Sierra Education and Training Command

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Training Manual and Nonresident Training Course (SIER/TRA/NRTC)

# Fast Attack™

## Tactics Training



**RESTRICTED:** Los Angeles Class Submarine Commanders Only.

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# FAST ATTACK™

## TACTICS TRAINING

## SIER/TRA 12296


*1996 Edition Prepared by*
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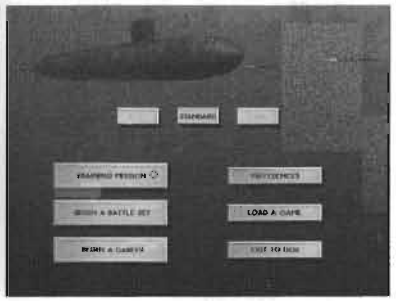
# Introduction

The U.S. Navy has promoted you to lieutenant commander in training for command of one of its 688I-class nuclear-powered attack submarines. The 688I series is an improved version of the *Los Angeles*-class fast attack sub, offering superior capability in all ocean environments, including Arctic operations. Fast and quiet, with an advanced reactor giving it months of submerged operational range, the 688I-class features some of the most sophisticated naval sensor, communication, and weapon technology available.



Your ongoing mission is to defend U.S interests in strategic naval hot spots around the globe, including the Persian Gulf, the Adriatic Sea, the Mediterranean, the Sea of Japan, and the Greenland-Iceland-United Kingdom (GIUK) Gap. You may be called upon to attack hostile merchant convoys or naval groups, attack land targets with conventional cruise missiles, break blockades, hunt for mines, or undertake the supreme challenge—duel with enemy fast attack submarines. By accepting command of this vessel, you accept responsibility for an awesome instrument of vast military power. You must develop your technical expertise, tactical abilities, and leadership skills to the utmost if you are to achieve your objectives and ensure the survival of your command.

## ABOUT THIS MANUAL

This manual is divided into four main sections:

- **Installation** tells you how to install and start the game.
- The **Tutorials** take you on three short training missions. By completing the tutorials, you will learn about your submarine and familiarize yourself with its systems.
- **Reference** provides you with a detailed description of each command screen, and its related controls and procedures.
- The **Appendices** include a glossary, recommended reading list, troubleshooting guide, and index.



# Installation

To run *Fast Attack*, your computer must have at least 8 megabytes (MB) of RAM and at least 528 kilobytes (K) of free conventional memory. If you have trouble configuring your system to provide the necessary free memory, try using the Sierra **INSTALL** program (DOS) or Setup program (Win 95) to create a boot disk. In most cases, a boot disk will configure your system with enough free memory to run *Fast Attack* without the risk of altering your normal start-up files. For more information, please see the "Creating a Boot Disk" section on page 67.

This section describes how to install *Fast Attack* to run from DOS or from a "DOS box" in Windows 95. These instructions assume that you are using CD drive **D:** and hard drive **C:**. If not, please substitute the appropriate drive letters for **D:** and **C:**.

## INSTALLATION IN DOS

1. After starting your machine, insert the *Fast Attack* CD into your CD-ROM drive.
2. Type **D:** and press [Enter].
3. Type **install** and press [Enter].
4. Follow the on-screen instructions. See the Sound Setup section for information on setting up your sound card.

## INSTALLATION IN WINDOWS 95

1. Start Windows 95.
2. Insert (or reinsert) the *Fast Attack* CD into your CD-ROM drive.
3. If the game has not yet been installed, you will be asked if you wish to install it. To proceed with the installation, click on "OK", and then on "Install" when it appears.
4. Follow the on-screen instructions. See "Sound Setup" for more.

## SOUND SETUP

Once the game files are installed, you will be asked to set up the game sound effects and music for your computer.

1. Highlight "Sound Setup" and press [Enter].
2. Highlight "Auto Configure Sounds" and press [Enter].
3. Follow the on-screen instructions to test the settings.
4. Once the settings are working, highlight "Exit Sound Install" to save the settings and exit.

If the Auto Configure process doesn't work on your computer, use the Manual options to pick your Sound Card and MIDI configuration. (See your sound card documentation for specific setting information.)

# Starting *Fast Attack*

### IN DOS

1. Start your computer, and insert (or reinsert) the *Fast Attack* CD.
2. Change to your *Fast Attack* DOS directory. (For example, type **cd \sierra\fast** and press [Enter].)
3. Type **fast** and press [Enter] to start the game.

### IN WINDOWS 95

1. Start Windows 95. (Note: *Fast Attack* does not support Windows 95 multi-tasking. Exit all other Windows 95 programs before starting *Fast Attack*, or you may experience game lock-ups or other problems.)
2. Insert (or reinsert) the *Fast Attack* CD into your CD-ROM drive. When you are asked if you are ready to play *Fast Attack*, click on "OK."

If you have problems starting or running the game, see the Trouble-shooting section, page 67, or the README file on the CD or in the Sierra Setup program.

# Options Menu

When you start *Fast Attack* for the first time, you will see an introductory movie sequence. To proceed to the main Options menu, click your mouse button or press [Spacebar]. The Options menu lets you start training missions and careers, load saved battle sets or career games, and change your game difficulty level and other preferences.

### TRAINING MISSION

Learn command skills in 11 challenging training missions. The three tutorials in this manual help you learn *Fast Attack* command skills step-by-step using three of these training missions. The other missions will familiarize you with a wide range of situations in preparation for Battle Set or Career play.

### BEGIN A BATTLE SET

Undertake a set of missions in a global hot spot. You will command a boat already stationed in that theater of operations, and follow through on a campaign. You may save battle set games at the end of each mission.

### BEGIN A CAREER

Take command of a specific sub, the SSN 720 *Pittsburgh,* and undertake several linked campaigns in a challenging quest for honor, promotions, and glory. This is the most challenging style of play in *Fast Attack*.



You will be held fully accountable for your failings, and be fully rewarded for your successes. You may save career games at the end of each mission.

### DIFFICULTY LEVELS: EASY, STANDARD, REAL

For the greatest test of your command skills, play the *Fast Attack* simulation at the Real difficulty level. The Real level gives you full control of all stations on the boat. It also awards you with full recognition for your mission successes when you are up for a medal or promotion.

Select the Easy or Standard difficulty level to play *Fast Attack* with increased computer assistance with the following command functions:

**Easy Level**: Sonar—Any track you assign will be quickly classified for you automatically.

Fire Control and Plot—You will receive the correct fire control (aiming) solution for each track automatically. You will not need to refine the solution to fire. (The weapon may still miss for other reasons.)

Launch Console—Torpedoes and Harpoons are reloaded automatically. If you wish to change a weapon, the exchange will take place immediately.

**Standard Level**: Fire Control and Plot—You will receive an approximate fire control solution for each track automatically. You will still need to manually refine the solution somewhat to fire.

Note: The tutorials in this manual are designed to teach you command skills at the Real difficulty level. However, you may play any mission, battle set, or career at any difficulty level you wish.

### PREFERENCES

**Speech** — If On, plays crew voices during the missions.
**CD Music** — If On, plays available CD music.
**Explosions** — If On, plays explosions in all their table-shaking glory.
**Cool Pictures** — Displays a series of warship photos.
**Display High Scores** — Shows the current High Scores list.
**MIDI Music** — If On, plays synthesized music when available.
**Opening Movie** — If On, plays the initial movie each time you start the game.
**Ending Credits** — When set to On, rolls the game credits each time you exit the game.
**Sound FX** — If On, plays digitized sound effects.
**Animation** — If On, plays animated sequences for key events.
**Return to Options Screen** — Takes you back to the main Options menu.

### LOAD A GAME

Once you save one or more Battle Set or Career games, you can load and resume play with this option. You can save Battle Set or Career games at the end of each mission.

### EXIT TO DOS

Leave *Fast Attack* and return to DOS or Windows 95, depending on your operating system.

# Game Objectives

### MISSION OBJECTIVES

When you start a new game—Training Mission, Battle Set, or Career— you receive a mission briefing and orders. Most of your missions will have both primary and secondary objectives. You must complete your primary mission objective(s) while maintaining the safety of your crew and the diplomatic position of the United States.

Primary objectives may include the following:

- Destroying hostile surface ships or submarines with torpedoes and Harpoon missiles.
- Destroying stationary hostile targets with Tomahawk cruise missiles.
- Monitoring the movements of hostile targets.
- Escorting a vessel or convoy to its destination.

Secondary objectives are not essential, but you can expect faster promotion if you consistently accomplish secondary objectives as well. Secondary objectives may involve locating and plotting vessels or mines in a certain sector, or classifying potentially hostile targets.

### LEVELS OF COMMAND

As you prove your worth as a lieutenant commander in Career play, you may receive medals, ribbons, commendations, and promotions. With continued success, you may rise in rank to full Commander, Captain, or the ultimate achievement, Admiral. Promotion may be jeopardized if you fail to complete your missions or are called to explain your actions in front of Congress too many times.

Good luck, Commander.



# Tutorials

### TUTORIAL ONE

If you are a first-time player, read through the tutorials while running the *Fast Attack* simulation and complete all the steps shown in italics. You should be playing at the "Real" difficulty level. (Change the difficulty level on the Options Menu.) This will help you get familiarized with your ship's systems and procedures while you play through realistic missions. Press [P] to pause at any step if you want more time. For more information on a particular system or procedure, see the appropriate Reference section.

#### SELECTING A MISSION

From the Options Screen, click on TRAINING MISSION to display the Mission Briefing and Orders Screen for Training Mission 1.

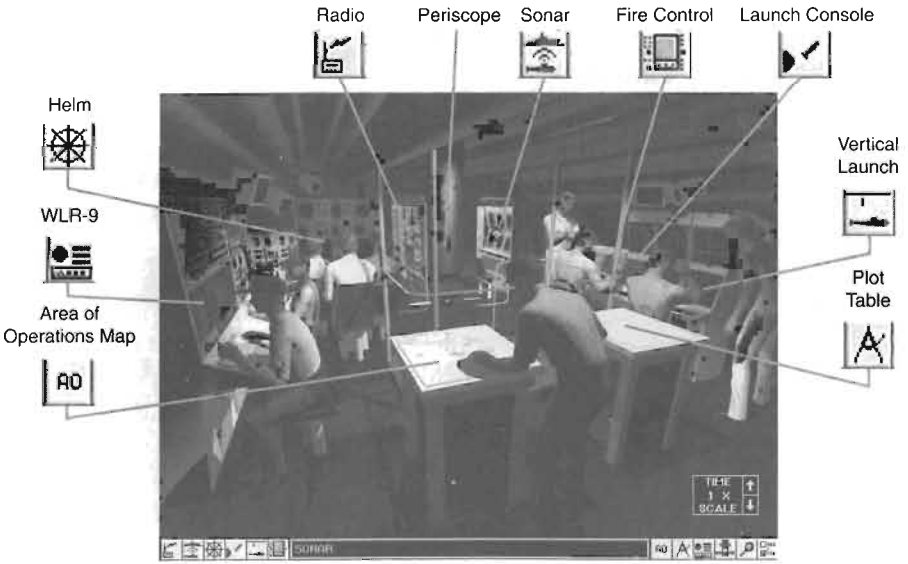
Your mission brief will begin to be typed on the screen.

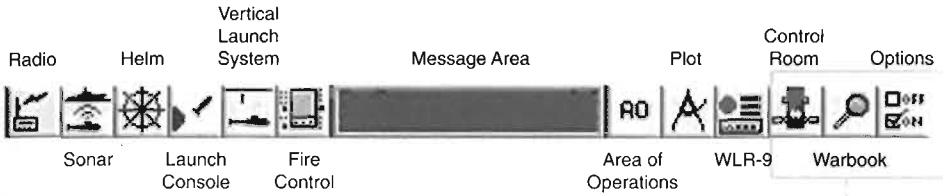
*Click twice anywhere on the screen or press* [Spacebar] *twice to display your full orders.*

Your orders are to locate and sink a merchant ship.

*Accept Training Mission 1 by clicking on the ACCEPT button.*

You will be advanced to the Control Room. From here, you can click on any station, or its corresponding Command Bar icon, to go to this station immediately. The message area of the Command Bar relays crew messages to you.

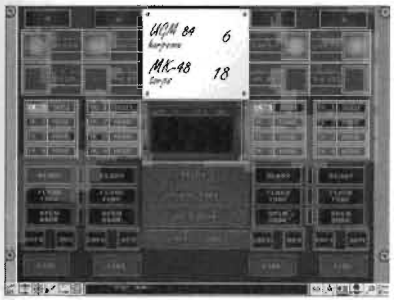





## LOADING TORPEDOES

As you enter the Control Room, you are notified of a Sonar contact. Prepare for a possible attack by advancing to the Weapons Launch Console to load your torpedo tubes with four MK-48 torpedoes.

*Position your cursor on the consoles along the right wall, aft of the periscope. Move your cursor until the bottom message bar displays LAUNCH CONSOLE, then click.*



The Weapons Launch Console displays. Load torpedoes in all four tubes.

*Position the cursor on the dark red MK-48 weapon select area lamp that is under Tube #4. Click to select the weapon for that tube.*

The weapon begins loading into the tube. If you do not wish to view the weapon loading, click on the screen or press any key. When loading is complete, the lamp will cease flashing and will remain a steady red.

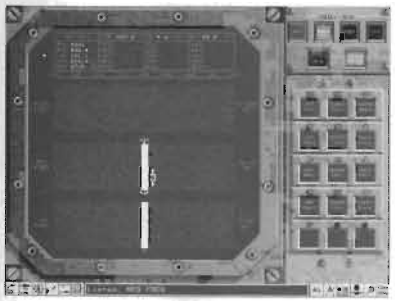
*Load MK-48 weapons for Tubes #2, #1, and #3.*

Return to the Control Room by clicking on the CONTROL button, the third Command Bar button from the right.

## IDENTIFYING TRACKS

Next, assign the current sonar contact to a tracker on Passive Sonar.

*Advance to the Sonar Screen by clicking on the multiple display console, back to the right of the periscope. Move your cursor until the bottom message bar displays SONAR, then click.*



When you first enter this screen, the PASS (Passive) button in the upper right corner is lit, indicating that Sonar is in Passive Mode.

Information on your submarine (OWN SHIP) is displayed at the top of the screen. You are traveling on a course of 095, at a speed of 4.0 knots, and at a depth of 50 feet.



A single green trace, which falls in the low and medium frequency range, appears on the sonar's "waterfall" display. The low frequency range usually displays target "screw noise," or the noise made by a propeller. The medium frequency range usually displays machine noise. The high frequency range displays torpedo screw noise. All frequency bands can display the noise detected from marine wildlife, or "biologics." The displayed traces indicate the probable presence of a vessel, as there is both low frequency screw noise and medium frequency machine noise.

*While holding down your mouse button, position the bracket ("fang bar") located beneath the medium frequency band over the trace to estimate the target's bearing.*

The target's bearing displays above the frequency band.

If the trace moves away from the bracket, the displayed bearing value will no longer be valid. Reposition the fang bar on the trace so that you may obtain an accurate bearing estimate.

*Click on the ATF TRK 1 button (Automatic Target Following).*

The target is now assigned to a tracker, and is called a "track." The tracking system assigns the track the identification number S001, which indicates that this is the first track that your Sonar System has detected.

The track's position data, including bearing, course, speed, and range, are displayed in the screen's upper left corner in the tracker data area. This information may not initially be accurate: the fire control computer *estimates* the track's position and course.

*Click on the CLASS TRK 1 button to have your computers analyze the detected signature and identify the track type.*

By identifying the track, you ensure that you fire upon the right target. In a few moments, your Sonarman will provide a track identification.

*Click on the CONTROL ROOM button, which is the third from the far right, to return to the Control Room.*

## USING THE PERISCOPE TO FIND RANGE

*The periscope is in the middle of your Control Room. Click on the lower part of the periscope to raise it. You can use the periscope to visually observe the track and enter an initial range.*

The periscope eyepiece remains gray until the periscope is fully raised. If you dive below 60 feet, you will be too deep to use the periscope.

*After the periscope is raised, click on the MAGNIFY switch to change the magnification of your view.*

The periscope grays briefly, then displays at 6X magnification.

*Click on S001 in the upper left corner*

*under the word TRACKS to turn the periscope to the last estimated position of the track you assigned in Sonar.*

The periscope's eyepiece moves to the track's last detected bearing.

*Click on the green arrows on either side of the eyepiece to position the displayed track within the "reticle," which is the box in the middle of the eyepiece.*

The arrow moves up and down and changes size when you move the cursor. A smaller arrow (lower cursor) indicates that the periscope will pan in smaller degree increments; a larger arrow (raise cursor) indicates that the periscope will pan in larger degree increments.

If you pass over the track or the track moves out of the reticle while you are examining it, click on the right or left arrows until the track is once again within the reticle.

When the track is within the reticle, track data is displayed in the upper left corner of the eyepiece.

Short, red, horizontal lines on the eyepiece help estimate the range of the track. By knowing a track's height, you can determine the track's distance from your submarine. A ship that is 100 feet tall and appears to be one unit in height, as it fills the space between two lines, is approximately 4 miles away.

*Note that the portion of the ship that appears above water is approximately one unit in height.*

Beneath the eyepiece and to the right of the red MARK button are division slots, which enable you to enter the track's height by clicking on the up and down arrows.

*Click twice on the right up arrow to enter a height of 1.2. A height value of 1.2 takes the total height of the ship and the draft—that which is both above and below water—into consideration.*

*With the track in the reticle, click once on the MARK button.*

The MARK button lights up red and the message box informs you that you are marking the active track. While the MARK button remains lit, your submarine's computer uses your estimate of the ship's height to compute the ship's range. Once the computer computes its estimation, it displays the division value and the track's bearing directly above the reticule.

*Now that the track has been marked for range, lower the periscope by clicking on the LOWER button, located in the lower left corner. Click again when asked to confirm.*

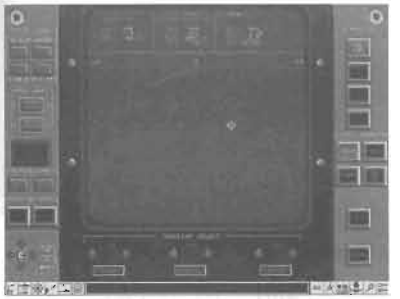
You will return to the Control Room.

## OBTAINING A FIRING SOLUTION

*Click on Fire Control, represented by the two monitors located to the left of the Launch Console, along the right wall aft of the periscope.*

The Fire Control Screen is displayed.





*Click on the TRK ONE button, in the upper right corner.*

The TRK ONE button lights up green, and the four buttons under BSY MODE become available.

*Click once on the PASS button to access the Passive Mode of the BSY-1 Fire Control System.*

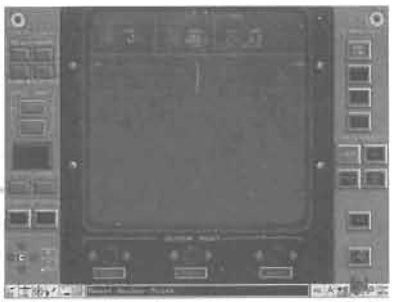
The Passive Fire Control displays a T-shaped graph containing dots. Each dot represents a bearing of the vessel detected by your sensors. Note that the dots are positioned to the left of the solid line that goes down the center of the screen. The solid line signifies a zero degree error between the track's bearing that your sensors are detecting and the bearing generated by the solution.

To have the best possible firing solution on the track, you must line up the dots along the solid center line by using the three solution select switches of RANGE, COURSE, and SPEED beneath the display.

*Click on the left COURSE button several times.*

The dots will begin moving toward the center line.

*Continue clicking on the left COURSE button until the dots begin moving away from the center line. To speed the process, click on the COURSE button with the right mouse button. When you are through clicking on COURSE, click on RANGE and SPEED until the dots are as closely aligned with the center line as possible.*



You now have a beginning general solution. You may zoom in and out of your solution by clicking on the + and - buttons above the word ZOOM in the lower left corner.

*Click on ENTR to send your solution to the torpedoes.*

Now check the accuracy of your solution by changing your submarine's course. By changing course, your sensors will detect the target from a different bearing. If the solution that you entered is correct, the dots will remain aligned to the Passive Fire Control's center line. If the solution is incorrect, the dots will veer off to one side.

*Click on the HELM button (third from the left on the Command Bar.)*

The Helm appears.

*Click on one of the steering wheel's left arrows. Hold the mouse cursor down until a new ORDERED course of 50 displays.*

While your boat is maneuvering the turn, continue to ready your weapons for firing.

## READYING YOUR WEAPONS

*Go to the Launch Console by clicking on the LAUNCH CONSOLE button (fourth button from the left.)*

The Weapons Launch Console shows your MK-48 torpedoes are loaded in each tube.

*Click on TK 1 under Tube #4.*

The button and the designation number "M001" lights red, signifying that a weapon has been assigned to this track. Previously, your computer system designated the track as "S001," as information on it was provided solely through Sonar. After you obtained information on the track through Periscope, your computer system changed the track designation number to "M001" for "Master," signifying that you had received information from more than one source.

*Click on the READY button under Tube #4.*

The weapon's electronics are readied.

*Assign the weapons in the other three tubes to Track One by clicking on TK 1 under Tubes #2, #1, and #3 and clicking on READY.*

Go back to Fire Control to check the solution you previously entered for the track.

*To return to Fire Control, click on the sixth button from the left.*

If the dots are veering off from the center line, refine your firing solution by clicking on the RANGE, COURSE, and SPEED arrows until the dots are once again aligned to the center. Often, the easiest way to come to a firing solution is to first create a straight line even if the line is diagonal, then attempt to align the dots to the center. After refining your solution, click on ENTR to update your computers with the new solution.

*After entering a new solution, click on HELM to access the Helm Screen and change your course again.*

The Helm Screen displays.

*Press on the left arrow key on your numeric keypad until an ORDERED course of 00 displays.*

## PINGING WITH ACTIVE SONAR

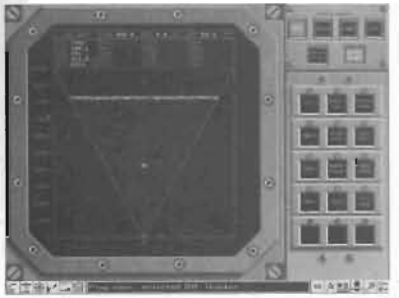
*While your boat is making the turn, advance to the Sonar Screen by clicking on the second button from the left on the Command Bar.*

The Passive Sonar Screen appears.

*Click on the ACT button to activate Active Sonar, then click on the ATF TRK 1 or CLASSTRK 1 button.*

Active Sonar enables you to send out strong sound pulses called "pings." By analyzing the ping's echo, you may quickly and accurately determine target data. However, pings are easily heard by other vessels in





the area, which may alert them to your presence. As merchant ships are seldom equipped with sonar to detect pings, now is your opportunity to learn the technique.

Upon entering Active Sonar, the default setting is NARROW BEAM, meaning that the ping is set to detect all objects within a narrow cone from your submarine. As currently set, the display will show detected targets that are within a range of 4000 yards.

As the track's range from your submarine is more than 4000 yards, increase the range.

*Click on RANGE 10000.*

The RANGE 10000 button lights up red.

*Click on WIDE BEAM to enable the ping to detect objects in a wider cone.*

The WIDE BEAM button lights red.

*Click on the PING button.*

A ping sounds, and a thick line begins sweeping the area of the cone. After the ping has covered the area, a spot marks the location of the track, and a solid horizontal line displays with a range value of approximately 5000.

*Determine the track's range by positioning the cursor on the solid horizontal line and pressing down the left mouse button.*

A hand icon appears on the line where the cursor was previously positioned.

*Hold down the mouse button while you position the line on the spot that represents the track's location.*

A range estimate for the track displays on the screen's right.

*Click on MARK RANGE.*

*Return to Fire Control (click on the sixth button from the left.)*

The Fire Control Screen appears.

*Check that your solution is still aligned to the center line. Click on RANGE, COURSE, or SPEED, as necessary to refine the solution. If you make a change, press ENTR to send the new solution to your computers.*

*Now click on ACT in the upper right to access the BSY-1's Fire Control System's Active Mode.*

Fire Control Active displays data on your submarine and the active solution.

The Fire Control display provides you with several options: you may click on the + and - ZOOM buttons or arrow buttons to change your view. You can also access the solution select switches of RANGE, COURSE, and TIME. You can press PING to receive new range estimates. When satisfied with the fire control solution, click SEND to send the data to the Weapons Launch Console.

The following information displays on Fire Control:

- Your submarine's track data, shown as a thick line of dim green dots. This line curves twice to indicate the turns you have made at Helm.
- Track data, shown as a bright green jagged line.
- The range and bearing value that was determined from the Sonar ping, represented by a yellow dot surrounded by a yellow circle.
- The complete calculated solution, represented by a yellow line connecting the two circles.
- The error potential for the track's displayed range and bearing, which is shown as green, wavy, horizontal lines above and below the yellow circle. The track may fall anywhere between these green horizontal lines.
- The bearing needed for a weapon to reach the track, indicated by dim green lines connecting your submarine with the track's range and bearing estimates.

*Click on PING.*

Another ping is sent out. After the ping hits the track, Fire Control displays a new path on a new dot and updates bearing information. Circles appear around the tracks showing their range.

*You may retrieve old information by clicking on the left TIME arrow. Return to a display of the recent information by clicking on the right TIME arrow.*

*Adjust the course that displays in the top right of the screen under Trial Solution to 095 by clicking several times on the left COURSE arrow. Then, send your firing solution to the Weapons Launch Console by clicking on SEND in the lower right corner.*

The target track (shown in bright green) moves to indicate that this is the path on which you believe the track to be heading. Proceed to the Weapons Launch Console to fire a torpedo.

## FIRING YOUR WEAPON

*Click on the LAUNCH CONSOLE button, which is the fourth from the left on the Command Bar.*

The Weapons Launch Console should be displaying the READY buttons lit red to indicate that the weapons are ready for preparation.

*Click on FLOOD TUBE under Tube #4.*

*Now click on FLOOD TUBE under Tubes #2, #1, and #3.*



The tubes will flood, and the buttons will light red.

*Click on OPEN DOOR under Tube #4.*

Tube #4's door will open.

*Click on OPEN DOOR for Tube #1. (Only one door may be opened on each side of your submarine at a time.)*

*Arm the torpedoes by clicking on ARM under Tube #4 and Tube #1.*

The weapon's status changes from SAFE to ARM.

*Once both weapons are armed, click on FIRE under Tube #4.*

After the torpedo is fired, you return to the Fire Control Torpedo Screen. It now displays Torpedo Mode.

Four status lights in the upper left corner inform you of the status of the weapon fired at the track. The SELECT and ARMED lights are lit green, indicating that the weapon has been selected and armed for firing.

The Torpedo Mode Screen shows the torpedo's completed path with blue dots, while the path it is following is shown in yellow, and the track's path is shown in bright green. Your submarine's path is shown in dim green.

Since you are shooting at a slow nearby target moving on a straight course, and your fire control solution is good, your torpedo should quickly acquire the track. If there are errors in the solution or if the track detects the incoming torpedo and attempts to dodge it or deploy decoys, you can steer the torpedo to the track.

*Note the weapon's current course listed under Torpedo Data in the upper right corner of the screen.*

*Click on the weapon course (WPN CSE) switch's left arrow, located in the bottom center of your screen, then click on SEND. (If the torpedo has already acquired the target, you will not see the SEND button– skip this step.)*

This moves your torpedo to the left or to port, and changes the information displayed under the Torpedo Data field.

*Return the torpedo to its original course by clicking on the WPN CSE switch's right arrow, and then click on SEND.*

The torpedo will soon enable (switch on its search sonar), and begin searching for the track. Enabling is denoted by the ENABLE lamp in the upper left corner lighting to green and the torpedo's yellow line changing to a blue-colored cone that has lines extending from the cone's outward corners. The torpedo searches for the track in the area within the lines extending from the cone.

If the solution was good, the torpedo will quickly acquire the target, which is

indicated by the ACQUIRE lamp in the upper left corner lighting to green and the torpedo's cone changing to red. When a weapon acquires a track, it begins to home in on the target.

*Speed up the time factor by entering* [Shift] - [T].

The message bar increments the time factor by 1.

Your torpedo should soon hit the merchant ship. After the explosion, return to the Control Room.

*Click on the Control Room Button, located third from the right.*

The Control Room appears.

*Click on the periscope to raise it.*

The Periscope Screen displays.

*Click on M001 under Tracks to move the eyepiece in the direction of the ship, to visually confirm its destruction and sinking.*

The sinking ship displays.

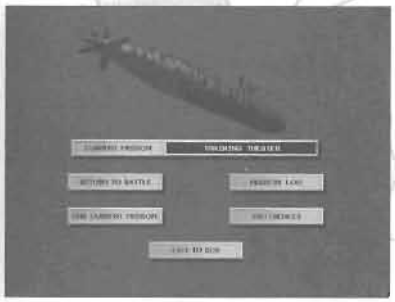
*As the ship moves out of the eyepiece's view, click on the green left arrow to move your view.*

The merchant ship will sink into the water.

## ENDING YOUR MISSION


*Click on the Options button, which is the farthest button to the right, to return to the Options Screen.*

The Options Screen displays.



*Click on END CURRENT MISSION to be evaluated on your performance, then click on YES to confirm this choice.*

You will see an overall evaluation of your performance.

*Click again to review the mission log. Scroll down, if necessary, to see the events leading to the merchant ship sinking.*

Note: At any time during the mission, you may access and review the mission log through the OPTIONS Menu. *(Text shown in red is not displayed during the mission.)*

*When you are through reviewing your accomplishments, click on EXIT in the lower right corner.*

Congratulations! You have completed your first mission.



# TUTORIAL TWO

Note: You should be playing at the "Real" difficulty level to get the most out of this tutorial.

During this tutorial you will:

- Locate and identify multiple contacts.
- Attack enemy warships with Harpoon missiles.
- Receive a message via your floating wire antenna.
- Fire Tomahawk cruise missiles at land targets.

*From the Options Screen, click on TRAINING MISSION to display the Mission Briefing and Orders Screen.*

*Click on the PREV MISSION button until Training Mission (8) begins typing on the screen.*

For this mission, your primary objective is to destroy four oil rigs and a land naval base. Your secondary objective is to sink two frigates suspected to be in the area.

*When you have read your orders, click on ACCEPT.*

You are taken to your boat's Control Room, where you immediately hear the report of a new sonar contact. This may be one of the enemy frigates. While sinking the frigates is only a secondary objective, they pose a potentially lethal threat. You should identify the contact immediately.

## SONAR

*Access the Sonar Screen by clicking on the multiple monitors along the back starboard wall. Move your mouse until the bottom message bar displays SONAR, then click.*

A faint trace appears in the low and medium frequency ranges.

*Click on the trace to align the fang bracket on the trace. Click on ATF TRK 1.*

A tracker will be assigned to this trace.

*Now assign your computer to identify the track by clicking on CLASS TRK 1.*

*Click on the SVP (Sonar Velocity Profile) button at the upper right of your screen. This display shows the water temperature gradient from top to bottom.*

*Click on the Depth 1000 button to scale the display for the current water depth. At approximately 300 feet is an abrupt gradient change, or thermocline, and your sub is just below it. This layer is attenuating (weakening) sound waves crossing it by 6.3 dB (see XLAYER ATTN: 6.3 dB at the bottom). This helps hide you from listening surface ships, but may be preventing you from hearing them as well.*

To improve your listening ability, you can raise the sub above the thermal layer, slow the submarine, and deploy a listening array.

*Go to the Helm (steering wheel button). Click the steering wheel's up arrow (or use your up arrow key) until the ORDERED depth is 120 feet. Click the engine speed control to 1/3 (or use your minus - key until the ORDERED speed is 5 knots.)*

*Return to the Sonar Screen (second Command Bar button from the left). Just below the SVP button, you will see Deploy TB-23. The TB-23 is a long wire antennae assembly that trails behind your boat and greatly improves your passive sonar capability. Click on Deploy TB-23.*

As the array is deployed and the boat rises above the thermal layer, you should see new sonar traces appear and strengthen.

*Click on the new traces and assign each to a tracker: ATF TRK 2 and ATF TRK 3.*

*Once the tracks are assigned, click on CLASS TRK 2 and CLASS TRK 3 to begin identifying them.*

## REFERENCING THE WARBOOK

*Since there may be friendly or neutral ships in the area, you must get positive target ID on each contact. For this purpose, you have the Warbook. After the computer identifies the tracks and the CLASS TRK numbers stop flashing, click on the WARBOOK button (magnifying glass, second from the far right). Note: Game time is suspended while you are in the Warbook.*

The buttons T1, T2, and T3 on the left side are lit, indicating that your computers have matched and identified Tracks 1, 2, and 3.

*To view each track, click on the T1, T2, and T3 buttons. You will see that the contacts consist of a Koni Type II frigate, a Grisha Type III frigate, and a merchant ship. Click on the -3D- button on the bottom right of your screen to view the current ship from all angles.*

The frigates are your targets. You have no orders to attack the merchant ship. If you wish, you may review information on other ships by clicking on the left and right arrows on either side of the yellow dial at the bottom left of the screen.

## LOADING WEAPONS

Now that you have positively identified the frigates, load your weapons. Go to the LAUNCH CONSOLE (fourth Command Bar button from the left).

When the Launch Console appears, load three Harpoons and one torpedo in the four tubes.

*Position the cursor over the dark red UGM-84 weapon select area lamp under Tube #4 and click once. This designates the UGM-84 Harpoon for Tube #4.*

The weapon loads into the tube.

Load UGM-84 Harpoons in Tubes #2 and #1.

Load a MK-48 torpedo in Tube #3.



## RADIO

You will soon be receiving messages, orders, and information about your primary targets (the oil rigs and naval base) over the USQ-67 radio. To receive new radio messages, you can use your floating wire antenna (within 200 feet of the surface) or the antenna on your periscope mast (when surfaced). With hostile warships in the area, you should stay submerged.

Go to the Radio room by clicking on the RADIO button (far left). If you have not already done so, read your orders.

*Notice the field GAME TIME REM in the top right of the screen. This shows the time left to complete the mission. The field NEXT BROADCAST shows you the time remaining until you are scheduled to receive the message.*

Note: The floating wire is 200 feet long. The faster the submarine is moving with the antenna deployed, the closer it must be to the surface for the wire to reach. Speeds of more than 15 knots may break the antenna and cut your communications.

You should now be making 5 knots at 120 feet, an ideal situation for using the floating wire antenna.

*To extend the antenna, click on the VLF ANTENNA DEPLOY button.*

The floating wire antenna will receive the message data at the slow rate of 60 baud. While you are waiting for the floating wire to receive location information on the navy base and the four oil rigs, develop a beginning firing solution to accomplish your secondary objective of destroying the two frigates.

## WLR-9

*Click on the WLR-9 button, which is the fourth button from the far right on the button bar.*

The WLR-9 evasion system appears.

Throughout this scenario, you have been receiving a message that the WLR-9 has detected active sonar signatures. The WLR-9 listens for sonar pings from vessels and incoming torpedoes in your area. Messages such as "Con-Sonar: WLR-9 contact 19.1 kilohertz" tell you that there is a ship or submarine in your area that is actively looking for you. If you know these ships are hostile, you should assume that they may already be aware of your presence and are trying to get a firing solution on you. You want to take them out first.

Fortunately, the WLR-9 provides the exact bearing from which the ping was sent.

*Make a note of the number in the BEARING field. You can use this bearing in your firing solution against the track.*

## ENTERING A BEGINNING FIRING SOLUTION

*Click on the FIRE CONTROL button (sixth button from the left) to access Fire Control and begin entering a firing solution on the two frigates.*

*After the Fire Control Screen displays, click on one of the frigate tracks (TRK 1, TRK 2, or TRK 3). If necessary, go back to the Warbook to doublecheck which tracks are the frigates—you definitely do not want to sink the merchant. For the frigate track you select, click on the PASS button to access the BSY-1 Fire Control System's Passive Mode.*

Location information that your sensors have detected on the track displays as dots on the screen, with the most recently detected location represented by the bottom dot.

*Align the dots to the center line by clicking on the COURSE solution select switch's left arrow until the dots begin heading away from the center line.*

*Next, click on RANGE and SPEED until several of the dots are aligned to the center line. To obtain the best solution, zoom in on the display by clicking on the + key, then refine your solution using the COURSE, RANGE, and SPEED buttons.*

*When you have the best possible solution, click on ENTR to send your solution to your computer.*

You now have a beginning solution for the first frigate track.

Repeat the process for the other frigate track. After you have entered it, refer back to your WLR-9 bearing on the sonar pinging you detected. It should match your fire control solution bearing for one of the frigates. If not, you can correct the fire control COURSE solution for that frigate.

*Click on the COURSE arrows until the fire control bearing on the pinging track matches that which you previously noted in the WLR-9 display.*

Further refine your solution by clicking on the SPEED and RANGE arrows.

*Send your solution to the computer by clicking on ENTR.*

*Check your beginning solution by clicking on the HELM button (third Command Bar button from the left) and changing your course.*

By changing course, your sensors will detect the track from a different bearing. If your solution is correct, the dots will continue to align at the center as they will be coming from the bearing anticipated by your computers. If the solution is inaccurate, however, the bearing dots will begin to veer to one side.



*Click on the left arrow above one of the steering wheels and hold the mouse button down until an ordered course of 170 displays.*

*While making the turn, increase your boat's speed to 10 knots by clicking on the speed control's blue Up arrow.*

*When the submarine is steady on a course of 170, drop the speed back to 5 knots. (Sustained medium to high speed can reveal your presence to nearby listeners.)*

*Return to Fire Control (sixth button from the left) to check your solutions.*

Toggle between Track One and Track Two to review your firing solution.

*Refine your solution, as necessary, to align the dots to the center line. When your solution is accurate, click on ENTR.*

## READYING YOUR WEAPONS

Now that your Harpoons have been loaded and a beginning firing solution has been determined, assign your weapons and ready them for firing.

*Open the Launch Console (fourth Command Bar button from the left).*

*Assign one Harpoon to each frigate.* Again, check the track ID in the Warbook if you're not sure which track is which.

*Click on the READY buttons under the assigned Harpoons.*

Wait until the weapons are readied.

*Click on FLOOD TUBE under Tube #4 and Tube #1.*

After the tubes have flooded, the FLOOD TUBE buttons will remain a solid red.

*Click on OPEN DOOR under Tubes #4 and #1.*

The tube doors will open.

You are almost ready to fire.

*Return to Fire Control (sixth button from the left) for a last minute update of the solution.*

## SETTING THE PATH OF THE UGM-84 HARPOONS

The Fire Control Screen displays.

*Check the firing course that you have entered for the frigate tracks.*

*Make any refinements necessary for RANGE, COURSE, or SPEED to align the solution. When your solution is accurate, click on ENTR.*

*Now, click on a frigate TRK button and the UGM-84 button to switch Fire Control into the UGM-84 Mode.*

The UGM-84 Screen shows your submarine's path as a dim green line, the track's path as a bright green line, and the

missile's path as a yellow line connecting your submarine to the track. The cone at the end of the missile's path indicates the point at which the Harpoon will start using its radar to search for and lock on to (acquire) the target.

*Accept the current firing solution by clicking on SEND.*

*Now click on the other frigate's TRK button and SEND its firing solution to your Harpoon.*

(For future use, keep in mind that the L-1, F-Course, and S-Course buttons below the Harpoon Screen let you modify the default Harpoon course to the target. You can instruct the missile to launch on one course, then turn and approach the target on another course. You also specify the range at which it starts searching for targets. For this exercise, however, keep it simple.)

*Now that the weapon's course is set, return to the Weapons Launch Console (fourth Command Bar button from the left) to launch the Harpoons.*

## LAUNCHING HARPOONS

The Launch Console displays with your weapons loaded.

*Arm one Harpoon on each side by clicking on ARM under Tubes #4 and #1.*

The weapons' status changes from SAFE to ARM.

*Click on FIRE below Tube # 4 to fire the weapon at one frigate track.*

*The weapon fires.*

*Click on FIRE under Tube # 1 to fire the weapon at the other frigate.*

You can't steer the Harpoons or follow their progress after firing as you can with MK-48s. What you can do is close the torpedo room doors and prepare your remaining Harpoon for firing, in case the first ones miss. You will know you have a miss if the WPN END time reaches 00:00 before you see or hear a hit.

If you see your Harpoon(s) hit, wait for a "Lost contact" or "Contact breaking up" message before assuming the target is destroyed. If you don't see both frigates hit and sunk after a few minutes, follow the same steps to fire another Harpoon at the surviving target(s). Be sure to return to Fire Control to update the tracks before firing again.

## USING THE OPERATIONS AREA MAP

Once you destroy both frigates, go to the Helm, rise to 50 feet, then return to the Control Room and raise your periscope. This will let you use the mast antenna to speed up radio reception, and will help get you in position to fire your Tomahawks.

When the new radio message comes in you will hear the verbal message, "All traffic on board." The new message will now be available from the Radio screen.



*Go to the Radio Screen (first Command Bar button on the left) and read the new message. Note the target data at the end listing the oil rigs and naval base.*

*Now go to the Area of Operations Map (AO button, sixth from the right).*

Your computers have automatically updated the Operations Area Map with the satellite's target location information contained in the radio message. Your position is marked by an inverted semicircle, and the position of nearby tracks by red diamonds. The tracks may include one or both of the frigates (which you should have sunk already). Keep that in mind—satellite data can be outdated by the time you get it, and definitely should not be relied on alone for tracking moving targets.

Each track has an identifying number. An "A" prefix signifies that you first received information on the track through the Area Map.

*Zoom in on the display by clicking on the AREA SEL button, then holding down your mouse button as you draw a box just big enough to enclose all the tracks. (If you wish to zoom out again, press the RESET SCR button.)*

*Click on the land-based target.*

This is the Libyan naval base. Note the number of this track, as this is a large target and will require more than one weapon to destroy.

A red circle displays to signify your selection.

*Click on the TGT VLS (Target Vertical Launch System) button to set the course of your weapon to the target.*

*Continue to select each A-track and click TGT VLS for each one. This will set the course to each of the targets in your area of operation.*

## FIRING TOMAHAWK MISSILES

Distant, stationary targets are prime candidates for cruise missile attack. Your boat is loaded with various Tomahawk cruise missiles, which are launched from the Vertical Launch System (VLS).

*Click on the VERTICAL LAUNCH button (fifth Command Bar button from the left).*

When the VLS screen appears, your first step is to activate the console with your key.

*Click on the key slot to activate the VLS screen.*

The type of weapons loaded into your boat displays. Your boat has been loaded with Tomahawk Anti-Ship Missiles (TASM), which destroy ships, and Tomahawk Land Attack Missiles (TLAM), which may be directed at stationary targets. It may take several TLAMs to destroy such

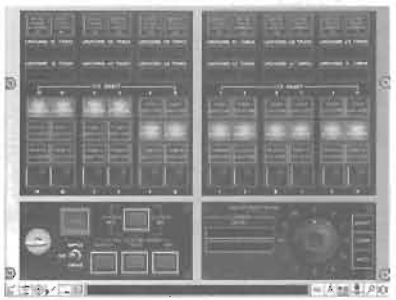
a large target as the naval base.

Designate for the Tomahawk loaded in Launch Tube 04 to hit the naval base.

*Click at the top of the screen on Enter Track Launch 04.*

A pull-down menu displays with the track numbers of all your potential targets.

*Click on the number of the land naval base to assign the weapon.*



Follow the same steps to assign Launch Tubes 02 and 01 to hit the naval base as well. All three should have the same track number when you are done.

*Assign each of the next four tubes (03, 05, 07, 09) to a separate oil rig.*

When you have assigned three weapons to the naval base and one to each of the four oil rigs, you will specify their firing order.

*On the dial at the bottom right of the screen, click on 04. Then click on the ENTER button to designate Launch Tube 04 to fire first.*

A red button lights on Launch Tube 04.

Repeat this step to assign the remaining tubes from left to right to the firing order (2, 1, 3, 5, 7, 9).

You must be traveling no faster than 5 knots and at a depth no greater than 150 feet to fire Tomahawks. You are well within these parameters.

*Flip the toggle switch at the lower left to RIPPLE. You should hear "System Armed, Ripple Launch." The system is now ready to fire the Tomahawks in the current firing order at close intervals.*

*Begin the launching process by clicking on LAUNCH.*

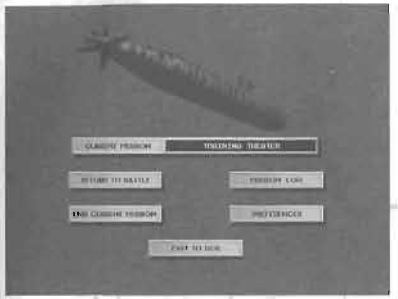
Your weapons will be launched in the chosen sequence. After each weapon is fired, you will see an estimated TTI (Time To Impact) countdown begin under each missile's Track display. It may take a few minutes. You may speed up the time factor by pressing [Shift]-[T], or slow it down by pressing just [T]. When the Tomahawks reach their target, you will see the explosion.



## ENDING YOUR MISSION

*After your weapons have hit their targets, click on OPTIONS, which is the farthest button on the right, to return to the Options Screen.*

The Options Screen displays.



*Click on END CURRENT MISSION to be evaluated on your performance then, click on YES to confirm this choice.*

You will be evaluated on your performance.

*Click again to view the mission log of your performance.*

*Click YES to confirm this choice.*

The Mission Log displays.

*After reviewing your accomplishments click on EXIT.*

Bravo Zulu! You are almost ready to take to the sea on your own.

# TUTORIAL THREE

Note: This training mission is extremely challenging at the Real difficulty level. You will be facing two very capable Russian submarines, each with weapons, sensors, and tactics rivalling yours. You may need to repeat this tutorial more than once to succeed.

*From the Options Screen, click on TRAINING MISSION to display the Mission Briefing and Orders Screen.*

*Click on PREV MISSION in the upper right until Training Mission (11) begins typing on the screen.*

Your primary and secondary objectives display. Your primary objective is to destroy two submarines, an Oscar II and a Victor III. Your secondary objective, which is optional in this tutorial, is to plot the mines in the area.

*Click on ACCEPT.*

You are taken to your boat's Control Room.

## DEPLOYING THE TB-23

*Access Sonar to see whether there any vessels are operating in your area.*

The Sonar display shows that your sensors are not detecting any sound.

*Click on the DEPLOY TB-23 button in the upper right corner to deploy the towed array antenna and increase your detection capability.*

*While the TB-23 is being deployed, click on the HELM button (third from the left) to slow your submarine.*

When your submarine is traveling slowly, it makes less noise, allowing you to more easily detect the presence of others while making it more difficult for others to detect you.

## USING THE HELM

The Helm Screen opens.

*Click on the Engine Control 1/3 setting. This will slow the boat to about 5 knots.*

*Return to the Control Room by clicking on the CONTROL button on the right side of the button bar.*

The Control Room appears.

After the antenna is fully deployed, sonar reports a contact.

## USING SONAR

*Access the Sonar Screen.*

The Sonar Screen displays a very faint trace in the low and medium frequency bands.

*Align the bracket under the trace. Click on ATF TRK 1.*

A tracker is assigned to this contact.

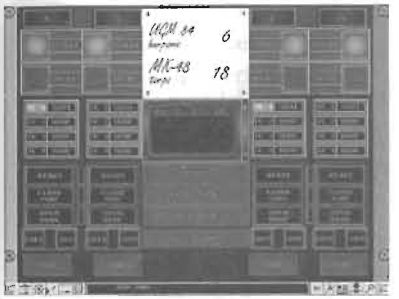
*Now assign your computer to identify the track by clicking on CLASS TRK 1.*



While the CLASS TRK # button flashes, your computer compares the sound signatures of the track with those signatures in its database. The track is so faint that it will take some time for your computer to find a match.

## LOADING WEAPONS

*Access the LAUNCH CONSOLE on the left side of the button bar and prepare for possible defensive action by loading your weapons.*




The Weapons Launch Console displays. Since you are anticipating hostile submarine contacts, load the tubes with four torpedoes. A torpedo is the only weapon capable of destroying a submerged target.

*Position the cursor over the dark red MK-48 weapon select area lamp under Tube #4 and click once.*

The weapon loads into the tube.

*Load MK-48 torpedoes in Tubes #2, #1, and #3.*

## ENTERING A BEGINNING FIRING SOLUTION

*Access FIRE CONTROL, (sixth button from the left,) to begin entering a firing solution on the track.*

*After the Fire Control Screen displays, click on the TRK ONE button, in the upper right corner, then click on the PASS button to access the BSY-1 Fire Control System's Passive mode.*

The location information that your sensors have detected on the track displays as dots on the screen, with the most recently detected location represented by the bottom dot.

As the track displays so faintly on your sonar screen, it is probable that it is quite far away from your current location.

*Use the right mouse button to click on the RANGE button's right arrow.*

Clicking with the right mouse button allows you to expand the range more quickly. Click with the left button when you wish to make minor refinements.

*Continue clicking until the dots fall into a straight diagonal line. Do not yet attempt to align the dots with the center line.*

*Once the line is straight, align the dots with the center line by clicking on the COURSE and SPEED arrows.*

*Zoom in on the display by clicking on the ZOOM + button.*

*When you have the best possible solution, click on ENTR to send your solution to your computer.*

Now refine your solution by changing course.

*Open the Helm Screen (third Command Bar button from the left).*

*Order a course of 180. Place the cursor above the right arrow near*

*the steering wheel and press down until an ORDERED course of 180 is displayed.*

While you are making the turn, increase your speed.

*Click on the 2/3 button to increase your speed to 10 knots.*

*As soon as your submarine is on a steady course of 180, slow your submarine back to 5 knots.*

It is extremely dangerous to maintain high speeds with enemy subs nearby.

*Access Passive Fire Control and review your entered solution.*

If your solution is correct, the bearing dots will remain stacked one on top of each other along the center line. If your solution is incorrect, your submarine's change in course will cause the bearing dots to begin heading off to one side. Rework the solution by first straightening out the line, then aligning it back to the center. Press ENTR when you have a new solution.

Your sonar operator announces that a second track has been detected.

*Access the Sonar Screen.*

*Move the bracket under the second trace and click on ATF TRK 2. Begin identifying the track by clicking on CLASS TRK 2.*

## PREPARING DECOYS

As there are two very dangerous submarines that are possibly within your area of operations, it is wise to plan defensive actions.

*Access the WLR-9 by clicking on the WLR-9 button, which is on the right side of the button bar.*

*Ready a decoy for firing by clicking on DECOY READY.*

Later on, if you hear that a torpedo is incoming, return to the WLR-9 and fire off this decoy by pressing DECOY LAUNCH.

## ENTERING ANOTHER FIRING SOLUTION

*Access Fire Control to develop a beginning firing solution for Track Two.*

The Fire Control Screen displays.

*Click on the TRK TWO and PASS buttons to begin entering a firing solution.*

Like Track One, the detected trace of Track Two is quite faint, which may indicate that the track is quite far from your location.

*Click on the RANGE arrows to straighten the line of dots, then click on COURSE to align the dots to the center.*

*When you have determined the best possible solution, send your solution to the computer by clicking on ENTR.*

*Click on the HELM button to change course again and check your current solution.*

The Helm Screen displays.



*Cross the bearing of Track Two with the bow of your boat by clicking on the right arrow key until a course of 260 displays.*

*As your submarine is making its turn, increase the speed to 10 knots.*

*As soon as your submarine is on a steady course, decrease its speed to 5 knots.*

*Access Fire Control to check your course.*

The Fire Control Screen displays Track Two's solution. Since you altered the course of your submarine, the bearing dots may be heading off to the right.

*Straighten out the bearing line by clicking on the RANGE arrows. Do not worry about aligning the dots to the center line.*

*Now click on the COURSE arrow to align the dots to the center line.*

*After your solution is good, click on ENTR.*

Since you have once again changed course, you may wish to view your solution to Track One and, if necessary, make further refinements.

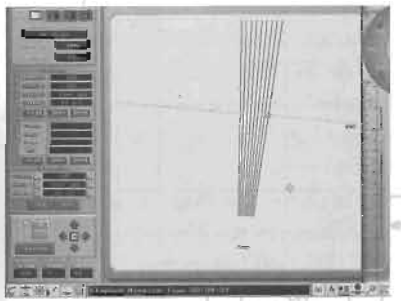
*Click on the TRK ONE button at the top left of the screen to display Track One's current solution.*

*After you have made any further refinements, click on ENTR to send your solution to your weapons.*

## USING THE PLOT

The Plot helps you determine and refine your firing solutions. The Plot is especially useful when you need to determine a solution on a particularly dangerous track, such as an Oscar II or Victor III submarine.

*Click on the PLOT button, which resembles a compass and is on the right side of the button bar.*



The Plot Screen displays.

*Click on the green 1 button in the upper left corner, to display information that has been collected on Track One.*

Several lines display on the screen.

*Click on the ZOOM field's - button several times until you see a short U-shaped blue dotted line, a long blue dotted line, and several black lines.*

The short, U-shaped blue dotted line represents the course your submarine has traveled. The long blue dotted line is the firing solution that you have entered on the track. The black lines represent the bearing of the track detected by your boat's sensors. Every 30 seconds, your sonar will plot a new bearing line.

To successfully determine a solution using the plot, you must have the dots on the long blue line (your firing solution) fall upon the black bearing lines where the blue line crosses them. You will move the blue dotted line

by clicking on the COURSE, RANGE, and SPEED buttons in the SPEED RULER section, which is on the left, toward the bottom of the screen.

*Shift the display so that the long blue line's intersection with the black bearing lines is centered in your display. To shift the display, click on the left, right, up, or down arrows to the right of the ZOOM field.*

*Zoom in on your solution by clicking on the ZOOM button's + key several times.*

We will provide you with an approximate solution for the first track so that you may see how a correct solution appears upon Plot. For Track Two, you will determine a firing solution with only limited guidance.

*Click on the course button's right or left arrows until a course of 270 displays in the course field.*

The blue dotted line will pivot.

*Next click on the RANGE SCALE's + or - buttons until the displayed value is approximately 25000 yards (this value may vary depending on how long you have been playing the simulation).*

The blue dotted line will slide up or down the bearing lines.

*Now, click on the SPEED button's + or - key until a speed of 6.0 knots displays.*

The distance between each blue dot will change.

As with the Passive Fire Control, the best way to determine a valid solution with Plot is to change your submarine's bearing.

*Press the left arrow key on the keyboard two or three dozen times.*

Your boat will turn to the new ordered bearing. Within a few seconds, a new bearing line will display for the track.

*Refine the range value until the blue firing solution's dots fall upon the black bearing lines.*

*When your solution is complete, save it by clicking on the SAVE button, then send it to your computer system by clicking on SEND.*

*Now that you have a solution for Track One, click on the green 2 button in the left top corner and begin determining Track Two's firing solution.*

*Click on the left, right, up, and down arrows to center the display at the intersection of your firing solution and the bearing lines.*

Zoom in on the display by clicking on the ZOOM field's + button.

Now refine your solution by clicking on the RANGE, COURSE, and SPEED arrows until each of the blue dots of the firing solution fall upon a bearing line.

You may wish to move between Passive Fire Control and Plot in determining your solution.

*When you find a solution that you think is good, click on SEND to provide your computers with your solution.*

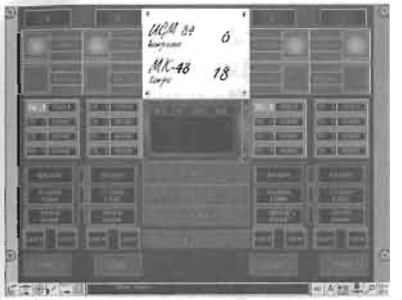


## LAUNCH CONSOLE

*Click on the LAUNCH CONSOLE button to prepare to fire your torpedoes.*

The Weapons Launch Console displays.

*Click on TRK 1 S001 under Tube #4 and TRK 2 S002 under Tube #1.*



*Click on the READY buttons under Tubes #4 and #1.*

Wait until the weapons are readied.

*Click on FLOOD TUBE under Tubes #4 and #1.*

After the tubes have flooded, the FLOOD TUBE buttons will remain a solid red.

*Click on OPEN DOOR under Tubes #4 and #1.*

The tube doors will open.

*Arm the torpedoes by clicking on ARM under Tube #4 and Tube #1.*

The weapon's status changes from SAFE to ARM.

*Click on FIRE under Tube #4.*

The weapon fires and you automatically advance to Fire Control's Torpedo Mode, where you may watch the progress of your torpedo.

*Leave Fire Control by clicking on CONTROL.*

*Access the Launch Console by clicking on LAUNCH CONSOLE.*

*Fire your second torpedo by clicking on FIRE under Tube #1.*

## GUIDING YOUR TORPEDOES

Your weapon fires. Watch your torpedoes head toward the submarines. The MK-48 torpedo's maximum speed is 55 knots, so it will take several minutes before the torpedoes reach their destination. You may wish to speed up the scenario by pressing [Shift]-[T] (slow it again with [T]).

*Click on TRK ONE to view Track One. Now click on PORT to display the path of the weapon heading toward Track One.*

*Click on TRK TWO to view Track Two. Now click on STBD to display the path of the torpedo that is heading toward Track Two.*

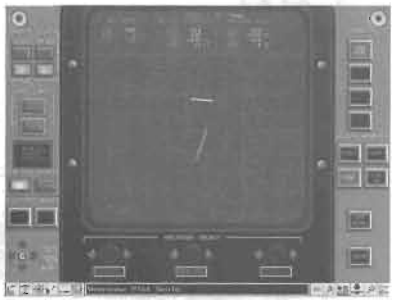
*Zoom in and out of the display by pressing the ZOOM field's + and - keys.*

*Re-center the display by clicking on the arrow buttons to the left of the ZOOM field.*

A Word of Warning: The submarines that you have fired upon are equipped with early warning and defensive systems. If the submarines sense an incoming torpedo, they will take evasive action by firing decoys and changing course.

If you detect your torpedo going off course, complete the following steps:

- Click on the PORT or STBD buttons on the left to take command of your torpedo. By clicking on these buttons, the yellow steering command displays.



- If the torpedo has already acquired on the target (indicated by the search area displayed in red), press the ACQUIRE INHIBIT OVERRIDE button.
- Click on the left and right WPN CSE arrows at the bottom center of the screen to steer the torpedo back on target.
- Click on SEND to provide the torpedo with your instructions.

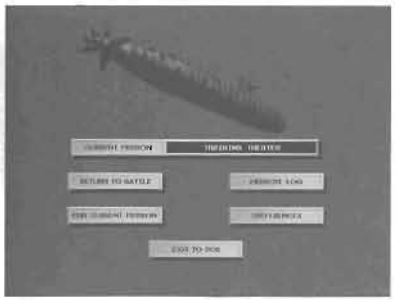
*You must destroy both submarines before attempting to hunt for mines, your secondary (and optional) objective.*

Otherwise, the enemy submarine will get a lock on you when you are pinging for mines, and send you to the bottom. If you have not destroyed one or both of the submarines, reload your weapons, determine a new firing solution, and fire again. This is NOT, repeat NOT, an easy mission. You may need to repeat it several times to succeed.

### ENDING YOUR MISSION

*After you have destroyed both submarines, you can try hunting for mines. Refer to the Reference Section, "Mine-Hunting Sonar," page 40, for the procedure. Otherwise, end the mission by clicking on the OPTIONS button (far right).*

The Options Screen displays.



*Click on END CURRENT MISSION to be evaluated on your performance, then click on YES to confirm this choice.*

You will be evaluated on your performance.

*Click again to view the mission log of your performance.*

*Click YES to confirm this choice.*

The Mission Log displays.

*After reviewing your accomplishments click on EXIT.*

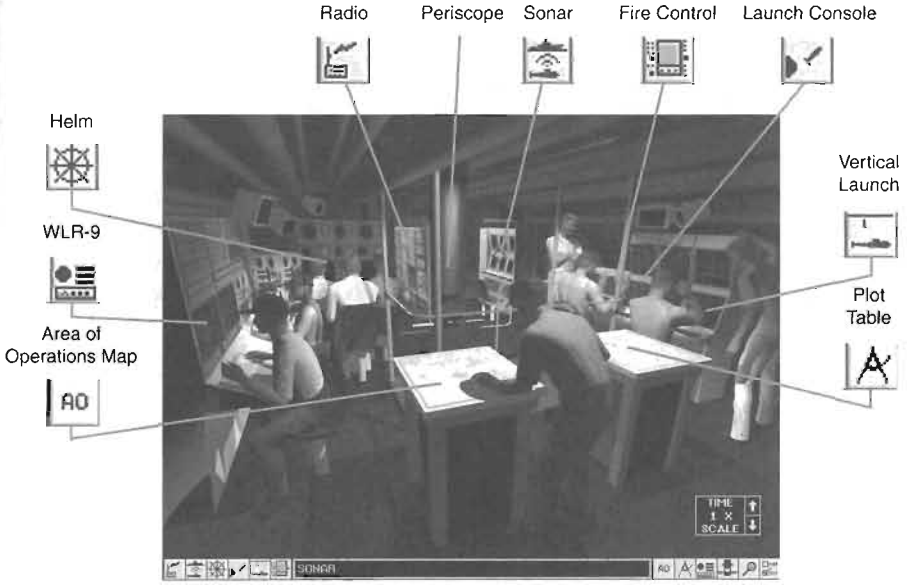
You are now ready for battle.



# Reference

## CONTROL ROOM SCREEN

The Control Room is your hub of operations, and the starting point for all missions. You can reach any station on the boat by clicking directly on the station here, or by clicking on its equivalent Command Bar button. (Pop-up help messages will identify the station or button under your mouse cursor.) To return to the Control Room from other stations, click on the Command Bar "periscope" button.




The center of the Command Bar relays crew messages. Emergency messages appear in flashing red text. "All-hands" messages appear in yellow. More routine messages will appear in magenta text, or in "half-size" blue or yellow text.

If you wish, you may change the game's Time Scale from 1/10X to 5X by clicking on the up or down arrows of the Time Scale control (1X is normal). You may find 1/10X especially handy when trying to evade multiple threats. You can change the time scale anywhere in the game: press [Shift]-[T] to speed things up, or [T] to slow things down.

# SONAR

With your Sonar System, you may listen to and analyze sound waves to identify and locate friendly vessels and threats within your area of operation. The Sonar System has four modes: Passive, Active, Mine-Hunting, and SVP (Sonar Velocity Profile).

## PASSIVE SONAR

With Passive Sonar, you quietly listen to the surrounding ocean without revealing your presence. Use Passive Sonar to detect, identify, and track targets and their bearings.

To start passive sonar, go to the Sonar station and click the PASS (Passive) button. For best results, reduce your speed to 5 knots or less to reduce ambient noise generated by your own boat's passage through the water.

### Detecting Targets

The Passive Sonar's three "waterfall" displays categorize detected sounds by frequency range. The top waterfall display shows high-frequency noise, the middle waterfall display shows medium-frequency noise, and the bottom waterfall display shows low-frequency noise. Some targets will generate noise in more than one range. Also, a thick line may consist of multiple targets generating similar frequencies.

| Frequency | Band Range | Origin |
|---|---|---|
| High | 3000-15000 Hz | Torpedo screw noise (or biologics) |
| Medium | 300-3000 Hz | Machinery from submerged and surface targets (or biologics) |
| Low | 3-300 Hz | Submerged and surface targets with a speed greater than 0 knots (or biologics) |

The louder the detected sound, the thicker the line on the display. Louder usually means closer. Since sound travels so well underwater, however, you cannot rely solely on passive sonar to determine range. The bearing degrees above these lines indicate the target's position from your submarine.



### Automatic Target Following (ATF)

Once you detect a potential target, you may assign your computers and sensors to track and identify it. Sensors pass information on the detected track to all of your submarine's systems, which helps you identify the track and obtain a firing solution upon it. To assign your sensors to listen to a specific target, complete the following steps:

- With your mouse, center the "fang" bracket on the waterfall display on the trace you wish to identify.
- Click on an ATF TRK # (Automatic Target Following) button.

Your computers assign the track a unique track number. Because you identified the track through the Sonar System, the tracking system assigns an "S" for "Sonar" to precede the track number. Later, if you receive other information on the track through the Periscope or Operations Area Map, this letter will change to "M" for "Master." An "M" designation signifies that more than one sensor has collected information on the track.

### Identifying Tracks

After assigning the target to a tracker, use your on-board computer to analyze the target's noise signature and attempt to match it with a known vessel type (this process is automatic on EASY level). To begin the identification process, click the track's CLASS TRK # button. The CLASS TRK # button flashes while the computer searches for a match. The stronger the track's signal, and the longer you analyze it, the more likely the computer will be able to positively identify the track. To cancel target classification, click the CLASS TRK # button a second time.

Some tracks cannot be identified. If the computer can identify the track, you can go to the Warbook to view the track and its capabilities.

### Towed Arrays

You may increase the Passive Sonar's detection ability by deploying either the TB-16 or TB-23 towed array. An array trails behind your submarine, enabling you to detect faint sounds. The TB-23 is the more sensitive of the towed arrays, but it takes more than 30 seconds to deploy, making it unsuitable for use in emergencies. Remember, for best detection, slow your submarine to 5 knots or less to reduce the noise of your boat.

## ACTIVE SONAR

Active Sonar enables you to quickly pinpoint the location of a target and determine its exact range, bearing, course, and speed by sending out strong short pulses of sound energy, called "pings," and analyzing the returning echoes. However, pinging announces your presence and location to every listening vessel within miles, allowing them to determine your location and send off a shot. You should use Active Sonar only in desperate conditions when you must find your track's range immediately to fire

upon it, or when you know that all nearby vessels are merchant ships that are not equipped with a sound detector or weapons systems.

To access Active Sonar, click on the ACT toggle in the upper right of the Sonar Screen. Several controls enable you to focus the sound energy pulse toward the area of interest:

- **TRK #** - You may ping only tracks that you previously assigned for your sensors to follow (use Passive Sonar or the Periscope to assign a tracker). Direct the ping toward a specific track by clicking on the track number.
- **RANGE** - Specify the distance the ping will travel using the three RANGE buttons. Select RANGE 20000 if you have no closer estimate on the track's range.
- **NARROW BEAM/WIDE BEAM** - When you ping, the sound pulse travels over a specified area. Use the NARROW BEAM/WIDE BEAM buttons to set the width of the area that the ping sweeps. If you do not know the exact bearing of your track, select WIDE BEAM.
- **PING** - Click on PING to send out a single sound pulse.
- **AUTO PING** - Click on AUTO PING to send out sound pulses at regular intervals.

Once these controls are set, you can also ping from the Fire Control Active Mode.

### Marking a Track for Range

If the ping detects a target, your sensors will display a fuzzy bright spot. To measure the target's range and bearing from your submarine, move the center line over the spot, then click on MARK RANGE. Mark Range will enter the reading into the current Fire Control trial solution. Information on the target's exact range and bearing displays. With repeated pings, you will be able to obtain additional information, such as the target's course and speed.

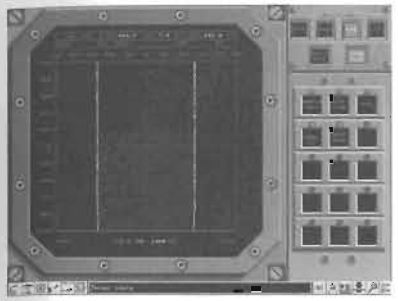
## MINE-HUNTING SONAR

Mine-Hunting Sonar, also called the "BQS-15," enables you to locate and steer your boat around destructive mines. Like Active Sonar, the Mine-Hunting Sonar helps you determine the presence and location of mines by sending out pings and analyzing their returning echoes. To access Mine- Hunting Sonar, click on the BQS-15 button in the top right of the Passive Sonar Screen.

To locate mines, you must carefully maneuver your boat while you follow these mine hunting procedures:

- Determine the width of the area to be scanned by specifying either NARROW SCAN or WIDE SCAN.
- Slow your submarine to approximately 5 knots. Higher speeds may limit your ability to detect mines.





- Click on either SCAN to send out a single ping or AUTO SCAN to send out a series of pings.
- Begin moving your submarine over the area you believe the mines to be located. Zigzag, turning 45 degrees each time. Move your submarine in a widening spiral.
- If you detect a mine, identified as a fuzzy, bright green dot, place the vertex of the cross that displays on your screen on the mine and click on MARK to record the mine's position.

## SVP MODE

The Sonar's SVP (Sonar Velocity Profile) mode displays the position of temperature layer boundaries, or thermoclines, in the surrounding water. While water gets colder with depth, it doesn't always do so at a steady rate. Currents, land masses, weather, and other factors may cause water temperature to drop abruptly at a certain depth, forming a layer (or layers).

A temperature layer boundary will partially reduce and scatter sound waves passing through it. This property can be both a help and a hindrance to you. If your sub is below a thermal layer boundary, ships and subs above the layer will have more trouble detecting and locating you. On the other hand, you will also find it more difficult to accurately detect and plot tracks on the other side of a thermal layer. Additionally, your torpedoes will have more difficulty acquiring a target on the other side of a layer.

To initiate SVP mode, go to the Sonar Screen and click the SVP button. The display will show your sub in relation to the surrounding water. Any thermal layer boundaries are shown as dotted lines. The "cross-layer attenuation" (the reduction in sound strength) is shown in decibels at the bottom of the display: for example, XLAYER ATTN: 4.5 Db. You may change the displayed depth range by clicking on the DEPTH button.

## PERISCOPE/ESM

To travel in a submarine is, for the most part, to travel blind. You sense the environment around you primarily with sound. However, at depths of 60 feet or less, you may raise your periscope for a quick look above the surface. Use your periscope to:

- View the outside world.
- Assign targets to trackers to begin collecting information with your computers and sensors.
- Determine a track's range.
- Sense the presence of enemy radar.

Be aware that at periscope depth, enemy vessels can more easily locate and identify you.

### VIEWING THE OUTSIDE WORLD

You access the Periscope in the Control Room. Click on the Periscope in the center of the Control Room to raise it. With the Periscope, you may view any surface targets within visible range. Click on the left and right arrows on either side of the eyepiece to "pan" the area. Move your mouse up or down to change the arrow size and pan speed. Clicking on a big arrow causes the Periscope to pan more quickly than clicking on a small arrow. If you wish to view a track that you already assigned for your sensors to follow in Sonar, click on the track's assigned number, which displays in the upper left. Upon clicking on the track number, the Periscope will move the track's last detected position.

You can also change the view magnification by clicking the MAGNIFY switch at the bottom of the screen.

### ASSIGNING TARGETS TO SENSORS

You may assign your sensors to follow and collect information on any visible target. Position the target within your eyepiece and click on one of the empty track buttons on the left side. Your on-board computers will assign the track a unique number with the beginning letter of "V," to indicate that you detected the track visually. Alternatively, you stop your sensors from following and collecting information on the target TRACK by clicking on CLEAR and confirming your choice.



### DETERMINING A TRACK'S RANGE

You can use the periscope to visually refine estimated target ranges for an assigned track.

- Click on the track number of the track you wish to view. The periscope automatically turns to the track's location.
- Use the division lines on the eyepiece to measure the track's range. Each division line equals one whole unit. By knowing a track's height, you can accurately estimate the track's range, as the taller the track appears, the nearer it is to your submarine.
- Enter your estimate of the track's height in units in the box at the bottom of the screen by clicking on the up and down arrows. Be sure to include in your estimate that part of the ship that is below the water line. The box enables you to enter values with up to 0 .1 accuracy.
- Once you have entered the track's height measurement into the box, ensure the track is still within the reticule, then click on MARK. Information on the track's range will be computed and sent to Fire Control's Active Mode to help you obtain a better firing solution.

### SENSING ENEMY RADAR

Raising your Periscope enables several detectors in the WLR-12 ESM system. This radar warning system detects radar emitted by antisubmarine helicopters, other aircraft, or ships within the area. If your WLR-12 ESM detects surface search radar, chances are good that a vessel is searching for you and may have found your location. If you believe you have been detected, dive deep and leave the area.

Your WLR-12 ESM system consists of the following detectors:

- EW (Early Warning) detects radar emissions from ships or shore sites that are looking for aircraft. If your sensors detect EW radar, there is no threat unless the ship or shore site is quite close and may be able to visually detect your location (signal strengths of 4 or 5).
- AS (Airborne Search) detects radar emissions from aircraft. If your ESM system detects AS radar, it is possible that the aircraft personnel have detected your submarine.
- FC (Fire Control) detects missile guidance radars. If FC detects radar, a missile may be coming in at you or another vessel in your area.
- SS (Surface Search) detects surface search radar. Surface search radars are emitted from surface ships that may detect that you are at periscope depth and come after you. Radar signals of 4 or 5 indicate that the surface ship is very nearby.

# RADIO

The Radio screen displays your mission orders, weapon conditions, and mission clock (GAME TIME ELApsed, REMaining). Check the radio early in the mission to confirm how much time you have to complete it.

You may also receive new orders, targeting info, and position reports at predetermined broadcast times. Your submarine is equipped with a USQ-67 radio receiver that, when properly used, allows you to receive message traffic while submerged.

## THE BROADCAST MESSAGE SYSTEM

The Navy's broadcast system is built on the Submarine Broadcast Authority. This authority constantly receives information from passing ships, airplanes, reconnaissance satellites, and intelligence centers on the presence and movement of vessels within your area. The Submarine Broadcast Authority first prepares a message, then broadcasts the message via satellite and low-frequency radio waves. New messages are sent every 15 minutes, beginning at five past the hour.

A word of caution: it takes time for the Submarine Broadcast Authority to prepare a message. The information that you receive within a broadcast transmission is between 15-29 minutes old. **For this reason, you should never rely on radio-received information to calculate a firing solution on moving targets.**

### Receiving Messages

You may receive message traffic in your submarine in two ways: you may either raise your periscope at least 5 seconds before a scheduled transmission time to receive the message via satellite, or you may deploy your floating wire antenna anytime during the message's 15 minute broadcast period and receive the message via radio.

Obtaining the message via periscope provides quick receipt, as information is passed from the satellite at a data rate of 9600 baud; however, if you raise the periscope a moment late, you will not receive any of the message.

Receiving the message via the floating wire is much slower, as information is sent from the radio tower at a data rate of 60 baud; however, if you miss part of the message, it will be repeated several times during the 15-minute period, so you can receive the missed portion when the message is repeated.

Upon receipt, the message displays on your USQ-67 radio receiver. In addition, your OP Area Map automatically updates with the position of targets operating within your area.



## DEPLOYING THE FLOATING WIRE ANTENNA

To deploy the floating wire antenna, slow your submarine to less than 15 knots, raise to a depth of at least 200 feet, then click on VLF ANTENNA DEPLOY. The speed at which you are traveling determines the required depth for the floating wire antenna to float to the surface.

| Speed (in knots) | Usable Depth (in feet) |
|---|---|
| 0 | 200 |
| 1 | 190 |
| 2 | 180 |
| 3 | 170 |
| 4 | 160 |
| 5 | 150 |
| 6 | 140 |
| 7 | 130 |
| 8 | 120 |

Be advised that if you increase your speed more than 15 knots while your antenna is deployed, the antenna may break off, preventing you from receiving future radio-broadcast messages. If this happens, the VLF Antenna Fault Lamp lights red.

## WARNING AND WEAPONS CONDITIONS

If you access your USQ-67 Radio Screen before you receive any messages, your detailed mission orders display. Your mission orders list a warning and weapons condition. Warning and weapons conditions direct you on how to proceed in any given mission. Such conditions are:

| Condition | Designation |
|---|---|
| Warning White | Hostile action is possible, but unlikely. |
| Warning Yellow | Hostile action is probable. |
| Warning Red | Hostile action is imminent. |
| Weapons Tight | Fire in self-defense only. |
| Weapons Free | Engage hostile contacts at will. |

Warning and weapons conditions can be combined to mean different things; Warning Red, Weapons Tight means to expect hostile action, but refrain from firing unless in self-defense. Whatever the condition, adhere to it. Going against mission orders could have you reprimanded, or even discharged from the U.S. Navy.

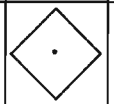
### RADIO CONTROLS

Use the following radio controls to scan messages:

- NEXT MSG - Click on this button to see the next message, if any.
- PREV MSG - If you have received more than one message, click on this button to display the previous message.
- NEXT PAGE - Click on this button to view the next page of text.
- PREV PAGE - To return to a previous message page, click on this button.

## OP AREA MAP

The Operations (OP) Area Map (AO button) displays your area of operation and all the targets within it, and allows you to enter a firing solution for your Tomahawk missiles. When the USQ-67 radio receives a message, it automatically passes updated position information to the OP Area Map to help you keep aware of the tactical situation. The OP Area Map displays the detected tracks in Naval Tactical Display Symbology (NTDS), allowing you to know at a glance the types of tracks operating in your immediate area. The OP Area Map displays tracks as follows:

| | Ship | Air | Submarine |
|---|---|---|---|
| Neutral |  |  |  |
| Hostile |  |  |  |
| Friendly |  |  |  |

Using the OP Area Map, you may obtain information on a selected track, including its designation number, course, range, bearing, speed, and altitude. You may also target a Tomahawk missile at the track. If you first receive information on a specific track through the OP Area Map, the track is given an unique number that is preceded by the letter "A," which signifies "Area." To select a track, click on the track's symbol. A red circle displays around the track to signify your selection, and the track's information is displayed.



### SETTING TOMAHAWK FIRING SOLUTIONS

After selecting a track, you may target it for your Tomahawk missiles travel by clicking on the TGT VLS button at the top of the screen. If you make a mistake, select the track again, then click on the TGT CLR button.

### ZOOMING IN AND OUT

The OP Area Map also allows you to change your view. Click on the AREA SEL button, then hold down the mouse button and create a white square over the area you wish to enlarge. The OP Area Map displays an enlarged view of the area. Click on RESET SCR to return to the standard screen view.

Reminder – do not use the AO map alone for firing solutions on moving targets. USQ-67 data may be obsolete by the time you get it.

## WARBOOK

The Warbook provides technical information on all the surface, air, and subsurface vessels that you may encounter in *Fast Attack*. Game time stops when you open the Warbook.

Within the Warbook, you may browse through data by clicking on one of the CD trays, then clicking on the left and right arrow buttons. You may also look up a specific track that you have already assigned and identified by Sonar by clicking on the T1 - T4 (Track 1 - Track 4) buttons.

The top half of the Warbook displays a graphical wire-frame or 3-D representation of the vessel. Press the -3D- button in the lower right of the screen to see the vessel spin on its axis. The bottom half lists the vessel's name and its specifications. The track name at the bottom of the screen displays in lettering that is colored to indicate the track's designation: red indicates a hostile track, blue indicates a friendly track, and yellow indicates a neutral or unknown track. If additional information is available, you may access it by clicking on the down arrow.

## HELM

With its two steering wheels and various controls for course, depth, and speed, the Helm allows you to control your submarine's travel. Click on the controls or use the following keypad commands to provide your crew at the Helm with orders to dive, surface, or change speed and course:

| | |
|---|---|
| Change course to port 2 degrees | [Left arrow] |
| Change course to starboard 2 degrees | [Right arrow] |
| Decrease depth by 2 feet | [Up arrow] |
| Increase depth by 2 feet | [Down arrow] |
| Increase speed by 2 knots | + |
| Decrease speed by 2 knots | - |

The information that you have ordered displays in the ORDERED fields. It may take some time to actually reach your ordered value; for this reason, information in the ACTUAL field, which is your submarine's current position, may differ from your ordered variables.

### DEPTH

The Helm provides you with the following automated diving options:

- Dive - From the surface, dive to a depth of 150 feet at 10 knots (2/3 speed).
- Surface - Raise to 20 feet at current speed.
- Emergency Surface - Raise to 20 feet at 15 knots (standard speed).
- Emergency Deep - Dive from Periscope depth to 245 feet at 20 knots (full speed).

### SPEED

Increase your submarine's speed to 32 knots or slow the speed to 0 by clicking on the up and down arrow keys under "Speed Control," or by using your + and – keys. You may also change speed by clicking on the green (ordered) knob on the engine order telegraph. The following terms display that signify the associated speeds:


- Stop - Slows your submarine to 0 knots.
- 1/3 - Changes speed to 5 knots (1/3 of standard speed).
- 2/3 - Changes speed to 10 knots (2/3 of standard speed).
- Stand (Standard) - Changes speed to 15 knots.
- Full - Changes speed to 20 knots.
- Flank - Changes speed to 32 knots.
- Battery - Not used.



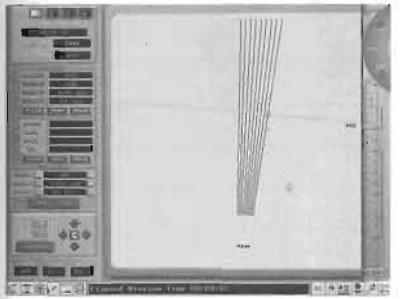
- B Emergency - Maximum speed astern to decelerate to 0 knots.
- B Full - Quick deceleration.
- B 2/3 - Medium deceleration.
- B 1/3 - Slow deceleration.

## PLOT

The Plot helps you refine the course, speed, and range of the tracks you are monitoring. To be effective, the Plot should be used with other firing solution tools, such as the Passive and Active Fire Control and the Periscope.

### DETERMINING A FIRING SOLUTION

Every 30 seconds, the Plot receives and plots data from your trackers, then draws lines indicating the bearing at which your submarine's trackers sensed the track. To use the plot, you must position the blue line upon the track's estimated location and align it with the course that you believe the track to be following.



- In the upper left corner, click on the track number for which you desire to find a firing solution.
- You may zoom in and out of the display by clicking on the ZOOM button's + and - keys. You may scroll the display up, down, left, or right, by clicking on the arrow keys to the right of the ZOOM buttons.
- In the blue SPEED RULER section, click on the right or left course arrows until the dots of the light blue line intersect each of the track's detected bearing lines. Zoom in if necessary. Click with the left mouse button to make minor changes. Click with the right mouse button to make major changes.
- Your solution will be good when each of the black bearing lines has a blue dot that falls directly upon it. Click on the RANGE button's + and - keys to move the blue line up and down the bearing lines. Click on the SPEED button's + and - keys to change the "tightness" of the dots.
- The most efficient way to refine the track's estimated location is to determine a preliminary solution, then dramatically change your submarine's current course or speed. If you change course, try to cross the bearing of the target. Once your boat's position changes, your sensors detect the track from a different bearing. If you have an accurate solution, the new bearing lines will fall directly upon the entered solution dots. If your solution is inaccurate, the bearing line

falls off the solution dots. When your solution proves to be inaccurate, find a solution that works for your new and old ship course, then change your course again to test your new solution.

- Once you have a good solution, click on SAVE. If you wish, you may come back to this solution later.
- After saving, click on SEND. Your submarine's computers send the saved information to your weapons.

Note: The Plot assumes that the track travels at a steady course and speed. This may not always be the case. If a track changes course or speed, you may not use the bearing lines detected before the change to determine a solution.

The buttons used to work with the Plot are detailed below.

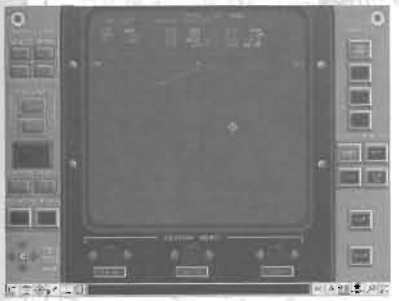
| Button | Function |
|---|---|
| Plots 1234 | Correspond to the four tracks you previously assigned to trackers in Sonar or the Periscope; selected track buttons highlight green. |
| ELAPSED PLOT | Tells how much time you spend plotting TIME tracks. |
| TRACK ID | Displays the designation number of the currently displayed track. |
| LAST BEARING | Indicates the last detected bearing on the currently displayed track. |
| ACTIVE | Displays your sub's firing solution. |
| SAVE | By clicking on RULER or DRAW in the SAVED section, you may retrieve a solution you previously saved. DRAW enables you to work with more than one solution, which may be helpful if the track changes course or speed. |
| SPEED RULER | You may change the track's estimated course, range, and speed by clicking on the arrow or + and - buttons. |
| ZOOM | Increases/decreases magnification of the plot. |
| Center | Centers the plot on your submarine. |
| Arrow keys around center | Scroll the plot paper to the left, right, up, or down. |



| | |
|---|---|
| REDRAW | Redraws your solution so that you may rework it from the beginning. |
| OWN SHIP | Displays your submarine's course, speed, and range. |

## FIRE CONTROL

Fire Control has four modes: Passive, Active, Torpedo, and Harpoon (UGM 84). In the Passive Mode, Fire Control helps you anticipate the future location of as many as four tracks that you previously assigned to trackers. Fire Control provides the best firing solution possible given the information that it has received, then computes the settings that allow a weapon to be properly aimed at a track. (On "Easy" difficulty, you will start with a goal solution. On "Standard" you will start with an approximate solution. On "Real," you start with what you can set.) The Active Mode helps you determine a track's range and bearing and refine your firing solution with active sonar. The Torpedo Mode allows you to guide a fired MK-48 torpedo to its intended track. The UGM Mode enables you to program the flight path that a Harpoon missile follows. In each of the modes, you may zoom or scroll the display using the buttons at the bottom left of the screen. Weapons status lights in the upper left corner inform you of the status of any weapons you may have fired upon the track.



### FIRE CONTROL PASSIVE MODE

To enable the Fire Control BSY Passive mode, click on an already-assigned track number, and then click the PASS button.

When you assign a target to a tracker, the track is updated every 30 seconds. This bearing information displays as a string of dots. Each new dot signifies the latest information that Fire Control has received. To ensure your weapon reaches its intended track, you must align the string of dots to the center line.

#### Solution Select Switches

After you have at least five or six bearing dots displaying on Passive Fire Control, try to align the dots on the center line by clicking on the left and right arrows of the Solution Select's RANGE, COURSE, and SPEED switches. As you click on these buttons, you change the system's estimated information on how far the track is from your submarine, the course it is traveling upon, and how fast it is moving.

The surest way to find an accurate solution is to click on COURSE first, then refine SPEED and RANGE. Click on these switches with the left mouse button to make small refinements. Click with the right mouse button to make major changes. When the dots are reasonably aligned to the center, press ENTR to send your solution to your weapons. If time permits, you should check the accuracy of your solution by changing the course of your submarine by 60 degrees or more and seeing if the solution stays aligned. If not, readjust and check it again.

### Zooming In

You may zoom in on your solution to ensure its accuracy by clicking on the ZOOM field's + button. Zoom out by clicking on the – button. When you first begin to work on a solution, zoom out as far as possible. As your solution becomes more accurate, zoom in to make refinements.

## CAN'T GET AN ACCURATE SOLUTION?

If you are having trouble getting an accurate solution, take the following steps, as appropriate:

### Change Course

Determining a track's range is the most difficult part of the firing solution. The best way to determine range is to:

- Align the dots as closely as possible to the center line;
- Click on ENTR; then
- Change your course by at least 60 degrees and attempt to cross the track's bearing. When determining firing solutions, you should change course every 10-12 minutes.

After changing course, your sensors are in a new location and, thus, detect the track from a different bearing. An accurate firing solution is not affected by your change in course, as your sensors detect the track from the anticipated bearing. An inaccurate firing solution, however, causes all new dots to be out of alignment.

### Slow Your Boat

When your submarine is traveling quickly, you have a harder time detecting the tracks that are operating around you. When determining a firing solution, slow your submarine to approximately five knots. Once you have a solution you wish to check by changing course, you can increase your speed as the submarine makes the turn. When your helmsman reports the submarine steady upon its new course, immediately slow your submarine again to 5 knots. Do not travel at high speeds on a steady course for long periods of time or you become an easy target.



### Click on Enter

Click on ENTR frequently. Each time you click on ENTR, you send the location where you believe the track to be to your weapons system. The last bearing dot becomes anchored to the center line. After anchoring a point, you may work to align subsequent points.

### Click on Clear

Tracks may change course or "zig." If it appears that the track has changed course, all previous bearing dots are useless. Click on ENTR to set an anchor point, then erase the previous dots by clicking on CLR. All dots before the anchor point are erased.

### Advance to the Periscope

You may estimate a track's range and bearing by viewing it through the Periscope and "marking" it for range. A track that is far from you appears short, while one that is nearby appears tall.

### Advance to the Plot

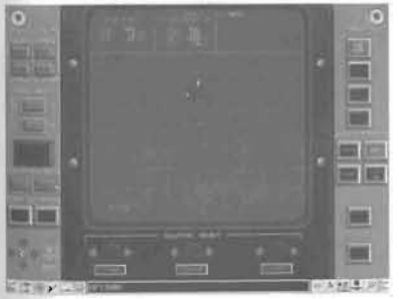
If the bearing dots are so randomly placed that you cannot get a solution, exit Fire Control and advance to the Plot Screen. It is often easier to obtain an initial solution from the Plot, which you can then refine at Fire Control.

## FIRE CONTROL ACTIVE MODE

By clicking on the track number in which you are interested, then clicking on ACT, you advance to Fire Control's Active Mode, where you may send out strong sound wave "pings." Your computer system analyzes the ping's echo and provides you with accurate data on the track's range, bearing, and other firing solution data. The Fire Control Active Mode only works with the Active Sonar enabled in the Sonar Screen.

### Ping

By clicking on "ping," you better measure the track's range, course, and bearing. Beware: The information obtained from pinging comes at a tremendous price. By pinging you announce your presence to every listening vessel in the area.



To ping, complete the following steps:

- Access Active Sonar;
- Select the track number toward which you will direct the ping;
- Set the beam width by clicking on either NARROW BEAM or WIDE BEAM (recommended);

- Set the desired range by clicking on either RANGE 4000, RANGE 10000, or RANGE 20000;
- Click on PING from either the Active Sonar or Active Fire Control. If the ping detects a track, the Active Fire Control will display the following:
  - A yellow dot, which represents the currently believed location of the track;
  - A line of green dots, which designates the track's speed;
  - Circles, which represent the track's current range estimate provided by Periscope or Active Sonar; and
  - A dim green line, which represents your submarine's current location and course.
- If you wish to refine your firing solution based on the information obtained from the ping, click on the Solution Select Switch's COURSE, SPEED, and TIME arrows.
  Note: If you plan on pinging more than once, wait at least 30 seconds between pings. Rapid, successive pings do not return accurate information.
- After you have determined a trial solution, click on SEND to pass the solution to the Weapons Launch Console.

## FIRE CONTROL TORPEDO MODE

After firing off a torpedo from the Weapons Launch Console, *Fast Attack* automatically advances you to Fire Control's Torpedo Mode, which enables you to watch the torpedo advance toward, enable, acquire, and, with luck, hit your designated target. If you detect a problem with your firing solution, you may manually guide the torpedo toward its target.

Upon entering Fire Control's Torpedo Mode Screen, the following is shown:

- Your submarine displays in dim green;
- The track the torpedo is intended for displays in bright green;
- The path on which your torpedo is traveling displays in yellow;
- The path that will most likely cause your torpedo to hit the track displays in blue;
- The path your torpedo has completed displays in blue dots.

### Zoom

You may change the view to better see the torpedo approach the track by clicking on the ZOOM field's + and - keys, or shifting the display by clicking on the arrows to the left of the ZOOM field.



### Torpedo Data

It takes time to successfully fire a torpedo and have it hit its track. An estimated Time To Impact (TTI) displays in the Torpedo Data box, which is in the screen's top right. You may speed up the time factor by pressing [Shift] - [T]. As the torpedo approaches the target, a second countdown displays in the Torpedo Data's RTE (Run-To-Enable) field for when the torpedo enables. When the torpedo enables, the ENABLE lamp lights, the torpedo's cone of detection appears, and the torpedo begins pinging to locate and acquire lock on the track. Provided the track falls within the torpedo's cone of detection, the torpedo should detect, acquire, and hit the track. However, if the track detects the torpedo's pinging, it may take evasive action, such as firing decoys and attempting to maneuver outside the torpedo's cone of detection.

### Changing Direction on an Enabled Torpedo

If your firing solution was not accurate or if the track is able to evade the incoming torpedo, you may manually guide your torpedo to the track by clicking on the WPN CSE solution select switch under the screen display. By pressing the left and right arrow keys, you manually change the course of the weapon. Click on SEND in the lower right corner to send your commands to the torpedo.

If you have fired more than one torpedo, click on the PORT or STBD buttons to designate the torpedo you wish to control, then proceed to guide the torpedo with the WEAPON CSE solution select switches.

### Acquiring

Once your torpedo acquires the track, the ACQUIRE lamp lights and the torpedo's cone changes color to red to show that it has detected and is homing in on the track. The torpedo automatically changes course to retain its lock on the track. However, if your torpedo has acquired on the wrong track, you may have to manually steer your torpedo in the proper direction. To manually steer your torpedo after it has acquired on a track:

- Press the ACQUIRE INHIBIT OVERRIDE button to cause the torpedo to temporarily lose acquisition on the track.
- If you have fired more than one torpedo, click on STBD or PORT to select the torpedo you wish to control.
- Manipulate the WPN CSE solution select switches to aim the torpedo on the desired track.

- Click on SEND.
- When the torpedo is pointing in the proper direction, press ACQUIRE INHIBIT OVERRIDE a second time for the torpedo to re-enable and reacquire.

If you are successful, the torpedo will lock onto and hit the correct track.

## POTENTIAL PROBLEMS

Fire Control's Torpedo Mode contains the two fail lamps, WIRE and SDWN (shutdown) which, when lit, will explain why your weapon did not hit its target.

### Wire

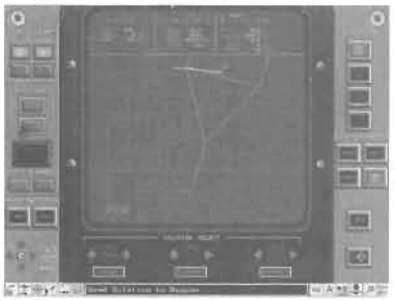
The MK-48 torpedo is connected to your submarine by a thin, 15-mile-long cable. This cable carries steering instructions to the torpedo, and permits your computer system to determine the torpedo's position and direction. If the cable breaks, the WIRE lamp will be lit. The torpedo, if enabled, may still acquire and hit the target, but you will no longer have any control over it or know precisely where it is. Torpedo cables will break if you close the tube door before the torpedo reaches its target, the torpedo travels more than 15 miles, or your submarine moves more than 2.5 miles from the launch point.

### Sdwn

A lit SDWN (shutdown) lamp indicates that the torpedo has somehow failed and shut down.

## FIRE CONTROL'S HARPOON MODE

Once you have assigned a Harpoon missile to a track in the Launch Console, you can program the missile's path. In Fire Control, click the track's UGM-84 button. This puts Fire Control in Harpoon Mode for that track. Harpoon Mode displays the weapon's path, based on the current fire control solution. The missile will fly this path, using its search radar to find and lock on a target. You may specify the width of this "search path," and the length and angle of both legs of its path. The cone represents the Harpoon's track detection area. The two UGM-84 SRCH buttons WIDE and NAR (narrow) allow you to change the width of the detection area. Select NAR for the Harpoon to destroy a specific vessel within a group.



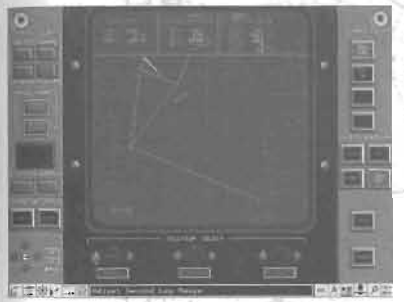


## SETTING THE HARPOON'S COURSE

Unlike the MK-48 torpedo, the Harpoon's course cannot be altered once it is fired. To set the Harpoon's course, click on the following Solution Select switches.

### L-1 and L-2

The Harpoon's path may have two legs. This enables you to send the Harpoon around other vessels in the area before it homes in on its intended track. The first leg (L-1) is the firing course, which leads the Harpoon away from your submarine to a way point. The second leg (L-2) is the search course, which starts your Harpoon missile searching for the track. The total length of the two legs must not exceed 160,000 yards (80 nautical miles), the range of the UGM-84 Harpoon. Ensure that the left Solution Select switch displays the leg you wish to alter. By clicking on the L-1 or L-2 button, the UGM-84 Mode allows you to toggle from one leg to another.



### Range

Click on the left and right RANGE arrows to decrease or increase the firing or search course's range. Click with the left mouse button for moderate changes in range; click with the right mouse button for more extensive changes in range.

### F-Course

Click on the left and right F-COURSE arrows to change the angle of the first leg, the firing course.

### S-Course

Click on the left and right S-COURSE arrows to set the angle of the search course.

### Send

After programming the Harpoon's flight path, press SEND. You must press SEND before you can launch the weapon.

### UPD

If you make a mistake and wish to return to your original solution, click on the UPD button.

### HARPOON SETTING TIPS

If you are very confident in your firing solution, position your search range close to the track. That way, when the weapon goes active, the track will not have the time to defeat or evade the incoming Harpoon. Otherwise, set the range farther away so that the Harpoon has more area in which to find and lock onto the track. For example, if you are not certain of the track's range, set the Harpoon's search range farther back to ensure that the weapon does not go active after it has passed the track.

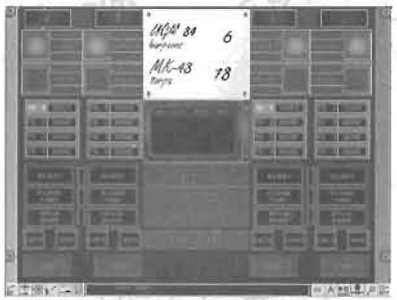
## WEAPONS LAUNCH CONSOLE

Your Los Angeles-class submarine is equipped with Mark 48 Advanced Capability (MK-48) torpedoes, UGM-84 Harpoon missiles, and Tomahawk cruise missiles. To load, assign, and fire MK-48s or Harpoons, use the Launch Console ("Torpedo Room"). To fire Tomahawks, go to the Vertical Launch Console.

### MK-48 TORPEDOES

MK-48 torpedoes are your only option against submerged submarines, and are your preferred option against nearby surface targets. The MK-48 carries a sonar guidance system that enables (starts up) a predetermined distance from the firing point. After enabling, the torpedo pings with active sonar to locate and acquire (lock on) a target in its path. If the MK-48 misses (loses lock on) a track, it will immediately begin to circle and attempt to reacquire the target.

In addition to this homing ability, the MK-48 has a trailing control wire that allows you to update its course for as far as 15 miles. It travels at 55 mph, carries a 650-pound high explosive warhead, and hits below the waterline for a devastating impact. It can hit targets as deep as 3000 feet or as far as 23 miles away. The MK-48 may not be effective against warships, however, especially those already alerted to your presence. Warships will hear the MK-48 pinging once it enables. Not only may they have enough time to decoy or dodge the torpedo, but they can get a good fix on you by backtracking the weapon's approach path. You may prefer to use Harpoons against high-threat targets.






### UGM-84 HARPOONS

The Harpoon anti-ship missile is a fearsome weapon, capable of quickly incapacitating lethal surface threats as far as 80 miles away. Once fired from the torpedo tube, the Harpoon rockets to the surface, takes flight, and quickly reaches speeds up to 650 miles per hour, skimming just above the water and searching for targets with radar. On impact, the Harpoon delivers 500 pounds of high explosive with a blast penetrator capable of going clear through some ships. A single hit may sink smaller targets, but you will likely need two or more Harpoons to disable larger, heavily armed ships. Designed for flight, the Harpoon is much more fragile than the MK-48, and cannot be launched at depths greater than 200 feet.

The Harpoon provides more firing solution options than the MK-48, but cannot be controlled after launch. You can specify a "dogleg" flight path: after traveling the firing path for a pre-set distance, the missile can turn and begin radar-searching for targets on another bearing. This lets you fire around lower-priority targets, or disguise your location. Additionally, you can specify a wide or narrow search path, as well as the range at which the radar switches on. If the Harpoon finds a target, it homes in at blinding speed, extremely difficult to dodge, decoy, or intercept. If it does miss, it is not able to reattack the target. However, it will continue looking for other targets on its path until it runs out of fuel.

### FIRING A WEAPON

To fire a weapon, take the following steps.

- Determine the tube you want loaded and the weapon type you would like loaded within it. Select the weapon type by clicking on either the UGM-84 (Harpoon) or the MK-48 (torpedo) button.
- Select a track for that weapon to target. You may select a track at any time after loading is complete but before the weapon has been armed.
- Ready the weapon by clicking on READY, which applies power to the weapon to warm up its electronics for launch. Once the tube is ready, the loaded weapon type cannot be changed.
- Flood the tube by clicking on FLOOD TUBE.
- Open the tube door by clicking on OPEN DOOR. You may not have two doors open on the same side of the boat (i.e., you may not have the doors for Tubes #4 and #2, or Tubes #1 and #3 open at the same time). To close an open door, click OPEN DOOR again.
  **IMPORTANT:** Do not close the door on a recently fired MK-48. MK-48s are guided by a cable for the first 30,000 yards (15 miles) to their target. Closing the door severs the cable, meaning you can no longer control the weapon.
- Arm your weapon by clicking on ARM. If you later wish to assign the weapon to a different track, disarm the weapon by clicking on SAFE.

- Fire your weapon by clicking on FIRE. To fire a Harpoon missile, you must have previously entered a solution in Fire Control's Harpoon Mode, and you must be above 200 feet in depth.

### CHANGING WEAPONS

If you have not readied the weapon for launch by clicking on READY, you may change the weapon that is loaded. Changing weapons takes longer than loading a weapon into an empty tube. There are two ways to change weapons:

- Click on the weapon button you wish to unload. The button flashes as the weapon unloads.
- After the button stops flashing, load a different weapon into the tube.

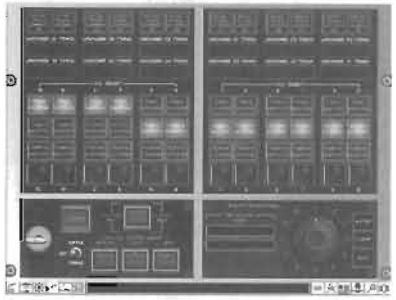
OR

- Click on the weapon you wish to load. The currently loaded weapon automatically unloads and the newly selected weapon loads in its place.

Note: On "Easy" level, there is no reloading delay.

## VERTICAL LAUNCH SYSTEM

The Vertical Launch System allows you to fire up the Tomahawk missiles in your stores (as many as 12).



Tomahawk missiles are large, extremely powerful, and have very long range. A direct hit from a single 1000-pound TLAM-C warhead can demolish an oil rig, while a hit from its sister missile, the TLAM-D, which contains 166 bomblets grouped neatly into 24 deadly packages, causes scattered destruction. You may direct your anti-ship Tomahawks (termed TASMs) to targets as far as 250 nautical miles away and your land Tomahawks (termed TLAMs) to targets as far as 750 nautical miles away. Also, the Tomahawk's small cross-section and low altitude flight enable it to evade most radar systems, while its low heat emission allows it to elude infrared sensors. Eighty-five percent of the time, your Tomahawk will hit with dead-on accuracy before anyone is the wiser.

While in port, your boat may be externally loaded with any of the following Tomahawk missile types:

| | | | |
|---|---|---|---|
| TASM | Tomahawk Anti-Ship Missile | UGM-119B | Used against surface ship vessels. |
| TLAM-C | Tomahawk Land Attack Missile | UGM-119C | Causes concentrated damage to an immobile target. |
| TLAM-D | Tomahawk Land Attack Missile | UGM-119D | Causes scattered but extensive damage to an immobile target. |



Tomahawks are best used against solitary targets. If multiple ships are in the area, use a Harpoon or MK-48 instead.

### FIRING A TOMAHAWK

To fire a Tomahawk, you must complete the following steps:

- Select the target tracks in the OP Area Map (AO button). Assign each one as a Tomahawk target: Click on TGT VLS.
- Access the Vertical Launch Console.
- Power up the Vertical Launch Console by clicking on the key switch.
- Select a tube you wish to fire from and a track you wish to fire upon by clicking on the ENTER TRACK LAUNCH # button above a particular tube and highlighting a track. Tubes loaded with Tomahawk Anti-Ship Missiles (TASMs) should be directed against surface ship targets, while tubes loaded with Tomahawk Land Attack Missiles should be directed against land targets.
- Specify the order in which you want your weapons to fire by clicking the tube numbers on the dial in the lower right corner. After clicking on the tube's number, click on ENTER. The entered number displays in the VLS LAUNCH ORDER box and a light displays under the selected tube. If you make a mistake, clear your entries by clicking on the CLEAR button. If you have designated a track for each loaded tube, you may click on AUTO to have the VLS fire the Tomahawks in numerical order.
- Set the launch mode by clicking on either SINGLE, to have only one Tomahawk fire, or RIPPLE to have a weapon fired every 30 seconds.
- If the system is properly set, the SYSTEM ARM lamp lights, indicating that your weapons are ready for launch.
- Click on the LAUNCH button. The weapon fires. To launch another weapon, toggle the switch to SINGLE, then click on LAUNCH.
- If you wish to abort the process, turn the keyswitch to OFF.

### VLS SYSTEM ERROR

While preparing the system to launch, one of the three buttons, WEAPON, TRACK, or ARM, may light to inform you that you have forgotten a step or made an incorrect selection.

#### Weapon Error

The WEAPON lamp lights when either it is inappropriate to fire the selected type of Tomahawk against the track, or you are out of range. For example, the WEAPON lamp lights if you attempt to shoot a TLAM at a ship or a TASM at a land-based target.

#### Track Error

The TRACK lamp lights when the dial is set to an unassigned tube.

### Arm Error

The ARM lamp lights when your boat is traveling too quickly (more than 5 knots) or at too great a depth (below 150 feet) to fire the weapon.

## WLR-9 SCREEN

If an enemy vessel is actively searching for your location or a torpedo is heading in your direction, your submarine's evasion system, which contains the WLR-9 sensor, may warn you of the potential danger and provide you enough time to escape.

The WLR-9 detects active sonar signatures that represent either inbound torpedoes or targets pinging at your submarine. If the WLR-9 detects such a sonar signature, it immediately sounds an alarm. To turn off a sounding alarm, access the WLR-9 screen and click on the ALARM CUTOUT toggle.

### BEARING DISPLAY

Upon detecting a ping, the WLR-9 either displays or updates a bearing line from your submarine (at the center of the display) through the bearing of the detected ping. The WLR-9 also displays information on the contact that sent the ping. This information includes the following:

| Information | Meaning |
|---|---|
| Source | Either SONAR, indicating that a surface ship has sent the ping, or TORPEDO, indicating that a torpedo is incoming. |
| Bearing | Location of the source sending the ping. |
| Frequency | The ping's frequency may assist you in determining whether the vessel sending the ping is friendly, neutral, or hostile. Pings from American sonar have a frequency of 10 KHz and less, while those from foreign sonars have frequencies of 20 KHz and more. |
| Pulse Width | The pulse width may help you in determining the source's type. Sonar sources generally have a pulse width of 100–250 microseconds, while torpedoes have a pulse width of approximately 4 microseconds. |
| Interval | The interval helps pinpoint the range of the source from your submarine. Sonar pings travel 800 yards per second. If the interval is 20 seconds, the ping's source was 16,000 yards from your submarine when the ping was sent. |

If multiple sources are detected pinging, the WLR-9 displays the data for the most recently received ping.



## EVASION TECHNIQUES

If the WLR-9 detects pinging from an enemy surface ship or an incoming torpedo, you would be wise to take the following evasion measures.

### Setting the Time Factor

When a torpedo is incoming, set the time factor to 1/10x. This provides you more time to carry out your evasion measures.

### Maneuvering with the Helm

If you are close to the surface when an enemy ship pings, access the Helm controls of COURSE, SPEED, and DEPTH by pressing the arrow keys, +, or – to dive deep and leave the area. If a torpedo is incoming, use your Helm controls to move drastically, and try to go outside its zone of detection.

### Deploying Decoys

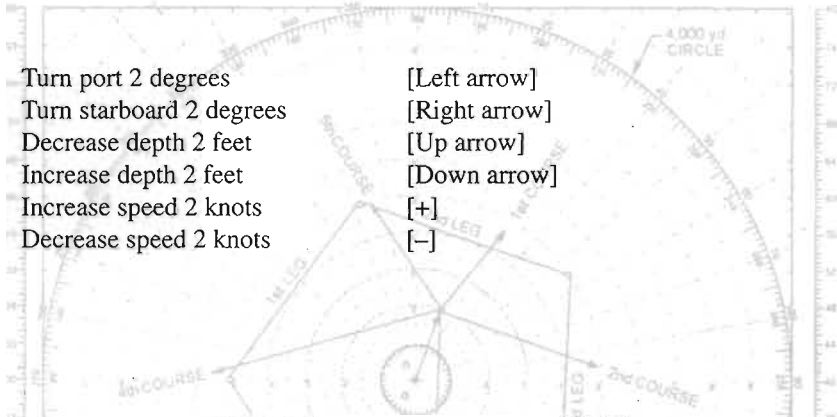
You may also wish to deploy decoys, which leave material in the water that can confuse enemy sonar of your true position. Your submarine has an ample supply of False Target Can (FTC) decoys, which create large gas bubbles and generate noise.

To deploy a decoy, load it into a tube and prepare the tube for launch by pressing the DECOY READY button. After the decoy is loaded and ready, the DECOY READY button remains steadily lit. Next launch the decoy by pressing the DECOY LAUNCH button.

# Appendices

## QUICK KEYS REFERENCE

| | |
|---|---|
| Increase time factor | [Shift-T] |
| Decrease time factor | [T] |
| Exit the game | [Esc] |
| Pause game play | [P] |
| Display listing of keys | [F1] |



| | |
|---|---|
| Turn port 2 degrees | [Left arrow] |
| Turn starboard 2 degrees | [Right arrow] |
| Decrease depth 2 feet | [Up arrow] |
| Increase depth 2 feet | [Down arrow] |
| Increase speed 2 knots | [+] |
| Decrease speed 2 knots | [–] |

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## GLOSSARY

| | |
|---|---|
| **Abort** | To cut short or break off an action, operation, or procedure. |
| **Active** | In Naval warfare, any device that transmits a signal. The term is generally applied to sensors. |
| **Aft** | Toward the rear of the ship, aircraft, or other platform. |
| **ALLSUB-COMNLANT** | All Submarine Commands Atlantic. |
| **AOZ** | Area of Operation Zone. |
| **ASW** | Anti-Submarine Warfare. |
| ATF | Automatic Target Following. |
| **Baffles** | The area directly astern of a ship or submarine (where the propellers are) and 30 degrees on either side. The baffles are a sonar blind spot, unless you have deployed a towed array. |
| **Biologics** | Marine wildlife. |
| **CENTCOM** | Central Command. |
| **CINCEUR** | Commander-in-Chief, European Command. |
| **CINCLANT** | Commander-in-Chief, Atlantic Command. |
| **Classification** | Identification of the hull type, or class of a given contact, primarily determined through analysis of its sound signature. |
| **CO** | Commanding Officer. |
| **CONREP** | Contact Report. |
| **DIW** | Dead in the Water. Refers to a platform's status if it has been hit and damaged. |
| **DTG** | Date-Time-Group. Used to distinguish between the various mission orders you receive. |
| **ESM** | Electronic Support Measures. |
| **EUCOM** | European Command. |
| **EW** | Early Warning; Electronic Warfare. |
| **HF** | High Frequency. |
| **INTELADVSY** | Intelligence Advisory. |
| **LF** | Low Frequency. |
| **MF** | Medium Frequency. |
| **NATO** | North Atlantic Treaty Organization. |
| **NTDS** | Naval Tactical Display System. Refers to the symbols displayed on the Operations Area Map. |

| | |
|---|---|
| **NSA** | National Security Agency. |
| **NSC** | National Security Council. |
| **Ownship** | Your Submarine. |
| **Ping** | To send out an active sonar pulse and analyze its returning echo, which enables you to identify other platforms operating in your immediate area. |
| **POSREP** | Position Report. |
| **Radar** | A device that uses reflected radio waves for the detection of objects. |
| **RECON** | Reconnaissance. |
| **SAR** | Search and Rescue. Refers to a type of mission in which you provide defensive support to personnel conducting the search and rescue operation. |
| **SLCM** | Ship-Launched Cruise Missile. |
| **Sonar** | A hydrophone that can detect targets either passively, based on their radiated noise, or actively by bouncing strong pulses of sound energy (pings) off their hulls and interpolating the returns. |
| **SOSUS** | Sound Surveillance System. |
| **SSM** | Surface-to-Surface Missile. |
| **SSN** | Signifies a nuclear-powered attack submarine. |
| **SUBROC/ ASROC** | Rocket-assisted torpedo. |
| **Target** | All platforms are considered targets, whether they are hostile, friendly, unknown, or neutral. If you can see or hear a platform, it is a target. |
| **TASM** | Tomahawk Anti-Ship Missile. |
| **TLAM** | Tomahawk Land Attack Missile. |
| **TMA** | Target Motion Analysis. By listening to a contact's signature, its platform type may be determined. The longer you listen to a contact, the more accurate the determination will be. |
| **Track** | When you assign a target to a track at Sonar or Periscope, that target is called a track because a tracker monitors its bearing, course, speed, and range. Assigning a target to a track is the first step to obtaining a firing solution. |
| **TTC** | Time to Completion on any given mission. |
| **VLS** | Vertical Launch System. |



# TROUBLESHOOTING

## PROBLEMS AND SOLUTIONS

**Problem:** When I try to start the game, I get an "Out of Memory" error message.

**Solution:** Try closing any "background" programs or screen savers you may be running. If that doesn't free up enough memory, see "Creating a Boot Disk" below.

**Problem:** When I try to start the game, I get the error alert, "VESA not detected."

**Solution:** You must load a VESA driver prior to starting *Fast Attack* in the SVGA format. See "VESA Driver Installation" on the next page.

**Problem:** During the animation sequences, part of the sequence "catches" and is dragged along, causing a muddled picture.

**Solution:** This problem usually occurs on slower 486 computers. To correct the problem, turn off digitized speech in the Preferences Screen or open the FAST.INI file and set all digitized sound options to OFF.

**Problem:** During game play, my mouse cursor is jumpy and slow, and sometimes disappears.

**Solution:** Your mouse driver is old and needs to be updated. Please contact your mouse manufacturer for the latest driver.

**Problem:** When I try to start the game, I see the error message, "CDR-101: Abort, Retry, or Fail?"

**Solution:** Your CD-ROM drive is not configured correctly, or your MSCDEX.EXE driver is outdated. Refer to your computer documentation.

## CREATING A BOOT DISK

If you have the required 8 MB of RAM, but get a "Not Enough Memory" message when you try to start the game in DOS, try making a DOS boot disk to free up memory.

1. Place a blank floppy diskette in Drive **A:**.
2. From your \SIERRA\FAST directory, type **install** and press [Enter].
3. Select "Make a Bootable Floppy Disk," and follow the on-screen instructions.
4. To use the Boot Disk, simply insert the finished boot disk in your **A:** drive and restart your computer. Your computer should start up with

its memory configured correctly for the game. (To resume normal configuration of your computer, simply remove the boot disk and restart the PC.)

If you have memory problems running the game from Windows 95, run the Sierra Setup program again, and look for help in the on-line README or SUPPORT files.

### VESA DRIVER INSTALLATION

If you get a "No VESA Driver" error message when starting the game, you need to install a VESA driver for your video card. The VESA driver needs to be loaded into memory before starting the game, each time. You may install the driver from your video card's utility disk. For more details on VESA drivers, open the README text file on the CD or view it by re-running the Sierra Install or Setup programs.

## TECHNICAL SUPPORT

If you need help installing or using your Sierra product, and can't find the answer in this manual, contact the Technical Support Department. You may call, write, fax, or contact us on our electronic bulletin board service (BBS). (For sales info, back orders, returns, technical support in Europe, or other information, see Customer Service on page 70.)

Our Automated Technical Support line at (206) 644-4343 is available 24 hours a day, and provides recorded answers to the most frequently asked questions. Follow the recorded instructions to find your specific topic.

If you can't resolve your problem through the Automated Support line, you can contact our Technical Support representatives directly. If you choose to write or fax us, please provide detailed information on your computer system and the nature of your problem. In addition, please include your address and telephone number should we need to call back or send you information.

### U.S. TECHNICAL SUPPORT

Sierra On-Line
Technical Support
P.O. Box 85006
Bellevue, WA 98015-8506

Call (206) 644-4343
Fax (206) 644-7697
8:15 a.m.– 4:45 p.m. PST, M–F
(Automated Support is always available.)



### TECHNICAL SUPPORT IS ALSO AVAILABLE THROUGH

Sierra Bulletin Board Service (BBS):
U.S. (206) 644-0112 or U.K. (44) 734 304227
Internet: http://www.sierra.com (Sierra Web Site)
CompuServe: GO SIERRA
America Online: Keyword SIERRA

### SIERRA ON COMPUSERVE

Sierra offers technical support and patch (update) files on its CompuServe forum, as well as product demos, hints, and reviews. CompuServe members can type GO SIERRA to reach the forum. To join CompuServe, call toll-free (800) 848-8199 and ask for Representative 461 for your FREE introductory membership and usage credit.

### PATCH DISKS

If you have learned of a patch (update) disk for your game, send in your request to the address below, or contact us on our BBS. When writing, note the game, version number (VER# on game disk(s)), and disk type.

Sierra On-Line
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Dept. 10
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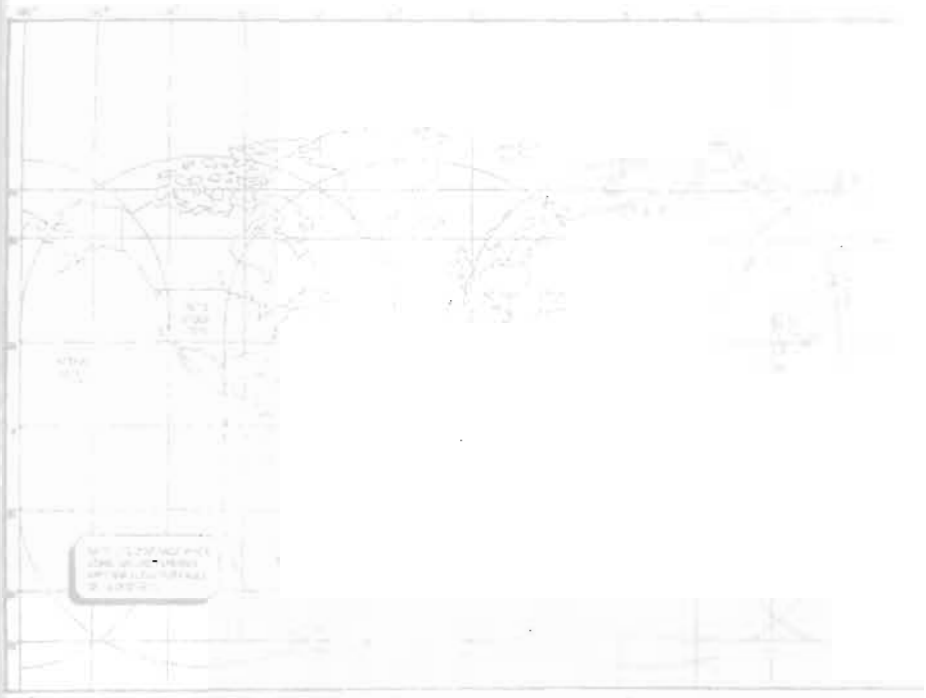

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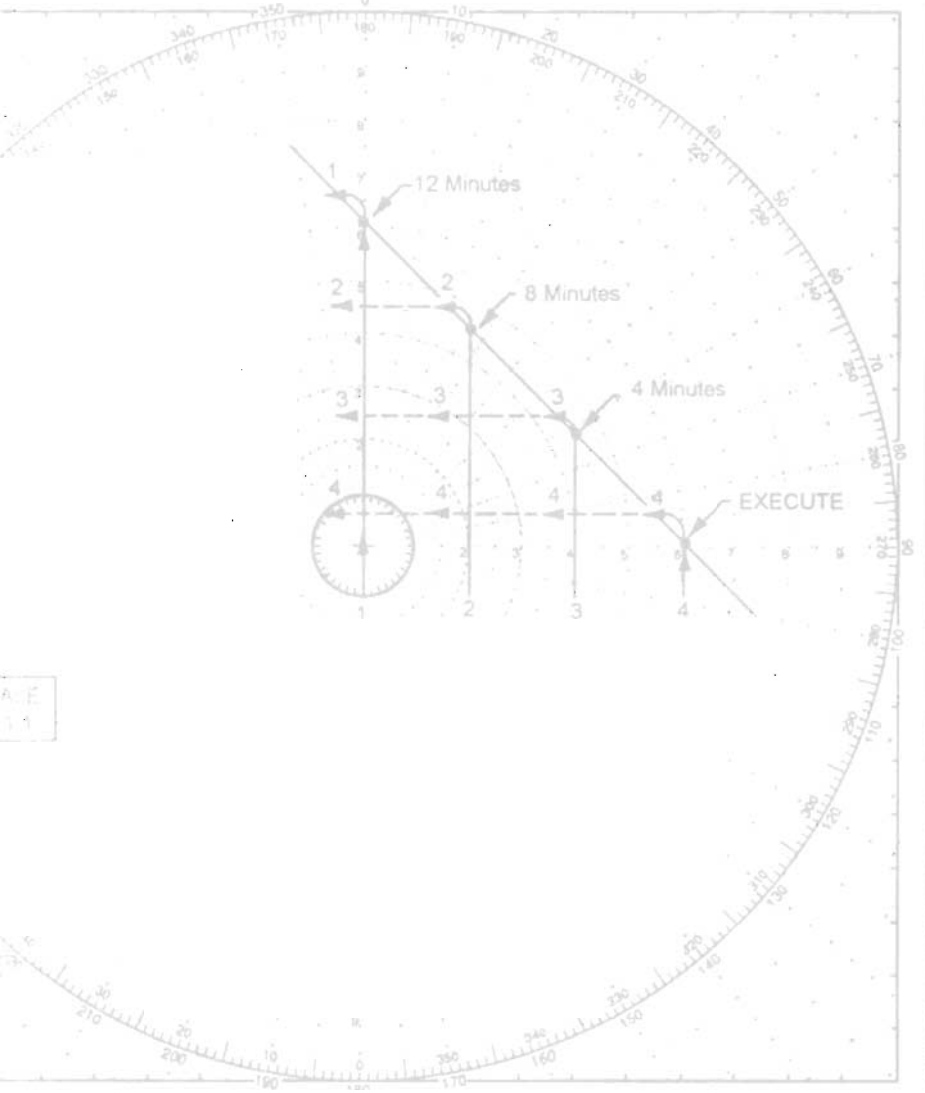

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