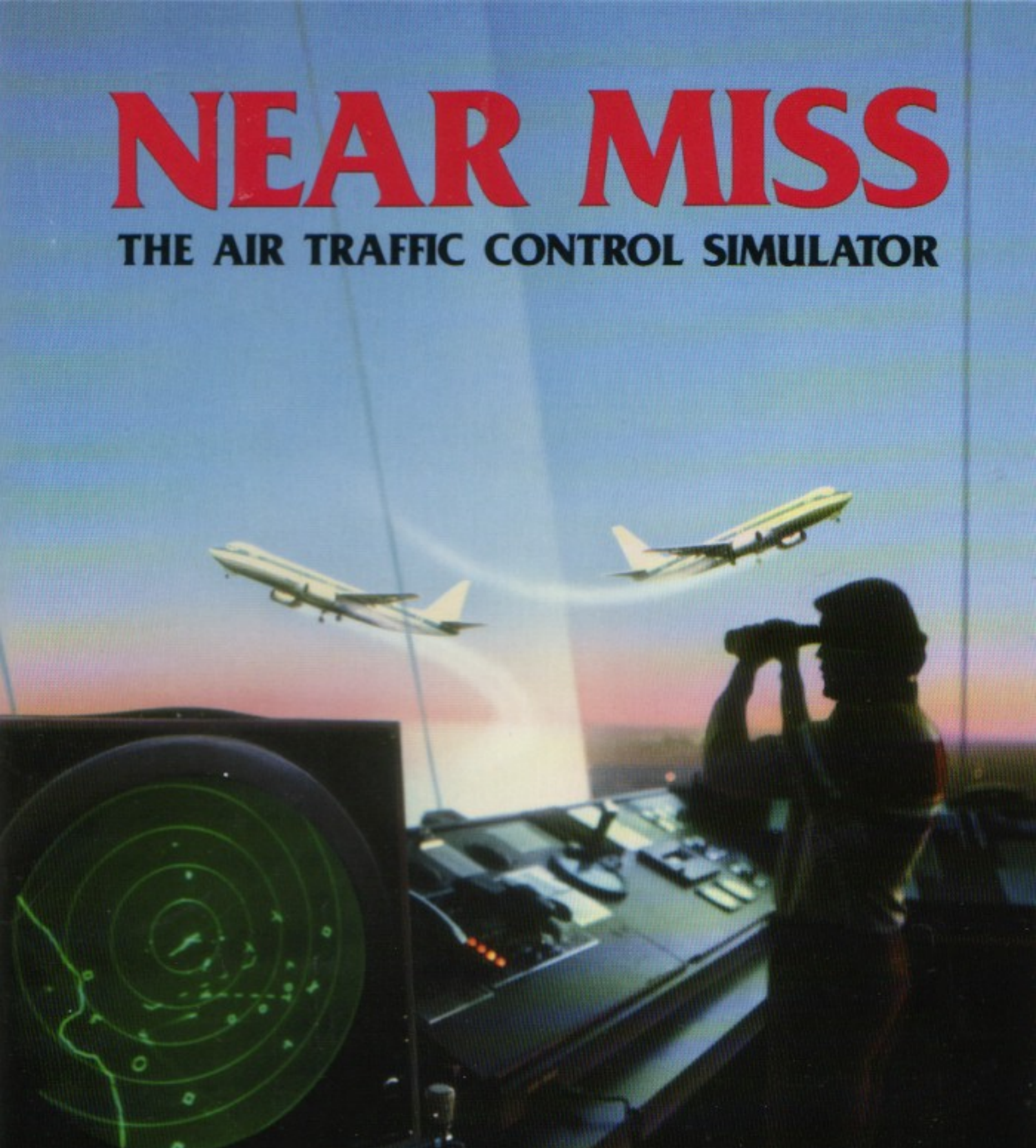
NEAR MISS

THE AIR TRAFFIC CONTROL SIMULATOR



PUT YOURSELF IN THE HOT SEAT!

- Color on the Mac II
- Realistic Sound Effects

SIMON AND SCHUSTER
SOFTWARE

Published by Simon and Schuster Software
A Divison of Simon & Schuster Inc.
Gulf + Western Building
One Gulf + Western Plaza
New York, N.Y. 10023
Simon & Schuster colophon is a registered trademark of Simon & Schuster Inc.
Apple is a registered trademark of Apple Computer, Inc. Macintosh is a trademark licensed to Apple Computer, Inc. MacinTalk™ is a trademark of Apple Computer, Inc.
Manufactured in the United States of America
10 9 8 7 6 5 4 3 2 1
ISBN: 0-13610783-4

Introduction

As an Air Traffic Control Specialist (ATCS), you are in charge of all air traffic in your sector. You are seated at the controls of a sophisticated Air Traffic Control Simulator. For guidance equipment, you have a radar screen, status panel, command panel, shift clock, wind direction indicator, and turn timer. This manual provides instructions for the use of these instruments, and for the operation of the simulator.

Each day, the lives of thousands of passengers lie in the balance of your skill, judgment, and experience. It is your job to guide all of the aircraft safely on course through your sector to their destinations. There is no margin for error.

Good luck.

Note: The following instructions assume a working knowledge of the Macintosh Finder (i.e. clicking, dragging, etc.). If you find the procedures described below confusing, please refer to your Macintosh owners manual.

Backing Up

To back up your Near Miss disk, boot your Macintosh system and insert a blank disk into one of your drives. Format the disk as single-sided. Eject the newly formatted disk (if you have only one disk drive) and insert the Near Miss program disk into the drive. When the Near Miss disk icon appears, drag it onto the icon of the disk you formatted earlier. Follow the on screen prompts and your program disk will be copied. Put your original program disk away in a safe place and use your back up.

Hard Drive Installation

To install Near Miss on your hard drive, boot your Macintosh from the hard drive. Insert the Near Miss program disk into a drive. When the Near Miss disk icon appears, drag it onto the hard drive icon. This will copy all the files on the Near Miss program disk into a folder on your hard drive.

Getting Started

Insert the Near Miss diskette into the internal disk drive of your Macintosh Computer. Double-click on the "Near Miss 1.O" icon to initiate the program. All of the simulation options have been pre-set to the beginner level. To get started, choose **"With New Schedule"** under the **"Simulate"** menu, and you are ready to begin.

The Radar Screen

Figure 1 provides a detailed diagram of the radar screen:

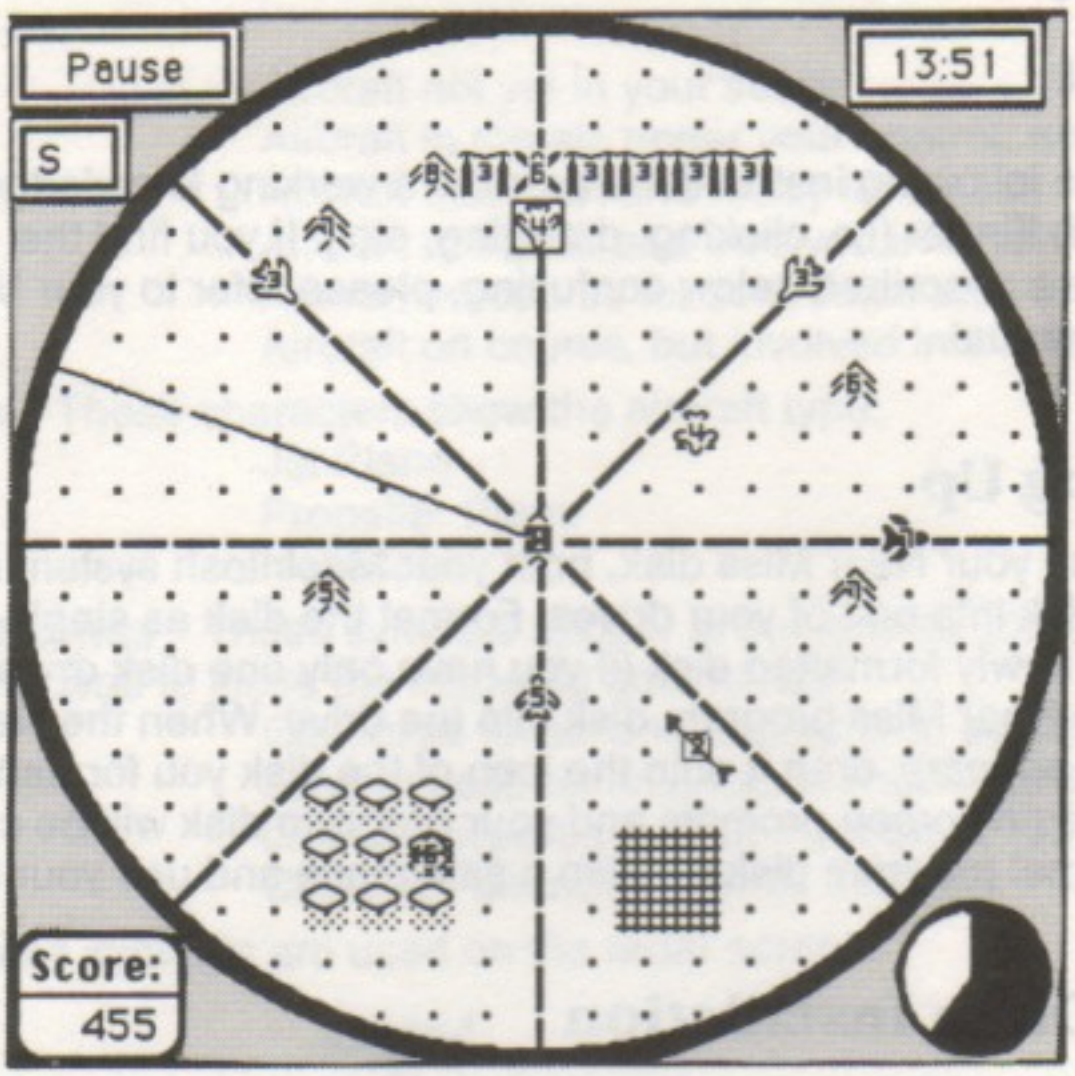
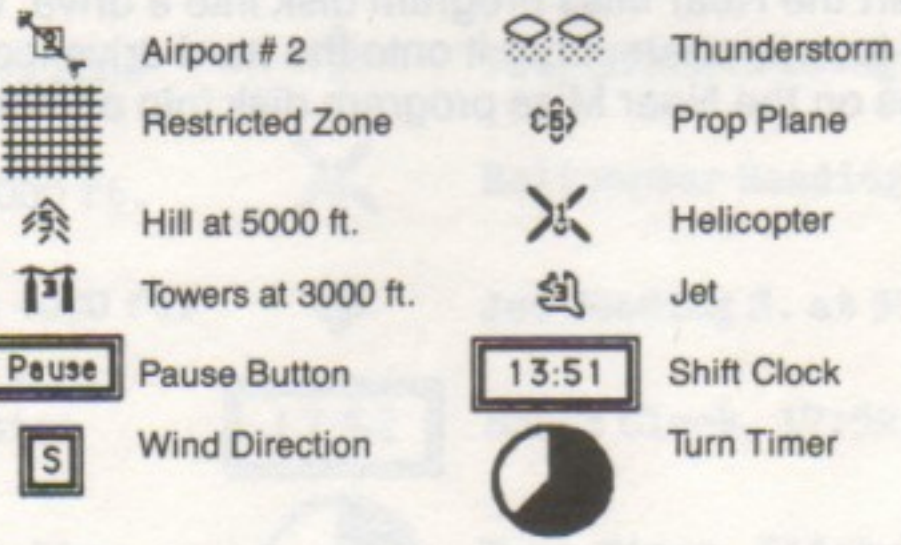


Figure 1

Legend



The radar screen shows the positions and headings of all aircraft that are currently in the air in your sector. If two or more aircraft are at the same location, only one will appear on the radar screen.

The space between dots on the radar screen is the distance a jet plane travels during one 15 second turn. A propeller plane travels the same distance in two turns, and a helicopter requires four turns. Propeller planes are twice as fast as helicopters, and jets are twice as fast as propeller planes.

The "Turn Timer" located in the lower right corner of the radar screen counts off the 15 seconds between turns. The Turn Timer displays the amount of time remaining before the next aircraft move. The "Shift Clock" in the upper right corner of the radar screen displays the time remaining in your shift.

The radar screen also shows all airports in the sector. Airports are numbered from 1 to 5. The airport headings indicate the direction that aircraft must use for landings and takeoffs.

Aircraft enter and exit at any one of the eight compass points on the radar screen (N, S, E, W, NE, NW, SE, SW) or at one of the airports. When entering from a compass point, the heading is directly toward the center of the radar. When leaving from a compass point, the heading must be directly away from the center of the radar.

When leaving from an airport, the aircraft will take off in the direction of the airport. When landing, the aircraft must land from the direction of the airport, or it will crash. (Note that helicopters may land from any direction.)

In addition to airports, the radar screen shows all obstacles, which include restricted areas, hills, towers, and thunderstorms. Thunderstorms move in the direction of the wind, which is shown in the wind direction instrument. The altitude levels for hills and towers are shown on the screen.

Whenever an aircraft is on course for its destination, it is highlighted compared to those aircraft that are not yet on course:

Not On Course

On Course

Air Traffic Schedule Panel

The Air Traffic Schedule Panel displays one row of information for each aircraft, with eight columns of data. This information is summarized below, and in the Quick Reference Card that accompanies Near Miss. Figure 2 shows a sample Schedule Panel, which is described in detail below:

Column 1	Aircraft Status Symbol
Column 2	Aircraft Type
Column 3	Aircraft Heading and Altitude
Column 4	Commanded Heading and Altitude
Column 5	Entry Point
Column 6	Exit Point
Column 7	Remaining Fuel
Column 8	Entry Time

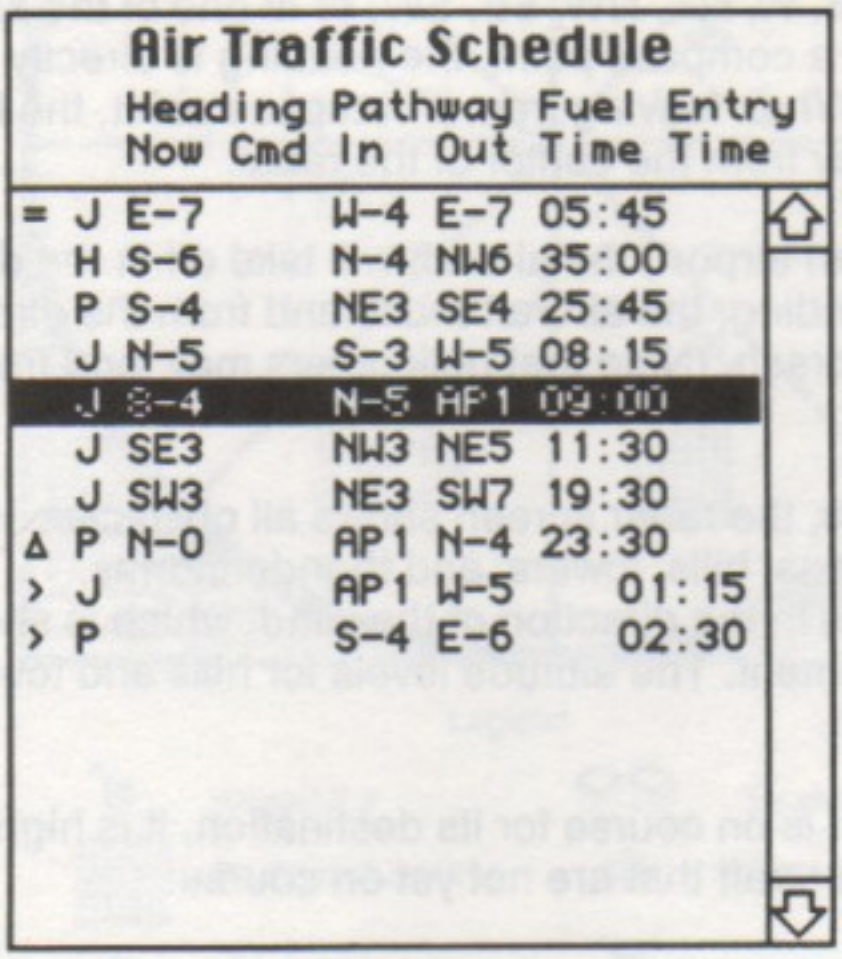


Figure 2

Aircraft Status The 1st column uses symbols to show the current status of the aircraft:

"**>**"	Aircraft not yet in your sector
" "	Aircraft in the air, under your control, and OK
"△"	Aircraft at airport and ready for takeoff
"●"	Aircraft in the air and involved in a near miss
"="	Aircraft on course for scheduled exit
"#"	Aircraft on course, but involved in a near miss

Aircraft Type The 2nd column uses one character to show the aircraft type:

"J"	Jet Plane
"P"	Propeller Plane
"H"	Helicopter

Current Heading and Altitude The 3rd column gives the current heading (N, S, E, W, NE, NW, SE, SW) and altitude (0-8000 feet) for aircraft under your control. This indicator is blank for aircraft that are not yet in your sector.

Commanded Heading The 4th column lists the heading and altitude to which you have commanded the aircraft. This column is blank when the current heading and the commanded heading and altitude are the same.

Entry Point The 5th column lists the entry point of the aircraft on the radar screen. The entry point will be either a compass point and altitude (NE5; enter from NE at 5000 feet) or an airport from which the aircraft will leave (AP2; airport #2).

Exit Point The 6th column shows the scheduled point to which the aircraft must be directed. The exit point will be either a compass point and altitude on the radar screen, or an airport.

Remaining Fuel Once an aircraft is under your control, the 7th column shows the amount of time remaining in which the aircraft must reach its exit point. If late, the aircraft will run out of fuel before reaching its ultimate destination. This column is blank until the aircraft has entered your sector.

Entry Time The 8th column shows the amount of time remaining, in minutes and seconds, until the aircraft enters your sector or is ready to take off from an airport. This column is blank after the aircraft arrives in your sector.

Preview Aircraft

To preview the aircraft scheduled to enter your sector during the next minute, place the cursor along the perimeter of the radar screen near the compass point of interest (the cursor will change to concentric rings), and hold down the mouse button. Figure 3 illustrates the data window that appears:

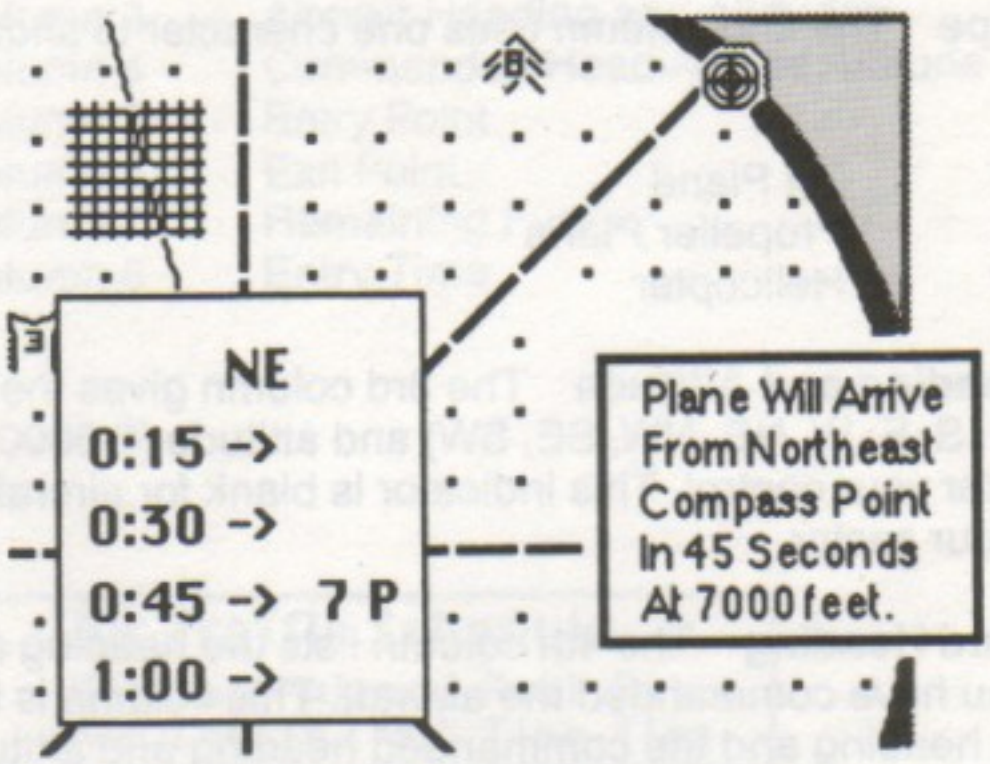


Figure 3

Communicating With an Aircraft

The Aircraft Control Commands, described below, allow you to issue orders to specific aircraft. In order to issue these commands, you must first establish direct communication with an aircraft by selecting it.

There are two methods for selecting an aircraft: 1) Use the mouse and click on the icon of either the aircraft or airport on the radar screen, or 2) click on a line on the air traffic schedule.

If a position on the radar screen is selected that contains multiple aircraft, they will all be highlighted on the air traffic schedule. However, the control commands are only active when a single aircraft is selected.

Aircraft Heading Commands

Once you are in communication with an aircraft, you may issue commands to alter its heading and altitude. Figure 4 illustrates the panel with which you issue commands to aircraft. To issue a command, position the cursor over the appropriate button, and click the mouse.

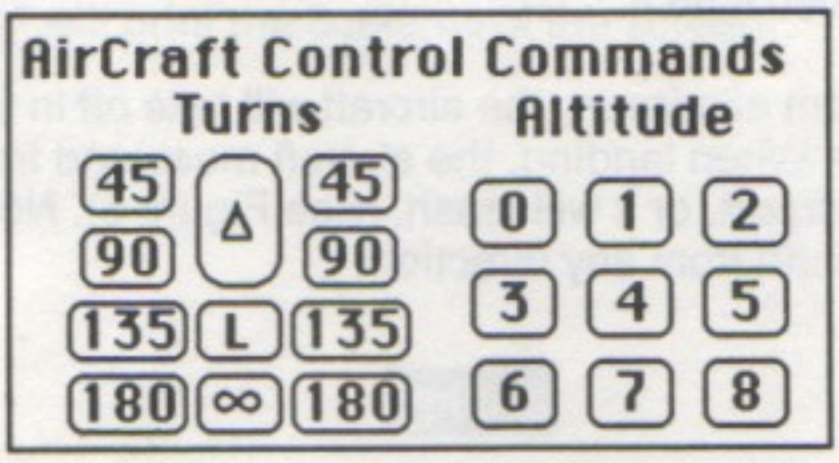


Figure 4

The heading commands allow turns of 45, 90, 135 and 180 degrees to the right or left relative to the current heading of the aircraft. Aircraft turn at a rate of 45 degrees per move, and move at their initial heading before turning. For example, an aircraft turning 90 degrees will move straight, turn 45 degrees, move straight again, and turn 45 degrees: (Fig. 5)

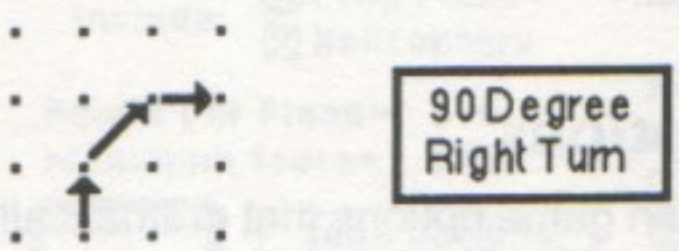


Figure 5

The "△" command causes an aircraft to cancel all turns and continue straight at its current heading.

The "∞" command causes an aircraft to circle. This command can only be issued to aircraft that are already turning. The current direction of turn determines the circling direction.

Aircraft Altitude Commands

The altitude commands instruct an aircraft to change to a specified altitude between 0-8000 feet. Aircraft ascend or descend at a rate of 1000 feet per move on the radar screen. Aircraft begin to change altitude immediately after receiving your commands.

Landing and Take Off

The **"L"** command causes an aircraft to land at its destination airport when its path crosses the airport. The command is active when an aircraft is at or commanded to an altitude of 1000 feet, and is cancelled by issuing any other command to the aircraft. Commanding an aircraft to zero feet will also land it.

When leaving from an airport, the aircraft will take off in the direction of the airport arrow. When landing, the aircraft must land from the direction of the airport, or it will crash. (See Figure 6). Note that helicopters can land from any direction.

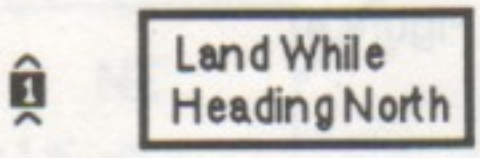


Figure 6

Aircraft take off from an airport when you issue a command to ascend to 1000 feet, or higher.

Simulation Options

You may select eleven game options that dramatically alter the difficulty and realism of the program. These options are:

- Number of Aircraft In Your Schedule
- Amount of Time In Your Shift
- Number of Airports in Your Sector
- Required Aircraft Altitude Separation (for near miss)
- Required Aircraft Distance Separation (for near miss)
- Number of Hill Obstacles
- Number of Tower Obstacles
- Size of Restricted Flight Area
- Current Weather Conditions
- Whether Propeller Planes Are Included in Schedule
- Whether Helicopters Are Included in Schedule

Figure 7 shows the dialog box that opens when you select **"Set Options."** Notice that as you increase the difficulty and realism of the simulation, you increase the potential points per plane that you can achieve. After you have selected the game options, press **"Done"**, or **"Save Options." "Save Options"** will store your net settings as default settings. You may change your settings at any time, and re-save them. **"Print Screen"** will print the contents of the screen.

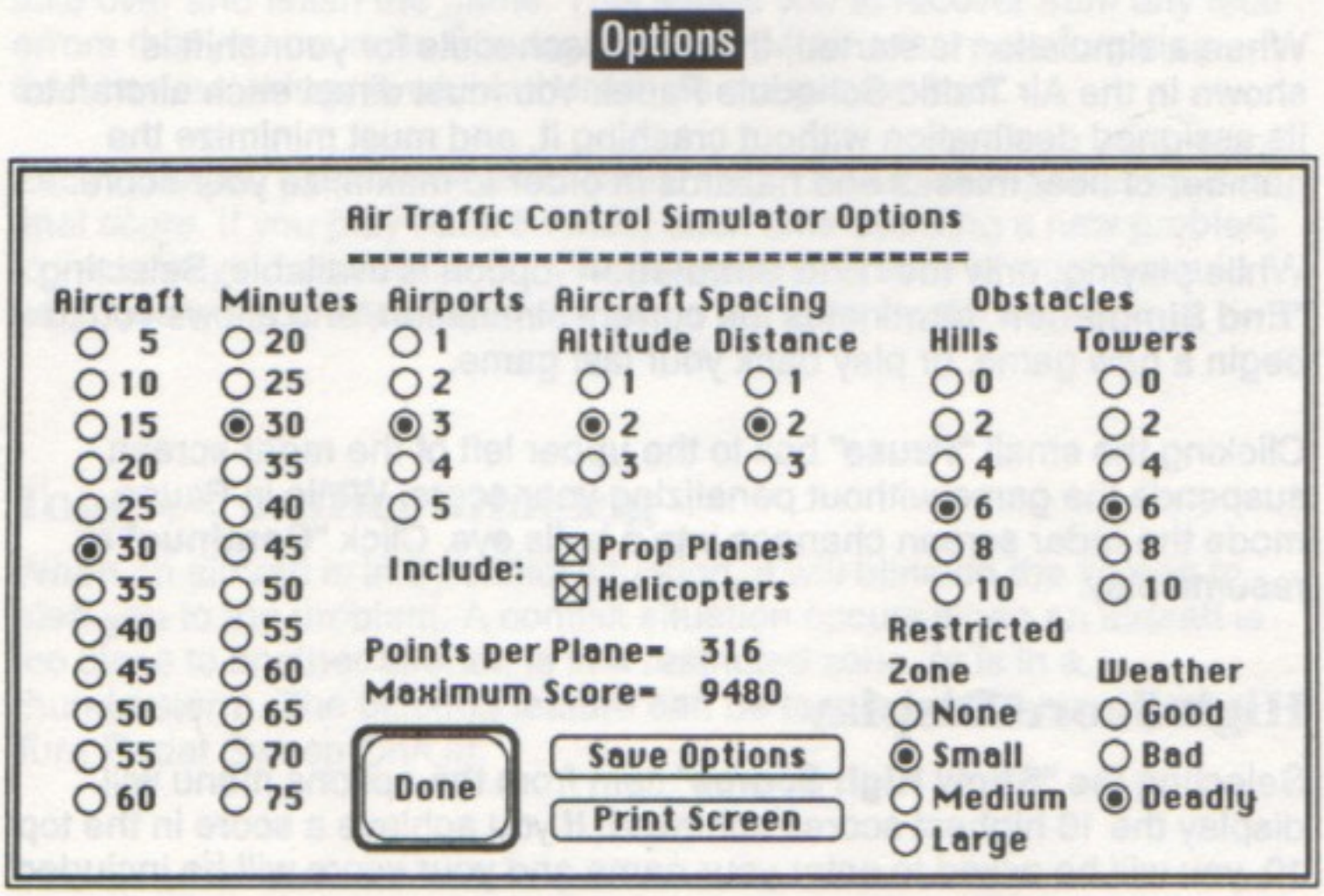


Figure 7

Simulate Menu

The **Simulate** menu presents the following commands:

- With New Schedule
- With Current Schedule
- End Simulation

"With New Schedule" creates a new schedule with the current simulation options that you have selected, or with the current default settings. **"With Current Schedule"** uses the same schedule used in the most recent simulation or **"Load Schedule"** command.

When a simulation is started, the airline schedule for your shift is shown in the Air Traffic Schedule Panel. You must direct each aircraft to its assigned destination without crashing it, and must minimize the number of near misses and hazards in order to maximize your score.

While playing, only the **"End Simulation"** option is available. Selecting **"End Simulation"** terminates the current simulation, and allows you to begin a new game, or play back your last game.

Clicking the small **"Pause"** box to the upper left of the radar screen suspends the game without penalizing your score. While in Pause mode the radar screen changes into a bulls eye. Click **"Continue"** to resume play.

High Score Display

Selecting the **"Show High Scores"** item from the options menu will display the 10 highest scores achieved. If you achieve a score in the top 10, you will be asked to enter your name and your score will be included on the list. The **"Clear Scores"** command allows you to clear the list. Only positive scores are saved. **"Print Screen"** prints the contents of the screen.

Play Back Last Game

The **"Playback Last Simulation"** option will replay the last game allowing you to analyze your performance during the last season. During play back, aircraft that did not reach their assigned exit points are not highlighted, so that you can concentrate on those aircraft.

To speed up the simulation, click on the **Shift Clock** in the upper right corner of the Radar Screen, or the **Turn Timer** in the lower right corner to advance the clock. The **Pause** box can be used to stop the clock without obstructing the radar screen while in the play back mode.

Clicking on any control in the Control Panel will give you a chance to take over and finish the game. This allows you to recover from any fatal errors that you make. In this regard, Near Miss is far more forgiving than the real thing, in which there is no margin for error.

Each time you playback a simulation, a 1% penalty is imposed on your final score. If you play back 5 times, each time avoiding a new problem to improve your performance, your score will be 95% of what it would have been, if you had played the game from the beginning.

Toggle Conflict Blinking

When an aircraft is in a conflict situation, it will blink on the screen to alert you to the problem. A conflict situation occurs when an aircraft is too close to another aircraft, is in a restricted zone, or is in a thunderstorm. The blinking feature can be toggled on/off by selecting Turn Radar Sweep On/Off.

Toggle Radar Sweep

Normally, a "radar sweep" line revolves around the radar screen during the game to simulate the realism of a radar scope. The radar sweep can be toggled on/off with this command.

Sound Effects

There are several sound effects which can be heard throughout the game. Each of these effects can be toggled on or off by selecting Set Sound Effects from the options menu. A dialog box will allow you to select various sound effects.

Voice Options

Voice synthesis is used throughout the game to keep you abreast of what is happening. You can choose which type of messages are "spoken" by Selecting Set Voice Options from the Options menu. Please note that Macintosh II users must use System version 6.01 or later for voice synthesis.

Icon Colors

If you are using a Macintosh II with a color monitor, you can change icon colors by selecting Set Icon Colors from the Options Menu. A dialog box will present you with the images of the icons used in the game rendered in their present colors. You may choose one of seven available colors for each icon.

Text Options

On the Macintosh II, game commands and events are printed in a box below the game screen. Clicking on this text box will toggle it between its present size to full screen size. These text messages can be configured by selecting Set Text Options from the Options Menu.

File Menu

The **"File"** Menu presents these commands:

- Load Schedule
- Save Schedule
- Various Print Options
- Quit

The **"Save Schedule"** command saves the current schedule as a separate document. The **"Load Schedule"** command loads one of these documents as the current schedule. After you have loaded a particular schedule, select **"With Current Schedule"** under the **"Simulate"** menu. **"Quit"** ends the session of Near Miss, and returns you to the Finder. Print Options are described later.

Speed Menu

The speed menu presents these commands:

- Faster
- Fastest

Selecting either of these commands causes the simulation to procceed automatically at a faster pace until you either click the mouse, or press any key on the keyboard to resume the simulation at normal speed. This feature is useful for playbacks, or when there is a large time interval between the arrival of the next aircraft into your sector.

Game Playing

The career of an Air Traffic Control Specialist is filled with a high degree of skill, professionalism and training, combined with a good measure of stress. The controller is under stress because of the thin margin for error combined with the large stakes of making a mistake.

In reality, operational errors, or "Deals" (as they are known to Air Traffic Controllers), are quite rare. Fortunately, Near Miss is more forgiving than the real thing. But it is not very forgiving.

For instance, if you cause an aircraft to crash, you immediately lose the game. An aircraft can crash by:

- Mid-Air Collision
- Running Out of Fuel
- Landing Without an Approved Airport (except helicopters, which land and score a near miss)
- Landing At An Airport From the Wrong Direction (except helicopters, which land without penalty)
- Hitting a Hill or Tower (while at an altitude that is equal to or less than that of the obstacle)

A "near miss" event occurs when two aircraft are not separated by their required altitude or distance spacing, (which you can vary under **"Set Options"**), or when an aircraft flies through a restricted area. Near misses substantially reduce your score.

Flying through a thunderstorm is similar to a near miss since it counts against your score, but the penalty is much smaller than that of a near miss.

The **Shift Clock,** located to the upper right of the radar screen, indicates the amount of time left in your shift. The **Turn Timer** located at the lower right of the radar screen, counts off the 15 seconds between turns. You can use the Turn Timer to determine how much time remains until the next aircraft move.

The Score Display at the lower left of the radar screen shows your current game score.

Game Scoring

Near Miss uses a sophisticated scoring algorithm to measure your skill and performance.

Aircraft are weighted with point values that depend on the setting that you select in the **"Set Options"** display. In general, as the difficulty and realism of the simulation is increased, so is the potential score. Scoring is based on the following formulae:

$$\text{Points/Plane} = \frac{\#\text{Planes X Hazards X (Altitude + Distance Separation + 1)} + 10}{\text{Time} - 10}$$

Hazards = # Hills + # Towers + Zone Value + Weather Value + # Airports X2 + Prop Planes + Helicopters

The zone values are 0, 4, 16, 36 for none, small, medium, large. The weather values are 0, 8, 15, for good, bad, deadly. When propeller planes and helicopters are included their value is 7, otherwise their value is 0.

The maximum number of points per aircraft is 4000, the minimum is 10.

When all of the aircraft have been safely dispatched, your performance is evaluated using the following formula:

Score = Points/Plane X (#Safe Arrivals - #NearMisses/4 -#StormsFlown/10) X (100 - Playbacks)/100

The maximum score is 240,000, which is achieved with 4000 points per aircraft using 60 aircraft, with no playbacks, near misses, or thunderstorms. There is no minimum score.

Game Strategy

The fundamental objective is to maximize the number of aircraft directed to their correct destinations. It is better to exit or land an aircraft at a wrong destination than to have it run out of fuel and crash. Beware of accumulating too many near misses, since they will lower your score very quickly.

To prevent gaps in the action, click the mouse in either the small circular Turn Timer or on the rectangular shift clock. Each click advances the game one turn.

Printing

Near Miss enables you to print either the current Air Traffic Schedule Panel, or the entire simulation window including the radar screen. To print the schedule panel, select **"Print Schedule"** under the file menu. To print the entire screen, select **"Print Display"**.

Print Poster

Near Miss incorporates a special feature that enables you to print a fun poster on either a dot matrix or a laser printer. To print a poster, select **"Print Poster"** from the file menu. Near Miss will print a poster of the current image on the screen. The poster will print out in 20 sections that can be pieced together.

Important! Read Before Using
END USER LICENSE AGREEMENT

The software in this package is provided to You on the condition that You agree with SIMON & SCHUSTER, INC. ("S&S") to the terms and conditions set forth below. **Read this End User License Agreement carefully. You will be bound by the terms of this agreement.** *If You do not agree to the terms contained in this End User License Agreement, return the entire product, along with your receipt, to Simon & Schuster, Inc., Computer Software Division, One Gulf + Western Plaza, 14th Floor, New York, New York, 10023. Att: Refunds,* and your purchase price will be refunded.

S&S grants, and You hereby accept, a personal, nonexclusive license to use the software program and associated documentation in this package, or any part of it ("Licensed Product"), subject to the following terms and conditions:

1. *License*
   The license granted to You hereunder authorizes You to use the Licensed Product on any single computer system. A separate license, pursuant to a separate End User License Agreement, is required for any other computer system on which You intend to use the Licensed Product.

2. *Term*
   This End User License Agreement is effective from the date of purchase by You of the Licensed Product and shall remain in force until terminated. You may terminate this End User License Agrement at any time by destroying the Licensed Product together with all copies in any form made by You or received by You. Your right to use or copy the Licensed Product will terminate if You fail to comply with any of the terms or conditions of this End User License Agreement. Upon such termination You shall destroy the copies of the Licensed Product in your possession.

3. *Restriction Against Transfer*
   This End User License Agreement, and the Licensed Product, may not be assigned, sublicensed or otherwise transferred by You to another party unless the other party agrees to accept the terms and conditions of this End User License Agreement. If You transfer the Licensed Product. You must at the same time either transfer all copies whether in printed or machine-readable form to the same party or destroy any copies not transferred.

4. *Restrictions Against Copying or Modifying the Licensed Product*
   The Licensed Product is copyrighted and may not be further copied without the prior written approval of S&S. Any unauthorized copying is in violation of this Agreement and may also constitute a violation of the United States Copyright Law for which You could be liable in a civil or criminal suit. **You may not use, transfer, modify, copy or otherwise reproduce the Licensed Product, or any part of it, except as expressly permitted in this End User License Agreement.**

5. *Protection and Security*
   You shall take all reasonable steps to safeguard the Licensed Product and to ensure that no unauthorized person shall have access to it and that no unauthorized copy of any part of it in any form shall be made.

6. **Limited Warranty**
   If You are the original consumer purchaser of a diskette and it is found to be defective in materials or workmanship (which shall not include problems relating to the nature or operation of the Licensed Product) under normal use, S&S will replace it free of charge (or, at S&S's option, refund your purchase price) within 30 days following the date of purchase. Following the 30-day period, and up to one year after purchase, S&S will replace any such defective diskette upon payment of a $5 charge (or, at S&S's option, refund your purchase price), provided that the Limited Warranty Registration Card has been filed with 30 days following the date of purchase. Any request for replacement of a defective diskette must be accompanied by the original defective diskette and proof of date of purchase and purchase price. S&S shall have no obligation to replace a diskette (or refund your purchase price) based on claims of defects in the nature or operation of the Licensed Product.

The software program is provided "as is" without warranty of any kind, either expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. The entire risk as to the quality and performance of the program is with You. Should the program prove defective, You (and not S&S) assume the entire cost of all necessary servicing, repair or correction.

Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to You. This warranty gives You specific legal rights, and You may also have other rights which vary from state to state.

S&S does not warrant that the functions contained in the program will meet your requirements or that the operation of the program will be uninterrupted or error free. Neither S&S nor anyone else who has been involved in the creation or production of this product shall be liable for any direct, indirect, incidental, special or consequential damages, whether arising out of the use or inability to use the product, or any breach of a warranty, and S&S shall have no responsibility except to replace the diskette pursuant to this limited warranty (or, at its option, provide a refund of the purchase price).

No sales personnel or other representative of any party involved in the distribution of the Licensed Product is authorized by S&S to make any warranties with respect to the diskette or the Licensed Product beyond those contained in this Agreement. **Oral statements do not constitute warranties,** shall not be relied upon by You, and are not part of this Agreement. The entire agreement between S&S and You is embodied in this Agreement.

7. *General*
   If any provision of this End User License Agreement is determined to be invalid under any applicable statute or rule of law, it shall be deemed omitted and the remaining provisions shall continue in full force and effect. This End User License Agreement is to be governed by and construed in accordance with the laws of the State of New York.

Near Miss (Macintosh)

REPLACEMENT ORDER FORM

Please use this form when ordering a replacement for a defective diskette.

A. If Ordering within Thirty Days of Purchase

If a diskette is reported defective within thirty days of purchase, a replacement diskette will be provided free of charge. *This card must be totally filled out and accompanied by the defective diskette and a copy of the dated sales receipt.* In addition, please complete and return the Limited Warranty Registration Card.

B. If Ordering after Thirty Days of Purchase but within One Year

If a diskette is reported defective after thirty days but within one year of purchase and the Warranty Registration Card has been properly filed, a replacement diskette will be provided to you for a nominal fee of $5.00 (send check or money order only). *This card must be totally filled out and accompanied by the defective diskette, a copy of the dated sales receipt, and a $5.00 check or money order made payable to Simon & Schuster, Inc.*

NAME_____ PHONE NUMBER ( )_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

PURCHASE DATE_____

PURCHASE PRICE_____

COMPUTER BRAND & MODEL_____

Please send all requests to Product Support Center, Simon & Schuster, Inc., Route 9W, Englewood Cliffs, NJ 07632; ATTN: Replacements

NOTE: Simon & Schuster reserves the right, at its option, to refund your purchase price in lieu of providing a replacement diskette.

61078-2

Near Miss (Macintosh)

LIMITED WARRANTY REGISTRATION CARD

In order to preserve your rights as provided for in the limited warranty, this card must be on file with Simon & Schuster within thirty days of purchase. Please fill in the information requested:

NAME_____ PHONE NUMBER ( )_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

COMPUTER BRAND & MODEL_____ DOS VERSION_____ MEMORY_____ K

Where did you purchase this product?

DEALER NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

PURCHASE DATE_____ PURCHASE PRICE_____

How did you learn about this product? (Check as many as applicable.)

STORE DISPLAY_____ SALESPERSON_____ MAGAZINE ARTICLE_____ ADVERTISEMENT_____

OTHER (Please explain)_____

How long have you owned or used your computer?

LESS THAN 30 DAYS_____ LESS THAN 6 MONTHS_____ 6 MONTHS TO A YEAR_____ OVER 1 YEAR_____

What is your primary use for the computer?

BUSINESS_____ PERSONAL_____ EDUCATION_____ OTHER (Please explain)_____

Where is your computer located?

HOME_____ OFFICE_____ SCHOOL_____ OTHER (Please explain)_____

61078-2

PUT
FIRST-
CLASS
STAMP
HERE

Simon and Schuster Software Division
c/o College Marketing Group, Inc.
50 Cross Street
Winchester, MA 01890

ATTN: Ken Filosi

FOR ADDITIONAL HELP

If you have questions or need more help, call our Technical Support Center.

(201) 592-2900

SIMON AND SCHUSTER
SOFTWARE