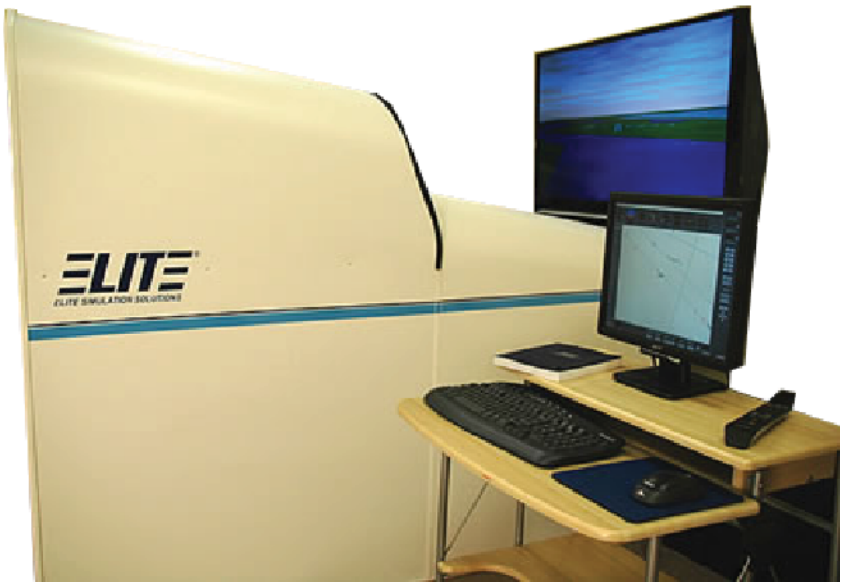




ELITE MODEL RC-1 ADVANCED AVIATION TRAINING DEVICE OPERATOR'S HANDBOOK



Software Version:

Serial Number:

May 2008

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PREFACE

APPLICABILITY

Application of this handbook is limited to the specific model of training device and software designated by version number and serial number on the face of the title page of this handbook.

WARNING

Any unauthorized changes to the trainer regarding removal, replacement or repositioning of original flight control components, avionics or switches, not in accordance with manufacturer specifications, will void the FAA approval for logging flight time credit. Only ELITE ATD software may be used with this training device for certification purposes. The instructions and limitations detailed in the FAA letter of approval pertaining to this model of advanced aviation training device must be adhered to and kept in close proximity to the trainer. The controlling authority for the use this training device in a Part 61 or 141 or 142 course of instruction is the Federal Aviation Administration, General Aviation and Commercial Division, 800 Independence Avenue, Washington D.C. 20591.

REVISIONS

For operational purposes, this handbook should be kept in current status with revisions provided with software upgrades or hardware modifications. Revisions to this handbook will be distributed whenever necessary as complete replacements or additions and shall be inserted into the handbook as below:

- a. Revision pages will replace only pages with the same page number.
- b. Insert all additional pages in proper

numerical order within each section.

- c. Page numbers followed by a small letter shall be inserted in direct sequence with the same common numbered page.

GENERAL

The RC-1 is one of the most highly advanced PC-based IFR flight training devices available today with the best “benefit-to-cost” ratio in its class. It was evaluated and approved by the FAA on April 3, 2006 to be authorized for use in satisfying Tasks/Maneuvers, and Procedures under sections of Title 14 Code of Federal Regulations parts 61 and 141.

The trainer consists of the following components:

- a. Flight controls (yoke, rudders, throttles and ancillary switches)
- a. Avionics, King Silver Crown – style
- b. Dual CPUs (main computer, image generator and sound system)
- c. Cockpit (seat, instrument panel with dual LCD monitor configuration)
- d. External display system (LCD display and stand)
- e. Instructor Operator Station (desk, LCD monitor, keyboard and mouse)
- f. ELITE Version 8.x AATD software





The software includes eight (8) aircraft personalities from simple, complex to twin engine aircraft that provide a broad range of training capabilities. The aircraft were evaluated as “generic in-category” aircraft or aero models with correct performance characteristics to practice simulated flight, tasks and procedures under instrument meteorological conditions. Data modeling and performance characteristics, however, represent actual aircraft specifications. Aircraft represented include Cessna 172R, Cessna 172 RG, Piper Archer III, Piper Arrow, Piper Seneca III, Beech Bonanza A-36 and Beech Baron 58. The instrument panel and engine panel occupy two monitors to provide life-sized instruments with a correct scan pattern. There are variations to specific aircraft that will be covered in the Configuration section.



C172 R



C172 RG



C182



Archer III



Arrow IV



Bonanza 836



Seneca III



Baron 58

The Operator, via the IOS, can change the flying environment such as winds, turbulence, icing characteristics, visibility, ceilings and cloud layers. Any aircraft instrument, receiver or system can be failed immediately, realistically or programmed for a timed failure without interrupting the student's flight. Both weather and malfunctions scenarios can be saved and re-loaded. The software contains utilities to monitor record and replay flights over a map page displaying the horizontal and vertical flight paths in real time. The navigation data is from the FAA National Flight Data Center (US only) or Jeppesen®. The data includes airways, intersections, published holding patterns, nav aids and airports and airport frequencies. Though designed for instrument training and proficiency, the visual image is actual satellite digital elevation models with a generic texture showing urban areas, major bodies of water, rivers, railroad tracks and major roadways. Every IFR rated airport over 3,000 feet length and its lighting system is accurately depicted.

NOTE: The user of this manual is expected to know how to fly an airplane. It is not designed to teach instrument navigation or serve as a tutorial for starting, running up,

flying or shutting down aircraft. It will not describe the purpose or function of aircraft specific switches, knobs or levers.

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CHAPTER 1

ASSEMBLY AND STARTUP



SYSTEM FEATURES

GENERAL

- Precise aerodynamic modeling
- Dual Screen, high resolution, accurately detailed, life-sized instrument panels
- Graphical instructor's station
- Hot Plates™ approach chart viewer
- Accurately detailed runway environments and lighting
- Automatic local/UTC time set and offset
- Enhanced 3D sound
- Combinable pre-programmed aircraft, weather and malfunction "state" files

NAVIGATION DATA

- US and Canadian navigational databases
- US GenView™ Visual Database
- International GPS database
- Add, delete, and modify navigation facilities/
database elements

AVIONICS, INSTRUMENTATION, AND HARDWARE

- Bendix King Silver Crown Avionics
- Trimble 2000 Approach Plus™ GPS
- Apollo Series GPS
- Selectable HSI/RMI and DG/ADF
- Moving map display
- Autopilot / flight director
- Altitude/vertical speed preselect
- Radar altimeter
- Electric pitch trim
- Rudder trim
- Toe brakes w/proportional braking

MALFUNCTIONS

- Fully programmable instrument, power plant, avionics, gear, flap and system failures
- Set immediate, timed, gradual, and random failures
- Accurately modeled insidious failure behavior
- Virtual instrument covers (for partial panel work)
- Create and save an unlimited number of

malfunction “state” files.

WEATHER

- Advanced static and/or dynamic weather modeling
- Fully programmable wind, turbulence, visibility, clouds, temperature, pressure and icing
- Downloadable METAR reports and integrated real time weather
- Create and save an unlimited number of weather “state” files

MAPPING AND EVALUATION

- Plan, profile and extended profile views
- Gear/flap position graph and airspeed plot
- Flight Data Recorder with VCR-style playback control
- Virtual airport facility directory
- Transponder tag w/squawk code, heading and altitude readout
- “Spot WX” station model display symbology (wind, temp, visibility and pressure display)
- Quick “click and drag” aircraft repositioning
- Real time and/or recorded flight instrument presentation on IOS Map Screen
- Route planner
- Heading/Distance MAP cursor (instant E6B-style calculations)
- Instrument Approach Scenarios (optional)
- Print, save, and replay and unlimited number

of aircraft "path" files

- Create and save an unlimited number of aircraft "state" files

LIST OF COMPONENTS

Please insure that you have all RC-1 components before assembly:

MAIN COMPONENT

1. COCKPIT

- RAC (Ready to Assemble Cockpit) with assembly instructions
- Floor mounting hardware for pedals
- Floor mounting hardware for seat
- Chronometer
- Seat
- Seat base
- Seat base nuts

2. FLIGHT CONTROLS

- ELITE PPII Flight Console (includes USB cable, master power key and 9v Power Supply (300 to 500 mA))
- ELITE Rudder Pedals with USB cable (10 ft)
- SEL (Single Engine Land) Throttle Quadrant

3. AVIONICS

- AP3000 Avionics Panel (includes USB cable and 9v Power Supply (1.2 Amp))
- AP3 Quick Start Guide

4. EXTERNAL DISPLAY SYSTEM

- LCD TV with high density video cable (may be PC, HDMI or AVI)
- LCD TV Stand w/ assembly instructions

5. COMPUTER SYSTEM

- Computer rack with power strip
- Main computer (with pre-loaded ELITE ATD software and USB WIBU key)
- Visual computer (with pre-loaded ELITE visual data)
 - keyboard
 - mouse
 - speakers
 - IG installation instructions
 - 7 port USB hub

6. IOS (INSTRUCTOR / OPERATOR STATION)

- 17" LCD Instructor Monitor and high density monitor extension cable
- Instructor Desk

7. ADMINISTRATIVE SUPPORT ITEMS

- Software (Windows CD, ELITE ATD DVD, ELITE External Visual DVD)
- RC-1 Letter & Qualification Guide
- RC-1 Operator's Handbook

NOTE: All software is pre-installed and ready to run. Software CDs and DVDs are for archival purposes only! Do not install software until you contact ELITE Technical Support (407-359-8488)

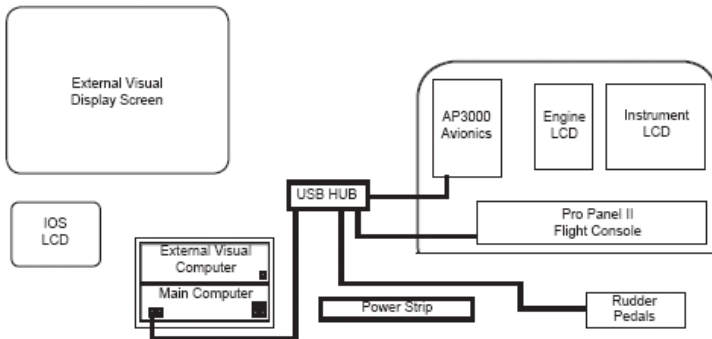
RC-1 main components may ship from different locations. Items 2, 3, 5, 6 and 7 plus the seat, seat base and hardware

usually ship from ELITE SIMULATION SOLUTIONS, Oviedo, Florida. Items 1 and 4 will be drop shipped direct from the manufacturer. ELITE Customer Service will arrange and track all shipped components. Please contact them for questions, missing parts and/or assistance.

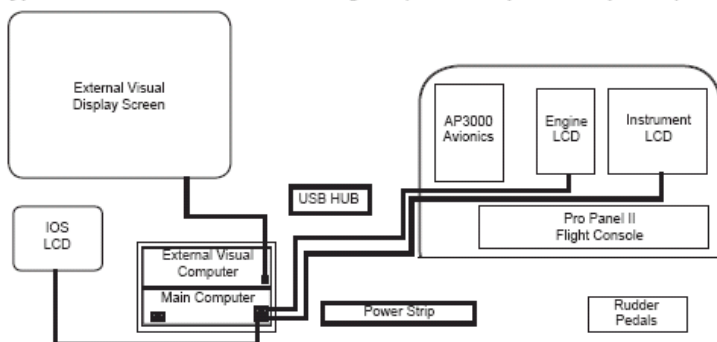
CONNECTING SIMULATOR HARDWARE TO THE COMPUTERS

Because the RC-1 is PC-based and uses “off the shelf” or OTS components, connecting simulator components to the computers is no more difficult than setting up a personal computer at home. ELITE uses USB technology and provides a USB hub to distribute the various devices to the appropriate computer. The video cables connect the Instrument Monitor, Engine Monitor, and Instructor Monitor to the Main Computer. The Visual Computer (aka Image Generator) has one video cable to the main LCD display. The graphics cards and computers are clearly marked for easy connection. The basic layout follows:

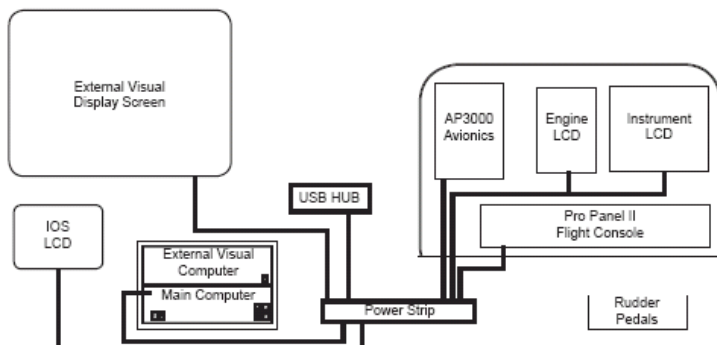
Typical USB Connection Diagram (Rear Component Depiction)



Typical Video Cable Connection Diagram (Rear Component Depiction)



Typical Power Supply Diagram (Rear Component Depiction)



NOTE: The AP3000 Avionics Panel and Pro Panel II Flight Console use AC adapters. The Instructor LCD, Instrument LCD, Engine LCD and External Visual LCD may or may not require AC adapters. Surge protectors are essential to the protection of your electrical equipment!

DO NOT TURN ON COMPUTERS OR EQUIPMENT UNTIL ALL COMPONENTS ARE CONNECTED! Failure to do so will result in Windows Operation System reconfiguring important display settings.

STARTING AND SHUTTING DOWN THE RC-1 ADVANCED AVIATION TRAINING DEVICE

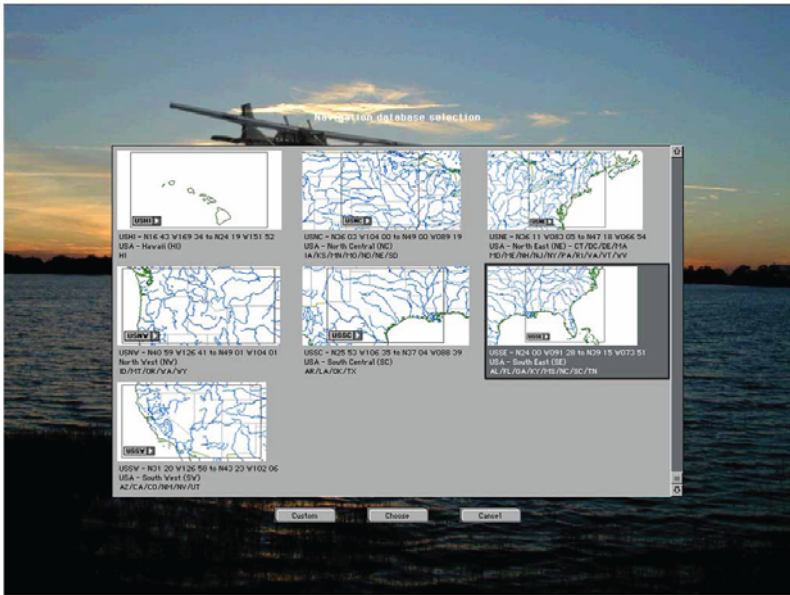
STARTING THE RC-1

1. **Turn on the main computer system.** The main power switch controls both the main computer and the Image Generator (external visual computer).
2. **Turn on the external visual display screen** (large screen LCD) and instructor LCD monitor. The mounted Instrument LCD monitor and Engine Gage LCD monitors are defaulted to Power On.
3. The external visual computer has completed booting when you see the spinning ELITE logo. It is in a “wait mode” waiting on communication from the main computer.
4. **Turn on the Pro Panel II flight console main power key.** Check the right corner of the console and insure you see two lights: a solid green light (showing power connection) and a flashing yellow light (showing data transmissions).
5. The startup screen for the ATD (main Windows desktop) will be on the Instructor LCD monitor. **Double click on the ATD icon to start the program.**
6. **Choose an aircraft** by double-clicking on the icon or highlighting the aircraft with a single



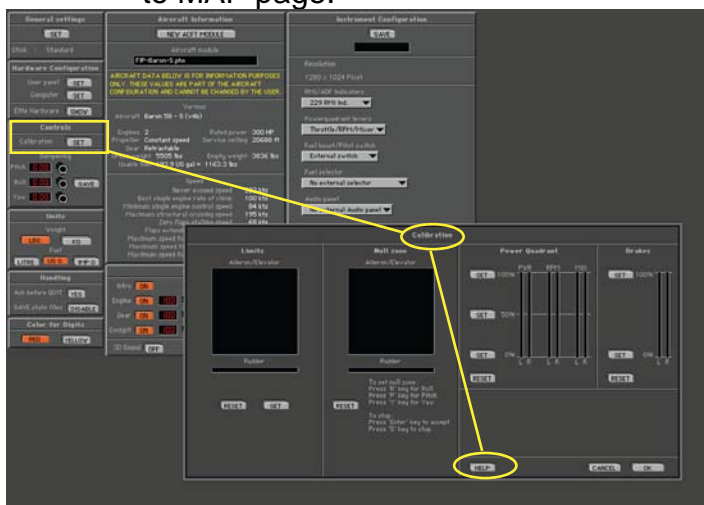
left click and clicking on CHOOSE button at the bottom of the page.

7. Choose your navigation database in the same manner.



8. The main computer will attempt communication with the image generator and you will see a slight pause in the spinning ELITE logo in the external LCD display. The instrument panel and engine gauges will appear and a visual of a runway threshold will appear.
9. **Before flight, it is important to calibrate the flight controls.** This is a simple exercise to teach the software the range of values from the pitch, roll, yaw, brake and throttle movements. To calibrate the flight controls:
 - a. Bring up the program menu selections on the instructor LCD (right mouse click anywhere on the screen).

- b. Choose CONFIGURATION
- c. Left mouse click on CONTROLS CALIBRATION
- d. The calibration dialog box will open; left mouse click on HELP
- e. Follow on-screen instructions to calibrate the controls
- f. Click OK to continue when finished and change CONFIGURATION page to MAP page.



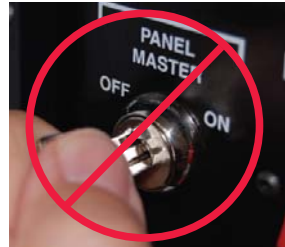
10. Unfreeze the simulation, release the parking brake and you are ready to fly.



The flight controls, switches, levers and knobs perform the same function as their counterpart in the real aircraft. At this point you can change frequencies, adjust instruments and perform all procedures for flight as you would in the actual

aircraft. The flight may be paused at any time by pressing the FREEZE button on the AP3000 avionics panel or by using the main screen menu FREEZE selection.

NOTE: Any disruption in the main power to the flight console (ie. Turning the “Panel Master” key switch off during operations) will require a shutdown and re-start of the ELITE program.



SHUTTING DOWN THE RC-1

Proper shutdown of the RC-1 computer systems must be done from the VISUAL MANAGER PAGE at the Instructor / Operator Station (IOS).

1. Press the VISUALS AND COMPUTERS button in the SHUTDOWN BOX located at the bottom of the Visual Manager Page.



The visual computer will shut down completely and the main computer will return to the Windows Desktop. At the Windows desktop, the Operator should use the typical Windows “START BUTTON” / SHUTDOWN” process.

2. When the computers have shut down, turn the key on the Pro Panel flight console to **OFF**.
3. Turn off the IOS LCD monitor and the External Visual LCD Display.

NOTE: You do not need to turn the power off to the instrument panel LCD monitors. To remove power completely from the system, simply turn the power off to the surge protector.

INITIAL CONFIGURATION

It is recommended that this page be reviewed carefully. After configuring to your satisfaction, press the SAVE button to keep all values. These selections are stored in a PREF folder in the program directory. These values will be read when starting the program. Once set, you will seldom need to go to this page. The instructor or operator can set a password to prevent access to the Configuration Page.

Certain features of each aircraft can be changed or configured to personal preference or training requirement. An example of Configuration was the control calibration performed in item 9 above. Some settings are general and apply to all aircraft being flown and some settings (instrument configuration) are specific to the aircraft selected to be flown.

You get to the CONFIGURATION PAGE by right mouse clicking on the instructor's monitor when ELITE is running. This brings up the ELITE Main Menu. Click on CONFIGURATION PAGE or use the keyboard shortcut "alt G".

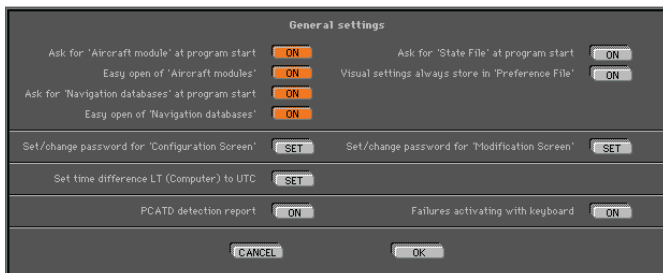
The Configuration Page consists of nine sections: General Settings (1), Hardware Configuration (2), Controls (3), Units (4), Handling (5), Color for Digits (6), Aircraft Information (7), Sounds (8) and Instrument (9). This section will cover the basics to get the RC-1 up and running. Other information from this screen will be covered in Chapter Two.



GENERAL SETTINGS



Under **General Settings**, clicking the **SET** button opens a dialog box that lets you customize features in the startup sequence, set/change passwords, set LT/UTC offset, toggle ATD detection report, and activate failure control from the keyboard. These settings are retained until changed or reset.



AIRCRAFT MODULE

When “Ask for **Aircraft Module** at program start” button is **ON** (orange), ELITE will ask you (on every startup) to select an aircraft module. “Easy open of aircraft modules” allows you to choose an aircraft by viewing thumbnails (small pictorial representations) of each aircraft cockpit. This is the default and recommended setting. The same is true for NAV databases.

NAVIGATION DATABASES

When “Ask for **Navigation Databases** at program start” button is **ON**, ELITE will ask (on every startup) to select a NAV database area to fly in. “Easy open of Navigation databases” allows you to choose a NAV area by viewing thumbnail maps of all available individual navigation areas installed.

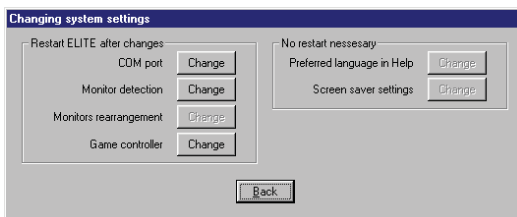
*NOTE: To have **ELITE** automatically start up (default) to the same aircraft and NAV area each time, first make sure you are currently using the desired aircraft and NAV area you would like for subsequent startups, then turn OFF both “Ask for Aircraft module” and “Ask for Navigation databases at program start” buttons.*

HARDWARE CONFIGURATION

CHANGING SYSTEM SETTINGS

Do NOT USE Changing System Settings unless instructed to do so by ELITE Technical Support personnel.

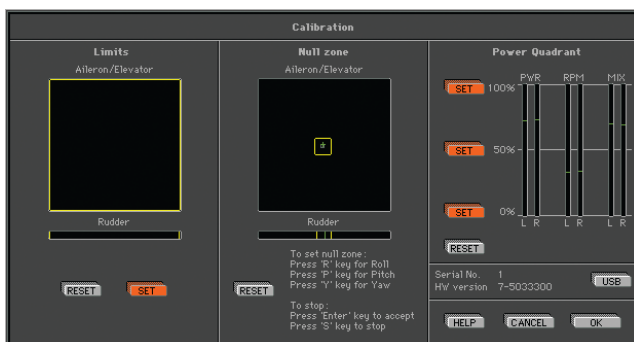
Adjustments to computer configuration can render the RC-1 AATD inoperative.



FLIGHT CONTROLS CALIBRATION

Calibration is necessary to bring the RC-1 flight controls (pitch, roll, yaw and throttles) controls into proper tolerances and allow ELITE to learn the limits of the of the controls. (Pressing the HELP button in the Calibration dialog box will open on screen instructions and walk you through the calibration process.)

Under **Controls** click the **SET** button next to calibration. The **Calibration** screen is divided into three sections or “panels.” From left to right these are; Limits, Null zone, and Power Quadrant respectively.



Follow these instructions to properly calibrate your flight control device(s):

LIMITS

Under **Limits**, click the **RESET** button. Notice the small cross-hairs in the box just below “Aileron/Elevator.” Now move your yoke or stick through its FULL range of motion, i.e. forward (down) elevator, back (up) elevator, FULL left and right aileron. The cross-hairs have now traced a blue box graphically representing the limits of the control device being used. If rudder pedals are connected, apply FULL left and right rudder. You will see a small vertical line move with the application of rudder input. Click **SET** to store the new limits settings.

NULL ZONE

The center **Null Zone** panel allows the user to define a “box” within which the control device(s) is considered centered. If a flight control does not physically return exactly to center but is still within the limits of the “box” defined under the **Null Zone** panel, no flight command input will be sent to the software. Some experimentation with different Null zone settings may be necessary to achieve optimum control response. In general, larger Null zones require greater flight control travel accompanied by a coincident perceived decrease in sensitivity. Under **Null Zone**, click **RESET**. Press the “R” key on your keyboard and move the stick or yoke to adjust the size of the aileron (**R**oll) Null zone. To accept and store this setting hit **ENTER** or press the “S” key to return to the previously stored value. Next, press the “P” key on your keyboard and move the stick or yoke to adjust the size of the elevator (**P**itch) Null zone. To accept this setting hit **ENTER** or press the “S” key to return to the previously stored value. If rudder pedals are connected press the “Y” key on the keyboard and move the pedals to adjust the width of the of the rudder (**Y**aw) Null zone.

*NOTE: Clicking the **RESET** button returns ALL Null zone settings to default. Individual Null zones can be adjusted without clicking **RESET** by simply pressing “R”, “P”, or “Y” keys respectively.*

POWER QUADRANT

Under **Power Quadrant**, click **RESET**. Now physically move the Mixture, Prop, and Throttle levers (if applicable) on your power quadrant or similar device to their halfway position.*

Do NOT use lines on screen under PWR, RPM, and MIX columns for reference. Once levers are positioned physically at 50% (on device) click the middle **SET** button

next to the 50% marking on screen. Next, move the levers FULL forward (Throttle OPEN, Prop HIGH, Mixture RICH) and click the top 100% **SET** button. Finally, move the levers FULL aft and click the bottom 0% **SET** button.

**NOTE: If a King Air quadrant or other turbine quadrant is being used then it will be necessary to move the levers to their respective detent positions (Idle, Feather, Low Idle) rather than the halfway position.*

Calibration is now complete! Click **OK** to save these settings & return to the **Configuration** page, or **CANCEL** to return and revert to previous settings without saving. Quit and restart ELITE for new calibration settings to take affect.

Real aircraft are inherently stable, simulators are not. For inexperienced simulator pilots, the most common difficulty is over-controlling or getting used to the control sensitivity. Practice basic flying maneuvers as you would in any new aircraft transition before starting your IFR practice. Remember “the less is more” adage and make small pitch and roll corrections for variation in altitude and/or heading. Do NOT chase the VSI. Monitor instrument/needle trend, not just movement. This makes for smooth, precise, instrument flight and prevents awkward action/reaction responses.

CHANGING THROTTLE QUADRANTS

The ELITE® RC-1 comes with both a single engine “Piper Style” throttle quadrant and a multi-engine throttle quadrant. A Cessna-style vernier two or three element throttle quadrant is available as an option.

To change the throttle quadrant from the RC-1 follow these simple steps:

1. Turn off the Master Panel Power switch using the key switch.



2. Remove the left and right thumbscrews by turning counterclockwise, supporting the throttle quadrant with a free hand.



3. Remove the throttle quadrant making sure not to pull on the gray cable.



4. Loosen the connector thumbscrews by turning counterclockwise.



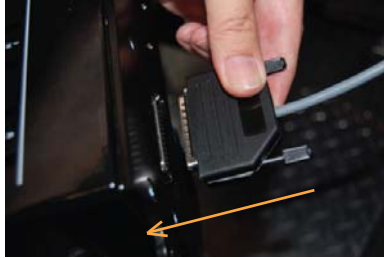
5. Carefully remove the plug from the rear of the throttle quadrant.



6. Note the orientation of the receptacle.



7. While holding the new throttle quadrant in a free hand, gently insert the plug into the receptacle and tighten the thumbscrews by turning clockwise.



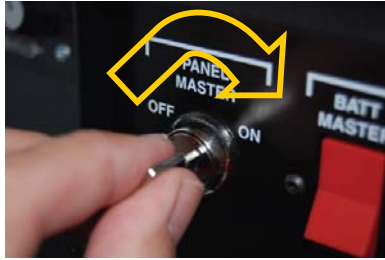
8. Carefully insert the throttle quadrant into the console making sure not to bind or bend the gray cable.



9. Reinstall and tighten the two thumbscrews by turning clockwise. Note: DO NOT OVER TIGHTEN SCREWS!



10. Turn ON Master Panel Power by using the key switch.



11. Observe the green POWER light illuminates steady.

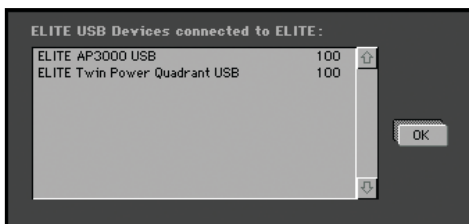


12. Observe the amber TRANSMIT light flashes.



13. Open on the ELITE program by double-clicking the ELITE icon on your desktop

USB BUTTON



Press “USB” button to see ELITE USB hardware connected

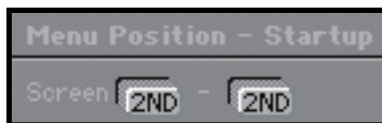
Adjusting control sensitivity:

Control dampening is designed to desensitize or add slop to the controls. Start with low to mid-range values and adjust to your satisfaction. Yaw usually requires more dampening than pitch or roll. Click on **SAVE** to store new dampening values after adjustment.



Numbers between 0.00 (no dampening) and 0.20 (maximum dampening) change the sensitivity of flight control devices.

SECOND MONITOR



If you are using an ELITE system with a 2nd (instructor's station) monitor, an additional display panel will appear below the **Color for Digits** panel. Pressing the **2ND SCREEN** button assigns the program menu to the 2nd monitor. This allows someone sitting at the instructor's station easier access to the program menu and features.

INSTRUMENT CONFIGURATION

The **Instrument Configuration** panel is different for each aircraft module depending on the cockpit resolution(s), instrument configurations, power units, and external switches unique to that module.



Clicking on a black arrow opens a drop-down menu displaying all available (changeable) options for that section. Drag the fingertip to the option desired and release the mouse button to make your selection.



The selected option will be indicated, replacing the previous selection.

Intentionally
Left
Blank

CHAPTER 2

INSTRUCTOR / OPERATOR'S STATION (IOS)

MENU DESCRIPTION AND OVERVIEW

When the instruments are displayed in the cockpit and the external visual displays shows a runway, the IOS LCD monitor will depict a map screen. From here, the operator can access all areas of the program through a MENU system. A brief over view of the MENU items follow:

PROGRAM MENU

After starting the program, you will enter the simulation in the cockpit (in front of the Instrument panel).

The MENU button at the bottom right of your instructor screen is your access to the many features.



Click and hold on the MENU button to open the menu. While holding your mouse button, move the cursor to the menu selection and release. As you move through each selection, the item to be opened will be highlighted. Keyboard shortcuts are listed beside their corresponding menu item. For shortcuts, hold the key board **ALT** key and the designated letter. CAPS Lock should be OFF.

NOTE: The simulation is in the FREEZE mode if Menu or FREEZE is colored red.

QUIT	ALT Q
VISUALMANAGER	ALT Y
MALFUNCTIONS	ALT S
METAR	ALT R
METEO	ALT W
MODIFICATION	ALT D
CONFIGURATION	ALT G
MAP	ALT M
CONTROL	ALT C
INSTRUMENT	ALT I
HELP	ALT H
FREEZE	ALT F
Menu	

- Exits Program
- Visual Manager Page
- Malfunctions Page
- Active METAR
- Weather Page
- Nav Data Modification
- Configuration Page
- Map Page
- Control Page
- Instrument Panel
- Helps Tips
- Simulation Freeze/Unfreeze

The following is only an overview of the MENU layout. For detailed capabilities and operations, see Program Features.

MALFUNCTIONS PAGE



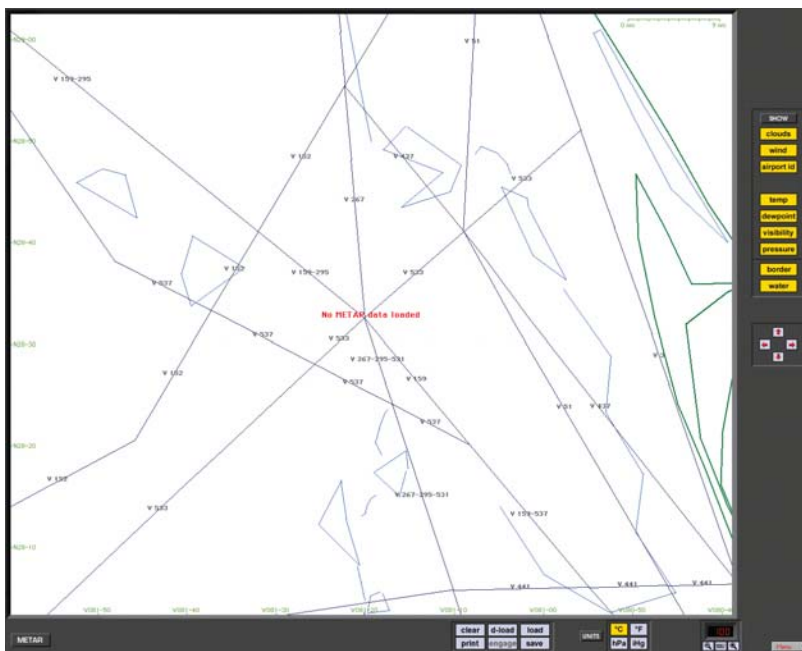
The MALFUNCTIONS Page is used to create failure scenarios. You have the opportunity to selectively or randomly fail individual instruments, systems, avionics, engines, gear, flaps, and more.

METEO PAGE



The METEO (meteorological) Page is used to create the weather environment. Various parameters such as visibility, ceiling, wind, turbulence, pressure and temperature can be adjusted as desired.

METAR PAGE



The METAR Page is used to download real-time weather reports from METAR reporting stations for use in ELITE GenView. When METAR weather is “engaged” (activated) to function in ELITE, the weather dynamically changes when flying between METAR reporting stations and METAR time.

MODIFICATION PAGE



The MODIFICATION Page is used to add, delete or modify navigation data base facilities.

Fifty modifications/additions are possible for each navigation data base. The US is divided into 9 areas.

CONFIGURATION PAGE

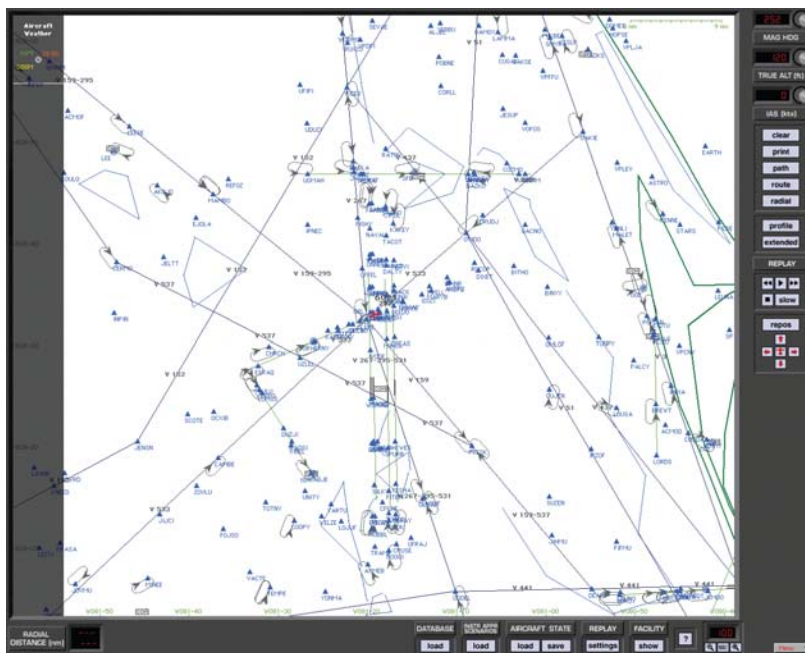


The CONFIGURATION Page is used to:

- set ELITE start up preferences
- adjust control sensitivity
- change units of measurement for fuel and weight
- turn sounds on/off; adjust volume levels
- calibrate flight control devices
- load new aircraft modules
- save instrument configurations where applicable.

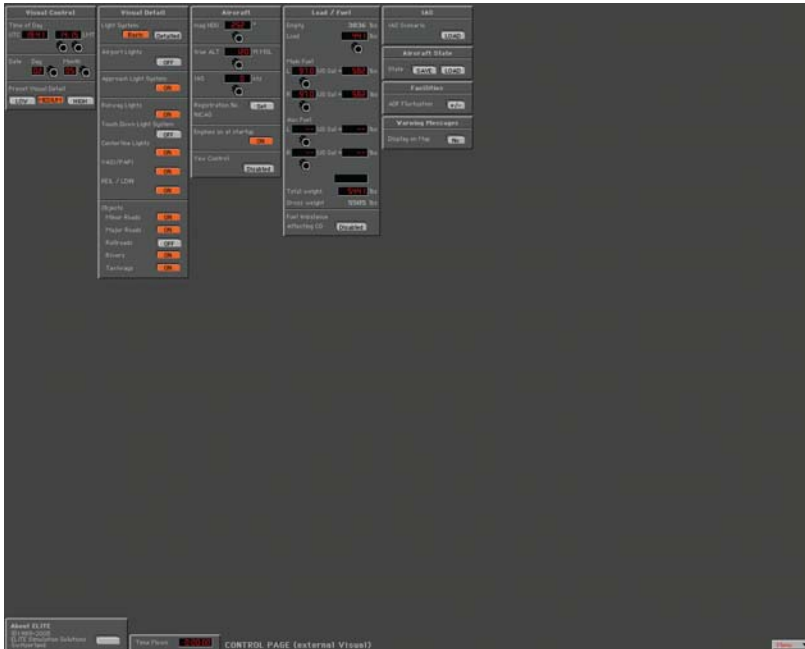
Aircraft operational characteristics and limitations are also shown (but cannot be modified).

MAP PAGE



The MAP Page is a graphical representation of the flying area showing navigation facilities, frequencies, lat/long, runways, boundaries and much more. An aircraft symbol shows the flight path in real time (both horizontal and vertical profile views) that can be replayed, saved and printed for evaluation. Over 15 map features can be displayed at 8 separate zoom levels. The aircraft flight parameters (magnetic heading, altitude and IAS) can be set from the map page. In addition, you can also save and load training states or load Instrument Approach Scenarios (IAS).

CONTROL PAGE



The CONTROL Page allows you to set date and time of day, airport lighting features and runway markings. Activate yaw control (for using rudder pedals), adjust fuel loading and aircraft weight configuration and call sign. Save and load training situations you created (training states) or load optional Instrument Approach Scenarios (IAS).

INSTRUMENT



Selecting INSTRUMENT brings you back to the chosen aircraft's instrument panel (cockpit).

FREEZE

The FREEZE selection suspends the simulation. Aircraft parameters (i.e. power settings, frequency changes, OBS selections, etc.) can still be changed and the Hobbs meter continues to run. When first entering ELITE, the program is in the FREEZE mode as indicated by a red MENU bar in the lower right corner of the screen. When FREEZE mode is released, the aircraft engine(s) will be ON.

QUIT

Selecting QUIT ends the program and returns you to the operating system.

PROGRAM FEATURES

MAP PAGE



MAP Page

“HELP Tips” are available anytime by pressing ALT-H. Move the help cursor (?) over any on-screen item that you would like more information about. When the help cursor reveals its document icon, help is available for that item. Simply click on the item to display related help tips.

The MAP page is ELITE’s command center. Its use is primarily to setup the aircraft’s initial position for a given flight or procedure, monitor the flight path and to review the flight once you have finished flying. The MAP page allows the instructor to monitor the progress of a flight in real time.

Similar in appearance to an IFR Low En route chart, and laid out in approach plate-like format, the MAP page is familiar and easy to navigate. The main part of the MAP page displays the active (loaded) navigation region(s) and corresponding facility elements in plan (bird’s-eye)

view. Airports, runways, VORs, NDBs, airways, fixes, markers, DMEs, localizers, glideslopes, Flight Information Region (FIR) boundaries, country borders, comments and communication frequencies are all graphically and/or textually represented. Pressing the Profile button brings up a profile view (similar to the profile view on an approach plate). Other knobs, buttons, and data windows located around the periphery of the main map display are used to control the following items, discussed in detail later in this section.

- Aircraft HEADING
- Aircraft ALTITUDE
- Aircraft AIRSPEED
- Flight path CLEAR
- MAP Page PRINT
- Flight PATH save/load
- ROUTE save/load
- RADIAL (compass rose) display
- PROFILE view display
- Flight path REPLAY
- Aircraft REPOSition
- DATABASE (Nav region) load
- IAS (Instrument Approach Scenario) load
- AIRCRAFT STATE save/load
- REPLAY settings
- FACILITY display
- ZOOM

AIRCRAFT POSITION

The red aircraft symbol shows the actual aircraft position.



Geographical coordinates of the current view area appear in green and are located on the left side and bottom of the map for reference.

N47-20

E008-30

MAP SCALE









The actual scale of the Map is indicated on the top right of the screen. The scale appears in green.






0 nm / 3 nm / 0 nm / 0.7 nm

The scale indication changes according to the actual MAP view level, which can be changed with the **ZOOM** function.

NAV DATA SYMBOLS










The following **Nav Data Symbols** are visible on the Map page.

-  FIX (with identification)
-  NDB (with identification)
-  VOR (with identification)
-  VOR DME (with identification)
-  DME (with identification)
-  Holding (with direction arrow)
-  Glide Path Track
-  Marker

-  Localizer (yellow) transmitter
-  Glideslope (red) transmitter
-  Runway with displaced threshold
-  Airport Symbol
-  Communication frequencies

MAP CURSORS

The **cursor** changes for different functions on the MAP page:

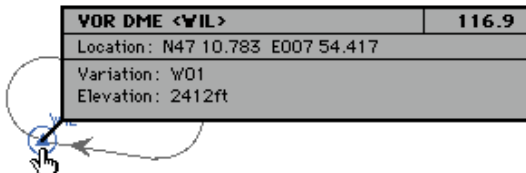
-  Normal cursor (fingertip)
-  Zoom in cursor (Alt Key)
-  Zoom out cursor (Shift-Alt)
-  Zoom limit (either enlarging or reducing)
-  Heading/Distance (Shift key)
-  Add point (Route planner) (Control key)
-  Remove point (Route planner) (Control-Alt)
-  Change/Move Point (Route planner)
(Shift-Control keys)
-  Active Runway

Click on the  box for other shortcuts.

MAP INFORMATION

All elements displayed on the MAP page contain information applicable to that specific element such as variation, frequency, runway length, width, lighting, etc. To access information regarding a specific MAP element, click and hold on it with the mouse. For runway information, click on the runway's threshold.

VOR DME <WIL>	116.9
Location: N47 10.783 E007 54.417	
Variation: W01	
Elevation: 2412ft	



In the example above, several facilities nearly occupy the same location or are co-located. Information on these facilities is layered. Clicking the same spot repeatedly cycles through these layers to reveal information about each specific facility.

MAP BORDERS

Border types:

- Flight Information Region (FIR) borders appear in brown.
- Country borders appear in green.
- Waterways and lake boundaries appear in blue.
- States appear in gray.



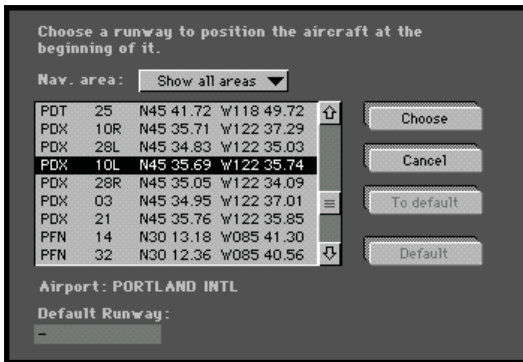
REPOSITION

To easily reposition the aircraft to a specific airport and runway, click on the REPOS button located toward the bottom-right of the MAP page. A list of every airport in all currently loaded NAV databases will be listed alphabetically

by ICAO airport location identifier (LOCID).



Click to reposition aircraft



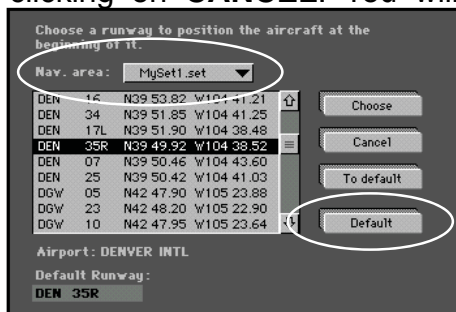
Choose:

If necessary, scroll until the desired airport identifier is visible. Select an airport and runway by clicking its identifier/runway combination. Notice that the airport/runway lat. lon. is now highlighted and the airport's name is indicated just below the scrollable viewing area. The example above shows Portland International (PDX) runway 10L selected. Click on **CHOOSE** to position the aircraft at the threshold of the selected runway.

Cancel repositioning by clicking on **CANCEL**. You will return to the previous display.

Default Runway:

If you have a preferred airport/runway that you would like to be positioned at each time



ELITE is started, you can designate a “default” airport/runway combination as described here.

It's first necessary to select the specific NAV database (or NAVset) that the desired default airport/runway is located in. Click and hold the small black arrow on the right side of the panel next to “Nav area” to open a drop-down menu of loaded databases and NAVsets. Move the finger cursor over the desired selection and release the mouse button to select it. In the example on the previous page, we have chosen to use “MySet1” (see “Creating NAV Sets” on page 216.) Click on the airport/runway you would like to make the default, then click **DEFAULT**. Notice the airport identifier and runway selected (**DEN 35R**) now appear in the “Default Runway” box at the bottom-left. To actually go to the default runway now (or at any time in the future) simply click on **TO DEFAULT**. With a default airport/runway now saved, ELITE will automatically position the aircraft there on each subsequent startup (assuming the same NAVdatabase/NAVset used to select the default airport/runway is utilized).



NOTE: You may choose one preferred (default) runway for each and every individual NAV database or NAVset. The default runway always remains associated with the NAV database or NAVset from where it was chosen. Since “MySet1” contained the USSW, USSE, & USNW databases, we could have chosen a default airport/runway for each individual database, in addition to the one created for the entire NAVset.

Manual Reposition:

It is also possible to reposition the aircraft manually by



dragging the aircraft symbol to a new location.

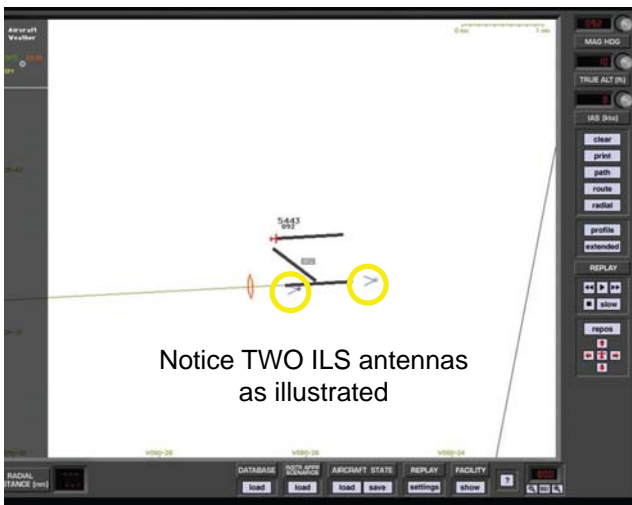
Do this by clicking on the aircraft symbol and moving the mouse while holding the mouse button.

If the desired new location is *outside* the current visible MAP area, the MAP will start scrolling when the aircraft symbol is brought toward the edge of the screen using the method described above.

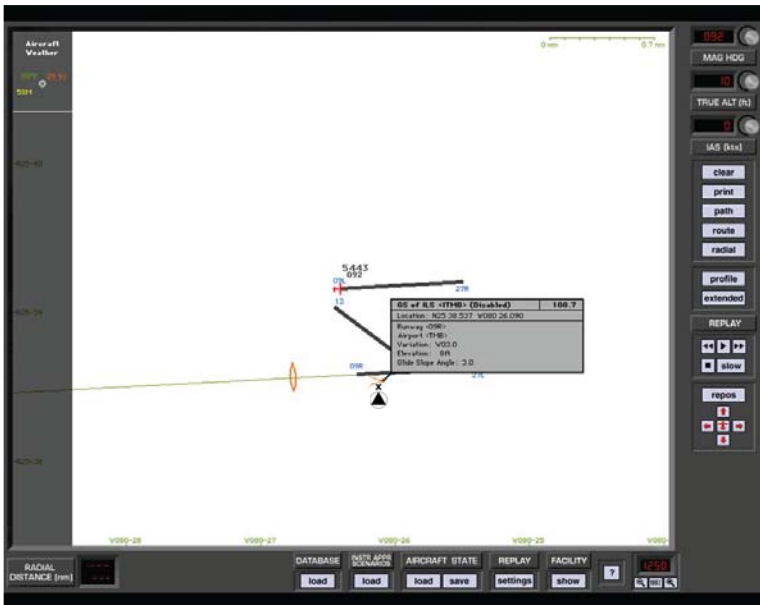
MULTIPLE ILS/DESELECTION


Many airports in the US have the same ILS frequency for both ends of the runway. For example, Runway 27 and runway 9 at XYZ airport may have 109.90 as the ILS frequency. If runway 27 is used for approaches, the tower will turn off the ILS transmitter for runway 9 to prevent any false ILS indications.

As within the real world, you must deactivate or deselect the unused ILS should there be an ILS frequency conflict. If you are flying the trainer in the vicinity of XYZ airport, tune the ILS and do not hear identifiers, this is due to the ELITE software not knowing which ILS on which end of the runway you want. Therefore you must deactivate the unused ILS by just a few clicks of the mouse.

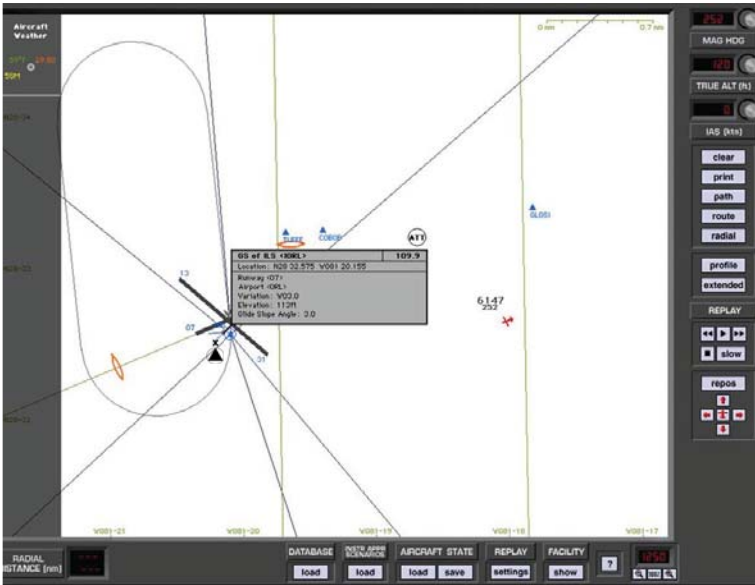



To Deactivate the ILS



1. Select <ALT> and <J> simultaneously.
2. The “finger” pointer will change to the “select/deselect” icon. 
3. Using your mouse place the “x” over the apex of the ILS you wish to deselect and push the left mouse button. The ILS antenna icon will change color from blue to amber.
4. The navaid databox will display showing the ILS is disabled.

To Reactivate the ILS



1. Select <ALT> and <J> simultaneously.
2. The “finger” pointer will change to the “select/deselect” icon. 
3. Using your mouse place the “x” over the apex of the ILS you wish to reactivate and push the left mouse button. The ILS antenna icon will change color from amber back to blue.

4. The navaid databox will display showing the ILS is now enabled.

AIRCRAFT SNAPPING

Bring the aircraft symbol near any runway threshold to “snap” to it. This will instantly place the aircraft on the runway threshold (at field elevation) of the runway “snapped” to. This is especially useful for quick repositioning from any location, altitude, heading, airspeed etc., to any specific airport runway. Although available at all ZOOM levels, this feature is much easier to use at HIGH (close-in) ZOOM levels, where the runway layout is clearly visible.

Map Scrolling:

Similar to the MAP scrolling described above while dragging the aircraft symbol, it's also possible to scroll the MAP view without dragging the aircraft symbol. This is accomplished by clicking anywhere on the **MAP page** NOT occupied by a facility or MAP element, and dragging the cursor (fingertip) toward the edge of the visible display. Scroll speed is controlled by varying the distance of the cursor to the edge of the screen and is dependent on the amount of data to be moved. The four “arrow buttons” (**UP, DOWN, LEFT, RIGHT**) located at the bottom-right of the display, and the cursor keys on the keyboard can also be used to scroll the visible MAP view. If your scrolling takes you away from the current aircraft position (i.e. to explore the surrounding area) and the aircraft is no longer visible, you can quickly locate the aircraft and re-center the MAP to it by clicking the red aircraft symbol surrounded by the four arrow buttons or pressing the “c” key on the keyboard.



Centering:

Click to
locate
aircraft



CTRL - click
to bring
aircraft to
MAP center

Conversely, it is possible to move the aircraft to where you have scrolled. Hold down the **CTRL** (control) key on the keyboard and click the red aircraft symbol or just use the key combination (**CTRL-C**) by itself. The aircraft will be brought to the center of the present map view. Following aircraft repositioning, Heading, Altitude, and Airspeed can all be adjusted.

MAP ZOOM LEVELS

Displays current ZOOM level controlled by I (in), O (out), and N (normal) keys respectively or “magnifying glass” buttons. When you first enter the MAP page, the display will be in normal zoom level, defined as the 100% view. Click on the **ZOOM IN** (🔍) or **ZOOM OUT** (🔍) buttons to increase or decrease the zoom level. The zoom percentage is indicated on the display relative to the 100% view level.

Custom ZOOM

You may zoom directly to an area of your choice (custom ZOOM) by tracing a rectangle around the perimeter of the area to be ZOOMed. Hold the ALT key then click-and-drag to create an outline around the desired area. Release the mouse button for the new ZOOMed view.

Storing custom ZOOM Level:

You can store one custom ZOOM Level in addition to the

preset ZOOM Levels (1, 5, 25, 50, 100, 250, 800, 1250).
To store a custom ZOOM Level:

1. Select the area you would like to ZOOM on by holding down the ALT key and drawing a marquee around the desired area.
2. CTRL-Click in the ZOOM level window to store the custom ZOOM level created in previous step.
3. To ZOOM to this stored level again simply click in the ZOOM Level display window.

This custom ZOOM Level can be changed anytime by simply following the procedure above to overwrite with a new value.

NOTE: ZOOM level cannot be increased beyond 1250% maximum. With ZOOM level at maximum you will NOT be able to marquee a selection area to ZOOM in further. Marquee selection and ZOOM IN are disabled when maximum ZOOM level is reached. The ZOOM function is screen centered, NOT aircraft centered. If the aircraft is not in the center of the MAP page and you ZOOM IN, the aircraft may be temporarily "lost." To "find" the aircraft and re-center the MAP page to it, click on the red aircraft symbol located near the bottom-right of the display.



SHOW FACILITIES



Click on the **SHOW** button for the "Show Facilities" dialog box. Specific map details are displayed dependent upon ZOOM level. At high ZOOM levels for example, markers are visible and runways labeled with their

magnetic direction. At lower ZOOM levels, certain map elements (facilities) are not displayed to prevent clutter and maintain map readability.

	ZOOM LEVEL IN %							
	1	5	25	50	100	250	800	1250
VOR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DME	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
NDB	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MARKER	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
FIX	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
TRACK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
AIRPORT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
RUNWAY	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
LDC/DS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
COMMUNICATION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HOLDING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
V-AIRWAYS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
V-AIRWAY IDS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
J-AIRWAYS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
J-AIRWAY IDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COUNTRY BORDER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
EXT. COUNTRY BRD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
WATER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
COMMENTS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
METAR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

MISC

TRANSPONDER ID	<input checked="" type="checkbox"/> SHOW	Aircraft Info	<input checked="" type="checkbox"/> SHOW
<input type="button" value="STANDARD"/>		<input type="button" value="CANCEL"/>	
<input type="button" value="OK"/>			

NOTE: You may determine which MAP elements (facilities) are displayed for corresponding ZOOM levels.

Click on the appropriate buttons to activate or deactivate the information to be shown in each ZOOM level. Yellow buttons indicate an active button.

- Click OK and your selections will take effect.
- Click CANCEL to return to the Map with no changes.
- Click STANDARD for a preset of active facilities.

TRANSPONDER TAG

In addition to the standard MAP elements (NAV facilities, airports, land borders, etc.) ELITE has the ability to display an information data block (transponder tag) that moves with the aircraft symbol. This tag is similar in appearance and function to one that might be found on an ATC radar scope. To enable this feature click on the TRANSPONDER ID **SHOW** button (it should turn yellow) located at the bottom of the **SHOW FACILITIES** dialog box. Although this tag will be visible anytime the MAP Page is called up, users with an instructor's station (multi-monitor system) can observe it updating in real time as would an air traffic controller. Instructors can use this feature to aid in monitoring a student's flight progress by verifying the correct transponder code, heading, and altitude assignments.

The tag itself will appear dark-gray in color when the transponder switch is in the OFF or SBY (standby) position. With the switch in the ON position the tag will turn green (after sufficient time has elapsed for warm up). The tag will turn red when the **IDENT** button has been pressed.

The data block consists of two lines with a total of three fields. The upper line is the 4-digit transponder squawk code. The lower line displays the aircraft *magnetic* heading and *indicated* altitude fields respectively. Note that the altitude will NOT appear unless the transponder switch is in the ALT (Mode-C) position.

MAP PAGE “SPOT WEATHER” FEATURE

The spot weather feature allows you to view the current WX conditions that exist at the aircraft's present position. The spot weather feature is especially handy when an instructor's station is being used as it allows the “instructor” to quickly ascertain the WX at any given moment without having to change screens and thus maintain uninterrupted monitoring of the student's flight. Outside air temperature (OAT), visibility, pressure, and wind will be displayed in a format similar to the “station model” symbology found

on Surface Analysis charts. Please note that the reported pressure is the actual ambient pressure (not altimeter setting) at the aircraft's current altitude. Wind speed and direction are displayed graphically using a barb and flag system (see figure on page 105) connected to a "pole" that points in the direction FROM which the wind is blowing relative to True North. In the following example, the aircraft is at 3500 feet, wind is from the southeast at 15 knots, OAT is 47° Fahrenheit, ambient pressure is 26.34 inches, and visibility is 25 statute miles. Note that unlike the station model used on Surface Analysis charts, no sky cover information is provided.



To turn ON/OFF aircraft spot weather simply click the FACILITY "show" button at the bottom of the MAP Page. On the "Show Facilities" dialog box click on the Aircraft Info "SHOW" button. This button is an ON/OFF toggle that will turn yellow when pushed in (ON). The spot weather data appears at the upper-left corner of the MAP Page at the top of the shaded information display region.

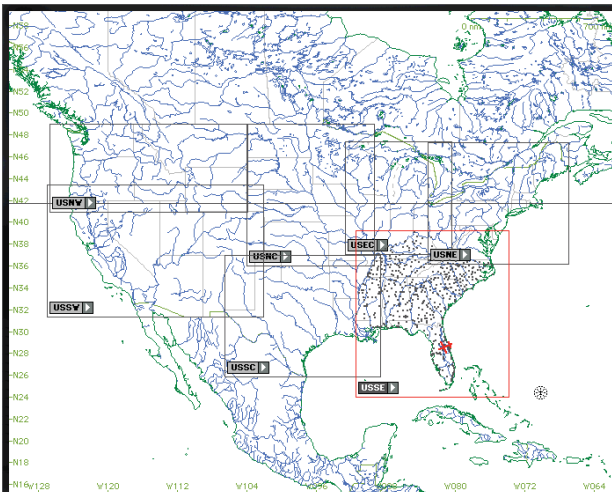
NAVIGATION DATABASES

All airports, airport lighting, fixes, NDBs, VORs, localizers, glideslopes, communications data etc. are contained in regional navigation databases. This data must be loaded for use in the program.

To understand the structure of the NAV databases, press the ZOOM out (🔍) button several times until an entire continent is visible. Using North America (shown below)

for example, notice there are boxes visible across the U.S. that define the regional boundaries of each NAV database. From this same view you can also determine if a specific NAV database (region) is loaded. Gray boxes indicate data is available but not loaded. Red boxes indicate the data within its boundary is loaded and ready for use.

Note: Each NAV database (region) is labeled for identification. The label (USNW) shown below is for the United States North West.



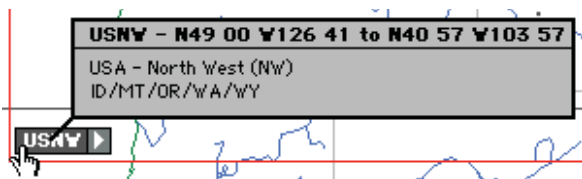
NAV DATA Disclaimer: We do our best to ensure the accuracy of the NAV data in the software. Unfortunately, inaccuracies originating from the data source are beyond our control and may be encountered at some point over time in the normal course of using the product. If you do encounter data that you feel is in error please make a note and let us know. The more information you can gather about the specifics of your experience, the better. Make note of data that is suspected missing, inaccurate, erroneous, or otherwise anomalous and notify us with the details. Thanks!

Click and
hold for
info



Click and hold
for database
options

Click and hold the mouse on **USNW** part of label for detailed information on that database.



Loading NAV Data:

Click and hold on the arrow symbol part of the label. Move the cursor to Load Database and release the mouse button. When data has successfully loaded, the gray boundary box will turn to red. Click on arrow symbol once again and notice that **Load Database** is now grayed out and no longer available for selection but you can choose to release it (to free memory) or unlock it for modification (to be covered later).



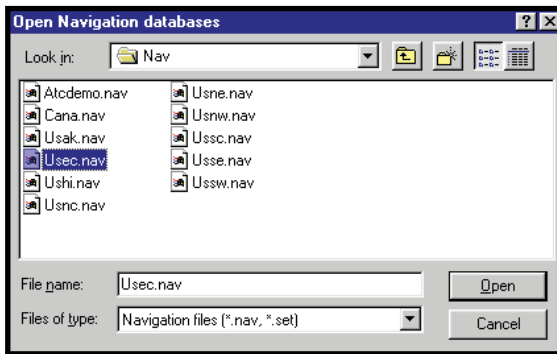
NOTE: Multiple NAV databases (regions) can be loaded simultaneously as desired. To load multiple databases, repeat the process described previously for each additional database.

Changing NAV Data:

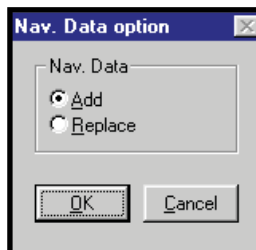
Navigation databases can also be added or changed quickly by clicking the **DATABASE LOAD** button at the bottom of the MAP page. Choose a NAV database from those listed by double-clicking on its name, OR by clicking on its name



then clicking **OPEN** to load. Databases NOT listed, which are located in other directories/folders, may also be used by navigating the correct path to locate them.



Following the **Open Navigation Databases** window, another smaller pop-up window will appear giving you the option to choose either add or replace. To Add the selected database to those already loaded, click on **ADD**. To replace a currently loaded database with the selected one, click on **REPLACE**. Click **OK** to complete the operation.

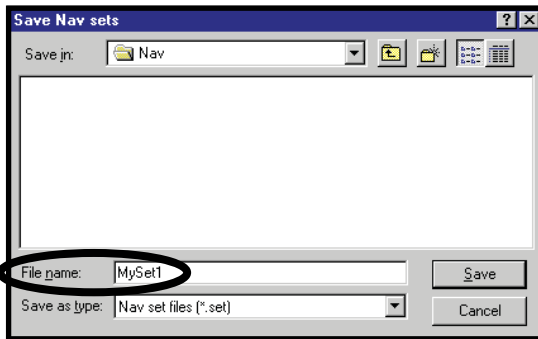


***NOTE:** The last database loaded with the **Load** function is kept in memory and also used at the next startup.*

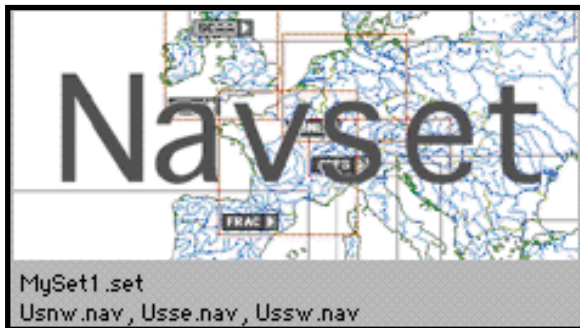
Creating NAVsets:

As stated earlier, multiple NAV databases (regions) can be loaded simultaneously. These databases can then be saved collectively as one custom NAVset. You can save as many custom NAVsets as disk space will allow. Hold down the **CTRL** (Control) key on the keyboard and click

on the **DATABASE LOAD** button to display the following window:



You now may save all currently loaded databases as a NAVset. Type in a name for the NAVset and click **SAVE**. In the example above, we first loaded the USNW, USSE, & USSW database regions, then saved them as one custom NAVset named “MySet1.” This NAVset will now appear with the other available databases and NAVsets at program startup. It will also be available for loading from the **Open Navigation Databases** window described earlier.

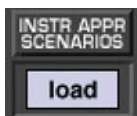


INSTRUMENT APPROACH SCENARIOS (IAS)

The Instrument Approach Scenarios (several add-on regions available) are scripted approach exercises flown in a simulated ATC environment. Each scenario begins with the aircraft at a predetermined altitude and generally positioned 15-20 miles from the IAF (Initial Approach Fix) of the selected approach.

One sample scenario is included with each ELITE package (an ILS approach into Champaign-Urbana, Illinois). The approach plate for this demo scenario can be found in the supplements section at the back of this manual or in the ELITE "Manuals" folder on your computer.

To load an Instrument Approach Scenario simply click on the "INSTR APPR SCENARIOS" load button at the bottom of the MAP Page.



If necessary, open the appropriate IAS folder (EC3, SE3, etc.) for the region you would like to fly in. Select and open the desired Instrument Approach Scenario from those listed. NOTE: A description of each scenario can be viewed (before it is opened) by highlighting any scenario file name with a SINGLE MOUSE CLICK. Follow on-screen dialog box instructions to start scenario.

Important IAS notes:

Make sure to load and/or verify that the appropriate Navigation Database (IASSEC3, IASSE3, etc.) is active before using the Instrument Approach Scenarios. For example, to fly a scenario in the EC3 (Illinois/Wisconsin) IAS package, make sure to load the IASSEC3 database.

The autopilot is ON by default at the start of each scenario. Keep the autopilot ON briefly to let the aircraft stabilize. After the aircraft stabilizes you can continue to fly the scenario utilizing the autopilot or you can disengage the autopilot and fly the aircraft manually.

Approach plates for the Instrument Approach Scenarios can be accessed by clicking on the appropriate approach plate icon on your desktop. The plates are in Adobe Acrobat® format (.pdf) and can be printed for more convenient use.

Whenever the program requires your attention you will hear a series of alert tones. When these tones are heard, direct your attention to the information display area along the top of the screen for more information.

CTRL-R

Press CTRL-R to repeat the last ATC transmission directed at your aircraft. Your aircraft identification throughout the scenarios will always be N054EG. Listen carefully for this call sign and follow ATC's instructions to properly execute the approach.

CTRL-K

Press CTRL-K to acknowledge and/or answer a request from the program. One example of this might be if a controller asks you to "report field in sight." Since there is no way to actually converse with the virtual controllers, CTRL-K is used by the program as a communication trigger. This is similar to a quick double-click of a push-to-talk switch in a real aircraft (sometimes requested by ATC to verify communication).

CTRL-S

Press CTRL-S to **disable** the automatic setting of radios by the virtual instructor (see next section).

Instructor Help:

At the beginning of the each scenario the program will ask if you would like to have the help of an instructor. By answering "yes" to this option you will be inviting a virtual instructor into the cockpit. The virtual instructor will act more like the copilot or PNF (pilot not flying) in these scenarios, setting up essential radios and thus taking some of the workload. The virtual instructor will also provide tips along the way when appropriate which, will be displayed at the top of the screen in the information display area. Always

make sure to stay in the loop and check the inputs of the virtual instructor!

STATE PANEL



The state panel makes it possible to save and load aircraft “state” files. You can think of state files as a way to take a “snapshot” of the aircraft’s state at any given moment in time. When you save a state file the aircraft’s position, altitude, heading, airspeed, etc. are stored along with current avionics settings (frequencies, auto pilot configuration, etc.). In addition, you have the option of storing Navigation, Meteo (weather), and Malfunction data as well. The saved state file can then be loaded at anytime in the future and instantly position the aircraft where it was (with the same settings) when the file was saved. State files are very useful when you want to practice the same approach, procedure, flight, or situation repeatedly. Individual pilots and instructors often create a library of state files, which allow them to conveniently return to a desired “lesson” without having to setup the aircraft again manually.

State files can be saved at any time. Before saving a state file make sure that the aircraft is set up just the way you want it. Once everything is to your liking be sure to name the state file something that will be meaningful now and in the future. A good naming convention is to include an airport identifier or nearby Navaid and brief description such as “ORL ILS RWY 7 Low Ceilings.” Even if you haven’t loaded this file in a while it will be easily identified as the ILS approach into Orlando Executive’s runway 7 (with low ceilings). This is much better than “My first ILS.”

HEADING PANEL

Click in
window for
reciprocal
heading



Aircraft **Heading** can easily be changed with the **MAG HDG** panel. Magnetic heading in degrees is displayed in the window next to the heading adjust knob. To change it, click and drag on the heading adjust knob until the desired value is indicated. Notice the red aircraft symbol on the **MAP** page turns as heading is changed to reflect the actual indicated value. Click in the **Heading** window to instantly get the reciprocal of the displayed value.

ALTITUDE PANEL

Aircraft **Altitude** can easily be changed with the **TRUE ALT** panel. Altitude in feet (MSL) is displayed in the window next to the altitude adjust knob. To change altitude in 10 foot increments, click-and-drag on the altitude adjust knob until the desired value is indicated.



Single-click
for 500 foot
increments

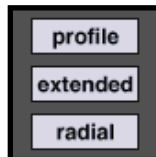
To change altitude in 500 foot increments, first single-click on the altitude adjust knob. The knob will push in. Click and drag on the altitude adjust knob for changes in 500 foot increments. The knob will reset in 5 seconds if there is no activity, or you can click on it a second time to reset it. Upon reset, the knob will pull out to its normal position and revert back to 10 foot increment adjustment.

AIRSPEED PANEL



Aircraft **Airspeed** can easily be changed with the **IAS** panel. Indicated airspeed in knots is displayed in the window next to the airspeed adjust knob. To change it, click and drag on the airspeed adjust knob until the desired value is indicated. Airspeed changes usually require some re-trimming of the aircraft upon switching back to the instrument panel. Set airspeed with attention to the particular aircraft's V-speeds. Speeds appropriate to the desired flight condition should be selected. Keep in mind that it is possible to dial in speeds near or below stall.

PROFILE BUTTON



Clicking the **PROFILE** button brings up the MAP profile. Similar to the profile view on an instrument approach plate, the MAP profile is a side view plot of aircraft altitude and flight path over time. The **PROFILE** button functions as a toggle switch turning the display ON/OFF. The display also contains distance marks corresponding to the DME station selected (when applicable) and shows the nominal glidepath when an ILS station is tuned in.

Profile View Options:



The **MAP profile view** provides several options for

varying display presentation. These options let you tailor the appearance of the profile display allowing for improved flight analysis. The four buttons located at the bottom-right of the MAP profile display control these options.

Glideslope Limits:

The “**G**” (**glideslope limits**) button toggles the glideslope limits overlay ON/OFF. This overlay graphically represents the electronic glideslope signal limits of the specific approach flown. The “**G**” button and glideslope overlay only become available after the proper ILS frequency has been tuned in and the approach begun. Color coding is used to represent course deviation as follows:

Yellow lines = half-scale, Red lines = full-scale

Altitude Grid:

The “**A**” (**altitude grid**) button toggles the altitude grid lines. These lines are used in conjunction with (and are extensions of) the altitude scale markings on the right side of the profile display.

Profile Scroll:

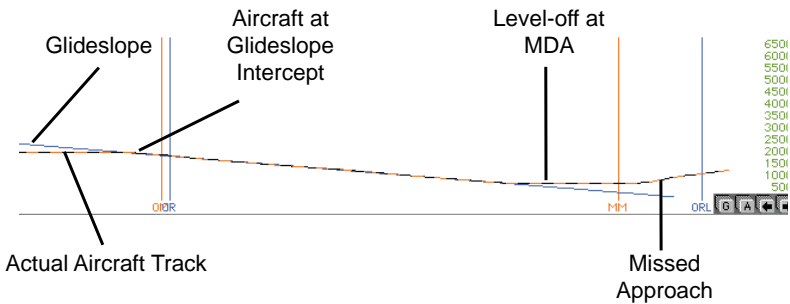
The two **arrow** buttons are used to scroll the profile view left and right respectively, and operate independent of the main MAP view.

In combination with the four buttons pictured above, use the ZOOM functions (previously explained) to get more detailed MAP profile views. While LOW (distant) ZOOM levels are better for viewing the big picture, HIGH (close in) ZOOM levels are good for showing minute flight path and airspeed deviations.

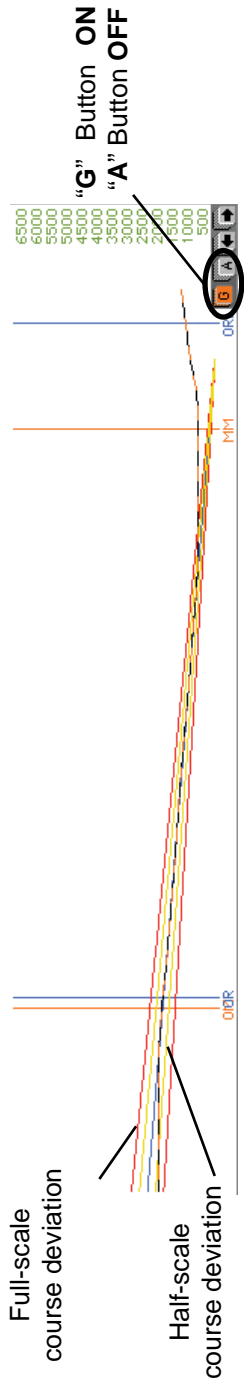
Profile View Examples:

The following example profiles demonstrate several of the different view options described in the previous section. The profile was created flying the ILS RWY 7 approach into

Orlando Executive (ORL) airport. For illustration purposes, the glideslope was tracked to the non-precision Minimum Descent Altitude (MDA) and NOT to Decision Height (DH). A level-off at MDA and subsequent missed approach was started shortly thereafter.



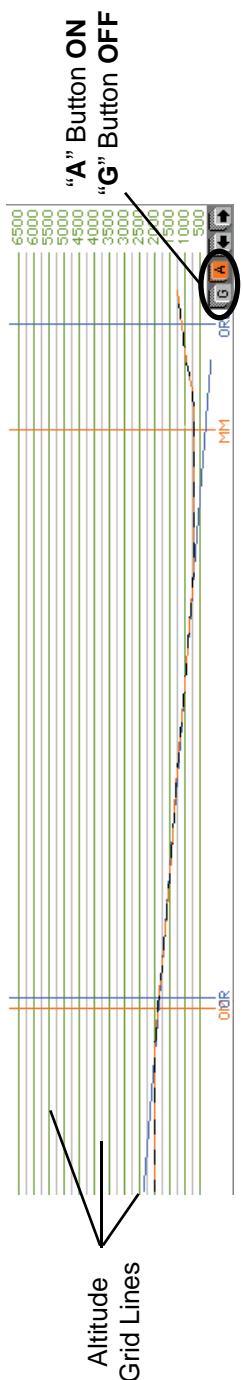
Profile view of ILS RWY 7 approach into Orlando Executive airport.



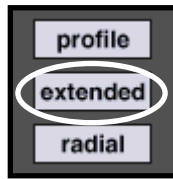
Two more profile views of the ILS RWY 7 approach into Orlando Executive airport.

Top: Profile view with glide slope limits overlay turned ON.

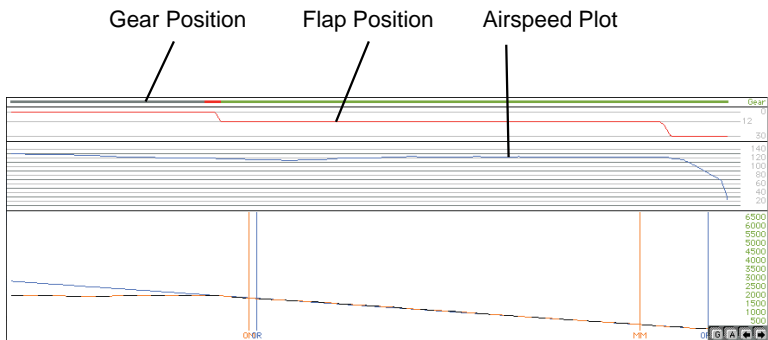
Bottom: Profile view with altitude grid lines turned ON.



Extend Button



Clicking the **EXTENDED** button when the MAP PROFILE is displayed expands the profile view to include airspeed plot as well as gear and flap position graphs. The **EXTENDED** button functions as a toggle switch turning the expanded display ON/OFF. You can also click the **EXTENDED** button first (instead of the **PROFILE** button) to display all four (altitude, airspeed, gear, & flap) profile sections immediately.

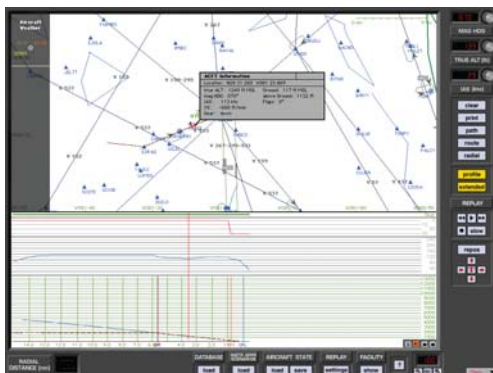


Expanded MAP profile view with **EXTENDED** button.
Notice gear, flap, and airspeed graphs in addition to altitude plot.

ACFT Information

While viewing the MAP profile, even more detailed aircraft information is accessible for any position along the plotted flight path. First verify ELITE is in the **FREEZE** mode and the replay function is not activated. Click and hold the mouse button inside the **profile area** to display detailed information for any position along the plotted flight path. A vertical line appears at the selected location in the profile and positions the red aircraft symbol (on the main MAP

screen) to the place on the aircraft track corresponding to the selected profile location clicked on. Accompanying the red aircraft symbol is the **ACFT Information** box with data on location, altitude, heading, airspeed, vertical speed, gear and flap positions.



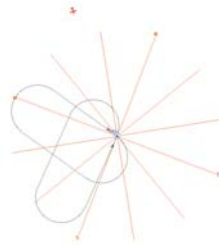
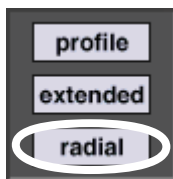
The red aircraft symbol and **ACFT Information** box are displayed as long as the mouse button is held inside the MAP profile.

NOTE: The "ACFT Information" box is not available during flight path replay.

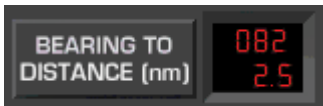
Radial Button

The **Radial** feature allows you to place a compass rose around any FIX or NAVaid facility in the database. Before clicking the **RADIAL** button look at the BEARING TO or RADIAL and DISTANCE windows near the bottom-left of the MAP screen. They should both have dashes in them. Now click the **RADIAL** button then click on any FIX or NAVaid in view on the MAP. ELITE instantly draws a compass rose around the selected FIX or NAVaid. Notice at the same time that the dashes located next to BEARING TO or RADIAL and DISTANCE have been replaced by actual values. Click and drag the red aircraft symbol to different positions and watch the values change in these windows to reflect the actual BEARING TO or RADIAL (from) and DISTANCE

relative to the selected FIX or NAVaid. This feature displays the exact aircraft location relative to the selected FIX or NAVaid and is helpful for quick, easy, and precise aircraft positioning. In addition, simple aircraft orientation can be demonstrated without “flying” or leaving the MAP page. To toggle BEARING TO or RADIAL indication, just click on the value displayed inside the adjacent window. In the example below, the compass rose is visible around the selected (UBG) VOR.



Click inside window to toggle BEARING TO / RADIAL



Virtual Flight Data Recorder



VCR style buttons control playback of the Virtual Flight Data Recorder (VFDR).

Replay:

As you fly, ELITE continuously records your progress with an integrated virtual flight data recorder (VFDR). All recorded flight parameters are accessed via the MAP

page. Flight path and profile, gear/flap position, airspeed, altitude and heading are all shown and available during the course of your flight. This same data can then be used to replay the last 60 minutes of the flight or saved as a "path" file for replay at any point in the future.

Play/Pause Button:

CLICK to START replay. **CLICK** again to PAUSE replay. Replay can begin at any point in the recorded flight path. Select a different Replay start point by moving the red aircraft symbol using the Rewind and Fast-Forward buttons.

Rewind Button:

CLICK-AND-HOLD to move BACKWARD through recorded flight path. **DOUBLE-CLICK** to jump to BEGINNING of recorded flight path.

NOTE: Profile and extended profile data traces will still be plotted from left-to-right even when rewinding.

Fast-Forward Button:

CLICK-AND-HOLD to move FORWARD through recorded flight path. **DOUBLE-CLICK** to jump to END of recorded flight path.

Slow Button:

CLICK to SLOW replay speed.

Stop Button:

CLICK to STOP Replay.

NOTE: The "ACFT Information" box is not available during flight path replay.

Flight With Instruments On Map

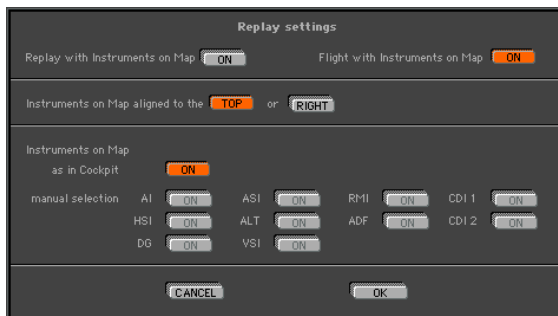
Cockpit instruments can be displayed on the MAP page for real time reference and/or flight path replay and review. Real time instrument display is especially useful

for systems with a “remote” Instructor’s Station that is not in close proximity to the main system. Systems such as those with an enclosure often have the Instructor’s Station physically located outside of the cockpit environment entirely. Installations with a remote Instructor’s Station are common and often purposely designed to prevent the student from “peeking” at the Instructor’s Station monitor (otherwise known as the Instant Situational Awareness Indicator). Such systems require an instructor to have to look some distance over-the-shoulder of the student if he/she wants to observe the instrument presentations. By having the instruments displayed on the MAP page this problem is eliminated. The instructor no longer has to worry about the proximity of the Instructor’s Station to the main system and can easily monitor the flight by concentrating solely on the MAP page.

In addition, both student and instructor can review a recorded flight on the MAP page with an enhanced total picture having the MAP and instrument presentations displayed as the flight is replayed back.

REPLAY feature / REPLAY options button:

The first time the REPLAY feature is used an “Initial settings for Replay functions” dialog box will appear. This box specifically relates to, and is used to define, how the instruments will be displayed on the MAP page.

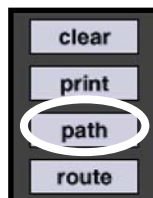


You can control if/when/where/how the instruments are displayed...

Change or modify the initial replay settings as desired. These settings can be changed/modified at any point in the future by simply clicking on the “settings” button at the bottom of the MAP page under REPLAY.



Path Button



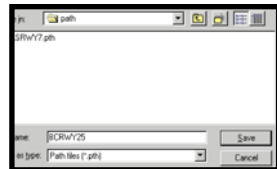
Flight path and associated data recorded by ELITE's VFDR can also be saved in a path file. The number of path files stored is limited only by available disk space. These stored path files can be loaded at any time in the future and then displayed and/or replayed on the MAP page for analysis.

Click the **PATH** button to bring up the following box:

Save:



To **save** the flight path just flown, click the **SAVE** button to bring up the **Save Path files** window. Type a name in the "File name:" box ("BCRWY25" in the example) for the flight path file then click **Save** to complete the operation.



Load:

To **load** a flight path, click the **LOAD** button and select a path from the previously saved paths listed.



Clear:

The **CLEAR** button clears the flight path from the **MAP** page and deletes all associated flight path data from memory.

ROUTE BUTTON



Similar to the flight path files discussed in the preceding section, you may also save a self-created route into a Route file by using the **ROUTE** button. Routes are explained further on in this chapter.

PRINT BUTTON



Clicking the **PRINT** button captures an image of the **MAP** page. Once captured, you can then print the image or save it to disk for viewing later. Set **MAP ZOOM** level and select **PROFILE** as desired to “customize” the **MAP** to your taste before clicking the **PRINT** button.

Print:

To print the **MAP page** click **PRINT** and follow the print dialog boxes specific to your operating system.

Save:

To save the **MAP page** image, click **SAVE** and type a name for the graphic file. The graphic will be saved as a **bitmap** (.bmp) file

HEADING / DISTANCE CURSOR

E6B-style calculations can be displayed using the

TIME / SPEED / DISTANCE feature. To display magnetic track, heading, distance and time from the red aircraft symbol, to any point in the selected NAV database:

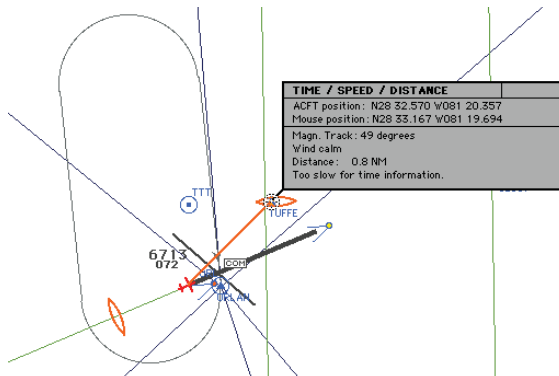
Hold down the **SHIFT** key on the keyboard.

The **TIME / SPEED / DISTANCE** cursor appears

Click and hold anywhere on the Map page. An orange course line representing the desired track from the aircraft symbol to the selected point will appear. In addition, the **TIME / SPEED / DISTANCE** information box appears as shown on the next page.

The upper portion of the **TIME / SPEED / DISTANCE** information box contains the actual location of the aircraft and selected point (mouse position) displayed as coordinates in degrees lat/lon.

The lower portion of the **TIME / SPEED / DISTANCE** information box contains magnetic track, aircraft heading, wind speed/direction, distance, ETA, and groundspeed.

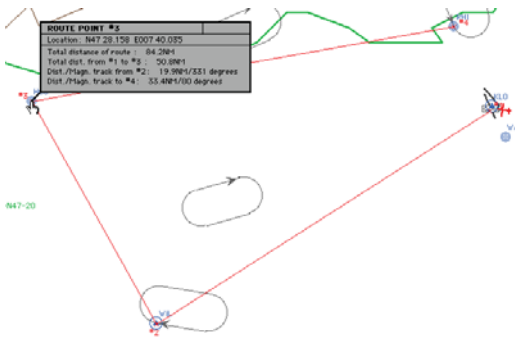


NOTE: Heading shown (course corrected for wind) incorporates wind correction angle (WCA). This is NOT necessarily the aircraft's current heading, but rather the heading required to maintain the desired track across the ground.

Time (ETA) shown is calculated from the aircraft position to the selected point based on groundspeed.

NOTE: Change wind settings on the METEO page to see the effects of different winds on ETA, heading, and groundspeed. You can also observe the effects of differing aircraft speed and/or altitude in a similar manner. Simply change values in the IAS (kts) and True ALT (ft) panels respectively to have the TIME / SPEED / DISTANCE information box figures recalculated.

ROUTE PLANNER



The route planner is a special tool for quick flight planning. Use the keyboard commands described on the next page to design a route.

Add Point:

Push the **CTRL** (control) key on the keyboard and the cursor changes to “add point.” Click on any location from which you will start your route and you get the first route point #1. The next click displays route point #2 and so on, until you release the **CTRL** key. To add a point between existing points, click on the route line itself.

Remove Point:

Push the **CTRL & ALT** keys on the keyboard and the cursor changes to “delete point.” Click on any route point you want to remove from your route and it disappears while

the other route points renumber.

Move Point:

Push the **CTRL & SHIFT** keys on the keyboard and the cursor changes to “move point.” Click on any route point you want to move and drag it with the mouse to another location. Release the mouse button and changes take effect.

Route Info:

Click and hold on individual route points to get route and leg information. Point coordinates, as well as track and distance information are displayed in an accompanying window as long as the mouse button is held down.

SHORTCUTS

To display the **Shortcuts Information** window, click on the “?” button. The **Shortcuts** window will open and display all shortcuts (key combinations that enable certain functions).



SHORTCUTS			
MAP SCREEN:			
Zoom		Route	
I	In	Control + Click	New Point
O	Out	Control + Shift + Click	Move Point
N	Normal view	Control + ALT + Click	Delete Point
ALT + Click/Drag	Zoom In	Control + 'CLEAR'	Delete all Points
ALT + Shift + Click	Zoom Out		
Scroll		HDG/Dist	
Left arrow	Left	Shift + Click	Show time, speed and distance
Right arrow	Right		
Up arrow	Up	Position	
Down arrow	Down	C	Center map to ACFT
		Control + C	Move ACFT to Map center
Custom Zoom			
Control + Click in 'Zoom level window'		Store actual zoom level	
Click in 'Zoom level window'		Set stored zoom level	
Runway			
ALT + 'A' and click on runway		Manually select active runway	
ALT + 'A' and click off runway		Deselect manually selected active runway	
Taxiway			
Click and hold on aircraft / press 'ALT' and drop on runway end		Reposition aircraft on taxiway parallel to runway	
Click and hold on aircraft / press 'Shift' and drop on runway end		Reposition aircraft on taxiway perpendicular to runway	
GENERAL:			
Visual		Control	
T	Look down	ALT + F Freeze	S Slower
D	Look center	ALT + Q Quit	F Faster
B	Look up	ALT + H Help	Engine sound
Shift + Left arrow	Look to left		E On/Off
Shift + Up arrow	Look to front		
Shift + Right arrow	Look to right		
Click the mouse button to continue.			

GenView Specific Shortcuts

Placing aircraft abeam the runway threshold on parallel taxiway:

Click-and-hold on aircraft symbol / press ALT and “drop” aircraft on runway threshold.

Placing aircraft perpendicular to runway threshold in a “hold short” position on taxiway:

Click-and-hold on aircraft symbol / press SHIFT and “drop” aircraft on runway threshold.

Manual selection of “active” runway toggle:

An active runway is normally selected automatically by the software based on aircraft orientation and distance from a given runway. Once the active runway has been determined, runway lights are turned ON for that runway. You can however override this automatic selection by manually selecting the active runway following the procedure below.

Press ALT-A to engage or disengage mode. Once engaged, enables you to manually select ELITE's “active” runway by clicking on the threshold of desired runway (runway color changes to green to identify that it is active). You can change your selection as many times as you like while the manual selection mode is engaged. Manual selection mode will stay engaged until ALT-A is pressed again. Only one runway at a time can be “active.” To deselect a manually selected active runway press ALT-A (if not already in manual selection mode) and click anywhere on the MAP page NOT occupied by a runway.

Summary:

1. ALT-A to engage manual selection mode
2. Click on runway threshold as desired to make “active”

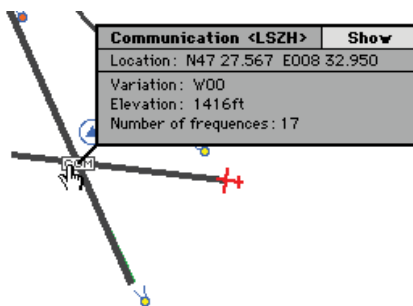
3. Change runway selection as desired
4. Deselect by clicking anywhere off the selected runway
5. ALT-A to disengage manual selection mode

Airport Frequency Information

COMM (communication) & NAV (navigation) frequencies for associated airports and NAV facilities are in the database. As described earlier in the chapter, the **MAP page** also functions as a virtual A/FD (airport/facility directory). Click and hold on the **COM** symbol in the center of the runway complex. A **Communication** box will come up displaying information and number of frequencies available at this airport.

Frequency Column:

While holding down the mouse button, move the cursor to the **SHOW** corner located at the top-right of the **Communication** box. All frequency information available for the airport will be displayed as shown below.



Following is some of the information that may appear in the Frequency Information display.

- ACC Area Control Center
- ACP Airlift Command Post
- APP Approach Control

ARR	Arrival Control
ATI	Automatic Terminal Info. Service (ATIS)
AWO	Automatic Weather Observing Station (AWOS)
CLD	Clearance Delivery
CPT	Clearance Pre-Taxi
CTL	Control
DEP	Departure Control
DIR	Director (Approach Control/Radar)
EMR	Emergency
FSS	Flight Service Station
GND	Ground Control
GTE	Gate Control
HEL	Helicopter Frequency
INF	Information
MUL	Multicom
ODP	Parametres (French Radio)
OPS	Operations
RDO	Radio
RDR	Radar Only Frequency
RFS	Remote Flight Service Station (RFSS)
RMP	Ramp / Taxi Control
RSA	Airport Radar Service Area (ARSA)
TCA	Terminal Control Area
TRS	Terminal Radar Service Area (TRSA)
TWE	Transcribed Weather Broadcast (TWEB)
TWR	Air Traffic Control Tower

- UAC Upper Area Control Center
- UNI Unicom
- VOL VOLMET
- I think

FREQ	12GRH	CALLSIGN
APP 125.32		R N ZURICH FINAL
APP 127.75		R Y ZURICH TERMINAL
ARR 118.00		R Y ZURICH
ARR 119.70		R Y ZURICH
ARR 120.75		R Y ZURICH
ARR 127.75		R Y ZURICH
ATI 128.52	T	N
CPT 121.80		Y ZURICH DELIVERY
DEP 125.95		R Y ZURICH
DEP 127.75		R Y ZURICH
GND 118.10		Y ZURICH
GND 119.70		Y ZURICH
GND 121.90		Y ZURICH
RMP 121.75		N ZURICH APRON
TWR 118.10		Y ZURICH
TWR 119.70		Y ZURICH
TWR 127.75		Y ZURICH

Column 1:

The following characters may appear in Column 1.

- A Airport Advisory Service
- C Community Aerodrome Radio Station (CARS)
- D Departure Service
- F Flight Information Service (FIS)
- I Initial Contact (IC)
- L Arrival Service
- S Aerodrome Flight Information Service (AFIS)
- T Terminal Control Area

Column 2:

The following characters may appear in Column 2.

- A Air / Ground

G	Remote Communications Air to Ground (RCAG)
L	Language other than English
M	Military Frequency
P	Pilot Controlled Lighting (Air / Ground)
R	Remote Communications Outlet (RCO)

Column G:

The following characters may appear in Column G.

G	Guard
T	Transmit
< >	Both (blank)

Column R:

This column indicates if radar service is available:

R	Yes
N	No

Column H:

Indicates if 24 hours service is available.

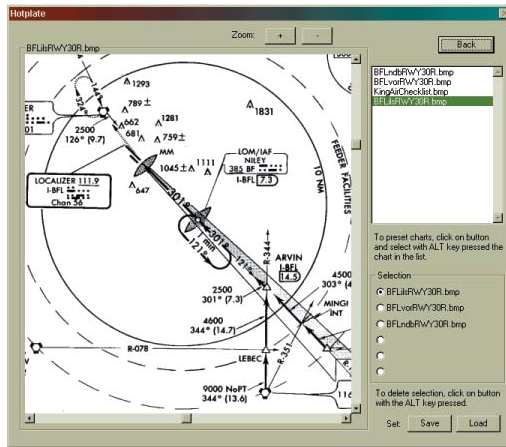
Y	Yes
N	No

HOTPLATES

HotPlates™ is a handy feature that allows you to view an approach plate any time you are in the INSTRUMENT (cockpit) Screen.

Press the “P” (plates) key on your keyboard to bring up the HotPlates viewer. The first thing you will notice is the large main window on the left. This viewing window can be ZOOMed using the +/- buttons located at the top of the viewer or scrolled using the horizontal and vertical scroll bars to focus in on a specific area of a chart. For faster

(and easier) chart repositioning, click-and-drag anywhere in the main window. You will see the finger cursor change to a closed hand that grabs the chart for easy moving.



The window to the upper-right displays the contents of the “Plates” folder. Approach plates must be stored in this folder to be viewed with the HotPlates viewer. In addition to approach plates, other items such as check-lists can be placed in this folder for viewing. Three approach plates are included with ELITE. These are the plates for the three “sample” Instrument Approach Scenarios at Bakersfield, California. To select a plate for viewing choose one from those listed and click on it.

As you build your approach plate library you may find it difficult to keep your charts organized due to the number of files in the Plates folder. The HotPlates viewer has a simple way to reorganize your plates into logical “sets.” A set is a grouping of six files (maximum) that can be loaded for use as needed. Once loaded, the files are placed in the **Selection** box for convenient access. To create a plate set click on one of the six “radio” buttons located at the bottom-right of the HotPlates viewer. Hold down the **ALT** key on your keyboard and select a file from those listed

above. The selection will appear next to the selected radio button. Repeat these steps to add files (plates) to the set as desired. Files can be assigned to the radio buttons in any order. To remove a selection from a radio button at any time just hold down the **ALT** key again and click on the desired radio button.

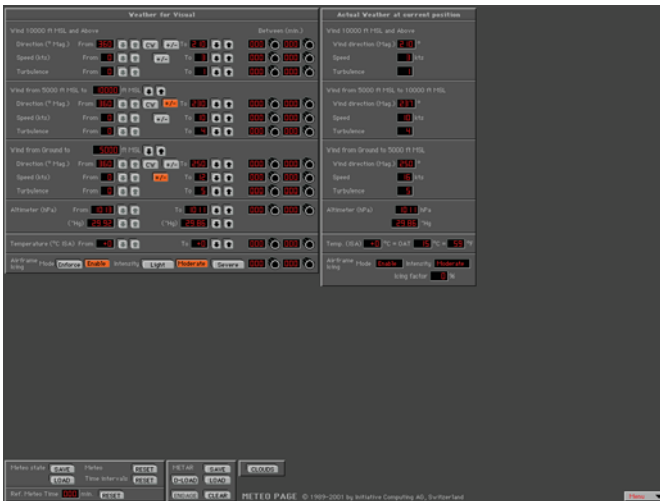
When you have created a set and are happy with it click on the Set **Save** button. In the **Save plate set** dialog box, type in a unique name for the set next to **File name:** such as “Bakersfield” and click **Save**. Now any time you want to bring up that (or any other) set click on the Set **Load** button. Select a set from those listed in the **Load plate set** dialog box and click **Open**.

Any file formatted as described below and placed in the **Plates** folder will be available for display in the HotPlates viewer. Files must be in bitmap (.bmp) format to be viewed by the HotPlates viewer. In general, files with a resolution of 144dpi (dots per inch) tend to look good in the HotPlates viewer although some experimentation may be necessary to achieve best results.

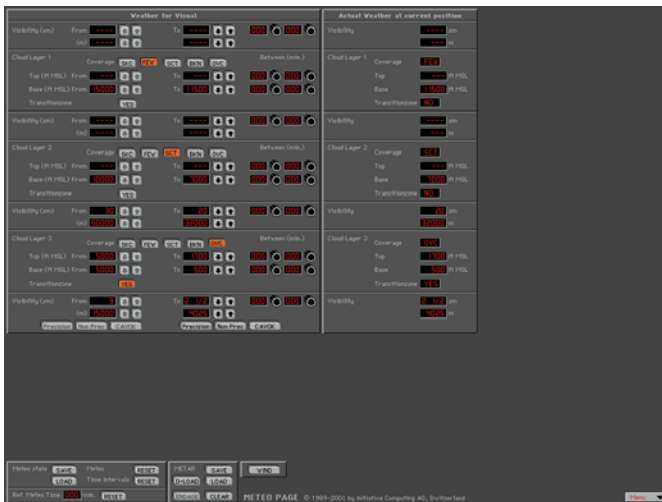
Remember, in addition to approach charts, you can place items such as checklists in the **Plates** folder. Create your own on-demand quick reference cards, lesson plans, performance spec data, or simply notes that you would like to be able to access at any point in a flight.

Although we strongly recommend having the actual (paper) charts available when flying ELITE (just as you would in the aircraft), HotPlates provides an additional means of quickly referencing and organizing your charts for easy access.

METEO PAGE



METEO Wind Page



METEO Clouds Page

“HELP Tips” are available anytime by pressing ALT-H. Move the help cursor (?) over any on-screen item that you would like more information about. When the help cursor reveals its document icon help is available for that item. Simply click on the item to display related help tips.

The **METEO** (meteorological) **page** is used to create the weather environment in ELITE. Parameters such as visibility, ceiling, wind, turbulence, pressure and temperature can be set and changed as desired to tailor the weather to meet your specific training requirements.

It's advisable to practice procedures *without* "weather" initially so as to gain a degree of proficiency in their execution. Then, progressively increase the level of difficulty by adding weather to these same procedures. One example might be to practice holding without wind at first, then add winds and turbulence as you begin feeling more comfortable. This way it's easier to visualize the big picture first (without wind) and grasp the essence of the procedure. After a while you'll be shooting approaches to minimums and practicing holds in strong winds and turbulence without a problem.

The **METEO page** is extremely flexible and provides an opportunity for an almost infinite amount of weather possibilities. Please feel free to experiment.

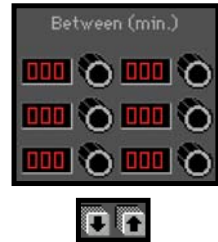
GENERAL LAYOUT (GENVIEW)

The METEO page is rather comprehensive and might look a bit intimidating at first glance. Actually, it is set up quite logically and is easy to use once you understand its layout. The METEO Page is actually two separate pages, the "CLOUDS" Page, and the "WIND" Page. Both pages are set up in the same format left-to-right with "From" weather, "To" weather, and "Actual" weather respectively. The CLOUDS Page is set up top-to-bottom as Layer 1 (top layer) Cloud and Visibility, Layer 2 (mid layer) Cloud and Visibility, and Layer 3 (bottom layer) Cloud and Visibility respectively. The WIND page is set up top-to-bottom as Wind (top layer), Wind (mid layer), Wind (bottom layer), Altimeter setting, Temperature, and Structural Icing respectively. We will examine each of these elements in greater detail in upcoming sections. To get from one page

to the other simply click on CLOUDS or WIND as applicable near the bottom of the current page.

Dynamic WX

In addition to setting static (unchanging) weather conditions, the METEO page also allows you to create dynamic (changing) weather conditions. Dynamic weather is set up by first specifying a time period within which these changes will occur by dialing in values (minutes) in each of the windows under the corresponding "Between" column. This is the dynamic weather time interval and determines both when and over what period of time the weather conditions will change. Next, define the conditions that will exist at the beginning (the "From" weather) and end (the "To" weather) of the specified period of time. To set the initial "From" weather simply click on the appropriate UP and DOWN arrow buttons to adjust the value of the desired weather parameter(s). Repeat this in the same way to set the "To" parameters. It is important to remember that the intensity or rate-of-change of the weather is also controlled by the procedure described in the previous section. For example, large parameter variances in relatively short time intervals produce rapidly changing weather as opposed to small parameter variances over longer time intervals.



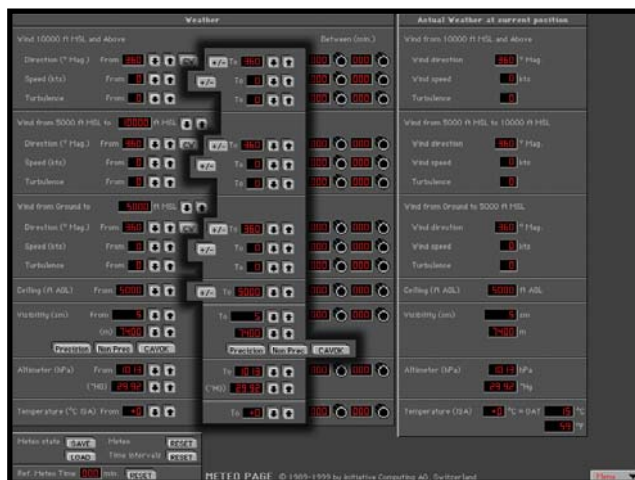
NOTE: "From" column UP/DOWN buttons will remain grayed-out (not active) until a dynamic weather time interval is entered.

Actual Weather Column

The "Actual" weather column at the far-right of the METEO page displays the current actual weather parameter values and cannot be adjusted. Think of it as a "snapshot" of the weather conditions at the current location and time. This is especially useful if dynamic weather has been set

up and you would like to see the exact current conditions change over the time period specified. In addition, this column can be referenced when Active METAR data is engaged, as it will reflect weather changes over time and location. As both dynamic and static weather are reflected, it is easy to get a quick picture of the weather with just a glance.

Actual Weather at current position	
Wind from 4500 ft HSL and Above	
Wind direction	040 ° Mag.
Wind speed	16 kts
Turbulence	4
Wind from 1500 ft HSL to 4500 ft HSL	
Wind direction	050 ° Mag.
Wind speed	8 kts
Turbulence	2
Wind from Ground to 1500 ft HSL	
Wind direction	050 ° Mag.
Wind speed	8 kts
Turbulence	1
Ceiling (ft AGL)	300 ft AGL
Visibility (sm)	3 sm
	1825 m
Altimeter (hPa)	1014 hPa
	29.96 "Hg
Temperature (ISA)	+5 °C = OAT
	41 °F



Static Weather

To set **static** (unchanging) weather use the “To” weather column **ONLY** and do NOT set in a time interval. If a time interval is set then the “From” weather automatically becomes the current weather.

NOTE: Remember, it is possible to use any combination of static and dynamic weather settings.

Wind



There are three wind layers in the ELITE weather environment. Each wind layer can have its own characteristics and are all configured in the same way on the **METEO page** utilizing identical control panels. Wind layers can NOT be less than 200 feet thick. The thickness of each layer is defined by the values entered on the panels. Note that the top of the bottom wind layer is also the base of the mid wind layer. The top of the mid wind layer is also the base of the top wind layer.

TRANSITION ZONES

GenView

Transition Zones are available for each of the three Cloud Layers and can only be selected when overcast (OVC) coverage is in use. A Transition Zone creates a gradual visual transition to and from the cloud conditions existing above or below the layer where it is used and is noticeable only when climbing or descending into, or out of, the overcast layer it is associated with.



Standard View

There are two inherent “transition zones” each 100 feet thick between the top/mid layers and the mid/bottom layers respectively. These transition zones comprise the last 50 feet of each layer (the lowest part of the higher layer and the highest part of the lower layer). Depending on the parameters set in each of the wind layers you may experience some turbulence and changing conditions when transitioning through these shear zones.



WIND DIRECTION

Wind direction is always **MAGNETIC** and can be set in 10° increments by clicking the UP and DOWN arrow buttons. To make the wind direction variable (with respect to the selected direction) simply press the +/- button. When setting up dynamic (changing) winds it is possible to have the winds change in a clockwise or counter clockwise manner. The CW (clockwise) button is a toggle switch that when depressed will change to CCW (counter clockwise). Simply leave this button up (unselected) for clockwise rotation of the changing winds or down (selected) for counter clockwise rotation.



WIND SPEED

Wind speed in knots (0-60) is set by clicking the UP and DOWN arrow buttons. To make the wind speed variable simply press the +/- button.

TURBULENCE

Turbulence level 1(light) through 12(extreme) is set by clicking the UP and DOWN arrow buttons. Separate turbulence levels can be set for each of the three

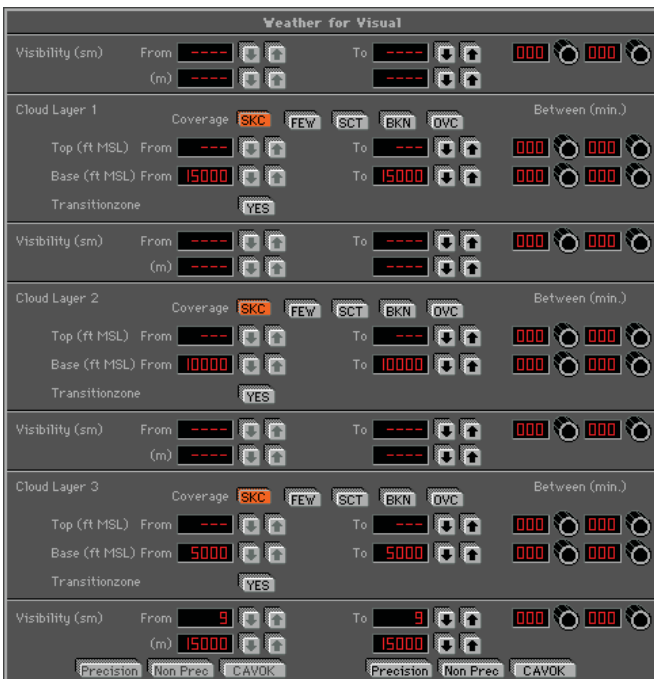
corresponding Wind Layers.

CEILING (STANDARD VIEW)



Ceiling in feet **Above Ground Level** is set by clicking the UP and DOWN arrow buttons. To make the ceiling variable (with respect to the selected height) simply press the +/- button.

VISIBILITY (GENVIEW)



Above Cloud Layer 1:

Select visibility using UP/DOWN arrows as desired.

NOTE: Visibility can only be adjusted if cloud layer 1 coverage is set to OVERCAST.

With an OVERCAST layer programmed, selected visibility will become the controlling visibility above the

TOP of the OVERCAST up to FL400 (40,000ft). If no layer 1 OVERCAST is programmed, visibility adjustment is disabled and the visibility setting associated with next lowest OVERCAST layer will control visibility. If no lower OVERCAST layer is programmed, then “surface” visibility will be the controlling visibility for all altitudes from the surface up to FL400 (40,000ft).

Cloud Layers 2 and 3:

Select visibility using UP/DOWN arrows as desired.

NOTE: Visibility can only be adjusted if cloud coverage is set to OVERCAST.

With an OVERCAST layer programmed, selected visibility will become the controlling visibility above the TOP of the OVERCAST up to the next highest OVERCAST layer programmed. This then becomes the visibility between the OVERCAST layers. If no higher OVERCAST layer is programmed, then the selected visibility will become the controlling visibility for all altitudes from the TOP of the OVERCAST up to FL400 (40,000ft).

If no OVERCAST is programmed at the current layer, visibility adjustment is disabled and the visibility setting associated with the next lowest OVERCAST layer will control visibility. If no lower OVERCAST layer is programmed, then “surface” visibility will be the controlling visibility for all altitudes from the surface up to the next highest OVERCAST layer programmed. If no higher OVERCAST layer is programmed, this will be the controlling visibility for all altitudes from the surface up to FL400 (40,000ft).

Surface:

Select visibility using UP/DOWN arrows or preset buttons as desired. Preset buttons have the following corresponding visibility values:

Precision = 1/2 statute mile

Non Precision = 1 statute mile

CAVOK (Ceiling/Visibility OK) = 30 statute miles

*NOTE: CAVOK by definition also indicates (in part) that no clouds or precipitation exist below 5,000ft. Pressing the CAVOK button in **ELITE** with Cloud Layer 3 Base set to \leq (less than or equal to) 5100ft MSL will also set cloud coverage to Sky Clear (SKC) in addition to changing visibility to 30 statute miles.*

Preset buttons can be used to “jump” quickly to 1/2, 1, and 30 statute mile values respectively and then further adjusted as desired.

Visibility value selected will become the visibility from the surface up to the next highest OVERCAST (OVC) cloud layer programmed. If no OVERCAST layer is programmed, this will be the controlling visibility for all altitudes from the surface up to FL400 (40,000ft).

CLOUDS (GENVIEW)

The CLOUDS Page has three Cloud/Visibility layers. Layer 1 (top), Layer 2 (mid), and Layer 3 (bottom) respectively. Select cloud coverage for each layer as desired by pressing any one of the buttons corresponding to the following :

SKC	Sky Clear
FEW	1/8 cloud coverage
SCT	2/8 to 4/8 cloud coverage
BKN	5/8 to 7/8 cloud coverage
OVC	8/8 cloud coverage

Cloud bases can also be defined by pressing the corresponding UP/DOWN buttons. Tops can only be specified for an overcast (OVC) layer.

VISIBILITY (STANDARD VIEW)



Visibility in **Statute Miles** and/or Meters can be set by clicking the appropriate UP and DOWN arrow buttons. In addition, there are three combination visibility/ceiling presets that allow you to quickly choose Precision, Non-Precision, or CAVOK minimums respectively. Once selected, these preset values can then be further adjusted as necessary. These preset minimums are as follows:

Precision:

200ft. (ceiling),

1/2 Mile (visibility)

Non-Precision:

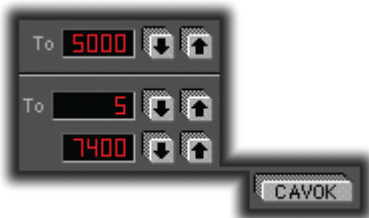
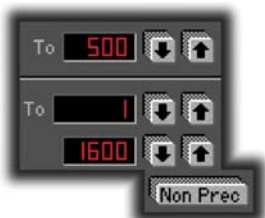
500ft. (ceiling),

1 Mile (visibility)

CAVOK:

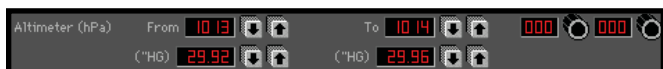
5000ft. (ceiling),

5 Miles (visibility)



ALTIMETER

Altimeter setting in hectoPascals (same as millibars) and/or inches of mercury can be set by clicking the appropriate UP and DOWN arrow buttons.



NOTE: By creating a dynamic (changing) pressure over time scenario it is easy to demonstrate the "Going from

a HIGH to a LOW lookout below” adage. This is great for instructors who want to make sure their students always perform a thorough approach briefing (checking the ATIS etc.). Simply set your “To” Altimeter value lower than your “From” Altimeter value, then set in a time interval for the pressure change to take place. As the pressure drops, the student will have to descend to maintain indicated altitude. If the student doesn't ask you for the local altimeter setting or tune in the ATIS, he/she will get a big surprise on the approach.

TEMPERATURE



Temperature in degrees Celsius can be adjusted by clicking the UP and DOWN arrow buttons. Note that this is NOT setting the temperature directly but is actually adding to or subtracting from the ISA (International Standard Atmosphere) values. If your performance tables call for an ISA + or - (X°) day simply dial in X° to increase or decrease the OAT temperature by X° amount.

At the lower-left of the **METEO Page** you will find a grouping of functions that are applicable to the entire **METEO Page** as opposed to the control of *individual* weather parameters described previously. These functions are described in further detail starting with the section on “Saving and Loading METEO Files.”

STRUCTURAL ICING

All instrument pilots are familiar with the dangers of icing and the coincident degradation of aircraft performance associated with the accretion of ice on an aircraft. Various insidious aspects of icing can creep into an otherwise “normal” flight and make for a really bad day. Increased weight, alteration of airfoil shape and disruption of airflow to name just a few, can often yield unpredictable flight

characteristics at best. At worst, these elements can conspire to become catastrophic.

Like most things in life, preparation is probably the most important part of success. Aviation is no different. Proper training, pre-flight planning (you did check the icing forecasts and PIREPs right?) and overall forethought are your best course for a successful, non-eventful trip. Preparation also refers to the act of being prepared for something that may occur during a flight. This is where “staying ahead of the airplane” comes in. As Rod Machado says, “the two most important things in aviation are the next two.” If conditions are ripe for icing then be on alert for subtle performance changes and/or indications that may be symptomatic of icing.

The goal of any simulation is to sharpen your “situational” awareness. This is not only geographic (positional) awareness but “how are things going” awareness. ELITE’s intent is not to prepare you for how to exactly react to an icing “encounter” (that is best learned from the POH, aircraft manufacturer, & experience) but rather to enhance your ability to recognize that “something is not quite right” feeling and thus get you thinking. Your ability to properly analyze and successfully resolve a problem is greatly improved by quick recognition in the first place. Time and altitude are precious. In other words, don’t be caught cruising along “fat, dumb, and happy.” With a good scan, and knowledge of what indications should be normal/abnormal, the degradation of aircraft performance associated with icing should be readily apparent. Always stay ahead of the airplane and maintain a constant self-dialogue. If you notice an abnormality or something doesn’t feel quite right then try and maintain focus.

* Recognize...

* Analyze...

* Solve...

Always be aware of the “symptoms” of icing.

Icing can be implemented in two different ways.



1. Press “Enforce” and choose an intensity level (Light, Moderate, Severe) to activate icing regardless of OAT or visible moisture present. This can be used by an instructor for example to demonstrate the affects of icing on aircraft performance at any time.
2. Press “Enable” and choose an intensity level (Light, Moderate, Severe) to activate temperature/moisture dependent icing. Ice will begin forming at the intensity chosen anytime the aircraft is in visible moisture and at a temperature of approximately 32 degrees Fahrenheit and lower. For the purposes of the simulation, visible moisture is defined as 1/4 statute mile visibility and less, or flying in an overcast (OVC) layer.

With either icing implementation, intensity levels affect “icing factor” in the following ways:



Light: icing factor goes up to 50% in 60 minutes

Moderate: icing factor goes up to 100% in 20 minutes

Severe: icing factor goes up to 100% in 10 minutes

Icing factor is defined as a decrease in lift, an increase in

drag, and an increase in weight.

Icing factor: 100% = 50% less lift / 40% more drag / 20% more weight

Notice that Pitot Tube icing is NOT part of the icing factor equation. Pitot Tube icing is actually controlled separately on the MALFUNCTIONS Page. This separation of control is intentional. Although Pitot Tube icing is often coincident with structural icing, structural icing can be subtler to reveal itself (initially). In most instances the onset of Pitot Tube icing is more apparent and thus more easily recognizable. One form of Pitot Tube icing is readily identified by a rather quick loss of airspeed indication. Airframe icing MAY be a bit harder to detect initially depending on accretion rate, icing type, etc.

NOTE: Active METAR does NOT modify the chosen Icing Settings. You still have to ENABLE or ENFORCE Icing manually.

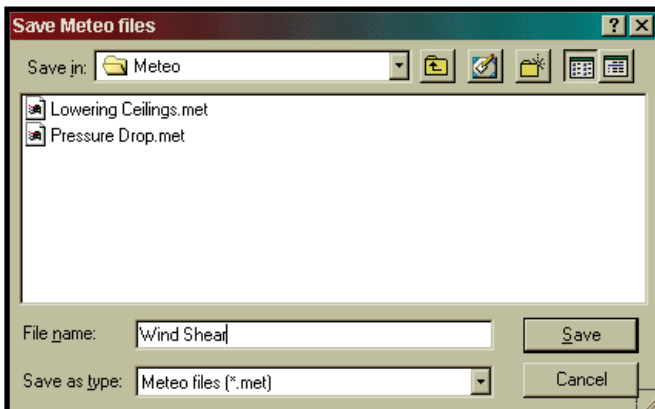
SAVING & LOADING METEO FILES

The **SAVE** and **LOAD** buttons next to **Meteo state** are extremely powerful. Let's say you have set up a weather scenario on the **METEO Page**. You get it just exactly the way you want it with all the parameters set, but you would also like to save this Meteo "state" for future use. Simply click on the **SAVE** button to open the **Save Meteo files** dialog box.



Type a name in the "File name:" box then click **S**ave to complete the operation. To load this Meteo state (or any other) in the future, just click on the **L**OAD button to open the **O**pen Meteo files dialog box. Select a Meteo state from those listed (previously saved) and click **O**pen. This

feature allows you to create an unlimited library of Meteo states that can be recalled almost instantly.



The two **RESET** buttons provide a quick way to “zero-out” the **METEO Page**. The **Meteo** RESET returns all parameter settings to zero where applicable, sets the Ceiling/Visibility to CAVOK, and sets the Altimeter/Temperature to standard. The **Time Intervals** RESET clears all the time interval settings used for dynamic weather. The **Ref. Meteo Time** RESET button sets the Reference Meteo Time back to zero minutes. This is used in conjunction with the interval settings to control dynamic weather as explained next.



REFERENCE METEO TIME

The **Reference Meteo Time** is simply an elapsed time counter that runs as the aircraft is flown. The dynamic weather time intervals discussed previously use this time to determine when to begin changing the weather as set up by the “From” and “To” parameters. If for example you set the bottom layer winds to increase between 005 and 015 minutes and the ceiling to lower between 010 and 020 minutes, these changes will not begin to take affect until the Reference Meteo Time reaches 005 minutes. At 005 minutes the bottom layer winds will begin increasing

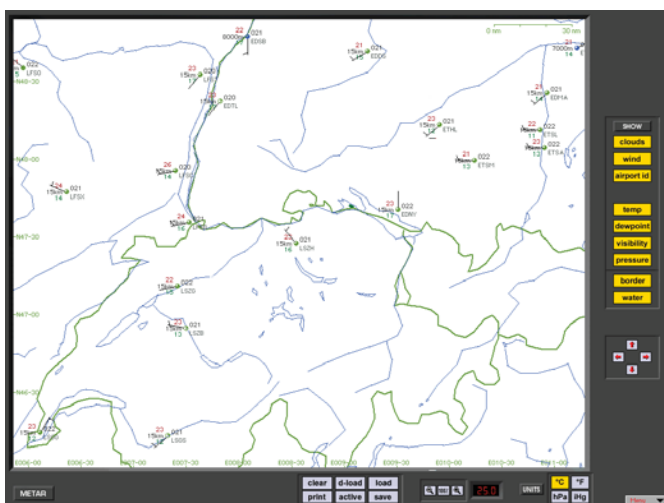
(and continue increasing) until 015 minutes where the “To” parameter values will have been reached. Five minutes after the bottom layer winds begin to increase (010 minutes) the ceiling begins to lower and will continue to lower until 020 minutes. Weather parameters that do NOT have a time interval set (static weather) remain constant.



Ref. Meteo Time 000 min. RESET

The **Reference Meteo Time** can be **RESET** back to zero at any time in the flight. This will allow dynamic weather scenarios to be easily repeated. One important point to keep in mind is that if you have been flying a given sim session for an extended period of time, then set up some dynamic weather, make sure to either RESET the Reference Meteo Time or set time intervals in the future. If the time intervals set are before the Reference Meteo Time then the changes will never occur.

METAR PAGE



METAR Page

“HELP Tips” are available anytime by pressing ALT-H. Move the help cursor (?) over any on-screen item that you would like more information about. When the help cursor reveals its document icon help is available for that item. Simply click on the item to display related help tips.

ACTIVE METAR

Active METAR means that you can download real-time weather conditions from METAR reporting stations for use in ELITE. When METAR weather is “engaged” (activated) the weather dynamically changes when flying between METAR reporting stations and over the time span covered by the METAR reports. Sky conditions, visibility, wind speed, wind direction and turbulence are accurately integrated into the simulation from these reports.

METAR weather conditions represent the actual weather derived from the local airport stations. Although ELITE calculates precise cloud coverage, ELITE can not represent a specific cloud type such as Cumulus or Nimbostratus. If the downloaded METAR readout of a visibility is ‘9999’, ELITE will set a

value between 10 km and 30 km, otherwise it will take the reported value such as i.e. 24 km or 15 sm.

WIND AND GUSTS

ELITE calculates the weather between the METAR conditions received by the Aircraft. If the wind is 270° and the next available METAR station reads 260°, ELITE will constantly update the wind from 270° to 269, 268, 267 etc. until reaching 260°. The same appears for all other values such as wind speed, cloud coverage, temperature, dew point, visibility and QNH/ALT. The symbols used in the METAR page are ICAO standard. When gusts are reported, ELITE will set the appropriate wind speed and turbulence to level 2 for a short period.

USING THE METAR PAGE

Open the METAR page through the menu bar in the lower right corner or type 'alt & R' on your keyboard.

NOTE: Active METAR is only available with GenView™ visual databases.

Once in the METAR page, you have the choice of selecting existing METAR conditions which have been previously downloaded from the Internet or you can download current METAR conditions online through the use of the **D-LOAD** function.

USING EXISTING METAR DATA

1. Press the **LOAD** button on the METAR page to open existing METAR files previously saved to your hard drive.



2. From the directory list select the METAR file. (i.e. 05Z.TXT) 05Z means zulu time, 434.5Kb is the size of the file and May 29

08:07 represents the date and time the file was downloaded. To select a different path from the directory list, use the **UP** button to browse to a higher directory level.

3. To select the file, highlight the time and click **OPEN** or double click the file.



4. As METARs are updated very frequently and have only the zulu time, you have to 'link' your selection to a specific date. Click the **OK** button to continue.



5. To activate the METAR conditions, click the **ENGAGE** button in the METAR Page.



6. When you are flying, you can check the actual Weather at current position on the METEO page.
7. Once the METAR is active, all other weather conditions previously selected on the METEO page are inactive. To de-activate the METAR conditions, press **ENGAGE** and it will turn from yellow to gray.

Actual Weather at current position	
Wind 10000 ft MSL and Above	
Wind direction (Mag.)	360 °
Speed	0 kts
Turbulence	0
Wind from 5000 ft MSL to 10000 ft MSL	
Wind direction (Mag.)	360 °
Speed	0 kts
Turbulence	0
Wind from Ground to 5000 ft MSL	
Wind direction (Mag.)	360 °
Speed	0 kts
Turbulence	0
QNH (hPa)	10.13 hPa
	29.92 "Hg
Temperature (ISA)	+0 °C = OAT
	12 °C
	54 °F

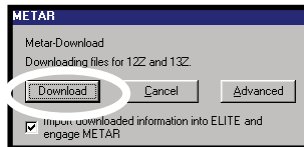
DOWNLOADING METAR FILES

Basic Method (Recommended):

1. Press the **D-LOAD** button on the METAR or METEO page.

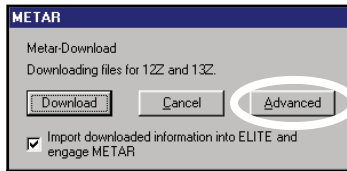


2. Press **Download** button on the METAR dialog box to begin download. METAR reports will be downloaded and engaged automatically.

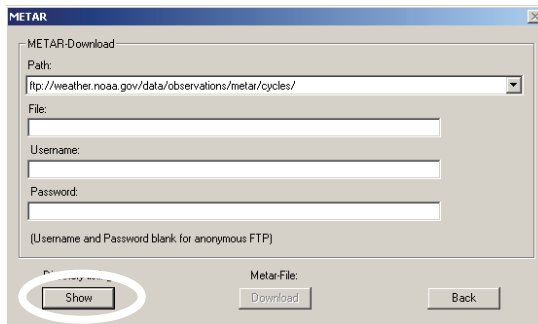


Advanced Method:

Press **Advanced** button and follow the procedure below for manual selection of METAR files as desired.



1. Press the **SHOW** button for the Directory listing. The METAR-Download page has a default internet addresses ready. This will connect you to the Internet.

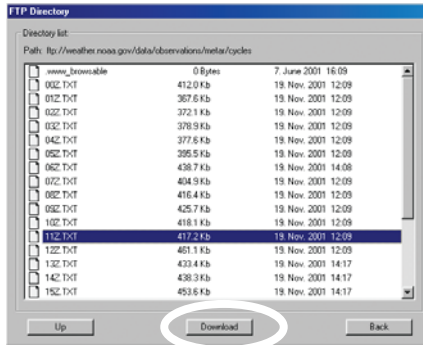


2. Select a file you wish to download, i.e. 1300Z (1300Z represents the UTC time of the report)

NOTE: Downloading METAR data from the Internet requires a currently active Internet connection.

NOTE: METAR files cover the entire world.

3. Click the METAR-File **Download** button to start the download process. Click **SAVE** to put the file into your METAR folder.

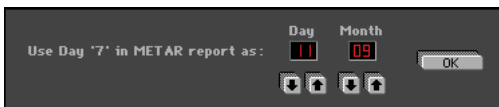


- Once the download process has finished, click the **BACK** button to leave this menu.
- In the METAR or METEO Page, press the **LOAD** button to select the file from the directory list you downloaded.



NOTE: *ELITE* will only open the METAR files corresponding to your installed GenView Navigation data.

- Once the file is selected, click the **BACK** button to leave the directory list.
- METAR reports are updated frequently and correspond to specific UTC times and dates. These reports however can be linked to any specific date. To 'link' your selection to a specific date choose the date and click the **OK** button to continue.

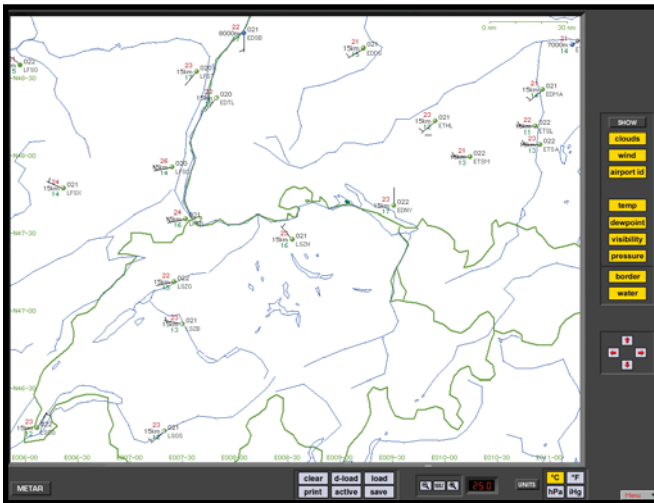


- To activate the METAR conditions, click the **ENGAGE** button on the METAR page. To view the current weather, change to the METEO

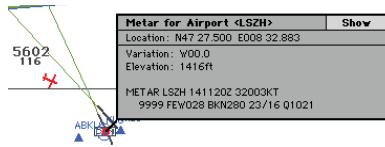
Page while unfreezing the simulation.



All METAR stations are graphically depicted on a map overlay on the METAR page. Symbols in red indicate METAR stations under IFR conditions with a ceiling below 1,000 ft and/or visibility less than 3 miles. Blue indicates stations under MVFR conditions with a ceiling 1,000 to 3,000 ft and/or visibility 3 to 5 miles. Green indicates stations under VFR conditions with ceiling greater than 3,000 ft and visibility greater than 5 miles.

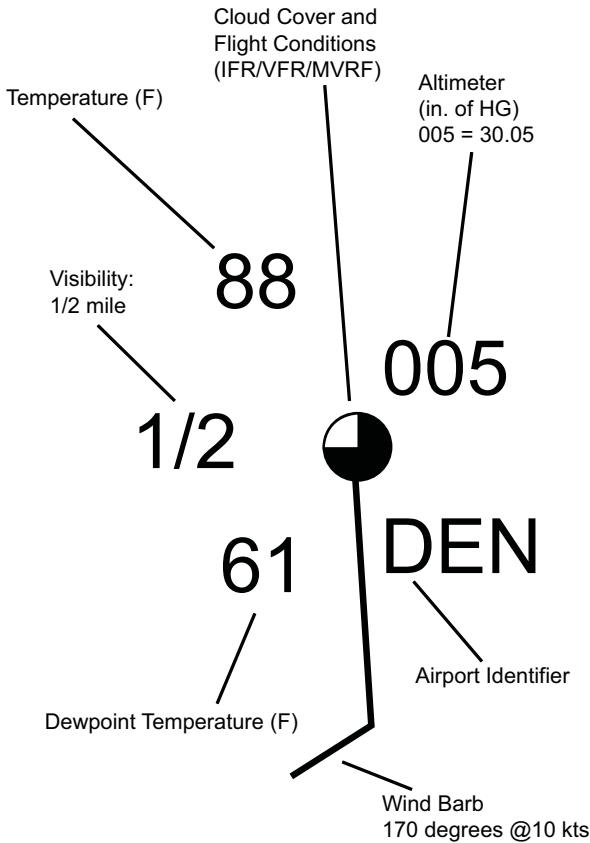


On the MAP page, METAR stations are marked with a red circle. Clicking on the red symbol opens an information window that shows the METAR data. Selecting the SHOW button gives you all reports loaded for that station sorted by date and time.

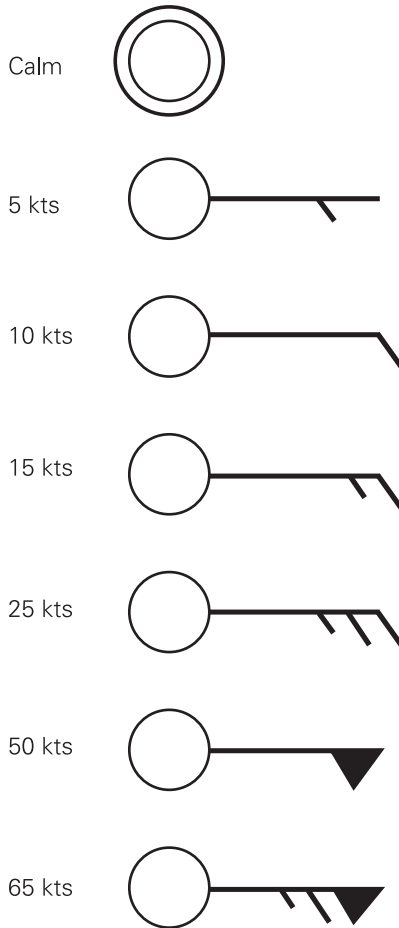


NOTE: Several clicks may be necessary in order to access the METAR information.

STATION PLOT



NOTE: Temperatures are in C° or F°. Altimeter settings are either hPa or iHg.

WIND BARB DESCRIPTION IN THE NORTHERN HEMISPHERE

AERODROME ACTUAL WEATHER METAR AND SPECI DECODE

Pressure	Q P P P P _H P _H H	QNH in whole hectopascals or inches, tenths and hundredths of an inch depending on indicator
		Indicator of QNH in hectopascals If Q = A then QNH is in inches
Temp and Dew Point	T ¹ T ¹ / T ¹ T ¹ T _d T _d	Dew-point temperature in whole degrees Celsius (if below 0° C preceded by M)
		Temperature in whole degrees Celsius (if below 0° C preceded by M)
CAVOK		Cloud And Visibility OK. Replaces visibility RVR, present weather and cloud if: 1. Visibility is 10 km or more 2. No cumulonimbus cloud and no cloud below 1500 meters (5000 ft) or below the highest minimum sector altitude whichever is greater, and 3. No precipitation, thunderstorm, sandstorm, shallow fog or low drifting dust, sand or snow
Visibility	WW	Minimum horizontal visibility in meters 9999 = 10 km or more
Identification	G G g g Z	Indicator (Z) of UTC
		In individual messages, time of observation in hours (GG) and minutes (gg) UTC
	CCCC	ICAO four -letter location indicator

Surface Wind				Clouds	
d	d	d	f f G f	f _m	KMH or KT or MPS
Mean wing direction in degrees true rounded off to nearest ten degrees (VRB = VARIABLE)				Mean wing speed (ten minute mean or since discontinuity)	
Mean wing speed (ten minute mean or since discontinuity)				Indicator of gust (G) - if necessary	
Maximum wind speed "gust" (f _m) - if necessary				Wind speed units used	
Indicator of gust (G) - if necessary				Cloud amount: SCT = SCATTERED (half or less than half the sky covered) BKN = BROKEN (more than half but less than OVC) OVC = OVERCAST (entire sky covered)	
0000 = calm				Height of base (h ₁ h ₂ h ₃) of clouds in units of 30 meters or 100 ft"	
Followed when there is a variation in wind direction of 60° or more and wind speed >3 kt by:				Replaced when there are no clouds and CAVOK is not appropriate by:	
				SKC	
d _n d _n d _n V d _x d _x d _x				Sky Clear	
Extreme direction of wind (d _n d _n d _n)				Other extreme direction of wind (measured clockwise)	
Indicator of Variability (V)					

MALFUNCTIONS PAGE



Malfunctions Page

“HELP Tips” are available anytime by pressing ALT-H. Move the help cursor (?) over any on-screen item that you would like more information about. When the help cursor reveals its document icon help is available for that item. Simply click on the item to display related help tips.

The **MALFUNCTIONS Page** is used to create failure scenarios. The ability to set up and practice realistic failures is one of the most powerful features in any simulation. Many of these failures would be impractical, impossible, or unsafe to recreate in an actual aircraft. Yet, exposure to these same situations in a simulated environment can give you invaluable experience (the airlines and military have proved this for decades).

As we all know, the two most important things in aviation are the next two. With cognizant self-dialogue and previous experience dealing with similar events, it should be easier

to visualize the next two actions with limited distress. What was the last thing I touched? How far off the airway was that airport I just passed? Is that drop in oil pressure just a bad gauge (better keep an eye on the temps). What is the most conservative action I could take if things just don't seem to be going right? Simulation is a tremendous tool that lets you get used to seeing, evaluating, and reacting to various failure "scenarios" *before* getting in an actual aircraft.

Although the **MALFUNCTIONS Page** might appear complex at first glance, similar to the METEO Page it is actually quite easy to use and is one of the most comprehensive available. You have the opportunity to selectively or randomly fail individual instruments, systems, avionics, engines, gear, flaps, and much more. Elements of the **MALFUNCTIONS page** will be covered in greater detail in the following paragraphs, but to get started...

Setting up failures requires three simple steps:

1. Decide on the failure(s) that you would like to invoke.
2. Determine when you would like the failure(s) to occur. Failures can be set to occur immediately, at a specified time, or at some point within a defined "failure time window."
3. Arm the failure(s) by pressing the associated **ARM** button(s).

Note that the **ARM** button will change to **FAIL** when that particular item has actually failed. Click on the **FAIL** button once to RESET the item to **ARM**. Click again to CLEAR the failure.

INSTRUMENTS AND SYSTEMS FAILURES

Individual instruments can be failed in two different ways:

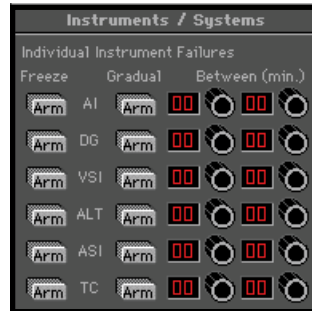
1. Freeze (instrument maintains indications

that exist at time of failure)

2. Gradual

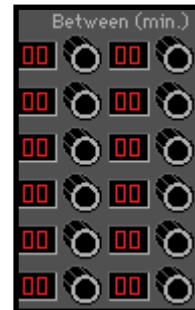
To “Freeze” an instrument, click on its associated **ARM** button under the “Freeze” column. To have an instrument fail gradually, click on its associated **ARM** button under the “Gradual” column. A gradual failure of this type is sometimes referred to as an “insidious” failure as it is not as readily apparent and

thus could potentially be more dangerous. Fixating on the Attitude Indicator and flying the aircraft to maintain “wings level” as it (the AI) slowly tumbles, is one example of the consequences of this type of failure.



FAILURE TIME WINDOW

The “Between” column is used to set the “failure time window” interval. The values entered in minutes (00-99) are compared to the Ref. Failure Time and determine when or during what time period (window) the corresponding ARMed failure will occur. If for example we want the Attitude Indicator to gradually fail at some point between seven and fifteen minutes from



now, we would simply enter 07 and 15 respectively in the “Between” column and press the ARM button in the “Gradual” column next to “AI.” If this were done at the start of our flight the Ref. Failure Time would already be set to zero. But, if we had been flying for some time and wanted the failure to occur between seven and fifteen minutes from now we could just RESET the Ref. Failure Time. As the Ref. Failure Time counts up from zero as we fly, the Attitude Indicator will begin its gradual failure at some time between seven and fifteen minutes.

IMMEDIATE FAILURE

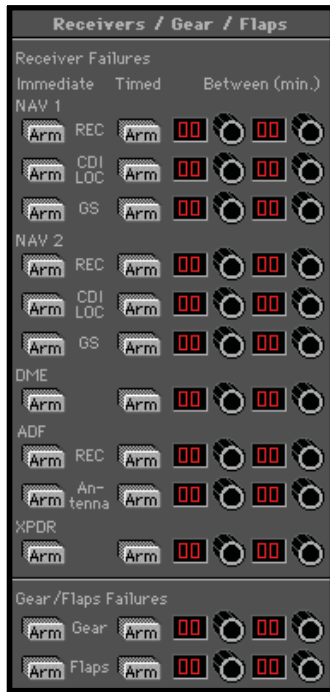
To invoke an **immediate** failure, enter the SAME values (minutes) in each window that correspond to the current Ref. (reference) Failure Time displayed at the lower-left. If for example the Ref. Failure Time displayed is 07 (7 minutes), enter 07 in BOTH "Between" windows next to the desired ARMED failure. An easier way to invoke an immediate failure is to leave both "Between" values at 00 and simply RESET the Ref. Failure Time by pressing the RESET button next to the Ref. Failure Time display window. Keep in mind though that all failure time window intervals use the Ref. Failure Time and as such will be affected.

SPECIFIC TIME FAILURE

To invoke a failure at a **specific** (future) time, enter the SAME values (minutes) in BOTH "Between" windows. If we had been flying for fifteen minutes and wanted the Pitot Tube to freeze over with an accumulation of ice three minutes from now, we would simply enter 18 and 18 respectively in the "Between" column. When the Ref. Failure Time reached 18 minutes, the Pitot Tube would freeze over and we would observe a subsequent erroneous indication on the Airspeed Indicator (a good time to turn ON Pitot heat).

Note that if a **System** failure is invoked its associated **ARM** button will change to **FAIL** when that particular System actually fails. Affected items within the failed system will be flagged (turn orange) for easy identification. The ARM buttons of these items will NOT change to FAIL. If for example we FAILED the Static System, the ARM button under "Static" would change to FAIL at the time of the failure and the VSI (Vertical Speed Indicator), ALT (Altimeter), and ASI (Airspeed Indicator) labels respectively would change to orange in color.

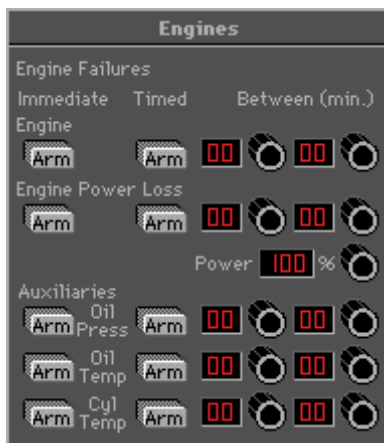
RECEIVERS, GEAR, AND FLAPS FAILURES



Failures in this panel are set up in much the same way as previously discussed *except* that **immediate** failures are invoked by using the ARM buttons in the “immediate” column. To set a **specific** failure time or a failure **time window** interval you must use the ARM buttons in the “Timed” column.

ENGINE FAILURES

Failures in this panel are set up exactly the same as the previous (Receivers / Gear / Flaps) panel. Note that it is not only possible to fail an engine, but to also simulate a power loss (leaving partial power). Combine this with various “auxiliary” failures and you have the opportunity to create some interesting failure scenarios.



A good way to see if a student is including engine instruments in his/her scan is to invoke an Oil Pressure failure and see if the student notices the pressure dropping. To really bring the point home set up a scenario in which the Oil Pressure drops followed by an increase in Oil Temperature and subsequent power loss.

NOTE: The Power Loss window shows the power available, NOT the percentage of power loss. If for example the power loss window were set to 40%, this would indicate a 60% loss of power.

NOTE: Once an engine failure or power loss has been invoked, the failure must be CLEARED to allow for engine restart or power restoration.

RANDOM FAILURES



The Random Failures panel allows you to experience what it is like to expect the unexpected. To set up a random failure simply enter the failure time window interval(s). As previously described, you can use these intervals to invoke failures immediately, at specified times, or within a defined failure time window. Then dial in the number of failures you would like to occur. If for example we entered in a failure time window of between 3 and 12 minutes, then entered 2 in the Instruments window, **ELITE** would randomly fail two of the six instruments (each at some random time between 3 and 12 minutes).

NOTE: "Engines" does NOT refer to the number of engines but rather to the number of possible engine failures. Depending on the aircraft there might be as many as 5 failure types (power loss, oil pressure, oil temperature, etc.) as shown on the engine failure panel.

INSTRUMENT INOPS



The Instrument INOP feature allows you to place a virtual instrument cover on a selected instrument or instruments. The covers are similar in appearance to the rubber suction cup covers used in instrument training for partial panel practice. The covers can be used independent of, or in conjunction with, specific malfunctions as follows:

Invoke a malfunction by itself (without the cover).

Cover the instrument (without invoking a malfunction).

Invoke a malfunction AND cover the instrument.

The third option allows the instructor to cover an instrument at his discretion once he is comfortable that the student has recognized and acknowledged the failure.

To place an instrument cover on one or more instruments, simply click on the desired instrument's ARM button. The button will turn orange and subsequently display "Fail" to indicate the instrument has been covered. Note that the Instrument INOP feature is activated almost immediately after ARM has been pressed. The Instrument INOP feature is therefore not "timed" nor does its use depend on the Ref. Failure Time. The graphic above shows that the attitude indicator and directional gyro have been selected and have INOP covers on them.

At the lower-left of the **MALFUNCTIONS** page you will find several buttons that are applicable to the entire **MALFUNCTIONS** page as opposed to the control of *individual* failures described previously.

FAILURE STATES



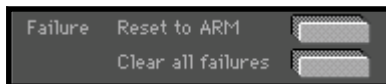
Similar to saving and loading METEO States, the SAVE and LOAD buttons next to “Failure State” enable you to Save and Load Failure States.



You can literally develop a library of these states that can be instantly recalled for use anytime. Create a failure scenario (state) and tweak it until you are satisfied, then click the SAVE button to open the **Save Malfunction files** dialog box. Type a unique name in the “File name:” box such as “OilPressLoss” then click **Save** to complete the operation. To load this failure state (or any other) in the future, just click on the **LOAD** button to open the **Open Malfunction files** dialog box. Select a failure state from those listed (previously saved) and click **Open**.

Reset to ARM

The “**Reset to ARM**” and “**Clear all failures**” buttons provide a quick way to RESET the **MALFUNCTIONS** page as required.



Use the “Reset to ARM” button when a completed failure scenario sequence needs to be repeated. Pressing this button will leave the entire failure “state” intact, but RESET all FAIL buttons back to ARM (much easier than having to

reset each individual Fail button).

Use the “Clear all failures” button to **RESET** the entire **MALFUNCTIONS page** (including failure time intervals).

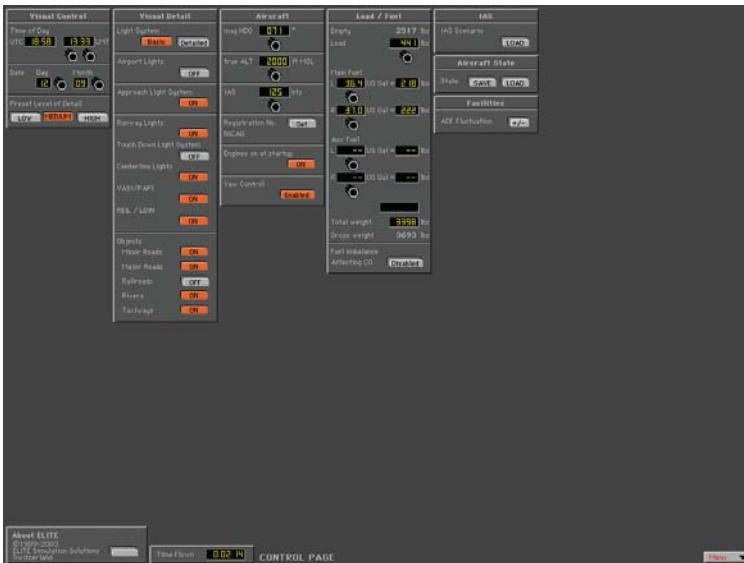
Ref. Failure Time

The **Ref. Failure Time** RESET button sets the Reference Failure Time back to zero minutes. This is used in conjunction with the **failure time window** interval settings as described previously.



The **MALFUNCTIONS page** is extremely flexible and provides an opportunity for an almost infinite amount of failure scenario possibilities. Please feel free to experiment.

CONTROL PAGE

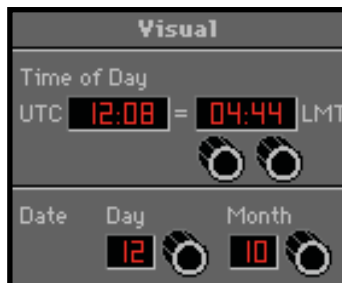


Control Page

“HELP Tips” are available anytime by pressing ALT-H. Move the help cursor (?) over any on-screen item that you would like more information about. When the help cursor reveals its document icon help is available for that item. Simply click on the item to display related help tips.

Use the **CONTROL** page to configure aircraft load and fuel, control visual settings, load Instrument Approach Scenarios, save/load “STATE” files, and more.

VISUAL PANEL



Use the **Visual** panel to configure ELITE's visual display settings. Everything from Time-of-Day to the amount of runway environment detail displayed can be changed.

Set Date and Time:

Set the **Time of Day** and **Date**. Daylight is accurately reflected based upon navigation data loaded and time set.

At program start, ELITE references your computer's internal clock, then applies the **(LT)/(UTC)** offset from the General settings dialog box on the **Configuration**. The calculated current UTC (Universal Time Coordinated) time is then used for all cockpit clocks and appears on the **Time of Day** panel in the UTC window. The time displayed in the LMT (Local Mean Time) window will probably **NOT** reflect the current local watch time of the area flown in. **THIS IS NORMAL!** LMT is used to calculate accurate sunrise and sunset times. Depending on **aircraft location** within the specific Time Zone flown in, and Daylight Saving Time, LMT may be "off" by as much as 2 Hrs. Use this time only as a reference for setting day/night flying conditions. To change time of day, click and drag on hours/minutes adjust knobs located below LMT display window.

PRESET LEVEL OF DETAIL (GENVIEW)

Software "performance" is directly related to the computer hardware and associated capabilities used to run it. Many factors such as processor speed, memory, video card and drivers, come together to formulate what the end user perceives as computer "power." Some performance gain may be achieved however through the software by fine-tuning GenView's visual settings.

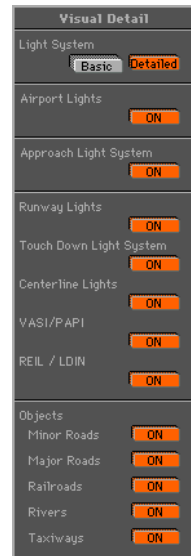
Based on the processing power of your computer, you may want to adjust the Level of Detail (LOD) setting by pressing one of the LOW, MEDIUM, or HIGH buttons.



These buttons control various parameters used to create the view of the outside world and determine the resulting “Level of Detail” implemented by these parameters. “Fast” computers can normally use a HIGH setting, while relatively “slower” computers may require a LOW or MEDIUM LOD setting. In addition, these same buttons can be used to select one of three Visual Detail presets.

Unlike the LOD parameter settings, which are broader in nature, the Visual Detail settings are related to specific lighting and scenery object elements. The processing power required to display these elements might cause the simulation to run sluggish on relatively slower computers. The Visual Detail panel allows you to tweak these settings to get the best performance possible from a given system.

Simply CTRL-click on any one of the LOW, MEDIUM, or HIGH buttons (turns orange) and its corresponding Visual Detail preset will become activated. Presets can then be modified manually as desired by selectively turning ON/OFF items in the Visual Detail panel. The selected LOW, MEDIUM, or HIGH button will remain orange as long as the Visual Detail buttons corresponding to that preset match. If the Visual Detail buttons are modified after selecting a preset, the selected LOW, MEDIUM, or HIGH button will return to gray to signify the preset has been modified. Experiment to determine what configuration yields the best combination of performance and visual detail.



SCENERY/RUNWAY LIGHTING (STANDARD VIEW)

As mentioned in the previous section, software “performance” is directly related to the computer hardware used to run it. Based on the processing power of your

computer, you may want to turn OFF various scenery elements, as these tend to increase computer workload and possibly cause the simulation to be less than smooth. Pressing the Detailed button under Scenery simply adds a grid of “city lights” for enhanced surface visual reference. To fly without this grid simply press the Basic button.



Engine Startup

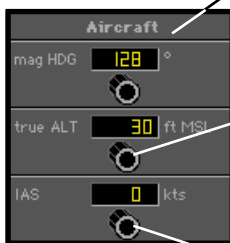
The engine(s) start automatically at initial program startup when the **ON** button is active.

Aircraft Panel



The heading, altitude, and airspeed panels found on the MAP page are duplicated here for convenient aircraft setup while using the **Control** page. These panels function exactly the same as those on the MAP page discussed earlier in the chapter.

Fuel / Load Panel



Set aircraft magnetic heading

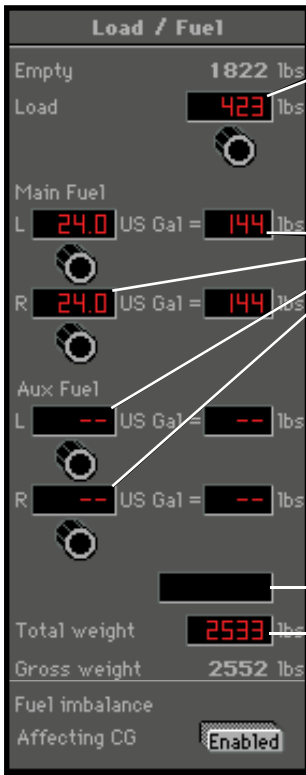
Set MSL altitude. To increment by 500 ft., click in the number window. The knob will show an orange dot. When you use the knob, increments will be by 500 ft. Click again in the window to deactivate. Feature will deactivate itself in 5 seconds if there is no activity.

Set indicated airspeed (knots)

Fuel Imbalance

When ENABLED, allows for flight characteristics to be

affected by lateral asymmetric fuel loading.



Set aircraft load weight (change from KGs to LBS. on CONFIGURATION page, under UNITS.

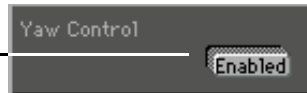
Variable fuel loading

Overload indicator

Total aircraft weight

Yaw Control.

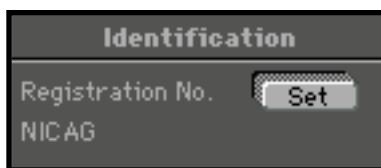
YAW Control enabled when lit (for use with rudder pedals). If not lit, aircraft stays in coordinated flight and tracks runway centerline on take-off.



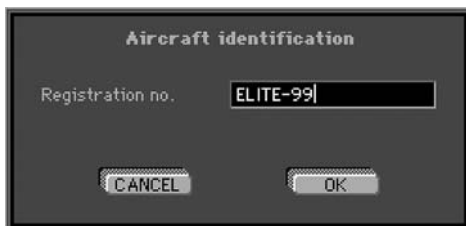
Aircraft Identification

You can customize the aircraft identification "placard." Click on the **SET** button in the **Identification** panel.

Another dialog box will appear



Enter the aircraft "Registration number" to be displayed on the instrument panel in the cockpit.



NOTE: This identification number is NOT reflected in the Instrument Approach Scenario call sign.

RUNNING THE INSTRUMENT APPROACH SCENARIOS (IAS)

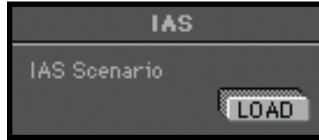
The **Instrument Approach Scenarios** are scripted instrument approach exercises flown in a simulated ATC environment. During these exercises, you must listen for your call sign "on frequency" amidst the chatter of other aircraft and controllers to hear your instructions. Follow clearances and vectors closely or you will be reminded to get back to your assigned altitude or heading.

The scenarios generally begin with the aircraft at a predetermined altitude and positioned 15-20 miles from the IAF (initial approach fix) of the selected approach scenario.

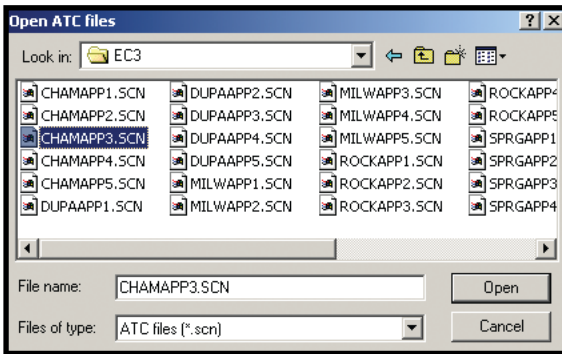
There is 1 **IAS** sampler approach included in each ELITE package – an **ILS** approach into Champaign, Illinois. The Approach chart can be found in the "Supplements" section of this manual or viewed with HotPlates.

To load an IAS, click on the **IAS "LOAD"** button located at

the bottom of the **MAP** page or use the **LOAD** button on the **CONTROL** page.



Highlight the IAS you wish to fly from those listed, then click **OPEN**.



NOTE: Ensure that the appropriate NAV database (region) is loaded for flying the IAS.

When you select **OPEN**, you will hear a succession of beeps followed by information and option dialog boxes. Make your selections and follow on-screen instructions.

After the last selections are made, you are ready to fly the approach. Return to the **Instrument** screen and release the **FREEZE** button.

*NOTE: When you release the **FREEZE** button, the autopilot will engage and stabilize the aircraft. When the heading and altitude have stabilized, you can continue to use the autopilot or disengage it to manually fly the approach.*

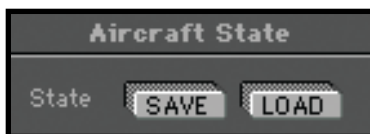
*NOTE: If you miss an ATC instruction, you can have it repeated by pressing **CTRL R** (R for repeat) on the keyboard.*

If you elect to have the copilot change frequencies, it's always a good idea to verify them anyway. Some copilots are better than others!

Loading and Playing Scenario Flight Paths:

1. Click on the **PATH** button on the MAP page and choose **LOAD**.
2. Choose the IAS path that you would like to see.
3. Click on **REPLAY** to review the flight path. Use the **PROFILE** and **EXTENDED** buttons on the MAP page as desired to display all associated aircraft data.

STATE PANEL

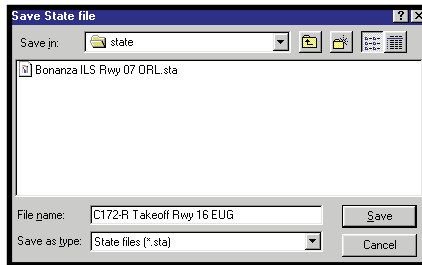


The **State** panel makes it possible to save and load aircraft "state" files. You can think of state files as a way to take a "snapshot" of the aircraft's state at any given moment in time. When you save a state file the aircraft's position, altitude, heading, airspeed, etc. are stored along with current avionics settings (frequencies, auto pilot configuration, etc.). In addition, you have the option of storing Navigation, Meteo (weather), and Malfunction data as well. The saved state file can then be loaded at anytime in the future and instantly position the aircraft where it was (with the same settings) when the file was saved. State files are very useful when you want to practice the same approach, procedure, flight, or situation repeatedly. Individual pilots and instructors often create a library of state files, which allow them to conveniently return to a desired "lesson" without having to setup the aircraft again manually.

State files can be saved at any time. Before saving a state file make sure that the aircraft is set up just the way you want it. Once everything is to your liking be sure to name the state file something that will be meaningful now and in the future. A good naming convention is to include an airport identifier or nearby Navaid and brief description such as “ORL ILS RWY 7 Low Ceilings.” Even if you haven’t loaded this file in a while it will be easily identified as the ILS approach into Orlando Executive’s runway 7 (with low ceilings). This is much better than “My first ILS.”

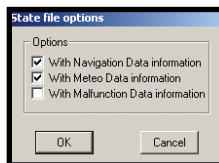
Saving States

To save the current aircraft state, click the **SAVE** button to bring up the **Save State file** window.



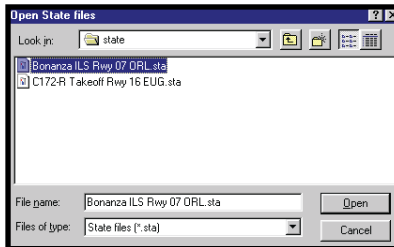
Type in a name for the “state” file and click **Save**.

Select “state” file options as desired, then click **OK**.



Loading States

To load an aircraft state file, click the **LOAD** button to bring up the **Open State files** window.



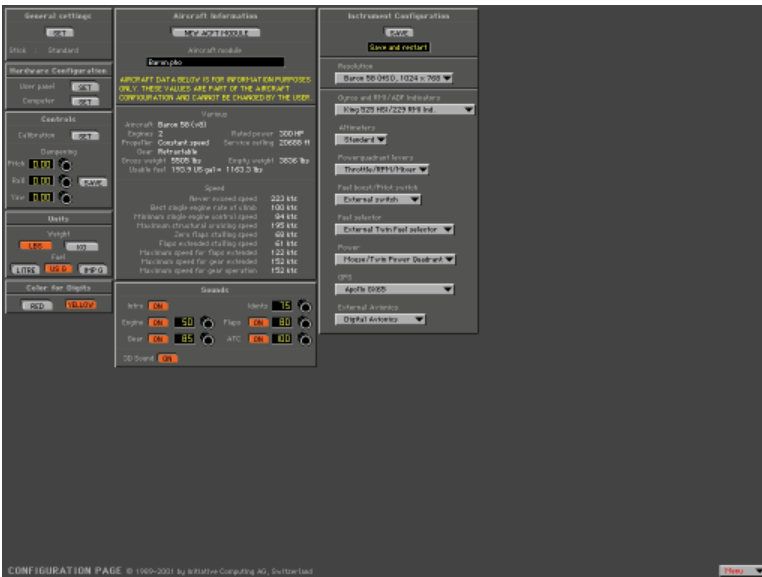
Highlight the “state” file you wish to load from those listed, then click **OPEN**.

TIME FLOWN PANEL



The **Time Flown** panel always indicates the elapsed time ELITE has been flown. Time automatically stops when the flight is frozen or while not flying on the **Instrument** panel.

CONFIGURATION PAGE



Configuration Page

“HELP Tips” are available anytime by pressing ALT-H. Move the help cursor (?) over any on-screen item that you would like more information about. When the help cursor reveals its document icon, help is available for that item. Simply click on the item to display related help tips.

Use this page to configure flight controls, hardware, instrumentation, and sound. Some of these have already been covered during the Startup procedures in Chapter One.

STATE FILES

When the “Ask for **State File** at Program Start” button is **ON**, ELITE will display a dialog box (on every startup) allowing you to choose any training “State File” previously saved. You will be positioned with the same aircraft in that specific state (including Nav data and Meteo State selected!).

VISUAL SETTINGS

When the “**Visual Settings** always store in Preference File” button is **ON**, all visual settings selected on the Control page are stored.

PASSWORD PROTECTION



You may protect the **Configuration** and **Modification** pages with a password. Click on the **SET** button, type a password and follow remove instructions on the screen. Click **OK** to save the settings. To delete the password, click the **SET** button and enter the password. When asked for a new password, select **OK** with the password field blank.

TIME DIFFERENCE LT TO UTC

For ELITE to properly calculate daylight (sunrise and sunset) times, you must set the difference between your local time (LT) and UTC (Zulu) time. First verify that your computer's clock is set correctly. Click on the **SET** button. Calculate your local time using 12:00UTC as a reference. For example in Orlando, Florida (UTC-5) you would set the local time value to 07:00, i.e. 12:00UTC - 5Hrs = 07:00. For periods of Daylight Saving Time (UTC-4) in Orlando, this value would be set to 08:00. To have ELITE perform this calculation automatically (recommended) simply click the “Take Local Time from Computer” SET button.



ATD DETECTION REPORT

With **ATD Detection Report** button **ON** (ATD version only), ELITE will verify (on every startup) connection and proper communication with the required hardware necessary for use as an approved ATD (**A**viation **T**raining **D**evice). If a required device(s) is not present or proper communication can not be established, a warning message will appear during program start advising the system may **NOT** be used for flying credit allowed by the FAA.

ACTIVATING FAILURES WITH KEYBOARD

Failures Activating with Keyboard ON allows the user to fail specific instruments and systems via the keyboard completely independent of the simulation. This is especially useful for system configurations not incorporating a separate graphical instructor's station (2nd monitor). The instructor can control failures without interruption of the simulation or the student's flight. Keyboard commands are as follows:

INSTRUMENT FAILURE	ACTIVATE INSTANT FAILURE	ACTIVATE GRADUAL FAILURE	DEACTIVATE FAILURE
Attitude Indicator	1	7	SHIFT 1 or 7
Directional Gyro	2	8	SHIFT 2 or 8
Vertical Speed Ind.	3	9	SHIFT 3 or 9
Altimeter	4	0	SHIFT 4 or 0
Airspeed Indicator	5	Q	SHIFT 5 or Q
Turn Coordinator	6	W	SHIFT 6 or W

SYSTEM FAILURES

Vacuum	ALT 1	N/A	SHIFT&ALT 1
Static	ALT 2	N/A	SHIFT&ALT 2
Pitot Freeze	ALT 3	N/A	SHIFT&ALT 3
Pitot & Drain	ALT 4	N/A	SHIFT&ALT 4
Electrical	ALT 5	N/A	SHIFT&ALT 5
Left Engine(or single)	ALT 6	N/A	SHIFT&ALT 6
Right Engine	ALT 7	N/A	SHIFT&ALT 7

MEASUREMENT FOR WEIGHT & FUEL

You can choose what units of measurement are displayed for weight and fuel values as desired.



- Weight in pounds or kilos
- Fuel in liters, U.S. gallons or Imperial gallons

CHANGING HANGING COLOR OF NUMBERS

For readability, you can change the color of numbers shown on all pages (except the instrument panels.) Click on **RED** or **YELLOW** as desired.

SOUND AND VOLUME CONTROL



ELITE's **Advanced True Integrated Sound (ATIS)** smoothly mixes multiple-channel aircraft and ATC sounds providing a realistic, uninterrupted, high quality, ((stereo)) audio environment (stereo sound card and speakers required). The **Sounds** control panel illustrated on previous page lets you tailor, or mix individual sound elements, giving you complete control of your ELITE sound experience.

Engine sound can also be switched **ON** or **OFF** with the "E" key on the keyboard.

3D SOUND



When enabled, allows for an enhanced audio experience on 3D compatible sound systems.

AIRCRAFT INFORMATION

The **Aircraft Information** panel shows actual configuration details of the aircraft.

Figures cannot be changed and are for information purposes only.

Aircraft Information	
NEW ACFT MODULE	
Aircraft module	
Bonanza.pho	
AIRCRAFT DATA BELOW IS FOR INFORMATION PURPOSES ONLY. THESE VALUES ARE PART OF THE AIRCRAFT CONFIGURATION AND CANNOT BE CHANGED BY THE USER.	
Various	
Aircraft	Bonanza A36 (v8)
Engines	1
Rated power	300 HP
Propeller	Constant speed
Service ceiling	18500 ft
Gear	Retractable
Gross weight	3693 lbs
Empty weight	2517 lbs
Usable fuel	74.0 US gal = 443.7 lbs
Speed	
Never exceed speed	205 kts
Best single engine rate of climb	--- kts
Minimum single engine control speed	--- kts
Maximum structural cruising speed	167 kts
Zero flaps stalling speed	68 kts
Flaps extended stalling speed	61 kts
Maximum speed for flaps extended	124 kts
Maximum speed for gear extended	154 kts
Maximum speed for gear operation	154 kts

Example

MODIFICATION PAGE



Modification Page

“HELP Tips” are available anytime by pressing ALT-H. Move the help cursor (?) over any on-screen item that you would like more information about. When the help cursor reveals its document icon help is available for that item. Simply click on the item to display related help tips.

The **Modification Page** allows you to create or modify up to 200 facilities, fixes, NAVaids or holding patterns in each navigation database worldwide.

CREATING FACILITIES

The desired facility can be created by clicking on the appropriate button. When a button is clicked, a window will appear showing the detailed data fields required to create the facility.



MODIFYING FACILITIES

Any facility can be modified by using the **MODIFY** button, shown on the **Modify** panel.



Click on the **MODIFY** button and then the desired facility to be changed. A window will appear with the specific data of the facility. Data can be changed and the change will take effect after clicking on the **OK** button.

DELETING FACILITIES

Facilities can be deleted as well as created and modified. Click on the **DELETE** button first and then on the facility you want to delete.

A pop-up window will ask for verification before the deletion takes place.

NOTE: A deletion or modification does not modify the original database file on your hard disk, but only a copy of the data.

If you choose to delete an original facility that has already been modified, a pop-up window asks for verification to delete the modification.

If you choose to delete a self-created facility, the pop-up window will ask you if you really want to irrevocably delete your self-created facility.

After creating, modifying or deleting a facility, click on the **OK** button to confirm the changes.

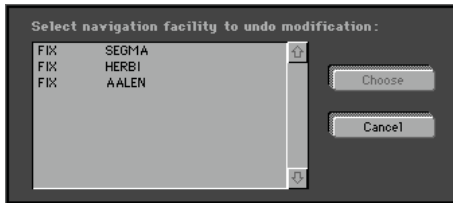
If you click on the **CANCEL** button, all previous instructions are cancelled and you return to the **Modification** page.

All self-created and modified facilities are displayed in red on the **Modification** page. When changing to the Map page, your modifications have the same appearance and

color as all original data. When changing back to the MOD page, however, your changes will again appear in red.

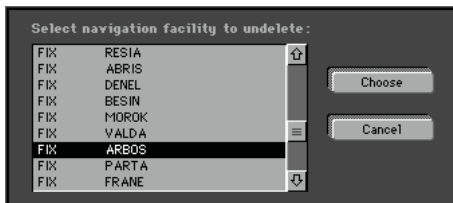
UNDO CHANGES

To return to the original status of facilities, you can undo modifications or deletions. Hold the **ALT** key while clicking on the **MODIFY** button. The following pop-up window will appear on the screen.



Now, select and choose to undo changes.

To restore an original facility that had been deleted, hold the **ALT** key while clicking on the **DELETE** button. The following pop-up window will appear on the screen.



You can now undo a previous facility deletion and it will once again be displayed on the Map.

Deleting an existing (original) facility counts as one change. Deleting a self-created or modified facility releases one for further use. Undeleting a previous deletion of an original facility will also release a change for further use.

When 200 modifications have been made the following message appears:

Can't change more facilities !

Click the mouse button to continue.

FACILITY INFO

Click and hold the mouse on any facility to display detailed information about that facility. For runway information, click on the runway threshold.

Runway <14> of <LSZH>	
Location: N47 29.042 E008 32.185	
Variation: W01	Displ THR: 492ft
Elevation: 1416ft	ALS: CALV-2, 2788ft
Direction: 138	Runway Centerline Lights
Width: 197ft	
Length: 10827ft	

When facilities are in the same location or covered by other ones, click on the same spot once more and information about the next facility will appear.

Track	
From:	
N47 29.042 E008 32.185	
To:	
N47 37.804 E008 20.052	

In the example above, several facilities nearly occupy the same location or are co-located. Information on these facilities is layered. Clicking the same spot repeatedly cycles through these layers to reveal information about each specific facility.

VOR

Identification code:

Location:

Variation: ° Station elevation: ft

Frequency: MHz DME bias: nm

DME

Identification code:

Location:

Variation: ° Station elevation: ft

Frequency: MHz DME bias: nm

NDB

Identification code:

Location:

Variation: ° Station elevation: ft

Frequency: KHz

MARKER

Type:

Identification code (Awy /Term):

Location:

Variation: ° Station elevation: ft

Orientation: °

FIX

Identification code:

Location:

Variation: °

TRACK

From: N47 28.633 E008 32.217

To: N47 28.633 E008 32.217

or True HDG: 000 ° Distance: 0.0 nm

RUNWAY

Runway Identification: Airport ID:

Magn.Rwy.Bearing: 000 ° Rwy ID: 36

Location: N47 28.633 E008 32.217

Variation: 000.0 ° Station elevation: 1000 ft

Width: 150 ft Length: 10000 ft Disp1.THR: 0 ft

Lighting Systems: ALS:
 3.0 °

Opposite Rwy: Rwy ID: 18 Disp1.THR: 0 ft

Lighting Systems: 3.0 ° ALS:

LOC/GS

LOC:
Identification code: | Location: **N47 28.633** **E008 32.2 17**

Variation: **W00.0** ° Station elevation: **1000** ft Front Crse W.: **3.0** °

Frequency: **108.00** MHz Magn. Loc. Bearing: **000** ° **BACKCOURSE**

GS: **GS EQUIPPED**
Location: **N47 28.633** **E008 32.2 17** GS Angle: **3.0** °

or HDG: **000** ° Distance: **0.0** nm

DME equipped: **LOC** **GS** **DISP** DME bias: **0.0** nm

CANCEL **OK**

HOLDING

Identification code: |

Location: **N47 28.633** **E008 32.2 17**

Variation: **W00.0** ° Inbound course: **000** °

Turn direction: **LEFT** **RIGHT**

Leg length: **2.8** nm Turn radius: **1.5** nm

CANCEL **OK**

Intentionally
Left
Blank

CHAPTER 3

EXTERNAL VISUAL DISPLAY - GENVIEW™

GENVIEW VISUAL DISPLAY

GenView™ is an add-on visual display database that will allow you to fly in the virtual world with accurate digital elevation models (DEM) and vector data accurately depicting rivers, lakes, highways, railroads and built up areas. In addition, every airport environment is highly rendered with runway designators, appropriate runway lighting, approach light systems and properly lighted generic taxiways. Inherent to the DEM is a fully programmable dynamic weather system that further enhances the realism of flight by providing 3-D obstructions to visibility, cloud coverages, and several transition zones or layers for IFR, MVFR, SVFR or VFR on top. Utilizing actual downloadable METAR reports, you can create a real-time flight experience and save the most challenging weather scenarios for recurrent training.

GENVIEW VECTOR DATA

Elements in the digital elevation model depicts rivers, lakes, highways, railroads and built up areas such as cities, towns, villages, etc.

GENVIEW RUNWAY DEFINITIONS

1. Runways will have number designators such as 08 (8 for USA) or 26.
2. Centerline lights if appropriate. Space between lights is 50m.
3. Runway edge lights if appropriate. Space between lights is 50m.
4. Approach lighting system. Distance in accordance with ICAO/FAA standard.

TAXIING IN GENVIEW

1. Generic taxiways have been implemented in GenView to allow the pilot to more closely follow the checklist sequence if used (conducting run ups, for example). Though the location of the runway and NAVaids are always accurate, the layout and orientation of taxi ways may not represent the exact layout at that airfield.
2. When ELITE is first loaded, the default position of the aircraft is on the end of the runway. You can reposition the aircraft relative to the taxiway in three ways:
 - a. Taxi the aircraft to the position you want to start (least recommended, especially if you are in a hurry)
 - b. Go to the **MAP Page**. Click on the aircraft symbol and hold the mouse button. Press the **ALT** key and drop the aircraft at the runway end and it will reposition to the taxiway parallel to the active runway.
 - c. Go to the **MAP Page**. Click on the aircraft symbol and hold the mouse button. Press the **SHIFT** key and drop the aircraft at the runway end and it will reposition perpendicular to the active runway.
3. The length of the runway determines the width of the taxiways (longer runways equal wider taxi ways). Wide taxiways have blue edge lights spaced at every 50m/164ft. Smaller taxiways have green centerline lights spaced at 50m/164ft. Runways with a width of 16m/52ft or less have no taxi way lights.

- The length of the runway defines the amount of taxiway exits:

Runway length smaller 2500 ft	2 exits
Runway length smaller 4500 ft	3 exits
Runway length smaller 6500 ft	4 exits
Runway length equal or longer 6500 ft	5 exits

USING THE VISUAL MANAGER PAGE

The Visual Manager was designed to control aspects of the external scenery display. If you go to the Visual Manager Page and the box below is not there... the main computer and visual computer are not communicating. Shut down and restart both computers (see System Shutdown, Chapter 1).



If this box is showing and CONNECTION is OFF or ACTIVE is NO, then press the corresponding buttons to force communications between the main computer and visual computer. When communications is established, CONNECTION will reflect ON and ACTIVE will reflect YES... an external scenery will appear on your external visual display. If the buttons return to OFF and NO, then communications have failed and you must restart both computers.

ID is used to identify each visual computer (or Image Generator). The RC-1 AATD has only one IG so only 1 box appears (Visual 1). On trainers where multi-visual displays are used, one box would represent each IG and each IG would have a unique ID number.

The remaining buttons (HDG through Level of Detail) are not used in the RC-1 and should be left alone.

The selections at the bottom of the page should be left alone as well with exception of ACCESS box (where a password can protect access to this page if necessary) and the SHUTDOWN Menu box. **The Visuals and Computers button is the only correct way to shut down the RC-1. It will shut down the visual computer completely and the main computer will return to the Windows desktop. At the Windows desktop, the Operators should use the typical Windows “START BUTTON” / SHUTDOWN” process.**



CHAPTER 4

AIRCRAFT GENERAL DESCRIPTION

Many aircraft use the same instruments and avionics configuration. Basic features of this equipment will be listed here. Any variations specific to aircraft models will be explained in that aircraft's section.

GENERAL INSTRUMENTS

ARTIFICIAL HORIZON

The Artificial Horizon or attitude indicator is the most important instrument in the cockpit for instrument flying. It displays pitch and bank in the usual way. Pitch lines are spaced 5° apart.



AIRSPEED INDICATOR

The Airspeed Indicator (ASI) is indicated in knots on the ASI instrument. The white, green, and yellow arcs as well as the red line have the standard meaning. True airspeed may be calculated by applying the usual techniques assuming ISA temperature. Air speed indicator window adjustments for TAS function on all **ELITE** photo-realistic aircraft. If the air speed indication should decrease without speed reduction, the "Pitot" may be iced. In order to prevent "Pitot" icing, turn on the **PITOT HEAT**.



TURN INDICATOR

The Turn Indicator (Turn Coordinator) is actually a combination of two instruments. The aircraft symbol indicates rate of roll and rate of turn and is proportional to the roll rate. When the roll rate is reduced to zero, the instrument provides an indication of the rate-of-turn. The marks stand for a standard rate-of-turn (3° per second). The ball reacts to gravity and centrifugal force to indicate the need for rudder application.



ALTIMETER

The Altimeter is the conventional three-pointer type. The air pressure is indicated in inches Hg (on the right side) and millibar in hPa (on the left side). Be aware that the instrument only shows the true altitude when its pressure setting corresponds to the QNH setting in the Environment panel on the Meteo screen.



VERTICAL SPEED INDICATOR

The Vertical Speed Indicator (VSI) indicates the rate-of-climb or rate-of-descent. Vertical Speed is not instantaneous and will exhibit trend and lag effects.



GYRO COMPASS

The Gyro Compass indicates the actual heading. It has a turning compass card. The directional gyro (DG) is not slaved with the compass and will precess. As in the actual aircraft, it must be adjusted.

The orange arrow (heading bug) can be set with the rotary dial at the bottom right.



The DG/ADF configuration can be changed to an HSI/RMI configuration in some ELITE aircraft such as the Piper Arrow IV. See the Aircraft Information section on how to do this.

HORIZONTAL SITUATION INDICATOR

The Horizontal Situation Indicator (HSI) is connected to the NAV1 receiver. It consists of a turning compass card, a yellow course pointer (CDI) turned by the left rotary dial, an orange heading bug moved by the right rotary dial and a yellow glide slope mark on both sides (when on ILS). The actual course is indicated by the white lubber line on the compass card. The HSI replaces the standard directional gyro in the aircraft's panel, combining slaved heading and VOR/LOC/Glideslope deviation information into one compact display.



This HSI is set to a VOR



This HSI is set to an ILS

NOTE: A red HDG or NAV flag indicates absence of station reception or malfunction of the receiver.

VOR/LOC/GLIDESLOPE INDICATOR

The VOR/LOC/Glideslope Indicator utilizes the conventional crosspointer layout. It is connected to the NAV receivers (NAV1 or NAV2). The compass card is rotated by the OBS knob in the conventional manner.



Receiver is set to a VOR



Receiver is set to an ILS

RADIO MAGNETIC INDICATOR

The Radio Magnetic Indicator (RMI) incorporates a slaved (self-rotating) compass card, a green single pointer, and a yellow double pointer. The green single pointer may be switched between NAV1 receiver and NAV2 receiver. The double-line pointer is pointing to



the ADF receiver. If any navigation set is not receiving a valid signal from a station, the corresponding needle is parked in the horizontal position.

MOVING DIAL INDICATOR

The Moving Dial Indicator (MDI) is connected to the ADF receiver. It is an improved Relative Bearing Indicator (RBI) which has a fixed 360° compass card, where as the compass card of the MDI can be turned by the rotary dial. **Bearing Pointer** indicates relative or magnetic bearing to station as selected by HDG knob.



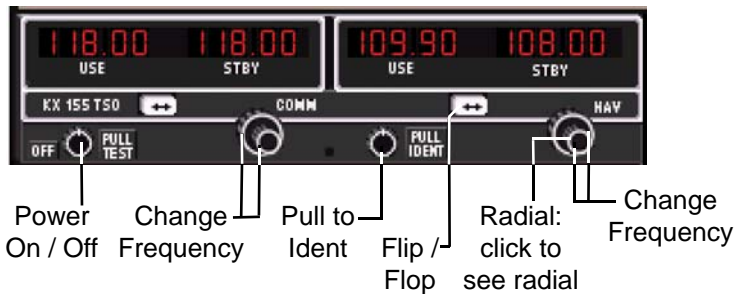
RADIO NAVIGATION RECEIVERS

ELITE is equipped with up to five radio navigation equipment receivers and two communication receivers. The two “NAV” receivers are combined with the “COMM” receivers (COMM1/NAV1), (COMM2/NAV2).



NAV/COMM

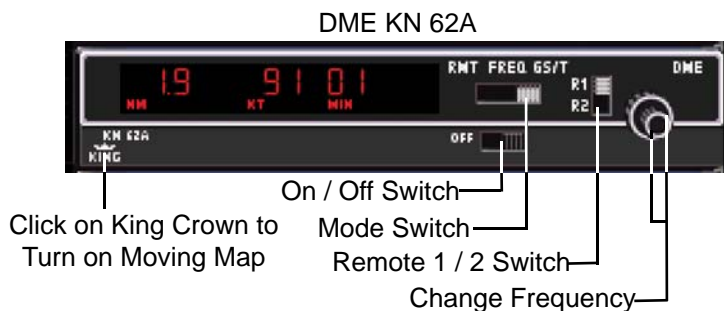
Nav / Comm KX 165 TSO



On the “COMM1/NAV1”, “COMM2/NAV2”, and the “ADF” receivers, the right window displays the stand by frequency and the left one displays the active frequency. Setting a frequency is done in the same way as on a real receiver. Use the rotary to count up or down the standby frequency, or click on the numbers them selves (Clicking on the right side of the number decreases and clicking on the left side increases the numerical count). Pushing the double-arrow button will toggle (“flip-flop”) the frequencies. Each receiver may be switched on and off individually by dragging the **ON/OFF** button. The receivers are initially all on. The identification code of the currently selected “NAV” station will be audible over the computer’s built-in speaker, or external speakers, when the **ID** button is pressed.

When the **RAD** button (Radial) on the NAV1 or NAV2 receiver is activated, the actual radial from the VOR station is displayed in place of the standby frequency. While in the radial mode, direct tuning of the active frequency is available using the methods described above. There is, of course, no radial available when an ILS frequency is tuned.

DME RECEIVER



FREQUENCY MODE:

Distance and selected frequency are displayed.

The DME receiver is in the frequency mode by default. It is then channeled internally with its own two concentric frequency selection knobs (rotary dials) which count up or down the active frequency. If a tuned station is DME equipped the relative distance to the station is indicated.

GS/T MODE:

Distance, Ground Speed and TTS are displayed.

Activating the **Ground Speed** (GS) button results in displaying the Ground Speed relative to the DME station (in knots) instead of the DME frequency. In addition, the **Time-to-Station** (TTS) is displayed. Rotating the frequency selector will have no effect on the display, because the DME is in "Frequency Hold." This mode prevents accidental rechanneling of the DME when the frequency is not displayed.

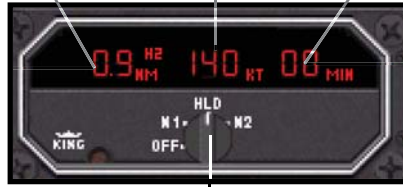
RMT MODE:

Distance, Ground Speed and TTS of remote frequency are displayed.

By activating the **R1** or **R2** button, the corresponding frequency is automatically taken from the NAV1 or the NAV2 receiver. Search time is about one second. When

no ground station can be locked, “dashes” will be displayed. Distance, Ground Speed and TTS are only available if the station remotely tuned is DME equipped.

Distance to Station
Ground Speed
Time to Station



Nav Selection and Hold (Click and drag knob left or right)

ADF RECEIVER

ADF KR 27 TSO



ADF Pressed: ADF Mode
ADF Depressed: Antenna Mode
Press Here for BFO Mode
Flip / Flop
Set Timer for Flight Time (FT)

Power On: Drag Right to Receive Identifier
Change Frequency
Press SET to Reset ET, Press SET for 2 Sec for Selectable Timer Mode

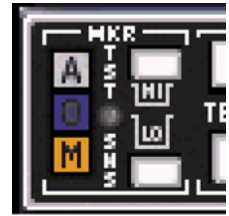
The Automatic Direction Finder Receiver (ADF) in ELITE selects a Non Directional Beacon (NDB) in the frequency range ± 600 Hz around the frequency set. This means that, for example, an NDB with a frequency of 371.5 kHz may be received with the ADF set to either 371 or 372.

NOTE: When a receiver is tuned to a frequency, the closest NAVaid with this frequency is received. When two facilities in the same area have identical frequencies, ELITE will show a dialog box to select the desired one.

MARKER RECEIVER

The Marker Receiver can be switched to LO, HI and TEST. The LO selection may be made to set marker reception to low sensitivity, i.e. markers will only receive data at a short distance, such as during the approach. The marker

lamp panel consists of the conventional: A lamp (white when lit, airway marker, inner marker), O lamp (blue when lit, outer marker), M lamp (amber when lit, middle marker).



When passing a marker, the appropriate identification code is heard while the corresponding marker lamp flashes. The duration of the marker reception as well as the reception range depends on the type of marker.

TRANSPONDER

Transponder KN 67A

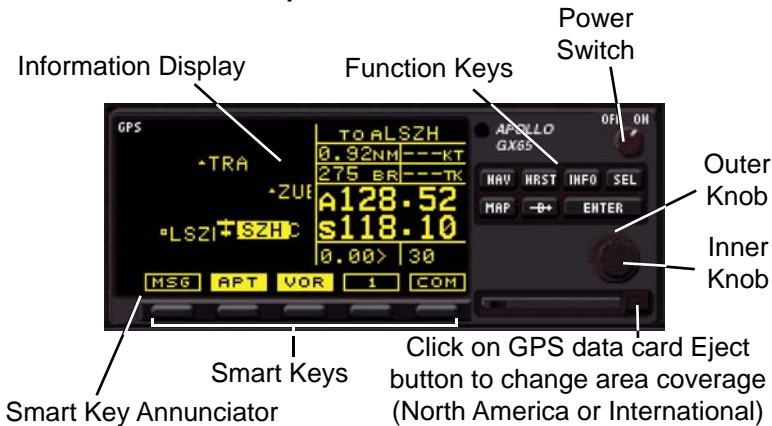


- Push button to IDENT
- Change transponder mode (Click mouse on knob and drag left or right to activate transponder features)
- Change transponder code (Click mouse on knob and drag left or right to change number)

The Transponder is a radio transmitter and receiver which operates on radar frequencies. Receiving ground radar interrogations at 1030 MHz, it returns a coded response of pulses to ground-based radar on frequency of 1090 MHz.

GPS RECEIVER

UPS Apollo GX Series GPS



The Apollo GX products are high performance GPS products with a high resolution moving map display. The Apollo GX's use a powerful, accurate 8-channel GPS engine designed specifically for high performance aviation use.

The GX50 and GX55 are GPS receivers. The GX60 and GX65 combines the GPS receiver with a VHF comm radio in a single package.

GX55

The Apollo GX55 is TSO-C129 Class A2 authorized for IFR en route and terminal operation.

GX50

The Apollo GX50 GPS receiver possesses all of the performance features of the GX55, plus more. The GX50 is TSO-C129a Class A1 authorized for IFR non-precision approach operation.

GX60

The Apollo GX60 combines the physical package of the GX50 GPS

receiver with a revolutionary VHF Comm transceiver.

GX65

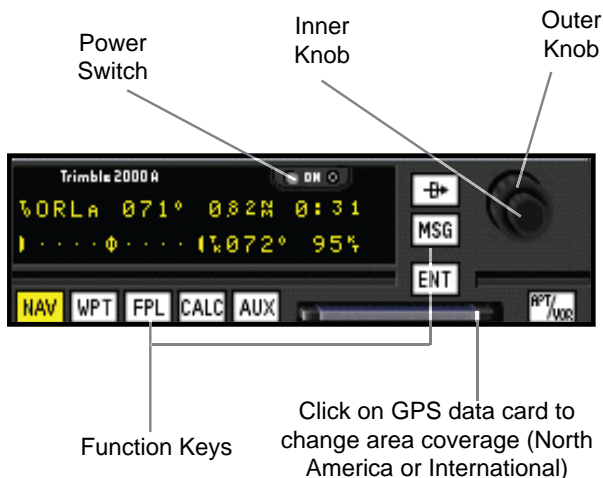
The Apollo GX65 possesses the same features as the GX60, except it is not certified for IFR approaches.

You can find the manuals for all GX models in the ELITE directory in the folder MANUALS.

TRIMBLE 2000 APPROACH PLUS GPS

The Trimble 2000 Approach Plus GPS receiver is a powerful navigation management system. GPS (Global Positioning System) is a navigation system based on satellite ranging from a constellation of 24 satellites orbiting the earth. The Trimble 2000 GPS receiver can be used for several functions including: direct navigation, flight planning, navigation, position finding, ETA/fuel consumption, emergency navigation, controlled air space identification, preflight planning, and many navigator information functions (com frequencies, runway lengths, ground track, ground speed, winds aloft, TAS, and density altitude calculations).

Trimble 2000 Approach Plus GPS



The Trimble GPS unit in ELITE functions exactly like the real Trimble 2000 Approach Plus GPS, because it uses the exact program code and navigational data that the real Trimble 2000 GPS uses. The navigational data supplied by Jeppesen is intentionally shipped expired (expires every 56 days). Even though the data has every detail that is used in the real GPS, we use the "Database Expired" message as a reminder that the data is not to be used for real world navigation.

Included in back of this manual is a quick reference guide that covers most of the functions of the Trimble 2000 GPS. You find the complete Trimble 2000 GPS manual in the ELITE directory in the folder MANUALS.

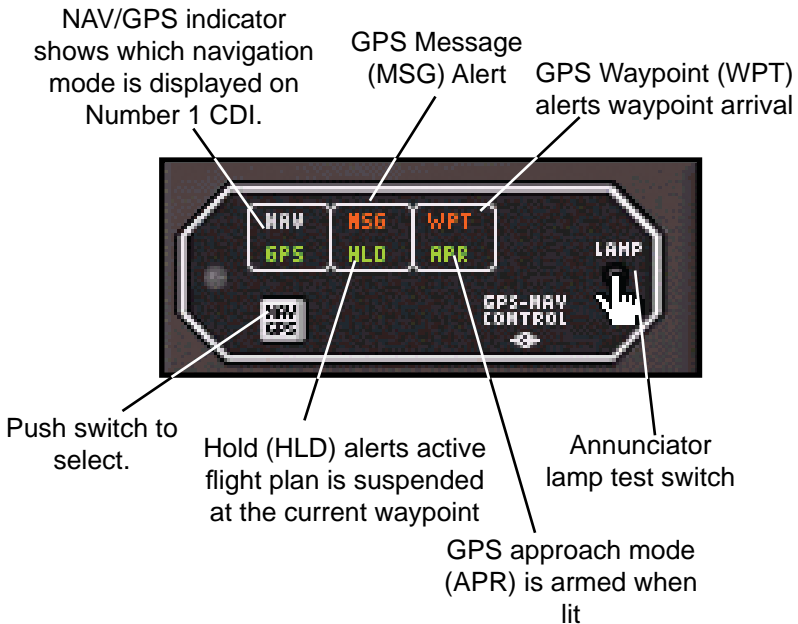
GPS ANNUNCIATOR

WITH APOLLO GPS

NAV/GPS indicator shows which navigation mode is displayed on Number 1 CDI. GPS Message (MSG) Alert OBS/HLD Indicator APPRCH enabled Indicator APPRCH active Indicator



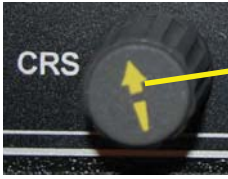
Push switch to select. Parallel Track Indicator (PTK) OBS/HLD Button Annunciator lamp test switch

WITH TRIMBLE GPS**USING THE COURSE/HEADING PANEL**

The Course/Heading panel of the AP3000 Avionics stack is used to set course and headings using either the HSI/flight director (if equipped) or using VOR #1 OBS and VOR #2.OBS. In addition, the altimeter setting and radar altimeter bug may also be set as necessary. A 2-position switch (CRS or OBS) is used to assign the CRS knob to function as a course selector for HSI or OBS.



Course/Heading Control Panel



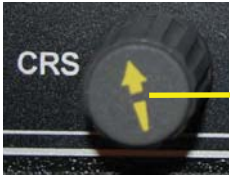
Sets the Course on the HSI



Selects the heading using the heading bug



Selects Altitude Alert/Decision Altitude on Radar Altimeter (King Air B200)



Controls VOR OBS #1



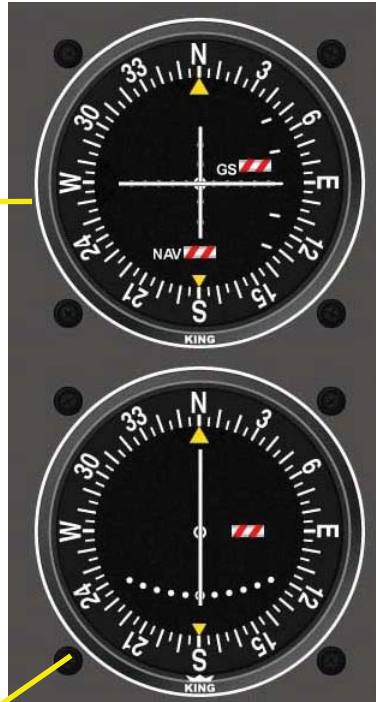
Switches between HSI and OBS #1



Sets the course in OBS #2



Sets the Altimeter



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SUPPLEMENTS

This section will include supplemental instructions for standard equipment for the RC-1 and also be used for the insertion of optional products or future product additions or releases.

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ELITE IPM

(Interconnectivity Protocol Module)

INSTALLATION GUIDE



IPM is an add-on product to ELITE that outputs flight data in formats (or protocols) common to most handheld GPS or Electronic Flight Bag (EFB) devices used for actual aircraft navigation. Connecting you devices to ELITE offers a new dimension in training and flight simulation.

ELITE[®]
ELITE SIMULATION SOLUTIONS

SUPPLEMENTS

REQUIREMENTS

ELITE software with Interconnectivity Protocol Module (IPM) Garmin Handheld GPS, Serial GPS Cable, available Serial Port or USB Port with Serial to USB Adapter.



ELITE with IPM
(Already installed with your RC-1)



Garmin Handheld GPS
(GPSMAP® 496 Shown)



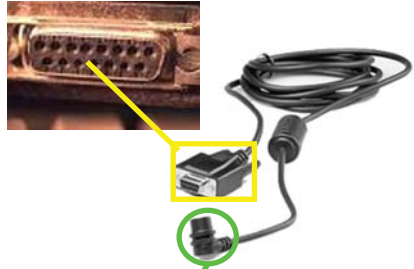
Serial GPS Cable
(A USB cable will not work UNLESS you have a USB Serial adapter.)



Enabled Serial COM Port

ATTACHING YOUR DEVICE

Step 1: Attach the serial GPS cable to an available serial port on your PC.



Step 2: Attach the 4-plug portion of the serial GPS cable to the back of the Garmin Handheld GPS.



(GPSMAP® 496Shown)

SUPPLEMENTS

CONFIGURATION

Setting Up Your Software

Step 3: Select the Configuration Screen on Main Menu or by the keyboard shortcut (entering **<ALT> + G** simultaneously).

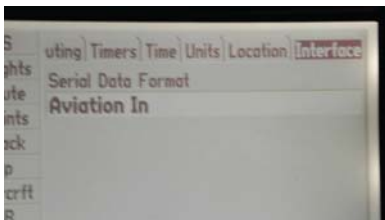


Step 4: Select GPS Out Configuration **SET**.



Step 5: Select the correct COM port/speed protocol. For most Garmin products choose **AV400** for GPS Out Protocol and Baud Rate at **9600**.

Step 6: Change Interface mode to “Aviation In.”



Start Simulator Mode

You can start simulator mode by using the GPS tab or the setup tab on the main menu.

To start Simulator Mode using the GPS tab:

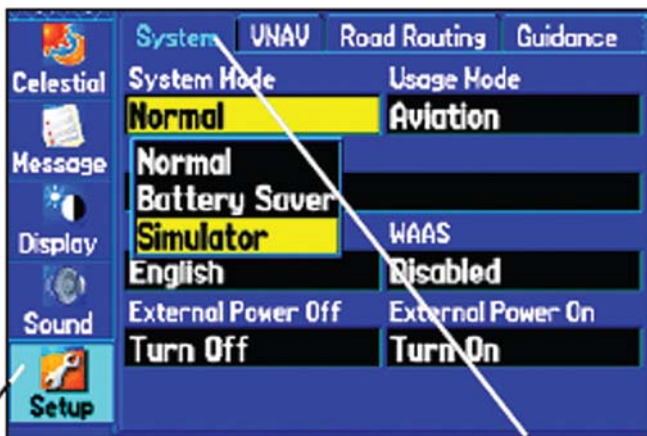
1. Press **MENU** twice to show the Main Menu.
2. Highlight **GPS** from the vertical menu.
3. Press **MENU** to open the GPS tab option menu.
4. Highlight Start Simulator, and Press **ENTER**.



SUPPLEMENTS

To start Simulator Mode using the Setup tab:

1. Press **MENU** twice to show the Main Menu.
2. Highlight **SETUP** from the vertical menu.
3. Highlight the **SYSTEM** sub tab.
4. Select **SIMULATOR** from the System Mode field



Setup tab of Main Menu

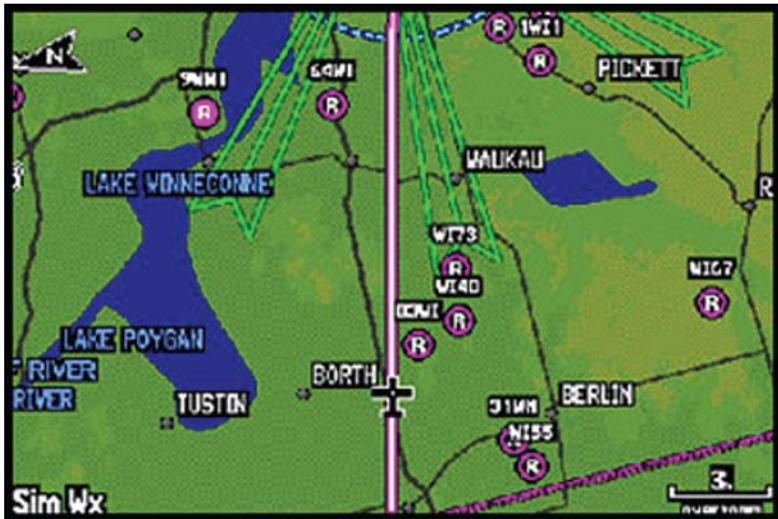
System sub tab



NOTE: Do not attempt to navigate using simulator mode, when the unit is set to simulator mode, the GPS receiver is turned off. Any satellite signal strength bars shown are only simulations and do not represent the strength of actual satellite signals.

INSTALLATION COMPLETE

With the correct parameters set in ELITE Configuration and your GPS, the position of the aircraft in ELITE and GPS map page should be the same. If ELITE and your GPS is not in location and position synch, revisit all settings.



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