wish to pause the game in the current set-up. Press ENTER to [Resume] game.

NEW (CTL+N)

Selecting this item will exit you from the game currently being played. CAUTION: THE GAME BEING PLAYED WILL NOT BE SAVED UNLESS YOU FIRST SELECT THE "SAVE GAME" MENU CHOICE. A dialog will appear in the Reports Window. If you want a new game, select [YES] by pressing ENTER. If you want to remain with the current game press ESC to select <NO> If you select [YES], you will be returned to the Battle Set Selection Screen.

OPEN (CTL+O)

If you have saved a previous game to disk, this selection allows you to reload it and to continue play. A standard Windows load file box will appear.

SAVE (CTL+S)

This is the opposite of the above selection; use it if you wish to continue playing the current game at a later time. If the file name you assign to the current game is the same as an existing file name, you will be asked to confirm your decision to overwrite the existing file.

STATUS (CTL+H)

This brings up a screen showing a status report for both BLUE and RED forces. The boxes on each side of the screen shows the losses and damage sustained by each side. Brings up a screen showing a status report for both NATO and Soviet forces.

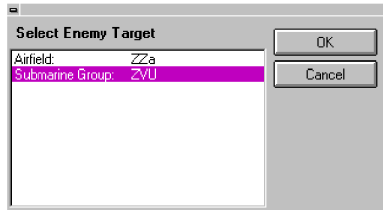
EXIT (CTL+Q)

Allows player to quit the game without saving it. If you will want to play the same game at a later time, first select "SAVE GAME," and then select "QUIT." When this selection is chosen, a dialog box will appear in the Reports Window. Press ENTER to exit the game. Press ESC to cancel the Quit command.

Orders		
Attack		F1
Set Group Speed		F2
Enter Group Course		F3
Formation Editor		F4
Ready Aircraft		F5
Launch Aircraft		F6
Join Group		F7
Split Group		F8
Sensors		F9
Enter Staff Note		F10

COMMAND & CONTROL BAR

These commands allow you to move, attack, launch aircraft, and adjust the composition and formation of your Task Forces. Most of *Harpoon* is played from these buttons, although you can execute these functions from the Orders Menu or from the keyboard.



ORDERS MENU

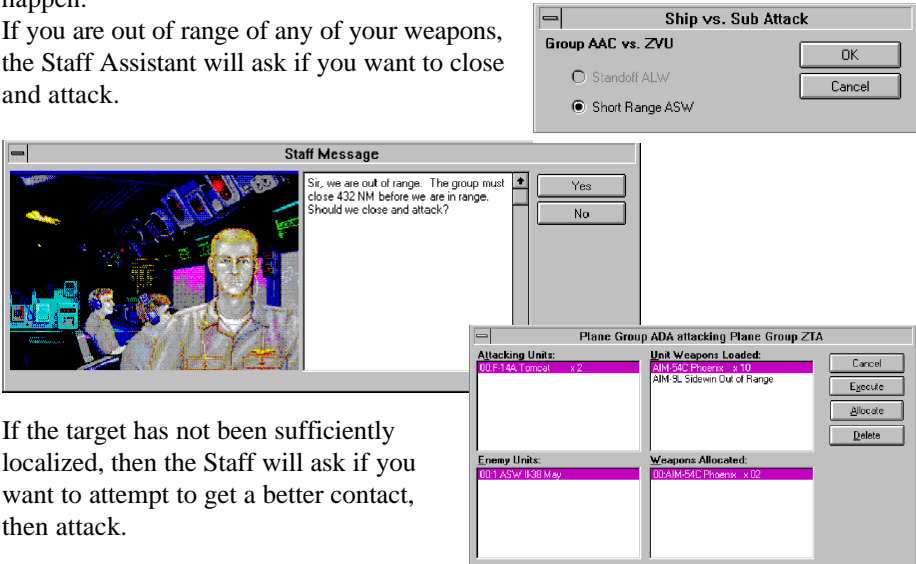
ATTACK (CTL+1)

This command allows you to attack with whatever forces and weapons you have. It takes the currently selected Group, evaluates the weapons within your Group, then shows you a list of possible target Group(s) that you can attack.

If the Target Group contains more than one type of target, you will get to choose which type of target within the Group to attack.

Once you select the target Group (and type) you want, one of three things will happen.

If you are out of range of any of your weapons, the Staff Assistant will ask if you want to close and attack.



If the target has not been sufficiently localized, then the Staff will ask if you want to attempt to get a better contact, then attack.

If you are in range of any of your weapons, you will be able to select the type of weapon to use dependent on what type of group you are attacking from and what your target group is.

Once the weapons type is selected, you will be presented with the Weapons Allocation Screen.

This screen, while potentially intimidating, is also extremely versatile. This screen allows you to select which weapons from each of your units is targeted to each of the enemy group units.

Once you are close enough to the target to be within the range of your weapons, the Weapons Allocation screen will appear. The screen has four boxes:

ATTACKING UNITS—This scroll box shows a list of the units in your attacking group.

UNIT WEAPONS REMAINING—This scroll box shows the weapons each unit has at its disposal appropriate to attack the selected target. The weapons shown belong only to the unit selected within the ATTACKING UNITS scroll box.

ENEMY UNITS—This scroll box lists each of the enemy units in the group you are attacking.

WEAPONS ALLOCATED—When you have allocated weapons to be used against any enemy unit (see instructions below), this box will show you the type of weapons, the number of that type, and which of your units they are being fired from, for the selected enemy unit within the **ENEMY UNITS** scroll box.

The Staff Assistant will automatically allocate weapons against most targets.

Instructions for allocating weapons against enemy units:

1. When this screen first appears, there will be a Selection Border around the **ATTACKING UNITS** scroll box. If you have more than one attacking unit, and if the Selection Border is on this box, with the mouse, select the unit whose weapons you wish to attack with.
2. Next, press the left or right arrow (or TAB) key to place the Selection Border around the **ENEMY UNITS** box. With the mouse, select the unit you want to attack. If your unit has weapons which can attack this enemy unit, it will appear in the **UNIT WEAPONS REMAINING** scroll box. If this unit's weapons are already allocated or out of range, it will show that information in the **WEAPONS REMAINING** scroll box.
3. Find a unit that shows weapons within your **WEAPONS REMAINING** scroll box, then give the **A**llocate command. Notice that one weapon appears in the **WEAPONS ALLOCATED** scroll box opposite the enemy unit you have chosen. Also notice that one less weapon appears in the **UNIT WEAPONS REMAINING** scroll box opposite the attacking unit.
4. Continue to select **A**llocate until you have allocated as many weapons as you want against that enemy unit. If you feel too many weapons are allocated, use the **D**eAllocate command.
5. Repeat steps 1-4 until you have allocated all the weapons you want to use against the various enemy units.
6. Give the [Execute] command when you have finished allocating weapons. Use the <Cancel> command if you decide not to attack the enemy.

SET ALTITUDE & SPEED (CTL+2)

For Ship & Carrier Groups

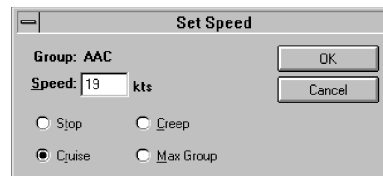
For ship and carrier type groups you are only allowed to set the speed they will travel. There are 4 quick settings:

Stop Used to stop your group dead in the water.

Creep Normally 5 knots or less, just enough speed to maintain steerage. This speed also gives maximum sonar performance.

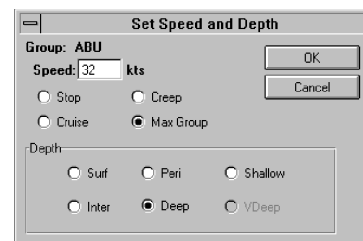
Cruise This is 60% of the slowest unit's maximum speed within the group, or 19 knots, whichever is less. Speeds of 20 knots or more eliminate hull sonar performance.

Max Group The maximum speed of the slowest unit within the group. With surface units you can also manually enter a desired speed between zero and the Max Group speed. If you enter a speed greater than the Max Group speed, it will be reduced to Max Group when you exit the dialog via the [OK] button.



For Submarine Groups

Submarine group speeds are set in the same manner as surface groups and in addition you may set the depth you wish the group to operate at. The depths available are:



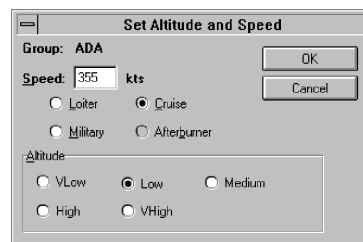
Surface Puts your submarine group on the surface.

Periscope Right below the surface where you can see out your periscope and sometimes be spotted by low flying aircraft.

Shallow Above the thermal layer, but deeper than Periscope depth.

Intermediate Below the thermal layer, but shallower than the maximum safe depth for most submarines. Submarines can go up to 24 knots without cavitating at this depth.

Deep The maximum safe depth for most submarines, used to evade detection. Submarines can go up to 29 knots without cavitating at this depth.



Very Deep Can only be achieved by a few submarine classes, and eliminates all cavitation noise.

For Aircraft Groups

Like Submarines, Aircraft groups can change both their speed and altitude. Unlike Submarines and Surface units, you can only use throttle settings, not enter a specific speed. The *Harpoon* system uses an endurance measurement which equates to how long an aircraft can stay aloft without crashing and still make base to the originating point, this measurement is expressed as a percentage of fuel. The available endurance is shown graphically using the Range Circles menu item under the Settings menu or as a percentage in the Report Window.

The throttle settings available are:

Loiter/Hover	A Helicopter hovers in a single location. While a fixed wing aircraft will fly in a tight circle at minimum speed. This increases your airborne endurance tremendously for planes; helicopters use the same endurance as cruise throttle setting while hovering. Aircraft with sonobuoys will drop them at this throttle setting and helicopters with Dipping Sonar will lower this sensor if also at Very Low altitude.
Cruise	The most efficient speed to cover distance.
Full Military	This is the full rated speed of the engine without using an after burner, and top speed for those without afterburners. Endurance is reduced to a rate of 2-3 times more than the rate at Cruise throttle setting.
Afterburner	Some high performance jet fighters have afterburners allowing them to dump fuel into the exhaust nozzle to increase speed. It reduces your airborne endurance at over 12 times the rate of Cruise speed, and should only be used in critical evasion/intercept situations.

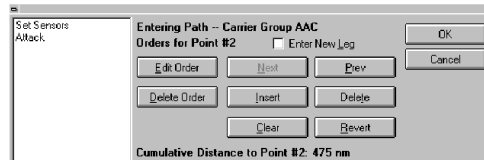
Altitude settings available to aircraft are:

Vlow	(Very Low) This is “wave height” flying below 30 meters. If in a fixed wing aircraft, there is a significant chance that you will hit
------	---

the water due to pilot error and lose aircraft, especially if you order a course change at this altitude.

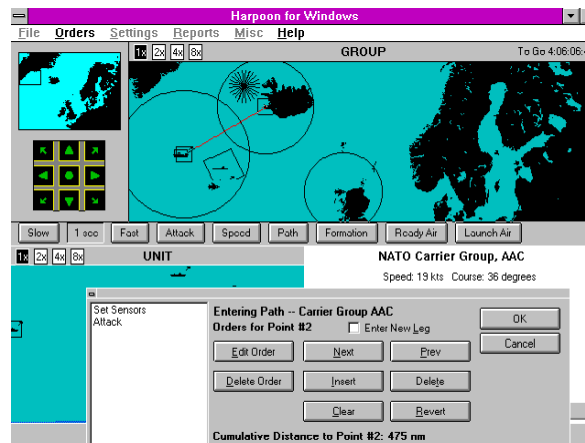
Low Low altitude is between 30 meters and 600 meters.

Medium Medium altitude is between 600 meters and 3,500 meters.



High High altitude is between 3,500 meters and 20,000 meters.

Very High Very High altitude is 20,000 meters on up. Only some jet aircraft have the capability to reach this altitude.



ENTER GROUP COURSE (CTL+3)

This selection brings up a window containing several different options, allowing you to set up to 48 course legs for the selected group, and at the same time, to give orders for that unit when it reaches each designated point. Commands are activated by first selecting the desired command and then entering it, either by mouse or by keyboard. Commands contained in the Enter Group Course menu choice are as follows:

L Enter New Leg—Select the “L” key to select this command (it is selected when the box is “X”ed). Using the mouse, move the pointer to the Group map to the point where you wish your group to travel. Press the left mouse button to enter your desired leg point. Multiple destinations can be entered for your selected group in the same manner. To leave the Enter New Leg command, simply reselect it. To cancel the leg when in the cross hair mode, press the ESC key.

N Next and **P** Previous—If you have entered a course with multiple legs, selecting either Next or Previous will cause the small circle on the course leg to move to either the next or to the previous leg. Use this if you want to either insert or delete a course leg, or if you want to add, edit, or delete an order at the point where the small circle is located(see following paragraphs on how this is accomplished). To use these commands, you must first de-select the Enter New Leg command.

I Insert and **T** Delete—Use these to either insert or to delete a course leg point. Then point to the area on the screen where you want your additional leg point to appear and press the left button to insert the leg.

If deleting, use the Previous or Next commands to position the circle to the leg point you want to delete. When the confirmation box appears, press the ENTER key if you want to confirm your choice. To use these commands, you must first de-select the Enter New Leg command.

C Clear Current Path—This command will completely clear the current path of

your group, as well as any orders to be executed on these legs.

Add Order—If you wish to give your group an order at the completion of a specific leg. Pull down the Orders Menu as you would within the game to add an order on any leg point.

E Edit Order - This command is available if there is an order selected within the scroll box that is editable. Some orders can only be deleted, then re-entered.

D Delete Order—If an order is selected within the order scroll box, you can delete it with this command.

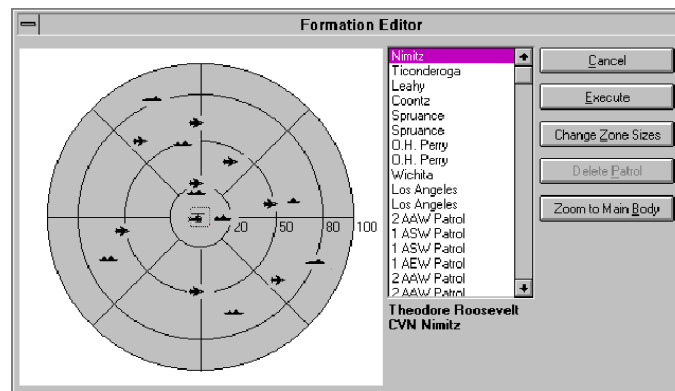
End of Path Entry—Exits from the Enter Group Course Menu Selection and accepts the currently entered path and path orders.

FORMATION EDITOR (CTL+4)

The Formation Editor allows you to review the disposition of the individual units within a group, and change this disposition if desired.

To start, we need to review the basic concepts behind a *Harpoon* formation.

Harpoon uses a simplified model of a surface formation, dividing your formation into 4 rings and 8 sectors. The four rings and their purpose are:



Main Body

The innermost circle of your formation, normally reserved to high value units and units with limited defenses (i.e. Aircraft Carriers, Oilers, Freighters, etc...). Units within the Main Body hold their position and will have the exact course and speed of the entire Group at all times.

AAW (Anti-Air Warfare) Ring

The second innermost ring of your formation. It should be used for platforms that have the ability to engage air targets such as missiles and aircraft (i.e. Aegis Missile Cruisers, Slaves, etc...). You should place them in sector(s) that correspond to the anticipated direction of an airborne threat.

ASW (Anti-Submarine Warfare) Ring

The next to outermost ring of your formation. Units placed in this ring should have ASW capabilities, so they can detect and kill any submerged threats before they penetrate into your Main Body or AAW Ring. Typical units used in this ring would include ASW Helicopters and Destroyers and Frigates with significant ASW weapons/sensors. Units within this ring will patrol within their sector(s), sprinting from place to place, then slowing down or hovering to check for sonar contacts.

Picket Ring

The outermost ring of your formation. Used to place scouting assets such that can give early warning of incoming threats. Units used for picket duty include AEW (Airborne Early Warning) aircraft and low value ships with good sensors. All units in this ring will patrol within their sector(s), speeding up and slowing down to cover it while moving with the formation.


Each of the areas and buttons in the Formation Editor screen is described below:

Unit Selection SCROLL Box

The box to the right of the screen lists all the ships and aircraft in your group. Use the up/down arrow keys to move the cursor square over the unit you want to position (mouse users can simply point to the desired unit and press the left button). When the cursor is placed over the name of a unit, a designation square will appear over that unit in the formation, and the sector being patrolled by that unit will be highlighted if it is not in the Main Body. A full description of the unit will appear below the Unit Selection Scroll Box.

Zoom to Main Body / Unzoom to Formation

These commands allow you to view the entire formation or just the Main Body for fine tuned repositioning.

 **Set Zone Radius**

Zone 1:	<input type="text" value="20"/>	nm	<input type="button" value="OK"/> <input type="button" value="Cancel"/>
Zone 2:	<input type="text" value="50"/>	nm	
Zone 3:	<input type="text" value="80"/>	nm	
Zone 4:	<input type="text" value="100"/>	nm	

Ready Aircraft

#	Type Aircraft	Loadout	Status	Time
16	F-14A Tomcat	AntiAir	Ready	5 0
24	A-10 Thunderbolt II	Guided	Ready	5 0
10	B-1B Lancer	Guided	Ready	5 0
4	B-1B Lancer	AntiRadar	Ready	5 0
6	ASW S-3 Viking	AntiSub	Ready	5 0
4	EW EA-6B Prowler	Patrol	Ready	5 0
3	AEW E-2C Hawkeye	Patrol	Ready	5 0

OK

Cancel

Ready...

Weapons:

AIM-54C Phoenix	6	AIR	110.0	65	KILL
AIM-9L Sidewinder	2	AIR	10.0	75	KILL
Drop Tank	2	N/A	N/A	N/A	N/A

F-14A Tomcat

Available aircraft: 16

OK

To ready: 8

Cancel

F-14A Tomcat

Ferry 1564

Tanker 1482

AntiAir 1350

LR AntiAir 1564

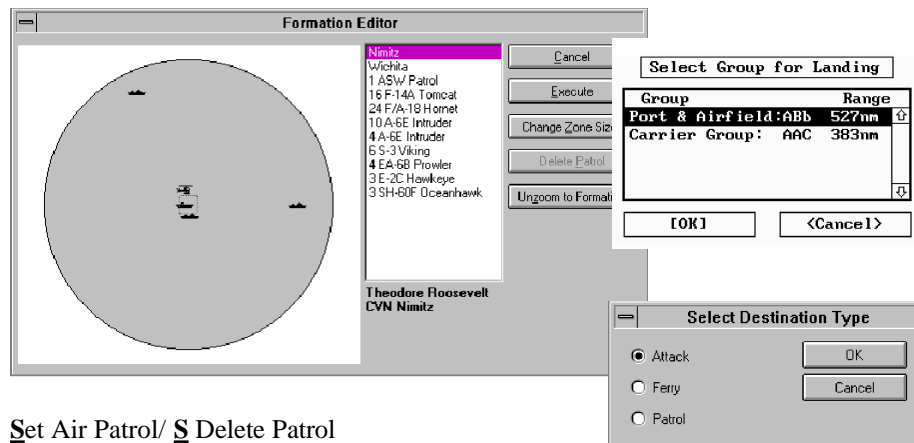
OK

Cancel

AIM-54C Phoenix 6 AIR 110.0 65 KILL

AIM-9L Sidewinder 2 AIR 10.0 75 KILL

Drop Tank 2 N/A N/A N/A



Set Air Patrol/ S Delete Patrol

If you select a helicopter or plane unit, you can set it up as an Air Patrol unit. If you select a unit that is already an Air Patrol unit, the Delete Patrol command will appear, allowing you to stop the patrol.

Change Zone Sizes

This command gives you a dialog that allows you to set the radii of the four patrol zones. Each zone must be at least 1 nautical mile larger than the previous zone. The picket zone must not be more than 255 nautical miles in radius for any formation.

To patrol multiple sectors with a mouse, hold down the shift key when clicking on the sectors you want the unit to patrol. If you have sufficient units, you should only designate one sector per unit to improve the quality of the patrol coverage they can provide. If you only have a limited number of patrol units, you may have them patrol multiple sectors within a ring, but since they have more area to cover, the likelihood of a threat slipping in will rise.

<Cancel>

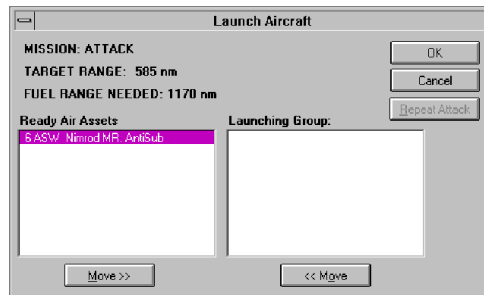
If you select this button any changes you have made will be ignored.

Execute

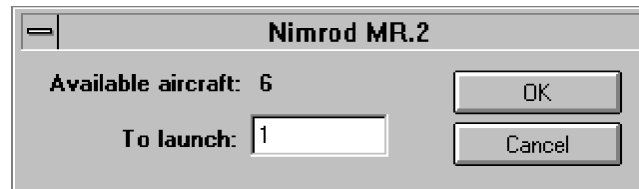
Selecting this button causes all your changes to the formation to be accepted. Units may take some time to reach their new formation locations, as they must keep moving with the formation while maneuvering to their new positions.

READY AIRCRAFT (CTL+5)

This option allows you to prepare aircraft for particular mission profiles. Normally, your aircraft are readied by the Staff Assistant when they land into their default mission profile. To prepare them for particular missions, you can choose from the list of available Loadouts.



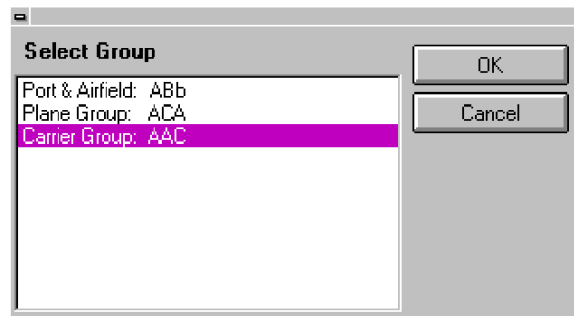
When you choose this order you will be



Ready command, you will be able to select how many types of aircraft you wish to ready.

Once you have selected the number of aircraft to ready, the Loadout Selection screen will appear. Using this screen you can search through the available Loadouts and find one that matches the mission you need.

To select a loadout for your aircraft, use the up and down arrow keys to select the loadout you desire, then select the [OK] button.



LAUNCH (LAND) AIRCRAFT (CTL+6)

Launching Aircraft

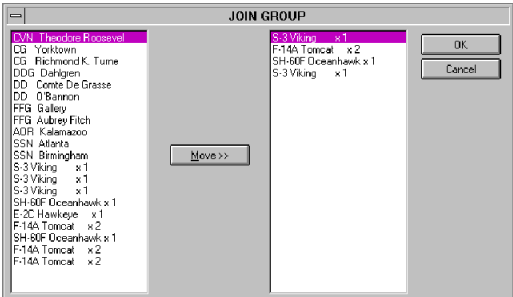
If your group is an AirGroup, you will be given a selection of locations to land which can accept your aircraft (based on runway length and endurance).

Launching Aircraft

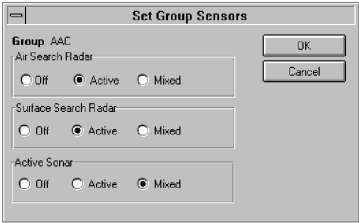
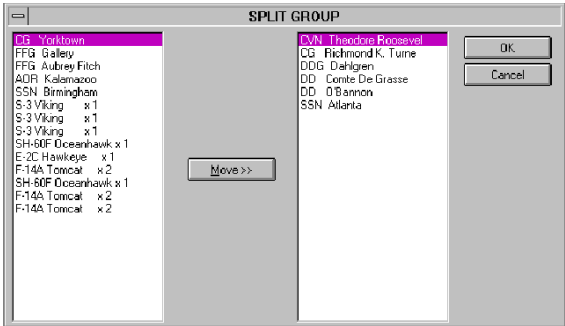
If your group has air assets you can launch, then you will be allowed to select the mission type for the launch.

If you select the Attack destination, you will be presented with the Select Enemy Target selection box.

If you select the Ferry destination, you will be presented with the possible landing sites to Ferrying your aircraft to.

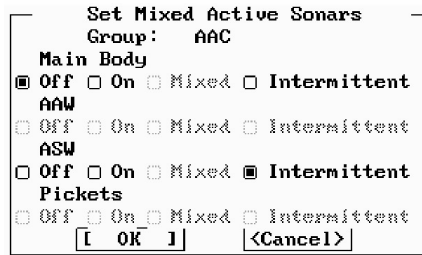


If you select the Patrol destination, one of two things will happen depending on whether or not you have the Repeatable Patrols Staff Option set. If it is set, you will then pick a place for the patrol to go at this point. If not, you will go directly to the Launch Aircraft screen.



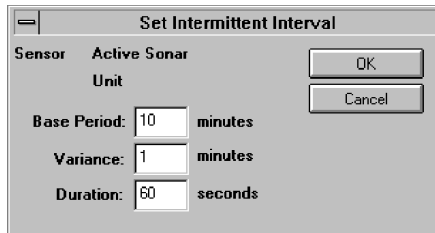
Once you select the type of mission for your launch and its particular information, you will see the Launch Aircraft Selection screen.

All currently readied aircraft are shown in the left-hand scrollbox. You can launch one or all as a single group by moving them to the right hand "Launching Group" scroll box.



Set Mixed Active Sonars
Group: AAC
Main Body
☒ Off ☐ On ☐ Mixed ☐ Intermittent
AAW
☐ Off ☐ On ☐ Mixed ☐ Intermittent
ASW
☐ Off ☐ On ☐ Mixed ☒ Intermittent
Pickets
☐ Off ☐ On ☐ Mixed ☐ Intermittent
[OK] [<Cancel>]

Once you have the group you wish to launch in the "Launching Group" scroll box, then you can either launch it by selecting the [OK] button or the Repet Attack button (if it is available). If you do select the Repet Attack button, you will have to indicate how often to repeat the Attack or Patrol. When this command is given, a box will appear in the Reports Window listing the groups which can be joined to the group inside the Designation Square.



Set Intermittent Interval
Sensor Active Sonar Unit
Base Period: 10 minutes
Variance: 1 minutes
Duration: 60 seconds
[OK]
[Cancel]

tion Square.

JOIN GROUP (CTL+7)

Allows for joining of two separate groups into a larger one. When this command is given, a box will appear in the Reports Window listing the groups which can be joined to the group inside the Designa-



Enter Staff Note
Enter staff note:
"If it gets too hot NUKE 'EM" J. Masterson
[OK]
[Cancel]

Use the mouse to select the group(s) you want to join to your designated group, then select [OK]. A new screen will then appear. All the units in one group will appear in one box, and all the units in the other groups will appear in the other.

One of the two boxes will have a light colored border around it. This is the box where units can be moved from. Use the up/down arrow keys to highlight the units you want to join with the units in the other box, then give the Move command. Select [OK] when you are done to execute the join.

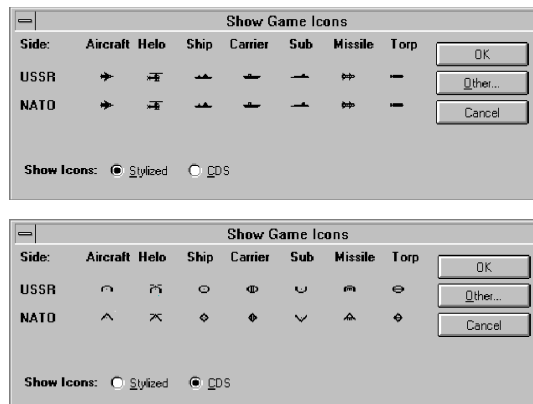
SPLIT GROUP (CTL+8)

This is the opposite of Join Group command. To split units, highlight the unit(s) to be split and press the M key (Move) to move desired units from one scroll box to the other. Once you have given the [OK] command, you will return to the Main Screen.



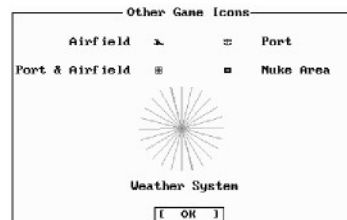
If you want to give commands to the group you have just split off, press the SPACEBAR or the BACKSPACE key to cycle the Designation Square to the new group. Even though the screen has not changed, you can tell that you are on the

new group by its call letters. After a Split, the new group created from the units in the right scroll box will have no movement or other orders.

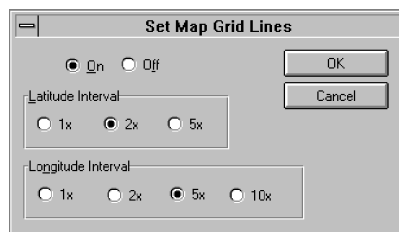


SENSORS (CTL+9)

This allows you to set sonar and radar of selected groups or units. When this command is given, the first box to appear in the Reports Window, Set Group Sensors, shows all the types of sensors you have in your designated group. Off means that no sensors are emitting. Active means that they are “on”. Mixed means that sensors of units in a



particular range ring have different settings, both active and off.



If mixed is chosen, a series of second boxes will appear entitled Set Mixed Air Search Radar, or Set Mixed Surface Search Radar, or Set Mixed Active Sonar. The settings choices which appear in these boxes are On, Off, Mixed, and Intermittent (see next paragraph

for a description of the intermittent setting) for the Main Body, the AAW ring, the ASW ring, and the Picket Ring. **ONLY THOSE RINGS HAVING SHIPS IN THEM WILL APPEAR IN DARK LETTERS, AND THE SHIPS IN A PARTICULAR RING MUST HAVE THAT PARTICULAR TYPE OF SENSOR ON BOARD FOR THE LETTERS TO BE DARK;** all others will be “dimmed”. Example: If you select mixed on the Set Group Sensors screen, and you only have units in the main body circle and the AAW circle, and if the main body has no air search radar, the Set Mixed Air Search Radar box will appear with only the AAW line in dark letters. After you have made your selection from this screen, the next box will be the Set Mixed Surface Search Radar screen, and only rings having more than one ship with surface search radar will appear in dark letters, and so on.

The intermittent setting means that sensors can be set to periodically activate, then automatically deactivate. When intermittent is chosen, another box will appear which allows you to set the base period, the variance, and the duration of emission.

The base period is the time between sensor activations. The variance allows you to make the base period irregular, and the duration is the amount of time that the sensor is active. Example: If you set the duration at 5 minutes, the variance at 2 minutes and the duration at 30 seconds, then the sensors will turn on every 5 minutes, plus or minus 2 minutes, for 30 seconds.

ENTER STAFF NOTE (CTL+O)

A box appears in which you can insert a message for the Staff Assistant to give you. Once the note is inserted, choose [OK] and a box appears asking you for the time of the event to occur. NOTE: THE TIME YOU ENTER WILL BE ELAPSED TIME (DELTA TIME), NOT ACTUAL CLOCK TIME. THAT IS, THE TIME WILL BE MEASURED FROM THE TIME THAT THE STAFF NOTE IS INSERTED.

SETTINGS MENU

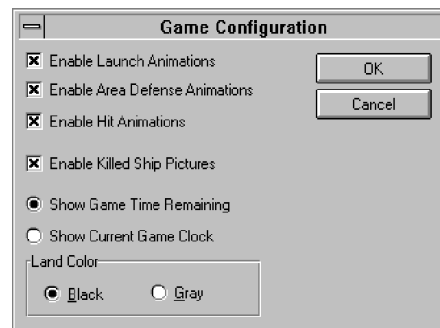
The selections on this menu do not in any way effect the playing of the game; rather, they are used to set various references and game features.

TIME COMPRESSION (CTL+T)

Allows for setting time compression feature. Position the mouse cursor over Fast (increase time compression) or Slow (decrease time compression) and click the left mouse button. Note: This feature can also be set by using the “+” and “-” keys or “+” or “-” on the numeric keypad.

SET RANGE CIRCLES (CTL+R)

The Range Circles option can be used to play *Harpoon* more effectively. Range circles show range information in a graphical format on your map views. Note the window(s) in which each range circle is active and the color they display. In general, Weapon range circles are Red, Active sensor range circles are Yellow, Passive sensor range circles are Green and Airborne endurance range circles are in Blue. Range circles are centered around your Group or Unit Icon, with the icon designating the center of your Group formation in the Group Window, and the actual location of the Unit in the Unit Window.



Group Window

light red
N/A

N/A
dark red

yellow
N/A

Unit Window

Reports

Show Orders	ctl+O
Order of Battle	ctl+B

Platform Display	alt+P
-------------------------	--------------

Weather Report	alt+W
-----------------------	--------------

white

N/A

N/A
N/A

yellow
green

dark blue
dark blue

dark blue
dark blue

GAME ICONS (CTL+I)

Allows for setting different styles for game icons. The default setting is “Stylized” (i.e., “civilian” symbols), the alternate style is a modified NATO CDS system. At the bottom of the screen you will see a command box marked \pm Other. Selecting this will allow you to see icons not listed on the main Show Game Icons screen. These “other” icons cannot be altered.

SET GRID LINES (CTL+G)

Allows for a variable display of latitude and longitude grid lines on Group Map. When selected, a box will appear in the Reports Window which shows that the grid lines are “off.” If you want to turn them on, select “on,” and the Latitude and Longitude Interval settings will appear with the default setting. You can change the default settings if you want. Once you give the [OK] command, the latitude and longitude lines will appear on the Group Map.

STAFF OPTIONS (CTL+M)

This option is used to enable/disable various staff options. You may select repeatable air patrols/attacks which are useful when playing the larger scenarios. Also you can enable the Air Intercept option, which allows you to split off aircraft after each new contact.

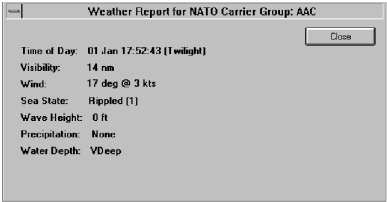
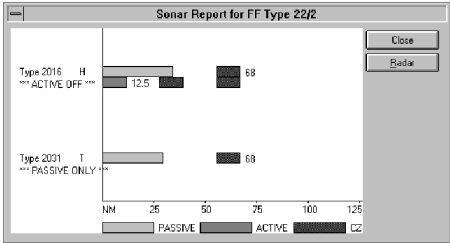
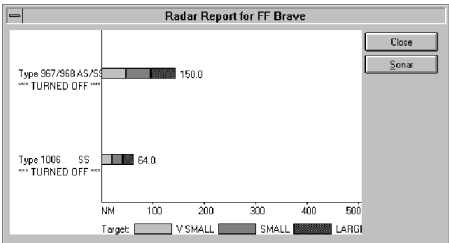
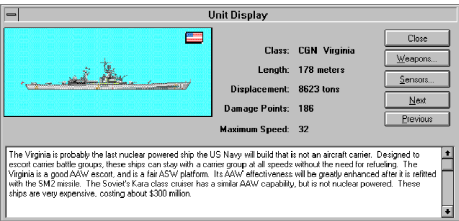
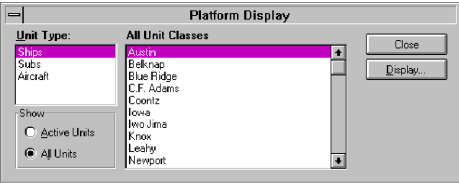
Show Sonobuoys: This option shows all sonobuoys laid by friendly units. They are represented as white symbols on the Unit Map.

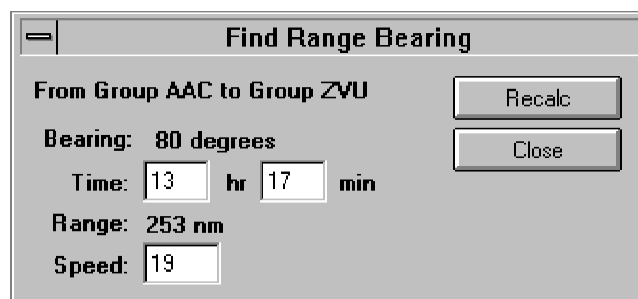
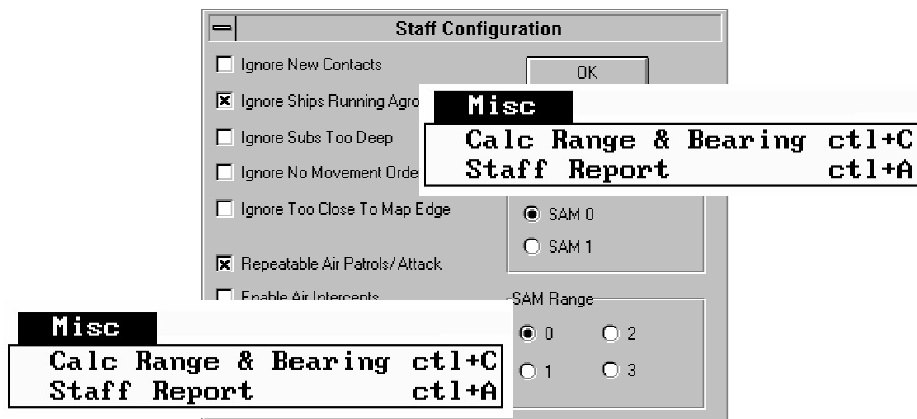
Show Active Towed Array: Selecting this option will display all operating towed arrays on friendly ships and subs. The towed array is represented by a straight line coming from a ship or sub icon on the Unit Map. Towed arrays will not display if the ship or submarine is moving too fast or erratically.

Set Aircraft AAW Auto Fire Range: This option allows the user to set the range at

which his units will start firing at incoming aircraft or missiles. The default option, Never Auto Fire, will allow the computer to determine the range at which to start firing at incoming threats.

Set Surface SAM Fire Rate: This option allows the user some control over the number of SAMs his units will fire at each enemy aircraft or missile.





GAME OPTIONS (CTL+K)

This option allows user to configure which animations are to appear during game play. You can also turn on/off the Killed Ship pictures when they are sunk. You can toggle the time display on the Group Window from a time of day display to a game time remaining display. Finally, you can change the color of the land from Black to

Grey, using whichever works better on your particular monitor. All these settings are saved and will be the same each time you run the game until you change them.

SOUND OPTIONS (CTL+Y)

When selected, a box will appear in the Reports Window showing the default settings. You can choose what sounds to have during the course of the game.

REPORTS MENU

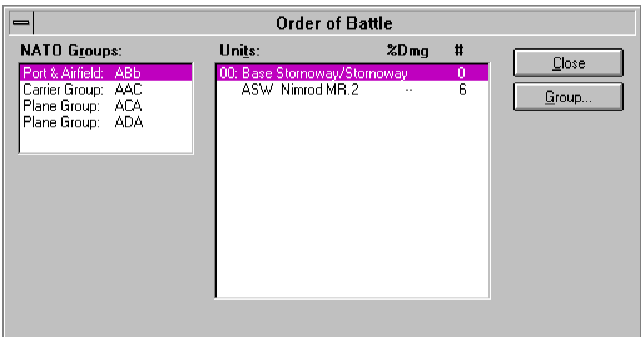
This menu is used as an “intelligence” source. Use it to view information you may want.

SHOW ORDERS (CTL+E)

Re-displays your orders which had been previously given to you in connection with the scenario you selected at the beginning of the game.

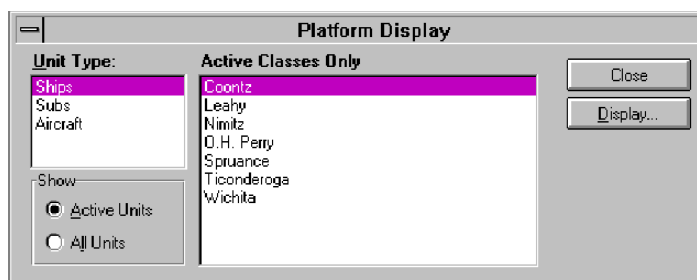
ORDER OF BATTLE (CTL+B)

When this option is selected, a screen will appear which contains two boxes. The one on the left lists all the groups at your disposal. Use the mouse to highlight the various groups. When you do this, the box on the right will show the units associated with that group. Use the Group **R**eport command at the bottom of the screen to learn more about that group. If you switch scroll boxes by using the right arrow (or TAB key), the button will change to a Unit **R**eport and selecting it will give you a Unit report.

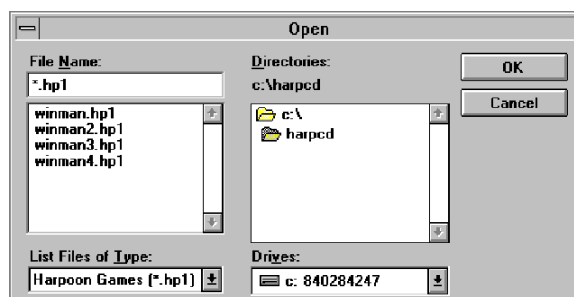


PLATFORM DISPLAY (CTL+D)

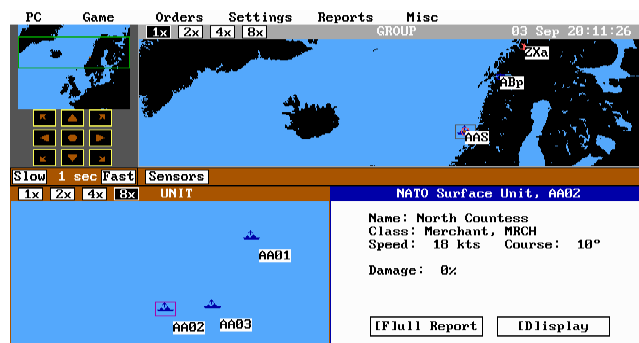
Use this command to learn all about the various units at your command. When this option is first selected, you will be presented with a screen containing two boxes. The small Platform Type box lists “Ships”, “Subs”, and “Aircraft”, it will be enclosed by a thin border. Click on a type and a list will appear in the large Active Classes Only scroll box.



When you give the **D**isplay command, a screen will appear which gives you detailed information on that platform class.



NOTE: The default setting lists only the classes used within this scenario. For instance, if Aircraft is highlighted, only information on the aircraft classes active in this particular scenario will be shown. You can use this as a learning tool for finding out about the capability of various classes of units.

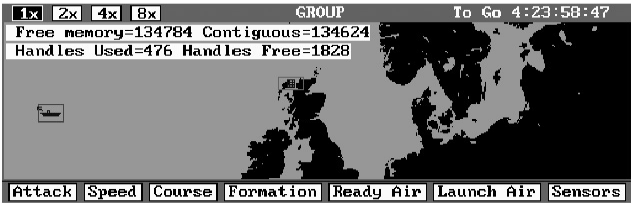


Across the bottom of the screen are three command boxes. If you select **S**how Only Active Classes. The large box will change to the title of “Active Classes Only”, and you will be presented with just the unit classes associated with the scenario you are playing.

You can learn about these unit classes in the same manner as previously described. Select **S**how All Classes if you want to return to the default screen.

WEATHER REPORT (CTL+W)

This command shows the weather conditions of the scenario you are playing. Most of the report is self-explanatory. The report on “Seas” will first show the height of



sea swell, followed by a number for sea state. Sea state 1 means that there is virtually no “chop” to the waves, i.e., the sea is more-or-less glassy. As the wind picks up, seas will become more turbulent and the sea state number will grow larger. Weather can impact sensors, weapons and smaller ships.

MISC MENU

CALC RANGE & BEARING (CTL+F)

Allows range and bearing of a group or unit to be selected from a menu pick. When Selected, a box appears in the reports window listing the objects on the map (other groups, ports, airfields, etc.).

Highlight the object with the mouse and then click on [OK]. Another box will then appear giving the bearing and range to the object, the time to arrive there at the current speed, that the speed at which your selected group is now traveling. You can use this report to calculate new time-of-arrival if you change speed, or vice versa.

STAFF REPORT (CTL+A)

Staff assistant will make any appropriate recommendations for the currently selected group.

TABLE 3. OTHER KEYBOARD COMMANDS

In addition to the menu commands shown, other commands can be accessed directly from the keyboard:

TAB KEY

Alternates selected window between Group and Unit Window.

ARROW KEYS

Scrolls the currently selected window, either the Group Window or the Unit Window.

5 KEY

Centers the map view in the currently selected window around the selected object.

NOTE: You must use the “5” key on the numeric keypad, not the numbers across the top of your keyboard.

Z KEY

Zooms in the current window (Group or Unit).

X KEY

Zooms out the current Window (Group or Unit)

F KEY

Gives a full Report on the selected object if a mini-report on the object is showing in the dialog box.

D KEY

Brings up unit display.

+ KEY

Compresses time by one increment each time key is pressed.

- KEY

De-compresses time by one increment each time key is pressed.

SPACEBAR

Selects the next object to the south (down) in the current window.

BACKSPACE

Selects the next object to the north (up) in the current window.

U KEY

Selects the first Unit of the currently selected Group (in the Unit Window)

C KEY

Center the Unit Window around your currently selected Group.

ENTER KEY

Takes you to 1:1 time compression immediately.

ALT-T

Toggle paths on/off for all friendly Groups.

TABLE 4

KEYBOARD ALT-F KEY COMMANDS

These commands are accessed by a combination of the Alt and Function keys.

CTL+L (Load Scenarios from Scenario Editor)

This command allows you to load scenarios created with the Scenario Editor tool.

I (Toggle Group / Unit ID's)

This command allows you to toggle the Group and Unit ID's on and off, so that they show on the map views. This can be used when you have many different groups or units, and need to locate one by its ID. Extended use is not recommended as it can clutter up your map views, obscuring information important to game play.

ALT+3 (Player Nuclear Release)

This command allows you to grant yourself Nuclear Release status in any scenario, regardless of your initial Nuclear Release choice on the Options Selection screen.

ALT+F6 / OPT +6 (Show Current Free Runtime Memory)

This command shows the memory currently unused by the game. Free memory indicates the total amount of free memory, and Contiguous indicates the largest contiguous block of free memory. Handles (PC only) represent pointers to objects in memory, if the number of free handles is less than 200 consult your install card for command line switches.

TABLE 5.
KEYBOARD EQUIVALENT COMMANDS

This table is a quick summary of the keyboard shortcuts.

GAME MENU COMMANDS

ctl+P	Pause Game
ctl+N	New Game
ctl+O	Load Game
ctl+L	Load User Scenario
ctl+S	Save Game
ctl+H	Game Status
ctl+Q	Quit

ORDERS MENU COMMANDS

ctl+1	Attack or Intercept
ctl+2	Set Group Speed (Set Depth and Speed)
ctl+3	Enter Group Course
ctl+4	Formation Editor
ctl+5	Ready Aircraft
ctl+6	Launch (Land) Aircraft
ctl+7	Join Group
ctl+8	Split Group
ctl+9	Sensors
ctl+0	Enter Staff Note
Alt+R	Force Refueling

REPORTS MENU COMMANDS

ctl+E	Show Orders
ctl+B	Order of Battle
ctl+D	Platform Displays
ctl+W	Weather Report

SETTINGS MENU COMMANDS

ctl+T	Time Compression
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ctl+R	Set Range Circles
ctl+I	Game Icons
ctl+G	Set Grid Lines
ctl+K	Game Options
ctl+Y	Sound Options
ctl+M	Staff Options

MISC COMMANDS

ctl+F	Calc Range & Bearing
ctl+A	Staff Report
I	Toggle Group / Unit IDs

ALT+F KEY COMMANDS

Alt+3	Player Nuclear Release
Alt+6	Show Current Free (Runtime Memory)

GIUK Battleset Notes

NATO STRATEGY

The Norwegian Sea is essentially an enclosed body of water bounded by Greenland, Iceland, the north polar ice cap, and Norway. This somewhat rectangular area can be entered by three ways: 1) from the north by going under the polar ICE CAP, 2) through the Denmark strait between Iceland and Cape Farewell in Greenland, or 3) through the opening between Iceland and the Faeroe Islands - the so-called GIUK gap. Because of its geography, this area would be defended against Soviet air and naval attack by task forces comprised of units from the United States, Great Britain, and Norway.

NATO forces would be attacking Soviet forces as they advanced along the Norwegian coast, pinning them down and even putting them on the defensive. This holding action would tend to draw valuable assets needed by the Soviets on the European central front. Simultaneously, NATO nuclear attack submarines would locate and destroy any soviet nuclear ballistic missile submarines hiding in "The Bastion". If successful, these same attack submarines could also launch Tomahawk strikes against Soviet bases located on the Kola Peninsula adjoining Finland.

SOVIET STRATEGY

From the Soviet viewpoint, their highest priority is to protect their nuclear ballistic missile submarines, keeping them secure as a "bargaining chip" for post-war negotiations.² Their second priority is to defend their homeland against NATO strikes. To do this they must detect and destroy NATO units as they enter the Norwegian sea. Thirdly, they will send submarines and long- range aircraft into the North Atlantic to attack and destroy NATO convoys, for although control of this area is crucial to the Allies, requiring an immense investment in support of shipping, only a relatively small attacking force will be sufficient to wreak havoc on

these convoys. Finally, they will support their Army's attacks against Norway, gaining control of the coastal seas and providing air cover for support of their own sealifts. They will probably engage in a series of "coast hopping" assaults with the idea of outflanking the defenders.

PLAYING THIS BATTLESET

In this Battleset you will find twelve different scenarios, each requiring you to command a different NATO unit in implementing NATO strategy. In these scenarios, you will assume command of anything from a small squadron of missile boats up to a much larger unit, including the entire strike fleet in defense of the British Isles, (If you choose to play the Soviet side, you can even control a full-scale Soviet amphibious assault force.) You will be up against the powerful Soviet Northern Fleet which is comprised of two aircraft carriers, 75 principal combatants (guided missile cruisers, frigates, destroyers, etc.), 88 other combatants (ASW and AAW escort vessels), 170 submarines (including nuclear ballistic missile and attack subs. and diesel subs used primarily for coastal defense), along with over 440 naval

aircraft of all types.

Fighting in the North Atlantic environment is an arduous task for even the most experienced commander. Not only will you have to engage trained and committed Soviet forces, but you must also contend with high seas, fierce winds, and thousands of miles of craggy coasts which could afford hostile forces the opportunity for surprise attacks.

You will be given orders as to your mission and strategic objectives, as well as intelligence information as to Soviet objectives and the forces you can expect to encounter. In addition, you will be briefed as to the background behind your mission and its importance to the overall war effort.

The success of the European defense is in your hands. Good luck and good hunting!

A WORD ON THE MAPS USED IN THIS BATTLESET

The on-screen maps used in this simulation are called “Lambert Conformal Conics”. Because they have been digitally scanned from the Defense Mapping Agency Global Navigation charts GNC3 and GNC4, they are absolutely accurate in all detail. However, since the earth is a globe and not a flat plane, any map must necessarily contain distortions. Most maps used by the public are called “Mercator Projections”, the streets maps you have in your automobile are just such things. To produce a Mercator Projection, imagine that a light is inside a globe, and a transparent cylinder is wrapped around this globe, touching it at the equator. With the light shining through the globe the images of the land masses on the globe will be projected onto the cylinder. However, notice that as distance from the equator increases, both to the north and to the south, the images of the land masses become increasingly distorted. In fact, at or near each pole the distortion is so great that the map is virtually useless. Mercator Projections are very useful in representing map data either of relatively small areas of the earth (again, as do your street maps), or areas somewhat distant from one of the poles.

Since the Battleset furnished with this module of *Harpoon* enacts situations at extreme northern latitudes, the Lambert Conformal Conic was used as the basis for the on-screen maps in order to eliminate the difficulties inherent with Mercator Projections. To understand how this type of map is produced, imagine a transparent sheet of plastic is rolled into a cone with the tip of the cone placed directly over the north pole. Now imagine that the cone is “pushed” down so that its edges pass through the earth at 65 degrees north latitude (about where Iceland is), and exit at 35 degrees north latitude (about where North Carolina is). Shine a light through the globe and project the images of the land masses onto this cone, you now have the type of map furnished with this battleset. Although there are still distortions at extreme northern and southern latitudes, the distortion in the geographical area of where *Harpoon* is played is relatively slight.

NACV BattleSet Notes

THE BACKGROUND

It is the year 1996 and Perestroika and Glasnost has backfired. The Soviet hardliners have ousted Gorbachev and seized power in the Kremlin. To turn the people's attention from the desperate condition of the Soviet economy and unite the various ethnic factions, they have launched an all-out attack on NATO.

The years of wishful thinking and premature defense cuts have taken their toll. The land forces on the European continent are few in number and ill prepared for this lightning attack. At the same time, the Soviet forces are not prepared to engage in a long campaign and must secure all their objectives in less than one month's time. If NATO can rapidly resupply and augment their forces, the Soviets will be stalemated and possibly routed. If the Soviets can shut off the flow of supplies, they will almost certainly dominate the European battlefield, and thus all of Europe.

This BattleSet focuses on the NATO resupply effort and the Soviet effort to interdict it. You will be able to experience the strategic and tactical nuances of this resupply effort in scenarios that use the independent steaming, convoying and defended sea lane tactics.

NATO STRATEGY

Your overriding goal will be to get as many merchantmen and planes to Europe from the United States as quickly as possible. Every ship or plane lost is a double blow, in that the supplies (or troops) carried are lost to the war effort, and lost units cannot be used for future shipments. Defense of these ships and planes is imperative. Offensive operations should be limited to those which can produce quick kills of threatening enemy units. As the majority of the threat is limited to air and submarine attacks, you should focus on aggressive ASW and AEW/AAW patrolling, ringing your valuable transport vehicles with a shield composed of your warships and aircraft.

SOVIET STRATEGY

As NATO desperately struggles to resupply and reinforce their limited continental forces, the Soviets must move to cut that supply line from a torrent to a mere trickle. Particularly aggressive naval and air tactics are encouraged, since limiting resupply guarantees an early ground war victory. Since the overall Soviet strategy depends on this early victory, the initial resupply effort must be stymied. Soviet submarines should search for enemy convoys, and coordinate their attacks with available long range aircraft. If no aircraft are available, they should strike as aggressively as possible on their own. Soviet aircraft must both monitor and harass the enemy escorts at every opportunity, and be prepared to deliver devastating attacks whenever possible.

PLAYING THIS BATTLESET

In this BattleSet you will find sixteen different scenarios, each requiring you to command large groups of forces with one or more objectives. While there were many threats in the GIUK BattleSet, there are many more in the North Atlantic Convoys BattleSet. The glory of naval combat is overshadowed by the vastness of the Atlantic and the critical nature of your mission. Here, the war is the worst combination of boredom, tension and possibly an ugly and sudden demise. To make

a bad situation worse, the world's attention is focused on the land and air battles on the European front, while your crews sweat and die to deliver the supplies that keep your side in the fight. The North Atlantic Convoys BattleSet will test your skills as a naval commander like nothing you have ever experienced.

The success of your forces fighting in Europe weighs in the balance. Your skill in directing these forces can make the difference! Good Luck!

North Atlantic Convoys Available Platforms

SECTION A - BASES NATO:

Country	Name	Type	Runway Class
Canada	St. John	Port/Airfield	VLarge Aircraft
France	Brest	Port/Airfield	VLarge Aircraft
France	Cherbourg	Port/Airfield	VLarge Aircraft
France	Lorient	Port/Airfield	VLarge Aircraft
Iceland	Keflavik	Airfield	VLarge Aircraft
Norway	Bergen	Port	VTOL
Portugal	Santa Maria	Airfield	VLarge Aircraft
Spain	La Coruna	Port/Airfield	VLarge Aircraft
Spain	Rota	Port/Airfield	VLarge Aircraft
UK	Bermuda	Airfield	VLarge Aircraft
UK	Faslane	Port	VTOL
UK	Gibraltar	Port/Airfield	VLarge Aircraft
UK	Kinloss	Port/Airfield	VLarge Aircraft
UK	London	Port/Airfield	VLarge Aircraft
UK	Portsmouth	Port	VTOL
UK	St. Mawgan	Port/Airfield	VLarge Aircraft
UK	Stornoway	Port/Airfield	VLarge Aircraft
UK	Vagar	Port/Airfield	Large Aircraft
USA	Boston	Port	VTOL
USA	Brunswick	Port/Airfield	VLarge Aircraft
USA	New York	Port	VTOL
USA	Norfolk	Port/Airfield	VLarge Aircraft

SOVIET:

Country	Name	Type	Runway Class
Iceland	Keflavik	Airfield	VLarge Aircraft
Norway	Orland	Port/Airfield	VLarge Aircraft
USSR	Kildistenroy	Airfield	VLarge Aircraft
USSR	Shagui	Airfield	VLarge Aircraft

SECTION B - FIXED WING AIRCRAFT

Country	Type	Class Name	Required Runway
USA	Bomber	A-6E Intruder	Small Aircraft
USA	Attack	AV-8B Harrier II	VTOL
USA	Transport	C-141B StarLifter	VLarge Aircraft
USA	AEW	E-2C Hawkeye	Small Aircraft
USA	AEW	E-3 Sentry	VLarge Aircraft
USA	EW	EA-6B Prowler	Small Aircraft
USA	EW	EF-111A Raven	Large Aircraft
USA	Bomber	F-111F Aardvark	Large Aircraft
USA	Fighter	F-14A Tomcat	Large Aircraft
USA	Fighter	F-15C Eagle	Small Aircraft
USA	Attack	F-4E Phantom II	Small Aircraft
USA	Attack	F/A-18 Hornet	Small Aircraft
USA	ASW	P-3C Orion	VLarge Aircraft
USA	ASW	S-3 Viking	Small Aircraft
UK	Attack	Jaguar GR.1	Small Aircraft
UK	ASW	Nimrod MR.2	VLarge Aircraft
UK	Attack	Phantom FGR.2	Small Aircraft
UK	Attack	Sea Harrier FRS.2	VTOL
UK	Fighter	Tornado F.3	Small Aircraft
UK	Fighter	Tornado GR.1	Small Aircraft
France	ASW	Alize	Small Aircraft
France	ASW	Atlantique	VLarge Aircraft
France	Attack	Etendard IV M	Small Aircraft
France	Fighter	F-8E(FN) Crusader	Small Aircraft
France	Attack	Super Etendard	Small Aircraft
Spain	Attack	Matador AV-8B	VTOL
Spain	ASW	Orion	VLarge Aircraft
USSR	ASW	Il-38 May	VLarge Aircraft
USSR	AEW	Il-76 Mainstay	VLarge Aircraft

USSR	Attack	MiG-29 Fulcrum	Small Aircraft
USSR	Attack	Su-24 Fencer	Small Aircraft
USSR	Attack	Su-27 Flanker	Small Aircraft
USSR	Bomber	Tu-16 Badger G	VLarge Aircraft
USSR	AEW	Tu-16 Badger J	VLarge Aircraft
USSR	Bomber	Tu-22M Backfire	VLarge Aircraft
USSR	Fighter	Tu-22MP Backfire D	VLarge Aircraft
USSR	Reconnaissance	Tu-95 Bear D	VLarge Aircraft
USSR	Bomber	Tu-95 Bear G	VLarge Aircraft
USSR	Attack	Yak-38 Forger	VTOL

HELICOPTERS

Country	Type	Class Name
USA	Naval	SH-2G Seasprite
USA	ASW	SH-3H Sea King
USA	Naval	SH-60B Seahawk
USA	ASW	SH-60F Oceanhawk
UK	Naval	Lynx HAS.3
UK	AEW	Sea King AEW.2
UK	ASW	Sea King HAS.5
France	Naval	Lynx Mk4
France	ASW	SA.321G Super Frelon
Spain	ASW	AB-212ASW
Spain	AEW	SH-3 AEW (Spain)
Spain	ASW	SH-3D Sea King(Sp)
Spain	Naval	SH-60B Seahawk(Sp)
USSR	ASW	Ka-25A Hormone
USSR	Search	Ka-25B Hormone
USSR	ASW	Ka-27 Helix A

Carrier Air Wings

USA: CV FORRESTAL

24	F-14A Tomcat	Fighter
18	F/A-18 Hornet	Attack

20	A-6E Intruder	Bomber
10	S-3 Viking	ASW
5	EA-6B Prowler	AEW
5	E-2C Hawkeye	AEW
6	SH-60F Oceanhawk	ASW

USA: CVN NIMITZ

24	F-14A Tomcat	Fighter
24	F/A-18 Hornet	Attack
12	A-6E Intruder	Bomber
10	S-3 Viking	ASW
5	EA-6B Prowler	AEW
5	E-2C Hawkeye	AEW
8	SH-60F Oceanhawk	ASW

UK: CVH Invincible

8	Sea Harrier FRS.2	Attack
9	Sea King HAS.5	ASW
3	Sea King AEW.2	AEW

France: CV Clemenceau

16	Super Etendard	Attack
10	F-8E(FN) Crusader	Fighter

8	Alize	ASW
2	SA.321G Sup Frelon	ASW
2	Lynx Mk4	Naval

France: CVH Jeanne d’Arc

8	Lynx Mk4	Naval
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Spain: CVH Principe de Asturias

8	Matador AV-8B	Attack
6	SH-3D Sea King	ASW
3	SH-3 AEW	AEW
4	AB-212ASW	ASW

USSR: CVHG Baku

13	Yak-38 Forger	Attack
14	Ka-27 Helix A	ASW
3	Ka-25 Hormone B	Search

Ships

Country	Type	Class Name
USA	AOE	Sacramento
USA	CG	Belknap
USA	CG	Leahy
USA	CG	Ticonderoga
USA	CG	VLS Ticonderoga
USA	CGN	Virginia
USA	CV	Forrestal
USA	CVN	Nimitz
USA	DD	Improved Spruance
USA	DDG	Arleigh Burke
USA	DDG	Kidd
USA	FF	Knox
USA	FFG	O.H. Perry
USA	LHA	Tarawa
USA	AVS	Arapaho
USA	CONT	Container Ship
USA	TRAN	Transport
UK	AEFS	Fort Class
UK	CVH	Invincible
UK	DDG	Type 42 Batch 3

UK	FF	Leander Batch 3A
UK	FF	Type 22 Batch 1
UK	FF	Type 22 Batch 3
UK	FF	Type 23
France	AO	Durance
France	CV	Clemenceau
France	CVH	Jeanne d'Arc
France	DD	Tourville
France	DDG	Cassard
France	DDG	Georges Leygues
France	DDG	Suffren
Spain	CVH	Principe de Asturias
Spain	FF	Baleares
Spain	FF	Descubierta
Spain	FFG	Santa Maria
USSR	AFS	Berezina
USSR	AGI	Okean
USSR	BCGN	Kalinin
USSR	CG	Slava
USSR	CVHG	Baku
Country	Type	Class Name
USSR	DDG	Sovremenny
USSR	DDG	Udaloy
USSR	MRCH	Merchant
USSR	TANK	Tanker
INTL	MRCH	Merchant
INTL	TANK	Super Tanker
INTL	TANK	Tanker

Submarines

Country	Type	Class Name
USA	SSN	Los Angeles

USA	SSN	Improved Los Angeles
USA	SSN	Seawolf
USA	SSN	Sturgeon
UK	SS	Oberon
UK	SSN	Swiftsure
UK	SSN	Trafalgar
France	SS	Agosta
France	SSN	Rubis
USSR	SS	Foxtrot
USSR	SS	Kilo
USSR	SSGN	Charlie II
USSR	SSGN	Oscar
USSR	SSN	Akula
USSR	SSN	Sierra
USSR	SSN	Victor II
USSR	SSN	Victor III

MEDC BattleSet Notes

CREDITS

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 Scenario Entry: Becky Jones, Mike Jones, and Tim Jacobs
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OVERVIEW

“The Mediterranean Conflict,” differs from the first two BattleSets in two significant ways.

First, “The Mediterranean Conflict”, or “MEDC;” does not emphasize a US-USSR conflict. Every day the people of the Middle East are using force in an attempt to

impose their will on their adversaries. Throughout history, the Western powers have been affected, but never on a level remotely approaching the mobilization that a Superpower confrontation requires.

The highest level of conflict potential for either of the two Superpowers have been the “Superpower alert” during the October ’73 War, the Kuwaiti tanker reflagging of ’88-’89, and of course, Operation “Desert Shield.” The retaliatory strike on Libya was merely a live-fire exercise for two carriers and a squadron of USAF F-111’s. The same could be said for the New Jersey’s obliteration of several Syrian gun positions in Lebanon.

Consequently, we have tried to focus on this region’s countries and their potential conflicts, bringing in the Superpowers as needed for contrast and comparison. In fact, you might wonder why we left out the “wiz-bang” units, the reason is primarily play balance: the entire Syrian Air Force would be hard pressed to penetrate any American task force centered on an Aegis Cruiser. One might consider the lack of “neat” units to be your portion of the US “Peace Dividend.”

The second difference is that we have included scenarios called “Studies.” In the earlier BattleSets, almost all of the scenarios followed a single central theme for the BattleSet. The Med features a potpourri of different nationalities, each with long standing blood feuds, special strengths, fatal weaknesses, numerous enemies, and too few real friends. Finally, we assume that the following countries have nuclear weapons that might be used if an enemy country detonated a weapon against home soil or a capital unit: USA, USSR, France, Israel, Syria Note: Iraq and Libya probably don’t have working nuclear weapons: if they did, they probably would not have such huge chemical weapons programs.

All of us hope that you find MEDC to be a fresh look at naval warfare And remember, you are much more likely to see some of these smaller battles on the evening news than you are full East-West confrontation.

DESIGNERS’ NOTES

Because “depth” in *Harpoon* is estimated, rather than based on actual data, portions of the Mediterranean Sea will appear to be “Very Deep,” where in reality, the actual depth is closer to “Intermediate”. To overcome this discrepancy, we have limited all submarines to “Intermediate” depth, even though they have the ability to descend to “Deep” depth. Additionally, the Mediterranean is also known for its poor sonar conditions: to reflect this, we have reduced sonar performance unilaterally. We believe that these adjustments will help to make the Mediterranean BattleSet more realistic and interesting to play.

PLAYING THIS BATTLESET

In this BattleSet you will find sixteen different scenarios, each requiring you to command large groups of forces with one or more objectives. While there were many threats in the GIUK BattleSet, there are many more in the North Atlantic

Convoys BattleSet. The glory of naval combat is overshadowed by the vastness of the Atlantic and the critical nature of your mission. Here, the war is the worst combination of boredom, tension and possibly an ugly and sudden demise. To make a bad situation worse, the world's attention is focused on the land and air battle on the European front, while your crews sweat and die to deliver the supplies that keep your side in the fight. The North Atlantic Convoys BattleSet will test your skills as a naval commander like nothing you have ever experienced.

The success of your forces fighting in Europe weighs in the balance. Your skill in directing these forces can make the difference! Good Luck!

The Mediterranean Conflict

Available Platforms

SECTION A

BASES

BLUE:

Country	Name	Type	Runway	Class
Corsica	Solenzara	Airfield	Vlarge	Aircraft
France	Marseille	Port/Airfield	Vlarge	Aircraft
France	Nice	Port/Airfield	Vlarge	Aircraft
Greece	Nea/Ankhialo	Airfield	Large	Aircraft
Greece	Larisa	Airfield	Vlarge	Aircraft
Greece	Tanagra	Port/Airfield	Large	Aircraft
Greece	Souda	Airfield	Vlarge	Aircraft
Greece	Araxos	Airfield	Vlarge	Aircraft
Greece	Thessaloniki	Port/Airfield	Large	Aircraft
Greece	Hellenikon	Airfield	Vlarge	Aircraft
Israel	Ramat/David	Airfield	Large	Aircraft
Israel	Haifa	Port/Airfield	Small	Aircraft
Israel	Tel Aviv	Port/Airfield	VLarge	Aircraft
Israel	Hatzor	Airfield	Large	Aircraft
Israel	Nevatim	Airfield	Large	Aircraft
Israel	Ramon	Airfield	Large	Aircraft
Israel	Ovda	Airfield	Large	Aircraft
Italy	Brindisi	Port/Airfield	VLarge	Aircraft
Italy	Rome	Port/Airfield	VLarge	Aircraft
Italy	Crotone	Airfield	VLarge	Aircraft
Italy	Naples	Port/Airfield	VLarge	Aircraft

Turkey	Topel	Port/Airfield	VLarge	Aircraft
Turkey	Cigli	Airfield	Large	Aircraft
Turkey	Erhac	Airfield	VLarge	Aircraft
Turkey	Merzifon	Airfield	VLarge	Aircraft
Turkey	Murted	Airfield	VLarge	Aircraft
Turkey	Konya	Airfield	VLarge	Aircraft
Turkey	Incirlik	Airfield	VLarge	Aircraft
Sardinia	Cagliari	Airfield	VLarge	Aircraft
Sardinia	La Maddalena	Port	VTOL	
Sicily	Sigonella	Airfield	VLarge	Aircraft
Sicily	Trapani	Airfield	VLarge	Aircraft
Egypt	Habata	Airfield	Large	Aircraft
Egypt	Mersa Matruh	Port/Airfield	Large	Aircraft
Egypt	Gebel El Bas	Airfield	Large	Aircraft
Egypt	Cairo West	Airfield	VLarge	Aircraft
Egypt	Al Mansurah	Airfield	Large	Aircraft
Egypt	Faid	Airfield	Large	Aircraft
Egypt	El Arish	Port/Airfield	VLarge	Aircraft
Egypt	Port Said	Port	VTOL	
Egypt	Ras El Nakab	Airfield	VLarge	Aircraft

RED:

Country	Name	Type	Runway	Class
Egypt	Mersa Matruh	Port/Airfield	Large	Aircraft
Egypt	Gebel El Bas	Airfield	Large	Aircraft
Egypt	Cairo West	Airfield	Vlarge	Aircraft
Egypt	Al Mansurah	Airfield	Large	Aircraft
Egypt	Faid	Airfield	Large	Aircraft
Egypt	El Arish	Port/Airfield	Vlarge	Aircraft
Egypt	Port Said	Port	VTOL	
Egypt	Ras El Nakab	Airfield	Vlarge	Aircraft
Libya	Okba Ibn Naf	Airfield	Vlarge	Aircraft
Libya	Tripoli	Port/Airfield	Vlarge	Aircraft
Libya	Ghurdabiyah	Airfield	Large	Aircraft
Libya	Bengasi	Airfield	Vlarge	Aircraft
Libya	Tobruk	Port/Airfield	Vlarge	Aircraft
Syria	Minakh	Airfield	Large	Aircraft

Syria	Latakia	Airfield	Large	Aircraft
Syria	Hamah	Airfield	Large	Aircraft
Syria	Damascus	Airfield	Vlarge	Aircraft
Syria	Shayrat	Airfield	Large	Aircraft
Syria	As Suwayda West	Airfield	Large	Aircraft
Turkey	Topel	Port/Airfield	Vlarge	Aircraft
Turkey	Cigli	Airfield	Large	Aircraft
Turkey	Erhac	Airfield	Vlarge	Aircraft
Turkey	Merzifon	Airfield	Vlarge	Aircraft
Turkey	Murted	Airfield	Vlarge	Aircraft
USSR	Kiev	Airfield	Vlarge	Aircraft
USSR	Odessa	Port/Airfield	Vlarge	Aircraft
Country	Name	Type	Runway	Class
USSR	Sevestopol	Port/Airfield	Vlarge	Aircraft
USSR	Tiflis	Airfield	Vlarge	Aircraft
USSR	Krasnodar	Airfield	Vlarge	Aircraft

Section B

FIXED WING AIRCRAFT

Country	Type	Class Name	Required Runway
France	ASW	Alize	Small
France	ASW	Atlantique 2	VLarge
France	AEW	E-3F Sentry	VLarge
France	Attack	Etendard IV M	Small
France	Fighter	F-8E(FN) Crusader	Small
France	Attack	Mirage 2000	Small
France	Attack	Mirage F.1C	Small
France	Attack	Super Etendard	Small
Greece	Attack	F-4E Phantom II (USA Export)	Small
Greece	Attack	F-16C Falcon (USA Export)	Small
Greece	Attack	F-104G Starfighter (FRG Export)	Large
Greece	Attack	A-7H Corsair II	Small
Greece	Attack	Mirage 2000 (France)	Small
Greece	Attack	Mirage F.1G (France)	Small
Israel	Fighter	A-4H Skyhawk	Small
Israel	AEW	E-2C Hawkeye (USA)	Small
Israel	Attack	F4E Phantom II	Small
Israel	Fighter	F- 15C Eagle	Small
Israel	Attack	F- 16C Falcon	Small
Israel	Attack	Kfir C.7	Small

Italy	ASW	Atlantique	VLarge
Italy	Attack	AV-8B Harrier II	VTOL
Italy	Attack	F-104ASA Starfighter	Large
Italy	Attack	Tornado	Small
Turkey	Attack	F-4EPhantom II (USA Export)	Small
Turkey	Attack	F-16C Falcon (USA Export)	Small
Turkey	Attack	F-104G Starfighter (FRG Export)	Large
Turkey	ASW	S-2E Tracker	Small
USA	Bomber	A-6E Intruder	Small
USA	Attack	AV-8B Harrier II	VTOL
USA	AEW	E-2C Hawkeye	Small
Country	Type	Class Name	Required Runway
USA	AEW	E-3 Sentry	VLarge
USA	EWE	A-6B Prowler	Small
USA	Fighter	F-14D Tomcat	Large
USA	Fighter	F-15C Eagle	Small
USA	Attack	F-16C Falcon	Small
USA	Bomber	F-111 F Aardvark	Large
USA	Attack	F/A-18 Hornet	Small
USA	ASW	P-3C Orion	VLarge
USA	ASW	S-3 Viking	Small
Egypt	AEW	E-2C Hawkeye (USA)	Small
Egypt	Attack	F-4E Phantom II	Small
Egypt	Attack	F-16C Falcon (USA)	Small
Egypt	Attack	Jian-7 Fishbed	Small
Egypt	Attack	MiG-21 Fishbed J/H	Small
Egypt	Attack	Mirage 5 (France)	Small
Egypt	Attack	Mirage 2000 (France)	Small
Egypt	Bomber	Tu-16G (Egypt)	VLarge
Libya	ASW	IL-38 May	VLarge
Libya	Attack	MiG-23MS Flogger E	Small
Libya	Fighter	MiG-25 Foxbat E (USSR)	Small
Libya	Recon	MiG-25 Foxbat R (USSR)	Small
Libya	Attack	Mirage 5 (France)	Small
Libya	Attack	Mirage F.1ED	Small
Libya	Attack	Su-24 Fencer (USSR)	Small
Syria	Attack	MiG-21 Fishbed D (USSR)	Small
Syria	Attack	MiG-23 Flogger (USSR)	Small
Syria	Fighter	MiG-25 Foxbat E (USSR)	Small

Syria	Attack	MiG-29 Fulcrum (USSR)	Small
Syria	Attack	Su-24 Fencer (USSR)	Small
USSR	ASW	Il-38 May	VLarge
USSR	AEW	Il-76 Mainstay	VLarge
USSR	Attack	MiG-23 Flogger	Small
USSR	Attack	MiG-27 Flogger J	Small
USSR	Attack	MiG-29 Fulcrum	Small
USSR	Attack	Su-24 Fencer	Small
USSR	Attack	Su-27 Flanker	Small
USSR	Bomber	Tu-16 Badger G	VLarge

Section C

HELICOPTERS

Country	Type	Class Name
France	Naval	Lynx Mk4
France	ASW	SA.321G Sup Frelon
Israel	ASW	SA.365G Dauphin
Italy	ASW	AB-212ASW
Italy	ASW	ASH-3D Sea King
USA	Naval	SH-2G Seasprite
USA	Naval	SH-60B Seahawk
USA	ASW	SH-60F Ocenhawk
Egypt	Attack	SA.342L Gazelle
Egypt	ASW	Sea King Mk47
Libya	ASW	Mi-14 Haze (USSR)
Libya	Transport	SA.321M Sup Frelon
Syria	ASW	Ka-25 Hormone A (USSR)
Syria	ASW	Mi-14 Haze (USSR)
USSR	ASW	Ka-25 Hormone A
USSR	Search	Ka-25 Hormone B
USSR	ASW	Ka-27 Helix A

Section D

CARRIER AIR WINGS

USA: CV Forrestal

24—F-14A Tomcat	Fighter
18—F/A-18 Hornet	Attack
20—A-6E Intruder	Bomber
10—S-3 Viking	ASW
5—EA-6B Prowler	EW
5—E-2C Hawkeye	AEW
6—SH-60F Oceanhawk	ASW

France: CV Clemenceau

16—Super Etendard	Attack
10—F-8E(FN) Crusader	Fighter
8—Alize	ASW
2—SA.321G Sup Frelon	ASW
2—Lynx Mk4	Naval

Italy: CVH Guiseppe Garibaldi

18—SH-3D Sea King	ASW
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Section E

SHIPS

Country	Type	Class Name
France	DDG	Cassard
France	CV	Clemenceau

France	DDG	Georges Leygues
France	DDG	Suffren
France	DD	Tourville
Greece	FF	Cannon
Greece	PM	Combattante II
Greece	PM	Combattante III N
Greece	PM	Combattante III Nb
Greece	DD	FRAM I
Greece	FF	Kortenaer
Israel	PTM	Sa'ar 2
Israel	PTM	Sa'ar 3
Israel	PTM	Sa'ar 4
Israel	PTM	Sa'ar 4.5
Italy	CG	Andrea Doria
Italy	DDG	Animoso
Italy	DDG	Audace
Italy	CVH	Guiseppe Garibaldi
Italy	FFG	Lupo
Italy	FFG	Maestrale
Italy	PHM	Sparviero
Italy	CHG	Vittorio Veneto
Country	Type	Class Name
Turkey	PTM	Dogan
Turkey	DD	FRAM I
Turkey	PTM	Kartal
Turkey	FF	Yavuz
USA	CG	Belknap
USA	CGN	California
USA	AO	Cimarron
USA	DDG	Coontz
USA	CV	Forrestal
USA	BB	Iowa
USA	DDG	Kidd
USA	FF	Knox
USA	CG	Leahy
USA	LST	Newport
USA	PHM	Pegasus
USA	DD	Spruance
USA	LHA	Tarawa
Egypt	PGAI	Nour
Egypt	FF	Descubierta
Egypt	FF	Jianghu III

Egypt	PTM	Osa I (Egypt)
Egypt	PTM	Ramadan
Libya	FF	Al Hani
Libya	FF	Dat Assawari
Libya	PTG	La Combantante IIG
Libya	FFL	Nanuchka II
Libya	PTM	Osa II (Libya)
Syria	PTM	Osa I (Syria)
Syria	PTM	Osa II (Syria)
Syria	FFL	Petya II (Syria)
USSR	CG	Kara
USSR	FFG	Krivak II
USSR	DDG	Mod Kashin
USSR	CHG	Moskva
USSR	FFL	Nanuchka III
USSR	PTM	Osa II (USSR)
USSR	FFL	Petya II (USSR)
USSR	DDG	Sovremenny
USSR	CL	Sverdlov

Country	Type	Class Name
INTL	AO	Fleet Oiler
INTL	MRCH	Merchant
INTL	TANK	Tanker

Section F

SUBMARINES

Country	Type	Class Name
France	SSN	Rubis
Greece	SS	Type 209

Israel	SS	Vickers Type 540
Italy	SS	Enrico Toti
Italy	SS	Nazarino Sauro
Turkey	SS	Type 209
USA	SSN	Sturgeon
Egypt	SS	PRC Romeo
Libya	SS	Foxtrot
Syria	SS	USSR Romeo
USSR	SSGN	Charlie II
USSR	SS	Tango
USSR	SSN	Victor III

IOPG BattleSet Notes

Welcome to the Indian Ocean / Persian Gulf BattleSet. We have made several changes to the way *Harpoon* works in the IOPG, and think you will enjoy the changes. Some of these changes are obvious, while others are more subtle.

First, we have attempted to include all the major platforms that are likely to appear in the Indian Ocean region, concentrating on the countries of the area. While we have left out a few classes, these will probably not play a significant role in any IOPG area-related conflict.

Second, we have attempted to add several “fun” units, while maintaining the accuracy of the simulation. *Harpoon* is first and foremost an accurate simulation of modern Naval warfare. Unfortunately, due to limitations of the main *Harpoon* program (caused by the restraints of the computer platforms on which it executes), several unrealistic elements can develop. Among these are lack of logistic elements (for example, the lack of ordnance limits on aircraft) and lack of “full modeling of reality” (such as lack of realistic director limitations on some units). We have attempted to design the included scenarios with a naval focus to minimize the effects of these inherent limitations of *Harpoon*. However, several units are included for those who like to “push *Harpoon* to the limit” (i.e. write unrealistic scenarios) with the scenario editor.

In addition to the above, we have also attempted to add several new features for the “professional” wargamer / *Harpoon* user. Some examples of these features are:

Iron bomb accuracy varies with aircraft, reflecting advanced bombing capabilities.

AEGIS controlled guns and other autonomous point defense weapons have more accurate rates of fire. Stealth aircraft have been included (F-117A). Surface ships which carry helicopters can now have those helicopters assigned in the scenario editor, rather than the previous “automatic” loads. Soviet standoff missiles are now capable of high and low cruise approaches. Satellite intelligence (RORSAT and PAVESAT) is implemented for the major powers and their allies. Sonobuoys now have differing characteristics based on nationality and type.

There have been several other changes (major and minor) to the BattleSet resource structure. Some of these are already incorporated into *Harpoon* (and you will be suprised by them when the time comes) while others are improvements that will only surface when future versions of *Harpoon* become available. We belive you will enjoy them all, whether you realize they are occuring or not.

We have also included some additions that are “realistic” but not necessarily accurate. We have attempted to minimize these additions, but felt that the simulation value of some elements outweighed the value of strict reality. One such element is the Indian “Cochin” class CV. While not yet in service, it should be completed by the end of the century (when several of the “Bengal War” scenarios occur). Another element is the “Deadeye” SALH round for the Mk45. While also not in service, it could make a significant improvement in the quality of US Naval gunfire support. They are included for your experimentation. The battleships are also included for historical scenarios and use with the Scenario Editor; they will not be in service much longer. The subcaliber rounds on the battleships are included for your experimentation. They, along with battleships, will not be part of the future of the US Navy. For those of you with the Scenario Editor, we would like to mention a few things about bases. Since *Harpoon* uses Lambert Conic map projections, it is not feasible to cover areas below the equator. However, Diego Garcia is a key to US Maritime Strategy in the Indian Ocean Region. It had to be included, and it is. However, its placement in the IOPG is several degrees north of its actual location (we were considering calling it “Son of Diego Garcia”). However, since there is still plenty of blue water around it and it is comfortably distant from any enemy bases, this should not greatly affect its simulation value. Another base oddity is that the Afghani bases are represented in triplicate with widely varying statistics. These represent:

1. The base under Soviet control.
2. Mujaheddin activity in the base region (i.e. the firing of US-built Stinger missiles at flare chucking Soviet aircraft).
3. The base without Soviet “Advisors” and military equipment.

Several other bases are listed multiple times. Dhahran and Ras Tanura are listed twice, the listing with the (USA) suffixed to the name is not meant to indicate that Saudi Arabia has become a state, but that American troops and Patriot missiles are present, helping to defend our Saudi brothers and allies. Other bases are included multiple times if they have historically been occupied by different countries, and their defenses are different for the different entries, or if the base could be on either side of a conflict; through diplomacy, treachery, military action, or a change in perspective of RED and BLUE.

You may also notice that submarines can now only fire as many torpedoes as they have tubes. This was done to increase the accuracy of the simulation (no more 21 torpedo salutes) and to allow the IOPG to be compatible with possible future versions which will support reloading of torpedo tubes. Don't worry, the other torpedoes are in there, but the current *Harpoon* version can't find them. In order to be informed when future versions of *Harpoon* becomes available, just send in the warranty card which accompanied your original *Harpoon* Program.

In conclusion, we hope that you enjoy the Indian Ocean / Persian Gulf BattleSet. We would also like to point out the fact that Secretary of Defense Richard Cheney does not surf.

AIR FORCES OF THE INDIAN OCEAN / PERSIAN GULF

Country	QTY	Aircraft	Role
Afghanistan	12	MiG-19S Farmer C	Inter
	40	MiG-21MF Fishbed N	Inter
	20	Su-7 Fitter A	Attack
	12	Su-17 Fitter C	Attack
Bangladesh	30	Jian-6 Farmer	Inter
	9	MiG-21MF Fishbed N	Inter
Bahrain	12	F-5E Tiger II	I/A
	12	F-16C Falcon	Inter
India	116	Jaguar Intl	Attack
	127	MiG-21F Fishbed D	I/A
	118	MiG-21MF Fishbed N	I/A
	69	MiG-23BN Flogger F	Attack
	40	MiG-23MF Flogger	Inter
	6	MiG-25R Foxbat D	Recon
	165	MiG-27 Flogger J	Attack
	44	MiG-29 Fulcrum	Inter
	45	Mirage 2000H	Attack
	4	Il-38 May	MR/ASW
	16	Sea Harrier Mk.51	I/A
	3	Tu-142 Bear F	MR/ASW
	12	SA.319B Chetak	Naval
	5	Ka-25 Hormone	ASW
	18	Ka-27 Helix	ASW
Indonesia	35	Sea King Mk.42 A/B	Naval
	29	A-4E Skyhawk	Attack
	14	F-5E Tiger II	I/A
	12	F-16A Falcon	Inter
	26	AS.332F Super Puma	Naval
	9	Wasp HAS.1	ASW

Iran	19	F-4D/E Phantom II	I/A
	19	F-5E Tiger II	I/A
	10	Jian-6 Farmer	Inter
	18	Jian-7 Fishbed	Inter
	2	P-3F Orion	MR/ASW
Iraq	40	J-6 Farmer	Inter
	80	J-7 Fishbed	Inter
	79	MiG-21MF/PFM	FishbedInter
	81	MiG-23BN Flogger F	Attack
	21	MiG-25 Foxbat A	Inter
	24	MiG-29 Fulcrum	Inter
	104	Mirage F1EQ	25% Int/75% Atk
	34	Su-7 Fitter A	Attack
	30	Su-20 Fitter D	Attack
	8	Tu-16 BadgerC	Bomber
	9	Tu-22 Blinder	Bomber
	8	AB.212 ASW	Naval
	11	SA.321 Super Frelon	Naval
	24	A-4KU Skyhawk	Attack
	33	Mirage F1CK	Inter
Malaysia	33	A-4PTM Skyhawk	Attack
	17	F-5E Tiger II	Inter
Oman	6	Wasp HAS.1	ASW
	22	Jaguar GR.1	Attack
	8	Tornado F.3	Inter
Pakistan	147	J-6 Farmer	I/A
	60	J-7 Fishbed	Inter
	40	F-16A Falcon	Inter
	19	Mirage IIIEP	I/A
	58	Mirage 5PA	Attack
	3	Atlantic	MR/ASW
	4	SA.319B Alouette 3	Naval
	5	Sea King Mk.45	ASW
Qatar	12	Mirage F.1E	I/A
	5	E-3A Sentry	AEW
Saudi Arabia	79	F-5E Tiger II	Attack
	69	F-15C Eagle	Inter
	24	Tornado F.3	Inter
	48	Tornado GR.1	Attack
	24	SA.365F Dauphin 2	Nav Atk
Somalia	26	J-6 Farmer	I/A
	6	MiG-21MF Fishbed N	Inter
Thailand	13	F-5A Freedom Fighter	Attack
	36	F-5E Tiger II	I/A
	18	F-16A Falcon	Inter

UAE	19	Mirage 5AD/EAD	I/A
	28	Mirage 2000DAD/EAD	I/A
	6	AB.212 ASW	Naval

SHIP CLASSES USED BY MORE THAN ONE COUNTRY

Names of ships are listed after the user.

Lurssen FPB 45:

Bahrain	Ahmad El Fateh, Al Jabiri, Al Fadel, Sabah
Kuwait	Al Boom, Al Betteel, Al Sanbouk, Al Saadi, Al
Ahmadi, Al Abdali	
UAE	Ban Yas, Marban, Rodqm, Shaheen, Sagar, Tarif

Hegu / Type 024:

Bangladesh	Durbar, Duranta, Durvedya, Durdam
Pakistan	Halibat, Jajalat, Jurat, Shujat

Hainan:

Bangladesh	Durjoy, Nirbhoy, P813, P814, P815, P816, P817, P818
Pakistan	Baluchistan, Sind, Sarhad, Punjab

Shanghai II:

Bangladesh	Shaheed Daulat, Shaheed Farid, Shaheed Mohibullah, Shaheed Akhtaruddin, Taweed, Tawfiq, Tamjeed, Tamveer
Pakistan	Quetta, Lahore, Mardan, Gilgit, Pishin, Sukkur, Sehwan, Bahawalpur, Banum, Kalat, Larkana, Sahiwal
Sri Lanka	Sooraya, Weeraya, Rankamee, Balawatha, Jagtha, Rakshaka

Durance:

Saudi Arabia	Boraida, Yunbou
Australia	Success
France	Durance, Meuse, Var, Marne, Somme

Osa I:

India	Vidyut, Vinash, Nipat, Nirghat
Iraq	Nisan, Hazirani, Kanon-el-Tani, Tamouz

Osa II:

Ethiopia	FMB 160, FMB 161, FMB 162, FMB 163
India	Prachand, Pralaya, Pratap, Prabal, Chapal, Chamak, Chatak, Charag
Iraq	Al Walid, Said, R 21, R 22, R 23
Somalia	P1, P2

The true designations for the Somalian vessels are unknown.

North Atlantic Convoys - Available Platforms

Yemen P116, P117, P118, P119, P120, P121
These vessels' designations in Yemeni service are just the numbers. The letter P was prefixed to them for this battleset.

Perry:

Australia	Adelaide, Canberra, Darwin, Melbourne, Newcastle, Sydney
USA	all others

Tarantul I:

India	Veer, Nirbhik, Nipat, Vipul, Vibhuti, K 45, K 46, K 47, K 48, K 49, K 50, K 51, K 52, K 53, K 54
Yemen	F201, F202

These vessels were transferred to Yemen in early 1991 and their Yemeni names are not known

UNITED STATES NAVY CARRIER WINGS DURING OPERATION DESERT STORM

CV-62 Independence:	2-squadrons F-14A Tomcat, 2-squadrons F-18C Hornet, 1-squadron A-6E Intruder, 1-squadron S-3A Viking.
CVN-69 Eisenhower:	2-squadrons F-14A Plus Tomcat, 2-squadrons F-18A Hornet, 1-squadron A-6E Intruder, 1-squadron S-3B Viking.
CV-60 Saratoga:	2-squadrons F-14A Plus Tomcat, 2-squadrons F-18C Hornet, 1-squadron A-6E Intruder, 1-squadron S-3B Viking.
CV-67 Kennedy:	2-squadrons F-14A Tomcat, 2-squadrons A-7E Corsair II, 1-squadron A-6E Intruder, 1-squadron S-3B Viking.
CV-41 Midway:	3-squadrons F-18A Hornet, 2-squadrons A-6E Intruder.
CV-61 Ranger:	2-squadrons F-14A Tomcat, 2-squadrons A-6E Intruder, 1-squadron S-3A Viking.
CV-66 America:	2-squadrons F-14A Tomcat, 2-squadrons F-18C Hornet, 1-squadron S-3B Viking, 1-squadron A-6E Intruder.
CVN-71 Roosevelt:	2-squadrons F-14A Tomcat, 2-squadrons F-18A Hornet, 2-squadrons A-6E Intruder, 1-squadron S-3A Viking

³Much of the information in this section is derived from the Soviet Military Power. 1987.

⁴The operational commands of these officers are: 1) Strategic Rocket Forces. 2) Ground Forces, 3) Naval Forces, 4) Aerospace Forces, and 5) Air Forces.

⁵Soviet TVDs would be as follows: 1) Western TVD -Western Europe, 2) Southwestern TVD - Eastern Europe, including parts of Turkey, 3) Northwestern TVD - Northern Europe, 4) Southern TVD - the Middle East, and 5) Far East TVD - Mongolia, China and Alaska

CV-41 Midway:	3-squadrons F-18A Hornet, 2-squadrons A-6E Intruder.
CV-61 Ranger:	2-squadrons F-14A Tomcat, 2-squadrons A-6E Intruder, 1-squadron S-3A Viking.
CV-66 America:	2-squadrons F-14A Tomcat, 2-squadrons F-18C Hornet, 1-squadron S-3B Viking, 1-squadron A-6E Intruder.
CVN-71 Roosevelt:	2-squadrons F-14A Tomcat, 2-squadrons F-18A Hornet, 2-squadrons A-6E Intruder, 1-squadron S-3A Viking

Each squadron consists of 10-12 aircraft, except A-6 and S-3 squadrons, which are always 10 aircraft. All US Carriers also carry 1 squadron of 5 E-2C Hawkeye AEW aircraft, 1 Squadron of 5 EA-6B Prowler EW aircraft, and 1 squadron of 6-8 SH-3H antisubmarine helicopters.

F-18A Hornets: Use F-18C, but cannot currently carry AMRAAM or the AGM-65F Maverick.
S-3A Vikings: Use S-3B, but cannot carry *Harpoons*.

These loads are included as examples of the wide variety of carrier air wings deployed on American carriers. All of these are suitable for deployment on the carriers included in this BatteleSet.

CARRIER AIR WINGS

France:

Clemenceau:	OR	
10-F-8E Crusader		20 Super Frelon
16-Super Etentard		and Lynx
6-Alize		
8-Super Frelon		
Charles de Gaulle:	OR	
10-Rafale M		24-Rafale M
16-Super Etentard		10-Super Frelon
8-Super Frelon		

United Kingdom:

Invincible:

- 8-Sea Harrier FRS.2
- 9-Sea King HAS.6
- 3-Sea King AEW.2

USSR:

Kiev:	18-Yak-38 Forger or Yak-141 Freestyle	12-Yak-38 Forger or Yak-141 Freestyle
	8-Ka-27 Helix A	16-Ka-27 Helix A
	4-Ka-25 Hormone B or Ka-27 Helix AEW	4-Ka-25 Hormone B or Ka-27 Helix AEW
Kusnetsov:	12-18 Su-27K Flanker	
	12-18 MiG-29K Fulcrum	

10-Ka-27 Helix A
4-Ka-27 Helix AEW or
other AEW aircraft

India:

Vikrant:

6-Sea Harrier FRS Mk.51
8-Sea King

OR

12-15 Sea King &
Helix

Viraat:

20-Sea Harrier FRS Mk.51
8-Sea King

OR

6-8 Sea Harrier
20-Sea King & Helix

Cochin:

20-30 Fighters: MiG-29,
Harrier, Yak-141
8-10 Sea King

Appendix A.

SUPERPOWER POLITICS & MARITIME (Strategies in Modern Warfare)

POLITICAL AND MILITARY PHILOSOPHY:

The Soviet Union.

Prior to the October Revolution of 1917, power was in the hands of the Czars; today it is in the hands of the Communist Party of the Soviet Union (CPSU), especially those Party members who belong to the Politburo. Control of the Soviet military is exercised by Politburo members sitting on the Defense Council, chaired by the General Secretary of the Communist Party.³ Today, the only military of higher sitting on this council is the Minister of Defense. He holds the military rank of "Marshall of the Soviet Union". and is its highest ranking military officer. The Defense Council is responsible for implementing all the Party's wishes with respect to national defense. The presence of the military on this council ensures that direct action is taken on its decisions.

The absence of checks, balances, civilian control, and diffused power makes the Soviet military a factor to be reckoned with in domestic and international strategic planning. However, Party control over the military establishment is solidly maintained by the KGB which has political officers assigned to monitor the behavior of individual unit commanders.

Since the Soviet Union believes in the rapid and efficient transformation from peacetime to wartime posture, all major political and military structures approximate the anticipated wartime structure, thus ensuring minimal organizational disruption. Direct leadership of war is the responsibility of the Supreme High Command (VGK), comprised of the Minister of Defense, his five commanders-in-chief⁴, plus six other deputy Defense Ministers for civil defense and other matters. In the event of hostilities, the Soviets would create Intermediate High Commands (TVDs) in the various theaters of operation subordinate to the VGK⁵. In this manner they would maintain a strong centralization of strategic planning and decentralized battle management. Moreover, subordinate Warsaw Pact members would instantly be integrated as an extension of the Soviet armed forces under a unified command structure within Western and Southwestern TVD's. The philosophy behind such an approach to war is that a unified, cohesive, well trained force controlled by a superior command will defeat any loose coalition of forces such as NATO.

In light of the foregoing discussion, many people may consider the Soviets to be an aggressive people. But such is not the case, for the Soviet Union is not an overtly aggressive nation. Indeed, they have a healthy respect for war, having suffered staggering losses in World War II. But, like an enraged mother bear who senses a threat to her cubs, she will react violently towards any perceived threat to the Motherland.

And yet, parallel to this aspect of their national character is the fundamental tenet of Communism that the inexorable forces of history will lead to the eventual victory of the Communist system over the contradictions of Capitalism. To this end, they will use any covert and/or political means to assist history in reaching its foregone conclusion. In short, the Soviets believe in taking the long view. They will wait patiently for their eventual triumph since they see long-term trends as being on their side. What this means is that they will only use military force when they think they are backed into a corner. When they do attack it will probably be because they see no other solution to their problem, and because they see the safety of their nation at stake. Strategically, they will fight a defensive war, one designed to remove some threat to the Soviet Union.

SOVIET MARITIME STRATEGY

This “scientific” view of history which is so peculiar to Communism also carries over into their military doctrine. The Soviet definition of military doctrine states that it is based on a “system of scientifically founded views”. This theme of science is a constant throughout all aspects of the Soviet military. When a Soviet officer must decide how many aircraft to use in attacking a target, he uses a formula. When a Red Army lieutenant is asked how to act in a specific tactical situation, there is only one correct solution, just as there is only one correct answer to a mathematical equation.

Soviet doctrine is based on both a combination of political and economic inputs from their leadership and on Military Science (the scientific “physics” of war). Based on these two sources they have developed the Military Art: the theory and practice of war in a specific time and place. From this formidable body of work, the Soviets have developed a list of missions to be performed by their Navy in wartime. In order of priority, they are:

- Operations Against the Land (Strategic Strike)
- Anti-Naval Nuclear Forces (Anti-SSBN)
- Protection of their SSBNs (Pro-SSBN)
- Anti-Surface Lines of Communication (Anh-Convoy)
- Protection of their own lines of Communications
- Support of the Army

When compared with an equivalent list of US missions, there are many differences. The US does not prioritize its missions, except to place primary emphasis on Deterrence. Soviet missions are more carefully and completely defined. But this attention to detail and structure could be a two-edged sword: on one hand, Soviet forces have less flexibility than the Western system, imposing greater restriction on Soviet forces and allowing for less strategic and tactical creativity.

⁶The Modern US War Machine, Ray Bonds, Editor (New York: Crown Publishers, Inc.) 1987, p. 31.

Strategic Strike

Since the Soviet Union bases its military strategy on the land, this is also called “Operations Against the Land”. These missions would be executed by Delta and Typhoon class nuclear ballistic missile submarines (SSBN) firing from protected areas in the Barents and Kola Seas, and from under the Polar ICE CAP. Older Yankee-class boats would have to fire from positions off the Coasts of the United States. Today, the very newest Soviet attack submarines (SSN) also have a strategic strike capability as do American attack subs. However, unlike American submarines which can launch either nuclear or conventional cruise missiles, Soviets submarines fire only the nuclear SS-N-2 1.

These subs are so valuable for other roles that their participation in a nuclear strike is unlikely.

Anti-Naval Nuclear Forces

Since World War II, the Soviet Union has viewed the nuclear strike capability of first the US, then other navies, as the primary naval threat to the Soviet State. These threats would come from American carrier-based strike aircraft, nuclear ballistic missile Subs (SSBN), and (most recently) from cruise missiles capable of being launched from a variety of platforms. Defense of the Motherland against nuclear strike is not the responsibility of the Navy, alone: the air defense force has its role to play in the event that missiles are launched. However, the role of the Navy is to track and attack potential launch platforms as they approach within firing range. In actual wartime, they would immediately attempt to destroy such platforms.

Protection of Their SSBNs

To protect their own nuclear strike force, the Soviet Navy will probably form “bastions” in the Barents and Kola seas, even stationing ballistic missile subs under the polar ice caps. A bastion consists of an area of water, partially enclosed by friendly shoreline, cornered off by mines, Surface. submarine. and aircraft forces will patrol inside and outside this area. Acoustic sensors in the seabed will help detect hostile submarines. In the event that Soviet SSBNs are required to leave their bastion, they WILL be escorted by the newest and best attack submarines. Where there is no ice, patrol aircraft and helicopters will continuously patrol overhead. The most capable ASW ships WILL form hunter-killer groups. Hence, a major part of the Soviet Navy WILL be organized with the one goal of preserving the land-attack capability of the Soviet naval forces.

Attacking Enemy Lines of Communications (Anti-Convoy) Once the Soviets secure their own ability to strike the enemy’s homeland and reduce its ability to strike their own country, they WILL use their remaining forces to attack the enemy’s strategic and tactical supply lines which would normally consist of large naval convoys and other merchant traffic. Given the fact that none of the NATO allies are economically, strategically, or militarily self-sufficient, this action would be aimed at strangling the NATO war effort on land. To accomplish this task, the Soviet Navy would have to leave home waters and even go beyond the Norwegian Sea, using submarines and long-range strike aircraft. Mines would be laid in shallow waters near enemy ports, and the ports themselves might be attacked by air strikes and/or commando teams with sabotage responsi-

bilities.

Support of the Army

The lowest-priority mission defined by the Soviet strategists is supporting the Army. This would be performed by amphibious forces and small combatants. Small landings would be made to outflank the enemy. Supply cargo would be carried in the waters off friendly coasts, escorted by naval warships.

The United States and Her Allies

Political and Military Philosophy:

To understand the thinking behind Western military philosophy and strategy it must be remembered that the United States and her allies represent the greatest coalition of economic powers ever witnessed in world history. Within this consortium of power, no nation is as economically self-sufficient to the same degree as is the Soviet Union. Instead, the stability and well-being of the West is dependent upon an unimaginably complex web of financial and trade arrangements designed to allow each nation a maximum economic benefit consistent with the overall health of the other members of this trading society. Within this system, the economy of any one major nation is largely dependent upon the state of the economy of any other major nation. Because of this, the capitalistic societies have come to realize that no one nation can pursue a policy too detrimental to the well-being of any other nation. Should the economy of any one of the major trading partners collapse, the repercussions will be severely felt throughout the entire Free World.

Western politics tends to be strategically less long-range than do Soviet politics, focusing more on the immediate state of the economies of member nations. But because of this world-wide economic arrangement, Western military planners have developed strategies built around the rapid deployment of forces to sensitive areas, with the goal to protect the vital arteries which sustain the health of allied powers. So whereas the Soviets would view control of the seas as a means of both protecting the Motherland and isolating land-based battles from allied support, the US and her allies view sea power as a vital necessity towards allowing the free flow of both economic and wartime materials.

Because of the nature of Western economic arrangements, American political and military philosophy with regards to communist COUNTRIES is one of "containment". i.e., preserving the status quo by erecting a series of alliances with countries inside our sphere of influence. Of these alliances, the best-known, most powerful, and most crucial to the defense of worldwide democracy is the North Atlantic Treaty Organization (NATO).

By comparison to the relatively simple, straightforward, and somewhat streamlined peacetime military organization of the Soviet Union, that of the United States would appear absolutely muddled. And in many respects it is. Yet just as political ideologies and national self-perceptions have given rise to the Soviet military organization, so too has historical Western ideologies and concerns shaped our own political-military

system.

The United States has traditionally avoided a centralized “General Staff” concept in its military organization. In one respect, this concern originated with the framers of the Constitution who realized that the British general Oliver Cromwell had established a military dictatorship that had almost throttled democracy in its infancy. In part, also, is the concern over the establishment of a general staff which would operate as a “state within a state” as did the German General Staff in World Wars I and II.⁶ As a result, control over the American military is diffused through a vast interlocking and complex bureaucracy of civilian agencies and military commands administered under civilian control through the Department of Defense. From the perspective of Western ideologies concerning the inviolability of personal and social freedoms this concept is almost sacrosanct. There are, however, both organizational and economic prices to be paid for this concept: an economically wasteful lack of cohesiveness in military planning and procurement, unclear and uncoordinated objectives among the three armed services (Army, Navy, and Air Force), and a burgeoning military-civilian bureaucracy which consumes tax dollars at a formidable rate.

With regards to the administration of our military treaties, much the same ideology applies. Each member country is responsible for maintaining a military presence consistent with its national interests. In the event of a worldwide conflict, each nation would be faced with the dilemma of how best to contribute its military resources in defense of the common cause against the protection of its own borders and its own population. For example, in the event of a Soviet incursion into West Germany, our British allies would have to decide between committing their troops to that front, or protecting their own soil against a simultaneous Soviet threat.

Moreover, in the event of a large-scale conflict, the Western philosophy calls for a coalition between the armed services of each country, with strategic and tactical responsibility for the execution of the war falling upon military representatives from each member country acting in concert. But while the difficulties inherent in a system lacking a strong monolithic command structure are obvious, there is also one very important strength. Once the fundamental strategy has been established, each military commander has great latitude on how best to execute his responsibilities. This concept of individual responsibility for decisions reaches down even to platoon and squad level. This strength of the democratic tradition renders a war effort less prone to deliberation should key individuals or units within the command structure be killed or otherwise removed from action.

American Maritime Strategy

America’s Maritime Strategy is a part of its overall National Military Strategy. National Military Strategy is built around the tripartite concepts of: 1) deterrence and transition to war, 2) seizing the initiative, and 3) carrying the fight to the enemy.

Deterrence and Transition to War

Deterrence, both nuclear and conventional, is designed to limit Soviet options and to convince them that any military solution to a crisis will fail. The concept of nuclear deterrence, the so-called “balance of terror”, is familiar to everyone. Less

well-understood is that of conventional deterrence. Under this concept, the US and her allies will place naval and land units in or near crisis situations, altering the balance of forces so that the chance of a hostile military solution to the crises is lessened. Of course, the opponent may see these forces as something to be matched, so the amount and nature of the force is critical. However, a key factor in this philosophy is the fact that the Soviets and her Warsaw Pact allies enjoy a considerable advantage in the size of their conventional forces. In most scenarios it is assumed that the Soviets will enjoy a numerical superiority in the event of a full-scale conventional conflict. Therefore, for a Western conventional deterrence to be effective the Soviets must be made to realize that superiority by virtue of numbers is illusory. Critical to this strategy is: a) superior NATO firepower resulting from technologically superior weapons systems, b) surrendering large tracts of territory in order to gain both maneuvering rooms for counterattack and to gain time in bringing our industrial superiority to bear, and c) superior mobility in placing both regular and reserve forces into theaters of crisis situations and in reinforcing the front with our industrial output.

Seizing the Initiative

If deterrence fails the Soviets will probably make the first move. Since NATO is a coalition, the Soviets have the initiative as a single player. Having the initiative is vital in a military campaign because the force with the initiative will get his enemy to react to his actions, and will be able to choose the time and place for engagement. The US, therefore, must seize the initiative and turn the battle to her favor.

The Allies will first try to counter the enemy's initial attack, causing them to stall and to lose the timing of their pre-planned campaigns. The Allies may also attempt to disrupt the Soviet's scientific approach to campaigns by launching attacks or maneuvers designed to force the Soviets to react to unanticipated threats. In this stage of conflict, the line between NATO offensive and defensive actions may be blurred. For instance, an apparently offensive strike against airfields on the Kola Peninsula may, in fact, be designed to protect convoys from attacks by land-based bombers. "Seizing the Initiative", then, refers to changing from a defensive posture to an offensive one. The amount of time this may take to happen will vary with the situation, but it has to happen.

Power Projection

Once NATO has the initiative it will try to turn the tide of battle and carry the fight to the enemy. This is what the Navy means by "Power Projection", and it entails moving into the adversary's home waters and attacking him there so that his forces will have to be used to defend his own territory. Tasks to be performed might include recapturing conquered territory, clearing the seas of submarines so that ships can move through it, or eliminating enemy air capability by striking at enemy bases. If the Navy is able to project its power, the US and her allies should have the upper hand. Yet this might also be the most critical part of the war. Hopefully, of course, the enemy will sue for peace at this point, realizing that his military and political goals are now impractical or unobtainable. But, on the other hand, we cannot press a nuclear opponent too closely. If he thinks that his national survival is at stake he might use strategic nuclear weapons, or threaten their use, in order to gain better terms. The risk

of nuclear weapons being used is present throughout modern conventional war, but the real danger of their being used will most likely occur if one side feels that it is losing, or has lost.

US Navy Organization

The US Navy engages in the projection of power all over the globe in support of American policy and goals. It maintains bases in, and has ships on, virtually every ocean in world. For command and control purposes, Naval forces are divided into numbered fleets, each with their own geographic responsibilities: Second Fleet (Atlantic), Third Fleet (Pacific), Sixth Fleet (Mediterranean), and Seventh Fleet (Far East). Within each Fleet, units are organized into "Task Forces", i.e., groups of ships chartered to perform specific tasks such as convoy escort, amphibious landing and support. strikes against enemy bases. etc. Because some tasks are constantly being undertaken, planners simplify matters by using several standard task force organizations.

Carrier Battle Groups (CVBG)

The first and most important type of task force is the Carrier Battle Group. Centered on a single aircraft carrier (CV), the CVBG includes two or three guided missile cruisers (CG) for long-range air defense, a few guided missile destroyers (DDG) for close-in air defense, two destroyers (DD) or Frigates (FF) for anti-submarine defense, and a few submarines patrolling in front of the task force which are used for both offensive and defensive purposes. The CVBG may also include support ships and auxiliaries to support the task force with fuel, ammunition and stores. A carrier battle group has an impressive array of firepower. It can attack surface targets with strike aircraft, missiles from the escorts, or torpedoes from the submarines. It can attack hostile submarines with ASW helicopters, its own subs, or ASW weapons from escort ships. It can destroy incoming aircraft with either its own fighters or surface-to-air missiles (SAM). It can also strike enemy shore bases either with aircraft or with long-range cruise missiles. The American CVBG is the most flexible and powerful combination of naval forces that exists.

The navy also uses light carrier battle groups centered on a VTOL (vertical take-off and landing) or helicopter carrier. Although these battle groups are quite inferior to the CVBG in terms of overall firepower, they are invaluable for ASW, escort, or support roles.

Surface Action Groups (SAG)

A Surface action group is centered on one or more powerful surface ships such as cruisers and/or battleships, and includes several escort ships for protection. Its mission is to provide heavy firepower when needed, as in support of an amphibious landing. A SAG would also use missiles (or guns, in rare instances) to attack hostile surface units. But since the Soviet Navy does not usually deploy its surface ships in distant waters, the chances of a SAG being used in this role is somewhat limited.

REVIEW OF MODERN WEAPONRY-

THE IMPACT OF TECHNOLOGY

Technology is the driving force behind modern naval warfare, much more so than warfare on land. On land, there have certainly been technological improvements in such systems as tanks, troop carriers, helicopters, artillery and explosives, visual detection systems and the like. Nevertheless, the dominant force on land continues to be the individual infantry soldier, technology has not changed this fact. At sea, however, the development of new weapons and sensors has had a dramatic effect. Modern naval warfare fundamentally involves machines fighting other machines, with humans directing them and serving as parts of the machines, performing tasks that electronic subsystems are not yet capable of doing. Ever since war at sea became mechanized, the goal has been to remove humans from the loop and to maximize speed and efficiency. The effect has been to improve reaction time and, simultaneously, to reduce manpower support overhead. The ultimate example, to date, is the Aegis anti-air warfare system: under human direction it detects, classifies, and engages hostile aircraft without human intervention. Advanced technology makes this system possible, but it also increases the burden on the person ultimately responsible - the naval commander.

Search and Detection Systems

Before an enemy can be engaged and destroyed he must first be detected. If he cannot be detected, located, and tracked no amount of firepower will be to any avail.

Modern detection and military intelligence capability commences with reconnaissance satellites orbiting the earth at a distance of 150 miles or further. These "spy-in-the-sky" systems can monitor the movement of enemy troops and materials in and out of port, as well as the location of hostile naval task forces at any point on the globe. Although they currently would play little part in an actual tactical engagement, their information is invaluable to military commanders in determining enemy positions and strengths. The capability of technological nations to exploit outer space is currently giving rise to a new phenomenon: space warfare. In order to deny an enemy access to intelligence data derived from spy satellites, we are now witnessing the advent of anti-satellite weapons such as killer-satellites (orbiting satellites whose sole purpose is to destroy an enemy's reconnaissance satellites) and anti-satellite missiles.

At the tactical level, enemy forces are located, tracked, and identified by a variety of sophisticated sensors. Air search radar can detect and track aircraft at ranges of more than 200 miles, while surface search radar perform similar tasks on targets over forty miles away. Passive electronic listening systems receive and analyze the various enemy radar emissions, allowing naval commanders to precisely classify what kinds of ships, aircraft, and other weapons systems he will be encountering. In fact, since receivers can detect emissions at distances far beyond radar range, task force commanders can know the composition of their adversaries long before they are detected and tracked by radar. Information from active and passive devices is fed into computers where it is analyzed, with the results displayed on consoles. In fact, the state of the art is such that all information being obtained by one naval unit can be networked to other units so that any one ship has access to the same information as any other ship.

But as important as it is to know the composition and the whereabouts of the enemy, it is equally important to deny him access to similar information. As a result, modern naval units employ a variety of systems designed to jam and/or deceive enemy radar. Such systems run the gamut from simple chaff (strips of aluminum foil cut to lengths effective against specific electro-magnetic wavelengths), to electromagnetic jamming beams tuned to the specific frequencies of enemy radar, to systems designed to confuse enemy commanders by producing phantom or mislead-

ing electronic targets.

All that has been said about surface detection systems can also be said about subsurface systems. Sonar is to undersea warfare as radar is to surface warfare, with the difference being that sonar operates on the principle of reflected sound waves, as opposed to reflected electromagnetic waves. All submarines and surface combatants have onboard sonar systems which are used for precise target tracking and torpedo fire control. Some systems are integral to the ship itself, and some are towed behind the ship to reduce the effects of ship noise on sonar reception. In addition to these active devices, submarines are equipped with long-range passive listening devices. These systems are capable of alerting submarine captains to the presence of enemy subs at distances far beyond sonar range. By being passive they also have the advantage of not alerting the enemy to one's presence. Their only disadvantage is that they cannot track a target as precisely as can active sonar.

Anti-submarine helicopters use sonar devices which are dipped into the water from the hovering platform, as well as sonobuoys (expendable sonar devices dropped into the vicinity of where a submarine is suspected of being). Anti-submarine fixed-wing aircraft also employ sonobuoys as well as Magnetic Anomaly Detection (MAD), a system which is capable of sensing disturbances in the earth's magnetic field caused by the presence of a large metallic object, such as a submarine.

Air and Anti-Air Weaponry

It is an axiom of warfare that the force which controls the high ground controls the battle. Beginning with World War II, winning the high ground has meant control of the skies. In the early 1940's, of course, controlling the skies meant controlling the airspace in the immediate vicinity of a task force. Today, however, advances in both aircraft design and in guided missile capability have expanded the threat envelope to ranges of hundreds of miles from the fleet.

Control of the skies (and hence, control of the seas) is a function of guided missile technology. Fundamentally, there are three types of guided missiles: Surface-to-surface missiles (SSM), surface-to-air missiles (SAM), and air-to-air missiles (AAM). Tactical missiles are normally guided to their targets by one or more types of guidance systems: inertial navigation, active homing, semi-active homing, or passive homing. (A fifth type of missile, the beam rider, has been phased out of active use).

INERTIAL navigation is primarily employed in SSMs, and means that the precise geographic location of both the launch platform and the target are fed into a computer on board the missile. Based on this information the computer programs the missile's flight to the target. Of course, in naval warfare the target is in motion and cannot be expected to be in the same location as it was when the missile was launched. Consequently, anti-ship missiles employing INERTIAL navigation often have a second type of guidance system (normally active homing, as described below) which takes over once the missile approaches within a specified distance of the target. The *Harpoon* missile is an example of a SSM employing both inertial navigation and active homing guidance systems, as is the hypermodern AMRAAM (Advanced Medium Range Air-to-Air Missile).

Active homing means that the missile itself radiates a coded radar beam, called an “illumination” beam. The beam is coded so that the missile can recognize its own beam from all the other radar beams that will exist in an hostile environment. When this signal is reflected from the target, the missile receives it, processes the signal for target location and predicted intercept point. then guides the missile to the target. The advantage of active homing is its “fire and forget” capability, i.e., once the missile has been launched the platform can turn its attention to other threats. The disadvantage is that target destruction information may not be available except by search radar. Active homing systems are also complex and costly. Semi-active homing is similar in concept. except that the target is illuminated by a coded beam originating from the launch platform. Systems called Fire Control Directors radiate both a target tracking beam and a separate illumination beam electronically aligned to the axis of the tracking beam. Once the fire control director “locks on” with its tracking beam the missile is fired and uses the information received from the encoded illumination beam to process an intercept course. Because the target is being continuously tracked by the highly-precise tracking beam, target destruction information can be immediately obtained. The disadvantage is that the fire control director must be occupied with a single target until intercept occurs; otherwise, the missile will have no target illumination information. Most SAMs and AAMs currently use semi-active homing systems, with the most notable shipboard missile being the Standard RIM-66/67 and the most notable air-launched missile being the Sparrow AIM-7.

Passive homing means that neither the missile nor the launch platform radiate a guidance beam. Instead, the missile homes in on specific radiation emitted from the target itself. Some missiles (such as the fabulously successful Sidewinder AIM-9) will home in on a source of intense heat, such as a jet engine’s exhaust. Others, such as the Standard ARM (anti-radar missile), will home on any radar beam emitted by the target. Passive homing missiles generally have the advantage of simplicity and low cost, combined with a high degree of effectiveness. However, they are usually of much shorter range than their semi-active counterparts. usually in the 15+ mile neighborhood.

Many guided missiles have back-up systems to increase their chance of intercept should the target employ some sort of defensive countermeasure. Active and semi-active homing missiles often have a “home-on-jam” capability which is automatically activated should the target attempt to jam their illumination beams. Anti-radar missiles are designed to continue their flight to the last predicted intercept point if the enemy should turn off his radar; this can be fairly effective against slow-moving ships or stationary ground radar. And heat-seeking missiles, which formerly could be foiled by aircraft dropping flares, are now designed to ignore such spurious heat sources. Despite all the advantages of guided missiles, they are still ineffective against targets that are very close (inside one mile). Because of this fact, and because of the threat of low-flying cruise missile which might not be detected until impact is immanent, modern gun systems such as the 20-mm Phalanx MK 15 & 16 have been developed. Comprised of a fire control radar and a six-barreled “Gatling gun”, over 400 of these self-contained units have been installed on over 125 US

ships. Many further supplied to foreign buyers. This “last ditch” defense system has been proven effective against the French Exocet missile in live firing tests.

Warfare Systems

There are fundamentally only two major types of anti-submarine weapons: depth charges (conventional explosive and nuclear) and torpedoes (including rocket-boosted stand-off models).

The conventional depth charge, of course, was the old stand-by of World War II. Today, because of technological advances which have led to the increased reliability of torpedoes, the conventional depth charge generally plays a less important role than it did in the past. It sees greatest use in the navies of Europe and Asia, and is also used by the U.S. Navy when attacking targets in shallow water.

Western arsenals contain nuclear depth charges in yields ranging from 1.5 - 15 kilotons. These weapons can be rocket-launched from submarines or surface vessels, or they can be dropped by aircraft. The danger, of course, in employing such weapons is the risk of further nuclear escalation. Therefore, for all practical purposes, any conventional undersea conflict would be fought using torpedoes with conventional warheads.

In many respects, modern torpedoes are like guided missiles adapted to an undersea environment, but instead of rocket motors, torpedoes are driven by propellers turned by steam, gas generators, or electric motors. Like missiles, torpedoes have various types of homing or guidance systems; or they can be free-running. However, the most effective ones incorporate self-contained guidance. Active homing systems are common; but unlike missiles which home on reflected electromagnetic energy, torpedoes utilize on-board sonar to detect and lock-on targets. Many also incorporate either a passive homing system whereby the target is tracked by the noise it makes, or they use a wire-guidance system where data from shipboard sonar computers feeds target information to the torpedo by a thin wire trailing behind it. Most torpedoes utilize a combination of either passive homing or wire guidance, along with active homing.

The key to a successful attack against submarines is to not let the enemy know that he is being attacked until it is too late for him to make effective evasive maneuvers. Consequently, ASW units will first try to locate and identify an enemy using passive means, for once a submarine hears the pinging of active sonar he is alerted to possible attack.

Torpedoes can be launched from a variety of platforms: surface ships, submarines, helicopters, or fixed-wing aircraft. The torpedo launched most often from helicopters or aircraft is the MK 46. This relatively light weight active/passive acoustic homing weapon uses a thermo-chemical cam engine to provide up to 45 knots of speed with a range of about 3 - 4 miles at a depth of 1500 feet. But the staple of today's submarine-launched arsenal is the MK 48. This torpedo has a diameter of 21 inches and carries 650 pounds of high explosive. It has a variety of sophisticated

homing devices, including two-way wire-guidance (which allows the launching submarine to receive target data from the torpedo itself for greater control), along with active and passive sonar. It also incorporates a “fire-and-forget” mode which can be initiated if the torpedo’s own noise masks the launch submarine’s passive sonar detection system. It can attain speeds of up to 55 knots and has a range of over 23 miles.

Stand-off torpedo launch capability for surface ships is afforded by the ASROC (anti-submarine rocket) which incorporates a MK 46 torpedo with a rocket booster, propelling the weapon to submarine targets over 5 miles away. Some US submarines will achieve a stand-off capability with the Sea Lance anti-submarine stand-off weapon (ASW-SOW). This system uses either a MK 46 or MK 50 torpedo with a rocket booster. It is launched from a torpedo tube, and can be effective against subsurface targets at ranges of up to 100 miles.

Appendix B:

Glossary of Terms and Abbreviations

AAM: Air-to-Air guided Missile.

AAW: Air-to-Air Warfare.

AEW: Airborne Early Warning.

AIM: Department of Defense designation for any air-launched anti-aircraft missile.

Airfield: A base unit that has runways to launch aircraft.

Altitude Bands: The altitude and depth representations used in the *Harpoon* system.

ARM: Anti-radar missile.

AS: Air Search, used in Sensors Screen displays.

ASM: Air-to-Surface guided missile.

ASROC: Anti-Submarine Rocket. A ship-launched weapon comprised of either a homing torpedo or a nuclear depth charge attached to a rocket booster.

ASuW: Anti-surface warfare.

ASW: Anti-submarine warfare.

AS/SS: Dual mode radar. both air and surface search capable in one unit, used in the Sensor Screen displays.

Baffles: The rear part of a ship or submarine where the power plant noise combined with the propulsion noise creates an area where hull sonar cannot detect contacts directly behind a platform in a 60 degree arc.

Base: In *Harpoon* the general term referring to Airfields, Ports, Cities and combined Port/Airfield units.

Bastion: Any heavily-defended area of water. Normally, a bastion includes water partially enclosed by friendly shoreline, and cornered off by mines. Surface, submarine, and aircraft forces would patrol inside and outside this area, and acoustic sensors in the seabed would help detect hostile submarines.

Bearing: The direction in degrees from a detecting unit to a contact.

Bridge: The place within a ship where navigation and piloting occurs.

Call Sign: In computer *Harpoon* each unit and group has a call sign. Groups have a three letter call sign, a BLUE group might be AAS, while a RED group could be ZS. Units within a group share the first two letters of the Group call sign, with a two digit unit indicator (i.e. the first unit of Group AAS would have the call sign of AA01). The third letter of the Group call sign indicates the known group type, namely:

C	Carrier Group
S	Ship Group
U	Submarine Group
A	Plane Group
H	Helicopter Group
M	Missile Group
T	Torpedo Group
a	Airfield Group
P	Port Group
b	Airfield and Port Group

Ceaser: The Soviet fixed seabed passive sonar sensor system. Located on the ocean floor in the North Sea.

Cavitation: Submarine and surface ship propellers create small bubbles in the water if they spin at high speeds. These small bubbles almost immediately collapse, creating a sound called cavitation noise. As submarines go deeper, the pressure allows their propellers to spin faster without creating this sound.

CG: Cruiser Guided Missile. American designation for any cruiser armed with surface-to-air guided missiles.

Chaff: Strips of metallic foil, cut to the wavelengths of specific radar, used for

jamming.

CIC: Combat Information Center, the tactical center of the ship, where enemy contacts are plotted and tactics planned and executed.

Class: In *Harpoon* this refers to a specific platform type of which there may be many individual members. For example, the Iowa class of Battleships includes the Iowa, New Jersey, Wisconsin and Missouri as members of that class of ship.

CSUP: Communist Party of the Soviet Union.

CV: American designation for any aircraft carrier.

CVBG: American designation for an aircraft carrier battle group.

CZ: Convergence Zone used in Sensor Screen displays.

D: Dipping Sonar used in the Sensor Screen displays.

DD: American designation for any destroyer.

DDG: Destroyer Guided Missile. American designation for any destroyer armed with surface-to-air guided missiles.

Director: A sensor specific to a particular weapons mount, used to target the weapon before and/or during firing.

Electronic Counter Measures. Any device or system capable of either jamming or deceiving enemy radar.

ELINT: Electronic Intelligence. The identification of specific enemy radar, as well as the platforms employing these radar, by the analysis of received radar signals.

Endurance: In *Harpoon* this refers to airborne endurance (i.e. how far you can go before running out of fuel). By using the range circle options, you can visually determine your endurance distance for a currently set altitude and throttle setting.

ESM: Electronic Support Measures. Any system capable of detecting and analyzing enemy radar signals.

FF: American designation for any frigate. Frigates are normally smaller than destroyers.

FLIR: Forward Looking Infrared sensor, carried by some aircraft and used to spot surface ships and surfaced or snorkeling submarines, used in the Sensors Screen displays.

GIUK: Greenland-Iceland-United Kingdom. The opening between Iceland and the Faeroe Islands, leading to the straits between Scotland and Denmark.

Harpoon

Scenario Editor



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Your Role In Scenario Editor

THE COMPUTER OPPONENT

In Scenario Editor, your primary role is that of the “brains” behind the computer opponent. You supply the mission objectives and long term strategic planning that the computer opponent is to carry out. You can rely on the computer to carry out attacks (including air strikes from bases) against all newly detected units. The only exception is bases, which are stationary, known targets. It is your responsibility to configure attacks against the computer opponent’s bases in Scenario Editor yourself.

Hint: to set up potential strikes against surface and submarine units, you may want to station a long-distance air patrol in the vicinity of the target group. This will reduce prosecution time if the launching base is substantially far away from the target. (Most mainland Soviet bases fall into this category.) Just be careful to station this patrol where it won’t be easily detected!

PLAYING BOTH SIDES

In Scenario Editor, it will be necessary for you to give orders for both the Blue and the Red sides. These orders will be carried out by the computer opponent when playing against a user, and most orders will be ignored when the user is playing that side, forcing him to supply his own. All that will remain for the user are the groups and units, and their initial movement orders, including starting points, paths, initial speeds, and formation patrols.

THE DIFFERENCE BETWEEN A BATTLESET AND A SCENARIO

Before editing your own scenarios, it is important to understand the difference between a BattleSet and a scenario. A BattleSet consists of the maps, data, pictures, and even songs that represent the area and nations involved in a related set of naval conflicts. These naval conflicts are referred to as scenarios, and they draw upon the data contained in the BattleSet. This BattleSet data is kept in a highly compressed format; uncompressed, it requires roughly 2-3 megabytes of disk space. A scenario, on the other hand, is very small, seldom exceeding 20KB of disk space. Hence, in Scenario Editor, you will be “editing” the way the BattleSet data will be used, rather than the data itself.

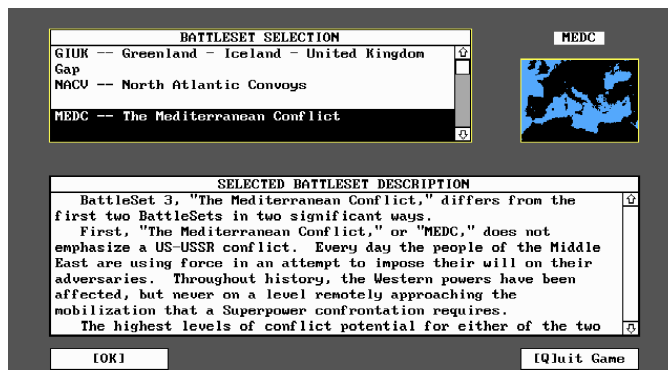
We realize that many of you would like to modify the actual platforms in the database, and this feature may be included in future releases. But for now, enjoy the challenge of putting together scenarios, using one of the most sophisticated and comprehensive naval databases available to the public: Larry Bond’s widely acclaimed Harpoon database.

Menu Items

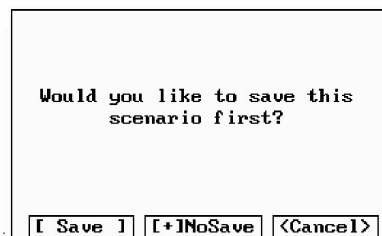
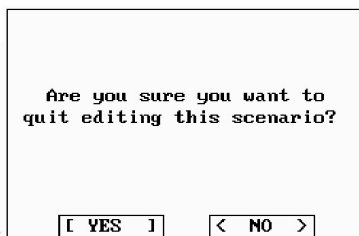
GAME MENU

Change BattleSets — Allows you to edit scenarios for a different BattleSet.

A dialog will come up verifying that you are finished editing the current scenario. If



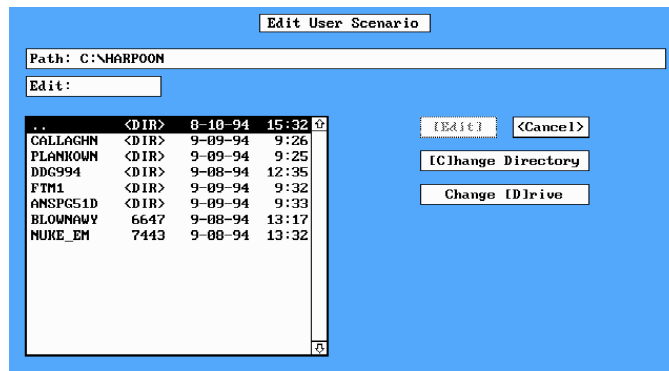
you have made any changes to your current scenario, you will be given the chance to save it. Unless you choose "Cancel" from the dialog, the next screen you will see is the familiar "BattleSet Selection" screen, where you may choose to load any of the battlesets you have purchased. Selecting "OK" at this point brings you back to the Scenario Editor main screen with an empty scenario.



New Scenario — Allows you to restart with an empty scenario.

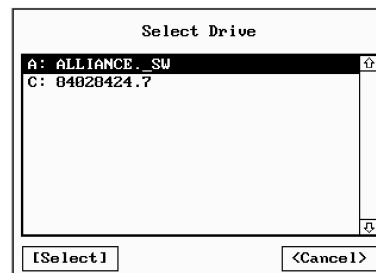
As with Change BattleSet, you will first be presented with a verification dialog - this is you one chance to cancel. (Again, you will be able to save any changes you have made to your current scenario.)

Edit User Scenario — Allows you to edit previously saved scenarios.



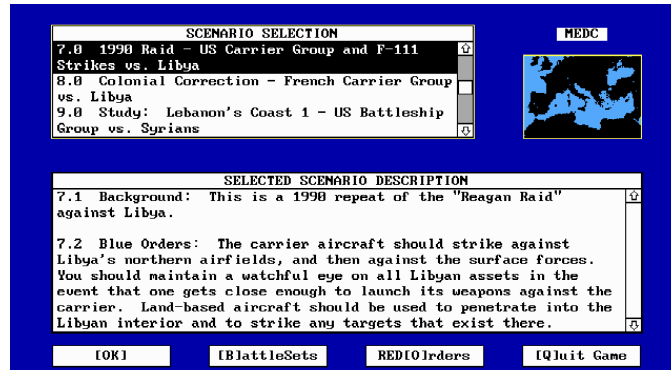
After verifying that you wish to quit your current scenario, the “Edit User Scenario” screen will appear. At the top of the screen, you will see the path of your current directory, followed by a box labeled “Edit:”.

Under this box appears a scroll box listing all of the subdirectories and scenario files in your current directory. You may use the “Change Directory” button to view one of these directories. (NOTE: the special directory “..” indicates the parent directory of your current working directory.) You may view the contents of another disk drive by selecting the “Change Drive” button. This will bring up a scroll box containing your currently active disk drives, listed by drive letter and volume label. Floppy drives will not be listed unless they have a diskette properly inserted with the drive door closed. Selecting a drive will show you its contents in the scroll box. By using the “Change Directory” / “Change Drive” Buttons together, you will be able to edit scenarios from any directory on any drive that your machine has access to.



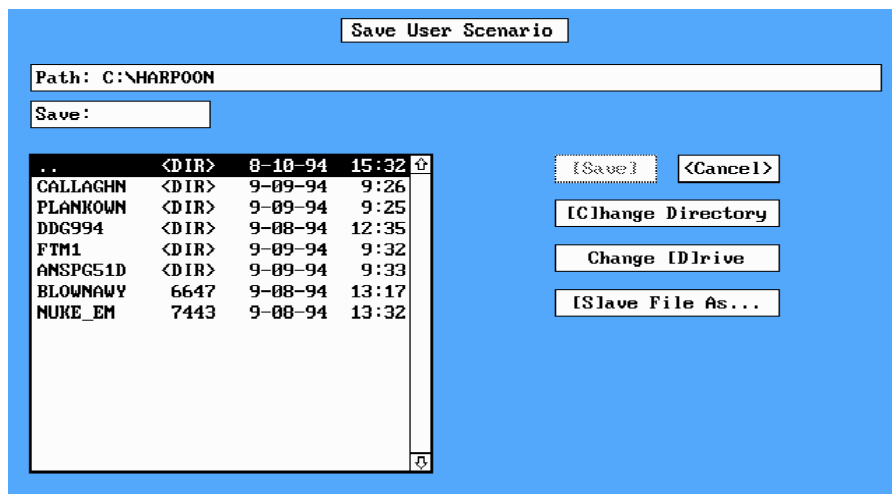
When you have selected a scenario, its name will appear in the “Edit:” box. Selecting the “Edit” button will return you to the Scenario Editor main screen with the selected scenario loaded and ready to edit.

Edit BattleSet Scenario — Allows you to load scenarios from you current BattleSet.



After verifying that you wish to quit your current scenario, a screen will appear that is similar to the *Harpoon* “Scenario Selection” screen. The top scroll box allows you to select a scenario, and the bottom scroll box displays the orders for that scenario.

Since editing a scenario involves creating units and orders for BOTH sides, the “xxxx Orders” button allows you to alternately display the orders for either side. The “BattleSets” button will allow you to load scenarios from another BattleSet. This is functionally equivalent to using the Change BattleSet command from the Game Menu. (NOTE: this does not allow you to transfer scenarios from one BattleSet to another.) Selecting “OK” will load a copy of the selected scenario for editing. When you save changes to this scenario, it will be saved as a “user scenario”, and you will have to use “Edit User Scenario” to load it in the future. When editing a BattleSet Scenario, you WILL NOT be actually modifying the BattleSet itself. These BattleSet scenarios are provided as a starting point, and as examples of completed scenarios.



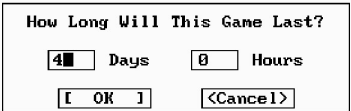
Save Scenario — Allows you to save your current scenario.

A dialog box titled "Name of Saved Game:" with a text input field containing "tartar". Below the input field are two buttons: "[OK]" and "<Cancel>".

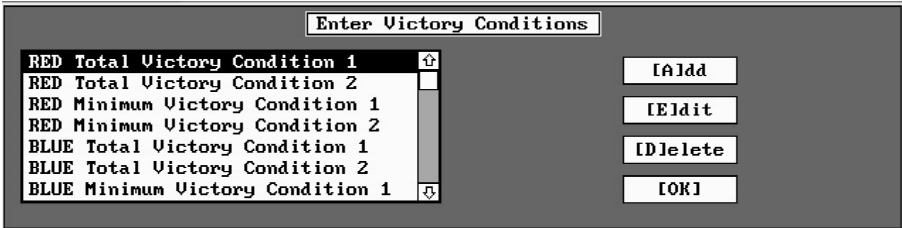
This command will bring up a screen very similar to the “Save Game” screen in *Harpoon*. As with “Edit User Scenario”, you will be able to “navigate” your available disk drives using the “Change Directory” and “Change Drive” commands. Selecting a scenario from the scroll box or entering a new name with the “Save File As...” command will make the name appear the “Save: “ box, and will activate the “Save” button. Selecting the “Save” button will save your current scenario and return you to the Scenario Editor main screen. If you attempt to save over an already existing scenario, a dialog will appear to confirm this action.

Enter Game Time Limit — Allows you to enter the time limit for the current scenario.

A dialog will appear in the lower right corner of the screen, allowing you to input the number of days and hours to be allowed for this scenario. If a time has already been entered, the dialog will come up with this time; otherwise, it will come up with all zeros. Selecting “OK” will cause the “To Go” time in the upper right corner of the main screen to be reset with the time you have entered.

A dialog box titled "How Long Will This Game Last?". It contains two input fields: "4" Days and "0" Hours. Below the input fields are two buttons: "[OK]" and "<Cancel>".

Enter Victory Conditions — Allows you to Add, Edit, or Delete Victory Conditions for both sides.

A dialog box titled "Enter Victory Conditions". It features a scroll box on the left with the following text: "RED Total Victory Condition 1", "RED Total Victory Condition 2", "RED Minimum Victory Condition 1", "RED Minimum Victory Condition 2", "BLUE Total Victory Condition 1", "BLUE Total Victory Condition 2", and "BLUE Minimum Victory Condition 1". To the right of the scroll box are four buttons: "[Add]", "[Edit]", "[Delete]", and "[OK]".

This command will bring up a window in the lower half of the screen containing a scroll box and four buttons: Add, Edit, Delete, and OK. If no victory conditions have been entered for this scenario, the scroll box will be empty and the Edit and Delete Buttons will be disabled. Selecting the “Add” button will bring up the following dialog:

A dialog box titled "Victory Conditions". It contains several checkboxes: "Minimum Victory", "BlueSide", "ANDed", "Total Victory", "RedSide", "ORed", "Type", "Broad type", "Subtype", and "Class". Below these are checkboxes for "Type": "Carriers", "Ships", "Subs", "Aircraft", "Helos", and "Bases". There is also a checkbox for "On Station". At the bottom, there are input fields for "Percent Damage:", "Number Damaged:", "Number Killed:", and "Time On Station:". The "Time On Station:" field has sub-inputs for "hours" and "min". At the very bottom are four buttons: "[OK]", "[>] Detail", "[<-] Enter Next", and "<Cancel>".

This dialog will allow you to set the parameters for a single victory condition. These parameters are as follows:

The first line of the victory conditions dialog allows you to choose whether you want

this victory condition to be minimum or total. Minimum victory is the condition that a player must meet to minimally complete a mission. After a player has met minimum victory conditions, he can either quit the game or go for “total victory”. Total victory is the complete defeat of the enemy, beyond merely carrying out orders. Note that one side’s victory conditions may not be exclusive of the other side’s victory conditions. Thus in a typical scenario, both sides can meet their victory conditions, minimum and total. In this case, the side reaching each victory level first is declared the winner.

The next line asks you which side this victory condition is for. The third line lets you choose whether this victory condition must be met for victory (ANDed: a necessary condition), or whether meeting this victory condition will independently result in victory (ORed: a sufficient condition). This choice will determine how a victory condition will interact with others. For example, the minimum victory condition for the NATO side might be: sink 3 Soviet ships AND sink 2 Soviet subs. Both of these conditions must be met in order for victory to occur. On the other hand, if the victory conditions were: sink 4 Soviet ships OR sink 3 Soviet subs, then meeting either of these conditions would result in victory. These groupings apply to the victory conditions of the same level (minimum or total) and side (Blue or Red). In other words, all of the blue minimum conditions are grouped, etc. It is not a good idea to mix AND’s and OR’s in the same grouping, for reasons explained in the “Hints for Entering Victory Conditions” section.

The next option determines the level of categorization for the victory condition, from “Type”, the broadest level, to “Class”, the most narrow level. These levels will be used to determine what kinds of units will be included in the victory condition.

Type - the victory condition will apply to “all” of one type of unit: all carriers, all ships, all subs, etc.

Broad type - allows a more refined choice such as “all large carriers”, “all medium combat ships”, “all primary bases.”

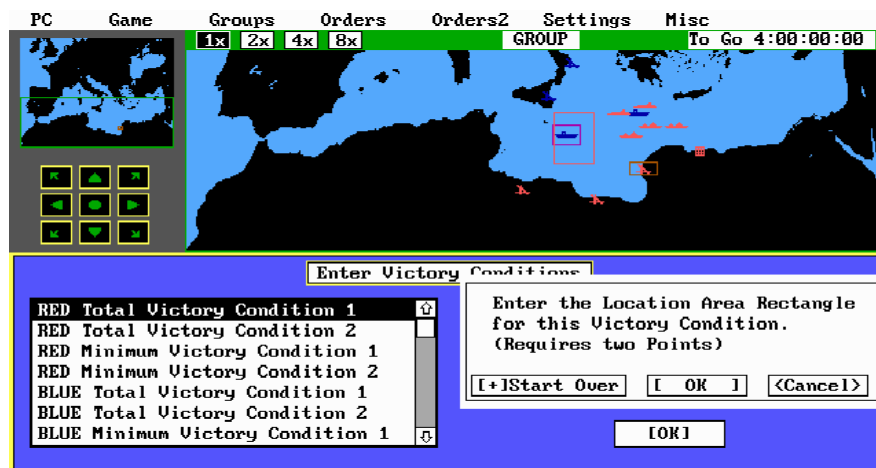
Subtype - allows categorization by subtypes of units. For carriers, ships, and subs, it is the naval designation, such as “CV”, “DDG”, “FF”, “SSN”, etc. For planes and helos, the breakdown is by “Fighter”, “ASW”, “Bomber”, etc. For bases, the categories are “Base”, “Port”, and “Airfield”.

Class - the most narrow category. For everything but bases, this denotes a particular class (such as Nimitz class carrier, O.H. Perry class frigate, F-15 class aircraft, etc.). For bases, it means a particular base (such as Keflavik, Iceland or London, UK).

After you have chosen the categorization level of the victory condition, you must select which type of unit will be included in the category (Carrier, ship, sub, etc.), before you can choose the actual category. If you have selected the “Type” level of categorization, you are finished with this step. If you have chosen one of the other levels, however, the second button at the bottom of the dialog will activate to let you

choose the actual category. If you level of categorization is “Broad type”, a scroll box will appear listing the predefined broad-type categories for that type of unit. If your level of categorization is “Subtype”, a scroll box will appear allowing you to choose from the available subtype categories for that type of unit (for bases it will be a dialog). And finally, if you choose “Class” as you level of categorization, a scroll box listing available classes for that unit type will appear. (NOTE: in the above scroll boxes, carriers and ships will share categories, as will helicopters and planes.)

Once you have chosen your category, you will be given the opportunity to select whether the condition is to be a “friendly on-station” condition or an “enemy damage/kill” condition. You do this by checking the “on-station” checkbox on or off (default). If you do not choose on-station, you will proceed to the damage/killed text boxes. The damaged and killed boxes work as follows: to translate “kill 3 enemy ships or damage 5 enemy ships at 60%”, you would enter “60” in the “Percent Damage” box, “5” in the “Number Damaged” box, and “3” in the “Number Killed” box. If you only care about damage, leave the “Number Killed” box zeroed. (NOTE: When *Harpoon* checks victory conditions, “killed” ships also satisfy the “damaged” victory condition). If you select the on-station type victory condition, the “Percent/Number Damaged” boxes will be disabled, the “Number Killed” box will change to “Number On Station”, and the “Time On Station” box and the “Enter Rect”

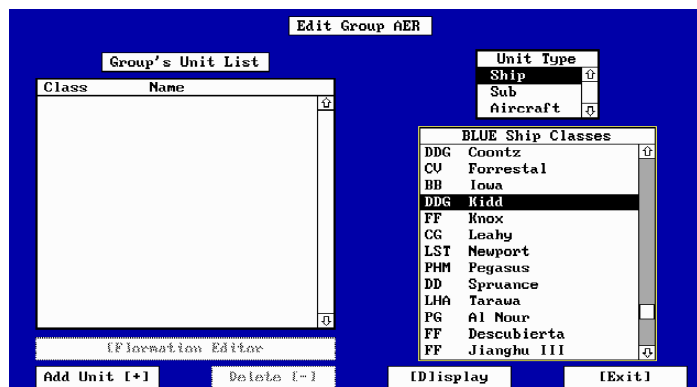
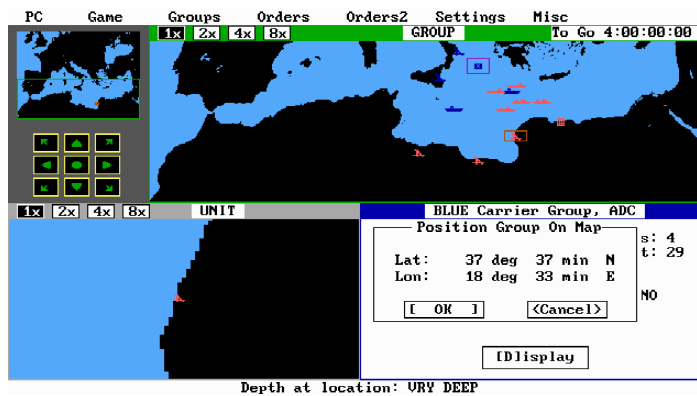


button will be activated. “Number On Station” refers to the number of friendly units that must be on-station for the condition to be satisfied. “Time On Station” refers to how long the units must be in the on-station area. The “Enter Rect” button brings up a dialog that allows you to define the on-station area as two opposite points in a rectangle on the Group Map (you will be able to scroll and zoom the map).

Once you have completed all of the above steps, selecting “OK” will return you to the Victory Conditions Edit window, where you will be able to add more conditions or edit or delete already existing conditions. The “Edit” button brings up the same dialog as before, with the selections filled in. The “Delete” button deletes the

currently selected victory condition (after a confirmation dialog). “OK” quits from the victory conditions edit window.

Please refer to “Victory Conditions Walk-Through” section of this manual for more information and examples.



GROUPS MENU

Create New Group — Allows you to create surface and submarine groups.

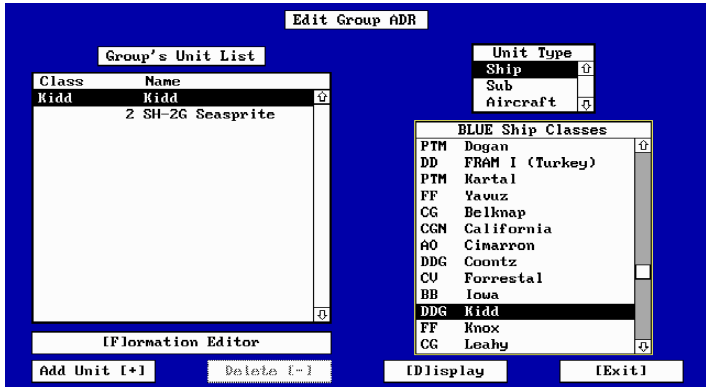
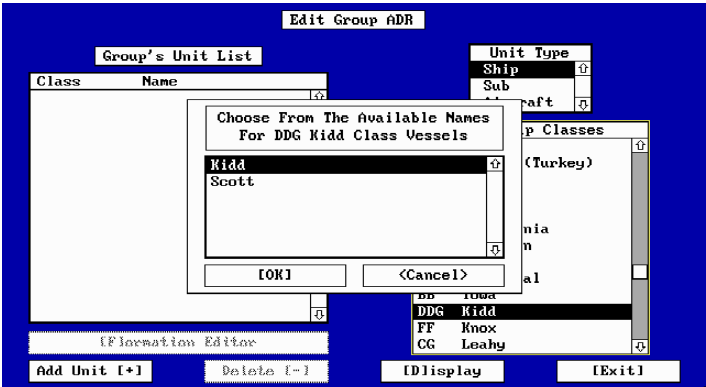
First, a dialog will appear, asking you to select the group’s side. Next, you will be asked to position the group on the map. Click on the group map until you are satisfied with the group’s position (the map can be scrolled or zoomed).

Enter the Probability that this Unit Will Be Included: 100

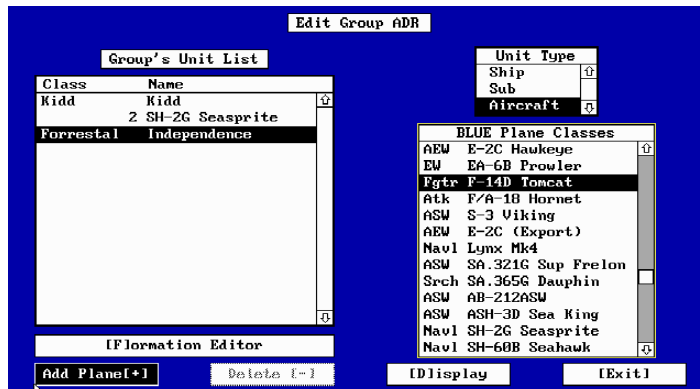
OKCancel

Next, a screen will appear that will allow you to edit the group’s units.

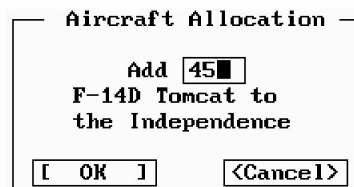
You will be able to add surface units and submarines to the group, and add planes and helicopters to carrier and ship units with the capacity to carry them. (See Appendix B for the recommended carrier air wings.) To add a surface unit, select “Ship” from the “Unit Type” scroll box. The “Class” scroll box will list the carrier and ship classes available for the group’s chosen side. Select one of these classes and press the “Add



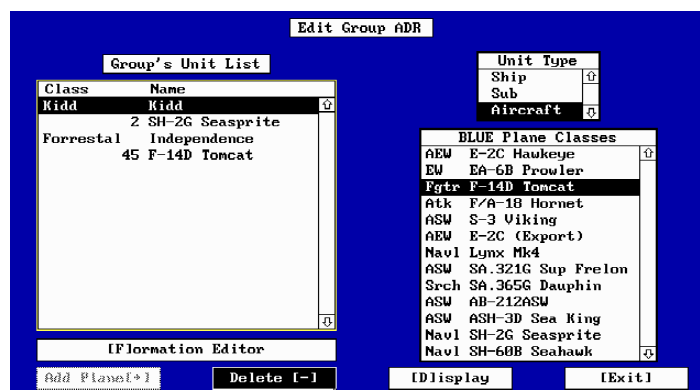
Unit” button. You will then be asked to select a name from the list of available ships commissioned for this class in the BattleSet’s area of the world. As you choose a name, it will be removed from the list to prevent duplicating an already existing unit.



After you have chosen the unit’s name, you will be asked for its probability of inclusion in the scenario (the default is 100%). Once you select “OK”, the new unit will appear in the “Group’s Unit List” scroll box. Submarine units are entered in the same way, except that you must first choose “Sub” from the “Unit Type” scroll box.

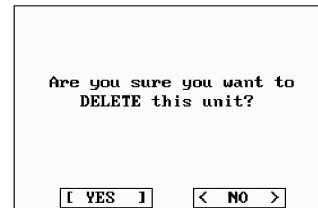


To add a plane to a surface unit, first select the unit in the “Group’s Unit List” scroll box. Next, select “Aircraft” from the “Unit Type” scroll box, and the list of planes and helicopters able to be carried by the selected unit will appear in the “Class” scroll



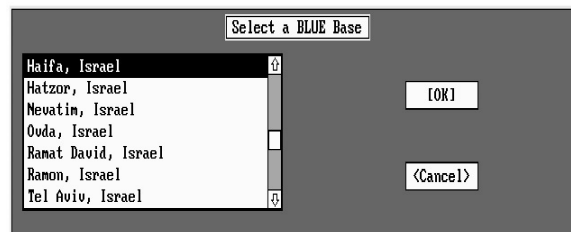
box on the lower right. Select the aircraft you wish to add to the unit and press the “Add Plane” button.

You will be asked to enter the number of aircraft to add. The maximum allowable aircraft will appear in the text box. If you add more than the maximum, you will get the maximum, and if you enter zero, no planes will be added. Once you have selected the number of planes, you will be asked for their probability of inclusion in the scenario. Creative use of this feature will enable you to automatically vary the strength of each side's air assets each time a user plays your scenario.



Some units will have their helicopters added automatically. These aircraft will be displayed for informational purposes, but you will not be able to delete them or give them any orders, including formation patrols. *Harpoon* handles these aircraft automatically for the enemy, to spare the scenario creator the tremendous overhead of dealing with them.

You may delete units or user-added planes by selecting them in the "Unit" scroll box and hitting the "Delete" button. (NOTE: the "Unit" scroll box must be active (have a yellow rectangle around it) for the delete button to be activated.)



You may get "Platform Display" reports on units or planes in the group by selecting them in the "Group's Unit List" scroll and then selecting the "Display" button. Exiting from the Platform Display will return you to the "Edit Group" screen. Selecting the "Display" button when the "Unit Type" or "Class" scrolls are active will bring up Platform Display for the currently selected class in the "Class" scroll. You may also edit the group's formation by selecting the "Formation Editor" button. Formation Editor differs slightly from the one in *Harpoon*, and will be explained in the "Orders Menu" description. Finally, selecting "Exit" will prompt you for the group's probability of inclusion and will return you to the Scenario Editor main screen.

Create New Base — Allows you to create a new base group.

As with "Create New Group", the first thing you'll be prompted for is the base's side. Next, a window containing a scroll box and two buttons will appear in the lower half

Change Group Position — This command allows you to reposition a group or base using the “Position Group” dialog as described in “Create New Group”.

Edit Group/Base — Allows you to edit and display a group’s unit list. Brings up the “Edit Group” screen as described in “Create New Group” or “Create New Base”, with the units that have already been added listed in the “Group’s Unit List” scroll.

Delete Group/Base — Allows you to delete a group that has already been created.

After selecting “Yes” to a confirmation dialog, the group, all of its units, and its orders will be flushed from the scenario. (CAUTION: There is no “undelete” command; this change will be permanent.)

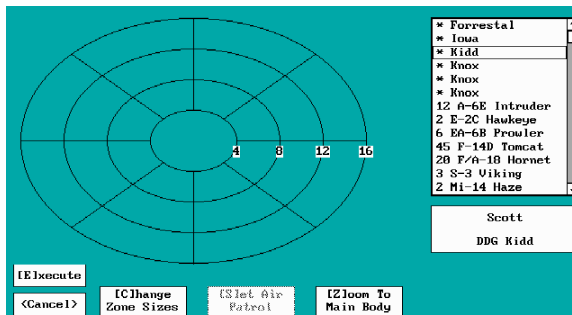


ORDERS MENU

This menu contains the orders from *Harpoon*. Please refer to your *Harpoon* manual for the basic operations of these menu items. What follows is a summary of the difference between the Scenario Editor Orders Menu and the *Harpoon* Orders Menu.

Attack

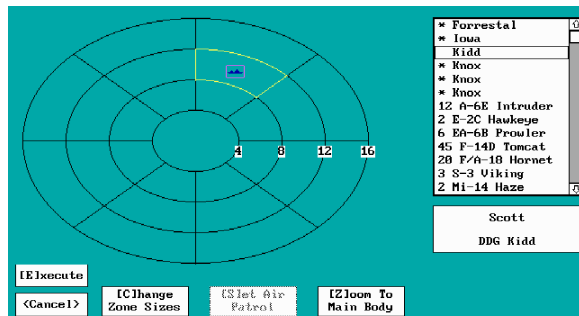
“Attack” works similarly to *Harpoon*, except for two major differences. First, you will only be able to order attacks against base targets, since the computer opponent automatically handles all other attacks. Second, you will not be asked for weapons allocation, since this also is handled by the computer opponent.



Set Speed — No Differences

Enter Group Course

There have been several changes/improvements to this order (also referred to as Path Editor), including the ability to “Cancel” changes made to the original path, as well as



the ability to “Revert” to the original path without exiting from Path Editor. Other additional features include: the ability to edit attack and launch aircraft orders, the ability to enter alternate paths (see the Orders2 Menu), and the ability to access commands from the Settings Menu, such as grid lines and game icons.

Formation Editor

There are a few subtle but important differences between the Scenario Editor version of Formation Editor, and that of *Harpoon*. In *Harpoon*, you use Formation Editor to order ships and subs to move to a new location within the group, and to set air patrols. When you exit Formation Editor, the ships and subs start moving from their current locations to their new locations, and the aircraft begin launching for their patrols. In Scenario Editor, when you exit the Formation Editor, the ships will be

located where you placed them - “magically” translocated to their new position within the group. This will be the unit’s relative starting location when your scenario is played. Air patrols in Formation Editor will not be immediately launched, as they are in *Harpoon*. Instead, the scenario will “remember” to launch the patrols at game startup. Another item you may have noticed are the asterisks that appear next to some of the units in the scroll box. This indicates that this unit has not yet been placed in the formation circle. As soon as you place the unit, the asterisk will disappear.



The image shows a dialog box titled "New Harpoon Event". It contains the following fields and controls:

- Group**: A text field containing the value "ADC".
- Enter Time Delta for Event:** A label followed by three input fields: "Hr" (containing "0"), "Min" (containing "0"), and "Sec" (containing "0").
- Enter Time Variation:** A label followed by a percentage input field (containing "0") and a percent sign symbol "%".
- Buttons**: Two buttons at the bottom, "OK" and "<Cancel>".

Ready Aircraft

Use the “Ready Aircraft” command to initialize the loadouts for the aircraft you have added to the scenario. The aircraft will be “readied” immediately, and will have this loadout at scenario startup when *Harpoon* is run. (CAUTION: changing loadouts for aircraft whose patrols or strikes have already been assigned will cancel these orders.)

Launch Aircraft

Works identically to *Harpoon*, with a few minor changes. When you select “OK” to accept your launch orders, you will be asked for a time delta; this will allow you to delay launching until a given amount of time has passed. In this way, you can coordinate the computer opponent’s air strikes as you would if you were playing *Harpoon*. Also, as with formation air patrols, your orders will not be carried out by Scenario Editor itself, but will be “remembered” in your scenario to be executed during *Harpoon* play.

Join Group

Use “Join Group” in Scenario Editor to transfer all of the units from one group into another. These units will have to be repositioned in their new group using Formation Editor.

Split Group

Use “Split Group” in Scenario Editor to split units off from a group to form a new group. These units will have to be repositioned in this new group using Formation Editor.

Sensors — Works identically to *Harpoon*.

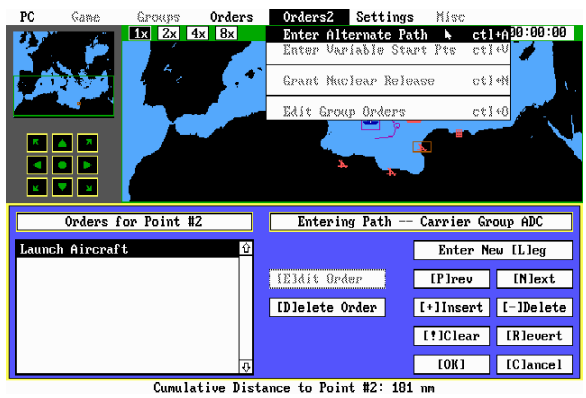
Edit Staff Note — Works identically to *Harpoon*.

ORDERS2 MENU

Enter Alternate Path — This command allows you to enter forks in the group’s path. This command can only be accessed through Path Editor (Enter Group Course). To enter an alternate path from Path Editor, use the “Prev” and “Next” buttons to



position the leg marker on the path point at which you want the “fork” to originate. Use your mouse to access the menu as you would from the main screen.



When you have selected the “Enter Alternate Path” command, the group’s path will be redrawn without the path points that come after the marked point.

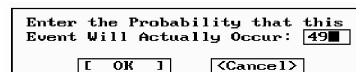


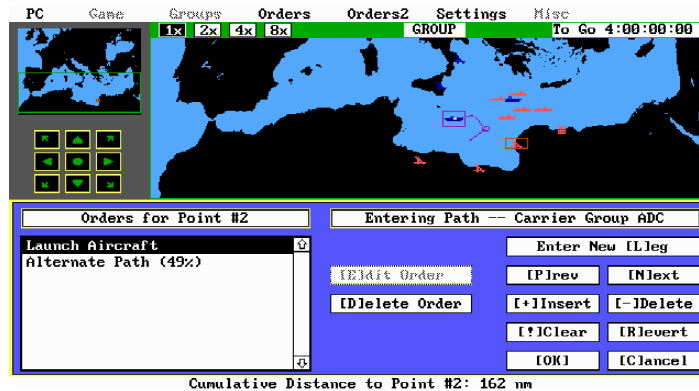
Once this is done, you may edit the group’s “new” course as before, with one



exception: you will not be able to edit points that came before the fork’s originating point.

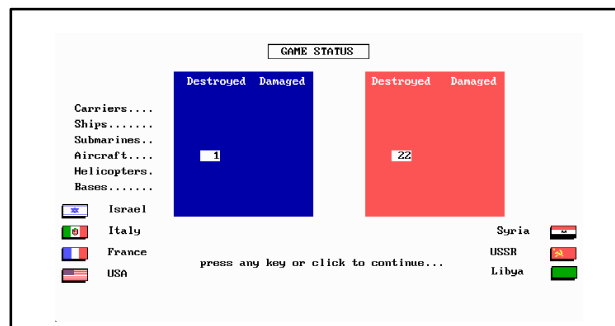
When you select “OK” to the alternate path, you will be asked for the fork’s probability (i.e. the percent chance that the group will take this fork). The group’s course will then be restored to its state before you began entering the alternate path. If you look in the “Orders” box to the left, the words “Alternate Path” will appear, designating the fork you just entered.





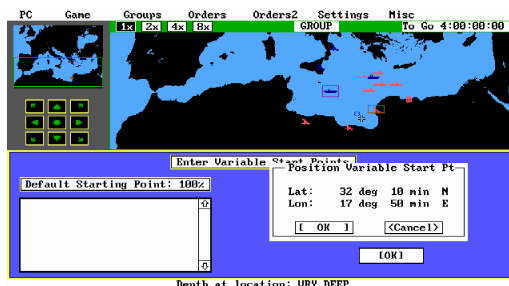
You may then edit or delete this “order” like any other. If you choose to edit your alternate path, the group’s course will be redrawn to show the alternate path you have already entered. When you have finished editing, selecting “OK” will save your changes and allow you to reassign the fork’s probability. And, once again, you will return to editing the group course at the point where you left. (NOTE: You may have more than one alternate path order at any one path point and you may also add an alternate path to an alternate path.)

Enter Variable Start Points — This command allows you to enter alternate starting points for a group.



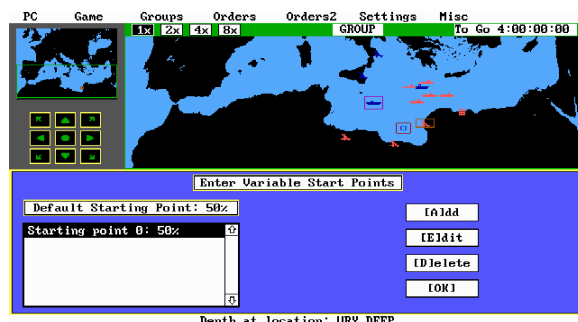
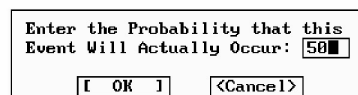
Upon selecting this command, you will be presented with a half screen window containing a scroll box and buttons. Above the scroll box will be a box labeled “Default Starting Point:”, followed by a percentage. This refers to the probability that the group will start where it is located on the map. As you enter variable starting points, this percentage will decrease accordingly.

To enter a variable starting point, select the “Add” button. A dialog will appear that is very similar to the one used to position the group originally. Click in the Group Map until you are satisfied with the starting point’s placement (the starting point will appear as a “dimmed” square), and select “OK” to accept.



Another dialog will follow, asking for the probability that the group will start at this point. If you enter a value greater than the default percentage, then your starting points percentage will be the default percentage minus one. If you enter zero or less for the probability, the probability will be reset to one. In this way, the system prevents you from entering starting points that will never occur, or from having your cumulative percentage be other than 100%.

You may edit a starting point by selecting it in the scroll box (a square will be drawn around it on the Group Map), and selecting the “Edit” button. The edit procedure is the same as the add procedure.



You may also delete starting points using the “Delete” button (a confirmation dialog will appear). Finally, selecting the “OK” button will let you exit from the “Edit Variable Start Points” interface.

Grant Nuclear Release — Allows you to set a time for each side to be granted nuclear release. (NOTE: If you do not grant nuclear release for a side, it will not be given in your scenario unless the player overrides the system and grants himself nuclear release.)

First you must choose the side to be granted nuclear release. Next, you will need to provide the time point in the scenario at which you would like nuclear release to occur (the “time delta”). You may also enter a variation on this time (this translates to “time plus or minus variation %”). If you enter 100%, nuclear release will occur any time from game startup to twice the “time delta” you entered.

You may only enter one nuclear release order per side. If you select the “Grant Nuclear Release” command for a side that has already been given this order, you will merely be editing the existing order.

Choose Side

☒ **BLUE**
☐ **RED**

[OK] <Cancel>

Nuclear Release Event

Side: **BLUE**

Enter Time Delta for Event:
24 Hr 0 Min 0 Sec

Enter Time Variation: 50 %

[OK] <Cancel>

Edit Orders — This command allows you to edit or delete orders that have been given outside of Path Editor (Enter Group Course).

Edit Orders for Carrier Group AAC

Launch Aircraft
Launch Aircraft

[Edit]
[Delete]
[OK]

The orders will be shown one side at a time. To edit the other side’s orders, select the “Change Side” button. If orders appear in the scroll box, you may “edit” or “delete” them. If you choose “Edit”, the appropriate interface for entering that order will appear, with the information you have already supplied filled in for you. When you exit that interface, you will be returned to the “Edit Orders” interface. As usual, you may delete the currently selected order by selecting the “Delete” button and selecting “Yes” to the confirmation dialog that follows.

SETTINGS MENU

All of the Settings menu commands work the same as in *Harpoon*, except that “Set Land Color” is now its own menu item.

Land Color: ☒ **Black** ☐ **Grey**

[OK] <Cancel>

MISC. MENU

Analyze Scenario — This command allows you to check your scenario in four key areas:

- 1) How much memory the scenario will take when run from *Harpoon*.
- 2) The relative strengths of the two opposing sides.
- 3) Whether any group's movement orders will cause any of its units to run aground.
- 4) Whether your scenario has all of the components of a complete *Harpoon* scenario.

When you select the "Analyze Scenario" command, a full screen window will come up containing a large scroll box and eight buttons. The four buttons on the left will be used to access the analysis features mentioned above.

Estimate Memory

This feature will evaluate your scenario and estimate how much free memory your scenario will have at game startup. In addition, it will evaluate this amount to determine if it is enough to comfortably run *Harpoon*.

Evaluate Forces

This feature will evaluate the relative postures of both sides, both offensive and defensive. Tip to save memory - it does not cost as much to include two ships of the same class as it does to include two ships from two different classes.

Check Group Movement

This feature checks each unit in every group against that group's movement orders, including paths, alternate paths, and variable starting points. If any units are aground at any of these points, you will be notified.

Check Completeness

This will check to make sure that your scenario contains every element of a complete scenario. These elements include: at least one group per side, at least one unit per group, and at least one total and one minimum victory condition per side. It will also give warnings about other missing but optional elements, such as nuclear release, variable starting points, alternate paths, planes on carriers, etc.

Do Complete Analysis

This command is equivalent to selecting all of the above buttons at once. This allows you to bypass pressing each button if you want the complete analysis.

Save to File

This command allows you to save the contents of the scroll box to a text file called ANALYSIS.TXT.

Save to Printer

This command allows you to print the contents of the scroll box. *Note; We recommend that you save to a file, as not all printers will work with this command.*

Rename Unit — Allows you to rename ships, sub, or carrier units, using the same scroll box that is used to name these units originally. (NOTE: You must select a unit in the Unit Window for this item to be activated.)

Calc Range and Bearing — Same as *Harpoon*.

Additional Help

VICTORY CONDITIONS WALK-THROUGH

If you have not already done so, you may want to review the section entitled “Enter Victory Conditions”. Select “Enter Victory Conditions” from the “Game” menu. A window will appear in the lower half of the screen containing a scroll box and four buttons. If no victory conditions have been entered, the scroll box will be empty. Select the “Add” button, using either the “A” key or your mouse. A large dialog will appear in the center of your screen, titled “Victory Conditions”.

Example #1 — “For the Blue Side to achieve minimum victory, it must destroy at least five enemy ships.”

Select the following dialog items:

“Minimum Victory”

“Blue Side”

“ANDed”

“Type”

Victory Conditions

☒ Minimum Victory ☐ Total Victory
☐ BlueSide ☐ RedSide
☐ ANDed ☐ ORed

☒ Type ☐ Broad type ☐ Subtype ☐ Class

Type:
☐ Carriers ☒ Ships ☐ Subs
☐ Aircraft ☐ Helos ☐ Bases

☐ On Station

Percent Damage: 0
Number Damaged: 0
Number Killed: 4
Time On Station: 0 hours 0 min

OK Detail Enter Rect Cancel

Once you have selected “Type”, the six type choices will be activated. Choose “Ships”, move down to the “Number Killed” text-edit box, and enter “5”. Now select “OK”.

Example #2 — “For the Red Side to achieve minimum victory, it is sufficient for it to get three of its subs on-station south of Iceland for a minimum of two hours.”

Select the following dialog items:

- “Minimum Victory”
- “Red Side”
- “ORed”
- “Type”
- “Subs”
- “On Station”

Victory Conditions

☒ Minimum Victory

☐ Total Victory

☐ BlueSide

☒ RedSide

☐ ANDed

☒ ORed

☒ Type

☐ Broad type

☐ Subtype

☐ Class

Type:

☐ Carriers

☐ Ships

☒ Subs

☐ Aircraft

☐ Helos

☐ Bases

☒ On Station

Percent Damage:

0

Number Damaged:

0

Number On Station:

3

Time On Station:

2

 hours

0

 min

[OK]

[>] Detail

[<-] Enter Rect

[Cancel]

The “Number Killed” edit box will change to the “Number On Station”, and the “Time On Station” box will be activated. Enter “3” for the “Number On Station” and “2” in the “hours” box next to “Time On Station”.

Once this is done, select the “Enter Rect” button to enter the area that is to be considered “on station.” A new dialog will appear, prompting you to enter two opposite corners of your on-station area rectangle.

PCGameGroupsOrdersOrders2SettingsMisc

1x2x4x8xGROUPTo Go 4:00:00:00

Enter Victory Conditions

BLUE Minimum Victory Condition 1

BLUE Minimum Victory Condition 2

BLUE Total Victory Condition 1

BLUE Total Victory Condition 2

RED Minimum Victory Condition 1

RED Minimum Victory Condition 2

RED Total Victory Condition 1

Enter the Location Area Rectangle for this Victory Condition.
(Requires two Points)

[+] Start Over

[OK]

[Cancel]

[OK]

HARPOON CLASSIC OPERATIONS MANUAL 147

Use the map scrolling buttons to position the map so that Southern Italy is showing on the group map. We are about to draw a rectangle representing the waters south of Italy. Click on two points that will represent the on-station area; otherwise, you must move the cross-hairs to the desired points and press “Enter”. If you are not satisfied with the selected on-station area, you may select “Start Over” to repeat this process. Once you select “OK”, you will return to the “Victory Conditions” dialog. You are now finished entering this victory condition, so select “OK” to accept it.

Example #3 — “In order to achieve minimum victory, it is necessary for the Blue Side to destroy ten (10) ASW aircraft.”

Select the following dialog items:

“Minimum Victory”
 “Blue Side”
 “ANDed”
 “Subtype”

After you select “Subtype”, you will be able to select a type. You must select a type so the dialog will know which subtypes to display. Select “Aircraft”, then select the “Subtype” button at the bottom the dialog. A scroll box will appear, listing the available subtypes for all aircraft. Choose “ASW” and press “OK”. The words “Subtype: ASW” will appear beneath the “Type” categories in the Victory Conditions Dialog. You will notice that the “Percent Damage” and “Number Damaged” boxes will be dimmed. This is due to the fact that aircraft cannot be damaged in *Harpoon*, only “killed”. Enter “10” in the “Number Killed” box and select “OK”.

If you combine this victory condition with the first Blue minimum condition, it translates to “In order to achieve minimum victory, the Blue Side must destroy at least five enemy ships and 10 enemy ASW aircraft.”

HINTS FOR ENTERING VICTORY CONDITIONS

1) Do not try to mix AND and OR victory conditions for the same level (i.e. same side and same victory level: total or minimum). ANDed always takes precedence, which means that your ORed victory conditions will be ignored until the ANDed victory conditions are all met. Remember: “ANDed” means a necessary condition, whereas “ORed” means a sufficient condition. It is contradictory to use them together.

2) Always make your on-station area rectangles larger than you think you’ll need. Experience has proven that making them small means that the victory conditions will not be met. Also, remember that if you create an on-station condition for a side, you

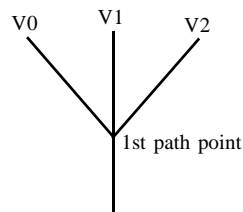
must use the Path Editor to direct the necessary groups to the on-station area; otherwise, the computer opponent will have no way of achieving this victory condition.

3) Get creative with your victory conditions. You will find that they can be very flexible - you just have to think about it a little.

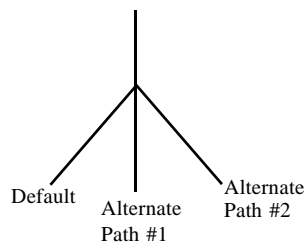
4) For more examples of victory conditions, refer to the victory conditions entered for the BattleSet scenarios.

HINTS FOR USING ALTERNATE PATHS AND VARIABLE START POINTS

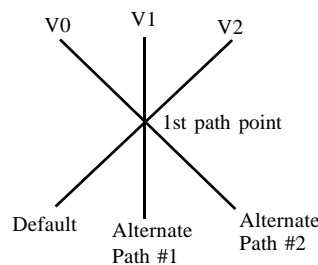
Graphically, you can think of the relationship between variable start points and paths like so:



A bunch of random starting points narrowing to a single path. Once the group reaches the first path point, the randomness is gone and its path becomes predictable again. The smart player will pick up on the fact that after a couple of hours of “game time”, the enemy group always winds up in the same place, and will send a patrol out to that area to wait.



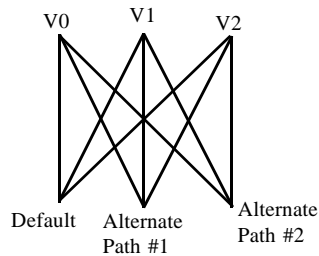
On the other hand, alternate paths can be represented as follows:



It starts out predictably, then branches out randomly, becoming less predictable.

You can use Alternate Paths and Variable Start Points together like so:

This arrangement is suitable when you wish to insure that your group passes through a certain point. Notice that the middle point will always be passed through. This is useful for land avoidance or for coordinating orders. However, the player might catch on that the enemy always passes through this point, and set up an ambush for the enemy. An alternate way to arrange the variable starting points and alternate



paths is to eliminate the center point by attaching alternate paths to the zero path point (that is, the path point that represents the group's current location).

This can be represented as:

It is not necessary to understand this diagram completely - simply notice that there is no longer a predictable center point that the group must pass through. With this method, group movement is now completely unpredictable. The pitfalls of this method are that land avoidance is no longer a clear cut problem, and orders must now be duplicated on each alternate path.

How to Run Your Scenario from Harpoon

After you have loaded *Harpoon*, and are at the main screen, select the "File" menu to bring up the "Load User Scenario" screen. This screen works identically to the "Load Game" screen in *Harpoon* and the "Edit User Scenario" screen in Scenario Editor. Select the scenario you wish to run and hit the "Load" button. *Harpoon* will be restarted with this new scenario.

Appendix A. Key Commands

MENU COMMANDS

<Alt>+A	About Scenario Editor
<Alt>+C	Change BattleSets
<Alt>+N	New Scenario
<Alt>+U	Edit User Scenario
<Alt>+B	Edit BattleSet Scenario
<Alt>+S	Save Scenario
<Alt>+L	Enter Game Time Limit
<Alt>+V	Enter Victory Conditions
<Ctrl>+Q	Quit
<Ctrl>+G	Create New Group
<Ctrl>+B	Create New Base
<Ctrl>+P	Change Group Position
<Ctrl>+E	Edit Group/Base
<Ctrl>+D	Delete Group/Base
<Alt>+P	Platform Display
F1	Attack
F2	Set Altitude and Speed
F3	Enter Group Course
F4	Formation Editor
F5	Ready Aircraft
F6	Launch Aircraft
F7	Join Group
F8	Split Group
F9	Sensors
F10	Enter Staff Note
<Ctrl>+A	Enter Alternate Path
<Ctrl>+V	Enter Variable Start Points
<Ctrl>+N	Grant Nuclear Release
<Ctrl>+O	Edit Orders
<Alt>+I	Game Icons
<Alt>+G	Set Grid Lines
<Alt>+D	Set Land Color

<Ctrl>+Z	Analyze Scenario
<Ctrl>+U	Rename Unit
<Ctrl>+C	Calc Range & Bearing

SPECIAL KEYS

<Alt>+F1	Show Variable Start Points for Active Group
<Alt>+F2	Show Unit and Group Id's on Maps
<Alt>+F3	Show Air Patrols / Strikes on Group Map
<Alt>+F5	Show All On-Station Area Rectangles
<Alt>+F6	Show Free Memory
TAB key	Alternates selected window between Group Window and Unit Window.
Arrow Keys	Scroll the currently selected window, either the Group Window or the Unit Window.
5 Key	Centers the map view in the currently selected window around the selected object. (<i>NOTE: You must use the "5" key on the numeric key pad, not the numbers across the top of your keyboard.</i>)
Z Key	Zooms in the current window (Group or Unit).
X Key	Zooms out the current Window (Group or Unit).
D Key	Brings up unit display.
SPACEBAR	Selects the next object to the south (down) in the current window.
BACKSPACE Key	Selects the next object to the north (up) in the current window.
U Key	Selects a Unit (in the Unit Window) of your currently selected Group.
C Key	Center the Unit Window around your currently selected Group.

Appendix B.

Recommended Carrier Air Wings

UK • CVH Invincible

8	Sea Harrier FRS.2	Attack
9	Sea King HAS.5	ASW
3	Sea King AEW.2	AEW

USA • CV Forrestal

24	F-14A Tomcat	Fighter
18	F/A-18 Hornet	Attack
20	A-6E Intruder	Bomber
10	S-3 Viking	ASW
5	EA-6B Prowler	EW
5	E-2C Hawkeye	AEW
6	SH-60F Oceanhawk	ASW

USA • CVN Nimitz

24	F-14A Tomcat	Fighter
24	F/A-18 Hornet	Attack
12	A-6E Intruder	Bomber
10	S-3 Viking	ASW
5	EA-6B Prowler	EW
5	E-2C Hawkeye	AEW
8	SH-60F Oceanhawk	ASW

France • CV Clemenceau

16	Super Etendard	Attack
10	F-8E(FN) Crusader	Fighter
8	Alize	ASW
2	SA.321G Sup Frelon	ASW
2	Lynx Mk4	Naval

France • CVH Jeanne d'Arc

8	Lynx Mk4	Naval
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Spain • CVH Principe de Asturias

8	Matador AV-8B	Attack
6	SH-3D Sea King	ASW
3	SH-3 AEW	AEW
4	AB-212ASW	ASW

USSR • CVHG Kiev/Baku

13	Yak-38 Forger	Attack
14	Ka-27 Helix A	ASW
3	Ka-25 Hormone B	Search

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