ELITE®
ELITE SIMULATION SOLUTIONS v8.0

OPERATOR'S MANUAL

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SUPPLEMENTS

Thank you for purchasing an ELITE product. Since ELITE was first introduced, each version has incorporated suggestions and ideas from our customers – student and academic general aviation and professional. ELITE takes PC-based simulation a giant step forward by combining user input and the latest programming technology.

The result is the most advanced PC-based IFR (Instrument Flight Rules) simulator available today. ELITE gives you the tools for training. These include refined realism and detail that provide easy visual transference, ATC (Air Traffic Control) interaction, and failure modes that will test and improve your ability to recognize, analyze and react to realistic situations.

WHAT IS ELITE?

ELITE *(ELectronic IFR Training Environment)* is software that allows you to use your personal computer to replicate the instrument panel, avionics and flight aerodynamics of specific aircraft to practice all procedures and simulate elements of flight under instrument meteorological conditions.

In addition to allowing you to practice virtually any instrument approach in the world, ELITE gives the capability of monitoring, saving and replaying the flight path on a map screen and viewing it in both the vertical and horizontal plane.

Though not an emergency procedures trainer, capalities have been added to allow you to practice partial panel work and experience accurate malfunctions of systems critical to instrument flight. You have the capability to control specific aspects of the environment to produce the most realistic elements that would be expected in actual weather conditions.

CONCEPT

ELITE began with the basic premise that the essence of an effective PC-based IFR personal simulator should be in its inherent versatility. From the beginning, ELITE has provided the versatility to support a wide range of training requirements. ELITE simulation is used for individual practice as well as formal training in flight schools, corporate flight departments and universities. ELITE has the versatility to sustain proficiency for instrument pilots of all experience levels.

Configure your system to suit your preference. Fly with a simple control device such as a flight stick or choose from a wide range of hardware options — avionics panels, power quadrants, professional yokes and pedals. Design your training environment to suit your specific needs.

From your first flight, you will quickly see how ELITE can make a difference in the quality of your flying. Take comfort in knowing that you have invested in the best. You have joined an international family of the flying ELITE.

We welcome your comments and suggestions.

Thank you again for your support.

NOTES

The reader of this manual is expected to know how to fly an aircraft and to have some basic knowledge of instrument navigation. This manual is in no respect a tutorial in instrument flight or navigation. Its only purpose is to introduce the software and enable a pilot to use the system.

Please note that the manual shows all the screens and panels in grey scale quality only. The software makes full use of colors and shades of grey to achieve a faithful reproduction of the real aircraft cockpit.

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To use most effectively, you should be familiar with your computer. Specifically, you should know how to:

- Set up and use your computer, including basic mouse techniques such as pointing, clicking, and dragging.

• Select commands from pull-down and pop-up menus.

If you are not familiar with these basic tasks, refer to your computer documentation for instructions.

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- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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The installation process will use a combination of CD-ROM disks and floppy disks. The floppy disks are an important part of the installation. Without the floppy disk, you will only be able to install the demo version of the program.

Before installing the software please be sure to make a backup copy of any diskettes to protect against loss or permanent damage of data.

NOTE: Before proceeding with installation, disable or exit any programs running in memory. Also, it may be necessary to disable any TSRs, Screen savers, Inits, or RAM Doublers.

SOFTWARE INSTALLATION

WINDOWS

Installing the Main Program (Part 1):

The windows version of ELITE is installed in two separate parts. The first is the main program. The second is the GenView™ visual databases. Each part requires its own (unique) sets of disks (Floppy/CD) and must be installed in the following order.

1. Insert the Main installation floppy disk.

NOTE: You may have multiple floppy disks for add-ons and accessories. Insert the Main installation disk first). The add-ons and accessories should be installed after the main program is installed.

2. Next insert the ELITE CD. It is important that the floppy disk is already in the floppy drive or else the demo shield program may auto-launch.
3. After a few moments the CD should “auto-launch” and begin installation.

NOTE: If your computer is not setup to auto-launch the CD or if the CD is already in the CD drive, then insert the floppy disk and run the SETUP.EXE program file on the FLOPPY disk.

4. Follow the onscreen instructions to complete the installation.
5. After installation has finished, REMOVE the floppy and CD installation disks and proceed with GenView™ (part 2) installation.

Installing GenView™ Visual Databases (Part 2):

1. Insert the GenView USA floppy disk.
2. Next insert the GenView USA Vol 1 CD.
3. After a few moments the CD should “auto-launch” and begin installation.

NOTE: If your computer is not setup to auto-launch the CD or if the CD is already in the CD drive, then insert the floppy disk and run the SETUP.EXE program file on the FLOPPY disk.

4. Follow the onscreen instructions to complete Vol 1 installation.
5. After installation has finished, REMOVE the Vol 1 CD.
6. Insert the GenView USA Vol 2 CD.
7. After a few moments the CD should “auto-launch” and begin installation.
8. Follow the onscreen instructions to complete Vol 2 installation.
9. After installation has finished, REMOVE the Vol 2 CD and floppy installation disk.

NOTE: The GenView databases are significantly large. Loading time may vary depending on the speed and memory of your computer. Please be patient.

Installing Add-ons and Accessories :

1. Insert floppy disk first
2. Insert the CD next
3. The CD should auto-launch to the installation screen. Follow the onscreen instructions.

Before starting ELITE:

Calibrate flight controls connected to the computers GAME and/or USB ports from the Windows Control Panel (flight controls connected through the UCI box must be calibrated after starting ELITE.)

Starting the program:

1. Start the program from one of the ELITE icons on the desktop or the program can also be run from the START menu Programs list in the folder “ELITE”. You will see the startup screen and hear the intro. The lower left corner of the screen will display startup status such as the software version, your serial number, and the progression of the startup.


ELITE Pilot v8.0

NOTE: You should have two program icons on your desktop as well as several additional Elite document icons. The icons with GV (example: ELITE PILOT GV) are used to run Elite with GenView™.

2. Select the aircraft you wish to use.

3. Select the Navigational region where you would like to fly.

As in the actual aircraft, now is the time to run all controls and power levers (rudder pedals if attached) through their full range of motion before releasing the **FREEZE** button. This allows *ELITE* to read these values to self-calibrate and determine maximum output values.

HARDWARE INSTALLATION

1. Connect the USB Key and/or UCI Box as required.
2. Connect flight controls as applicable. Refer to the Elite Hardware Installation Manual for detailed connection information.
3. Connect power to UCI box and devices requiring external power (avionics panels, flight consoles, etc.) as applicable.

MULTI-MONITOR SETUP

ELITE can be set up to operate using up to three displays. On a single monitor setup, ELITE switches between the instrument, map, and other control screens using the menu at the bottom right of the main instrument screen. When starting the program with multiple displays detected, it will prompt for the arrangement of the displays as shown.

TWO DISPLAYS

One display will stay fixed to the instrument panel screen. The second display defaults to the Map screen and can be switched between the Control, Meteo, Configuration, and Modification screens.

THREE DISPLAYS

One display will stay fixed at the instrument panel, one display will stay fixed at the Map screen, the third display will default to the Control screen and can be switched between the Meteo, Configuration, and

Modification screens.

NOTE: The first time starting the program with multiple displays, you should go to the Configuration screen to set the position of the menu to either the second screen or third screen, using the Menu Position button and to set the Startup screen to either the second screen or third screen, using the

Startup button. Then quit and restart the program for the change to take effect.

TIPS FOR USING MULTIPLE SCREENS

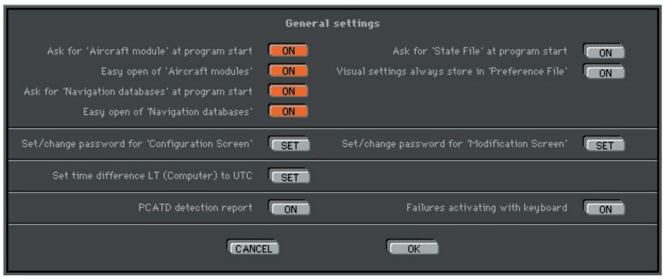
There are a few rules that should be known for using multiple screens.

1. Anytime the menu is selected with the mouse the simulator will freeze momentarily. If you wish to switch screens while a student is flying without interrupting the flight, use the keyboard short-cut commands to switch between the Map, Control, and Meteo screens.
2. The simulation will freeze if one of the secondary displays is switched to the Configuration or Modification screens.
3. Clicking anywhere inside the Map display area (to obtain information about a facility) will freeze the simulation.
4. On the Map screen, selecting the following options will Freeze the instrument screen: Dump, Path, Route, Replay, Load, ?, and Show.
5. To adjust the aircraft loading or fuel settings on the Control Screen the program must be in Freeze mode.

PCATD SETUP

The PCATD software can be used with appropriate hardware as a FAA approved PCATD in accordance with AC 61-126. There are several approved PCATD hardware configurations that can be used with ELITE. Each configuration requires a copy of the FAA letter of approval and a qualification guide from Elite Simulation Solutions.

Important: If you intend to use the ELITE software as part of a PCATD device you must verify certain software features are activated before it is used in flight instruction. Only available in ELITE PCATD.



1. **Hardware Detection Reporting**. In order to verify that all components are present and working properly, the software must run a diagnostic check on the approved hardware devices attached to the UCI every time the program is started. If needed, the program may prompt you to move certain controls to verify that they are connected and working. If any items fail the test, you will be notified which items did not pass. A green text message will appear at the bottom right of the startup screen if all tests passed.
2. In order to comply with AC 61-126, an instructor must be able to fail instruments without interrupting the students flight. This can be accomplished in two ways, either by using a secondary display or by activating the keyboard to initiate failures. If you do not use a secondary display you must activate keyboard failures option in the **General Settings**.
3. If you wish to Modify Navigational Data, you must heed the on-screen warning: “Any changes to navigation or facility data must be in accordance with 14 CFR Part 97 or this device cannot be used for

credit." This means that any changes must be valid actual changes to the real-world data.

4. Minimum Computer System Requirements for the appropriate operating system, version of software, and number of displays **must** be met or exceeded in order to use the software in a PCATD configuration.
5. Changes or modifications to the PCATD hardware configuration are defined in the "Aviation Teachware" Qualification Guide.

GRAPHICS SETUP

ELITE requires the displays settings to be set to 800 x 600 or 1024 x 768 resolution with 16-bit color. If it detects a color palette not set properly, it will try to determine if it can automatically switch the Windows display temporarily in order to run. If for some reason it can not automatically switch or if it is having problems during the startup after choosing an option to automatically switch, please go to the **Windows Control Panel** and **Manually** change the **Settings** in the **Display** properties. Change all displays: Color palette set to High Color (16-bit) and Desktop area set to 1024 x 768 or 800 x 600.

OTHER DISPLAY ISSUES

The resolution of each instrument panel is listed under each mini-picture of the aircraft selection screen. Failure to choose the correct resolution may result in a warning prompt. Choosing an 800 x 600 resolution instrument panel, when you have your Display area set to 1024 x 768 will result in an evenly spaced black border around the instrument screen.

Any other irregularities in the way the instrument panel looks on the screen may have to be adjusted using your monitor's controls.

SOUND SETUP

ELITE requires DirectX to play sound. If you experience any sound related problems, check to make sure you have the latest sound drivers from your sound card manufacturer.

If you have other programs using the sound card, you will receive a message prompt that "The sound card is in use by another device." The program will continue to load and operate without sound.

If you wish to have sound, please disable the other program that is using the sound card. If sound is not available and is not due to some detectable parameter by ELITE then the user should check the following items:

1. Speakers are not properly connected or powered.
2. Speaker volume is not turned up.
3. Operating System Volume Control is not set properly or is muted.

COM-SERIAL PORT

COM port selection and testing is only applicable to systems utilizing a UCI box or external ELITE hardware connected to the COM port.

ELITE conducts a COM Port scan the first time it is run on a given system. This scan will search for and detect the presence of a USB Key, external hardware, or both. If only a USB Key is detected initially, subsequent start-ups will basically "ignore" other COM Ports and only "look" for and verify USB Key connection.

COM PORT SCANNING

If external hardware is subsequently added to the system or a COM Port is changed, it will be necessary to run a fresh scan again.

Press and Hold down the "**C**" key at startup immediately when the "Loading ELITE" dialog box is displayed or from the Configuration Screen in the ELITE program under the **Hardware** Configuration, Computer **SET**, then **COM port change**. This will open the COM Port Detection dialog.

Pressing the Scan button will run a fresh COM Port scan for proper UCI Box/Hardware detection.

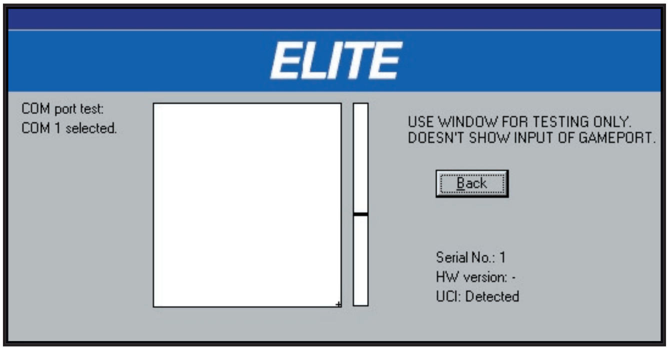
COM PORT TESTING

If the software does not detect a USB Key or functioning UCI box connected to an active serial port, the COM Port Detection dialog will appear. A list of supported communication ports is displayed along with each port's current status. Clicking the TEST button will test the selected (available) port. The port test is NOT used for calibration and is only to verify that proper communication has been established with the UCI Box/hardware.

Use the list of all 8 COM ports and their status, according to the Windows Operating System, to test for the UCI box. If a port is available, that port will have a selectable button and a blank status indication. Choose each available COM port and test it to see if the UCI box/hardware is located on that port.

A test is successful if:

- Markings are seen in the control "reticles" (Aileron/elevator, and throttle) and these reticle boxes turn " white" in color. Movement of your flight control devices can also be seen here if connected to the UCI.
- Your serial number appears in the Serial # box at the bottom right after 3 to 5 seconds (only when a UCI box is connected).



If you find the UCI and get a successful test choose **Back** and then **Continue.** If you can not find the UCI on an available COM port and have tested all available COM ports then choose **Cancel** and read **all** three COM port status issues below to see if any apply to your computer.

COM Port In Use:

If a COM port status shows "In Use" then that port is being used by another device (not the UCI) such as a modem (internal or external), UPS, Palm, mouse, or another serial device plugged into the serial port. If it is possible that another device or program has appropriated the COM port prior to starting ELITE then it will be necessary to disable the driver causing the problem. Try using the Close Program window in the Windows operating system by pressing Ctrl+Alt+Delete simultaneously. Highlight the item to be shut down and then press End Task. This procedure may be done on any item presented on the list with the exception of Explorer and Systray.

NOTE: Even though a devices such as a Palm, External Modem, or APC UPS is not plugged into the serial port, Windows may still show that port as "In Use". If you wish to use ELITE on that port, you must disable that device's driver. You can do this by using that device's utility program or possibly by a shortcut that temporarily disables many TSR programs during Windows startup. To do this, press and hold down the "Shift" key as soon as you see Windows switch from the Startup screen to the Desktop (the screen with all the shortcut icons). Continue to hold down the "Shift" key until Windows has stopped loading. Repeat the Test for the UCI.

COM Port Not Available:

If all ports are "in use" and you have determined that the "in use" devices are valid, the UCI's yellow light is flickering and connected to a serial port on the computer, then you most likely have encountered the most common situation regarding serial ports. **The serial port has been disabled or is inactive in the computers BIOS or CMOS setup.**

Prior to checking the computer's BIOS or CMOS setup utility, use the **Windows Device Manager**, in the **Control Panel**, **System** properties, to find out the status and properties (resources) of the Ports **COM** and **LPT**, **Modem**, and any other devices that use a COM or Serial Port. Write these down because you may need to reference them later.

To determine if the serial port is active you will need to enter the computers BIOS or CMOS setup utility. This utility is most commonly entered during the initial part of the boot up of the computer by pressing a key(s). Most computers show which key(s) to press shortly after turning on the computer. You must read fast, because typically you only have a few seconds to select the Setup option.

The most common keys to enter setup are: **Delete**, **F1**, **F2**, **F10**, **Control + Alt + Esc.**, or **Control + Alt + S**. Because there are dozens of different BIOS or CMOS setup utilities for IBM PCs, we could not possibly know exactly how to enter your computers BIOS/CMOS setup or know exactly where and how to make changes to your computers BIOS/CMOS utility settings.

NOTE: We highly recommend that you contact your Computer Manufacturer or seek a qualified computer technician or expert to assist you in changing your BIOS/CMOS settings.

Warning: The following information is for general knowledge only. Making improper changes to the Computers BIOS/CMOS setup utility can adversely affect the computers ability to start or cause the computer or devices on the computer to not function properly.

In the computers BIOS/CMOS setup, you will need to look at the Serial Port or UART configuration. The areas this information is normally found under are: Peripheral Configuration, Integrated Peripherals, Chipset features setup, Bios features setup, Advance then Integrated Peripherals, or Communications.

Check to see if one or more serial ports is set to “inactive or disabled”. If it is you may need to activate this port using the instruction normally found somewhere on the screen. Prior to making any changes to your serial ports, make sure you know which COM ports and Interrupt Request (IRQs) are already in use by other devices on your computer. Do not activate a serial port (that you intend to use the UCI on) to a COM port or Interrupt setting of another device that must be used while ELITE is in operation. Example: If a serial mouse is on COM 1 using IRQ-4, then do not select COM3 with IRQ-4. This will conflict with that device, because both devices need to be used at the same time. If there is a modem on COM2 with IRQ-3 then it should be OK to activate the serial port and use the UCI on COM4 with IRQ-3, because you should not be using the modem at the same you use the program.

It is also better that the serial port is assigned an actual COM port setting and NOT set to “Auto”. Also check to make sure the serial port type is set to “Standard” and not “Infra-Red” if this is an option in your computers BIOS/CMOS setup.

NOTE: If your computer has two free serial ports try plugging the UCI into both ports and test both. Serial Ports on an IBM-PC are 9-pin or 25-pin Male ports. You may have to use the standard 9-pin to 25-pin serial port adapter, that comes with the package, to connect the 9-pin standard serial cable to the 25-pin port on the computer.

COM Port Available:

If a COM port is available and you are sure that the UCI is plugged into that port and it still does not detect it, then it could be one of these rare problems:

- That port is still being used by another device in Windows. You will need to make sure all device drivers that have been installed using that port have been disabled or uninstalled.

- There is a problem between Windows and the Computers BIOS. We have only seen this on some older Compaq computers with P-166MMX to P-200MMX. You will need to contact Compaq for a fix for this problem.
- Windows decided to "freak out" (It can happen!) and make that port not work any more. This might be fixed by removing the suspected serial port from the Windows Device Manager, rebooting and reinstalling the serial port driver.
- The connection between the UCI and serial port is bad. Check the cable and pins on the port to make sure they are getting a good connection or try another standard serial cable.
- The connection between the serial port and the motherboard (internally) is bad or not connected. Open the computer and check the connections or get a qualified technician or expert to check that it is installed properly.
- The Serial Port controller has failed. The motherboard will need to be repaired or replaced. Installing an I/O serial port card will also give you additional serial ports to use.

NOTE: The only way to be sure that a serial port is not working properly is to use a diagnostic program with a "loop-back" or "wrap" plug connected to the serial port. Software "only" diagnostic programs may not indicate a communication failure.

Before we begin flying, it is important to cover the basic operational concepts regarding control, instruments, and avionics manipulation.

The relationship between the pilot and **ELITE** is basically the same as between the pilot and the aircraft — the pilot's left hand moves a control device to control pitch and bank of the aircraft while his right hand is free for operations in the cockpit.

Mooney M20J

The avionics and instrumentation in the **ELITE** Photo Realistic aircraft modules are extremely accurate in every operational detail to give you the best procedural training possible on a PC-based simulator. As with every **ELITE** version, it is assumed that the operator is a pilot and familiar with operating aircraft avionics and controls. Our intent is to show you how to operate the equipment only as it relates to this software and your computer. Detailed description and operations of the King Flight Control Integrated Systems will require a Pilot's Guide or manufacturer's Operations Manual.

BASIC OPERATIONAL CONCEPTS

"Virtual" operations in the cockpit consist of using the mouse cursor shaped like a "hand" to push buttons, twist knobs, move handles, trim wheels, etc. With the use of optional external peripherals such as avionics panels and /or power quadrants, the use of the mouse for most cockpit operations can be avoided. Controls to fly the aircraft (yokes or flight sticks) are necessary. Rudder pedals are optional, but are highly recommended for single-engine operations in the twin-engine aircraft.

KEYBOARD CONTROL

The **keyboard** is not used to fly the aircraft, but rather only to provide shortcut key commands to assist the user in general operations and map functions. These functions can be found on the **MAIN MENU** dialog box, scrolling to **MAP** screen and pressing the "**?**" at the bottom of the screen.

MAP Screen Shortcuts:

Zoom

I = In

O = Out

N = Normal View

Alt + Click/Drag = Zoom In

Alt + Shift + Click = Zoom Out

Scroll

Left Arrow = Left

Right Arrow = Right

Up Arrow = Up

Down Arrow = Down

Route

Ctrl + Click = New Point

Ctrl + Shift + Click = Move Point

Ctrl + Alt + Click = Delete Points

Ctrl + "CLEAR" = Delete all Points

HDG/Dist

Shift + Click = Show heading and distance

Position

C = Center map to ACFT

Ctrl + C = Move ACFT to Map center

Custom Zoom

Ctrl + Click in “Zoom level Window” = Store Actual zoom level

Click in “Zoom level Window” = Set stored zoom level

General Shortcuts:

Visual

T = Look Down
G = Look Center
B = Look Up
Shift + Left Arrow = Look to left
Shift + Up Arrow = Looks to Front
Shift + Right Arrow = Look to Right

Simulation Speed

S = Slower
F = Faster

Control

V = Toggle Visual
Alt + F = Freeze
Alt + Q = Quit
Alt + H = Help

Engine Sound

E = On/Off

MOUSE CONTROL

Manipulation of **ELITE** controls are simple but may require practice. The mouse cursor is a hand.

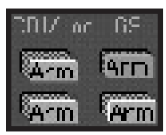
Press buttons, grab knobs or slide switches by placing the virtual "fingertip" on the button, knob or switch on the instrument panel and pressing the left mouse button and moving the mouse left or right (called click and drag). Operation is the same for stacked knobs or bezel rings. The fingertip is used as you would use your finger in the cockpit.

To move an actuator such as flaps or gear handle, move the fingertip over it, press and hold the mouse button (as if seizing the actuator in the cockpit), drag it to the desired position and then release the mouse button.

Always hold the mouse perpendicular to the computer display. This is best accomplished by sitting in front of the screen and holding the mouse at about the position where the power controls are mounted, relative to the cockpit seat. If you hold the mouse at the wrong angle, the hand does not move in a natural way.

Pushing Buttons:

Push Buttons control many cockpit functions, and in **ELITE**, they appear three dimensional.



A **Push Button** is activated by moving the fingertip over it and pressing the mouse button. Any button that is in its *down* or *on* position appears *"pushed-in,"* a button in its *up* or *off* position appears *"popped-out."* Some push buttons are *toggle buttons*. They remain *down* or *on* once they have been pushed. To release a toggle button just push it again. Some buttons also light up when pushed in and others are labeled with text or a symbol, indicating their operation.

Knobs and Rotary Dials:

Knobs and rotary dials are common types of devices in a cockpit. They are used, for example, to set the heading bug and the Course Deviation Indicator (CDI) on the HSI, or to set radio frequencies. Where rotary dials are used in the real cockpit, there are knobs or push buttons to simulate them in **ELITE**.

Rotary Dials are activated by positioning the fingertip cursor on the edge of the dial, holding the mouse button down, and then moving the mouse diagonally. Right movement turns the dial to the right (clockwise) and increases numbers, movement to the left has the opposite effect. In order to continue turning, a rotary dial changes to "**auto scroll**" when the fingertip is held at the edge of the screen and can't be moved further. The button keeps turning as long as the fingertip stays at the edge area or as long as the mouse button is held.

NOTE: An alternative to changing avionics frequencies is to click on the numbers themselves. Clicking on the right side of the number decreases and clicking on the left side increases the numerical count (only in photorealistic modules).

Switches:

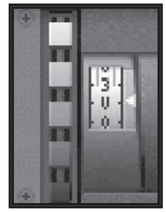
Switches work similarly to push buttons. Click on them to operate like a typical rocker switch.

Power Levers:

In the **ELITE** cockpit, power levers are graphically modeled and colored according to those in the aircraft, like throttle, propeller (RPM), mixture, flaps and gear.

Operate the levers by moving the fingertip cursor over the lever, press and hold the mouse button, then drag the lever up or down by moving the fingertip. Release the mouse button when the settings are as desired.

Wheels:



Rudder and elevator trim wheels are operated like levers. Move the fingertip cursor over the wheel, press and hold the mouse button, rotate the wheel by moving the fingertip. Release the mouse button when the settings are as desired.

NOTE: The mouse "holds" the lever or wheel as long as the mouse button is held, even after the fingertip has left the lever or wheel symbol.

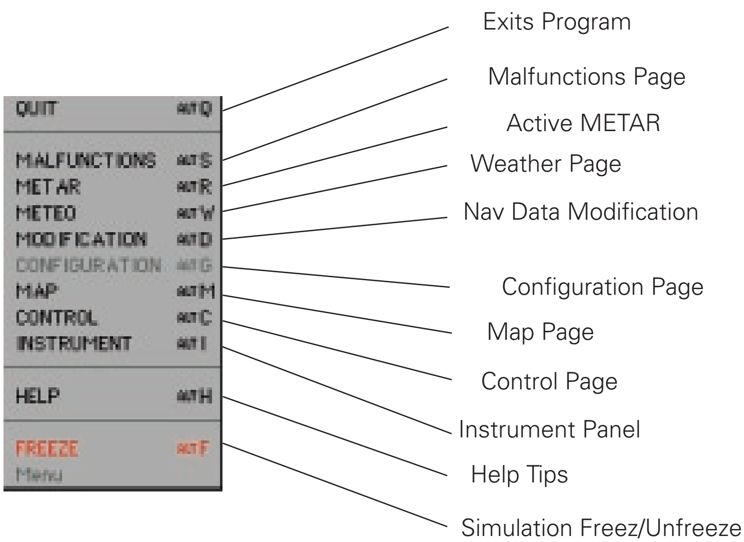
PROGRAM MENU

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 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 keyboard **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.



The following is only an overview of the MENU layout. For detailed capabilities and operations, see Chapter 4, 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 steering devices
- load new aircraft modules and
- 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 ATC scenarios.

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 ATC scenarios.

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. 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

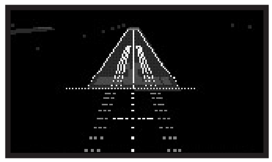
Selecting QUIT ends the program and returns you to the operating system.

INSTRUMENT SCREEN

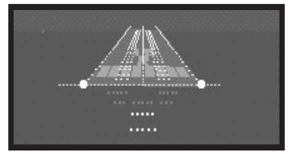
The instrument screen incorporates all particular items needed to pilot an aircraft. A cockpit window in the upper left hand corner of the screen offers outside views such as runway environments, ground, and weather obstructions to visibility such as fog and low ceilings.

NOTE: The runway considered active by **ELITE** *has its edge lights, centerline lights and approach lights on.* **ELITE** *determines the active runway based on the position of the aircraft and course relative to the runway, or in other words, the closest aligned runway with the aircraft. Depending on environmental settings, lighted runways can appear gradually out of fog.*

As the aircraft descends below the programmable cloud base, the runway and ground become visible. When the aircraft is above the established ceiling, it is in the clouds, which show as a grey window. Relative motion of moving through the clouds is given by slight color changes in the “out-of-window” view. The effect is a distraction that adds realism to the flight. See Chapter 4, Program Features, for information on changing and customizing environmental conditions.



This window shows a runway with a British CALVERT II high intensity approach light system in a night approach. The visibility is set such that the entire runway is visible.



This window shows the scene at decision height on an ILS approach with minimal visibility to a runway with an ALSF high intensity approach light system (HIALS) in daylight.

Calculating and painting the approach lights, runway lights, centerline lights, and the runway surface place a substantial load on the processor of the computer, even when the runway is still far away or already behind the aircraft. This results in a degraded refresh rate of the instruments, i.e. the instruments will not move as smoothly as usual.

If you are running a computer with less than 133 MHz processor speed, you can prevent the software from doing unnecessary calculations by trying the following:

- set the ceiling (i.e. cloud base) to a proper height for flying an approach, (i.e. not less than HAT or HAA) or
- switch the approach light system and runway lights off in the visual panel of the control display (Control Page).

As long as the aircraft is more than 100 feet above the ceiling, no processing power is consumed to generate the runway and lighting system image.

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 taxiways 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 taxiways). 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 taxiway lights.
4. The length of the runway defines the amount of taxiway exits:

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

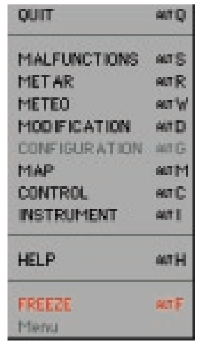
ADJUSTING THE INSTRUMENT PANEL

While flying in GenView, you can control the size of the visual display with a simple "click and drag" on the dashboard, scroll of a mouse wheel or keyboard for increased viewing area. The keyboard commands to lower and raise the instrument panel are Control & Page Up, Control & Page Down, Control & Home, Control & End.

Piper Archer III

Use Shift & left arrow and Shift & right arrow for a maximum of 150° side view to each side and Shift & up cursor for front view. Use the Shift & Ins for a left 90° degrees view or Shift & Del for a right 90° degrees view. "Click and Drag" on the dashboard to increase viewing area.

USING THE MENU INTERFACE



The menu selection box is located at the lower right side of the monitor. Click on the main menu button once and the menu box will remain on screen until a page is selected or you click the mouse outside of the menu box. When the instrument panel is lowered, the main menu tab will disappear. To access the menu selection box when the instrument panel is lowered, right mouse click at any location on the aircraft instrument panel. The menu selection box will disappear when a page is selected or a mouse click is made outside of the menu box.

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. Airspeed indicator window adjustments for TAS function on all **ELITE** photo-realistic aircraft. If the airspeed 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 the Course Deviation Indicator (CDI) in the aircraft's panel, combining slaved heading and VOR/LOC/Glideslope deviation information into one compact display.

This HSI is set to an ILS

This HSI is set to a VOR

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

COURSE DEVIATION INDICATOR

The Course Deviation Indicator (CDI) is of the conventional cross-pointer layout. It is connected to the NAV receivers (NAV1 or NAV2). The CDI compass card is rotated by the rotary dial.

This CDI is set to a VOR

This CDI is set to an ILS

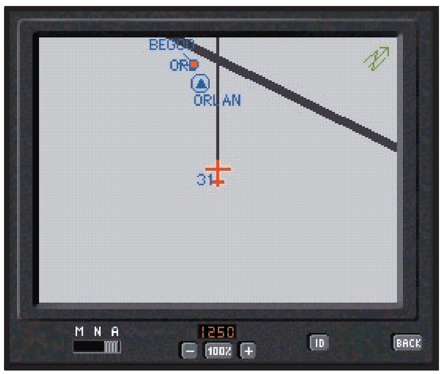
RADIO MAGNETIC INDICATOR

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, whereas the compass card of the MDI can be turned by the rotary dial. The actual **Variation**, which is the difference between magnetic and true North, is automatically picked up from the variation of a navigation facility tuned in from a runway in the vicinity. **Bearing Pointer** indicates relative or magnetic bearing to station as selected by HDG knob. If the relative heading of north is manually selected under the lubber line by the pilot, then the bearing pointer indicates the relative bearing to the station. If the aircraft's magnetic heading is selected under the lubber line by the pilot, then the bearing pointer indicates the magnetic bearing to the station.

MOVING MAP



The **Moving map** feature is available on all **ELITE** photo-realistic cockpits and is activated by pressing the King Crown symbol on the DME instrument panel (ADF on the Baron & Bonanza models). The map can be displayed in three modes:

Mode M = MAP. This display presents the view that is also shown in the MAP screen. The aircraft symbol moves across the map. When the aircraft reaches the edge of the map display, the aircraft and map are recentered. True north is always oriented to the top of the screen. A track representing the last two minutes of flight will be shown.

Mode N = NORTH. The aircraft remains centered on the map screen at all times. The aircraft heading reflects the actual magnetic heading of flight. True north is oriented to the top of the screen. A track representing the last two minutes of flight will be shown.

Mode A = AIRCRAFT. The aircraft symbol is at the fixed centered position and is always oriented to the top of the map screen. The aircraft symbol is oriented in the direction of heading. A track representing the last two minutes of flight will be shown.

ZOOM: The plus button zooms in and the minus button takes you out. The facilities shown on the instrument panel moving map screen are the same as on the MAP screen. Unlike the map screen, however, only VOR, DME, NDB, fixes and LOC/GS antennas are available for viewing on the moving map. You can use the SHOW FACILITIES feature on the MAP page to customize the display on the moving map.

ID Button: This button will toggle the facilities identification on or off. When the **ID** button is pressed and lit, the navigation facilities identifiers will be displayed.

BACK: Turns the moving map display off.

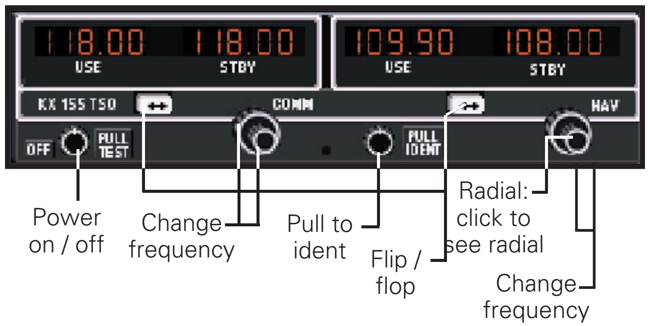
RADIO NAVIGATION RECEIVERS

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

On the “COMM1/NAV1”, “COMM2/NAV2”, and the “ADF” receivers,

Nav / Comm KX 165 TSO

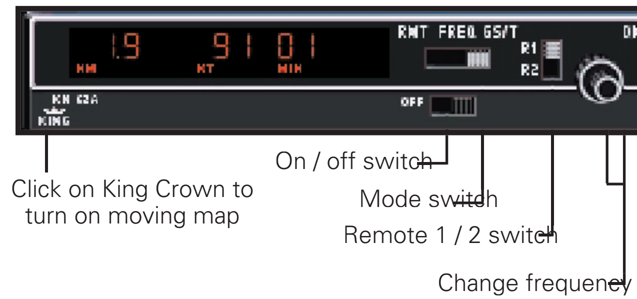


the right window displays the standby frequency and the left one displays the active frequency. Setting a frequency is done in the same way as on a real receiver. Use the rotary dials to count up or down the standby frequency, or click on the numbers themselves (Clicking on the right side of the number 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, while 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 and you set with the rotary dials direct the active frequency. There is, of course, no radial available when an ILS frequency is tuned.

DME RECEIVER

DME KN 62A



Frequence 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.

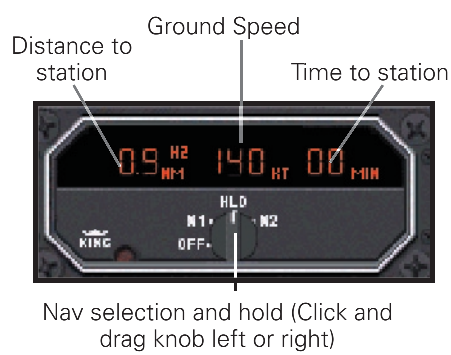
GS/T Mode:

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:

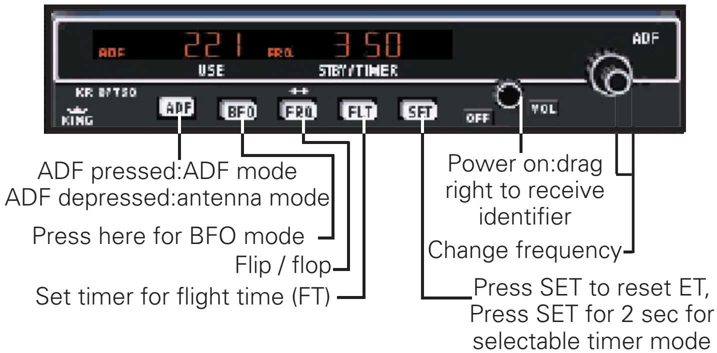
Distance, Ground Speed and TTS of remote frequency are displayed.



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.

ADF RECEIVER

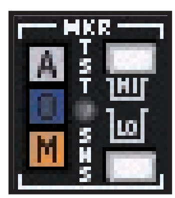
ADF KR 27 TSO



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

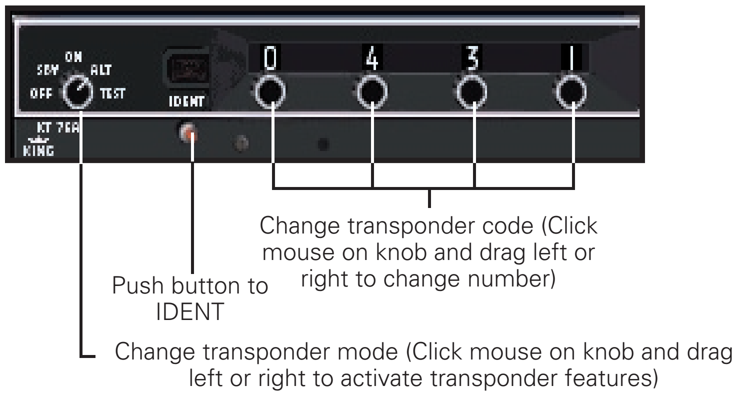


The Marker Receiver can be switched to LO, HI and TEST. The LOW selection may be made to set marker reception to low sensitivity, i.e. markers will only receive data at a short distance, such as during the approach. The marker lamp panel consists of the conventional: **A** lamp (white when lit, airway 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

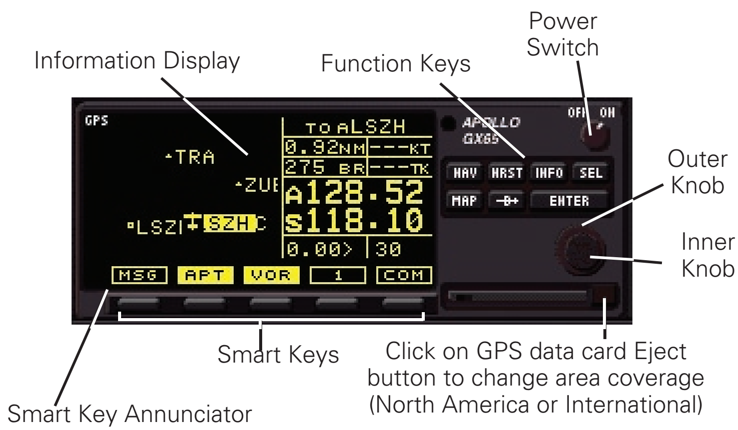
Transponder KN 67A



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 enroute and terminal operation.

GX50

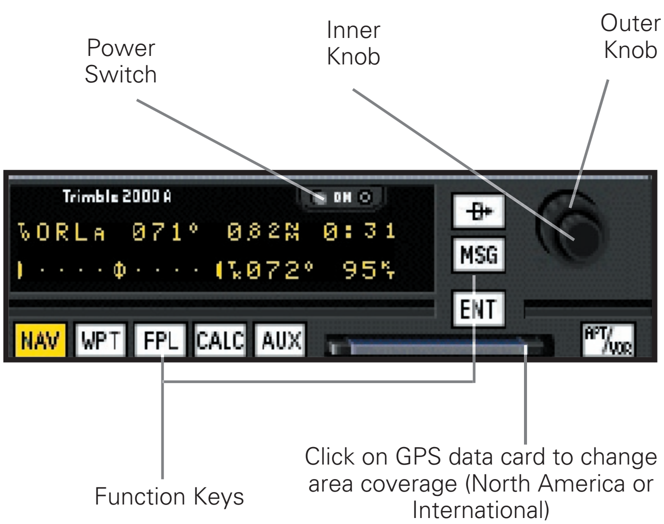
The Apollo GX50 GPS receiver possesses all of the performance features of the GX55, plus more. The GX50 is TSO-C129a Class A1 authorized for IFR non-precision approach operation.

GX60

The Apollo GX60 combines the physical package of the GX50 GPS receiver with a revolutionary VHF Comm transceiver.

GX65

Trimble 2000 Approach Plus GPS



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

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

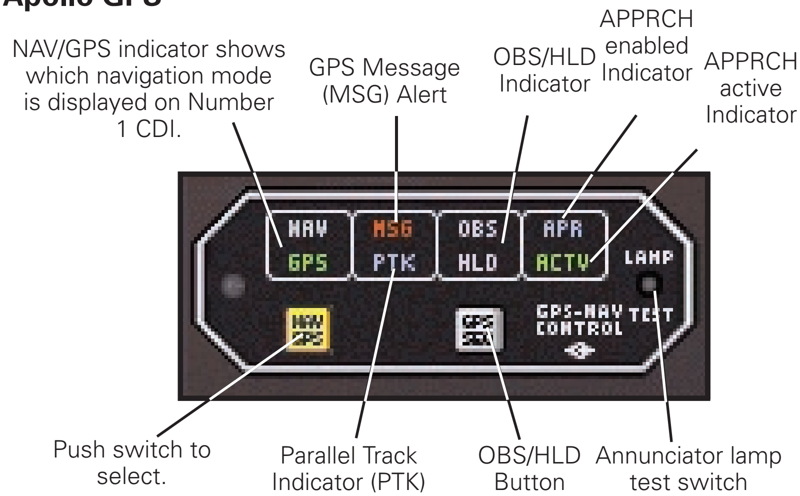
The Trimble 2000 Approach Plus GPS receiver is a powerful navigation management system. GPS (Global Positioning System) is a navigation system based on satellite ranging from a constellation of 24 satellites orbiting the earth. The Trimble 2000 GPS receiver can be used for several functions including: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

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 Jepessen 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.

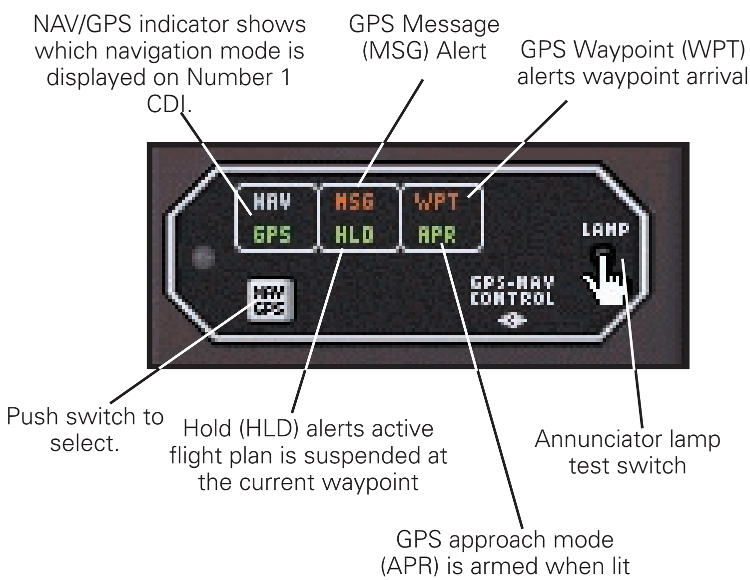
Included in back of this manual is a quick reference guide that covers most of the functions of the Trimble 2000 GPS. You find the complete Trimble 2000 GPS manual in the ELITE directory in the folder MANUALS.

GPS ANNUNCIATOR

With Apollo GPS



With Trimple GPS



SILVER CROWN PLUS AVIONICS SYSTEM

The Bendix/King Silver Crown Plus avionics system is an advanced version of the venerable Silver Crown avionics system used by ELITE. The Silver Crown Plus avionics system incorporates all of the familiar usefulness and functionality found in the previous system while introducing new features to enhance an already popular product.

The Bendix/King Silver Crown Plus avionics system is available for use in all ELITE aircraft modules. To use the Silver Crown Plus avionics system simply go to the CONFIGURATION Page of that particular aircraft module and select the Bendix/King Silver Crown Plus option from the item labeled Avionics Stack in the Instrument Configuration column. ELITE must be restarted to activate the Silver Crown Plus avionics system for use. The Silver Crown Plus avionics system will automatically be the default avionics system upon program start until another system is chosen to replace it.

Please refer to the ELITE CD-ROM or the SUPPORT section of the ELITE website,www.flyelite.com, for information and operating instructions pertaining to the Bendix/King Silver Crown Plus avionics system.

EFS 40 - EADI/EHSI

The Bendix/King EFS 40 is an advanced Electronic Flight Instrumentation System (EFIS) designed to meet the demands of today's complex flight environment. The actual real-world EFS 40 has numerous installation options/configurations that can be tailored to an individual aircraft and owner's preferences. The ELITE EFS 40 installation consists of the ED 461 control/display unit, ED 462 display unit, & the CP 470 control panel. The ED 461 and ED 462 function as the EHSI (electronic horizontal situation indicator) and EADI (electronic attitude direction indicator) respectively while the CP 470 is a separate control panel for the EADI. The EFS 40 EFIS is selectable in the following aircraft:

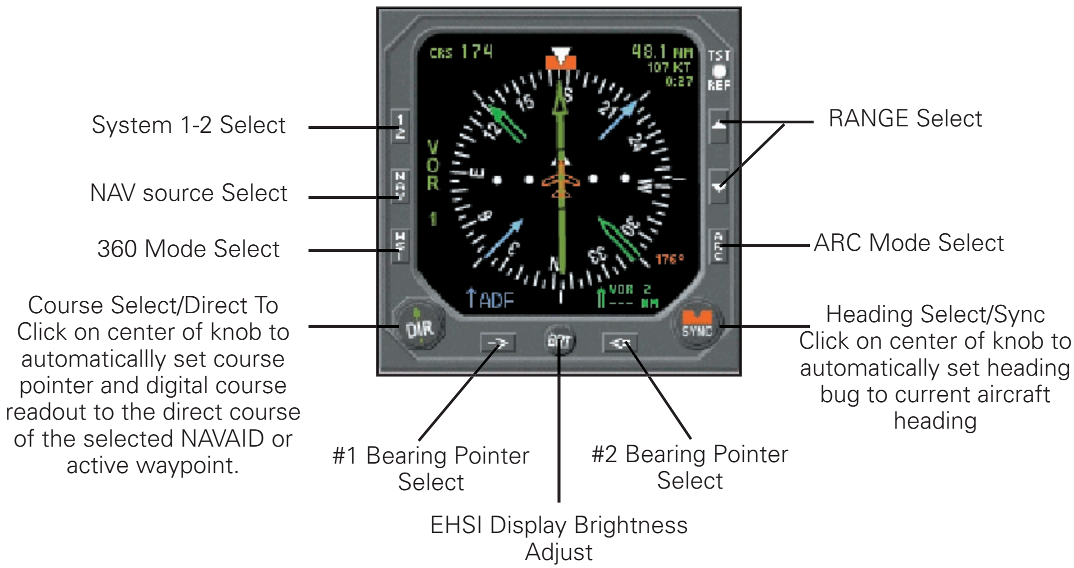
- TB10
- TB20
- Baron 58
- Seneca III
- Bonanza A36
- Arrow IV
- Mooney M20J

To select and add the EFS 40 EHSI by itself or the EHSI/EADI combination to any aircraft listed (above) simply go to the CONFIGURATION Page and select the corresponding option as desired under the Instrument Configuration column. Press and HOLD the mouse button over the small down-arrow under HSI/ADI to view available options. Move the mouse cursor over the desired selection and release the mouse button to select. Once the selection has been made, press and HOLD the SAVE button at the top of the Instrument Configuration column. Holding the SAVE button will save the selection(s) and Quit ELITE in one step. Restart ELITE to use the new configuration changes.

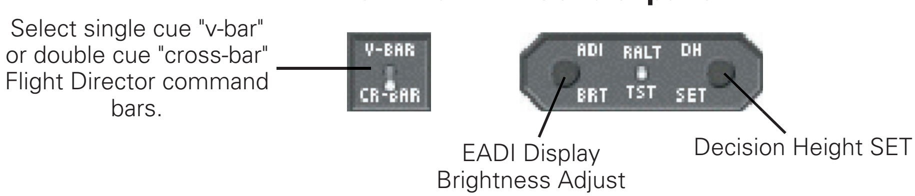
The complete EFS 40 Pilot's Guide is on the Main ELITE CD and is also available at www.bendixking.com or www.flyelite.com. Refer to the Pilot's Guide for specific operational techniques. Some of the EFS 40 functions are briefly outlined in the following diagrams. Please note that although most of the actual EFS 40 features/functions have been implemented in the ELITE EFS 40 unit, due to the numerous real-world installation options/configurations possible, not all features/functions are available.

EADI

EHSI



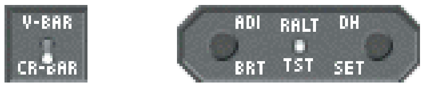
CP 470 EADI Control panel



The EFS 40 EADI utilizes the CP 470 control panel pictured (below). Mode controls that are used with the EHSI are located on the periphery of the EHSI instrument itself.

Select single cue "v-bar" or double cue "cross-bar" command bars.

Radar Altimeter Test



EADI Display Brightness control

Decision Height set

"HEADING SYNC" feature: Click on center of knob to automatically set heading bug to current aircraft heading.

"DIRECT TO" feature: Click on center of knob to automatically set course pointer and digital course readout to the direct course of the selected NAVAID or active waypoint.

AUTOPILOT

KAP 150 / KFC 150

The KFC 150 and KAP 150 are both two-axis automatic pilot systems that operate almost identically. These autopilots each provide pitch and roll stabilization and automatic trim as well as automatic response to all selected autopilot modes. The only difference being the KFC 150 also has a flight director (FD) function. Since the KAP 150 does not have a FD function it uses a standard attitude reference without V-bar commands.

To use the KAP 150 and KFC 150 autopilots please follow these simple instructions:

Before each use please press the TEST button and wait for the system to perform its self-test function.

AP ENG:

The most basic form of autopilot operation is to engage only the autopilot engage (AP ENG) mode button. In this mode, with no other modes selected, the aircraft will maintain the pitch attitude existing at the time of AP ENG engagement and will fly with the wings level. Use of the vertical trim (UP/DN) switch in this mode will affect an approximate 0.9 degree per second pitch change.

HDG:

In heading (HDG) mode the aircraft will maintain the heading selected by the heading 'bug'. Be sure to place the heading bug in the desired position before engaging the HDG button, as the aircraft will immediately begin turning in the shortest direction toward the 'bug'.

NAV:

In navigation (NAV) mode the autopilot will intercept and track VOR courses. To use the autopilot with a conventional CDI-type VOR indicator first make sure the autopilot is in HDG mode and then tune the desired navigation frequency. Set the OBS to the desired course and then depress the NAV button causing the NAV indicator to flash signifying the mode is armed. Within five seconds move the heading 'bug' to the same value as selected on the OBS. The autopilot will then fly a 45 degree intercept heading until course capture whereupon the system will track the desired course.

NOTE: The NAV indicator will not flash if the NAV mode is selected while the aircraft is level within +/- 4 degrees and 2-3 dots of course deviation, but will rather go immediately into NAV mode directly.

To use the navigation feature of the autopilot with an HSI first tune the navigation frequency. Use the Course Set Knob to select the desired course line value. Set the intercept angle by placing the heading 'bug' on the desired heading and press the HDG button, if not already in HDG mode. Now press NAV button and fly the selected heading until course capture. The NAV light will flash until course interception to indicate that it is armed. (See the NOTE above.)

APR / GS / BC:

To use the autopilot in approach (APR) mode first make sure that the system is in HDG mode if using a conventional CDI-type VOR indicator. Tune the appropriate ILS, LOC or VOR frequency. Set the OBS to the final approach course. (NOTE: if intending to fly a back course be sure to use the front course setting. Press the BC button after pressing the APR button.) Press the APR button causing the APR light to flash indicating it is armed. Turn the heading 'bug' to the inbound course within five seconds. The system will fly a 45 degree intercept heading until capturing the course. If flying an ILS the GS will be captured automatically causing the GS light to illuminate.

If using the APR mode with an HSI please tune the appropriate ILS, LOC or VOR frequency first. Use the Course Set Knob to set the desired final approach course. Turn the heading 'bug' and press the HDG button if not already in HDG mode. Press the APR button. The autopilot will fly the desired heading until course capture. The BC and GS features operate the same way as described above.

ALT:

To operate in altitude hold (ALT) mode first fly to and level off at the desired altitude and then press ALT. Altitude adjustments may be made in ALT mode by using the vertical trim (UP/DN) switch. Moving this switch in either direction while in ALT mode will cause the aircraft to climb or descend at approximately 500 fpm. When the switch is released the autopilot will maintain the new altitude.

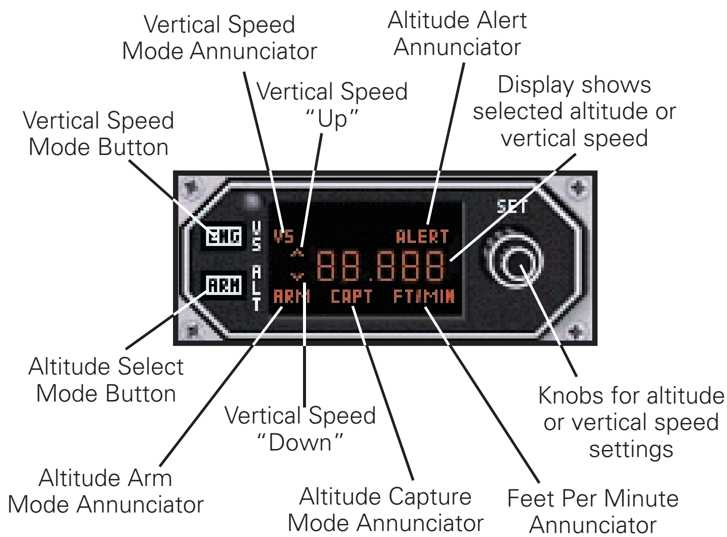
CWS:

The control wheel steering (CWS) button located on the control yoke allows the pilot to maneuver the aircraft in pitch and roll without disengaging the autopilot. The autopilot resumes control when the button is released.

FD: (KFC 150 only)

The KFC 150 has a flight director (FD) function that the KAP 150 does not. ELITE aircraft modules using this autopilot have a V-bar that appears on the attitude indicator anytime the FD or AP ENG features are selected. If the FD function only is selected the V-bar will command the user to make control inputs to satisfy the system requirements by maneuvering the orange delta wing into the V-bar.

ALTITUDE/VERTICAL SPEED SELECTOR



This feature is available only with the Bonanza, Baron, Seneca III and King Air (King radio option) aircraft modules only. The KAS 297B offers the user the ability to pre-select altitudes and vertical speeds while using the autopilot.

Altitude Pre-Select - to pre-select an altitude the unit must first be indicating FT. If it is not then either push in the inner concentric knob if using a mouse or flip the toggle switch to ALT if using an ELITE avionics panel. Using the knob(s), choose the desired altitude and then press the ARM button to arm the altitude capture mode. This will cause ARM to appear on the indicator. Use pitch attitude hold or select a vertical speed to guide the aircraft to the desired altitude. As the aircraft nears the desired altitude the system computes a roundout and will indicate altitude capture (CAPT) as the aircraft levels off. Once the aircraft has leveled off the vertical speed mode disengages and the CAPT indication disappears.

Altitude alerting is provided by the KAS 297B and alerts the user with a two second aural tone at +/- 1000 ft from the target altitude. An ALERT annunciation comes on with the tone and stays on until 300 ft from the target altitude. The aural tone also sounds again for two seconds when the aircraft reaches its selected altitude. The system also provides an aural warning any time the aircraft's altitude varies more than 300 feet from the selected altitude after level off.

Vertical Speed Pre-Select - to pre-select a vertical speed the unit must first be indicating FT/MIN. If not, pull the inner concentric knob when using a mouse or flip the toggle switch to V/S when using an ELITE avionics panel. Use the knob(s) to select the desired vertical speed. The indicated up/down arrows show whether a climb or descent has been selected. To engage the selected rate press ENG and VS will appear on the indicator. Engaging the vertical speed function will cancel the ALT mode if being used. There are several ways to change the rate of vertical speed once the function is engaged:

1. by rotating the knob while in V/S mode
2. by pressing the CWS button on the yoke and pitching to a new vertical speed value
3. by pressing the vertical trim switch on the autopilot. Using the vertical trim switch will affect a 100 feet per minute change in vertical speed for every second it is pressed

CESSNA 172R

1024 x 768 Resolution

COCKPIT FUNCTIONS

Click on instrument knobs and drag mouse to adjust TAS, set aircraft symbol or adjust altimeter.

EGT/Fuel flow gauge: indicator serves as a visual aid to help adjust mixture through monitoring of exhaust gas temperature. Click mouse on screw and drag to adjust peak EGT indicator.

Emergency Locator Transmitter, (ELT):

ON - Activates ELT immediately.

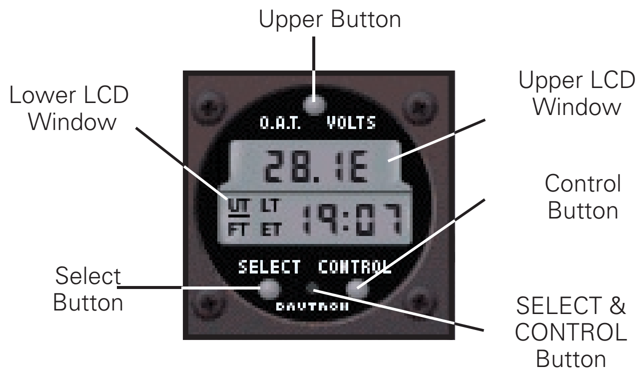
AUTO - Arms ELT for automatic activation if "G" switch senses a predetermined deceleration.

RESET- Deactivates ELT & rearms transmitter.

The **ELT** will activate with hard landings or crashes... reset to stop the alarm.

Model 3000-11

Clock / OAT Gauge:



Test Mode

The unit may be tested by holding the SELECT button down for 3 seconds. Proper operation is indicated by the display 88:88 and activation of all four annunciators.

O.A.T./Voltmeter Operation

The upper portion of the LCD window is dedicated to O.A.T. and voltmeter operations. The voltmeter reading is preselected upon startup and is indicated by an "E" following the display reading. Pushing the upper control button will sequence the window from voltage to Fahrenheit ("F") to centigrade ("C"), and back again to voltage.

Clock Operations

The lower portion of the LCD window is dedicated to clock and timing operations. Pushing the **SELECT** button will sequence the window from universal time (UT) to local time (LT) to flight time (FT) to elapsed time (ET) and back again to universal time. Pushing the **CONTROL** button allows for timing functions within the four **SELECT** menus. Setting procedures are as follows:

1. Setting Universal Times
   Use the **SELECT** button to select universal time (UT). With the actual instrument, you would simultaneously press both the **SELECT** and **CONTROL** buttons to enter the set mode. With the ***ELITE*** model, press the **SELECT & CONTROL** button as shown in picture to enter the set mode with a single mouse click.

When ***ELITE*** is NOT in the **FREEZE** Mode, the tens of hours digit will start flashing. The **CONTROL** button has full control of the flashing digit, and each button push increments the digit. Once the tens of hours is set the **SELECT** button selects the next digit to be set. After the last digit has been selected and set with the **CONTROL** button, a final push of the **SELECT** button exits the set mode. The lighted annunciator will resume its normal flashing, indicating the clock is running in universal time mode.

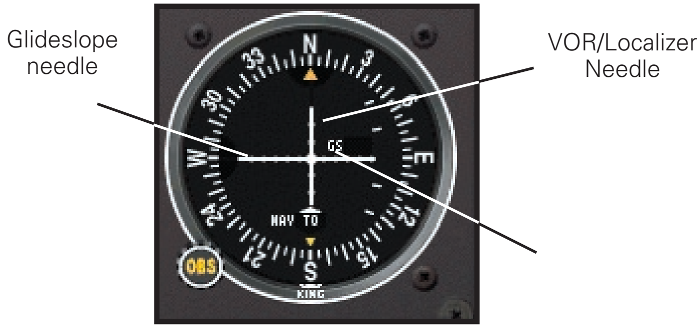
2. Setting Local Times
   Use the **SELECT** button to select local time (LT). Press the **SELECT & CONTROL** button with a single mouse click to enter the set mode. The tens of hours digit will start flashing. The set operation is the same as for UT, except that minutes are already synchronized and the UT clock cannot be set in local time.
3. Flight Time Reset
   Use the **SELECT** button to select flight time (FT). Hold the **CONTROL** button down for 3 seconds or until 99:59 appears on the display. Flight time will be zeroed upon release of the **CONTROL** button.
4. Setting Flight Time Flashing Alarm
   Use the **SELECT** button to select flight time (FT). Simultaneously press both the **SELECT** and the **CONTROL** buttons by mouse clicking

on the **SELECT & CONTROL** button to enter the set mode. The tens of hours digit will start flashing. The set operation is the same as for UT. When actual flight time equals the alarm time, the display will flash. Pressing either the **SELECT or CONTROL** button will turn the flashing off and zero the alarm time. Flight time is unchanged and continues counting.

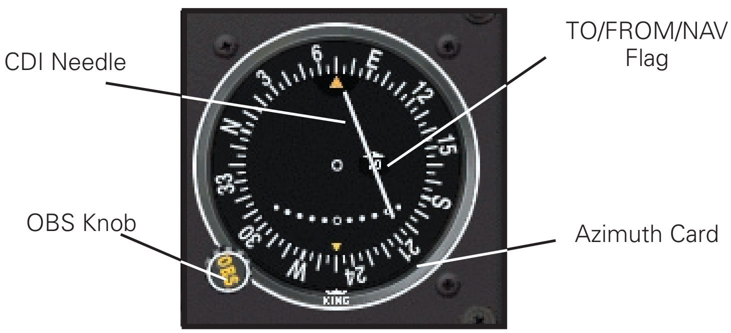
5. Setting Elapsed Time Count Up

Use the **SELECT** button to select elapsed time (ET). Press the **CONTROL** button and elapsed time will start counting. Elapsed time counts up to 59 minutes, 59 seconds, and then switches to hours and minutes. It continues counting up to 99 hours and 59 minutes. Pressing the **CONTROL** button again resets elapsed time to zero.

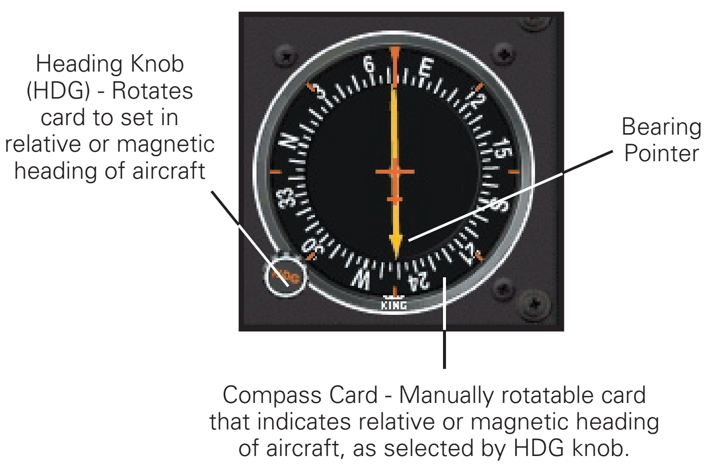
KI-209A indicator



KI-208 indicator



KR-87 Automatic Direction Finder (ADF)



Engine driven mechanical tachometer is calibrated in increments of 100 RPM and indicates both engine and propeller speed. An hour meter in the dial records elapsed engine time in hours and tenths. The meter stops when the simulation is in FREEZE mode.

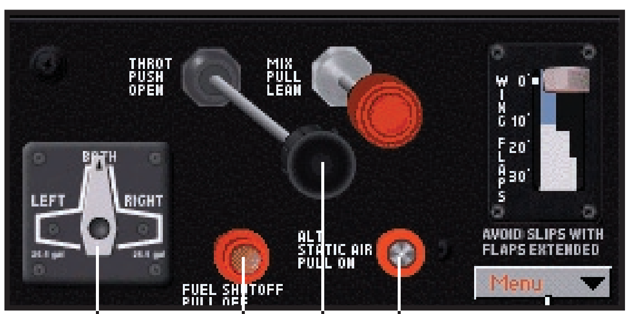
Master Switches

Master Avionics Switch

Ignition switch

Trim Wheels

Park brake



Fuel Selector - Click to change tanks

Throttle / Mixture/Fuel shutoff / Alternate static air - click & drag to pull knobs

AIRCRAFT CHECKLIST

Before Starting Engine:	
Brakes	TEST and Set
Electrical Equipment	OFF
Avionics Power Switch	OFF
Fuel Selector Valve	BOTH
Fuel Shutoff Valve	ON
Starting Engine:	
Throttle	OPEN 1/4 INCH
Mixture	IDLE CUT OFF
Master Switch	ON
Auxiliary Fuel Pump Switch	ON
Mixture	ADVANCE to obtain 3-5 GPH fuel flow, then return to IDLE CUT OFF position.
Ignition Switch	START
Mixture	ADVANCE smoothly to RICH as engine fires.
Oil Pressure	CHECK
Auxiliary Fuel Pump	OFF
Beacon Light	ON
Avionics Power Switch	ON
Radios	ON
Before Takeoff:	
Parking Brake	SET
Flight Instruments	CHECK and SET
Fuel Quantity	CHECK
Mixture	RICH
Fuel Selector Valve	RECHECK BOTH
Elevator Trim	SET for Takeoff
Throttle	1800 RPM
a. Magnetos	CHECK

b. Suction Gage	CHECK
c. Engine Instruments	CHECK
Annunciator Panel	Ensure none are lit
Throttle	1000 RPM or less
Radios and Avionics	SET
Wing Flaps	SET for Takeoff; 0-10°
Brakes	RELEASE

Takeoff (Normal):

Wing Flaps	0-10°
Throttle	FULL OPEN
Mixture	RICH
Elevator Control	LIFT NOSE WHEEL at 55KIAS
Climb Speed	70-80 KIAS
Wing Flaps	RETRACT after reaching safe altitude and 60 KIAS.

En Route Climb:

Airspeed	70-85 KIAS
Throttle	FULL OPEN
Mixture	RICH

Cruise:

Power	2000-2400 RPM
Elevator Trim	Adjust
Mixture	LEAN

Descent:

Power	AS DESIRED
Mixture	ADJUST
Fuel Selector Valve	BOTH

Before Landing:

Fuel Selector Valve	BOTH
Mixture	RICH
Landing/Taxi Lights	ON

Landing (Normal):

Airspeed	65-75 KIAS (flaps UP)
Wing Flaps	AS DESIRED
Airspeed	60-70 KIAS (flaps DOWN)
Touchdown	MAIN WHEELS FIRST
Landing Roll	LOWER NOSE WHEEL GENTLY
Braking	MINIMUM REQUIRED

Balked Landing:

Throttle	FULL OPEN
Wing Flaps	RETRACT to 20°
Climb Speed	55 KIAS
Wing Flaps	10°; RETRACT after reaching safe altitude and 60 KIAS.

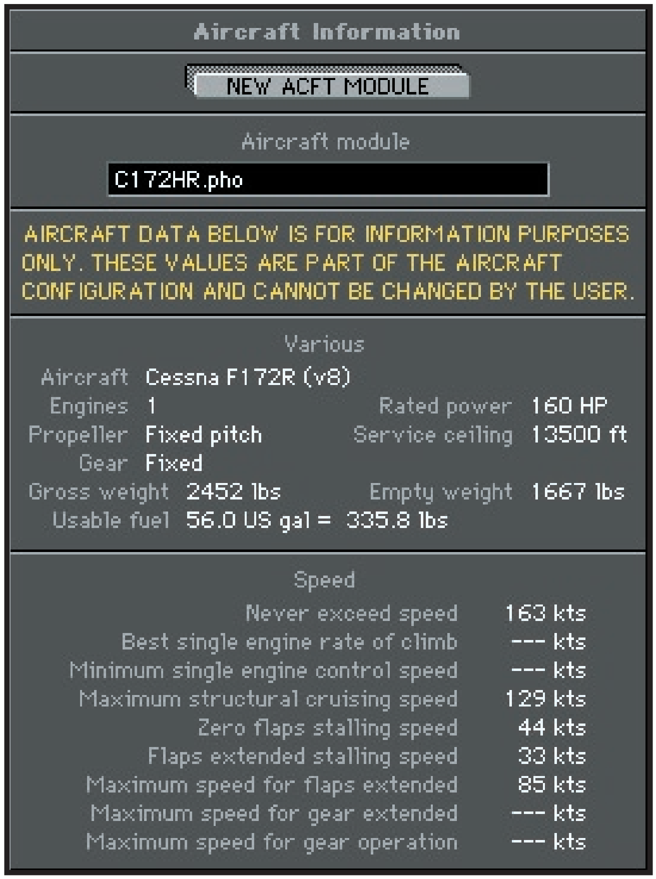
After Landing:

Wing Flaps	UP

Securing Airplane:

Parking Brake	SET
Avionics Power Switch, Electrical Equipment	OFF
Mixture	IDLE CUT OFF
Ignition Switch	OFF
Master Switch	OFF
Fuel Selector Valve	LEFT or RIGHT

AIRCRAFT SETTINGS PANEL



Climb:

PRESS ALT FT	CLIMB SPEED KIAS	RATE OF CLIMB - FPM			
		-20°C	0°C	20°C	40°C
S.L.	79	830	770	705	640
2000	77	720	655	595	535
4000	76	645	585	525	465
6000	74	530	475	415	360
8000	72	420	365	310	250
10,000	71	310	255	200	145
12,000	69	200	145	---	---

PRESS ALT FT	TEMP °C	CLIMB SPEED KIAS	RATE OF CLIMB FPM	FROM SEA LEVEL		
				TIME IN MIN	FUEL USED GAL	DIST NM
S.L.	15	79	720	0	0.0	0
1000	13	78	670	1	0.4	2
2000	11	77	625	3	0.7	4
3000	9	76	575	5	1.2	6
4000	7	76	560	6	1.5	8
5000	5	75	515	8	1.8	11
6000	3	74	465	10	2.1	14
7000	1	73	415	13	2.5	17
8000	-1	72	365	15	3.0	21
9000	-3	72	315	18	3.4	25
10,000	-5	71	270	22	4.0	29
11,000	-7	70	220	26	4.6	35
12,000	-9	69	170	31	5.4	43

Cruise

PRESS ALT FT	RPM	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2000	2250	---	---	---	79	115	9.0	74	114	8.5
	2200	79	112	9.1	74	112	8.5	70	111	8.0
	2100	69	107	7.9	65	106	7.5	62	105	7.1
	2000	61	101	7.0	58	99	6.6	55	97	6.4
	1900	54	94	6.2	51	91	5.9	50	89	5.8
4000	2300	--	---	---	79	117	9.1	75	117	8.6
	2250	80	115	9.2	75	114	8.6	70	114	8.1
	2200	75	112	8.6	70	111	8.1	66	110	7.6
	2100	66	106	7.6	62	105	7.1	59	103	6.8
	2000	58	100	6.7	55	98	6.4	53	95	6.2
	1900	52	92	6.0	50	90	5.8	49	87	5.6
6000	2350	--	---	---	80	120	9.2	75	119	8.6
	2300	80	117	9.2	75	117	8.6	71	116	8.1
	2250	76	115	8.7	71	114	8.1	67	113	7.7
	2200	71	112	8.1	67	111	7.7	64	109	7.3
	2100	63	105	7.2	60	104	6.9	57	101	6.6
	2000	56	98	6.4	53	96	6.2	52	93	6.0

CESSNA 182S

1024 x 768 Resolution

AIRCRAFT CHECKLIST

Before Starting Engine:

Brakes	TEST and SET
Electrical Equipment	OFF
Avionics Power Switch	OFF
Cowl Flaps	OPEN
Fuel Selector Valve	BOTH

Starting Engine: (With Battery)

Throttle	1/4 in.open
Propeller	HIGH RPM
Mixture	IDLE CUT OFF
Propeller Area	CLEAR
Master Switch	ON
Auxiliary Fuel Pump Switch	ON
Mixture	ADVANCE to full rich for

3-4 seconds, then return to IDLE CUT OFF position.

NOTE: If engine is warm, omit priming procedure of step 7.

Ignition Switch	START
Mixture	Advance smoothly to RICH
when engine	fires.

NOTE: If engine floods, turn off auxiliary fuel pump, place mixture in idle cut off, open 1/2 to full, and crank engine. When engine fires, advance to full rich and retard throttle promptly.

Oil Pressure	CHECK
Auxiliary Fuel Pump	OFF
Flashing Beacon ,Nav Lights	ON as required
Avionics Power Switch	ON
Radios	ON

Before Takeoff:

Parking Brake	SET

Flight Instruments	CHECK and SET
Fuel Quantity	CHECK
Mixture	RICH
Fuel Selector Valve	RECHECK BOTH
Elevator and Rudder Trim	SET for takeoff
Throttle	1800 RPM
Magnetos	CHECK (RPM drop should not exceed 150 RPM on either magneto or 50 RPM differential between magnetos).
Propeller	CYCLE from high to low
RPM, return to high RPM.	
Suction Gage	CHECK
Engine Instruments	CHECK
Ammeter	CHECK
Throttle	800 - 1000 RPM
Throttle Friction Lock	ADJUST
Strobe Lights	AS DESIRED
Radios and Avionics	SET
Wing Flaps	SET for takeoff; 0° - 20°
Cowl Flaps	OPEN
Brakes	RELEASE

Takeoff: (Normal Takeoff)

Wing Flaps	0° - 20°
Power	FULL THROTTLE and 2400
RPM	
Mixture	LEAN to obtain Max Power Fuel Flow placard value.
Brakes	RELEASE
Elevator Control	MAINTAIN SLIGHTLY TAIL
LOW ALTITUDE	
Climb Speed	58 KIAS until all obstacles
are cleared	

Wing Flaps	RETRACT slowly after
reaching 70 KIAS	

Normal Climb:

Airspeed	85-95 KIAS
Power	23 in. Hg or FULL THROTTLE (whichever is less) and 2400 RPM
Mixture	15 FULL RICH (whichever is
less)	
Fuel Selector Valve	BOTH
Cowl Flaps	OPEN as required

Cruise:

Power	15-23”Hg.
2000-2400 RPM	
Elevator & Rudder Trim	ADJUST
Mixture	LEAN
Cowl Flaps	CLOSED

Descent:

Power	AS DESIRED
Mixture	ENRICHEN
Cowl Flaps	CLOSED
Fuel Selector Valve	BOTH
Wing Flaps	AS DESIRED

Before Landing:

Fuel Selector Valve	BOTH
Mixture	RICH
Propeller	HIGH RPM
Landing/Taxi Lights	ON
Autopilot (if installed)	OFF

Normal Landing:

Airspeed	70-80 KIAS flaps UP
Wing Flaps	AS DESIRED
Airspeed	60-70 KIAS FULL flaps
Power	REDUCE to idle when obstacles cleared
Trim	ADJUST
Touchdown	MAIN WHEELS FIRST
Landing Roll	LOWER NOSE WHEEL GENTLY
Braking	MINIMUM REQUIRED

Balked Landing:

Power	FULL THROTTLE and 2400 RPM
Wing Flaps	RETRACT to 20°
Climb Speed	55 KIAS
Wing Flaps	RETRACT
Cowl Flaps	OPEN

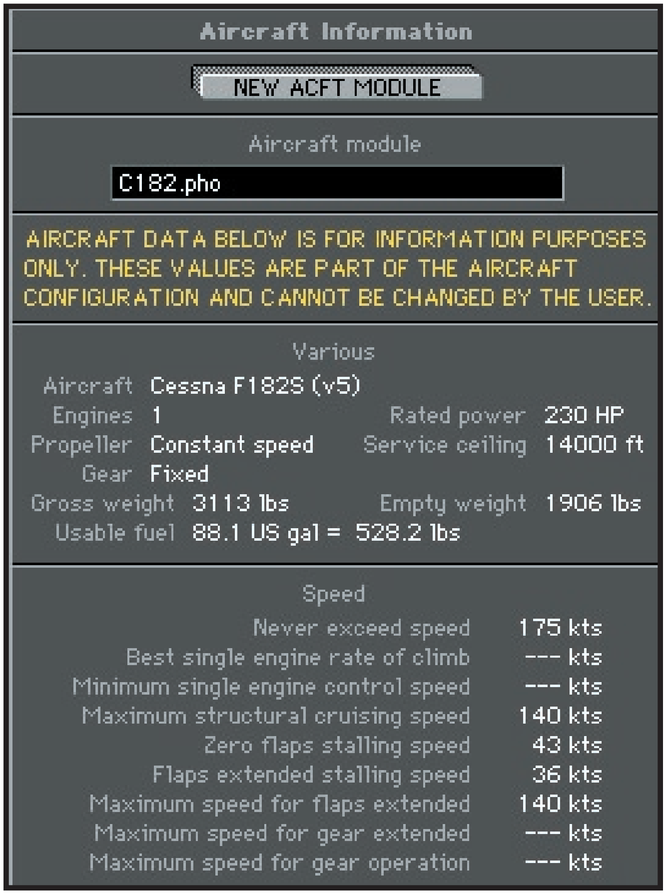
After Landing:

Wing Flaps	UP
Cowl Flaps	OPEN

Securing the Airplane:

Parking Brake	SET
Throttle	IDLE
Electrical Equipment	OFF
Mixture	IDLE CUT-OFF
Ignition Switch	OFF
Master Switch	OFF
Fuel Selector Valve	LEFT

AIRCRAFT SETTINGS PANEL



MAXIMUM RATE-OF-CLIMB AT 3100 POUNDS

ONDITIONS:

aps Up
400 RPM, Full Throttle, Mixture Set to Climb Schedule
owl Flaps Open

PRESS ALT FT	CLIMB SPEED KIAS	RATE OF CLIMB - FPM			
		-20°C	0°C	20°C	40°C
S.L.	80	1055	980	905	835
2000	79	945	875	805	735
4000	78	840	770	705	635
6000	77	735	670	605	535
8000	75	625	560	495	430
10,000	74	520	455	390	330
12,000	73	410	350	285	225
14,000	72	310	250	190	130

CRUISE PERFORMANCE
PRESSURE ALTITUDE SEA LEVEL

CONDITIONS:

3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP -5°C			STANDARD TEMPERATURE 15°C			20°C ABOVE STANDARD TEMP 35°C		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	27	---	---	---	82	133	13.7	76	132	12.7
	26	---	---	---	78	131	13.0	72	129	12.1
	25	80	129	13.3	73	128	12.3	68	126	11.5
	24	75	126	12.6	69	125	11.7	64	123	10.9
	23	70	123	11.9	65	122	11.0	60	119	10.3
	22	66	120	11.2	61	117	10.4	56	116	9.8
	21	61	116	10.5	57	114	9.9	52	112	9.3
	20	57	112	9.9	53	110	9.3	49	107	8.7
2300	27	---	---	---	79	132	13.2	73	130	12.2
	26	81	130	13.6	75	129	12.5	69	127	11.6
	25	77	127	12.8	71	126	11.9	65	124	11.1
	24	72	124	12.2	67	123	11.3	62	120	10.6
	23	68	121	11.5	63	119	10.7	58	117	10.0
	22	64	118	10.9	59	116	10.2	54	114	9.5
	21	59	114	10.2	55	112	9.6	51	110	9.0
	20	55	110	9.6	51	108	9.0	47	105	8.5
2200	27	82	131	13.7	76	129	12.7	70	128	11.8
	26	78	128	13.0	72	127	12.1	66	125	11.2
	25	74	125	12.4	68	124	11.5	63	121	10.7
	24	70	122	11.7	64	121	10.9	59	119	10.2
	23	66	119	11.1	60	117	10.4	56	115	9.7
	22	61	116	10.5	57	114	9.9	52	112	9.3
	21	57	112	10.0	53	110	9.3	49	108	8.8
	20	53	109	9.4	49	106	8.8	45	103	8.3

CRUISE PERFORMANCE
PRESSURE ALTITUDE 2000 FEET

CONDITIONS:

3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP -9°C			STANDARD TEMPERATURE 11°C			20°C ABOVE STANDARD TEMP 31°C		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	26	---	---	---	80	135	13.4	74	133	12.4
	25	82	133	13.8	76	132	12.7	70	130	11.8
	24	78	130	13.0	71	129	12.0	66	126	11.2
	23	73	127	12.3	67	126	11.4	62	123	10.6
	22	68	124	11.6	63	121	10.8	58	119	10.1
	21	64	120	10.9	59	118	10.2	54	115	9.5
	20	59	116	10.2	55	114	9.6	50	111	9.0
2300	26	---	---	---	77	132	12.9	71	131	12.0
	25	79	131	13.2	73	130	12.2	67	128	11.4
	24	75	128	12.5	69	127	11.6	64	124	10.8
	23	70	125	11.8	65	123	11.0	60	121	10.3
	22	66	122	11.2	61	119	10.4	56	117	9.8
	21	62	118	10.6	57	116	9.9	52	113	9.3
	20	57	114	9.9	53	112	9.3	49	109	8.7
2200	26	80	132	13.4	74	130	12.4	68	129	11.5
	25	76	129	12.7	70	128	11.8	65	125	11.0
	24	72	126	12.1	66	125	11.2	61	122	10.5
	23	68	123	11.4	62	121	10.7	58	119	10.0
	22	64	120	10.8	59	118	10.1	54	115	9.5
	21	59	116	10.2	55	114	9.6	51	111	9.0
	20	55	112	9.7	51	110	9.0	47	106	8.5

CRUISE PERFORMANCE
PRESSURE ALTITUDE 4000 FEET

CONDITIONS:

•3100 Pounds •Recommended Lean Mixture •Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP -13°C			STANDARD TEMPERATURE 7°C			20°C ABOVE STANDARD TEMP 27°C		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	25	---	---	---	78	136	13.1	72	134	12.1
	24	80	134	13.4	74	133	12.4	68	130	11.5
	23	75	131	12.7	69	130	11.7	64	127	10.9
	22	71	128	11.9	65	125	11.1	60	123	10.4
	21	66	124	11.2	61	122	10.5	56	119	9.8
	20	61	120	10.5	57	118	9.9	52	115	9.2
2300	25	81	135	13.6	75	133	12.6	69	132	11.7
	24	77	132	12.9	71	131	12.0	66	128	11.1
	23	73	129	12.2	67	127	11.3	62	125	10.6
	22	68	126	11.5	63	123	10.7	58	121	10.1
	21	64	122	10.9	59	120	10.2	54	117	9.5
	20	59	118	10.2	55	115	9.6	50	113	9.0
2200	25	78	133	13.1	72	131	12.1	67	129	11.3
	24	74	130	12.4	68	128	11.5	63	126	10.8
	23	70	127	11.8	64	124	10.9	59	122	10.2
	22	66	124	11.1	60	121	10.4	56	119	9.7
	21	61	119	10.5	57	117	9.8	52	115	9.2
	20	57	116	9.9	53	113	9.3	49	110	8.7
2100	25	74	130	12.5	68	129	11.6	63	126	10.8
	24	70	127	11.9	65	125	11.0	60	123	10.3
	23	66	124	11.2	61	122	10.5	56	119	9.8
	22	62	120	10.7	57	118	10.0	53	116	9.4
	21	58	117	10.1	54	115	9.5	50	111	8.9
	20	54	113	9.5	50	111	8.9	46	106	8.4
2000	25	71	127	11.9	65	125	11.0	60	123	10.3
	24	67	125	11.3	61	122	10.5	57	120	9.9
	23	63	121	10.8	58	119	10.1	54	116	9.4
	22	59	118	10.2	55	115	9.6	50	112	9.0
	21	55	114	9.7	51	112	9.1	47	108	8.5

MAXIMUM RATE OF CLIMB

CONDITIONS:

Flaps Up
2400 RPM, Full Throttle, Mixture Set to Climb Schedule
Cowl Flaps Open
Standard Temperature

PRESS ALT FT	CLIMB SPEED KIAS	RATE OF CLIMB FPM	FROM SEA LEVEL TIME IN MIN	FROM SEA LEVEL FUEL USED GAL	FROM SEA LEVEL DIST NM
S.L.	80	925	0	0.0	0
2000	79	835	2	0.8	3
4000	78	750	5	1.5	7
6000	77	660	8	2.3	11
8000	75	565	11	3.2	16
10,000	74	470	15	4.2	21
12,000	73	375	20	5.2	29
14,000	72	285	26	6.5	38

CRUISE PERFORMANCE
PRESSURE ALTITUDE 6000 FEET

CONDITIONS:

3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

RPM	MP	20°C BELOW STANDARD TEMP -17°C			STANDARD TEMPERATURE 3°C			20°C ABOVE STANDARD TEMP 23°C		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	23	78	135	13.0	72	134	12.1	66	131	11.2
	22	73	132	12.3	67	129	11.4	62	127	10.6
	21	68	128	11.6	63	126	10.8	58	123	10.1
	20	64	123	10.9	59	121	10.1	54	119	9.5
	19	59	120	10.2	54	117	9.5	50	113	8.9
2300	23	75	133	12.6	69	131	11.6	64	129	10.9
	22	70	130	11.9	65	127	11.0	60	125	10.3
	21	66	126	11.2	61	124	10.4	56	121	9.8
	20	61	122	10.5	57	119	9.8	52	116	9.2
	19	57	117	9.9	52	115	9.3	48	111	8.7
2200	23	72	131	12.1	66	128	11.2	61	126	10.5
	22	68	127	11.4	62	125	10.7	58	122	10.0
	21	63	123	10.8	58	121	10.1	54	119	9.5
	20	59	120	10.2	54	117	9.5	50	114	9.0
	19	55	115	9.6	51	112	9.0	47	108	8.4
2100	23	68	128	11.6	63	126	10.8	58	123	10.1
	22	64	124	10.9	59	122	10.2	55	119	9.6
	21	60	121	10.4	56	118	9.7	51	115	9.1
	20	56	117	9.8	52	114	9.2	48	110	8.6
	19	52	112	9.2	48	109	8.6	44	104	8.1
2000	23	65	125	11.0	60	123	10.3	55	120	9.6
	22	61	121	10.5	56	119	9.8	52	116	9.2
	21	57	118	9.9	53	115	9.3	49	111	8.7
	20	53	114	9.4	49	110	8.8	45	106	8.3
	19	50	109	8.9	46	105	8.3	42	99	7.8

CESSNA 182RG

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AIRCRAFT CHECKLIST

Before Starting Engine:

Brakes	TEST and Set
Avionics Power Switch	OFF
Electrical Equipment	OFF
Landing Gear Lever	DOWN
Cowl Flaps	OPEN
Fuel Selector Valve	BOTH

Starting Engine:

Carburetor Heat	COLD
Throttle	OPEN ¼ inch
Propeller	HIGH RPM
Mixture	RICH
Master Switch	ON
Auxiliary Fuel Pump	ON, check for rise in fuel pressure, then OFF
Ignition Switch	START
Oil Pressure	CHECK
Avionics Power Switch	ON
Radios	ON

Before Takeoff:

Parking Brake	SET
Flight Instruments	CHECK and SET
Fuel Quantity	CHECK
Mixture	RICH
Fuel Selector Valve	RECHECK BOTH
Elevator Trim	SET for Takeoff
Throttle	1800 RPM
a. Magnetos	CHECK
b. Suction Gage	CHECK
c. Engine Instruments	CHECK
Annunciator Panel	No items lit

Throttle	1000 RPM or less
Radios and Avionics	SET
Wing Flaps	SET for Takeoff; 0-10°
Brakes	RELEASE

Takeoff (Normal):

Wing Flaps	0-10°
Throttle	FULL OPEN
Mixture	RICH
Elevator Control	LIFT NOSE WHEEL at 55
KIAS	
Climb Speed	70-80 KIAS
Wing Flaps	RETRACT after reaching
safe altitude and 60 KIAS	

En Route Climb:

Airspeed	70-85 KIAS
Throttle	FULL OPEN
Mixture	RICH

Cruise:

Power	2000-2400 RPM
Elevator	Adjust
Mixture	LEAN

Descent:

Power	AS DESIRED
Mixture	ADJUST
Fuel Selector Valve	BOTH

Before Landing:

Fuel Selector Valve	BOTH
Mixture	RICH

Landing (Normal):

Airspeed	65-75 KIAS; flaps up
Wing Flaps	AS DESIRED
Airspeed	60-70 KIAS; flaps down
Touchdown	MAIN WHEELS FIRST
Landing Roll	LOWER NOSE WHEEL GENTLY

Balked Landing:

Throttle	FULL OPEN
Wing Flaps	RETRACT to 20°
Climb Speed	55 KIAS
Wing Flaps	10°; RETRACT after reaching safe altitude and 60 KIAS

After Landing:

Wing Flaps	UP

Securing Airplane:

Parking Brake	SET
Avionics Power	OFF
Electrical Equipment	OFF
Mixture	IDLE CUT OFF
Ignition Switch	OFF
Master Switch	OFF
Fuel Selector Valve	LEFT or RIGHT

MAXIMUM RATE OF CLIMB

CONDITIONS:
Flaps Up
Gear Up
2400 RPM
Full Throttle
Mixture Full Rich
Cowl Flaps Open

NOTE:
Mixture may be leaned above 3000 feet.

WEIGHT LBS	PRESS ALT FT	CLIMB SPEED KIAS	RATE OF CLIMB - FPM			
			-20°C	0°C	20°C	40°C
3100	S.L.	88	1270	1195	1120	1045
	2000	85	1110	1035	960	890
	4000	82	945	875	805	730
	6000	80	785	715	645	570
	8000	77	625	555	485	415
	10,000	75	465	395	325	- - -
	12,000	72	305	235	165	- - -
	14,000	69	145	75	- - -	- - -

TIME, FUEL, AND DISTANCE TO CLIMB

MAXIMUM RATE OF CLIMB

CONDITIONS:
Flaps Up
Gear Up
2400 RPM
Full Throttle
Mixture Full Rich
Cowl Flaps Open
Standard Temperature

NOTES:
1. Add 2.0 gallons of fuel for engine start, taxi and takeoff allowance.
2. Mixture may be leaned above 3000 feet.
3. Increase time, fuel and distance by 10% for each 10°C above standard temperature.
4. Distances shown are based on zero wind.

WEIGHT LBS	PRESSURE ALTITUDE FT	TEMP °C	CLIMB SPEED KIAS	RATE OF CLIMB FPM	FROM SEA LEVEL		
					TIME MIN	FUEL USED GALLONS	DISTANCE NM
3100	S.L.	15	88	1140	0	0	0
	2000	11	85	995	2	0.8	3
	4000	7	82	850	4	1.6	6
	6000	3	80	705	7	2.6	10
	8000	-1	77	560	10	3.7	15
	10,000	-5	75	415	14	5.1	21
	12,000	-9	72	265	20	7.1	30
	14,000	-13	69	120	32	10.6	47

CRUISE PERFORMANCE

PRESSURE ALTITUDE 2000 FEET

CONDITIONS:
3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE
For best fuel economy, operate at the leanest mixture that results in smooth engine operation or at peak EGT if an EGT indicator is installed.

		20°C BELOW STANDARD TEMP -9°C			STANDARD TEMPERATURE 11°C			20°C ABOVE STANDARD TEMP 31°C		
RPM	MP	% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	23	---	---	---	76	148	13.6	73	149	13.2
	22	74	143	13.3	71	145	12.8	69	146	12.4
	21	69	140	12.4	67	141	12.0	64	142	11.6
	20	64	136	11.6	62	137	11.3	60	138	10.9
2300	23	75	145	13.5	72	146	13.1	70	147	12.6
	22	71	141	12.7	68	142	12.3	66	143	11.9
	21	66	137	11.9	64	138	11.5	62	139	11.2
	20	61	134	11.2	59	135	10.8	57	135	10.5
2200	23	72	142	12.9	69	143	12.5	67	144	12.1
	22	67	139	12.1	65	140	11.7	63	141	11.4
	21	63	135	11.4	61	136	11.0	59	137	10.7
	20	59	131	10.7	57	132	10.3	55	133	10.0
2100	23	68	139	12.2	66	140	11.8	63	141	11.5
	22	64	136	11.5	62	137	11.2	60	137	10.8
	21	60	132	10.9	58	133	10.5	56	134	10.2
	20	55	128	10.1	54	129	9.8	52	129	9.5
	19	51	124	9.4	50	124	9.1	48	125	8.9
	18	47	119	8.7	45	119	8.5	44	120	8.2

CRUISE PERFORMANCE

PRESSURE ALTITUDE 4000 FEET

CONDITIONS:
3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE
For best fuel economy, operate at the leanest mixture that results in smooth engine operation or at peak EGT if an EGT indicator is installed.

		20°C BELOW STANDARD TEMP -13°C			STANDARD TEMPERATURE 7°C			20°C ABOVE STANDARD TEMP 27°C		
RPM	MP	% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	23	---	---	---	78	153	14.0	75	154	13.6
	22	76	148	13.7	73	149	13.2	71	150	12.8
	21	71	144	12.8	69	145	12.4	66	146	12.0
	20	66	140	12.0	64	141	11.6	62	142	11.2
2300	23	77	149	14.0	75	150	13.5	72	151	13.0
	22	73	145	13.1	70	147	12.7	68	148	12.2
	21	68	142	12.3	66	143	11.9	64	144	11.5
	20	64	138	11.5	61	139	11.1	59	140	10.8
2200	23	74	146	13.3	71	148	12.9	69	149	12.4
	22	70	143	12.5	67	144	12.1	65	145	11.7
	21	65	139	11.8	63	140	11.4	61	141	11.0
	20	61	135	11.0	59	136	10.7	57	137	10.3
2100	23	70	143	12.7	68	145	12.2	65	146	11.8
	22	66	140	11.9	64	141	11.5	62	142	11.2
	21	62	136	11.2	60	137	10.9	58	138	10.5
	20	58	132	10.5	55	133	10.1	54	134	9.8
	19	53	128	9.8	51	129	9.5	50	129	9.2
	18	49	123	9.1	47	124	8.8	46	124	8.5

CRUISE PERFORMANCE

PRESSURE ALTITUDE 6000 FEET

CONDITIONS:
3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE
For best fuel economy, operate at the leanest mixture that results in smooth engine operation or at peak EGT if an EGT indicator is installed.

		20°C BELOW STANDARD TEMP -17°C			STANDARD TEMPERATURE 3°C			20°C ABOVE STANDARD TEMP 23°C		
RPM	MP	% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	22	---	---	---	75	154	13.6	73	155	13.1
	21	73	148	13.2	71	150	12.7	68	151	12.3
	20	69	145	12.3	66	146	11.9	64	147	11.5
	19	64	140	11.5	61	141	11.1	59	142	10.8
2300	23	---	---	---	77	155	13.9	74	156	13.4
	22	75	150	13.5	72	151	13.0	70	152	12.6
	21	70	146	12.7	68	147	12.2	66	148	11.8
	20	66	142	11.9	63	143	11.5	61	144	11.1
2200	23	76	151	13.7	74	152	13.3	71	153	12.8
	22	72	147	12.9	69	148	12.5	67	150	12.1
	21	67	144	12.1	65	145	11.7	63	146	11.4
	20	63	140	11.4	61	141	11.0	59	141	10.7
2100	23	72	148	13.1	70	149	12.6	68	150	12.2
	22	68	144	12.3	66	145	11.9	64	146	11.5
	21	64	141	11.6	62	142	11.2	60	142	10.8
	20	60	137	10.9	57	137	10.5	56	138	10.2
	19	55	132	10.1	53	133	9.8	52	133	9.5
	18	51	128	9.4	49	128	9.1	48	128	8.8

CRUISE PERFORMANCE

PRESSURE ALTITUDE 8000 FEET

CONDITIONS:
3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE
For best fuel economy, operate at the leanest mixture that results in smooth engine operation or at peak EGT if an EGT indicator is installed.

		20°C BELOW STANDARD TEMP -21°C			STANDARD TEMPERATURE -1°C			20°C ABOVE STANDARD TEMP 19°C		
RPM	MP	% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	21	76	153	13.6	73	154	13.1	70	155	12.7
	20	71	149	12.7	68	150	12.3	66	151	11.9
	19	66	145	11.9	63	146	11.5	61	147	11.1
	18	61	140	11.1	59	141	10.7	57	142	10.3
2300	21	73	151	13.1	70	152	12.6	68	153	12.2
	20	68	147	12.2	65	148	11.8	63	149	11.4
	19	63	142	11.4	61	143	11.1	59	144	10.7
	18	58	138	10.6	56	138	10.3	54	139	9.9
2200	21	70	148	12.5	67	149	12.1	65	150	11.7
	20	65	144	11.7	63	145	11.3	60	146	11.0
	19	60	140	11.0	58	141	10.6	56	141	10.3
	18	56	135	10.2	54	136	9.9	52	136	9.5
2100	21	66	145	11.9	64	146	11.5	61	147	11.2
	20	62	141	11.2	59	142	10.8	57	142	10.5
	19	57	137	10.5	55	137	10.1	53	138	9.8
	18	53	132	9.7	51	132	9.4	49	133	9.1
	17	49	127	9.0	47	127	8.7	45	127	8.4

CRUISE PERFORMANCE

PRESSURE ALTITUDE 6000 FEET

CONDITIONS:
3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE
For best fuel economy, operate at the leanest mixture that results in smooth engine operation or at peak EGT if an EGT indicator is installed.

		20°C BELOW STANDARD TEMP -17°C			STANDARD TEMPERATURE 3°C			20°C ABOVE STANDARD TEMP 23°C		
RPM	MP	% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	22	---	---	---	75	154	13.6	73	155	13.1
	21	73	148	13.2	71	150	12.7	68	151	12.3
	20	69	145	12.3	66	146	11.9	64	147	11.5
	19	64	140	11.5	61	141	11.1	59	142	10.8
2300	23	---	---	---	77	155	13.9	74	156	13.4
	22	75	150	13.5	72	151	13.0	70	152	12.6
	21	70	146	12.7	68	147	12.2	66	148	11.8
	20	66	142	11.9	63	143	11.5	61	144	11.1
2200	23	76	151	13.7	74	152	13.3	71	153	12.8
	22	72	147	12.9	69	148	12.5	67	150	12.1
	21	67	144	12.1	65	145	11.7	63	146	11.4
	20	63	140	11.4	61	141	11.0	59	141	10.7
2100	23	72	148	13.1	70	149	12.6	68	150	12.2
	22	68	144	12.3	66	146	11.9	64	146	11.5
	21	64	141	11.6	62	142	11.2	60	142	10.8
	20	60	137	10.9	57	137	10.5	56	138	10.2
	19	55	132	10.1	53	133	9.8	52	133	9.5
	18	51	128	9.4	49	128	9.1	48	128	8.8

CRUISE PERFORMANCE

PRESSURE ALTITUDE 8000 FEET

CONDITIONS:
3100 Pounds
Recommended Lean Mixture
Cowl Flaps Closed

NOTE
For best fuel economy, operate at the leanest mixture that results in smooth engine operation or at peak EGT if an EGT indicator is installed.

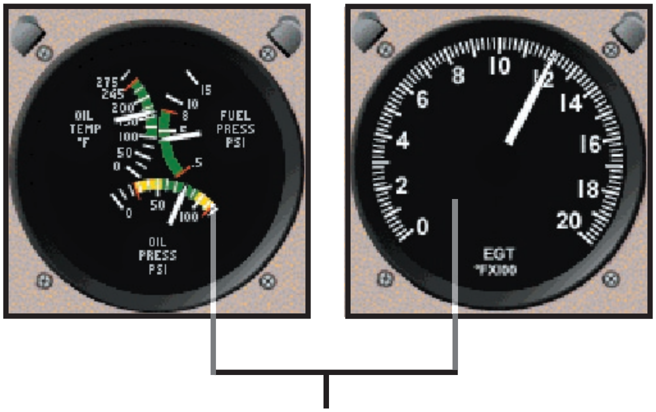
		20°C BELOW STANDARD TEMP -21°C			STANDARD TEMPERATURE -1°C			20°C ABOVE STANDARD TEMP 19°C		
RPM	MP	% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	21	76	153	13.6	73	154	13.1	70	155	12.7
	20	71	149	12.7	68	150	12.3	66	151	11.9
	19	66	145	11.9	63	146	11.5	61	147	11.1
	18	61	140	11.1	59	141	10.7	57	142	10.3
2300	21	73	151	13.1	70	152	12.6	68	153	12.2
	20	68	147	12.2	65	148	11.8	63	149	11.4
	19	63	142	11.4	61	143	11.1	59	144	10.7
	18	58	138	10.6	56	138	10.3	54	139	9.9
2200	21	70	148	12.5	67	149	12.1	65	150	11.7
	20	65	144	11.7	63	145	11.3	60	146	11.0
	19	60	140	11.0	58	141	10.6	56	141	10.3
	18	56	135	10.2	54	136	9.9	52	136	9.5
2100	21	66	145	11.9	64	146	11.5	61	147	11.2
	20	62	141	11.2	59	142	10.8	57	142	10.5
	19	57	137	10.5	55	137	10.1	53	138	9.8
	18	53	132	9.7	51	132	9.4	49	133	9.1
	17	49	127	9.0	47	127	8.7	45	127	8.4

PIPER ARCHER III

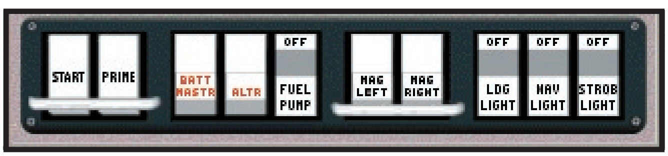
1024 x 768 Resolution

COCKPIT FUNCTIONS

ELITE makes the use of “pop-ups” to compensate for limited screen size when the display of more instruments or features is required.



To change the engine oil temperature/oil pressure/fuel pressure tri-gauge to the EGT gauge simply click on the center of the instrument. Toggle back in the same manner.



To display the ceiling mounted switch panel press F1 on the keyboard.

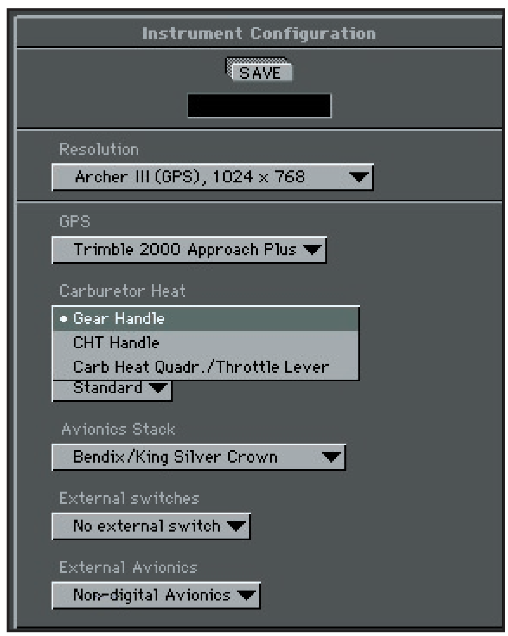
NOTE - Due to FAA regulation changes the amber light on the Annunciator Panel labeled PITOT HEAT OFF/INOP will remain illuminated. Selecting pitot heat ON will extinguish the light.

ArcherCarbHeatLever

The carburetor heat function may be operated by using the mouse or through use of several other mechanisms which may be assigned on the CONFIGURATION Page.

ArcherCHChoice

In the Instrument Configuration column go to the Carburetor Heat item and select the appropriate choice. Selecting Gear Handle will cause the landing gear control to operate the carburetor heat function. Moving the landing gear handle to the UP position will cause the carburetor heat to be OFF. The carburetor heat will be ON when the landing gear lever is in the DOWN position. Selecting CHT Handle will activate the carburetor heat control found on some consoles manufactured by Precision Flight Controls. Selecting the Carb Heat Quadr./Throttle Lever option will cause the throttle lever to control the carburetor heat function while the propeller and mixture levers will operate the throttle and mixture controls respectively.



AIRCRAFT CHECKLIST

Before Starting Engine:

Brakes	SET
Circuit Breakers	CHECK IN
Alternate Static Source	OFF
Carburetor Heat	FULL COLD
Avionics	OFF
Fuel Selector	DESIRED TANK

Normal Start:

Throttle	1/4 in. OPEN
Battery master switch	ON
Alternator switch	ON
Magnetos	ON
Electric fuel pump	ON
Mixture	FULL RICH
Propeller	CLEAR
Starter	ENGAGE
Throttle	ADJUST
Oil Pressure	CHECK

Warm-up:

Throttle	800-1000 RPM

Taxiing:

Taxi area	CLEAR
Parking brake	RELEASE
Throttle	APPLY SLOWLY
Brakes	CHECK
Steering	CHECK

Ground Check:

Parking Brake	SET
Throttle	2000 RPM

Magnetos	max. drop 175 RPM Max. diff. 50 RPM
Vacuum	4.8 to 5.2 in. Hg.
Oil temperature	CHECK
Oil pressure	CHECK
Ammeter	CHECK
Annunciator panel	press-to-test
Carburetor heat	approx. 75 RPM drop
Electric fuel pump	OFF
Fuel pressure	CHECK
Throttle	RETARD

Before Takeoff:

Battery master switch	verify ON
Alternator switch	verify ON
Magnetos	verify ON
Flight instrument	CHECK
Fuel selector	PROPER TANK
Electric fuel pump	ON
Engine gauges	CHECK
Carburetor heat	OFF
Mixture	SET
Flaps	SET
Trim	SET

Takeoff:

Normal Technique

Flaps	SET
Trim	SET
Accelerate to 57 KIAS	
Control wheel	BACK PRESSURE to

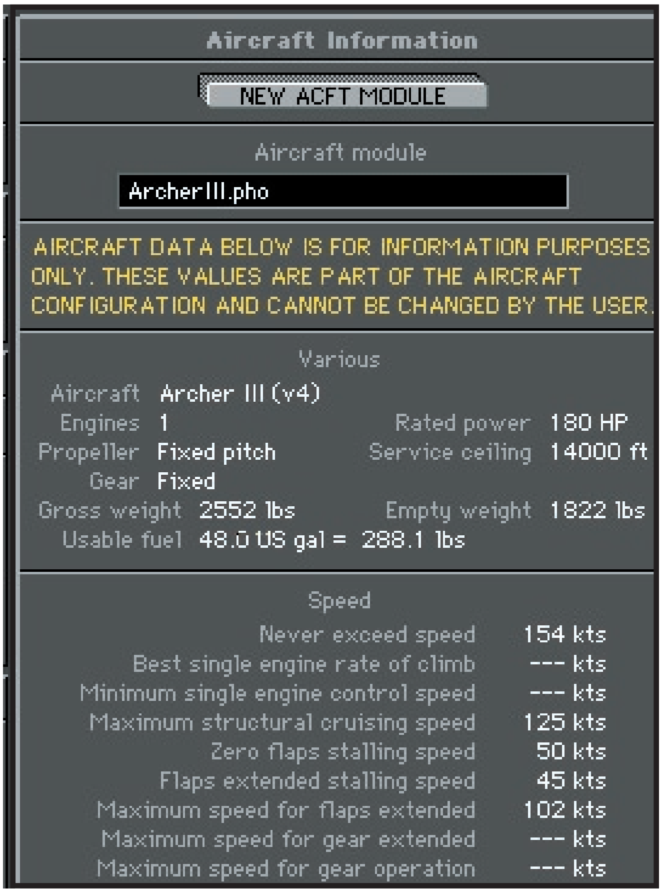
smoothly rotate to climb attitude

Climb:	
Best rate (flaps up)	76 KIAS
Best angle (flaps up)	64 KIAS
En route	87 KIAS
Electric fuel pump	OFF at desired altitude
Cruising:	
Power	SET per power table
Mixture	ADJUST
Descent:	
Normal	
Throttle	2500 RPM
Airspeed	122 KIAS
Mixture	RICH
Carburetor heat	ON if required
Power Off	
Carburetor heat	ON if required
Throttle	CLOSED
Airspeed	AS REQUIRED
Mixture	AS REQUIRED
Power	verify with throttle every 30 seconds
Approach and Landing:	
Fuel selector	PROPER TANK
Electric fuel pump	ON
Mixture	SET
Flaps	SET - 102 KIAS max
Initial approach speed	75 KIAS
Final approach speed (flaps 40°)	66 KIAS

Stopping Engine:

Flaps	RETRACT
Electric fuel pump	OFF
Avionics master switch	OFF
Electrical switches	OFF
Throttle	CLOSED
Mixture	IDLE CUT-OFF
Magneto switches	OFF
Alternator switch	OFF
Battery master switch	OFF

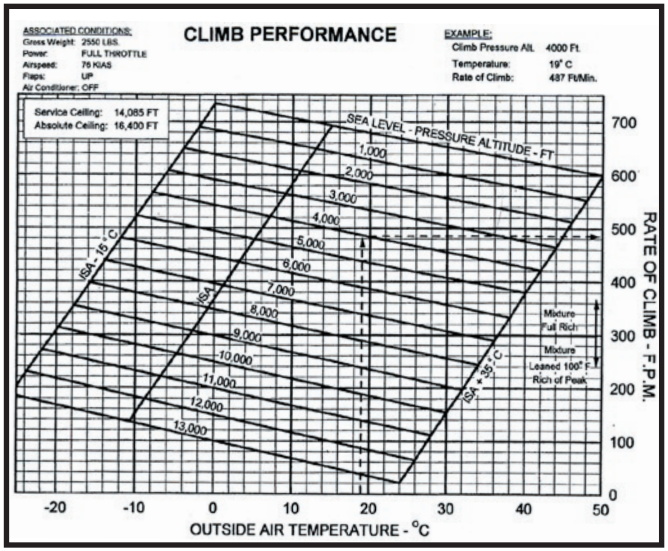
AIRCRAFT SETTINGS PANEL



Engine / Cruise Performance for Non-ISA OAT*
RPM for Constant 55% Power
Fuel Flow: Best Economy Mixture, 8.2 GPH

Pressure Altitude Feet	Indicated Outside Air Temperature °C	°C	°F	Engine Speed RPM	True Air Speed Knots **
Sea Level	ISA-15	0	32	2245	105
	ISA	15	59	2265	
	ISA +10	25	77	2275	
	ISA +20	35	95	2285	
	ISA +30	45	113	2295	106
2000	ISA -15	-4	25	2265	106
	ISA	11	52	2280	
	ISA +10	21	70	2295	
	ISA +20	31	88	2305	
	ISA +30	41	106	2315	107
4000	ISA -15	-8	18	2285	106
	ISA	7	45	2300	
	ISA +10	17	63	2315	
	ISA +20	27	81	2325	
	ISA +30	37	99	2335	108
6000	ISA -15	-12	10	2305	107
	ISA	3	37	2320	
	ISA +10	13	55	2330	
	ISA +20	23	73	2345	
	ISA +30	33	91	2355	108
8000	ISA -15	-16	3	2320	107
	ISA	-1	30	2340	
	ISA +10	9	48	2350	
	ISA +17.5	16.5	62	2360	108
9000	ISA -15	-18	0	2330	107
	ISA	-3	27	2350	
	ISA +8.5	5.5	42	2360	108
10000	ISA - 15	-20	-4	2340	107
	ISA	-5	23	2360	108

NOTE: * Aircraft weight 2550 Lbs., Wheel pants and strut fairings installed
** Subtract 3 KTAS if wheel pants are removed.



Engine / Cruise Performance for Non-ISA OAT*
RPM for Constant 65% Power
Fuel Flow: Best Economy Mixture, 9.5 GPH

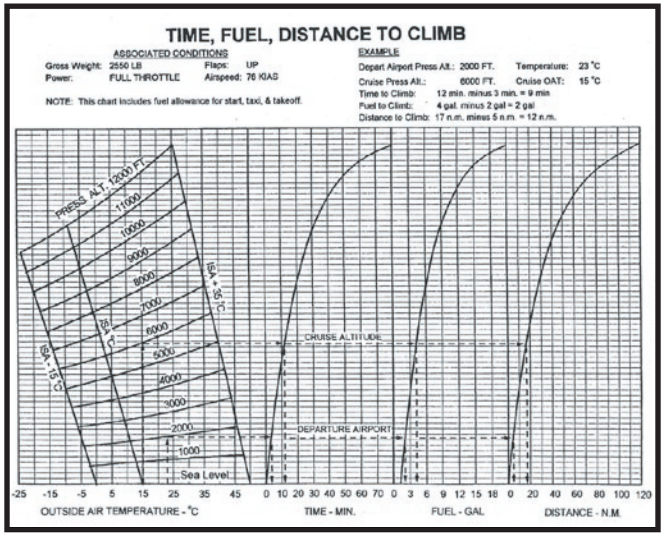
Pressure Altitude Feet	Indicated Outside Air Temperature °C	°C	°F	Engine Speed RPM	True Air Speed Knots **
Sea Level	ISA-15	0	32	2385	113
	ISA	15	59	2405	
	ISA +10	25	77	2415	
	ISA +20	35	95	2430	
	ISA +30	45	113	2440	116
2000	ISA -15	-4	25	2405	114
	ISA	11	52	2425	
	ISA +10	21	70	2440	
	ISA +20	31	88	2450	
	ISA +30	41	106	2465	117
4000	ISA -15	-8	18	2430	115
	ISA	7	45	2450	
	ISA +10	17	63	2460	
	ISA +20	27	81	2475	
	ISA +30	37	99	2485	118
6000	ISA -15	-12	10	2450	116
	ISA	3	37	2470	
	ISA +10	13	55	2485	
	ISA +20	23	73	2495	
	ISA +30	33	91	2510	119
8000	ISA -15	-16	3	2475	117
	ISA	-1	30	2495	
	ISA +10	9	48	2505	
	ISA +17.5	16.5	62	2515	119
9000	ISA -15	-18	0	2485	117
	ISA	-3	27	2505	
	ISA +8.5	5.5	42	2515	119
10000	ISA -15	-20	-4	2495	118
	ISA	-5	23	2515	119

NOTE: * Aircraft weight 2550 Lbs., Wheel pants and strut fairings installed
** Subtract 3 KTAS if wheel pants are removed.

Engine / Cruise Performance for Non-ISA OAT*
RPM for Constant 65% Power
Fuel Flow: Best Economy Mixture, 9.5 GPH

Pressure Altitude Feet	Indicated Outside Air Temperature °C	°C	°F	Engine Speed RPM	True Air Speed Knots **
Sea Level	ISA-15	0	32	2385	113
	ISA	15	59	2405	
	ISA +10	25	77	2415	
	ISA +20	35	95	2430	
	ISA +30	45	113	2440	116
2000	ISA -15	-4	25	2405	114
	ISA	11	52	2425	
	ISA +10	21	70	2440	
	ISA +20	31	88	2450	
	ISA +30	41	106	2465	117
4000	ISA -15	-8	18	2430	115
	ISA	7	45	2450	
	ISA +10	17	63	2460	
	ISA +20	27	81	2475	
	ISA +30	37	99	2485	118
6000	ISA -15	-12	10	2450	116
	ISA	3	37	2470	
	ISA +10	13	55	2485	
	ISA +20	23	73	2495	
	ISA +30	33	91	2510	119
8000	ISA -15	-16	3	2475	117
	ISA	-1	30	2495	
	ISA +10	9	48	2505	
	ISA +17.5	16.5	62	2515	119
9000	ISA -15	-18	0	2485	117
	ISA	-3	27	2505	
	ISA +8.5	5.5	42	2515	119
10000	ISA -15	-20	-4	2495	118
	ISA	-5	23	2515	119

NOTE: * Aircraft weight 2550 Lbs., Wheel pants and strut fairings installed
** Subtract 3 KTAS if wheel pants are removed.


TIME, FUEL, DISTANCE TO CLIMB
ASSOCIATED CONDITIONS
Gross Weight: 2550 LB
Flaps: UP
Power: FULL THROTTLE
Airspeed: 76 KIAS
NOTE: This chart includes fuel allowance for start, taxi, & takeoff.
EXAMPLE
Depart Airport Press Alt.: 2000 FT.
Temperature: 23 °C
Cruise Press Alt.: 6000 FT.
Cruise OAT: 15 °C
Time to Climb: 12 min. minus 3 min. = 9 min
Fuel to Climb: 4 gal. minus 2 gal = 2 gal
Distance to Climb: 17 n.m. minus 5 n.m. = 12 n.m.
PRESS. ALT. 12000 FT.
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
Sea Level
ISA - 15 °C
ISA °C
ISA + 35 °C
CRUISE ALTITUDE
DEPARTURE AIRPORT
-25 -15 -5 5 15 25 35 45
0 10 20 30 40 50 60 70
0 3 6 9 12 15 18
0 20 40 60 80 100 120
OUTSIDE AIR TEMPERATURE - °C
TIME - MIN.
FUEL - GAL
DISTANCE - N.M.

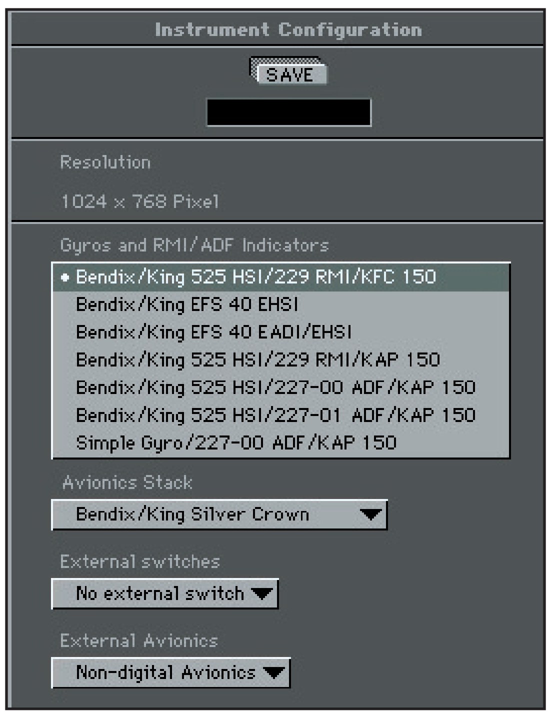
PIPER ARROW IV

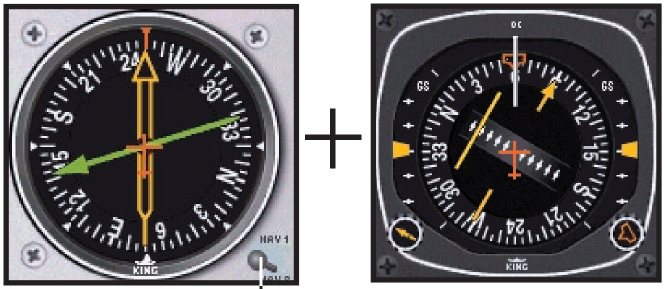
1024 x 768 Resolution

COCKPIT FUNCTIONS

To adjust TAS, click on knob and drag up or down

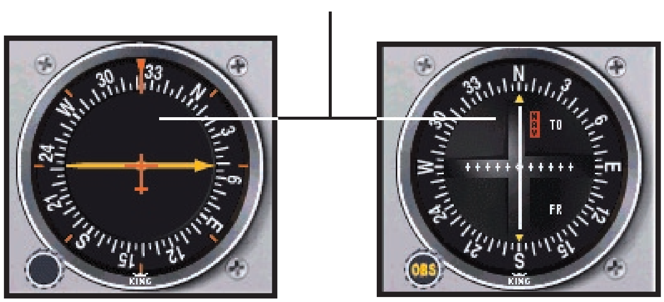
Arrow IV CONFIGURATION pgae allows you to choose between HSI/RMI or DG/ADF-Dual VORs. You can also choose a slaved or non-slaved ADF.





Assign #1 needle to Nav 1 or
Nav 2 receiver

Click on instrument face to change ADF to Nav 2 and vice versa



AIRCRAFT CHECKLIST

Before Starting Engine:

Brakes	SET
Alternate Air	OFF
Propeller	FULL INCREASE RPM
Avionics	OFF
Fuel Selector	DESIRED TANK

Starting Engine (Normal):

Throttle	1/4 INCH OPEN
ALTR Switch	ON
BATT MASTR Switch	ON
Electric Fuel Pump	ON
Mixture	RICH - then IDLE CUT OFF
Starter	ENGAGE
Mixture	FULL RICH
Throttle	ADJUST
Oil Pressure	CHECK

Warm Up:

Throttle	1400 to 1500 RPM

Ground Check:

Parking Brake	SET
Propeller	FULLL INCREASE
Throttle	2000 RPM
Magnetos	CHECK
Vacuum	4.8 to 5.1 inches Hg
Oil Temperature	CHECK
Oil Pressure	CHECK
Ammeter	CHECK
Annunciator Panel	PRESS-TO-TEST
Propeller	EXER-CISE then FULL INCREASE

Alternate Air	CHECK
Electric Fuel Pump	OFF
Fuel Pressure	CHECK
Throttle	RETARD

Before Takeoff:

BATT MASTR Switch	ON
ALTR Switch	ON
Flight Instruments	CHECK
Fuel Selector	PROPER TANK
Electric Fuel Pump	ON
Engine Gauges	CHECK
Alternate Air	CLOSED
Mixture	SET
Propeller	SET
Flaps	SET
Trim	SET

Takeoff (Normal):

Flaps	SET
Trim	SET
Accelerate	65 to 75 KIAS
Control Wheel	ROTATE to CLIMB ATTITUDE

Climb:

Best Rate (Gear Up/Flaps Up)	90 KIAS
Best Angle (Gear Up/Flaps Up)	78 KIAS
En Route	104 KIAS
Electric Fuel Pump	OFF at desired altitude

Cruise:

Normal Maximum Power	75%
Power	SET per power table
Mixture	ADJUST

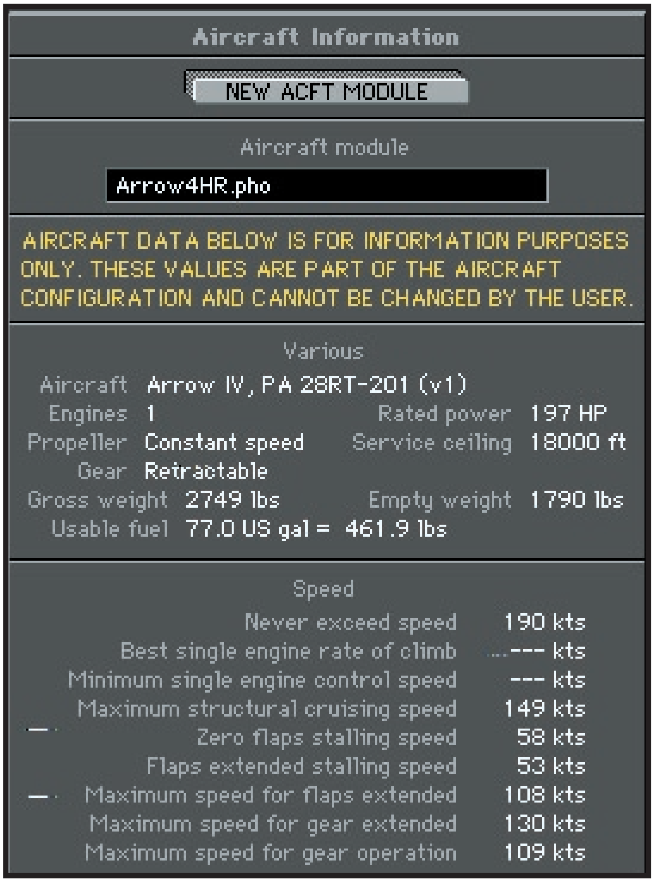
Approach and Landing:

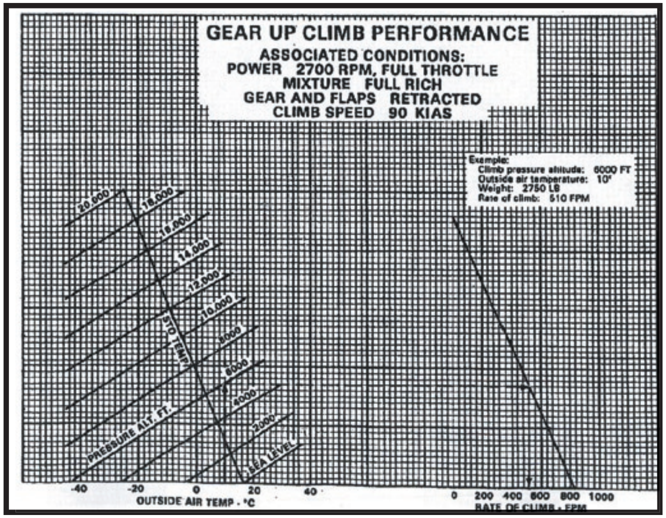
Fuel Selector	PROPER TANK
Electric Fuel Pump	ON
Mixture	SET
Propeller	FULL INCREASE
Gear	DOWN – 129 KIAS max
Flaps	SET – 103 KIAS max
Trim to 75 KIAS	

Stopping Engine:

Flaps	RETRACT
Electric Fuel Pump	OFF
Avionics	OFF
Electrical Switches	OFF
Propeller	FULL INCREASE
Throttle	CLOSED
Mixture	IDLE CUT OFF
Magnetos	OFF
ALTR Switch	OFF
BATT MASTR Switch	OFF

AIRCRAFT SETTINGS PANEL

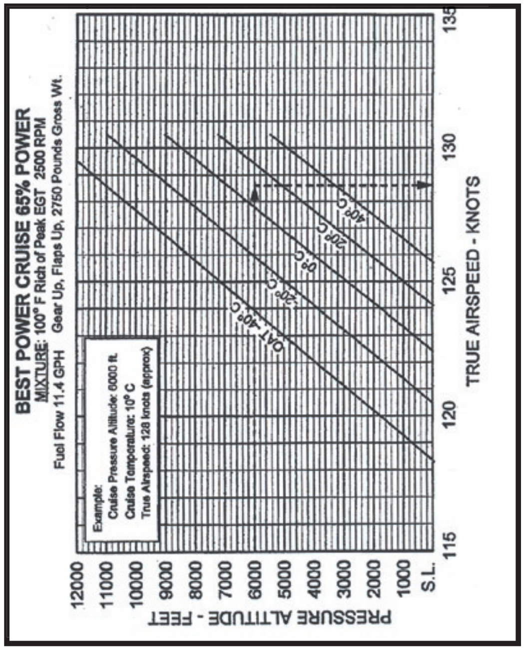


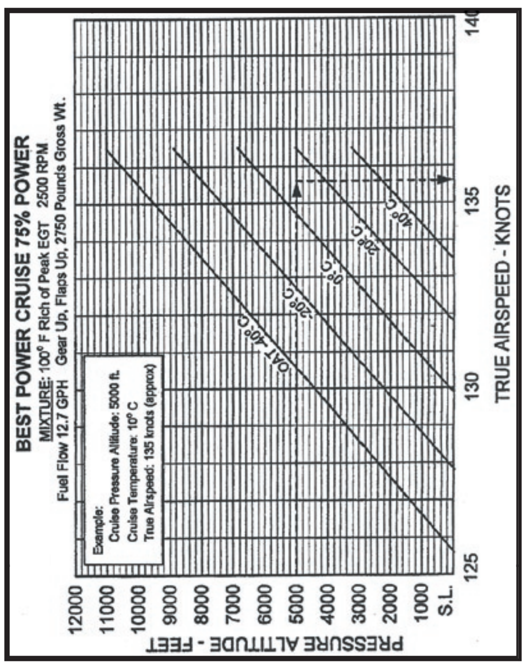


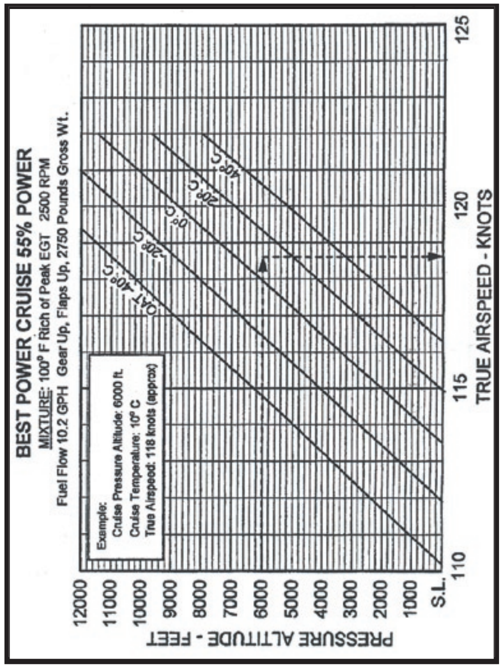
Power Setting Table for Lycoming Model IO-360-C1C6 Engine as Installed in PA-28R-201 Arrow Best Power Mixture

Pressure Altitude	ISA Temperature		55% power 110 BHP@ Prop Mixture Peak EGT + 100° F RPM and Manifold Press.		65% power 130 BHP @ Prop Mixture Peak EGT + 100° F RPM and Manifold Press.		75% power 150 BHP @ Prop Mixture Peak EGT + 100° F RPM and Manifold Press.	Pressure Altitude
Feet	°F	°C	2200 RPM	2500 RPM	2200 RPM	2500 RPM	2500 RPM	Feet
S.L.	59	15	23.7	21.7	26.1	24.1	26.3	S.L.
1000	55	13	23.4	21.4	25.8	23.7	26.0	1000
2000	52	11	23.0	21.1	25.4	23.4	25.6	2000
3000	48	9	22.6	20.8	25.1	23.1	25.3	3000
4000	45	7	22.3	20.5	24.7	22.8	24.9	4000
5000	41	5	21.9	20.2	24.3	22.4	24.6	5000
6000	38	3	21.6	19.9	24.0	22.1	24.3	6000
6800	35	2	21.3	19.7	23.7	21.9	F.T.	6800
7000	34	1	21.2	19.6	23.6	21.8		7000
7500	32	0	21.0	19.4	F.T.	21.6		7500
8000	30	-1	20.8	19.3		21.5		8000
9000	27	-3	20.5	19.0		21.1		9000
9400	25	-4	20.3	18.9		F.T.		9400
10000	23	-5	F.T.	18.7				10000
11000	19	-7		18.4				11000
12000	16	-9		18.1				12000
13000	12	-11		17.8				13000
14000	9	-13		17.5				14000

Note:
To maintain constant power, correct manifold pressure approximately 0.16" Hg for each 10° F (5.5° C) variation in inlet air temperature from standard altitude temperature. Add manifold pressure for air temperatures above standard: subtract for temperatures below standard. Full throttle manifold pressure values may not be obtainable when atmospheric conditions are non-standard.


BEST POWER CRUISE 65% POWER
MIXTURE: 100° F Rich of Peak EGT 2500 RPM
Fuel Flow 11.4 GPH Gear Up, Flaps Up, 2750 Pounds Gross Wt.
Example:
Cruise Pressure Altitude: 6000 ft.
Cruise Temperature: 10° C
True Airspeed: 128 knots (approx)
OAT -40° C
-20° C
0° C
20° C
40° C
PRESSURE ALTITUDE - FEET
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
S.L.
115
120
125
130
135
TRUE AIRSPEED - KNOTS


BEST POWER CRUISE 75% POWER
MIXTURE: 100° F Rich of Peak EGT 2500 RPM
Fuel Flow 12.7 GPH Gear Up, Flaps Up, 2750 Pounds Gross Wt.
Example:
Cruise Pressure Altitude: 5000 ft.
Cruise Temperature: 10° C
True Airspeed: 135 knots (approx)
OAT -40° C
-20° C
0° C
20° C
40° C
PRESSURE ALTITUDE - FEET
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
S.L.
125
130
135
140
TRUE AIRSPEED - KNOTS


BEST POWER CRUISE 55% POWER
MIXTURE: 100° F Rich of Peak EGT 2500 RPM
Fuel Flow 10.2 GPH Gear Up, Flaps Up, 2750 Pounds Gross Wt.
Example:
Cruise Pressure Altitude: 6000 ft.
Cruise Temperature: 10° C
True Airspeed: 118 knots (approx)
OAT -40° C
-20° C
0° C
20° C
40° C
PRESSURE ALTITUDE - FEET
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
S.L.
110
115
120
125
TRUE AIRSPEED - KNOTS

MOONEY M20J

1024 x 768 Resolution

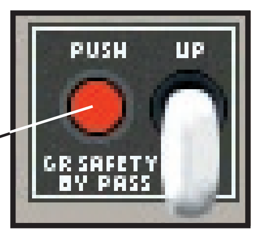
COCKPIT FUNCTIONS

As in all **ELITE** photo-realistic modules, the Mooney M20J provides unbelieveable cockpit detail. From full functioning warning annunciator panel, alternate air source, standby vac to the gear safety bypass switch.

Choose between standard or digital altimeter (see Sec. III, Instrument Configuration)

Fully integrated cowl flaps

Gear safety bypass switch over rides the safety features of the airspeed switch (which automatically prevents retraction below approximately 65 knots)



AIRCRAFT CHECKLIST

Before Starting Check:

Magneto/Starter Switch	OFF
Master Switch	OFF
Alternator Field Switch	OFF
Radio Master Switch	OFF
Fuel Boost Pump	OFF
Alternate Static Source	Push OFF
Lights	OFF
Pitot Heat	OFF
Throttle	CLOSED
Propeller	HIGH RPM
Mixture	IDLE CUTOFF
Cowl Flaps	VERIFY OPEN
Parking Brakes	SET
Flap Switch	Centered (Flaps UP)
Fuel Selector	FULLEST TANK
ELT	ARM
Landing Gear Switch	DOWN

Starting Engine (Normal):

Throttle	¼ OPEN
Propeller	HIGH RPM
Mixture	FULL FORWARD (RICH)
Master Switch	ON
Alternator Field Switch	ON
Annunciator Lights	PRESS TO TEST
Fuel Boost Pump	ON to establish pressure, then OFF
Mixture	IDLE CUTOFF
Magneto/Starter Switch	TURN and PUSH
Mixture	Move slowly to RICH
Throttle	Set at 1000 to 1200 RPM
Oil Pressure	CHECK

Voltmeter	CHECK
Fuel Flow Indicator	

Before Taxi:

Radio Master Switch	ON
Radios	CHECK and SET
Altimeter	SET
Fuel Selector	CHECK TANKS
Cowl Flaps	CHECK OPERATION then as desired

Before Takeoff:

Parking Brake	SET
Throttle	1200 RPM
Propeller	HIGH RPM
Mixture	RICH (Full Forward)
Cowl Flaps	FULL OPEN
Magneto/Starter Switch	GROUND CHECK
Throttle	1900-2000 RPM
Magnetos	CHECK
Propeller	CYCLE
Throttle	IDLE
Trim	Takeoff Setting
Wing Flaps	CHECK OPERATION then takeoff setting
Avionics	CHECK
Annunciator Lights	Press to Test
Lights	ON
Parking Brake	RELEASE

Takeoff (Normal):

Electric Fuel Boost Pump	ON
Power	FULL THROTTLE and 2700 RPM

Aircraft Attitude	Lift Nose Wheel 63 KIAS
Climb Speed	71 KIAS
Landing Gear	RETRACT before 107 KIAS
Wing Flaps	RETRACT in climb
Electric Fuel Boost Pump	OFF

Climb (Best Rate, Vy):

Power	FULL THROTTLE and 2700
RPM	
Mixture	FULL RICH
Cowl Flaps	FULL OPEN
Airspeed	88 KIAS

Cruise and Descent:

See Mooney manual for full details.

Approach for Landing:

Landing Gear	EXTEND below 132 KIAS
Mixture	FULL RICH
Propeller	HIGH RPM
Fuel Boost Pump	ON
Fuel Selector	FULLEST TANK
Wing Flaps	AS DESIRED; FULL DOWN
below 115 KIAS	
Trim	AS DESIRED
Parking Brake	OFF

Go Around (Balked Landing)

Power	FULL THROTTLE and 2700
RPM	
Mixture	FULL RICH
Airspeed	65 KIAS
Flaps	TAKEOFF position after
climb established	

Trim	Nose down to relieve control force
Airspeed	73 KIAS
Landing Gear	RETRACT
Wing Flaps	RETRACT
Cowl Flaps	OPEN
Airspeed	91 KIAS

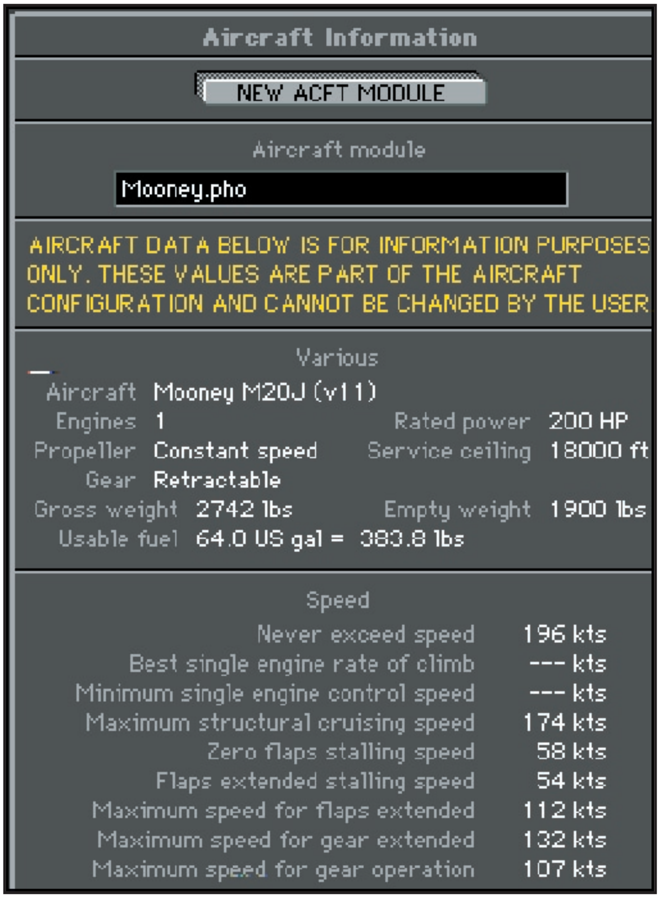
Landing (Normal):

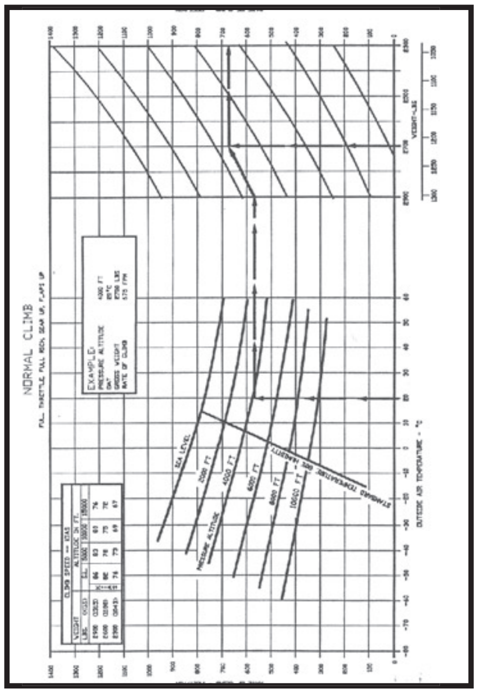
Airspeed on Final	71 KIAS (Full Flaps)
Brakes	Minimum required
Wing Flaps	RETRACT after clearing runway
Boost Pump	OFF after landing
Trim	TAKEOFF position

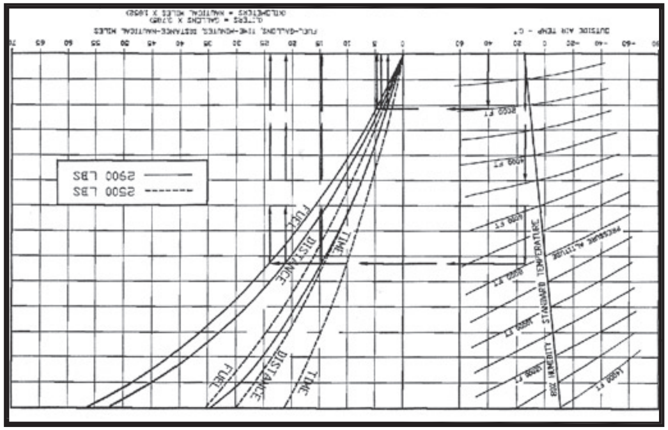
Shutdown:

Parking Brake	SET
Throttle	1000 to 1200 RPM to drop cylinder head temps
Radio Master	OFF
Magneto/Starter Switch	Grounding Check
Mixture	IDLE CUTOFF
Magneto/Starter Switch	OFF
Alternator Field Switch	OFF
Master Switch	OFF

AIRCRAFT SETTINGS PANEL




NORMAL CLIMB



Mooney M20 J

CRUISE POWER SCHEDULE

EXAMPLE:
CRUISE ALT. 6000 FT.
OAT 10°C(50°F)
POWER 65%
RPM 2600
M.P. 22.0
(7° C CORRECTION)

1. BEST POWER IS 55°C(100°F) RICH OF PEAK EGT.   2. ECONOMY CRUISE IS 14°C(25°F) RICH OF PEAK EGT.

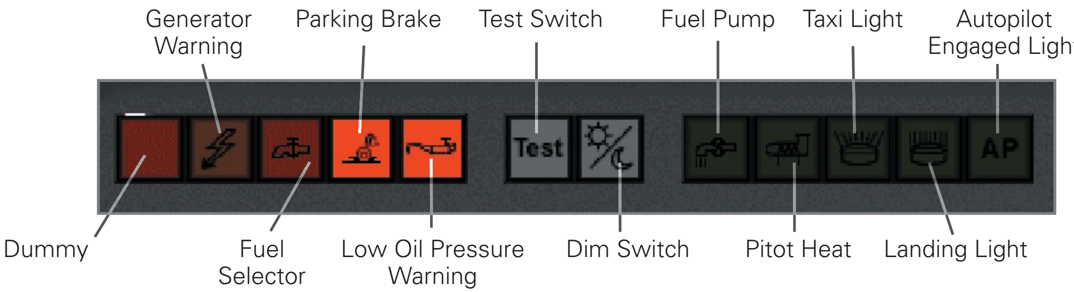
NOTE: ADD .4" M.P. FOR EACH 10°C(50°F) OAT ABOVE STANDARD DAY TEMPERATURE. SUBTRACT .4" M.P. FOR EACH 10°C (50°F) BELOW STD. DAY TEMPERATURE. IF OAT ABOVE STANDARD PRECLUDES OBTAINING THE DESIRED M.P. USE THE NEXT HIGHER RPM/ M.P. WITH APPROPRIATE TEMPERATURE CORRECTION TO M.P.

Pressure Altitude Feet		75% Power (150 BHP)				70% Power (140 BHP)				65% Power (130 BHP)			
	RPM	2400	2500	2600	2700	2400	2500	2600	2700	2400	2500	2600	2700
	Fuel Flow Best ECON.	10.3	10.4	10.5	10.8	9.7	9.8	9.9	10.2	9.2	9.3	9.4	9.6
	Fuel Flow Best POWER	12.0	12.2	12.3	12.5	11.3	11.5	11.7	11.9	10.5	10.8	11.0	11.2
Std. Day	Std. Temp.	MANIFOLD PRESSURE — INCHES OF MERCURY											
S.L.	15°C	27.0	25.8	24.5	23.5	25.5	24.3	23.0	22.0	24.0	22.9	21.7	21.0
2000	11°C	26.8	25.6	24.4	23.3	25.1	24.1	23.0	22.0	23.6	22.6	21.6	20.6
4000	7°			24.4	23.2	24.9	23.9	22.9	21.8	23.3	22.4	21.5	20.5
6000	3°			24.1	23.1	24.4	23.6	22.7	21.7	22.8	22.1	21.3	20.4
8000	−1°				23.6			22.7	21.7			21.2	20.4
10000	−5°								21.4			21.1	20.2
12000	−9°												
14000	−13°												

SOCATA TB10 TOBAGO

1024 x 768 Resolution

COCKPIT FUNCTIONS



Dummy light: Not used.

Generator Warning light: Illuminates when the voltage is low or the engine is operated below 1000 RPM.

Fuel Selector light: Illuminates when the fuel tank selector is in the 'off' position.

Parking Brake light: Illuminates when the parking brake is set.

Low Oil Pressure Warning light: Illuminates when oil pressure is low or the engine is not running.

Test Switch: Click on this switch to test all annunciator lights.

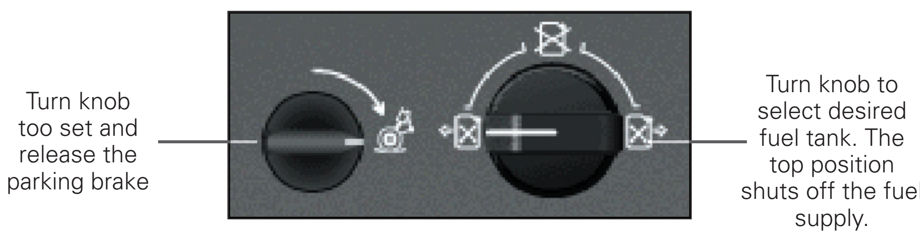
Dim Switch: Dims all lights for use at night.

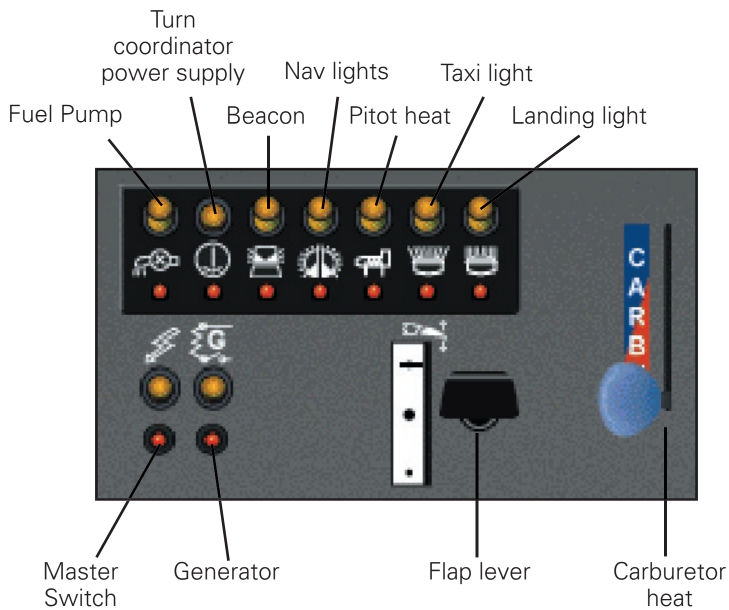
Fuel Pump light: Illuminates when the electric fuel pump is activated.

Pitot Heat light: Illuminates when the pitot heat is activated.

Taxi / Landing Light: Illuminates when the Taxi or Landing light switches are activated.

Autopilot Engaged light: Illuminates when the autopilot is engaged.




Turn coordinator power supply
Nav lights
Taxi light
Fuel Pump
Beacon
Pitot heat
Landing light
CARB
G
Master Switch
Generator
Flap lever
Carburetor heat

AIRCRAFT CHECKLIST

Before Starting Check:

Main switch	OFF
Parking brake	SET
Fuel selector	OPEN (L.H or R.H.)
Magneto selector	OFF
Radio master	OFF
Alternate static source	Pushed

Engine Starting:

Anticollision light	ON
Carburetor heating	OFF
Propeller	FULL FORWARD
Mixture	FULL RICH
Main switch	ON
Fuel pump	ON
Pump warning light	ON
Fuel pressure	Green sector
Injection	Throttle operated a few
times	
Throttle	¼ OPEN
Magneto/start selector	START
Magneto selector	BOTH when engine starts
Oil pressure	Green sector
Fuel pump	OFF
Engine	1000 to 1200 RPM

After Starting Engine:

Electrical Generation Check:	
Alternator switch	OFF
- Generation warning light	ON
- Voltmeter	Yellow sector
Alternator switch	ON
- Generation warning light	OFF

- Voltmeter	Green sector
Turn and bank indicator	ON
Vacuum gage	Checked
Advisory panel test	Positive
Radio master	ON
All radios and navaids	ON
Fuel selector	Set to fullest tank
Flaps	Checked and RETRACTED

Taxiing:

Parking brake	RELEASE
Flight instruments	Checked
Taxi light	As required

Engine Run-up:

Parking brake	SET
Oil temperature	Green sector
Oil pressure	Green sector
Fuel pressure	Green sector
Mixture	FULL RICH
Carburetor heating	OFF
Fuel selector	Set to fullest tank

Propeller check:

Propeller	FULL FORWARD
Throttle	2000 RPM
Propeller	Cycle twice and return to
HIGH RPM	

Magneto check:

Throttle	2000 RPM
Magneto selector	L. then BOTH
	R. then BOTH
Max RPM drop on each Mag	175 RPM
Max difference between Mags	50 RPM

Carburetor heating check:

Carburetor heating	ON
Manifold pressure	Decrease
Carburetor temperature indicator	Increase
Carburetor heating	OFF

Maximum power check:

Full throttle	2700 RPM

Before Take-off:

Pitch trim	TAKE-OFF
Flaps	TAKE-OFF
Magneto selector	BOTH
Propeller	FULL FORWARD
Carburetor heating	OFF
Mixture	FULL RICH
Fuel selector	Check to fullest tank
Fuel pump	ON
Oil temperature	Green sector
Oil pressure	Green sector
Fuel pressure	Green sector
Voltmeter	Green sector
Altimeter	SET
Heading indicator	SET
Horizontal attitude gyro	SET
Parking brake	RELEASE

Takeoff:

Throttle	FULL POWER

Standard airspeeds:

Rotation	63 KIAS
Initial climb	70 KIAS

When safely airborne;	
Brakes	Apply

At 300 Feet:	
Climb speed	73 KIAS
Flaps	RETRACT

At 1000 Feet:	
Fuel pump	OFF

Climb:

Mixture	FULL RICH
Throttle	FULL POWER
Propeller	FULL FORWARD (2700 RPM)
Optimum climb speed	78 KIAS

Cruise:

Power	As required
Pitch trim	As required
Mixture	As required

Descent:

Power setting as required for descent.

Approach - Landing:

Final:	
Airspeed	78 KIAS
Flaps	TAKE-OFF
Fuel pump	ON
Mixture	FULL RICH
Propeller	FULL FORWARD

Carburetor heating	ON or OFF as required

Short final:

Flaps	LANDING
Airspeed	72-80 KIAS

Go-Around

Carburetor heating	OFF
Throttle	FULL POWER
Airspeed	70-73 KIAS
When climb rate is positive:	
Flaps	TAKE-OFF
Airspeed	73 KIAS
Flaps	RETRACTED
Climb	78 KIAS

After Landing:

Fuel pump	OFF
Flaps	RETRACTED
Trim	TAKE-OFF
Radio equipment	As required
Carburetor heating	OFF

Shut-down / Securing Airplane:

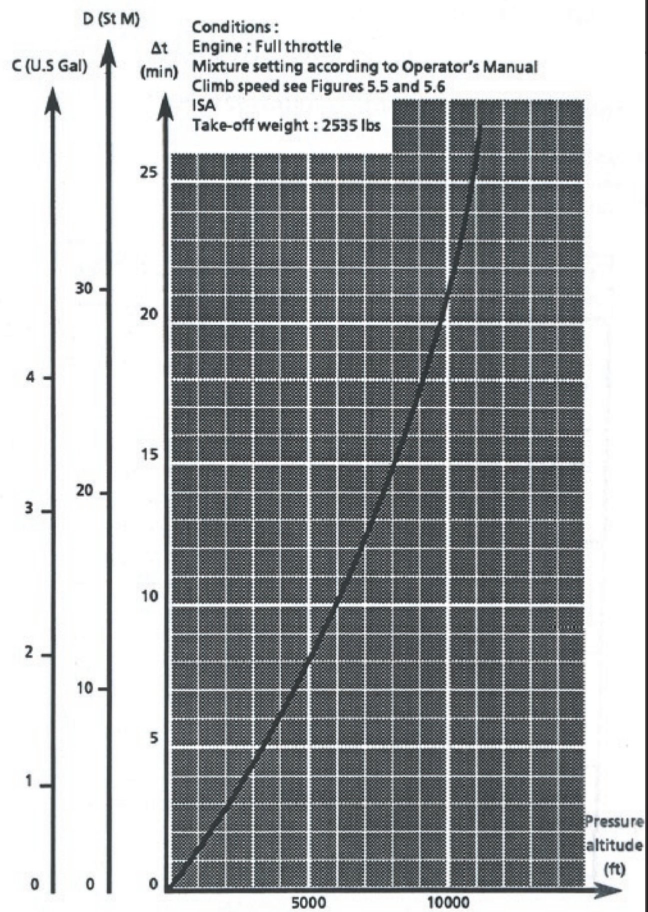
Parking brake	SET
Turn and Bank indicator	OFF
Radio master	OFF
Throttle	REDUCE

CLIMB PERFORMANCE

CONDITIONS : Climb speed : 78 KIAS - 90 MPH IAS
Weight : 2535 lbs (1150 kg)
Airplane equipped with wheel fairings
Flaps retracted

PRESSURE ALTITUDE (ft)	CLIMB SPEED									
	-4°F (-20°C)		+32°F (0°C)		+59°F (+15°C)		+86°F (+30°C)		+104°F (+40°C)	
	m/s	ft/min	m/s	ft/min	m/s	ft/min	m/s	ft/min	m/s	ft/min
0	4.68	921	4.29	844	4.00	787	3.72	732	3.54	697
2000	4.06	799	3.68	724	3.40	669	3.14	618	2.97	585
4000	3.41	671	3.04	598	2.78	547	2.53	498	2.36	465
6000	2.78	547	2.43	478	2.17	427	1.93	380	1.77	348
8000	2.17	427	1.84	362	1.59	313	1.35	266	1.20	236

CLIMB - CONSUMPTION - TIME - DISTANCE COVERED



CLIMB PERFORMANCE

CONDITIONS : Climb speed : 78 KIAS - 90 MPH IAS
Weight : 2535 lbs (1150 kg)
Airplane equipped with wheel fairings
Flaps retracted

PRESSURE ALTITUDE (ft)	CLIMB SPEED									
	-4°F (-20°C)		+32°F (0°C)		+59°F (+15°C)		+86°F (+30°C)		+104°F (+40°C)	
	m/s	ft/min	m/s	ft/min	m/s	ft/min	m/s	ft/min	m/s	ft/min
0	4.68	921	4.29	844	4.00	787	3.72	732	3.54	697
2000	4.06	799	3.68	724	3.40	669	3.14	618	2.97	585
4000	3.41	671	3.04	598	2.78	547	2.53	498	2.36	465
6000	2.78	547	2.43	478	2.17	427	1.93	380	1.77	348
8000	2.17	427	1.84	362	1.59	313	1.35	266	1.20	236

PRESSURE ALTITUDE : 2000 ft

ISA : 52°F (11°C)
Airplane with wheel fairings

N (RPM)	2700		2600		2500		2400		2300	
MP (in.Hg)	22.1 20.7 19.2		23.6 22.1 20.7 19.2		23.6 22.1 20.7 19.2		25 23.6 22.1 20.7		25 23.6 22.1 20.7	
% BHP (rounded)	73 67 60		78 72 65 58		76 70 63 57		81 74 68 62		78 72 66 60	
TAS	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH
	119 114 108	137 132 124	122 118 113 106	141 136 130 122	121 117 112 104	140 135 129 119	124 120 115 110	143 138 133 127	122 118 113 108	141 136 130 124
C (U.S Gal/hr)	11.4 10.4 9.4		11.7 10.6 9.6 8.8		11 10 9.1 8.4		11.5 10.5 9.6 8.7		11.1 10.1 9.2 8.4	
Distance to be cleared without reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	4.42 5.12 5.43	646 687 711	4.37 5.05 5.36 6.06	649 690 727 743	4.53 5.22 5.54 6.25	684 724 758 764	4.40 5.07 5.38 6.10	665 708 749 783	4.41 5.20 5.51 6.23	662 727 764 792
Distance to be cleared with reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	4.07 4.32 5.00	562 597 618	4.02 4.26 4.53 5.19	565 600 631 646	4.17 4.42 5.06 5.35	593 631 657 665	4.11 4.29 4.49 5.23	593 615 649 677	4.14 4.39 5.06 5.34	593 531 662 690

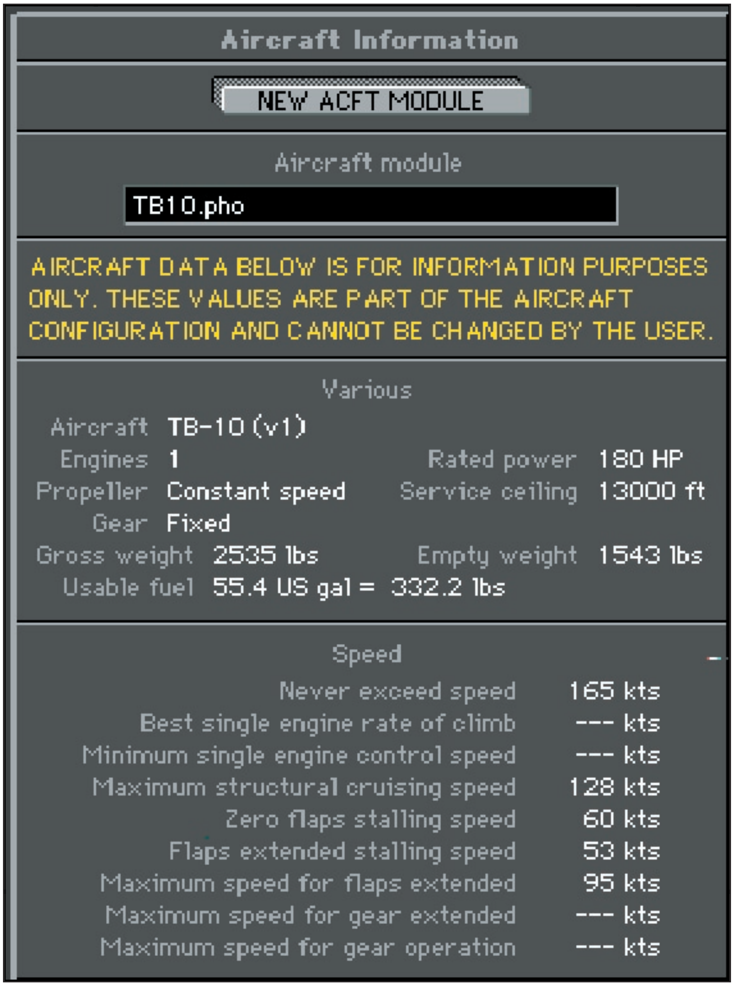
PRESSURE ALTITUDE : 4000 ft
ISA : 45°F (7°C)
Airplane with wheel fairings

N (RPM)	2700		2600		2500		2400		2300	
MP (in.Hg)	22.1 20.7 19.2		23.6 22.1 20.7 19.2		23.6 22.1 20.7 19.2		23.6 22.1 20.7 19.2		23.6 22.1 20.7	
% BHP (rounded)	76 69 62		80 74 67 60		79 72 66 59		77 70 64 58		74 68 62	
TAS	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH
	123 118 112	142 136 129	126 122 117 110	145 140 135 126	125 120 115 107	144 139 132 123	124 119 113 105	142 137 130 121	122 117 111	140 135 128
C (U.S Gal/hr)	11.8 10.7 9.7		12.1 11 9.9 9.1		11.4 10.3 9.7 8.5		10.9 9.9 9 8.3		10.4 9.6 8.7	
Distance to be cleared without reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	4.32 5.02 5.34	640 684 715	4.27 4.55 5.25 5.57	646 690 730 749	4.43 5.13 5.32 6.19	677 721 733 777	4.57 5.27 6.00 6.30	702 746 783 786	5.09 5.40 6.12	724 764 792
Distance to be cleared with reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	3.58 4.28 4.49	550 587 612	3.53 4.17 4.42 5.08	553 590 624 640	4.07 4.32 4.48 5.26	581 618 624 665	4.19 4.44 5.11 5.35	603 637 668 671	4.29 4.54 5.23	618 652 677

PRESSURE ALTITUDE : 6000 ft
ISA : 37°F (3°C)
Airplane with wheel fairings

N (RPM)	2700		2600		2500		2400		2300	
MP (in.Hg)	22.1 20.7 19.2		22.1 20.7 19.2		22.1 20.7 19.2		22.1 20.7 19.2		22 1 20.7 19.2	
% BHP (rounded)	78 71 64		76 69 63		74 68 61		73 66 60		70 64 58	
TAS	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH
	127 122 115	146 140 132	125 120 113	144 139 130	125 119 111	144 137 128	123 117 109	142 135 126	121 115 105	139 132 121
C (U.S Gal/hr)	12.2 11.1 9.9		11.3 10.3 9.3		10.7 9.7 8.9		10.2 9.3 8.5		9.9 8.9 8.2	
Distance to be cleared without reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	4.25 4.52 5.25	643 684 718	4.46 5.14 5.48	687 724 755	5.02 5.33 6.06	721 761 783	5.16 5.48 6.21	746 783 795	5.28 6.00 6.32	761 792 789
Distance to be cleared with reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	3.53 4.15 4.42	550 581 612	4.10 4.33 5.00	587 618 640	4.23 4.49 5.16	615 646 665	4.35 5.01 5.28	634 665 671	4.44 5.11 5.37	646 671 668

AIRCRAFT SETTINGS PANEL

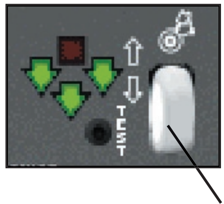


SOCATA TB20 TRINIDAD

1024 x 768 Resolution

COCKPIT FUNCTIONS

TB20 Landing Gear



Press-to-test

The small knob labeled TEST below the right green light is a press-to-test switch which, when pressed, will illuminate all the lights including the red, ‘in transit’ light. The red light will also illuminate if the throttle is closed with the gear in the up position.

TB20 Rudder Trim

The rudder trim knob is only functional when used in conjunction with rudder pedals or if the Yaw Control feature is ‘Enabled’ on the CONTROL Page. If the Yaw Control is ‘Disabled’ the ELITE software locks out the rudder trim and the aircraft maintains coordinated flight.

AIRCRAFT CHECKLIST

Before Starting Engine:

Main switch	OFF
Parking brake	SET
Fuel selector	OPEN (L.H. or R.H.)
Magneto selector	OFF
Radio master	OFF
Landing gear lever	DOWN
Alternate air	PUSHED
Alternate static source	PUSHED

Engine Starting:

Anticollision light	ON
Main switch	ON
Propeller	FULL FORWARD
Throttle	¼ OPEN
Mixture	IDLE CUT-OFF
Fuel pump	FULL RICH until fuel flow
displayed then IDLE CUT-OFF	
Magneto selector	BOTH when engine starts
Oil pressure	CHECK

After Starting Engine:

Electrical Power Check:	
ALTr FLD switch-breaker	OFF
- ALTr warning light	ON
- Voltmeter	Yellow sector
ALTr FLD switch-breaker	ON
- ALTr warning light	OFF
- Voltmeter	Green sector
Turn and bank indicator	ON
Vacuum gage	Checked

Advisory panel test	Positive
Landing gear indicator lights test	positive
Radio master	ON
All radios and navaids	ON
Fuel selector	Check engine operation on
each tank	
Fuel selector	Set to fullest tank
Flaps	Checked and RETRACTED

Taxiing:

Parking brake	RELEASE
Flight instruments	Checked
Taxi light	As required

Engine Run-up:

Parking brake	SET
Oil temperature	Green sector
Oil pressure	Green sector
Mixture	FULL RICH
Fuel selector	Set to fullest tank

Propeller check:

Propeller	FULL FORWARD
Throttle	2000 RPM
Propeller	Cycle twice and return to
HIGH RPM	

Magneto check:

Throttle	2000 RPM
Magneto selector	L. then BOTH
	R. then BOTH
Maximum RPM drop on each Mag	175 RPM

Maximum difference between Mags50 RPM

Alternate air check:	
Alternate air	PULLED
Manifold pressure	Maintained
Alternate air	PUSHED

Maximum power check:	
Full throttle	2575 RPM

Before Take-off:	
Pitch trim	TAKE-OFF
Rudder trim	TAKE-OFF
Flaps	TAKE-OFF
Magneto selector	BOTH
Propeller	FULL FORWARD
Mixture	FULL RICH
Fuel selector	Check to fullest tank
Fuel pump	ON
Oil temperature	Green sector
Oil pressure	Green sector
Voltmeter	Green sector
Altimeter	SET
Heading indicator	SET
Horizontal attitude gyro	SET
Parking brake	RELEASE

Takeoff:	
Throttle	FULL POWER

Standard airspeeds:	
Rotation	68 KIAS
Initial climb	75 KIAS

When safely airborne;	
Brakes	Apply

Landing gear	RETRACT
At 300 Feet:	
Flaps	RETRACT
At 1000 Feet:	
Fuel pump	OFF

Climb:

Mixture	FULL RICH
Throttle	FULL POWER
Propeller	FULL FORWARD (2575 RPM)
Optimum climb speed	95 KIAS

Cruise:

Power	As required
Pitch trim	As required
Mixture	As required

Descent:

Power setting as required for descent.

Approach - Landing:

Final:	
Airspeed	86-92 KIAS
Flaps	TAKE-OFF below 129 KIAS
Landing gear lever	DOWN
Fuel pump	ON
Mixture	FULL RICH
Propeller	FULL FORWARD
Brakes	Checked

Short final:

Flaps	LANDING below 103 KIAS
Airspeed	68-76 KIAS

Go-Around

Throttle	FULL POWER
Airspeed	76-81 KIAS
When climb rate is positive:	
Landing gear lever	UP
Flaps	TAKE-OFF
Airspeed	90 KIAS
Flaps	RETRACTED
Climb	95 KIAS

After Landing:

Fuel pump	OFF
Flaps	RETRACTED
Trim	TAKE-OFF
Radio equipment	As required

Shut-down / Securing Airplane:

Parking brake	SET
Turn and bank indicator	OFF
Radio master	OFF
Throttle	REDUCE

CLIMB PERFORMANCE

CONDITIONS :
Landing gear UP
Weight : 3086 lbs (1400 kg)
Indicated speed : 95 KIAS - 109 MPH IAS
Mixture : FULL RICH
Flaps retracted
Power : 2575 RPM - full throttle

PRESSURE ALTITUDE	CLIMB SPEED					
	ISA - 20°C (- 36°F)		ISA		ISA + 20°C (+ 36°F)	
	m/s	ft/min	m/s	ft/min	m/s	ft/min
500	6.32	1244	5.59	1100	4.96	977
2500	5.65	1112	4.94	972	4.34	853
4500	4.98	979	4.29	844	3.70	729
6500	4.31	848	3.64	716	3.07	604
8500	3.64	716	2.99	588	2.43	479
10500	2.97	585	2.34	460	1.80	353
12500	2.31	455	1.69	332	1.16	228

PRESSURE ALTITUDE : 2500 ft

ISA : 50°F (10°C)

CONDITIONS :
- Mixture adjusted to the BEST POWER
- Speed without antennas nor external lights
- Weight : 2943 lbs (1335 kg)

NOTE : Bold-faced types represent recommended power.

%	N	PA	CAS		TAS		MIXTURE ADJUSTING		SPECIFIC CONSUMPTION	
BHP	RPM	in.Hg	MPH	kt	MPH	kt	l / h	U.S. Gal / hr	l / 100 NM	U.S. Gal / 100 NM
75 %	2500	23.0	171	148	177	154	61.3	16.2	39.9	10.5
	2400	23.8					60.4	15.9	39.2	10.4
	2300	24.5					59.4	15.7	38.6	10.2
	2200	25.4					58.5	15.5	38.0	10.0
70 %	2500	21.9	166	144	172	150	58.4	15.4	39.0	10.3
	2400	22.6					57.4	15.2	38.4	10.1
	2300	23.3					56.5	14.9	37.7	10.0
	2200	24.2					55.5	14.7	37.1	9.8
65 %	2500	20.7	161	140	167	145	55.4	14.6	38.1	10.1
	2400	21.4					54.5	14.4	37.5	9.9
	2300	22.1					53.6	14.2	36.8	9.7
	2200	22.9					52.6	13.9	36.2	9.6
60 %	2500	19.6	156	136	162	141	52.5	13.9	37.3	9.9
	2400	20.2					51.6	13.6	36.6	9.7
	2300	20.9					50.6	13.4	36.0	9.5
	2200	21.6					49.7	13.1	35.3	9.3
55 %	2500	18.5	150	131	156	136	49.6	13.1	36.6	9.7
	2400	19.0					48.6	12.8	35.9	9.5
	2300	19.6					47.7	12.6	35.2	9.3
	2200	20.3					46.7	12.4	34.5	9.1
50 %	2500	17.3	144	125	150	130	46.7	12.3	35.9	9.5
	2400	17.8					45.7	12.1	35.2	9.3
	2300	18.4					44.8	11.8	34.4	9.1
	2200	19.0					43.8	11.6	33.7	8.9

PRESSURE ALTITUDE : 4000 ft

ISA : 45°F (7°C)

Airplane with wheel fairings

N (RPM)	2700		2600		2500		2400		2300	
MP (in.Hg)	22.1 20.7 19.2		23.6 22.1 20.7 19.2		23.6 22.1 20.7 19.2		23.6 22.1 20.7 19.2		23.6 22.1 20.7	
% BHP (rounded)	76 69 62		80 74 67 60		79 72 66 59		77 70 64 58		74 68 62	
TAS	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH	KTAS	MPH
	123 118 112	142 136 129	126 122 117 110	145 140 135 126	125 120 115 107	144 139 132 123	124 119 113 105	142 137 130 121	122 117 111	140 135 128
C (U.S Gal/hr)	11.8 10.7 9.7		12.1 11 9.9 9.1		11.4 10.3 9.7 8.5		10.9 9.9 9 8.3		10.4 9.6 8.7	
Distance to be cleared without reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	4.32 5.02 5.34	640 684 715	4.27 4.55 5.25 5.57	646 690 730 749	4.43 5.13 5.32 6.19	677 721 733 777	4.57 5.27 6.00 6.30	702 746 783 786	5.09 5.40 6.12	724 764 792
Distance to be cleared with reserves	h.min	SM	h.min	SM	h.min	SM	h.min	SM	h.min	SM
	3.58 4.28 4.49	550 587 612	3.53 4.17 4.42 5.08	553 590 624 640	4.07 4.32 4.48 5.26	581 618 624 665	4.19 4.44 5.11 5.35	603 637 668 671	4.29 4.54 5.23	618 652 677

PRESSURE ALTITUDE : 6500 ft

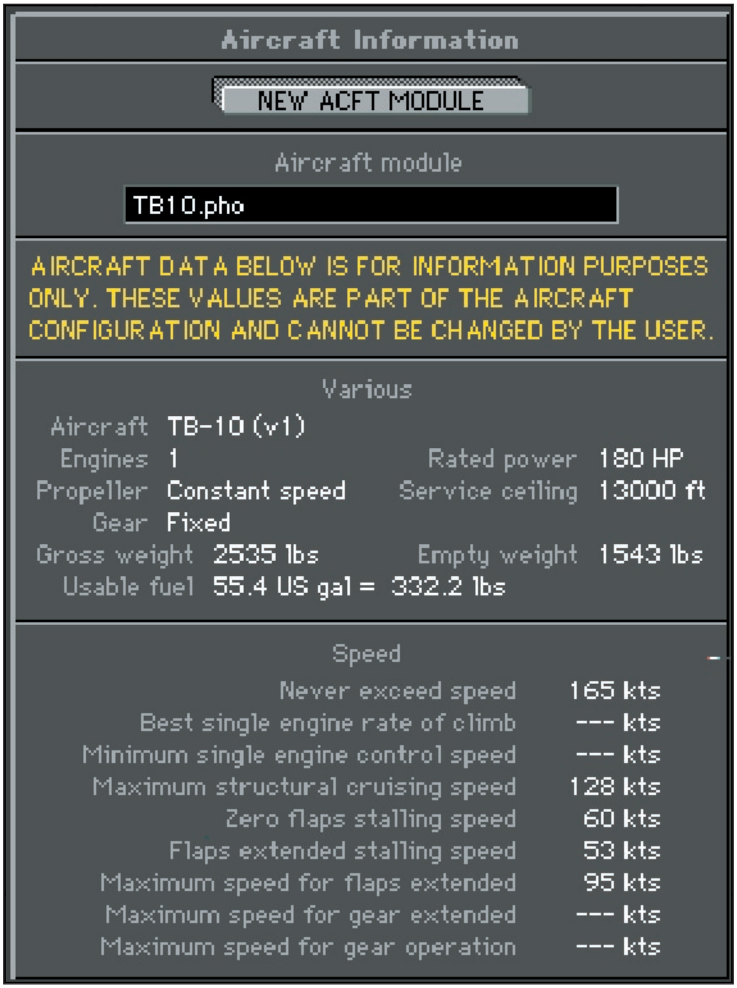
ISA : 35.6°F (2°C)

CONDITIONS :
- Mixture adjusted to the BEST POWER
- Speed without antennas nor external lights
- Weight : 2943 lbs (1335 kg)

NOTE : Bold-faced types represent recommended power.

%	N	PA	CAS		TAS		MIXTURE ADJUSTING		SPECIFIC CONSUMPTION	
BHP	RPM	in.Hg	MPH	kt	MPH	kt	l / h	U.S. Gal / hr	l / 100 NM	U.S. Gal / 100 NM
75 %	**2500**	22.1	**167**	145	184	160	61.3	16.2	38.4	10.1
70 %	2500	20.9	**162**	141	178	155	58.4	15.4	37.6	9.9
	2400	21.6					57.4	15.2	37.0	9.8
	2300	22.3					56.5	14.9	36.3	9.6
65 %	2500	19.8	**157**	137	173	151	55.4	14.6	36.8	9.7
	2400	20.5					54.5	14.4	36.1	9.5
	2300	21.1					53.6	14.1	35.5	9.4
	2200	21.9					52.6	13.9	34.9	9.2
60 %	2500	18.7	**152**	132	168	146	52.5	13.9	36.0	9.5
	2400	19.3					51.6	13.6	35.4	9.4
	2300	19.9					50.6	13.4	34.7	9.2
	2200	20.6					49.7	13.1	34.1	9.0
55 %	2500	17.6	**146**	127	161	140	49.6	13.1	35.4	9.4
	2400	18.2					48.6	12.9	34.7	9.2
	2300	18.8					47.7	12.6	34.0	9.0
	2200	19.4					46.7	12.3	33.3	8.8
50 %	2500	16.5	**138**	120	152	132	46.7	12.3	35.2	9.3
	2400	17.0					45.7	12.1	34.5	9.1
	2300	17.6					44.8	11.8	33.8	8.9
	2200	18.2					43.8	11.6	33.1	8.7

AIRCRAFT SETTINGS PANEL



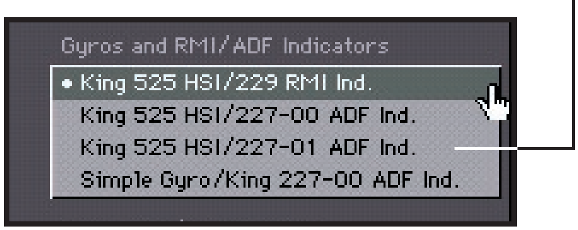
BONANZA A36

1024 x 768 Resolution

COCKPIT FUNCTIONS

The standard configuration for the Bonanza A36 is the HSI and RMI. The **Configuration** page allows you to change the avionics configuration: HSI with slaved ADF; HSI with non-slaved ADF; Directional Gyro (DG) with slaved ADF. When in the ADF (slaved or non-slaved) mode, click on the ADF instrument face to change it to a VOR #2.

Possible changes to the avionics configuration and type of altimeters can be chosen on the Bonanza's **Configuration** Page

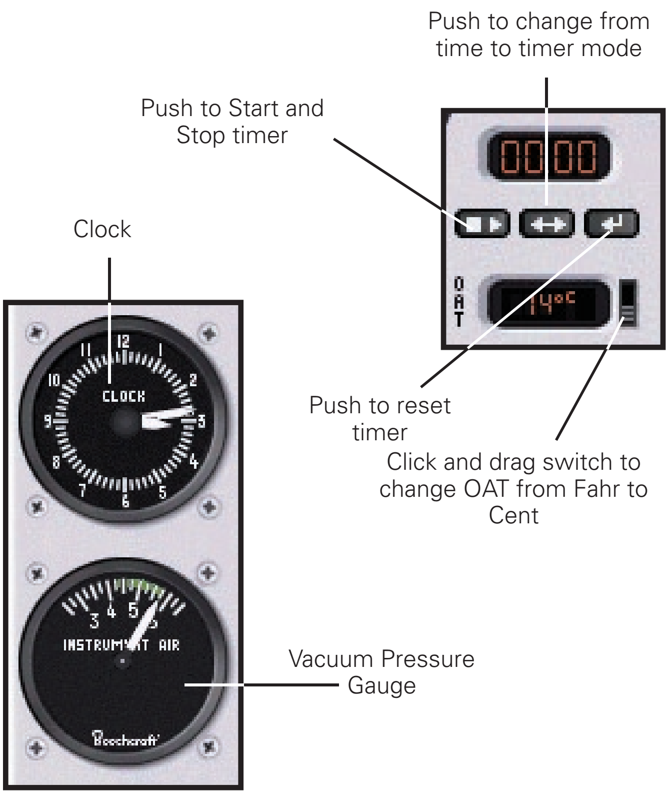


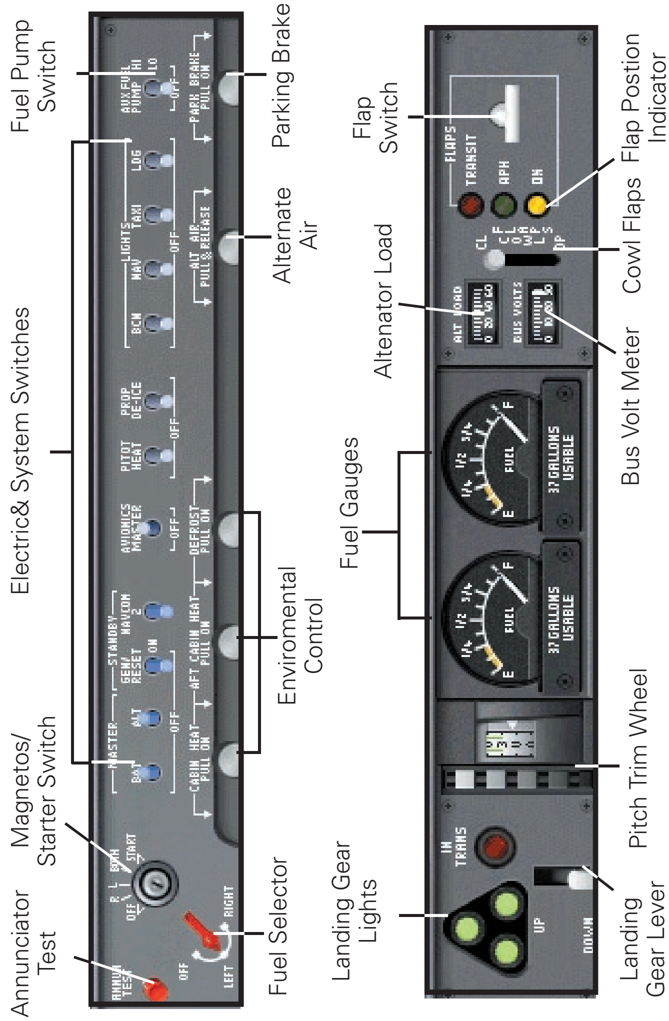
DG with ADF

DG with CDI #2

NOTE: The HSI / RMI mode comes with the KFC 150 Flight Director & Autopilot. When in the DG mode, the Autopilot is changed to the KAP150 mode.

Radar Altimete, click on button to test or click and drag knob to set the Decision Height (DH) bug. The DH light on the radar altimeter and attitude indicator will light when designated height above ground is reached.




Fuel Pump Switch
Parking Brake
Electric& System Switches
Alternate Air
Magnetos/ Starter Switch
Annunciator Test
Fuel Selector
Enviromental Control
Flap Switch
Flap Postion Indicator
Cowl Flaps
Altenator Load
Bus Volt Meter
Fuel Gauges
Pitch Trim Wheel
Landing Gear Lights
Landing Gear Lever

AIRCRAFT CHECKLIST

Before Starting

Parking Break	SET
Avionics	OFF
Landing Gear Handle	DOWN
Cowl Flaps	OPEN
Fuel Selectors	CHECK ON
Circuit Breakers, Switches, Controls	CHECK
Battery / Alternator Switches	ON
Fuel Quantity Indicators	CHECK
Landing Gear Position Lights	CHECK

Starting Engine

Mixture	FULL RICH
Propeller	HIGH RPM
Throttle	FULL OPEN
Fuel Boost Pump	HI, then OFF
Throttle	CLOSE, then open ½ inch
Magneto/Start Switch	START position and release
Throttle	900-1000 RPM
Oil Pressure	10 PSI within 30 seconds
Warm-up	900-1000 RPM
Alternator Switch	ON
Loadmeters and Voltmeter	CHECK for battery charge
Voltmeter	CHECK for 28 volts
Red START Annunciator Light	CHECK
Start other engine	Same procedure

After Starting and Taxi

Avionics Equipment	ON as required
Brakes	RELEASE and CHECK

Before Takeoff

Parking Break	SET
Fuel Boost Pumps	OFF
Engine / Flight Instruments	CHECK
Fuel Indicators	CHECK
Mixture	FULL RICH
Fuel Selectors	CHECK ON
Starter Annunciator Light	CHECK
Throttles	2200 RPM
Propellers	EXERCISE
Throttles	1700 RPM
Magnetos	CHECK
Throttles	1500 RPM
Propellers	FEATHERING CHECK
Throttles	IDLE
Throttles	900-1000 RPM
Trim	As Required for Take-off
Flaps	CHECK
Parking Brake	OFF

Takeoff

Take-off Power	FULL THROTTLE, 2700 RPM
Oil Temperature	CHECK at 24ºC Minimum
Airspeed	Accelerate to Take-off Speed
Landing Gear	RETRACT when rate-of-climb positive
Airspeed	Establish Desired Climb Speed

Cruise Climb

Mixture	RULL RICH
Cowl Flaps	As Required
Power	FULL THROTTLE
Propellers	2500 RPM
Engine Temperatures	Monitor

Fuel Boost Pumps	OFF

Cruise

Cowl Flaps	CLOSED
Power	SET
Fuel Boost Pumps	OFF
Mixtures	SET using EGT

Descent

Altimeter	SET
Mixture	FULL RICH
Cowl Flaps	CLOSED
Flaps	As Required
Power	As Required

Before Landing

Fuel Selector Valves	CHECK ON
Fuel Boost Pumps	OFF
Cowl Flaps	As Required
Mixture Controls	FULL RICH
Flaps	APPROACH
Landing Gear	DOWN
Flaps	FULL DOWN
Airspeed	Normal Approach Speed
Propellers	
HIGH RPM	

Balked Landing

Propellers	HIGH RPM
Power	MAXIMUM ALLOWABLE
Airspeed	95 KTS
Flaps	UP
Landing Gear	UP
Cowl Flaps	As Required

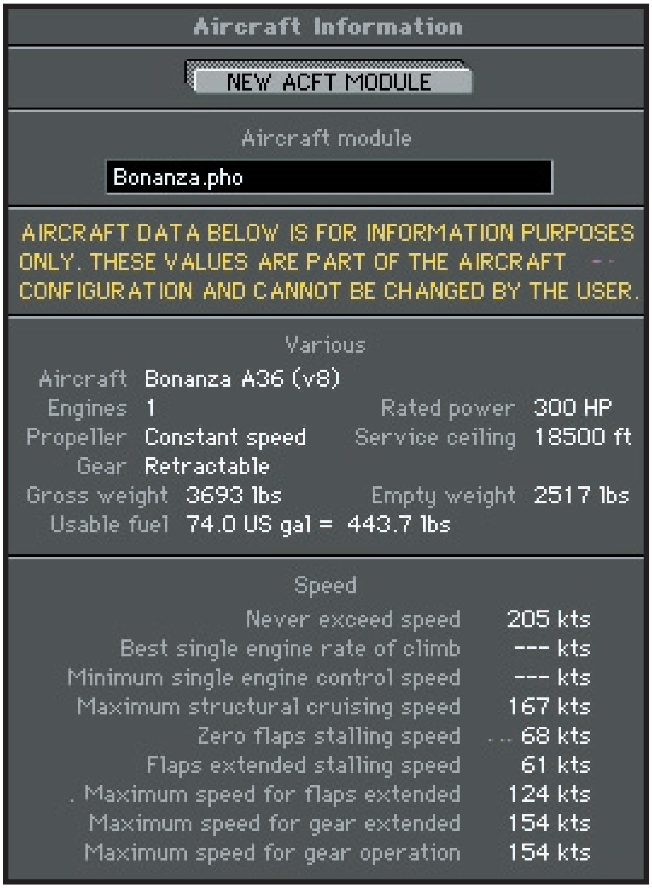
After Landing

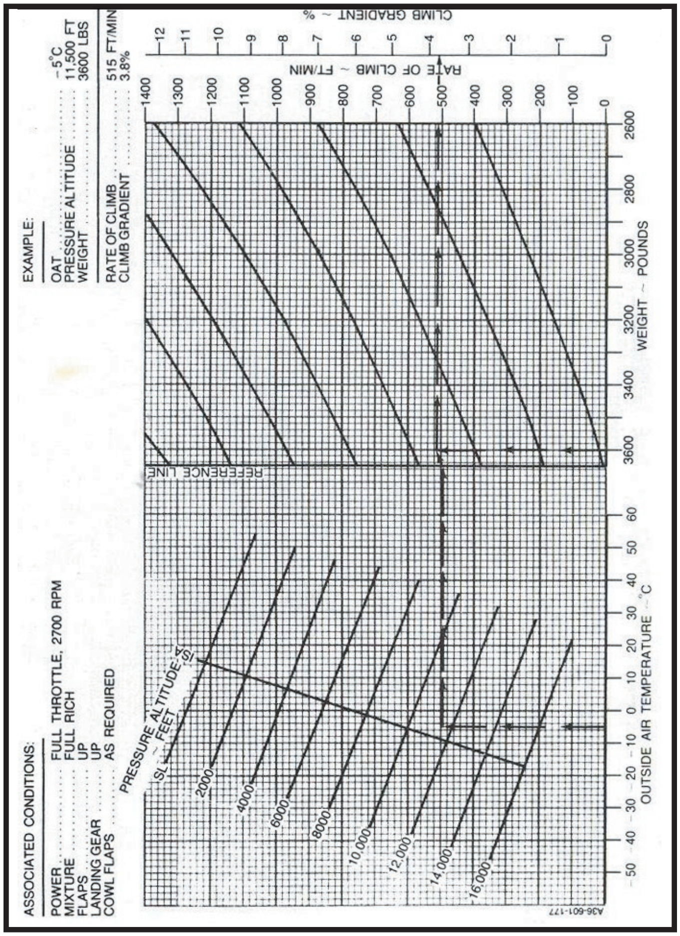
Lights	As Required
Flaps	UP
Trim Tabs	RESET
Cowl Flaps	OPEN
Fuel Boost Pumps	As Required

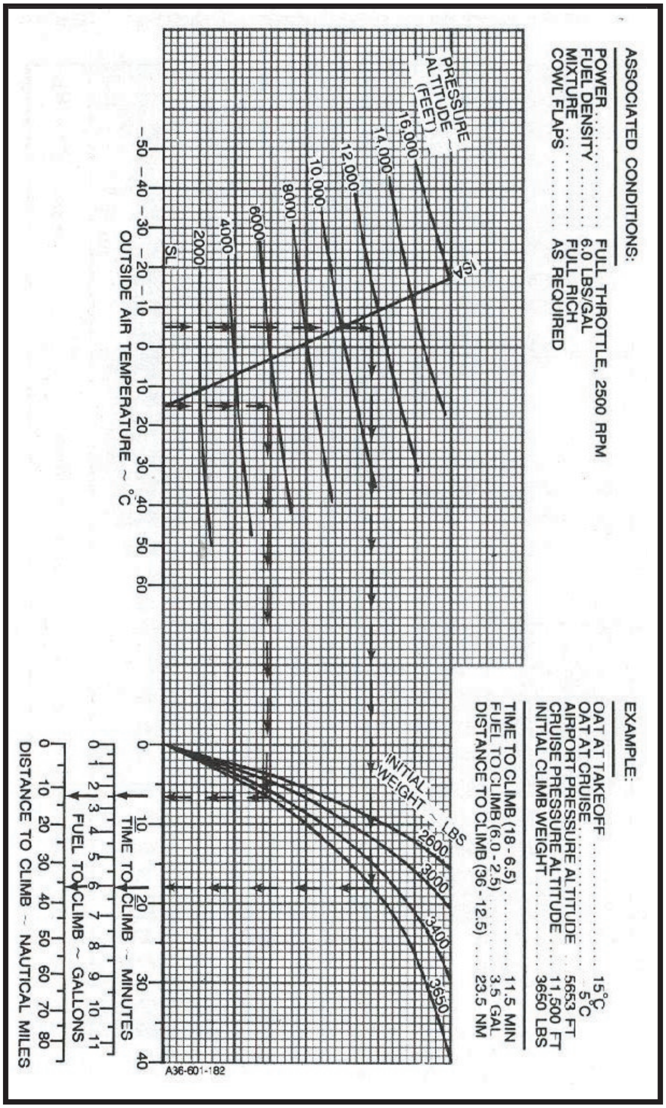
Shutdown

Parking Brake	SET
Propellers	HIGH RPM
Throttles	1000 RPM
Fuel Boost Pumps	OFF
Electrical Switches / Avionics	OFF
Mixture Controls	IDLE CUT-OFF
Magneto / Start Switches	OFF
Battery / Alternator Switches	OFF

AIRCRAFT SETTINGS PANEL




ASSOCIATED CONDITIONS:
POWER .... FULL THROTTLE, 2700 RPM
MIXTURE .... FULL RICH
FLAPS .... UP
LANDING GEAR .... UP
COWL FLAPS .... AS REQUIRED
EXAMPLE:
OAT .... -5°C
PRESSURE ALTITUDE .... 11,500 FT
WEIGHT .... 3600 LBS
RATE OF CLIMB .... 515 FT/MIN
CLIMB GRADIENT 3.8%
PRESSURE ALTITUDE ~ FEET
SL
ISA
2000
4000
6000
8000
10,000
12,000
14,000
16,000
REFERENCE LINE
OUTSIDE AIR TEMPERATURE ~ °C
-50 -40 -30 -20 -10 0 10 20 30 40 50 60
WEIGHT ~ POUNDS
3600 3400 3200 3000 2800 2600
RATE OF CLIMB ~ FT/MIN
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400
CLIMB GRADIENT ~ %
0 1 2 3 4 5 6 7 8 9 10 11 12
A36-601-177



ASSOCIATED CONDITIONS:
POWER .... FULL THROTTLE, 2500 RPM
FUEL DENSITY .... 6.0 LBS/GAL
MIXTURE .... FULL RICH
COWL FLAPS .... AS REQUIRED
EXAMPLE:
OAT AT TAKEOFF .... 15°C
OAT AT CRUISE .... 5°C
AIRPORT PRESSURE ALTITUDE .... 5653 FT
CRUISE PRESSURE ALTITUDE .... 11,500 FT
INITIAL CLIMB WEIGHT .... 3650 LBS
TIME TO CLIMB (18 - 6.5) .... 11.5 MIN
FUEL TO CLIMB (6.0 - 2.5) .... 3.5 GAL
DISTANCE TO CLIMB (36 - 12.5) .... 23.5 NM
PRESSURE ALTITUDE ~ (FEET)
16,000
14,000
12,000
10,000
8000
6000
4000
2000
SL
ISA
INITIAL WEIGHT ~ LBS
2600
3000
3400
3650
OUTSIDE AIR TEMPERATURE ~ °C
TIME TO CLIMB ~ MINUTES
FUEL TO CLIMB ~ GALLONS
DISTANCE TO CLIMB ~ NAUTICAL MILES
A36-601-182

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA −20° C (ISA − 36° F)	SL	−3	27	23.0	81.6	13.6	158	150
	2000	−7	20	23.0	84.2	14.0	158	154
	4000	−11	13	23.0	86.9	14.5	158	159
	6000	−14	6	23.0	89.7	15.0	158	164
	8000	−18	−1	22.4	89.0	14.8	156	166
	10,000	−22	−8	20.7	82.7	13.8	148	163
	12,000	−26	−16	19.2	77.1	12.9	141	160
	14,000	−31	−23	17.8	73.2	12.2	133	155
	16,000	−35	−30	16.4	69.2	11.5	124	150
STANDARD DAY (ISA)	SL	17	63	23.0	79.0	13.2	153	150
	2000	13	56	23.0	81.4	13.6	153	155
	4000	9	49	23.0	83.9	14.0	153	160
	6000	6	42	23.0	86.5	14.4	153	165
	8000	2	35	22.4	85.8	14.3	150	167
	10,000	−2	28	20.7	80.0	13.3	143	163
	12,000	−6	20	19.2	75.1	12.5	135	159
	14,000	−11	13	17.8	71.5	11.9	127	154
	16,000	−15	6	16.4	67.9	11.3	117	147
ISA + 20° C (ISA + 36° F)	SL	37	99	23.0	76.5	12.8	148	151
	2000	33	92	23.0	78.7	13.1	148	155
	4000	29	85	23.0	81.0	13.5	148	160
	6000	26	78	23.0	83.4	13.9	148	165
	8000	22	71	22.4	82.8	13.8	145	167
	10,000	18	64	20.7	77.3	12.9	138	163
	12,000	14	56	19.2	73.0	12.2	130	158
	14,000	9	49	17.8	69.8	11.6	121	152
	16,000	5	41	16.4	66.6	11.1	109	142

20°C RICH

OF PEAK EGT

21.0 IN. HG (OR FULL THROTTLE) @ 2100 RPM
CRUISE RICH MIXTURE
3400 LBS

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA −20° C (ISA − 36° F)	SL	−4	26	21.0	66.0	11.0	135	128
	2000	−7	19	21.0	67.5	11.3	137	134
	4000	−11	12	21.0	69.3	11.6	138	139
	6000	−15	5	21.0	71.1	11.9	139	144
	8000	−19	−2	21.0	73.4	12.2	140	149
	10,000	−23	−9	20.8	74.9	12.5	140	153
	12,000	−27	−16	19.3	70.9	11.8	132	149
	14,000	−31	−23	17.9	68.2	11.4	123	144
	16,000	−35	−31	16.5	65.6	10.9	112	135
STANDARD DAY (ISA)	SL	17	62	21.0	65.2	10.9	130	127
	2000	13	55	21.0	66.3	11.1	131	133
	4000	9	48	21.0	67.9	11.3	133	138
	6000	5	41	21.0	69.7	11.6	134	144
	8000	1	34	21.0	71.5	11.9	135	149
	10,000	−3	27	20.8	72.9	12.2	134	153
	12,000	−7	20	19.3	69.5	11.6	126	148
	14,000	−11	12	17.9	67.2	11.2	116	141
	16,000	−15	5	16.5	64.9	10.8	101	127
ISA + 20° C (ISA + 36° F)	SL	36	98	21.0	64.5	10.8	124	126
	2000	33	91	21.0	65.5	10.9	126	132
	4000	29	84	21.0	66.6	11.1	127	137
	6000	25	77	21.0	68.3	11.4	128	143
	8000	21	70	21.0	70.0	11.7	129	148
	10,000	17	63	20.8	71.0	11.8	128	152
	12,000	13	56	19.3	68.1	11.4	119	145
	14,000	9	48	17.9	66.1	11.0	107	135
	16,000	—	—	—	—	—	—	—

20°C RICH OF PEAK EGT

25.0 IN. HG (OR FULL THROTTLE) @ 2100 RPM
CRUISE RICH MIXTURE
3400 LBS

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR-SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA −20° C (ISA − 36° F)	SL	−3	27	25.0	79.5	13.3	155	148
	2000	−7	20	25.0	82.6	13.8	156	153
	4000	−11	13	25.0	85.8	14.3	157	158
	6000	−15	6	24.3	85.1	14.2	154	159
	8000	−19	−1	22.5	79.5	13.3	147	157
	10,000	−23	−9	20.8	74.9	12.5	140	153
	12,000	−27	−16	19.3	70.9	11.8	132	149
	14,000	−31	−23	17.9	68.2	11.4	123	144
	16,000	−35	−31	16.5	65.6	10.9	112	135
STANDARD DAY (ISA)	SL	17	63	25.0	77.0	12.8	150	148
	2000	13	56	25.0	79.9	13.3	151	153
	4000	9	49	25.0	82.9	13.8	152	158
	6000	5	42	24.3	82.3	13.7	149	160
	8000	1	35	22.5	77.1	12.9	142	157
	10,000	−3	27	20.8	72.9	12.2	134	153
	12,000	−7	20	19.3	69.5	11.6	126	148
	14,000	−11	12	17.9	67.2	11.2	116	141
	16,000	−15	5	16.5	64.9	10.8	101	127
ISA + 20° C (ISA + 36° F)	SL	37	99	25.0	74.9	12.5	146	148
	2000	33	92	25.0	77.3	12.9	146	153
	4000	29	85	25.0	80.1	13.4	146	158
	6000	25	78	24.3	79.5	13.3	143	160
	8000	21	71	22.5	74.9	12.5	136	156
	10,000	17	63	20.8	71.0	11.8	128	152
	12,000	13	56	19.3	68.1	11.4	119	145
	14,000	9	48	17.9	66.1	11.0	107	135
	16,000	—	—	—	—	—	—	—

MULTI-ENGINE AIRCRAFT

The **ELITE** Twin simulators are the popular Piper Seneca III, Beech Baron 58, and Beech King Air B200.

The instrumentation of the cockpit represents all standard navigation instruments. In addition, the handling of two engines incorporates invaluable training in professional IFR education.

The performance characteristics, flight envelope and aerodynamic characteristics exactly match those of the actual aircraft.

ELITE Twins provide for the use of a flight director and autopilot. The autopilot is a replica of the King KFC 150 autopilot system. The autopilot's functions and modes represent fundamental functions of an IFR equipped aircraft.

ELITE Twins support all instrument procedures including non-precision approaches (NDB, VOR, localizer, and backcourse) and precision approaches (ILS).

All instruments are displayed on the screen and behave exactly like their real counterparts. Instrument scanning and handling may thus be exercised in the same way as in the aircraft. Proper navigation training can only be achieved with a training device which exactly represents the real cockpit.

Genuine navigation instruments with rotating compass cards are indispensable for a professional training tool and cannot be replaced by digital readouts such as found on other PC-based flight simulators.

The purpose of **ELITE** Twins is navigation, IFR procedures and situational awareness training coupled with the accuracy and performance characteristics of light twin engine propeller aircraft. The separate engine performance characteristics is reflected in the dual instrumentation. Impending engine failure can often be detected by proper instrument scanning techniques.

Engine out emergency procedures can be chosen for instant failure or probability of failure. (**MALFUNCTIONS Page**). When using the probability feature, the pilot does not know which engine will fail or where the failure will occur. Proper procedures must be exercised as in the actual aircraft. **ELITE** gives all indications and flight characteristics of an engine loss with exception of "feel". Stereo sound, however, was added to provide an audible detection of engine loss to enhance the realism. Needless to say, a stereo sound card and speakers are required. Best sounds are achieved with high quality speakers with a good bass subwoofer.

KING AIR B200

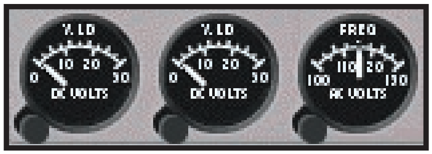
1024 x 768 Resolution

OPERATIONAL LIMITATIONS

ELITE makes the use of 'pop-ups' to compensate for limited screen size when the display of more instruments or features is required.

Load / Voltmeter Panel:

To display the ceiling mounted Load / Voltmeter panel press F1 on the keyboard.



Battery & Generator Switches:

To uncover the Battery (BAT) and Generator (GEN 1 & GEN 2) switches simply click on the master switch cover. The cover will close automatically after several moments.

Firewall Shutoff Valves:

To access the firewall shutoff valves simply click on either red switch cap to expose the firewall fuel cutoff toggle. The switch caps will close automatically after several moments. The DH button on the Radar Altimeter can be pressed to reset.

External power for engine starting may be simulated by pressing Ctrl on the keyboard and simultaneously clicking the MASTER SWITCH cover. The Battery must be turned on for this function to work.

To cancel the Master Warning and Master Caution lights press the F2 and F3 respectively.

To cancel the Landing Gear Warning Horn press the F4 button.

To quick-start the engines when not previosly selected, click on either Ignition/Start switch and drag to the other Ignition / Start switch. This will immediately start both engines.

Special features of PFC Cirrus console:

The flaps are operated by use of the Flap switch. The first 40% of flap travel is operated by one click down on the Flap switch, but the remaining flap travel is achieved by holding the flap switch down until the desired flap percentage is reached and then moving the switch back to the OFF position. Retraction of flaps occurs in the same fashion. The first 40% flap position is considered to be the approach setting.

AP-3000 Avionics Panel:

The Collins Pro Line II COMM/NAV radios are unique in that they allow for several different modes of operation. They can store up to six COMM frequencies in memory and up to four NAV frequencies. The ADF radio can also store up to four frequencies in memory.

The COMM, NAV and ADF radios may all be used in normal tune/preset mode, or they may be used in direct tune mode. In tune/preset mode the active frequency is shown in the upper display and the lower display contains the inactive frequency where all frequency changes or revisions are made. To switch between the two frequencies simply push the flip/flop switch on the

AP3000 or use the mouse to toggle the XFR switch on the radio headon-screen. The radios may also be used in direct tuning mode simply by pressing and holding with the mouse the ACT button located in the lower right corner of each radio head for two seconds. Activating the direct tuning mode will cause the lower display to change to a series of dashes and the upper display now becomes the frequency in use and where all changes are made.

To store COMM, NAV and ADF frequencies use the mouse to move the MEM toggle down repeatedly until the desired channel is displayed. Once the desired channel number was indicated simply push with the mouse the STO button on-screen twice in five seconds to store a COMM frequency in memory. NAV frequencies may be stored in a similar fashion or by pushing the appropriate navigation radio RAD button twice within five seconds on the AP3000 panel. Storing an ADF frequency may be accomplished by using the mouse as before or by pushing the ADF SET/RST button twice within five seconds.

The # 1 NAV radio allows for DME hold by selecting the desired VOR frequency and then selecting the HLD function on that radio head. When the DME toggle located below the HSI is placed in the NAV 1 position the DME readout on the HSI will indicate this distance value even though the NAV 1 active frequency may change. Be sure that the HSI is in DIST mode to read distance.

The transponder radio may be programmed to hold a pre-selected squawk frequency as well. Simply depress the PRE button for two seconds and then dial in the desired squawk code with either the mouse or by using the four control knobs on the AP3000. When done depress the PRE button again. This will save the desired code and may be retrieved at any time simply by pushing the PRE button.

NAV1/ NAV2 Toggle:

The NAV1 NAV2 toggle allows the user to switch the yellow needle of the RMI between VOR and ADF. The green needle requires the mouse to switch between VOR and ADF.

The AUX2 toggle switch moves the DME toggle switch located below the HSI between NAV1 and NAV2.

Cowl Flap Switches:

The left Cowl Flap switch controls Inverter operation. The right Cowl Flap switch controls the Autofeather feature.

The MDI knob controls the Radar Altimeter. The ALT knob adjusts the altimeter setting. The NAV 2 knob is non-functional on the King Air module. The CRS knob with corresponding toggle switch in CRS mode moves the course deviation needle on the HSI. CRS knob in OBS mode moves the three-position selector on the lower left corner of the HSI. The DIST, TTC or SPD readout is indicated in the top left portion of the HSI and will provide information from the navigation source selected by the toggle below the HSI. The HDG knob moves the heading bug on the HSI.

Collins Flight Control System:

To use the Collins Flight Control System please note which functions are operated by which buttons on the AP 3000 avionics panel:

FD button engages the 1/2 BK, one-half bank angle function.

ALT button engages the altitude hold function.

HDG button engages the heading hold function.

NAV button engages the navigation track function.

APR button engages the APPR, localizer track function.

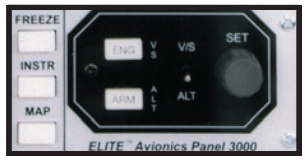
BC button engages the AP CPLD, autopilot coupled function.

AP ENG button engages the manual control knob.

ENG button engages the VS function.

ARM button engages the ALT SEL function.

To operate in flight director mode, simply press ALT and HDG, NAV or APR. The command bars will be present only if HDG, NAV or APR is selected. No flight director function is available with ALT selected only. Deviations in heading and/or altitude from original setting selected will cause the command bars to tilt and/or move vertically to indicate prescribed corrective flight action. If the Control Wheel Steering (CWS) button is depressed during flight director mode the ALT function if selected will trip off and will need to be reset when desired. If a climb or descent is necessary, use CWS to initiate the necessary pitch attitude and dial the desired level-off altitude into the SET ALTITUDE box. Once the altitude change has commenced select ALT SEL and the command bars will indicate when altitude level-off is required. Additionally, once the desired pitch attitude has been set and VS has been selected the command bars will indicate the amount of pitch change required to maintain the chosen vertical speed. If the VS button is not used then the command bars will simply direct the pilot to maintain the selected pitch attitude. Electric trim may be utilized during this mode of flight control.



To operate in basic autopilot mode, simply press the AP ENG button on the avionics panel. This activates the Yaw Damper (YD) and Autopilot (AP) which by itself is the most basic functional mode. In this mode you may depress and hold the Control Wheel Steering (CWS) button on the left side of the yoke to make pitch and heading changes. When the CWS button is released the aircraft will hold the current heading and maintain the current pitch attitude. This is NOT necessarily an altitude hold feature. The command bars will not be present during this type of operation. During this operation the control knob may also be used to make pitch and heading changes, however, the control knob will only select a rate of vertical speed and/or bank angle. The resultant amount of vertical speed and bank angle is dependent upon the degree of knob deflection. The rocker switch on the autopilot portion of the AP 3000 may be used in place of the control knob for vertical speed selection. There is no alternative switch available for the bank angle function. The mouse must be used for all on-screen control knob use.

To operate in full autopilot mode, press AP ENG and BC. BC couples the autopilot and allows precise vertical and horizontal flight management. The command bars will only be present HDG, NAV or APR is selected. To maintain altitude, simply fly the aircraft to the desired altitude and press ALT, or, use the CWS button to pitch the aircraft toward the desired altitude, let go of the CWS button, set the altitude desired into the SET ALTITUDE box and press VS, ALT SEL and BC. Don't forget that using the CWS button will disengage the autopilot coupling. Another method is to use the vertical speed rocker switch on the AP 3000 to initiate a climb or descent. This rocker switch does not disengage the coupling, but the VS and ALT SEL buttons will need to be pressed to cause the aircraft to level-off at the SET ALTITUDE value. Using the VS function in a climb or descent will cause the aircraft to pitch as necessary to maintain the desired vertical speed should throttle and/or configuration changes occur. If the VS function is not used then the aircraft will maintain the original pitch attitude causing the vertical speed and airspeed indications to change as necessary. To maintain a heading, simply move the heading bug to the desired heading value and press HDG. The aircraft will turn the shortest distance to the bug position. To change heading simply move the heading bug to a new value. To track a VOR radial, select the desired course TO or FROM the VOR with the course deviation needle. Use the heading function to set up the desired intercept angle and then press NAV. The aircraft will intercept and track the course if the intercept angle is less than, or equal to, 90° in NAV mode for both VOR radials and LOC courses. To track a LOC using APR mode, use the same procedure as that for a VOR radial intercept. Maximum angle of intercept for a LOC in APR mode is 89°. The glideslope capture only works when using APR mode, however, NAV mode will track a LOC course.

GPS-NAV Control:

GPS navigation using the autopilot may be accomplished by first selecting the desired navigational fix on the Trimble GPS, then pressing the NAV GPS button on the GPS-NAV CONTROL box located above the Attitude Indicator and then pressing NAV on the autopilot.

The 1/2 BK function should be used when desired to prevent excessive banking during tracking operations, especially when close to a VOR as in station passage. The autopilot automatically utilizes this function once established on a LOC course in both NAV and APR modes, although the 1/2 BK button will not be illuminated.

AIRCRAFT CHECKLIST

Before Starting the Engine:

Brakes	SET
Switches	OFF
Landing Gear Switch Handle	DOWN
Power Levers	IDLE
Propeller Controls	FULL FORWARD
Condition Levers	IDLE CUTOFF
Battery Switch	ON
Fuel Quantity	CHECK
DC Volt/Loadmeters	PRESS to Check Voltage

Starting Engine: (With Battery)

Right Ignition & Engine Start	ON (R FUEL PRESS annunciator-OFF)
Right Condition Lever	LOW IDLE (after N1 indicates 12% minimum)
ITT and N1	MONITOR
Right Oil Pressure	CHECK
Right Condition Lever	HIGH IDLE
Right Ignition & Engine Start	OFF (at 50% N1 or above)
Right Generator	RESET, then ON. CHARGE BATTERY until load meter reads approximately .50, then OFF
Left Ignition & Engine Start	ON (L FUEL PRESS annunciator-OFF)
As left N1 RPM accelerates thru 12%	
Left Condition Lever	LOW IDLE
Right Generator	ON
ITT and N1 (1000°C maximum)	Monitor
Left Oil Pressure	CHECK
Left Ignition & Engine Start (at 50% N1 or above)	OFF

Left Generator	RESET, ON
Right Condition Lever	REDUCE to Low Idle

After Starting, and Taxiing:

Inverter	ON
DC Voltmeters & Loadmeters	ON
AC Voltage & Frequency	CHECK
Avionics Master	ON
Lights	AS REQUIRED
Instruments	CHECK
Brakes	CHECK

Before Takeoff: (Runup)

Avionics	CHECK
Autopilot	CHECK
Electric Elevator Trim Control	CHECK
Trim Tabs	SET
Engine Control Friction Locks	SET
Flaps	CHECK AND SET
Instrument Vacuum	CHECK (at 1800 RPM)
Fuel Quantity	CHECK
Flight & Engine Instruments	CHECK

Before Takeoff: (Final Items)

Annunciator Lights	EXTINGUISHED
Transponder	ON
Auto Ignition	ARM

On Takeoff Roll:

Ignition Annunciators	EXTINGUISHED
Autofeather	ILLUMINATED

Takeoff:

Refer to PERFORMANCE section for minimum takeoff power, speed, distance and climb data.

Climb:

Landing Gear	UP
Flaps	UP
Yaw Damp	ON
Climb Power	SET
Propeller	1900 RPM
Propeller Synchrophaser	ON
Autofeather	MONITOR

Cruise:

Cruise	SET (per CRUISE POWER
TABLE)	
Engine Instruments	MONITOR
Auxiliary Fuel Gauge	MONITOR

Descent:

Altimeter	SET
Power	AS REQUIRED

Before Landing:

Autofeather Switch	ARM
Flaps	APPROACH
Landing Gear	DOWN
Lights	AS REQUIRED

Landing:

WHEN LANDING IS ASSURED

Flaps	DOWN (100%)
Yaw Damp	OFF

AFTER TOUCHDOWN

Propeller Levers	FULL FORWARD
Power Levers	BETA RANGE or REVERSE

Maximum Reverse Thrust Landing:

WHEN LANDING ASSURED

Flaps	DOWN (100%)
Yaw Damp	OFF
Condition Levers	HIGH IDLE
Propeller Levers	FULL FORWARD

AFTER TOUCHDOWN

Power Levers	LIFT and REVERSE
Condition Levers	LOW IDLE

Balked Landing:

Power	MAXIMUM AVAILABLE
Airspeed	ESTABLISH 100 KNOTS
Flaps	UP
Landing Gear	UP

After Landing:

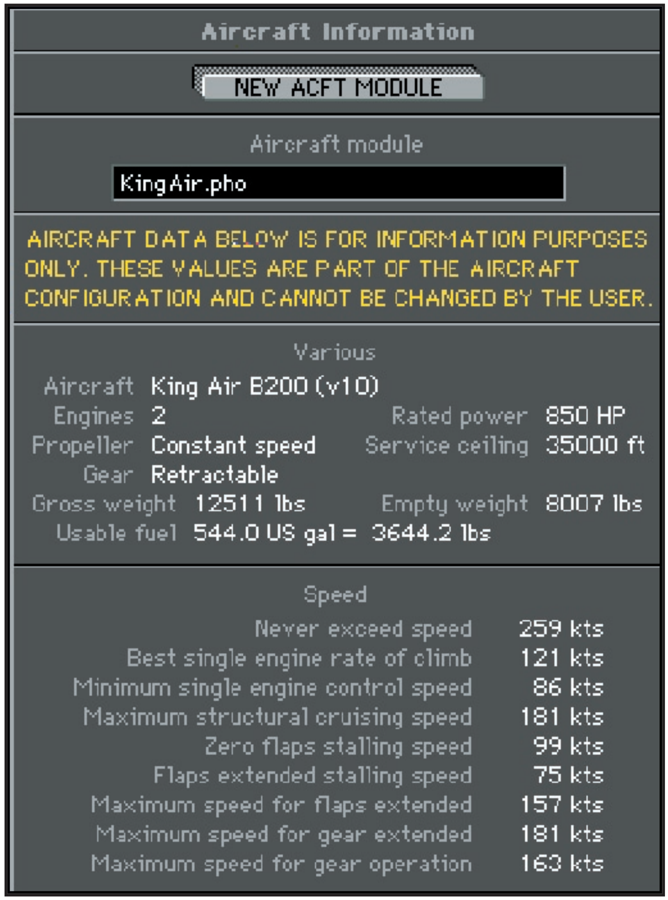
Landing and Taxi Lights	AS REQUIRED
Engine Auto Ignition	OFF
Electrical Load	OBSERVE LIMITS
Trim	SET
Flaps	UP

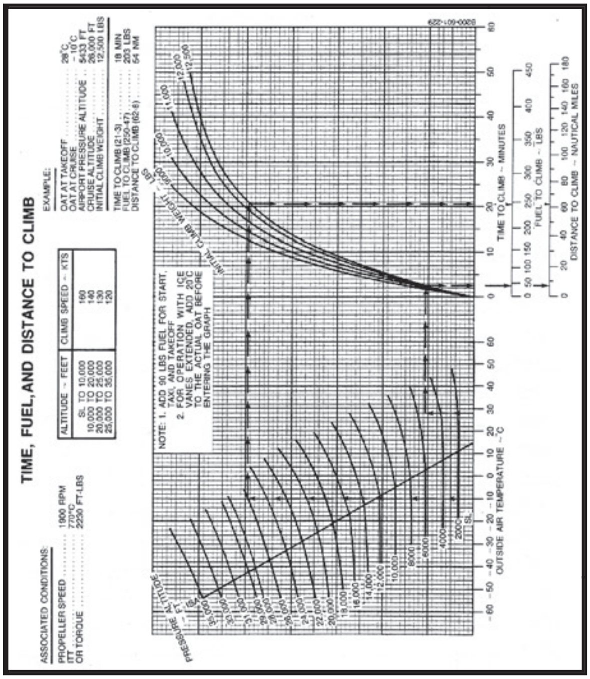
Shutdown and Securing:

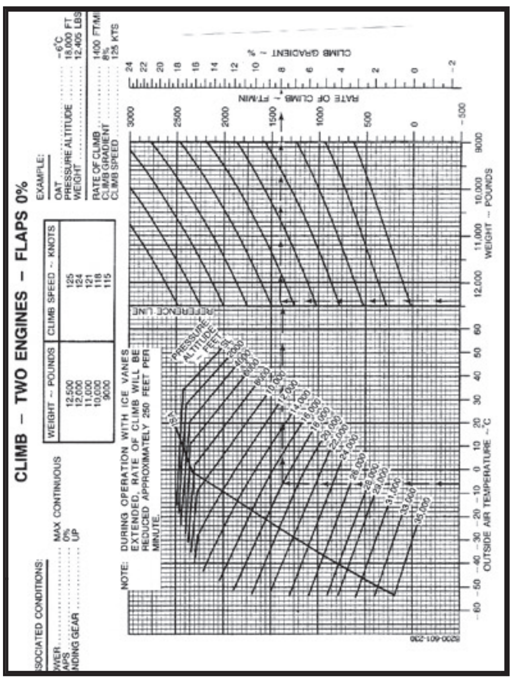
Parking Brake	SET
Avionics Master	OFF
Inverter	OFF
Autofeather Switch	OFF
Light Switches	OFF

Battery	CHARGED
ITT	STABILIZED AT MIN. TEMP.
for one MIN.	
Condition Levers	FUEL CUTOFF
Propellers	FEATHERED
Standby Boost Pumps & Crossfeed	OFF
DC Volt/ Loadmeters	CHECK VOLTAGE
Battery & generator Switches	OFF (below 15% N1)

AIRCRAFT SETTINGS PANEL




TIME, FUEL, AND DISTANCE TO CLIMB


CLIMB – TWO ENGINES – FLAPS 0%

NORMAL CRUISE POWER

1700 RPM

ISA

NOTE: IOAT, TORQUE, AND FUEL FLOW BASED ON 11,000 POUNDS.

PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENGINE	FUEL FLOW PER ENGINE	TOTAL FUEL FLOW	AIRSPEED ~ KNOTS @ 12,000 LBS		@ 11,000 LBS		@ 10,000 LBS	
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	IAS	TAS	IAS	TAS	IAS	TAS
SL	20	15	2230	473	946	238	239	239	240	240	241
2000	17	11	2230	459	918	236	244	237	245	238	246
4000	13	7	2230	446	892	234	249	235	250	236	250
6000	9	3	2230	433	866	231	253	232	254	233	255
8000	5	-1	2230	421	842	229	258	230	259	231	260
10,000	2	-5	2230	410	820	227	263	228	264	229	265
12,000	-2	-9	2230	400	800	224	268	225	270	226	271
14,000	-6	-13	2230	393	786	222	274	223	275	224	276
16,000	-9	-17	2230	388	776	219	279	220	280	221	282
18,000	-13	-21	2152	373	746	213	280	215	282	216	284
20,000	-17	-25	2057	355	710	207	281	208	283	210	285
22,000	-21	-29	1963	337	674	200	281	202	284	204	286
24,000	-25	-33	1842	316	632	192	280	195	283	197	285
26,000	-29	-37	1712	293	586	184	277	186	280	189	283
28,000	-33	-41	1579	270	540	175	272	178	277	180	281
29,000	-36	-42	1514	259	518	170	269	173	274	176	279
31,000	-40	-46	1391	239	478	160	263	164	270	167	275
33,000	-44	-50	1274	220	440	149	254	154	263	158	270
35,000	-49	-54	1153	201	402	133	237	143	254	150	263

NORMAL CRUISE POWER

1800 RPM

ISA

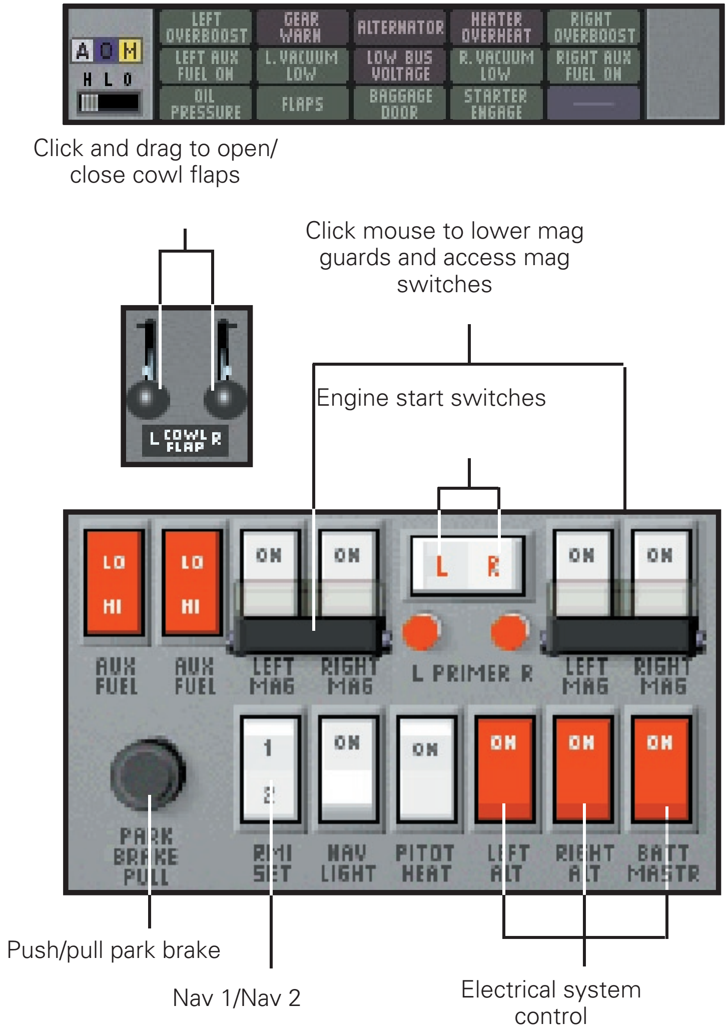
NOTE: IOAT, TORQUE, AND FUEL FLOW BASED ON 11,000 POUNDS.

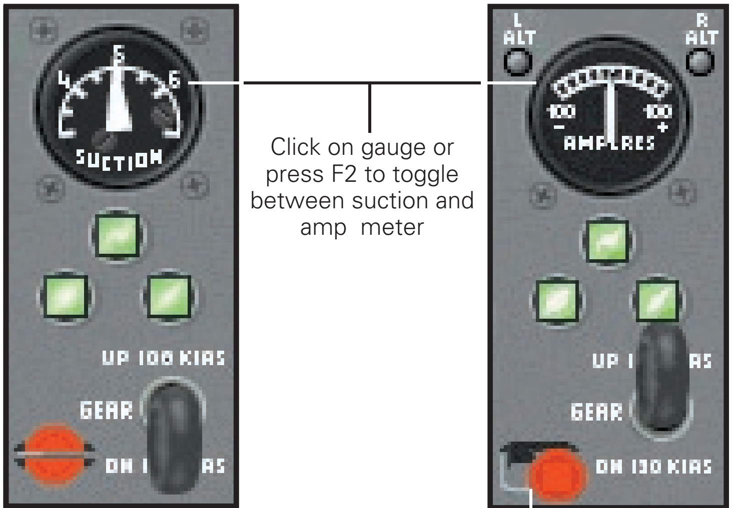
PRESSURE ALTITUDE	IOAT	OAT	TORQUE PER ENGINE	FUEL FLOW PER ENGINE	TOTAL FUEL FLOW	AIRSPEED ~ KNOTS @ 12,000 LBS		@ 11,000 LBS		@ 10,000 LBS	
FEET	°C	°C	FT-LBS	LBS/HR	LBS/HR	IAS	TAS	IAS	TAS	IAS	TAS
SL	21	15	2230	491	982	243	245	244	245	245	246
2000	17	11	2230	478	956	241	249	242	250	243	251
4000	13	7	2230	463	926	239	254	240	255	240	256
6000	9	3	2230	450	900	236	259	237	260	238	261
8000	6	-1	2230	439	878	234	264	235	265	236	266
10,000	2	-5	2230	429	858	232	269	233	270	234	271
12,000	-2	-9	2230	418	836	229	274	230	276	231	277
14,000	-5	-13	2230	411	822	227	279	228	281	229	282
16,000	-9	-17	2177	397	794	222	283	224	285	225	286
18,000	-13	-21	2048	373	746	215	282	216	284	217	286
20,000	-17	-25	1959	355	710	209	283	210	285	213	287
22,000	-21	-29	1871	338	676	202	284	204	286	206	288
24,000	-25	-33	1758	316	632	195	283	197	285	199	288
26,000	-29	-37	1635	293	586	187	280	189	283	191	286
28,000	-33	-41	1506	270	540	177	276	180	280	182	284
29,000	-35	-42	1447	259	518	172	273	175	278	178	282
31,000	-40	-46	1329	239	478	162	267	166	273	169	278
33,000	-44	-50	1218	220	440	151	258	156	267	160	274
35,000	-49	-54	1100	201	402	135	241	145	257	151	267

PIPER SENECA III

1024 x 768 Resolution

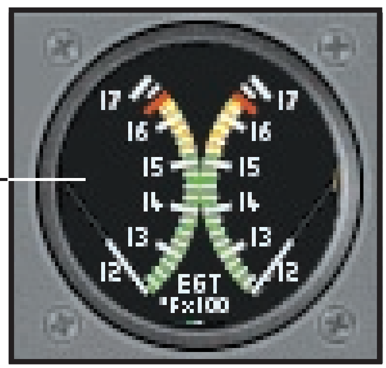
COCKPIT FUNCTIONS



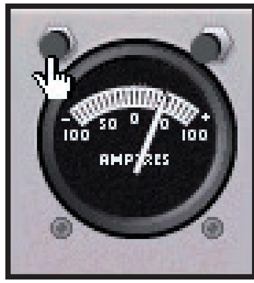


Click on gauge or press F2 to toggle between suction and amp meter

Emergency gear release switch (restart program to reset)

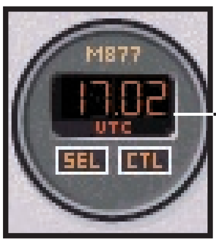


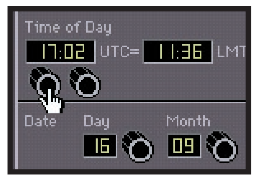
Click on instrument or press F1 to toggle instrument from EGT to Fuel Flow



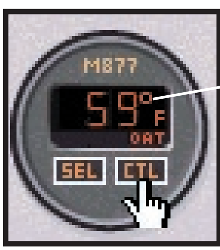
The amp meter shows charge or discharge information. Check generator load by pressing left or right engine AMP button.

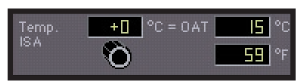
The chronometer in the Seneca III gives 3 specific displays: UTC time, OAT (Fahrenheit and Celsius) and timer. The chronometer digital display shows Time and OAT information as provided in the **Control** screen (time) and **Meteo** screen (OAT).





CONTROL Screen





METEO Screen

SEL button toggles between UTC, OAT and timer modes. When in the OAT mode, Fahr to Cen can be changed by pressing the **CTL** button. In the timer mode, pressing **CTL** will start or stop timer. Holding **CTL** for approximately 2 seconds will reset the timer to zero.

AIRCRAFT CHECKLIST

Before Starting

Battery Master Switch	ON
Alternators	ON
Parking Brake	SET
Gear Selector	GEAR DOWN
Throttles	IDLE
Propeller Controls	FULL FORWARD
Mixture	IDLE CUT-OFF
Alternate Air Controls	OFF
Cowl Flaps	OPEN
Fuel Selectors	ON
Radio Master Switch	OFF
Electrical Switches	OFF

Starting Engine

Battery Master Switch	ON
Gear Lights	Green
Throttles	HALF OPEN
Propeller Controls	FULL FORWARD
Mixtures	FULL RICH
Magneto Switches	ON
Starter	ENGAGE
Throttle	1000 RPM
Oil Pressure	CHECK
Second Engine	Repeat Procedure
Alternator Output	CHECK Both Left and Right
Gyro Vacuum	CHECK

Warm-Up	
Throttle	1000-1200 RPM

Before Taxiing

Battery Master Switch	ON
Gyros	SET
Altimeter	SET
Radio Master Switch	ON
Lights	As Required
Parking Brake	Release

Taxiing

Throttles	Apply Slowly
Brakes	CHECK
Instruments	CHECK
Fuel Selectors	ON, CHECK Crossfeed

Ground Check

Parking Break	SET
Mixtures	FULL RICH
Propeller Controls	FULL FORWARD
Throttles	1000 RPM
Engine Instruments	CHECK
Propeller Controls	FEATHER-CHECK
Throttles	2300 RPM
Propeller Controls	EXERCISE
Throttles	2000 RPM
Magnetos	CHECK
Alternator Output	CHECK Both Left and Right
Annunciator Panel Lights	OUT
Gyro Vacuum Gauge	4.8-5.1 IN Hg
Throttles	IDLE-CHECK
Throttles	800-1000 RPM

Before Takeoff

Flight Instruments	CHECK
Engine Instruments	CHECK

Fuel Quantity	CHECK
Auxiliary Fuel Pumps	OFF
Mixtures	FULL FORWARD
Fuel Selectors	ON
Cowl Flaps	OPEN
Alternate Air	OFF
Flaps	CHECK
Engine Runup	Complete
Annunciator Panel Lights	Press-to-Test
Parking Brake	RELEASE

Takeoff

Flaps	UP
Brakes	HOLD
Power	2800 RPM, 40 IN Hg MP
Mixture	FULL RICH
Brakes	RELEASE
Rotate Speed	KIAS
Gear	UP
Climb Speed	92 KIAS

Climb

Mixture	RULL RICH
Power	2600 RPM, 33 IN Hg MP
Climb Speed	120 KIAS
Cowl Flaps	As Required

Cruising

Power	SET per CHART
Mixture Controls	ADJUST
Cowl Flaps	As Required

Descent

Mixture Controls	ADJUST with Descent

2. Throttles	As Required
3. Cowl Flaps	CLOSED

Approach and Landing

1. Auxiliary Fuel Pumps	OFF
2. Fuel Selectors	ON
3. Cowl Flaps	As Required
4. Mixture Controls	FULL RICH
5. Propeller Controls	FULL FORWARD
6. Landing Gear (Below 130 KIAS)	DOWN
7. Landing Gear Lights	3 GREEN

Go Around

1. Throttles	FULL POWER
2. Propeller Controls	FULL FORWARD
3. Mixtures	FULL RICH
4. Climb Speed	85 KIAS
5. Flaps	RETRACT SLOWLY
6. Gear	UP
7. Cowl Flaps	As Required
8. Trim	As Required

Normal Landing

1. Flaps (Below 115 KIAS)	FULL DOWN
2. Airspeed	90 KIAS
3. Trim	As Required
4. Throttles	As Required
5. Touchdown	Main Wheels

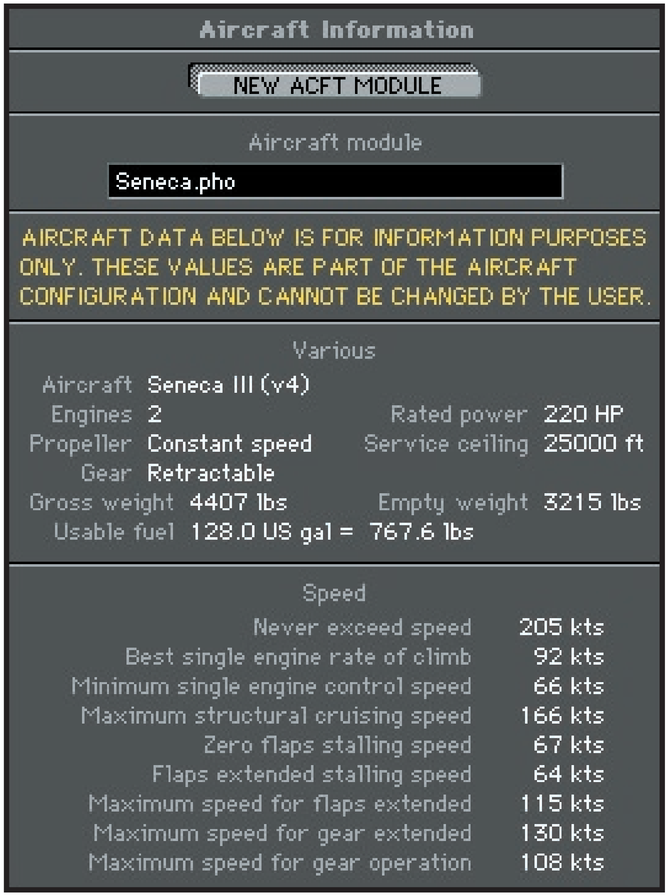
After Landing

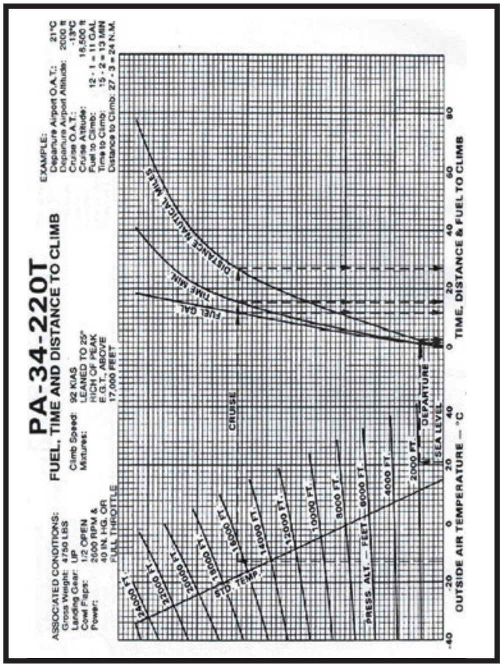
1. Flaps	RETRACT
2. Cowl Flaps	FULL OPEN
3. Lights	As Required

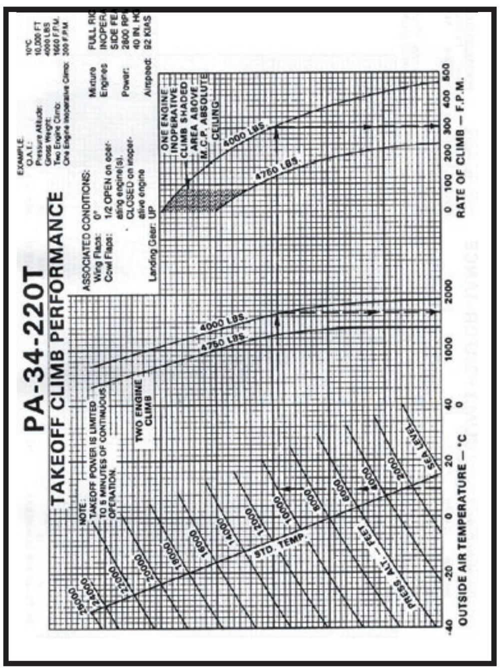
Stopping Engine

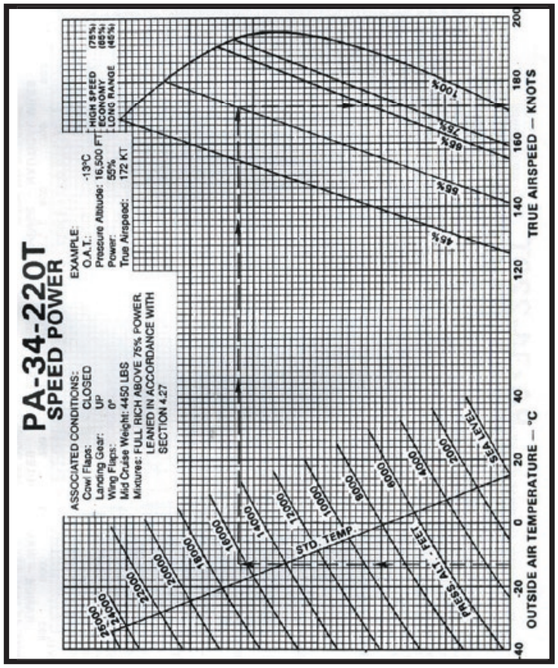
Radio Master Switch	OFF
Electrical Equipment	OFF
Throttles	IDLE
Mixtures	IDLE CUTOFF
Magneto Switches	OFF
Alternator Switches	OFF
Battery Master	OFF

AIRCRAFT SETTINGS PANEL




PA-34-220T
FUEL, TIME AND DISTANCE TO CLIMB


PA-34-220T
TAKEOFF CLIMB PERFORMANCE


PA-34-220T
SPEED POWER
ASSOCIATED CONDITIONS:
Cowl Flaps: CLOSED
Landing Gear: UP
Wing Flaps: 0°
Mid Cruise Weight: 4450 LBS
Mixtures: FULL RICH ABOVE 75% POWER. LEANED IN ACCORDANCE WITH SECTION 4.27
EXAMPLE:
O.A.T.: -13°C
Pressure Altitude: 16,500 FT
Power: 55%
True Airspeed: 172 KT
HIGH SPEED (75%)
ECONOMY (65%)
LONG RANGE (45%)
100%
75%
65%
55%
45%
STD. TEMP.
PRESS. ALT. - FEET
SEA LEVEL
OUTSIDE AIR TEMPERATURE — °C
TRUE AIRSPEED — KNOTS

Press. Alt.	Std. Alt. Temp.	45% Power Approx. Fuel 16 G.P.H. RPM AND MAN. PRESS.						55% Power Approx. Fuel 18.7 G.P.H. RPM AND MAN. PRESS.						65% Power Approx. Fuel 23.3 G.P.H. RPM AND MAN. PRESS.			75% Power Approx. Fuel 29.0 G.P.H. RPM AND MAN. PRESS.	
Feet	°C	2100	2200	2300	2400	2500	2600	2100	2200	2300	2400	2500	2600	2400	2500	2600	2500	2600
S.L.	15	27.1	26.4	25.5	24.3	23.3	22.5	31.2	30.3	29.4	28.2	27.2	26.3	33.8	32.0	31.0	34.0	33.0
2000	11	26.4	25.8	24.6	23.7	22.8	22.1	30.5	29.7	28.8	27.8	26.8	26.0	33.2	31.7	30.7	33.8	32.7
4000	7	25.8	25.0	24.0	23.2	22.3	21.8	30.0	29.2	28.3	27.4	26.4	25.6	32.8	31.5	30.5	33.6	32.4
6000	3	25.3	24.5	23.5	22.8	21.9	21.5	29.7	28.8	28.0	27.0	26.2	25.3	32.5	31.2	30.3	33.4	32.2
8000	-1	24.8	24.0	23.0	22.4	21.6	21.2	29.4	28.4	27.7	26.8	25.7	25.0	32.3	31.0	30.1	33.1	32.0
10000	-5	24.4	23.7	22.8	22.0	21.4	21.0		28.3	27.5	26.5	25.5	24.7	32.0	30.9	30.0	33.0	31.9
12000	-9	24.0	23.3	22.5	21.7	21.2	20.9		28.3	27.2	26.3	25.3	24.6	31.8	30.7	29.8	32.5	31.8
14000	-13		23.0	22.3	21.4	21.1	20.8			27.1	26.1	25.2	24.4		30.5	29.7		31.7
16000	-17			22.0	21.3	21.0	20.6				25.9	25.0	24.3		30.4	29.5		31.6
18000	-21				21.2	20.9	20.5					25.0	24.2			29.4		
20000	-25				21.2	20.8	20.4						24.2			29.3		
22000	-28						20.4						24.1					
		← 1650°F MAX E.G.T. (See P.O.H. Section 4) →															← 1525°F MAX E.G.T. (See P.O.H. Section 4) →	
24000	-33						20.4											
25000	-34						20.4											

To maintain constant power, add approximately 1% for each 6°C above standard. Subtract approximately 1% for each 6°C below standard. Do not exceed 34" MAP in cruise.

To maintain constant power, add approximately 1% for each 6°C above standard. Subtract approximately 1% for each 6°C below standard. Do not exceed 34 " MAP in cruise.

Press. Atl.	Std. Alt. Temp.	45% Power RPM and MAN. PRESS						55% Power RPM and MAN. PRESS					
Feet	**°C**	**2100**	**2200**	**2300**	**2400**	**2500**	**2600**	**2100**	**2200**	**2300**	**2400**	**2500**	**2600**
S.L.	15	27.1	26.4	25.5	24.3	23.3	22.5	31.2	30.3	29.4	28.2	27.2	26.3
2000	11	26.4	25.8	24.6	23.7	22.8	22.1	30.5	29.7	28.8	27.8	26.8	26.0
4000	7	25.8	24.5	23.5	22.8	21.9	21.5	30.0	29.2	28.3	27.4	26.4	25.6
6000	3	25.3	24.5	23.5	22.8	21.9	21.5	29.7	28.8	28.0	27.0	26.2	25.3
8000	-1	24.8	24.0	23.0	22.4	21.6	21.2	29.4	28.4	27.7	26.8	25.7	25.0
10000	-5	24.4	23.7	22.8	22.0	21.4	21.0		28.3	27.5	26.5	25.5	24.7
12000	-9	24.0	23.3	22.5	21.7	21.2	20.9		28.3	27.2	26.3	25.3	24.6
14000	-13		23.0	22.3	21.4	21.1	20.8			27.2	26.2	25.2	24.4
1600	-17			22.0	21.3	21.0	20.6				25.9	25.0	24.3
18000	-21				21.2	20.9	20.5					25.0	24.2
20000	-25				21.2	20.8	20.4						24.2
22000	-28						20.4						24.1

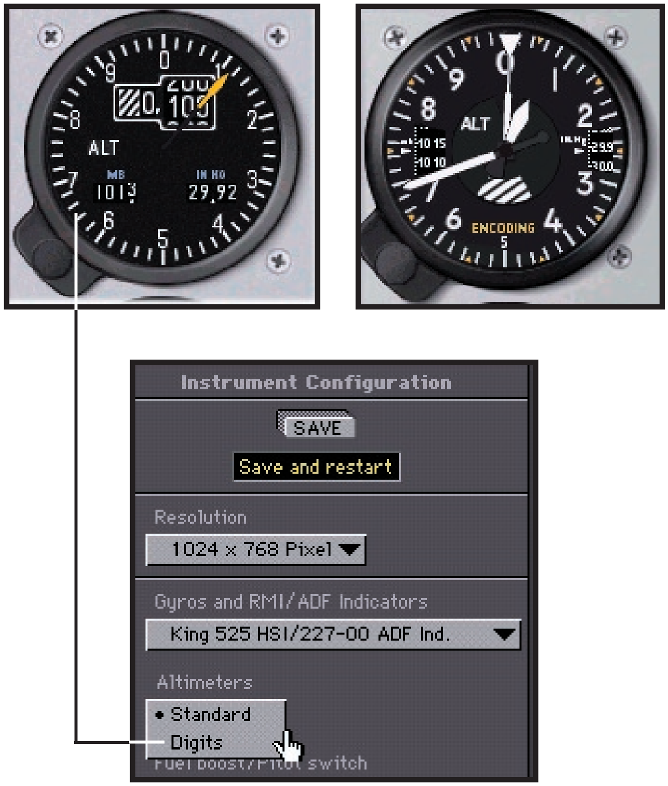
To maintain constant power, add approximately 1% for each 6°C above standard. Subtract approximately 1% for each 6°C below standard. Do not exceed 34 " MAP in cruise.

Press. Atl.	Std. Alt. Temp.	65% Power RPM and MAN. PRESS			75% Power RPM and MAN. PRESS	
Feet	**°C**	**2400**	**2500**	**2600**	**2500**	**2600**
S.L.	15	33.8	32.0	31.0	34.0	33.0
2000	11	33.2	31.7	30.7	33.8	32,7
4000	7	32.8	31.5	30.5	33.6	32.4
6000	3	32.5	31.2	30.3	33.4	32.2
8000	-1	32.3	31.0	30.1	33.1	32.0
10000	-5	32.0	30.9	30.0	33.0	31.9
12000	-9	31.8	30.7	29.8	32.5	31.8
14000	-13		30.5	29.7		31.7
1600	-17		30.4	29.5		31.6
18000	-21			29.4		
20000	-25			29.3		
22000	-28					

BEECH BARON 58

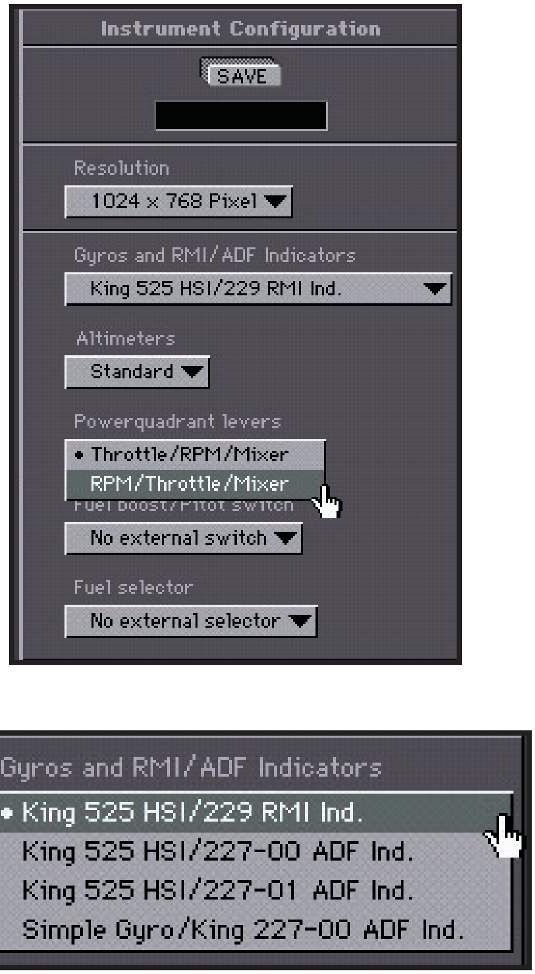
1024 x 768 Resolution

COCKPIT FUNCTIONS

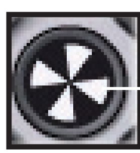


Possible changes to the avionics configuration and type of altimeters can be chosen on the Baron's **Configuration** screen. The standard configuration for the Baron 58 is the HSI and RMI. The **Configuration** screen allows you to change the avionics configuration: HSI with slaved ADF, HSI with non-slaved ADF, Directional Gyro (DG) with slaved ADF. When in the ADF (slaved or non-slaved) mode, click on the ADF instrument to change it to a VOR #2.

For pilots of older Baron models, external throttle controls (prop and throttle) can be configured to match the aircraft quadrant structure (**Configuration Page**).



Instrument Options, CONFIGURATION Page



Prop Synch Indicator

DG with ADF

DG with VOR #2

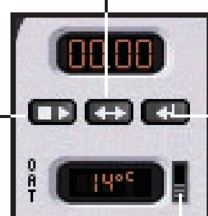
NOTE: The HSI / RMI mode comes with the KFC 150 Flight Director & Autopilot. When in the DG mode, the Autopilot is changed to the KAP.

Switch Array

Audio Panel 1024 x 768

Push to change from time to timer mode

Push to Start and Stop timer



Push to reset timer

Click and drag switch to change OAT from Fahr to Cent

AIRCRAFT CHECKLIST

Before Starting

Parking Break	SET
Avionics	OFF
Landing Gear Handle	DOWN
Cowl Flaps	OPEN
Fuel Selectors	CHECK ON
Circuit Breakers, Switches, Controls	CHECK
Battery / Alternator Switches	ON
Fuel Quantity Indicators	CHECK
Landing Gear Position Lights	CHECK

Starting Engine

Mixture	FULL RICH
Propeller	HIGH RPM
Throttle	FULL OPEN
Fuel Boost Pump	HI, then OFF
Throttle	CLOSE, then open ½ inch
Magneto/Start Switch	START position and release
Throttle	900-1000 RPM
Oil Pressure	PSI within 30 seconds
Warm-up	900-1000 RPM
Alternator Switch	ON
Loadmeters and Voltmeter	CHECK for battery charge
Voltmeter	CHECK for 28 volts
Red START Annunciator Light	CHECK
Start other engine	Same procedure

After Starting and Taxi

Avionics Equipment	ON as required
Brakes	RELEASE and CHECK

Before Takeoff

Parking Break	SET
Fuel Boost Pumps	OFF
Engine / Flight Instruments	CHECK
Fuel Indicators	CHECK
Mixture	FULL RICH
Fuel Selectors	CHECK ON
Starter Annunciator Light	CHECK
Throttles	2200 RPM
Propellers	EXERCISE
Throttles	1700 RPM
Magnetos	CHECK
Throttles	1500 RPM
Propellers	FEATHERING CHECK
Throttles	IDLE
Throttles	900-1000 RPM
Trim	As Required for Take-off
Flaps	CHECK
Parking Brake	OFF

Takeoff

Take-off Power	FULL THROTTLE, 2700 RPM
Oil Temperature	CHECK at 24ºC Minimum
Airspeed	Accelerate to Take-off Speed
Landing Gear	RETRACT when rate-of-climb positive
Airspeed	Establish Desired Climb Speed

Cruise Climb

Mixture	RULL RICH
Cowl Flaps	As Required
Power	FULL THROTTLE

Propellers	2500 RPM
Engine Temperatures	Monitor
Fuel Boost Pumps	OFF

Cruise

Cowl Flaps	CLOSED
Power	SET
Fuel Boost Pumps	OFF
Mixtures	SET using EGT

Descent

Altimeter	SET
Mixture	FULL RICH
Cowl Flaps	CLOSED
Flaps	As Required
Power	As Required

Before Landing

Fuel Selector Valves	CHECK ON
Fuel Boost Pumps	OFF
Cowl Flaps	As Required
Mixture Controls	FULL RICH
Flaps	APPROACH
Landing Gear	DOWN
Flaps	FULL DOWN
Airspeed	Normal Approach Speed
Propellers	HIGH RPM

Balked Landing

Propellers	HIGH RPM
Power	MAXIMUM ALLOWABLE
Airspeed	95 KTS
Flaps	UP

Landing Gear	UP
Cowl Flaps	As Required

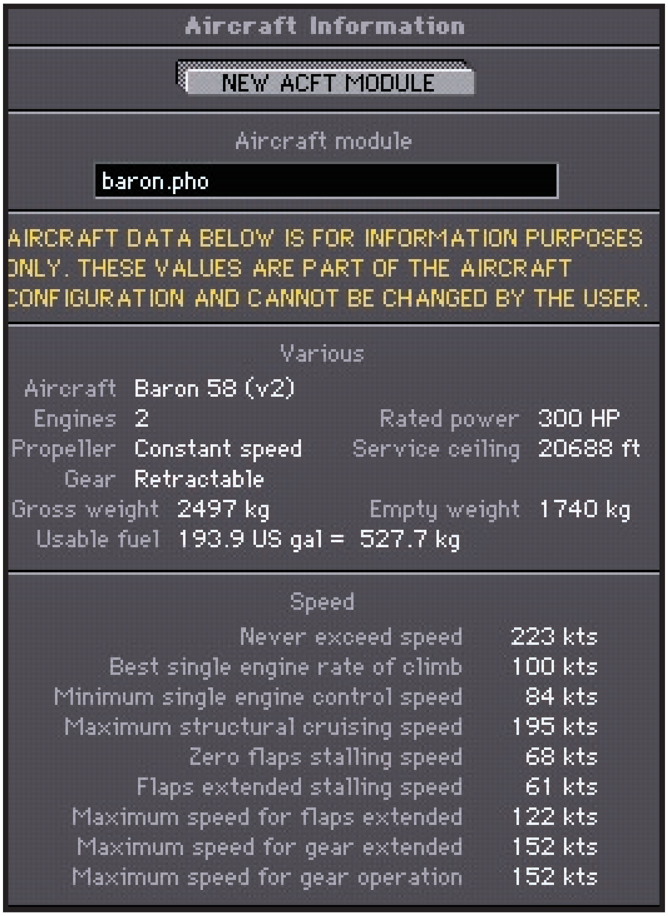
After Landing

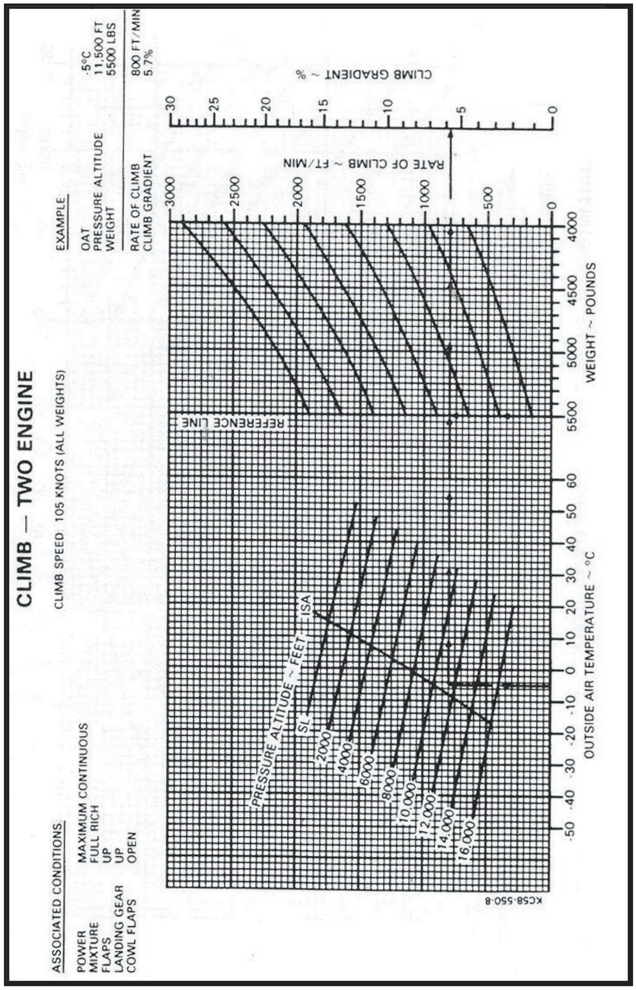
Lights	As Required
Flaps	UP
Trim Tabs	RESET
Cowl Flaps	OPEN
Fuel Boost Pumps	As Required

Shutdown

Parking Brake	SET
Propellers	HIGH RPM
Throttles	1000 RPM
Fuel Boost Pumps	OFF
Electrical Switches / Avionics	OFF
Mixture Controls	IDLE CUT-OFF
Magneto / Start Switches	OFF
Battery / Alternator Switches	OFF

AIRCRAFT SETTINGS PANEL



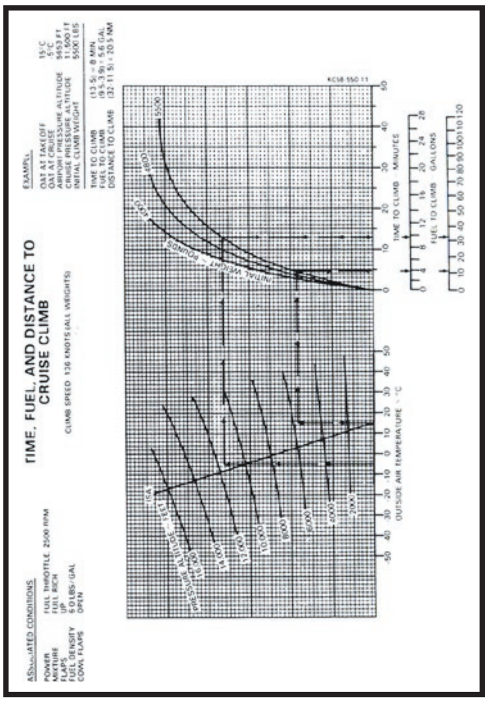

CLIMB — TWO ENGINE
CLIMB SPEED 105 KNOTS (ALL WEIGHTS)
ASSOCIATED CONDITIONS
POWER MAXIMUM CONTINUOUS
MIXTURE FULL RICH
FLAPS UP
LANDING GEAR UP
COWL FLAPS OPEN
EXAMPLE
OAT -5°C
PRESSURE ALTITUDE 11,500 FT
WEIGHT 5500 LBS
RATE OF CLIMB 800 FT/MIN
CLIMB GRADIENT 5.7%
PRESSURE ALTITUDE ~ FEET
SL
2000
4000
6000
8000
10,000
12,000
14,000
16,000
ISA
REFERENCE LINE
RATE OF CLIMB ~ FT/MIN
CLIMB GRADIENT ~ %
OUTSIDE AIR TEMPERATURE ~ °C
WEIGHT ~ POUNDS
KCS8-550-8

CRUISE POWER SETTINGS

20° RICH OF PEAK EGT

RECOMMENDED CRUISE POWER
23 IN. HG (OR FULL THROTTLE)
@ 2300 RPM (5200 LBS)

	PRESS. ALT. FEET	IOAT °C	IOAT °F	MAN. PRESS. IN. HG	FUEL FLOW/ENGINE PPH	FUEL FLOW/ENGINE GPH	AIRSPEED KIAS	AIRSPEED KTAS
ISA −20°C (ISA −36°F)	SL	2	28	23	81	13.5	176	170
	2000	−6	21	23	84	14.0	178	176
	4000	−10	14	23	87	14.5	179	182
	6000	−14	7	23	91	15.2	180	188
	8000	−18	0	22	89	14.8	177	190
	10000	−22	−7	21	84	14.0	169	188
	12000	−26	−14	19	78	13.0	162	185
	14000	−30	−21	18	73	12.2	154	182
	16000	−34	−29	17	68	11.3	146	178
STANDARD DAY (ISA)	SL	18	64	23	78	13.0	171	171
	2000	14	57	23	81	13.5	173	177
	4000	10	50	23	85	14.2	174	183
	6000	6	44	23	88	14.7	175	190
	8000	3	37	22	87	14.5	171	192
	10000	−2	29	21	81	13.5	164	189
	12000	−6	22	19	76	12.7	156	186
	14000	−10	15	18	71	11.8	149	183
	16000	−14	7	17	66	11.0	140	178
ISA +20°C (ISA +36°F)	SL	38	100	23	76	12.7	166	171
	2000	34	93	23	79	13.2	168	178
	4000	30	86	23	82	13.7	169	184
	6000	26	80	23	85	14.2	169	191
	8000	23	73	22	84	14.0	166	193
	10000	19	65	21	78	13.0	159	190
	12000	14	58	19	73	12.2	151	187
	14000	10	51	18	68	11.3	143	143
	16000	6	43	17	64	10.7	135	178



CRUISE POWER SETTINGS

20º RICH OF PEAK EGT

RECOMMENDED CRUISE POWER
25 IN. HG (OR FULL THROTTLE)
@ 2100 RPM (5200 LBS)

	PRESS. ALT.	IOAT		MAN. PRESS.	FUEL FLOW/ ENGINE		AIRSPEED	
	FEET	ºC	ºF	IN. HG	PPH	GPH	KIAS	KTAS
ISA -20ºC (ISA -36ºF)	SL	−2	28	25	79	13.2	175	168
	2000	−6	21	25	82	13.7	176	174
	4000	−10	14	25	85	14.2	176	180
	6000	−14	7	24	83	13.8	173	181
	8000	−18	0	23	78	13.0	166	179
	10000	−22	−8	21	73	12.2	158	176
	12000	−26	−15	19	68	11.3	151	173
	14000	−30	−22	18	64	10.7	143	169
	16000	−34	−30	17	60	10.0	135	164
STANDARD DAY (ISA)	SL	18	64	25	77	12.8	170	169
	2000	14	57	25	80	13.3	171	175
	4000	10	50	25	82	13.7	171	181
	6000	6	43	24	81	13.5	167	182
	8000	2	36	23	76	12.7	160	180
	10000	−2	29	21	71	11.8	153	177
	12000	−6	21	19	66	11.0	145	173
	14000	−10	14	18	62	10.3	137	169
	16000	−14	6	17	58	9.7	128	163
ISA +20ºC (ISA +36ºF)	SL	38	100	25	74	12.3	165	170
	2000	34	93	25	77	12.8	166	176
	4000	30	86	25	80	13.3	166	181
	6000	26	79	24	78	13.0	162	183
	8000	22	72	23	73	12.2	155	180
	10000	18	65	21	69	11.5	148	177
	12000	14	57	19	64	10.7	140	173
	14000	10	50	18	60	10.0	131	168
	16000	6	42	17	56	9.3	122	160

CRUISE POWER SETTINGS

20º RICH OF PEAK EGT

RECOMMENDED CRUISE POWER
21 IN. HG (OR FULL THROTTLE)
@ 2100 RPM (5200 LBS)

	PRESS. ALT.	IOAT		MAN. PRESS.	FUEL FLOW/ ENGINE		AIRSPEED	
	FEET	ºC	ºF	IN. HG	PPH	GPH	KIAS	KTAS
ISA -20ºC (ISA -36ºF)	SL	−3	27	21	62	10.3	155	149
	2000	−7	20	21	65	10.8	157	155
	4000	−11	13	21	67	11.2	158	161
	6000	−14	6	21	70	11.7	159	167
	8000	−18	−1	21	72	12.0	160	172
	10000	−22	−8	21	73	12.2	158	176
	12000	−26	−15	19	68	11.3	151	173
	14000	−30	−22	18	64	10.7	143	169
	16000	−34	−30	17	60	10.0	134	164
STANDARD DAY (ISA)	SL	17	63	21	60	10.0	150	150
	2000	13	56	21	63	10.5	152	156
	4000	9	49	21	65	10.8	153	162
	6000	6	42	21	68	11.3	154	167
	8000	2	35	21	70	11.7	155	173
	10000	−2	29	21	71	11.8	153	177
	12000	−6	21	19	66	11.0	145	173
	14000	−10	14	18	62	10.3	137	169
	16000	−14	6	17	58	9.7	128	163
ISA +20ºC (ISA +36ºF)	SL	37	99	21	59	9.8	145	150
	2000	33	92	21	61	10.2	147	156
	4000	30	85	21	63	10.5	148	162
	6000	26	78	21	66	11.0	149	167
	8000	22	72	21	68	11.3	149	173
	10000	18	65	21	69	11.5	148	177
	12000	14	57	19	64	10.7	140	173
	14000	10	50	18	60	10.0	131	168
	16000	6	42	17	56	9.3	122	160

MAP PAGE

MAP p age

“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 and to review the flight once you have finished flying. Systems equipped with a separate Instructor's Station monitor can also use the MAP page to monitor the progress of a flight in real time. You will probably spend more time using the MAP page than any other page in the software (other than the instrument screen of course).

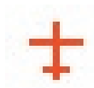
Similar in appearance to an IFR Low Enroute chart, and laid out in approach plate-like format, the MAP page is familiar and easy to navigate. The main part of the MAP page displays the active (loaded) navigation region(s) and corresponding facility elements in plan (bird's-eye) view. Airports, runways,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

MAP SCALE

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

The scale indication changes according 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

NOTE: **Alt** *key references are for Windows.* **Option** *key references are for Macintosh.*

Normal cursor (fingertip)

Zoom in cursor (Alt Key or Option Key)

Zoom out cursor (Shift-Alt or Shift-Option)

Zoom limit (either enlarging or reducing)

Heading/Distance (Shift key)

Add point (Route planner) (Control key)

Remove point (Route planner) (Alt-Option OR Control-Option keys)

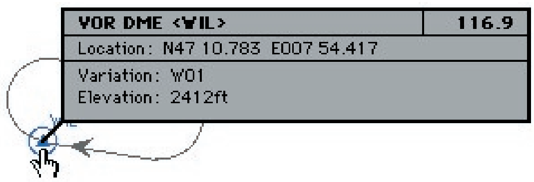
Change/Move Point (Route planner) (Shift-Control keys)

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.



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.

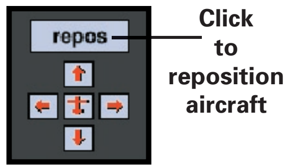
MAP BORDERS

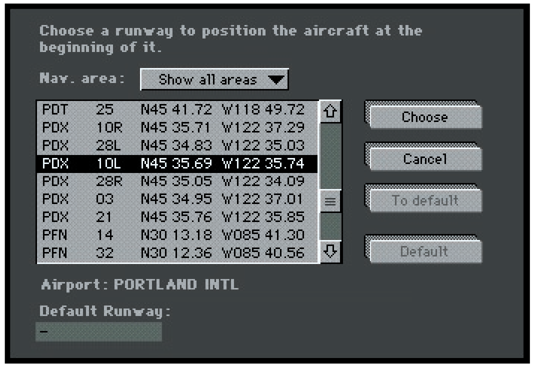
Border types:

- 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).





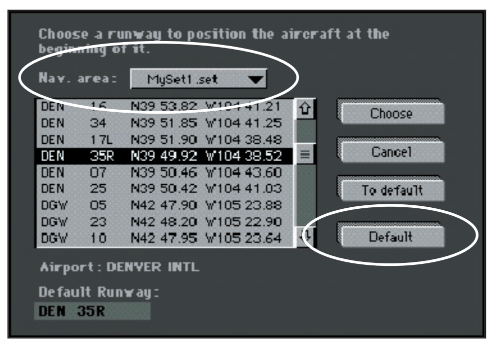
Choose:

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.

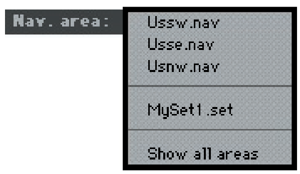
Cancel repositioning by clicking on **CANCEL.** You will return to the previous display.

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.

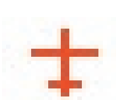


It's first necessary to select the specific NAV database (or NAVset) that the desired default airport/runway is located in. Click and hold the small black arrow on the right side of the panel next to "Nav area" to open a drop-down menu of loaded databases and NAVsets. Move the finger cursor over the 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.

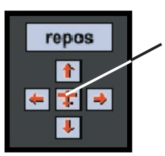
Aircraft Snapping

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.

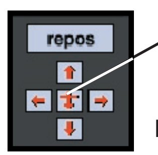
Map Scrolling:

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 as described in page 218.

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.

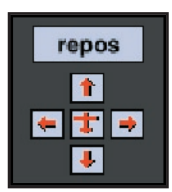
Storing custom ZOOM Level:

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.

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 (Windows) or **OPTION** key (MAC), then click-and-drag to create an outline around the desired area. Release the mouse button for the new ZOOMed view.

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.

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 Screen 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

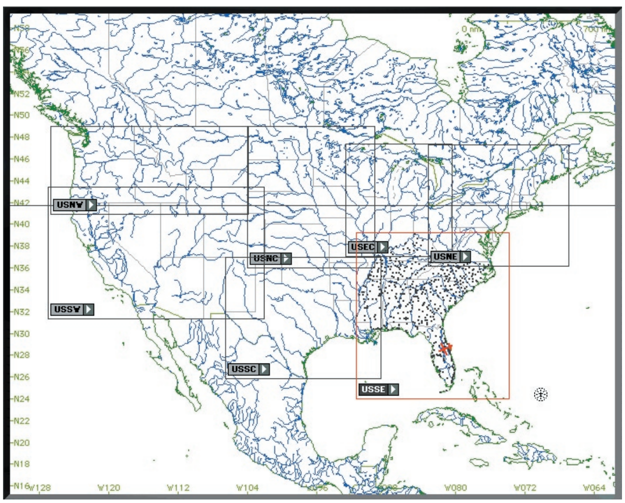
The spot weather feature allows you to view the current WX conditions that exist at the aircraft's present position. The spot weather feature is especially handy when an instructor's station is being used as it allows the "instructor" to quickly ascertain the WX at any given moment without having to 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 265) 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.

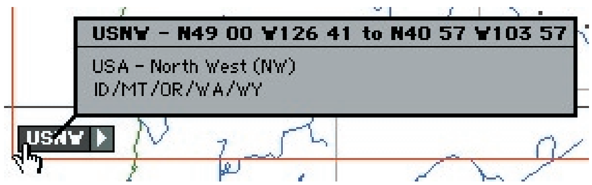
To understand the structure of the NAV databases, press the **ZOOM** out ( ) button several times until an entire continent is visible. Using North America (shown below) for example, notice there are boxes visible across the U.S. that define the regional boundaries of each NAV database. From this same 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 **U***nited* **S***tates* **N***orth* **W***est.*

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



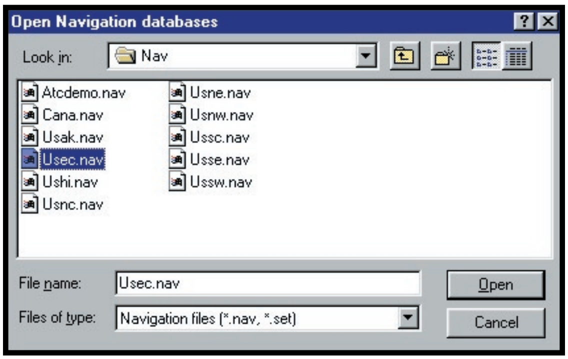
LOADING NAV DATA:

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).

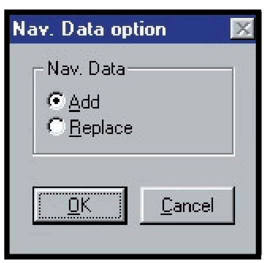
NOTE: Multiple NAV databases (regions) can be loaded simultaneously as desired. To load multiple databases, repeat the process described previously for each additional database.

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.



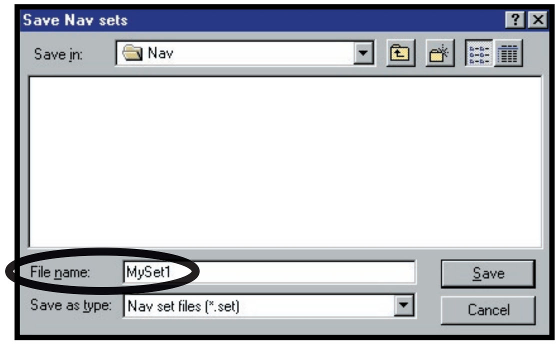
Following the **Open Navigation Databases** window, another smaller pop-up window will appear giving you the option to choose either add or replace. To Add the selected database to those already loaded, click on **ADD**. To replace a currently loaded database with the selected one, click on **REPLACE.**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



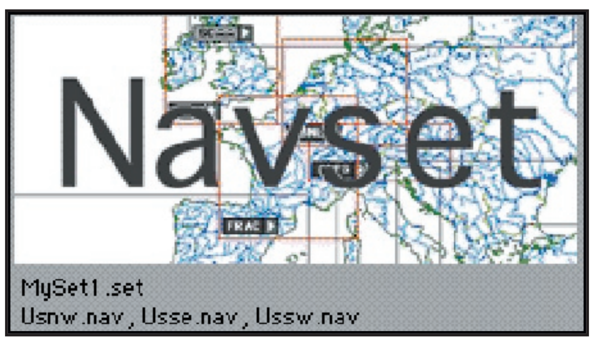
NOTE: The last database loaded with the **Load** *function is kept in memory and also used at the next startup.*

Creating NAV Sets:

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 **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.

Three sample scenarios are included with each ELITE package (an ILS, NDB, & VOR approach into Bakersfield, CA). Approach charts for the sample instrument approach scenarios can be found in the back of the ELITE Ops Manual or can be viewed with the HotPlates viewer (see page 240).

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 (IASEC3, IASSE3, etc.) is active **before** using the Instrument Approach Scenarios. For example, to fly a scenario in the EC-3 (Illinois/Wisconsin) IAS package, make sure to load the IASEC3 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 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 here 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 callsign 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

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** screen 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.

Click in window for reciprocal heading

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.

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.

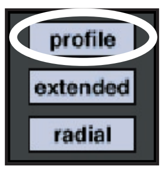
Single-click for 500 foot increments

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.

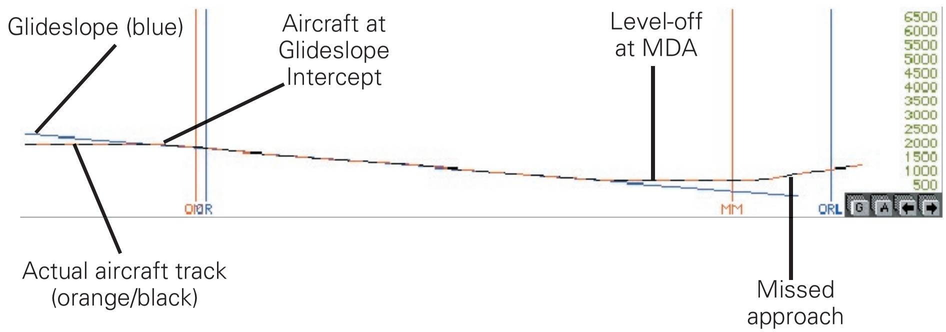
Profile Scroll:

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

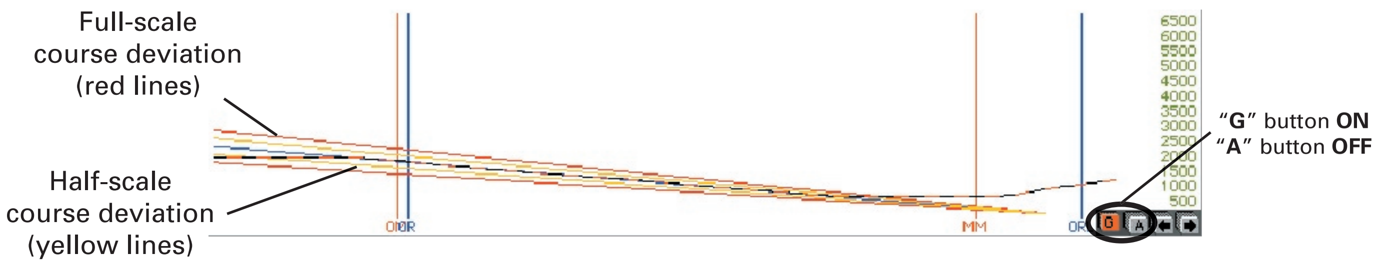
In combination with the four buttons pictured above, use the ZOOM functions (previously explained) to get more detailed MAP profile views. While LOW (distant) ZOOM levels are better for viewing the big picture, HIGH (close in) ZOOM levels are good for showing minute flight path and airspeed deviations.

Profile View Examples:

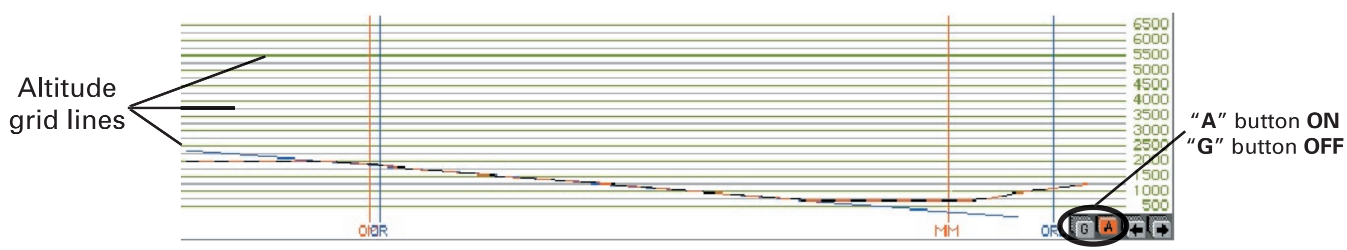
The following example profiles demonstrate several of the different view options described on the previous section. The profile was created flying the ILS RWY 7 approach into Orlando Executive (ORL) airport. For illustration purposes, the glideslope was tracked to the non-precision Minimum Descent Altitude (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.

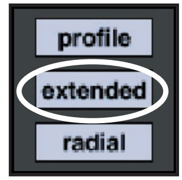


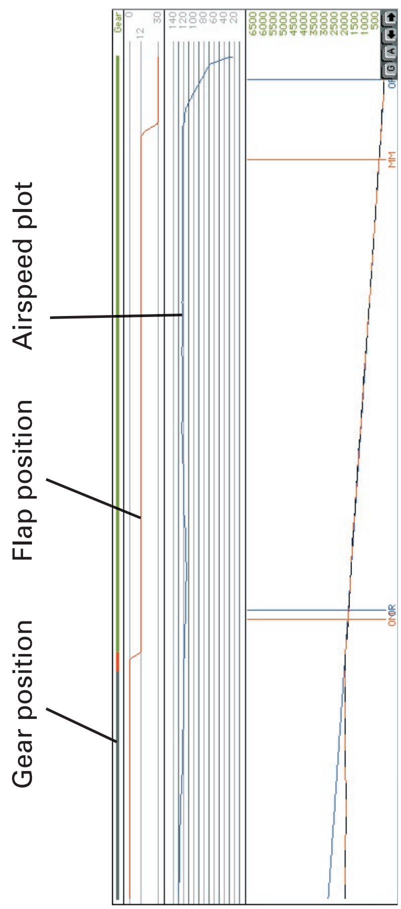
Two more profile views of the ILS RWY 7 approach into Orlando Executive airport.
Top: Profile view with glideslope limits overlay turned **ON.**
Bottom: Profile view with altitude grid lines turned **ON.**



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

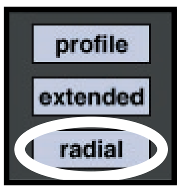
While viewing the MAP profile, even more detailed aircraft information is accessible for any position along the plotted flight path. First verify ***ELITE*** is in the **FREEZE** mode and the replay function is not activated. Click and hold the mouse button inside the **profile area** to display detailed 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.

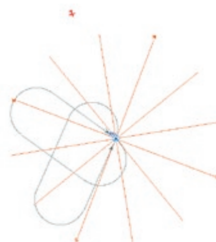
The red aircraft symbol and **ACFT Information** box are displayed as long as the mouse button is held inside the MAP profile.

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

RADIAL BUTTON

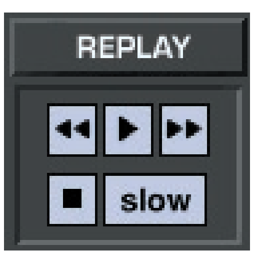
The **Radial** feature allows you to place a compass rose around any FIX or NAVaid facility in the database. Before clicking the **RADIAL** button look at the BEARING TO or RADIAL and DISTANCE windows near the bottom-left of the MAP screen. They should both have dashes in them. Now click the **RADIAL** 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.

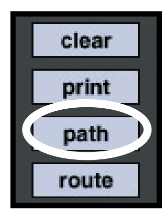
REPLAY feature / REPLAY options button:

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...

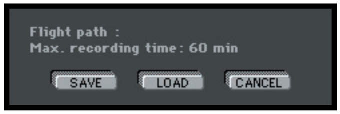
Change or modify the initial replay settings as desired. These settings can be changed/modified at any point in the future by simply clicking on the “settings” button at the bottom of the MAP Page under REPLAY.

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 screen for analysis.

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

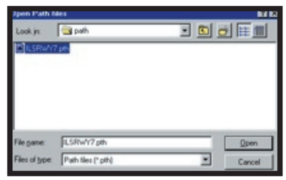


Save:

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 **<u>S</u>ave** to complete the operation.

Load:

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

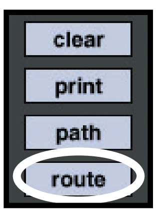


Clear:

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

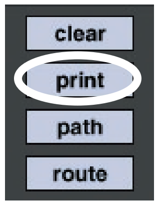
ROUTE BUTTON

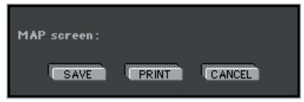
Similar to the flight path files discussed on the preceding page, you may also save a self created route into a Route file by using the **ROUTE** button. Routes are explained further on in this chapte.



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. On Windows, the graphic is saved as a **bitmap** (.bmp). On Macintosh computers, the graphic is saved as a **picture** (pict) file.

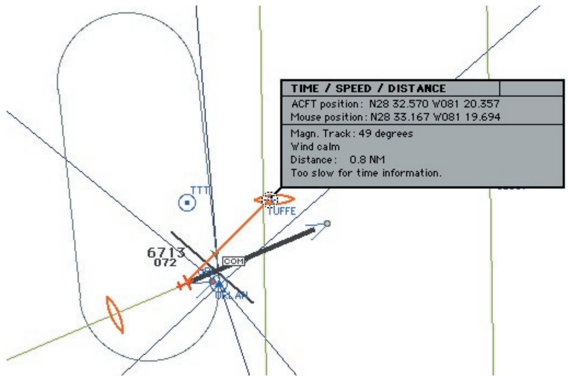
HEADING / DISTANCE CURSOR

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 in 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) windows (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. To design a route, you need the keyboard.

Add Point:

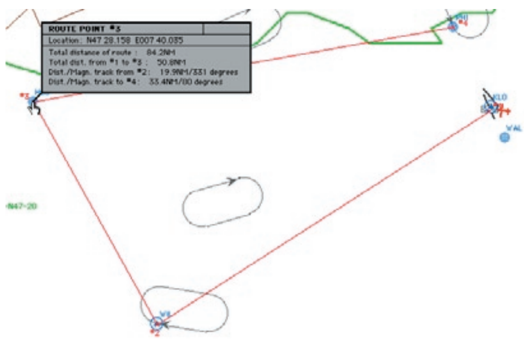
Push the **CTRL** (control) key on the keyboard and the cursor changes to "add point." Click on any location from which you will start your route and you get the first route point #1. The next click displays route point #2 and so on, until you release the **CTRL** key. To add a point between existing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

Remove Point:

Push the **CTRL & ALT** keys (Windows) or on the Mac **CTRL & OPTION** 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.

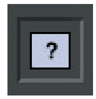


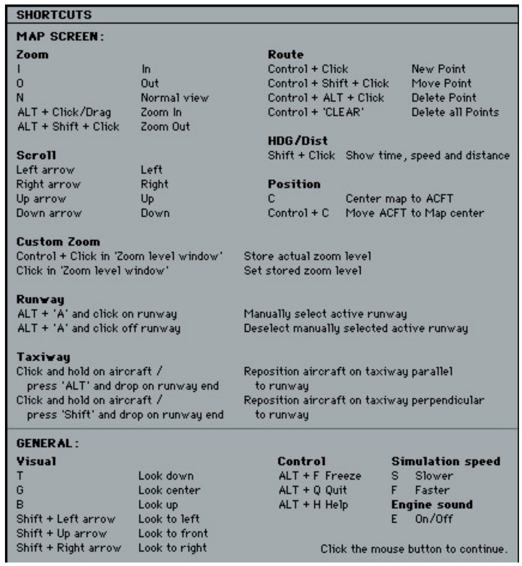
Route Info:

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.

SHORT CUTS

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





SHORTCUTS

MAP SCREEN:

Zoom

I	In
O	Out
N	Normal view
ALT + Click/Drag	Zoom In
ALT + Shift + Click	Zoom Out

Route

Control + Click	New Point
Control + Shift + Click	Move Point
Control + ALT + Click	Delete Point
Control + 'CLEAR'	Delete all Points

HDG/Dist

Shift + Click Show time, speed and distance

Scroll

Left arrow	Left
Right arrow	Right
Up arrow	Up
Down arrow	Down

Position

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

T	Look down
G	Look center
B	Look up
Shift + Left arrow	Look to left
Shift + Up arrow	Look to front
Shift + Right arrow	Look to right

Control

ALT + F Freeze
ALT + Q Quit
ALT + H Help

Simulation speed

S Slower
F Faster

Engine sound

E On/Off

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:

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 Screen NOT occupied by a runway.

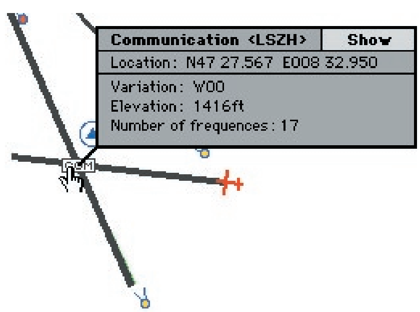
Summary:

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

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 above.

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.

	FREQ	1	2	G	R	H	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

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

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 Infor-
mation Service (AFIS)
T Terminal Control Area

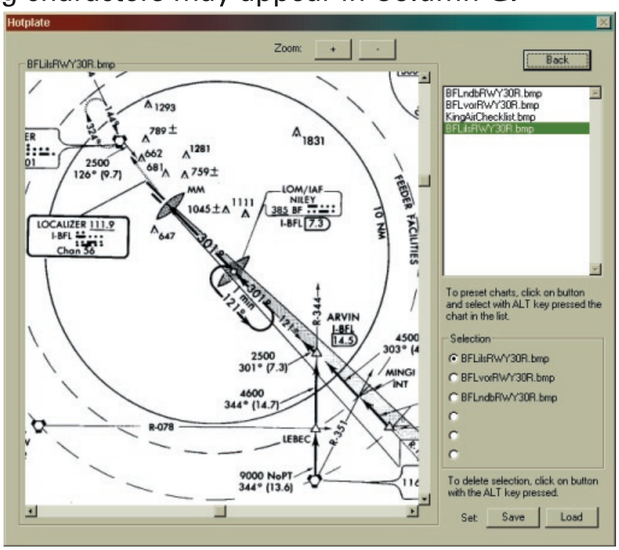
Column 2:

The following characters may appear in Column 2.

A	Air / Ground
G	RemoteCommunications Air toGround (RCAG)
L	Language other than English
M	Military Frequency
P	Pilot Controlled Lighting (Air/Ground)
R	RemoteCommunications 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" ATC 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 adding 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.

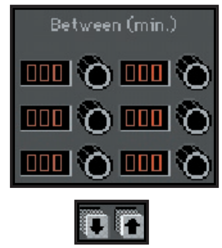
The **METEO Page** is extremely flexible and provides an opportunity for an almost infinite amount of weather possibilities. Please feel free to experiment.

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).

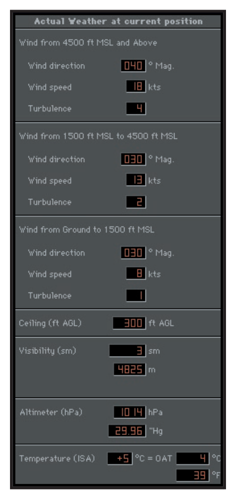


Repeat this in the same way to set the "To" parameters. It is important to remember that the intensity or rate-of-change of the weather is also controlled by the procedure described in the previous section. For example, large parameter variances in relatively short time intervals produce rapidly changing weather as opposed to small parameter variances over longer time intervals.

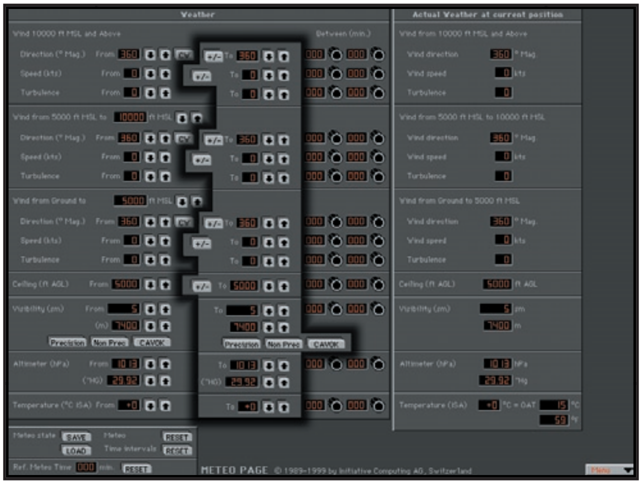
NOTE: "From" column UP/DOWN buttons will remain grayed-out (not active) until a dynamic weather time interval is entered.

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.



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.

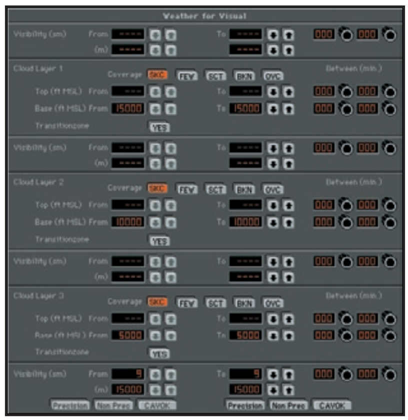
WIND

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:

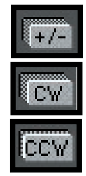
Transition Zones are available for each of the three Cloud Layers and can only be selected when overcast (OVC) coverage is in use. A Transition Zone creates a gradual visual transition to and from the cloud conditions existing above or below the layer where it is used and is noticeable only when climbing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

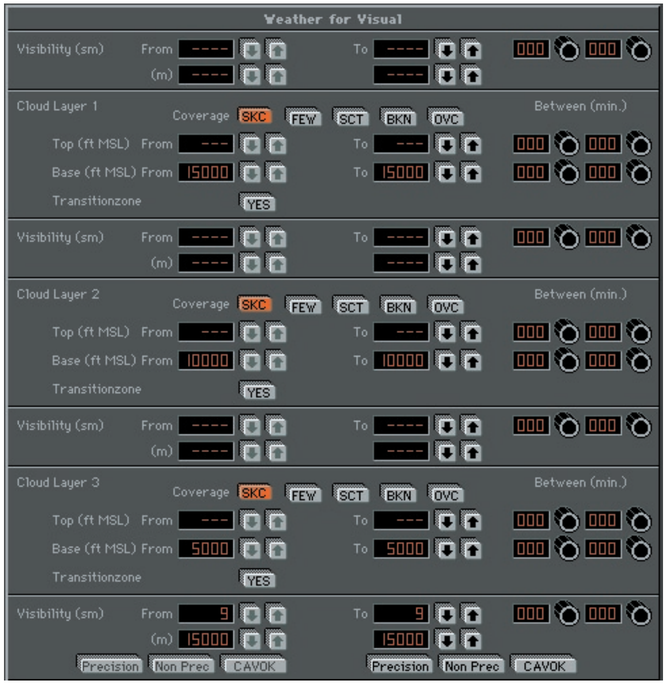
TURBULENCE

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 **A**bove **G**round **L**evel 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 <= (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.

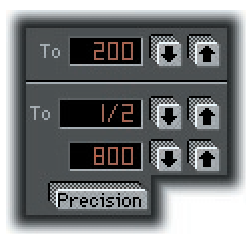
VISIBILITY (STANDARD VIEW)

Visibility in **S**tatute **M**iles 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:

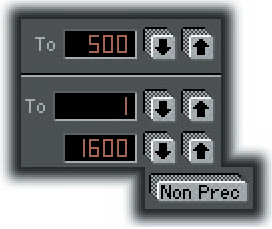
Precision:

200ft. (ceiling),

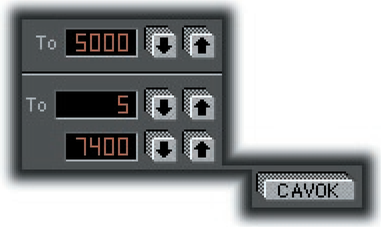
1/2 Mile (visibility)



\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 (**I**nternational **S**tandard **A**tmosphere) 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 box containing functions that are applicable to the entire **METEO Page** as opposed to the control of *individual* weather parameters described previously.

STRUCTURAL ICING

Ice is not that hard to make. Despite reports to the contrary, the recipe hasn't been lost (nor is it a secret). Any child can recite the recipe just for the asking.

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

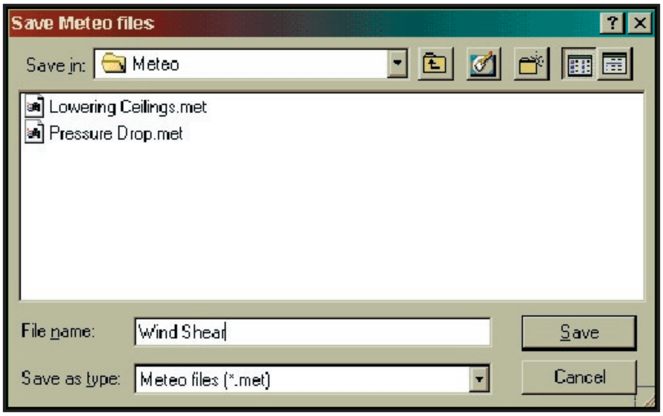
Notice that Pitot Tube icing is NOT part of the icing factor equation. Pitot Tube icing is actually controlled separately on the MALFUNCTIONS Page. This separation of control is intentional. Although Pitot Tube icing is often coincident with structural icing, structural icing can be subtler to reveal 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 **Save** to complete the operation. To load this Meteo state (or any other) in the future, just click on the **LOAD** button to open the **Open Meteo files** dialog box. Select a Meteo state from those listed (previously saved) and click **Open**. This feature allows you to create an unlimited library of Meteo states that can be recalled almost instantly.



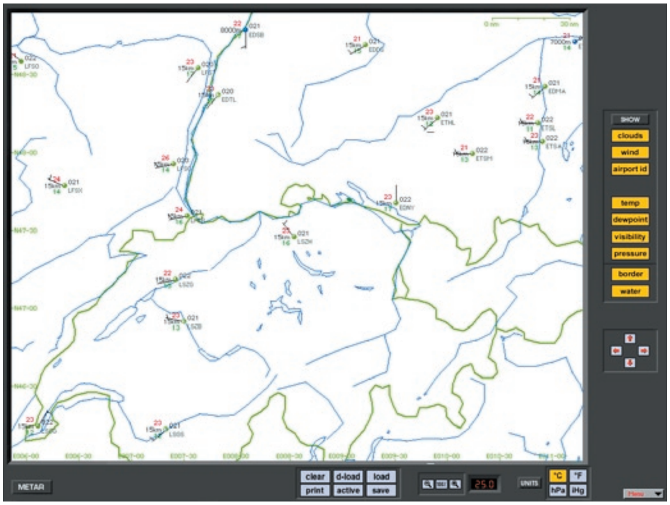
The two **RESET** buttons provide a quick way to "zero-out" the **METEO Page**. The **Meteo** RESET returns all parameter settings to zero where applicable, sets the Ceiling/Visibility to CAVOK, and sets the Altimeter/Temperature to standard. The **Time Intervals** RESET clears all the time interval 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.

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 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. Sky conditions, visibility, wind speed, wind direction and turbulence are accurately depicted in the visual system.

METAR weather conditions represent the actual weather derived from the local Airport stations. Although ***ELITE*** calculates the precise coverage of the clouds, ***ELITE*** can not represent a specific cloud type such as a 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, dewpoint, 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.

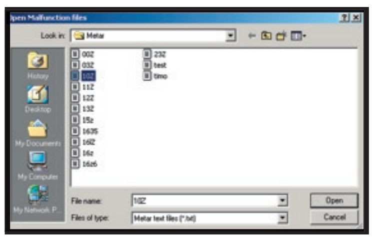
NOTE: METAR is only available with GenView™ visual databases.

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

USING EXISTING METAR

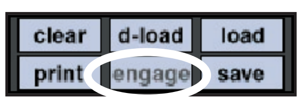
1. Press the **LOAD** button in the METAR page to open existing METAR files previously saved to your harddrive.

2. Select from the directory list 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.

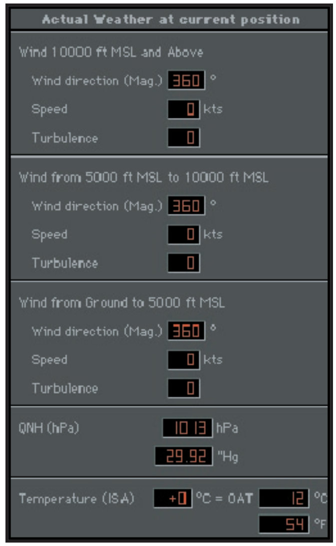


4. As METARs are updated very frequently and have only the zulu-time, you have to 'link' your selection to a specific date. Click the **OK** button to continue.

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 in the METEO Page.



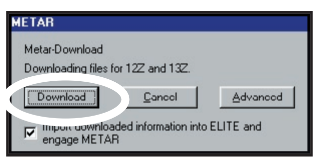
7. Once the METAR is active, all other weather conditions previously selected in the METEO Page are inactive. To de-activate the METAR conditions, press **ENGAGE** and it will turn from yellow to gray.

DOWNLOADING METAR FILES

Basic:

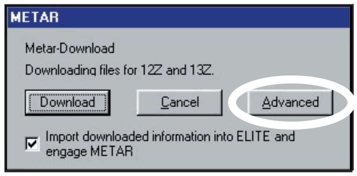
1. Press the **D-LOAD** button on the METAR or METEO Page.

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

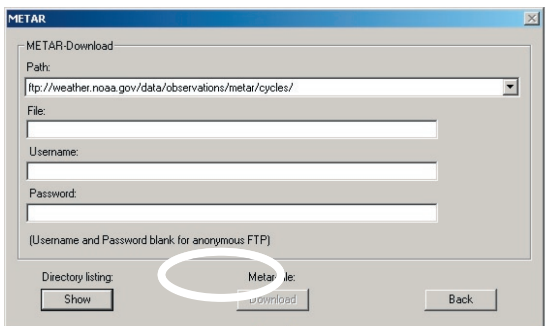


Advanced:

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.

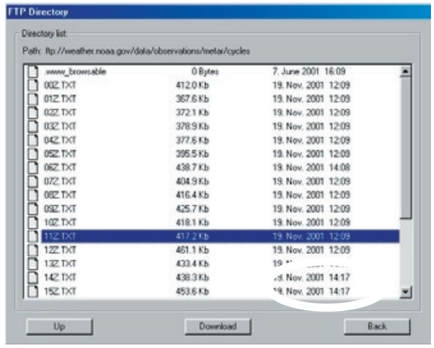


2. Select a file you wish to download, i.e. 1300Z (1300Z represents the UTC time of the report)

NOTE: Downloading METAR from the Internet requires an 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.



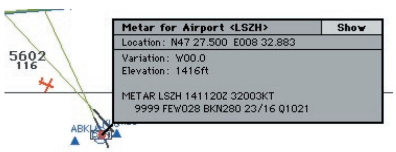
4. Once the download process has finished, click the **BACK** button to leave this menu.
5. In the METAR or METEO Page, press the **LOAD** button to select the file from the directory list you downloaded.

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

6. Once the file is selected, click the **BACK** button to leave the directory list.
7. 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.

8. To activate the METAR conditions, click the **ENGAGE** button in the METAR Page. To view the current weather, change to the METEO Page while unfreezing the simulation.

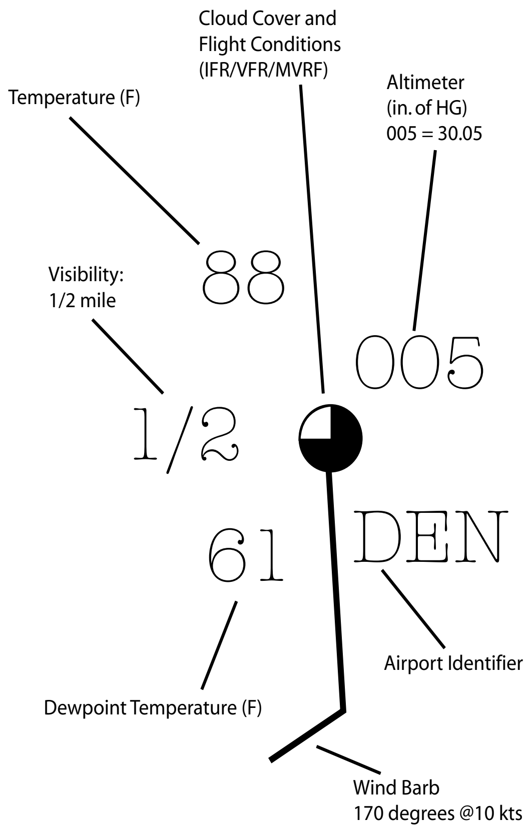
All METAR stations are graphically depicted on a map overlay in the METAR Page. Symbols in red indicate METAR stations under IFR conditions with a ceiling below 1,000 ft and/or visibility less than 3 miles. Blue indicates stations under MVFR conditions with a ceiling 1,000 to 3,000 ft and/or visibility 3 to 5 miles. Green indicates stations under VFR conditions with ceiling greater that 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 airport METAR. Selecting the SHOW button gives you all reports loaded for that station sorted by date and time.

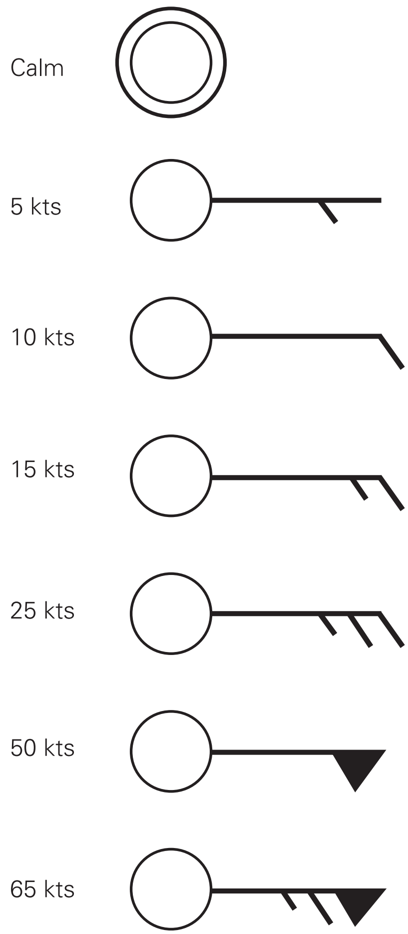
NOTE: Several clicks may be necessary in order to access the METAR information.

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	$Q P_H P_H P_H P_H$	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	$T'T'/T'_d T'_d$	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	
$dddffGf_mf_m$ KMH or KT or MPS	
ddd	Mean wing direction in degrees true rounded off to nearest ten degrees (VRB = VARIABLE)
ff	Mean wing speed (ten minute mean or since discontinuity)
G	Indicator of gust (G) - if necessary
f_mf_m	Maximum wind speed "gust" (f_mf_m) - if necessary
KMH or KT or MPS	Wind speed units used

0000 = calm

Followed when there is a variation in wind direction of 60° or more and wind speed >3 kt by:

$d_nd_nd_nVd_xd_xd_x$	
$d_nd_nd_n$	Extreme direction of wind ($d_nd_nd_n$)
V	Indicator of Variability (V)
$d_xd_xd_x$	Other extreme direction of wind (measured clockwise)

Clouds	
$N_sN_sN_sh_sh_sh_s$	
$N_sN_sN_s$	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)
$h_sh_sh_s$	Height of base ($h_sh_sh_s$) of clouds in units of 30 meters "100 ft"

Replaced when there are no clouds and CAVOK is not appropriate by.

SKC
Sky Clear

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, similartotheMETEOPageitisactuallyquiteeasytouseandisoneofthemost 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:

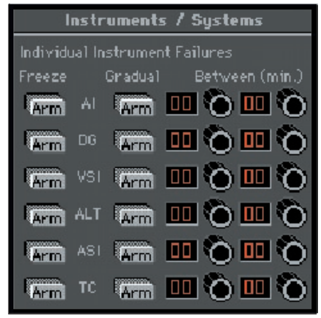
1. Decide on the failure(s) that you would like to invoke.
2. Determine when you would like the failure(s) to occur. Failures can be set to occur immediately, at a specified time, or at some point within a defined failure "time window."
3. Arm the failure(s) by pressing the associated **ARM** button(s).

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

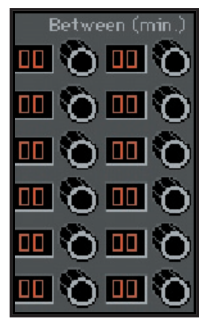
Individual instruments can be failed in two different ways:

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 **A**ttitude **I**ndicator 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 center 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

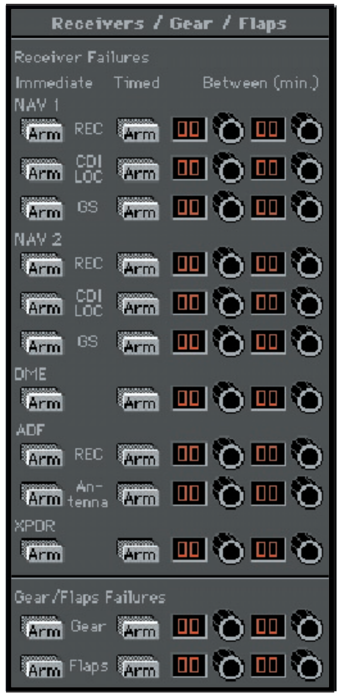
To invoke an immediate failure, enter the SAME values (minutes) in each window that correspond to the current Ref. (reference) Failure Time displayed at the lower-left. If for example the Ref. Failure Time displayed is 07 (7 minutes), enter 07 in BOTH “Between” windows next to the desired ARMed failure. 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 FAILURE



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 as shown below 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: That 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).

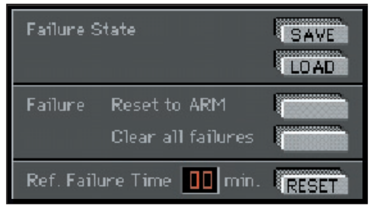
Cover the instrument (without invoking a malfunction).

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.

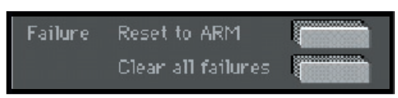
At the lower-left of the **MALFUNCTIONS Page** you will find a box containing several buttons that are applicable to the entire **MALFUNCTIONS Page** as opposed to the control of *individual* failures described previously.



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" in tact, but RESET all FAIL buttons back to ARM (much easier than having to reset each individual Fail button).

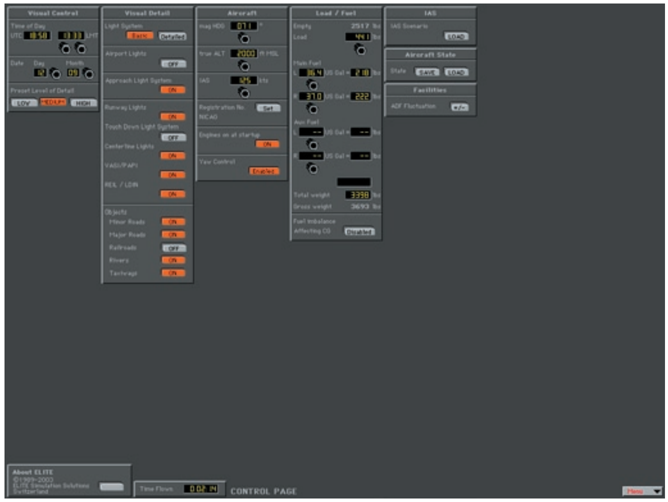
Use the "Clear all failures" button to RESET the entire **MALFUNCTIONS Page** (including failure time intervals).

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 <u>time window</u> 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

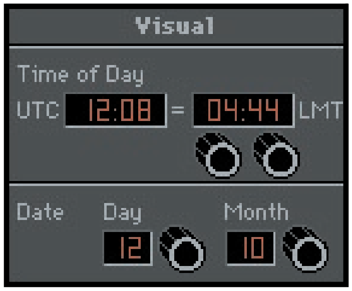


Control page

"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 ATC 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** screen. 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)

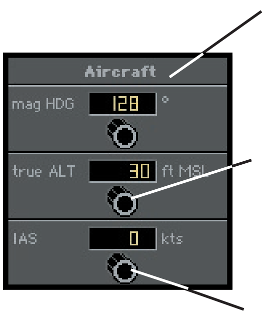
As mentioned in the previous section, software "performance" is directly related to the computer hardware used to run it. Based on the processing power of your computer, you may want to turn OFF various scenery elements, as these tend to increase computer workload and possibly cause the simulation to 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 startup when the **ON** button is active.

AIRCRAFT PANEL

The heading, altitude, and airspeed panels found on the MAP screen 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.

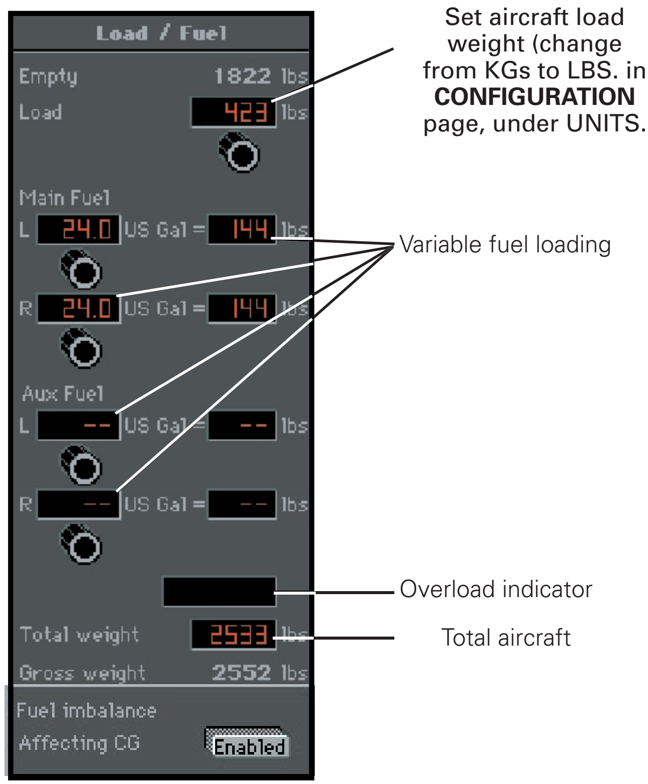


Set aircraft magnetic heading

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 / LOAD PANEL



FUEL IMBALANCE

When ENABLED, allows for flight characteristics to be affected by lateral asymmetric fuel loading.

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 ATC Scenario call sign.

RUNNING THE INSTRUMENT APPROACH SCENARIOS (IAS)

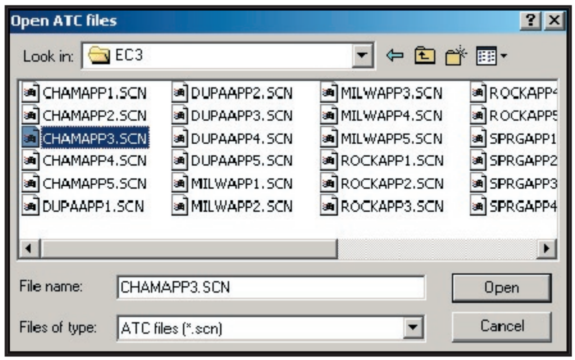
The **Instrument Approach Scenarios** are scripted instrument approach exercises flown in a simulated ATC environment. During these exercises, you must listen for your call sign "on frequency" amidst the chatter of other aircraft and controllers to hear your instructions. Follow clearances and vectors 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 correct NAV database (region) is loaded for flying the IAS (***USSW***-United States Southwest.)*

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 ATC Scenario 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:

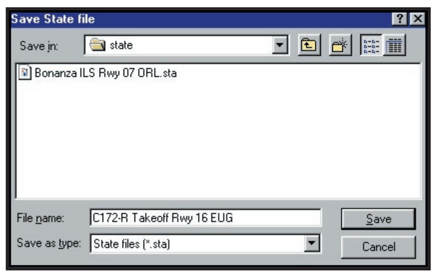
The **State** panel makes it possible to save and load aircraft "state" files. These files allow you to save aircraft position, frequencies entered, weather settings, NAV data etc. into a file. This file can then be loaded at any time to instantly position the aircraft where it was (with the same settings) when the file was saved.

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.

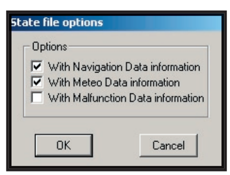
State files can be saved at any time. Before saving a state file make sure that the aircraft is set up just the way you want it. Once everything is to your liking be sure to name the state file something that will be meaningful now and in the future. A good naming convention is to include an airport 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.

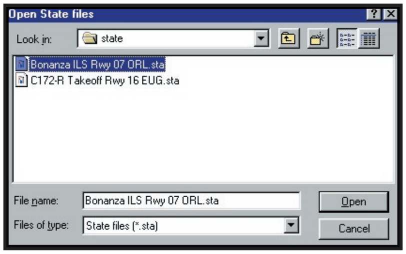


Type in a name for the "state" file and click **Save**.
Select "state" file options as desired, then click **Ok**.



Loading States:

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

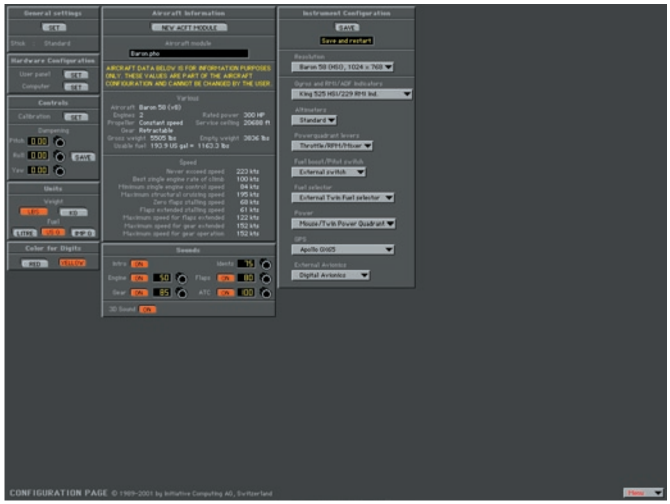


Highlight the "state" file you wish to load from those listed, then click **OPEN**.

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

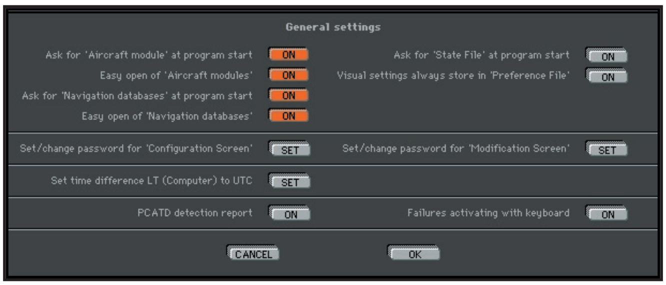


Configuration Page

"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.

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 PCATD 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.*

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

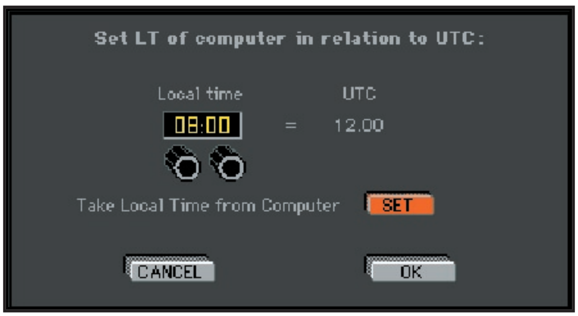
When the "**Visual Settings** always store in Preference File" button is **ON**, all visual settings selected on the control page are stored.

PASSWORD PROTECTION

You may protect the **Configuration** and **Modification** pages with a password. Click on the **SET** button, type a password and follow written 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.



PCATD DETECTION REPORT

With **PCATD Detection Report** button **ON** (PCATD version only), ***ELITE*** will verify (on every startup) connection and proper communication with the required hardware necessary for use as an approved PCATD (**P**ersonal **C**omputer-based **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 credit in accordance with AC 61-126.

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).

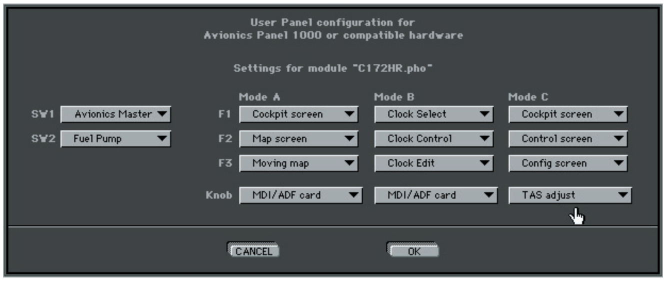
The instructor can control failures without interruption of the simulation or the student's flight. Keyboard commands are as follows:

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

HARDWARE CONFIGURATION

Under **Hardware Configuration**, clicking the **SET** button next to **User Panel** opens a control screen that allows selections for programmable avionics panels such as the AP-1000. For systems equipped with the programmable avionics panel, programming is achieved by simply clicking on any of the drop-down menus and choosing an option to associate with a specific switch, function, or knob. The AP-1000 User Panel has three modes (presets) A, B, and C. Each mode has three function buttons (F1, F2, F3) and a knob available to it for programming. There is also two more programmable switches (SW1, SW2) which are NOT associated with preset modes A, B, or C that remain fixed in function independent and regardless of mode chosen. The **User Panel** functions available for association are specific to each aircraft and are reflected by varied drop-down menus. The example shows the **User Panel** configuration dialog box for the high resolution Cessna 172R. To the left, switches 1 and 2 are programmed to control Avionics Master and Fuel Pump respectively. To the right, programming for each of the three preset modes A, B, and C is visible.

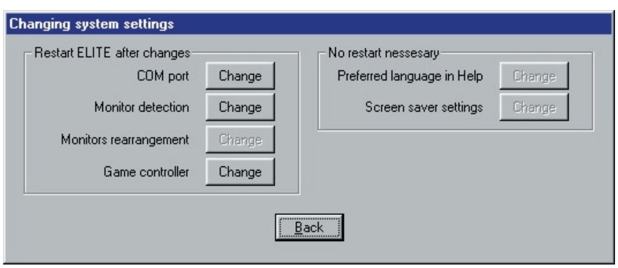
AP-1000 UserPanel:



Pushing the mode button on the AP-1000 **User Panel** cycles through preset modes A, B, and C. If you were to select mode B for instance, function buttons F1, F2, and F3 would now be assigned Clock Select, Clock Control, and Clock Edit respectively. The knob would be assigned to control the MDI/ADF card and switches SW1/SW2 would remain as previously programmed. The example shown is just one possible configuration for that specific aircraft module. Numerous combinations of function configurations can be set up and then accessed from the AP-1000. As you can see, programmability of the AP-1000 Avionics Panel provides the user with a powerful way of easily controlling numerous simulator functions.

Computer Configuration:

Under **Hardware Configuration**, clicking the **SET** button next to Computer brings up a control screen for setting/changing COM port, Monitor detection, Monitors rearrangement, Game controller, and Help text language preferred.



COM port:

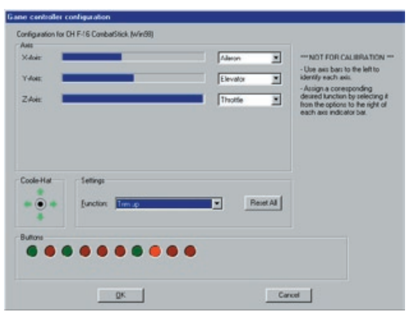
Clicking **CHANGE** next to **COM port** brings up the COM Port Detection dialog, where you can change the COM Port settings and Scan for new ***ELITE*** Hardware.

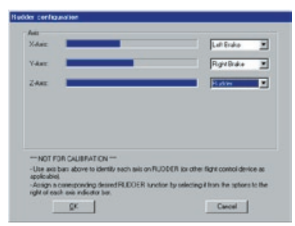
Game Controller:

Clicking **CHANGE** next to **Game controller** brings up a window for selecting flight control devices connected to the computer's joystick (game or USB) port.

Clicking on **CONFIGURE** from this window takes you to the **Game controller configuration** screen. Here you can program (assign) various simulator functions to flight control device buttons and Coolie-Hat switches. To assign a function to a specific joystick button for example, simply press and release the desired joystick button and notice one of the red lights under buttons illuminate. Now under settings, choose a function from the drop-down menu to assign to the button just pressed. Notice the red light turns green when assigned a function. Repeat this process for any remaining buttons you would like to program.

To view any button's assignment just click the button and look for its assignment next to Function. Click **OK** when finished, quit and restart ***ELITE*** for assignments to take affect.



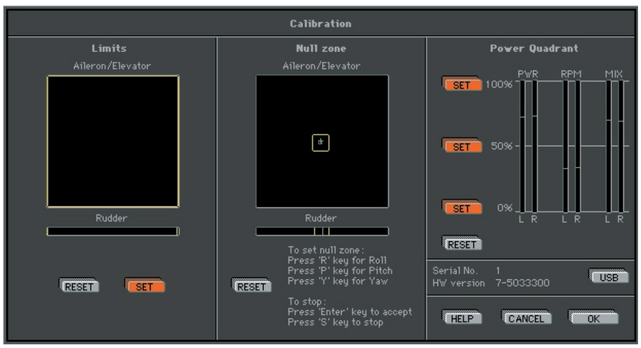


FLIGHT CONTROLS CALIBRATION

ELITE will accommodate various third party flight controls. Calibration is necessary to bring these controls into proper tolerances and allow ***ELITE*** to learn the control nuances or limits of the specific devices being used.

NOTE: Flight controls connected to a computer's ***joystick*** *(game or USB) port must first be calibrated in the computer's operating system. For example, on Windows, calibration is performed through the* ***Control Panel****.*

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 the following 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 (Roll) 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 (Pitch) 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 (Yaw) 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:

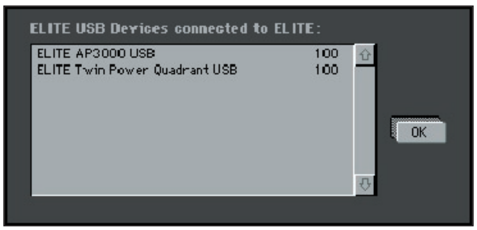
Under **Power Quadrant**, click **RESET**. Now physically move the Mixture, Prop, and Throttle levers (if applicable) on your power quadrant or similar device to their halfway position.

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.

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. PC-based 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.

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 0.50 (maximum dampening) change the sensitivity of flight control devices.

MEASUREMENT FOR WEIGHT & FUEL

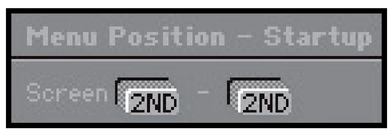
You can choose what units of measurement are displayed for weight and fuel values as desired.

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

CHANGING COLOR OF NUMBERS

For readability, you can change the color of numbers shown on all screens, except the photo-realistic panels. Click on **RED** or **YELLOW** as desired.

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.

SOUND AND VOLUME CONTROL

Turns Startup "ATC intro" ON/OFF.

Button displays ON and is lit when sound is activated.

Volume range 0 - 100 Turn knob to adjust.

ELITE's **A**dvanced **T**rue **I**ntegrated **S**ound (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 above lets you tailor, or mix individual sound elements, giving you complete control of your ***ELITE*** sound experience.

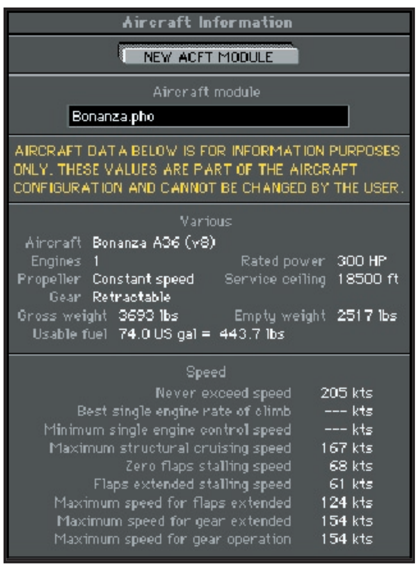
Engine sound can also be switched **ON** or **OFF** with the "**E**" key on the keyboard.

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.

INSTRUMENT CONFIGURATION

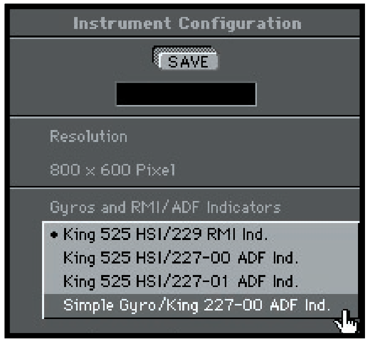
The **Instrument Configuration** panel is different for each aircraft module depending on the cockpit resolution(s), instrument configurations, power units, and external switches unique to that module.

Instrument Configuration panel of A36 Bonanza

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.

The Piper Arrow IV for example, has several various instrument configuration options. Most notable is the ability to change from an HSI/RMI configuration to a simple Directional Gyro (DG) and ADF configuration.



Instrument configuration panel for Arrow IV


Arrow IV HSI


Arrow IV DG

The Arrow IV module adds an additional feature that, when in the simple DG/ADF configuration, the ADF can be changed to VOR 1 by simply clicking the mouse on the ADF instrument or pressing F1 on the keyboard.

Arrow IV RMI

Arrow IV ADF

Arrow IV VOR 1

When you select and change an option on the Instrument Configuration panel you will be prompted to **SAVE** and **RESTART** ***ELITE*** for the changes to take affect.

NOTE: Changes must be saved and only take effect after a **RESTART**.

To save and quit in one action, press and hold **SAVE** button.

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.

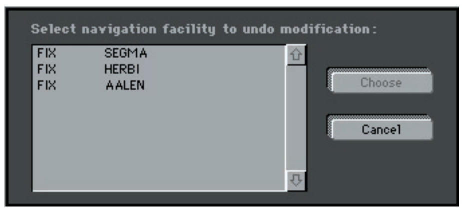
After creating, modifying or deleting a facility, click on the **OK** button to confirm the changes.

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.

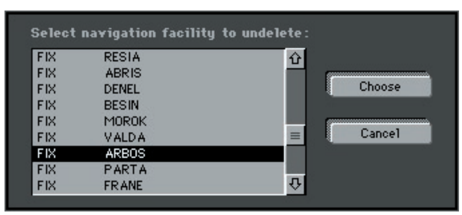
UNDO CHANGES

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

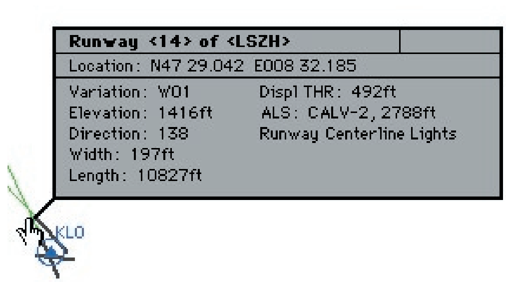


You can now undo a previous facility deletion and it will once again by displayed on the Map.

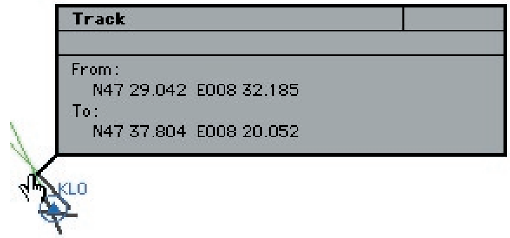
Deleting an existing (original) facility counts as one change. Deleting a self-created or modified facility releases one for further use. Undeleting a previous deletion of an original facility will also release a change for further use.

When 200 modifications have been made the following message appears:

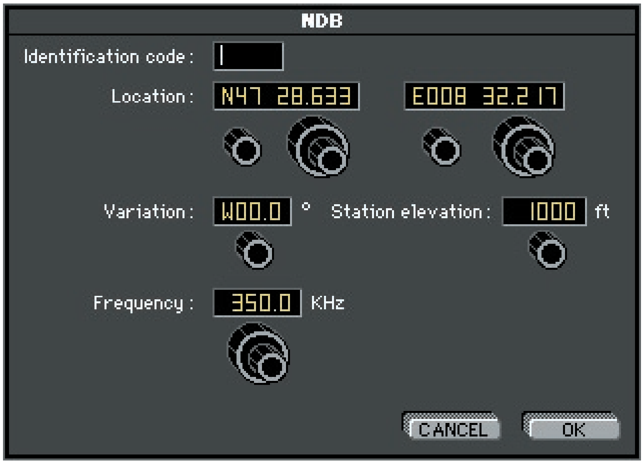
Click on **Facilities** to display detailed information. For runway information, click on the runway threshold.



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.



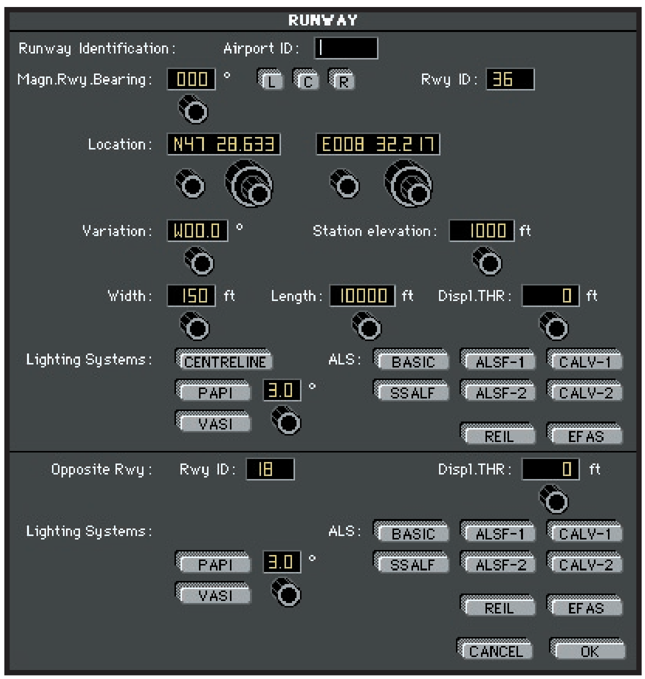
In the example above, several facilities nearly occupy the same location or are co-located. Information on these facilities is layered. Clicking the same spot repeatedly cycles through these layers to reveal information about each specific facility.

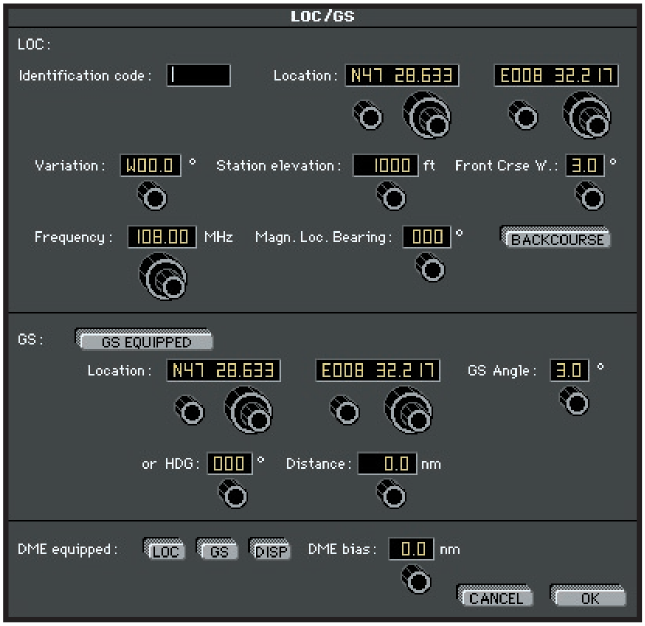

NDB
Identification code :
Location :
N47 28.633
E008 32.217
Variation :
W00.0
°
Station elevation :
1000
ft
Frequency :
350.0
KHz
CANCEL
OK


MARKER
Type :
OUTER
MIDDLE
INNER
AIRWAY
TERMINAL
Identification code (Awy/Term) :
Location :
N47 28.633
E008 32.217
Variation :
W00.0
°
Station elevation :
1000
ft
Orientation :
000
°
CANCEL
OK


FIX
Identification code :
Location :
N47 28.633
E008 32.217
Variation :
W00.0
°
CANCEL
OK


TRACK
From: N47 28.633 E008 32.217
To: N47 28.633 E008 32.217
or True HDG: 000 °
Distance: 0.0 nm
CANCEL
OK


RUNWAY
Runway Identification:
Airport ID:
Magn.Rwy.Bearing: 000 °
L
C
R
Rwy ID: 36
Location: N47 28.633 E008 32.217
Variation: W00.0 °
Station elevation: 1000 ft
Width: 150 ft
Length: 10000 ft
Displ.THR: 0 ft
Lighting Systems:
CENTRELINE
PAPI 3.0 °
VASI
ALS:
BASIC
ALSF-1
CALV-1
SSALF
ALSF-2
CALV-2
REIL
EFAS
Opposite Rwy:
Rwy ID: 18
Displ.THR: 0 ft
Lighting Systems:
ALS:
BASIC
ALSF-1
CALV-1
PAPI 3.0 °
SSALF
ALSF-2
CALV-2
VASI
REIL
EFAS
CANCEL
OK


LOC/GS
LOC:
Identification code:
Location: N47 28.633
E008 32.217
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 32.217
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 32.217
Variation: W00.0 °
Inbound course: 000 °
Turn direction:
LEFT
RIGHT
Leg length: 2.8 nm
Turn radius: 1.5 nm
CANCEL
OK

SOFTWARE ISSUES

Is ELITE a Windows native or 32-bit program?

Yes. The ELITE is a true Windows native 32-bit program and is fully compatible with Windows 95/98/Me/NT4/2000/XP. The ELITE software uses standard Windows file open and save file boxes and other Windows native features such as Direct Sound, Direct Input, and Multi-monitor support.

What does being a Windows native program mean?

It only means that the software will support the latest features of the Windows operating system, allowing for better compatibility with computer hardware, support for new operating system features, and easier installation, setup, and program navigation.

Serial Numbers Do Not Match:

The UCI/USB key and the software are encoded with the same serial number. If they do not match you will receive a warning message. Check the bottom of the UCI/USB key and the Diskette to see if they match. Also check the bottom left corner of the program startup screen for the serial number of the program and use the Hardware COM port test from the Configuration screen in the program to determine the actual serial number of the UCI/USB key. If these numbers do not match, please contact your dealer immediately.

Bad Disk:

If there is an error in reading the diskette or CD is physically damaged, please contact your dealer for a replacement. Diskettes are thoroughly tested prior to shipping. However, they store data magnetically. If exposed to extreme temperatures or other magnetic fields, they can be damaged. Please make backups of any diskettes and store them in a safe place.

Aircraft Selection Menu:

When starting up the program and you do not get the Mini Pictures for selecting the aircraft, then the resolution of the Desktop area is not set to 800 x 600 or 1024 x 768. Change the Display Properties (Windows) to the proper resolution.

Navigation Data Selection:

If you receive an error in opening navigational database, then the serial number of the navigational database does not match the program or the file is corrupted. Please contact your dealer immediately.

HARDWARE ISSUES

What does it mean that ELITE supports Multi-monitor capability?

Although not a requirement to run ELITE, the multimonitor capability allows for setting up a separate instructor's station on an additional monitor attached to the one computer equipped with two video cards. The use of the second monitor allows the ELITE program to display the Map, Weather, and Control pages on one screen, while the other screen is dedicated to the instrument panel. By doing this, it allows an instructor to monitor a persons flight path, give "radar" vectors, invoke failures, and change weather all with out stopping and interrupting the students flight.

What flight control devices (sticks/yokes/rudders) are compatible with ELITE?

Just about any stick, yoke, or rudder pedals that are recognized by the operating system, Windows or Mac, will be compatible with the ELITE Prop v6.1 program. ELITE uses Direct Input from the Windows operating system and Gamesprockets from the Macintosh operating system to interface with controls plugged into the IBM gameport, Mac ADB port, or IBM/Mac USB ports. ELITE also has the ability to use a wide variety of other advanced control devices, such as Throttle Quadrants, Flight Consoles, and Avionics Panels by using the ELITE UCI box that comes with every ELITE software program.

What is a UCI box?

The UCI (Universal Controls Interface) box is part of every ELITE software package. This device plugs into a standard serial port on an IBM compatible or Macintosh computer (UCI can also be connected to a USB port by utilizing a USB serial adapter). The UCI has several control ports to allow for advanced flight control devices such as Throttle Quadrants, Flight Consoles, and Avionics Panels to plug into it. The

UCI box handles the communication between the ELITE software and the multichannel/multifunctional hardware devices though the use of the processor inside the UCI box. This is all done with out having to configure or install any additional drivers or software. You only need to plug these devices into the UCI box, then the next time you start up the ELITE program, it will automatically be configured to work with the ELITE program. The UCI box even has standard IBM compatible gameports on it allowing the use of standard IBM compatible yokes and flight stick to be used with ELITE on Macintosh computers.

Can I use the digital flight consoles, avionics panels, and throttle quadrants with other flight sims?

The avionics panels and digital flight consoles operate with the ELITE software only. The throttle quadrants may operate with a few other programs, if those programs can interface with a device using an EPIC card.

How do I connect flight controls to my computer?

Yokes, joysticks, and rudder pedals can be plugged directly into the computer's gameport (IBM), ADB port (MAC), or USB port (IBM or MAC) depending on the connection(s) required by each. Components such as throttle quadrants, flight consoles, and avionics panels require the use of the ELITE UCI box that is included with each main ELITE software package (see What is a UCI? above). The UCI box plugs into a standard serial port on an IBM or MAC computer. For more detailed connection information please refer to the ELITE Hardware Installation Manual.

OTHER Startup and Installation issues: UCI Failure:

If you have an UCI without green and yellow LED lights and you suspect that it has failed, you can send your UCI to the publishers, Elite Simulation Solutions FL, USA or Initiative Computing Switzerland, for testing.

NOTE: Greater than 95% of all UCIs sent to us for testing are OK. The majority of the problems are caused by an improper configuration of the computer. Please check the Trouble Shooting COM/Serial Port before requesting the UCI to be tested.

If your UCI's yellow LED light stops flashing or is solid yellow, try resetting the power to the UCI. It is normal for the UCI yellow light to stop flashing if cables are being plugged into or removed from the UCI or if the UCI power is disconnected. It is best for the UCI to remain on continuously. If these conditions are permanent, then you will have to return the UCI to the publisher for replacement or repair. Call the publisher prior to returning the UCI.

Serial Numbers Do Not Match:

The UCI and the software are encoded with the same serial number. If they do not match you will receive a warning message. Check the bottom of the UCI and the Diskette to see if they match. Also check the bottom left corner of the program startup screen for the serial number of the program and use the Hardware COM port test from the Configuration screen in the program to determine the actual serial number of the UCI. If these numbers do not match, please contact your dealer immediately.

ERROR MESSAGES

"DISK FULL"

Hard drive space required not available.

Need to free up hard drive space.

INSTALLATION STARTING IN "DEMO" MODE

Floppy disk not detected, or defective.

Insert or replace floppy disk.

PROGRAM FREEZES ON INSTALLATION

Another application is halting the installation.

End all pending tasks (CTRL +ALT+DEL).

"NOT ENOUGH MEMORY"

Computer does not have enough resources.

Restart CPU or free up more resource.

"RESOLUTION ERROR"

Elite requires a display set to 1024 x 768 resolution.

Need to change your screen resolution.

"NO OPEN GL SUBSYSTEM"

Elite can't display graphics.

Need to install an Open GL capable video card or latest drivers of your current video card.

"NO ELITE CONTROL DETECTED"

Control Interface or USB Key not detected.

Check UCI for correct connection and reset power if necessary. Check USB key for correct connection; also verify that the drivers for the key are installed.

"ELITE SERIAL NUMBER MISMATCH"

Elite serial number not the same.

Check physical number on the software to the one on the USB key or UCI to be the same. (If not contact support dept.)

"ERROR IN LOADING INSTRUMENT PICTURES"

Problem in the memory configuration (MAC ONLY).

Allocate at least 15000K/25000K of memory to Elite.

AVIONICS PANEL NOT DISPLAYED ON INSTRUMENT PANEL

External avionics selected on digital mode.

Select non-digital avionics on the Configuration Page, then save and restart program.

THROTTLE QUADRANT NOT DISPLAYED ON SCREEN

Hi-resolution instrument panel will not display quadrant.

Select an 800 x 600 resolution aircraft instrument panel.

CONTROLS DO NOT OPERATE CORRECTLY

Controls are not properly calibrated.

Re-calibrate controls in the Configuration Page (Under calibration section).

SOUND NOT WORKING PROPERLY

Direct X drivers possibly corrupted.

Need to install latest version of Direct X. (www.microsoft.com/directx)

LOC I-CMI	APP CRS		
109.1	316°	Rwy ldg	8100
		TDZE	749
		Apt Elev	754

ILS RWY 32R

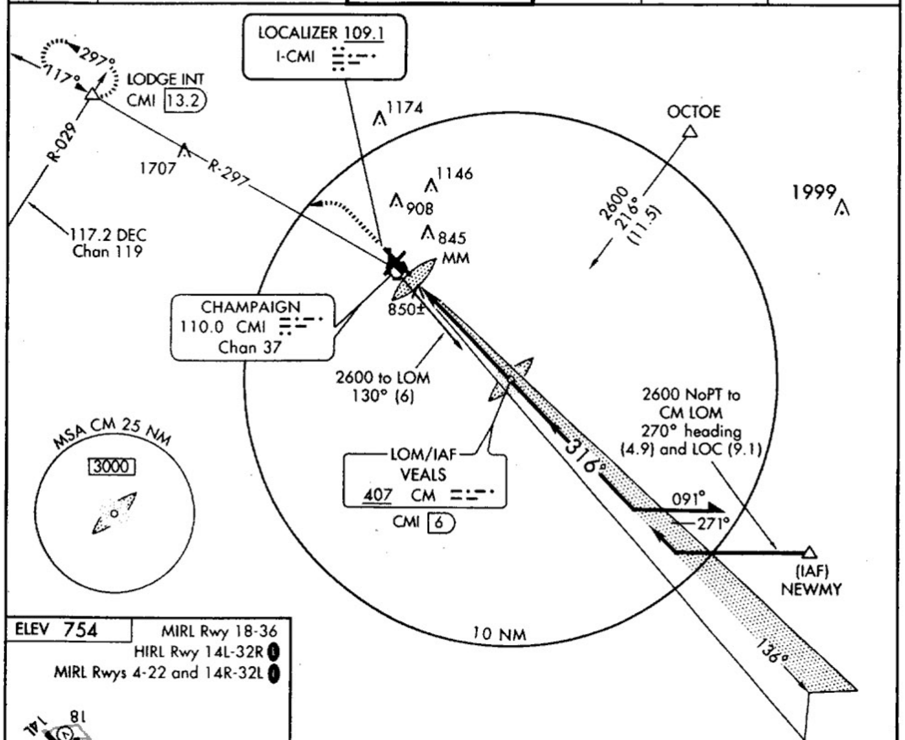
CHAMPAIGN-URBANA/UNIVERSITY OF ILLINOIS-WILLARD (CMI)

ASR

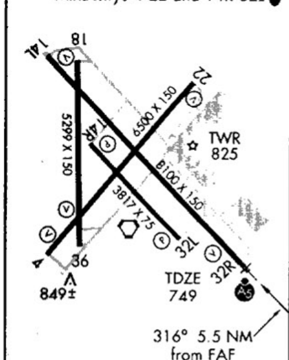
MALSR

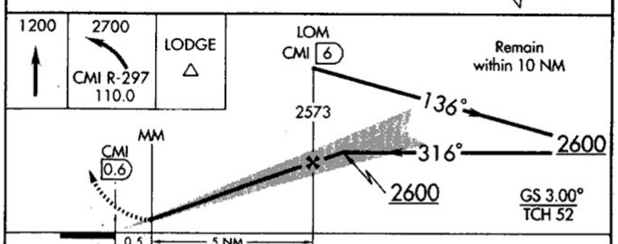
MISSED APPROACH: Climb to 1200, then climbing left turn to 2700 via CMI R-297 to LODGE Int and hold.

ATIS	CHAMPAIGN APP CON ★	CHAMPAIGN TOWER ★	GND CON	CLNC DEL	UNICOM
124.85	121.35 285.65 (316°-135°) 132.85 291.0 (136°-315°)	120.4 (CTAF) 229.4	121.8	128.75	122.95



ELEV 754	
	MIRL Rwy 18-36
	HIRL Rwy 14L-32R
	MIRL Rwys 4-22 and 14R-32L

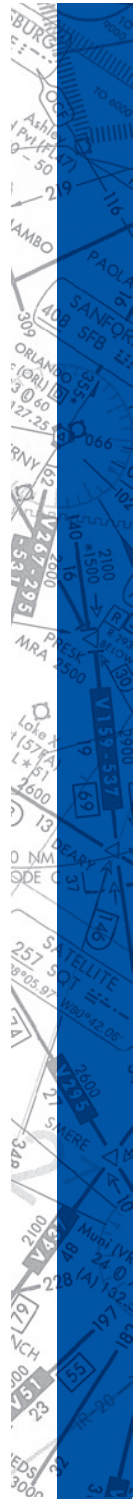




CATEGORY	A	B	C	D
S-ILS 32R	949/24 200 (200-½)			
S-LOC 32R	1100/24 351 (400-½)			1100/40 351 (400-¾)
CIRCLING	1160-1 406 (500-1)	1220-1 466 (500-1)	1220-1½ 466 (500-1½)	1320-2 566 (600-2)

FAF to MAP 5.5 NM

Knots	60	90	120	150	180
Min:Sec	5:30	3:40	2:45	2:12	1:50



Trimble 2000 Approach Plus
Quick Reference Card

The following principles apply to all Navigator functions:

SMALL, INNER SELECTOR KNOB

Use the small, inner selector knob to:

- Scroll thru Primary pages and top lines of displayed mode.
- Change alphanumeric or available option/function of any editable field.

LARGE, OUTER SELECTOR KNOB

Use the large, outer selector knob to:

- Scroll thru Flight Plan legs, Secondary pages and bottom lines of displayed mode.
- Move flashing cursor between editable fields on page.

-D->

(1st press) Selects displayed Waypoint, Procedure, or Flight Plan for activation.

(2nd press) Activates course steering as selected (escape provided by any other key).

ENT

(1st press) Opens any editable field on displayed page.

(2nd press) Accepts entered data.

MSG

View 1 message per press.

(The Message key will flash until all messages have been viewed.)

Press Mode key multiple times to select desired category/function. Hold for >2 seconds to return to Primary page of mode. When the unit is first turned on, category/function will display in the following order:

NAV

(1st press) Primary Navigation
(2nd press) Waypoint Information

WPT

(1st press) Airport
(2nd press) Approach
(3rd press) SID
(4th press) STAR
(5th press) VOR
(6th press) NDB
(7th press) Intersection
(8th press) User

CALC

(1st press) Flight Plan/Fuel
(2nd press) Air Data
(3rd press) Save Present Position

FPL

(1st press) Active Flight Plan
(2nd press) Active Leg, BRG, Distance & ETE

FPL

(3rd press) Stored Flight Plan(s)
(4th press) Stored Leg, BRG, Distance & ETE

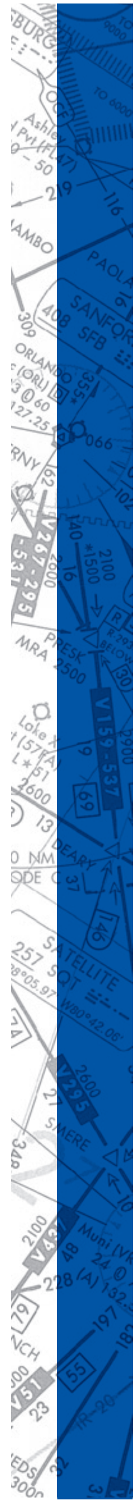
AUX

(1st press) Checklist
(2nd press) System Status
(3rd press) Sensor Status
(4th press) Configure
(5th press) Install

NRST

(1st press) Nearest Airport
(2nd press) Nearest Approach
(3rd press) Nearest VOR
(4th press) Nearest Agency
(5th press) Nearest NDB
(6th press) Nearest Intersection
(7th press) Nearest User

The knob symbols (◉ Inner knob, ● Outer knob) apply for all pages following.



Selection of APPROACH/SID/STAR:

WPT

* APPROACH ** SID ** STAR *

```
SFOa <VOR B      >APR
IAF/TRAN: SAU
```

◉ Selects APR/SID/STAR for displayed Airport.

● View legs of selected procedure

Press ENT to edit Transition:

Airport or procedure

- ● Place flashing cursor on field to edit
- ◉ Change data in edit field

Press ENT to complete selection.

To activate APPROACH/SID/STAR:

WPT

* APPROACH ** SID ** STAR *

```
EUGa <VOR 34      >APR
IAF/TRAN: D130N
```

◉ Select Approach/SID/STAR

ENT ◉ To select transition

Press ENT to complete selection.

● Turn to desired leg

Press -D-> to join above selected leg

● One click counterclockwise to go direct to *FROM* Waypoint

◉ If desired, select course to the *FROM* Waypoint

-or-

● One click clockwise to go direct to *TO* Waypoint

◉ If desired, select course to the *TO* Waypoint

Press -D-> to activate.

Approach Flow:

At 30nm from Destination Airport, Approach Enabled message will appear.

```
APPROACH ENABLE? ENT
BARO: 30.12 CDI: ±5.0
```

The barometric setting field will flash. Enter barometric setting.

◉ Change data

● Change edit field

Press ENT to complete selection.

CDI Sensitivity

En route sensitivity is 5 nm. Within 30 nm of departure or destination airport, it is 1 nm. At 3 nm from the FAF, it is 0.3 nm.

At 2 nm from Final Approach Fix, APR annunciator comes on.

CAUTION:

If Approach annunciator is not lit;

— **DO NOT DESCEND**

— **COMPLETE MISSED APPROACH**

At Missed Approach Waypoint, HLD annunciator comes on.

To execute Missed Approach:

Press -D-> once to enable.

Press -D-> second time to activate.

NAV

Primary NAV Page 1

```
LAXa 120° 143nm 0:34
[··|o····] 124° 250°
```

Available top line displays:

- ◉ TO Waypoint name
- ◉ TO Waypoint ETE and ETA
- ◉ HDG, TAS, Wind
- ◉ HDG, TK, Drift Angle
- ◉ DTK, Fly left or right to correct XTK error, XTK error
- ◉ MSA and MESA
- ◉ TKE graphic, DTK and Dist. to the TO Waypoint

Available bottom line displays:

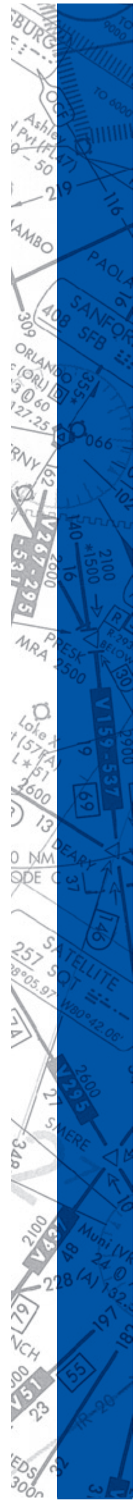
- ● CDI, TK, GS
- ● HDG, TAS, Wind
- ● HDG, TK, Drift Angle
- ● MSA and MESA
- ● TO Waypoint ETE and ETA
- ● DTK, Fly left or right to correct XTK error, XTK error
- ● Advisory Waypoint range and BRG

Press NAV and hold for >2 seconds. The Primary NAV Page is displayed.

To access waypoint information from the NAV mode, press NAV.

◉ Displays Flight Plan Waypoints

● Displays Waypoint information



To access Waypoint functions:

Press WPT to select appropriate category.

WPT

*** AIRPORT ***

```
SFOA 313° 243NM ClsB
SAN FRANCISCO     CA
```

- ◉ Scan Airports
- ● City
- ● Name
- ● Frequencies
- ● Elevation
- ● Lighting
- ● Runway Information
- ● Position

WPT

*** APPROACH ***

```
SFOA<VOR B       >APR
IAF/TRAN:SAU
```

- ◉ Scan APRs for displayed airport
- ● Approach CRS to FAF
- ● Direct To FAF
- ● IAF/TRANS
- ● Approach legs

WPT

*** SID ***

```
SFOA<CUIT1       >SID
RWY:01  TRAN:CICv
```

- ◉ Scan SIDs for displayed airport
- ● SID TRANS
- ● SID legs

WPT

*** STAR ***

```
SFOA <BSR1       >STR
TRAN:BSRv
```

- ◉ Scan STARs for displayed airport
- ● STAR TRANS
- ● STAR legs

WPT

*** VOR ***

```
SGDv  219°  893NM
NAPA               CA
```

- ◉ Scan VORs
- ● City
- ● Name
- ● VOR Frequency
- ● Code
- ● Position

WPT

*** NDB ***

```
FN      277°  495NM
FARALLON ISLAND    CA
```

- ◉ Scan NDBs
- ● City
- ● Name
- ● Frequency
- ● Code
- ● Position

WPT

*** INTERSECTION ***

```
TWAIN:063°1358NM
REGION:NORTH CENTRAL
```

- ◉ Scan INTs
- ● Region
- ● Position

WPT

*** USER ***

```
TRMBLu196°  116NM
37°23510N122°06490W
```

- ◉ Scan USER
- ● Position
- ● Edit
- ● Erase
- ● Add new Waypoint

Navigator will store 40 FPLs with 40 WPTs per FPL. Limit 400 WPTs.

ACTIVE FLIGHT PLAN MODE

FPL

```
LAXA   -→PHXA     325NM
LEG 2:  PDZv   PSPA
```

Flight Plans are arranged in alphabetical order by destination.

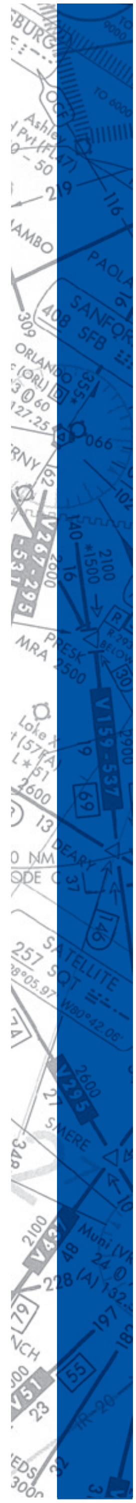
- ◉ or ● Sequences thru Active Flight Plan legs
- ● Cancel active flight plan

Hold FPL >2 sec returns to active Flight Plan.

STORED FLIGHT PLAN MODE

FPL FPL

- ◉ or ● Sequences through Stored Flight Plans
- ● Sequences through Stored Flight Plan legs
- ● Reverse FPL
- ● Erase FPL



(FLIGHT PLANNING continued:)

ACTIVATING A FLIGHT PLAN

[FPL] to Stored FPL

- Select desired Flight Plan
- Select desired leg in bottom line

[-D->]

Join Leg Page

Press [-D->] to complete selection.

— OR —

[-D->]

Join Leg Page

- Direct to *From* Waypoint
- Select course to *From* Waypoint

Press [-D->] to complete selection.

— OR —

[-D->]

Join Leg Page

- Direct to *To* Waypoint
- Select course to *To* Waypoint

Press [-D->] to complete selection.

TO CANCEL ACTIVE FLIGHT PLAN

[FPL]

or To cancel

Press [ENT] to complete cancelation.

— OR —

Also, current active Flight Plan can be canceled by selecting another Flight Plan.

— OR —

Select a Direct To to a new destination from WPT or APT/VOR

EDIT/ADD NEW FLIGHT PLAN

[FPL] to Stored FPL

- Add new Flight Plan

ENTERING WAYPOINTS TO FPL

[ENT]

```
ADD NEW FLIGHT PLAN
start +ASJC  -end
```

- Waypoint category A - Airport
- APRCH - Approach
- SID
- STAR
- V - VOR
- N - NDB
- I - Intersection
- U - User
  - Changes EDIT cursor
  - Changes data

Press [ENT] to add Waypoint.

— OR —

If Identifier not known;

[WPT] To desired category

[ENT] Edit IDENT/CITY name

- Move EDIT cursor
- Change data

[ENT] To stop EDIT

[FPL] To place Waypoint in Flight Plan

[CALC]

*** FLIGHT PLAN/FUEL ***

```
FPL GS 160KT ETE 1:11
 DIST  191NM ETA 9:25
```

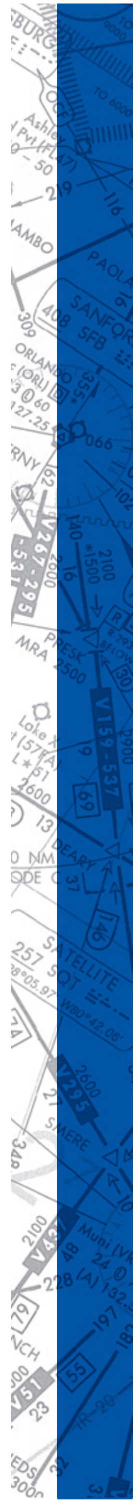
- Time, Distance & Speed
- Fuel Management
- Fuel Remaining
- Fuel At Arrival
- Total Fuel Used
- Engine Fuel Flow

[CALC]

*** AIR DATA ***

```
PRESSURE ALT     112FT
BR 3032 IND ALT  116FT
```

- Pressure Altitude
- Density Altitude
- True Airspeed
- Winds Aloft
- Crosswind & Headwind



AUX

*** CHECKLIST ***

(See Section 8.1 of the Pilot Guide for data on the Checklist Function)

AUX

*** SYSTEM STATUS ***

```
FRIDAY   28-FEB-94
14:28:53z  PST 06:29
```

- Date/Time
- Present Position
  - Altitude Source
  - Current Altitude
- Voltage/Temperature
  - Crystal/Memory Battery
  - Antenna Voltage/Current
- Database Expiration
- Software Revision
- System Code

AUX

*** SENSOR STATUS ***

```
GPS: 3D/BARO     RAIM
MODE: APR    PDOP: 16
```

- GPS Mode
  - Estimated Accuracy
  - Satellites Tracked
  - Satellite Data
  - Reset GPS Sensor
- Satellite Availability
- Approach RAIM Availability

AUX

*** CONFIGURE ***

```
PARALLEL OFFSET:
 2.0NM RIGHT
```

- Parallel Offset
- I/O Interface Check
- Dead Reckoning/Demo
- Install and Test Setup
  - Display Diagnostic

AUX

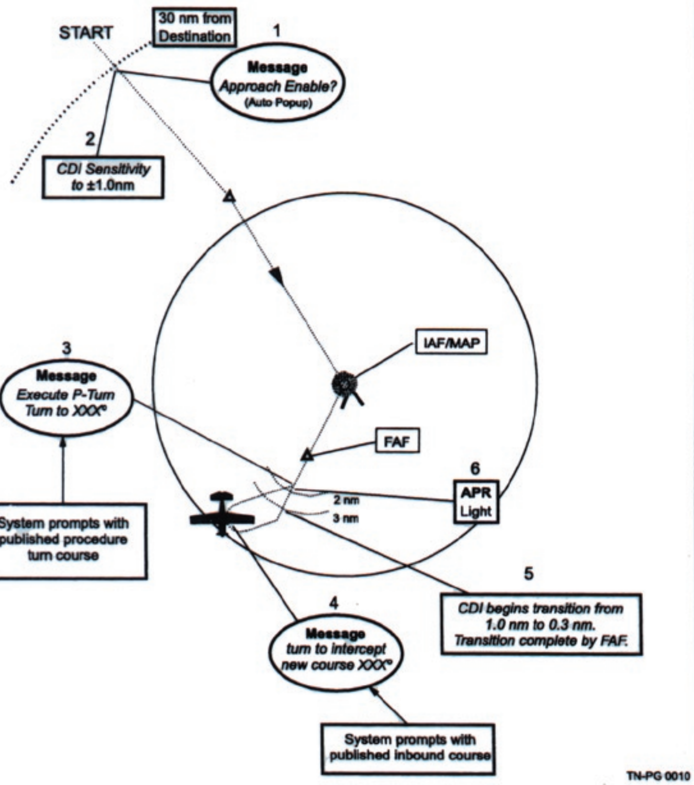
*** USER SETUP ***

(if enabled)

```
SEARCH REGIONS: sw
CA  NV  AZ  UT  CO
```

- Database Search Regions
- Airwatch™
- Safeguard™/Personal Message
  - Safeguard™
  - Personal Access Code
  - Create Personal Message
- Save/Load Configuration
  - Save via RAM Card
  - Load via RAM Card
  - Save via Serial Port
  - Load via Serial Port

Approach Messages and Annunciators



Trimble

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