TBD

FLIGHT

Getting Started with FLIGHT

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Operating Systems:	**VMS Version 5.1**
Software Version:	**FLIGHT Version 2.2**

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1

Using the Simulator

This chapter introduces FLIGHT, an interactive, realtime aircraft simulator, which runs on Digital's family of VAXstations. There are many things you can do with FLIGHT once you learn how to use the simulator, but this document, *Getting Started with FLIGHT*, introduces only the things you need to know to run the simulator.

More advanced features, such as creating your own aircraft and using the FLIGHT hangar compiler are discussed in the *FLIGHT Reference Manual.*

This document assumes that you have installed FLIGHT as described in the FLIGHT Installation Notes. If you have not installed FLIGHT yet, see the *FLIGHT Installation Guide.*

Getting Help

Before you start the simulator, it is important to know where you can find helpful information when you have any questions about FLIGHT's operation.

To get a complete description for the simulator command at any time, type the following command at the dollar sign:

```
$ HELP FLIGHT/SIMULATOR
```

Appendix A of the *FLIGHT Reference Manual* contains a complete description of the FLIGHT/SIMULATOR command also.

Beginning to fly

Since FLIGHT is controlled entirely by you, the best way to learn about it is to use it. This is just a test run, so you can see the simulator's capabilities. For this test run, you will fly the Ultralight, a small, simple, maneuverable aircraft, up in the air and then you can do as you like, testing the different controls and movements. For this flying session, assume that you are not going to land the Ultralight anywhere.

Using the FLIGHT Keypad Reference Card

Most of FLIGHT's function are controlled by the editing and numeric keypads located on the keyboard. Keys F1 through F20 are also used for FLIGHT functions.

Before you begin your test run, make sure you have the *FLIGHT Keypad Reference Card* at your side. You are not expected to rely on it for your demonstration flight as the instructions contain all the directions you will need, however, it is useful to familiarize yourself with the keypad reference card for future use.

The following flying simulation will refer to those keyboard commands. The *FLIGHT Keypad Reference Card* lists the keyboards and the commands associated with them.

For information about keyboard operations, see *Using the FLIGHT Keypad Reference Card* in Chapter ???

Using the Keyboard to Control the Simulator

Each keypad, the numeric (which includes keys F17 through F20) and editing, has a set of default functions. In addition, the numeric keypad has three keys, PF1 PF2, and PF3, called the GOLD, BLUE and SILVER keys respectively which when combined with additional keys on the editing and numeric keypads create four more keypads -- the GOLD (numeric and editing), Pilot View, and Alternate View keypads. Thus, FLIGHT has six keypads that you can use to control your aircraft and the simulator.

For example, on the default keyboard, . is the keyboard equivalent for the simulator function **Weapons Arm Toggle**; that is, when you press . once, your aircraft's weapons are armed. When you press it again, the weapons are disarmed.

Starting the Simulator

To start the simulator (in a DECterm window) type the following command:

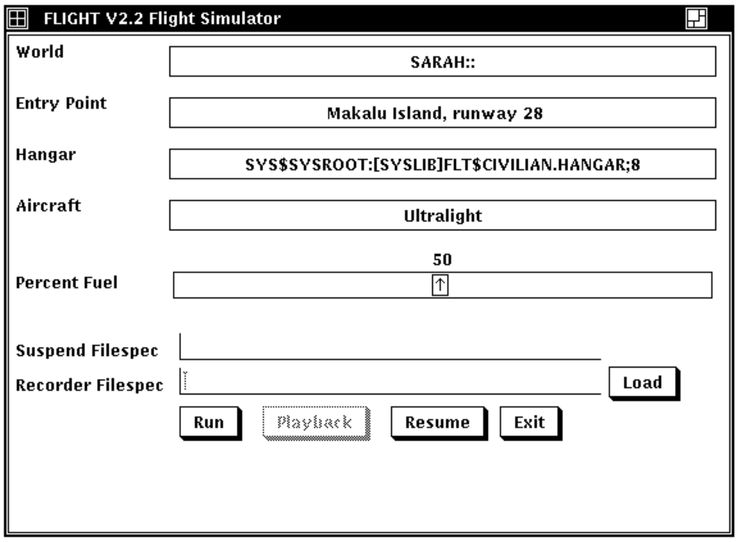
```
$ FLIGHT/SIMULATOR
```

When you start the simulator, FLIGHT displays some informative messages. For example, you might see messages similar to the following:

```
%FLT-I-VERSION, FLIGHT V2.2
%FLT-I-NUMOBJREA, Read 9 objects from the hangar file
%FLT-I-NUMINSREA, Read 89 instruments from the hangar file
%FLT-I-CONNECTING, Connecting to server node SARAH::
%FLT-I-CONNECTED, Connection completed successfully
```

Then FLIGHT displays the Flight Simulator dialog box. Figure 1-1 shows the Flight Simulator dialog box.

Figure 1-1 Flight Simulator Dialog



Using the dialog box, you can specify the FLIGHT server (the node from which you want to run FLIGHT), the entry point (the runway you want to use), the aircraft hangar, the aircraft in the hanger you want to fly, and the amount of fuel you want when you take-off.

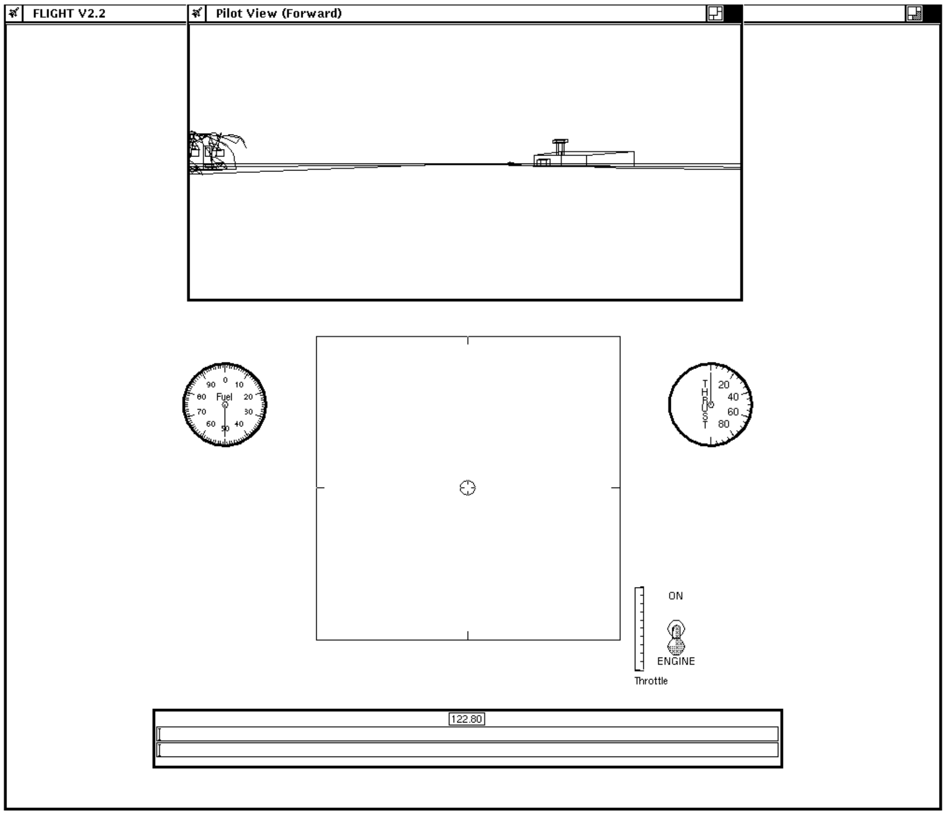
FLIGHT's simulator has three modes of operation: Run, Playback, and Resume.

For more information about each option in the dialog box see Chapter 2.

You will not need to change any of the dialog box fields now, because you will enter the simulator using the defaults as they appear in the dialog box fields.

Take a deep breath, fasten your seatbelt, put on your goggles and scarf, and click MB1 on the **Run** button in the dialog box.

The dialog box disappears and a large window appears covering most of your screen.



It might seem that the simulator has taken down all your other windows. That is not the case.

If you really get nervous and decide you are not ready for your first solo flight, you can activate your parachute and exit from the simulator. Press [-] just to see how easy it is to leave the simulator.

After you press [-], FLIGHT removes the two windows on the screen and redisplays the FLIGHT Simulator dialog box. To return to the DCL command line, click MB1 on the **Exit** button.

Return to the simulator using the procedure mention earlier, so you can begin to fly.

Exploring the FLIGHT Environment

After you enter the simulator again, the larger window called the **Instrument Panel** and the smaller window with the scene in it called the **World View Window** return on the screen. The windows on the screen simulate the FLIGHT environment. The World View Window, which is titled **Pilot View (Forward)**, displays a picture of a scene which constantly changes to reflect the motion of your Ultralight. Currently, the scene depicts the view outside the front of your Ultralight, because you are now inside its cockpit.

As long as the window is on the screen, you see the current view of the world. Viewing modes allow you to look around while you fly while watch yourself from a third-person perspective, and zoom in and out to see how you are flying.

The Instrument Window is the large window that covers almost all of the screen. It does not cover the whole screen, so you can still get to the Session Manager by clicking the pointer on the workstation background not covered by the instrument window.

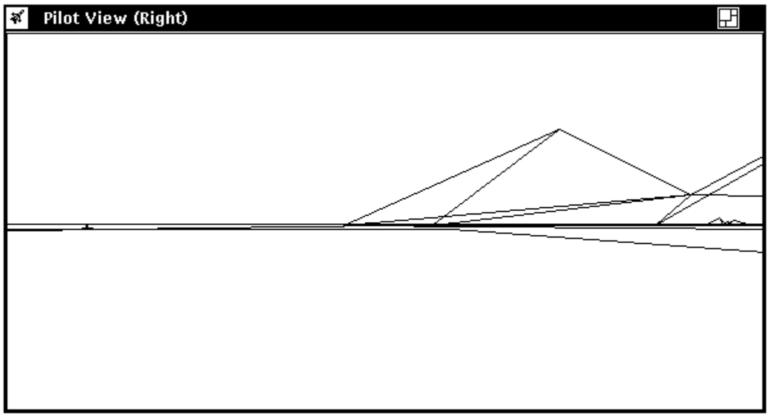
This window displays all the instruments for your Ultralight. The simulator updates the instruments in real time; that is, as you fly, the simulator updates the instruments to reflect the changes.

The two windows attempt to give the illusion that you are sitting in the cockpit of your Ultralight. Each aircraft available to you is designed by a different person, so the success of the illusion will vary from aircraft to aircraft.

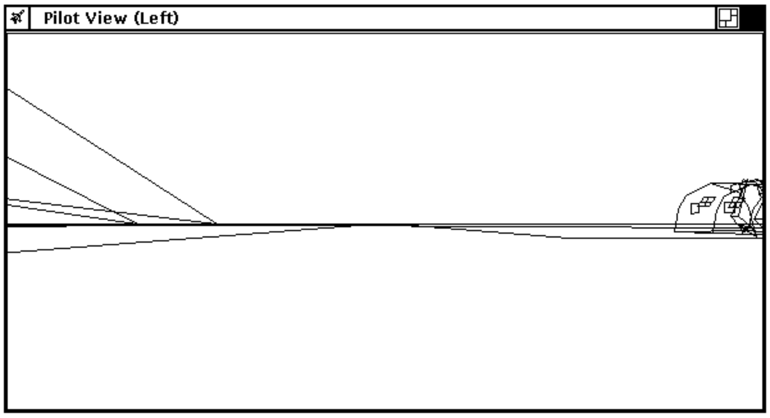
To use the World View Window:

1 Press PF1 then 6 to change the scene displayed in the window.

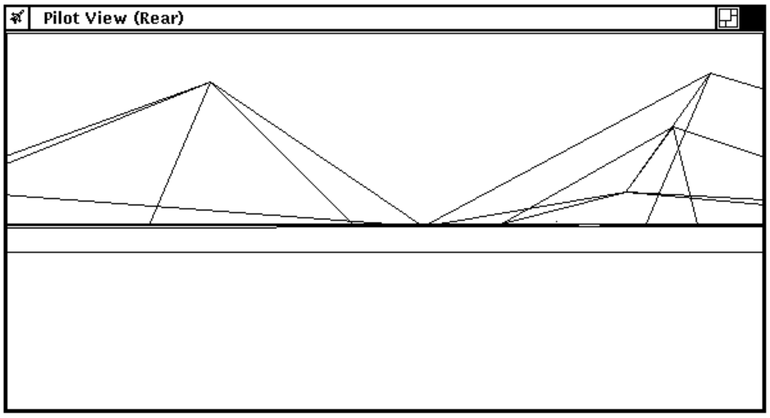
2 The title of window becomes **Pilot View Right**. The view shown is what is to the right of your Ultralight.



3 Press PF3 [then 4 to see what is to the left of your Ultralight.



4 Press PF3 2 to see what is behind your Ultralight.

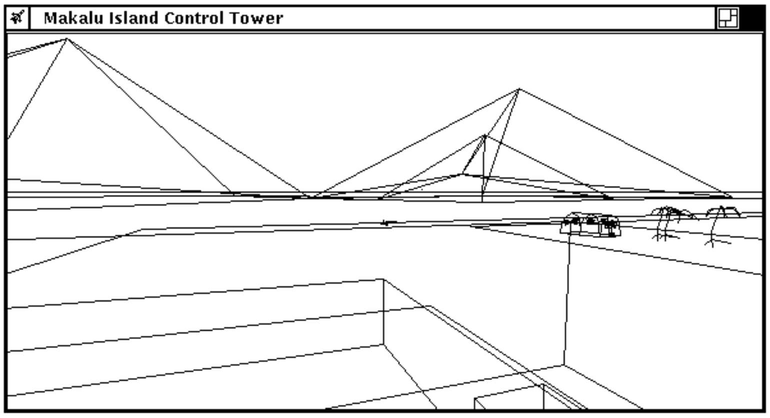


You might wonder how you appear to the rest of the world. To see the view of yourself in the Ultralight.

1 Press PF3 8 to return to **Pilot View Forward**.

2 Press PF1 7.

The scene changes.



3 Press Next Screen a few times.

This is a view of you in your Ultralight which is similar to someone filming you with a camera.

4 Press Prev Screen a few times to zoom out of the view.

It is time to start flying (*Oh no!*). You can do this while you watch yourself from the camera. This way, you might get a better feel for what is going on while you control your Ultralight. If you prefer, you can return to **Pilot View Forward** by pressing 7.

Preparing for Takeoff

To prepare yourself for takeoff:

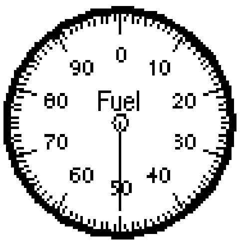
1 Turn on the engine by moving the pointer over the toggle labeled ENGINE and clicking MB1 on the word ON.

The toggle should move to the ON position.

2 The Ultralight's engine is started.

3 Look at the fuel gauge.

The fuel gauge is located below and to the left of the Pilot View window.



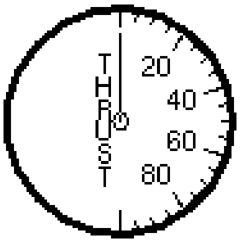
If you entered the simulator using the defaults in the FLIGHT Simulator dialog box fields, the needle on the fuel gauge should read that it is half fill.

If you want a full tank of fuel, exit from the simulator, and change the setting in the Fuel field on the FLIGHT Simulator dialog box.

At a later time, if you do not want to leave the simulator to refuel, you can refuel by pressing PF1 - when your Ultralight is stopped on the ground. You can receive only as much fuel as you did when you started the simulator. For example, suppose you started the simulator with your fuel tank half full. When you go to refuel, remaining inside the simulator, you can receive only another half full tank.

4 Check the Thrust gauge.

The Thrust gauge is located above and to the right of the control stick. It shows how much power (thrust) is produced by the Ultralight's engine.



The needle on the Thrust gauge should read zero at this point.

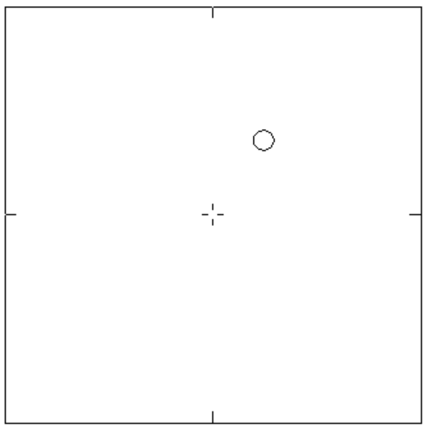
Using the Control Stick

You're not up in the air yet. So far, you've familiarized yourself with the controls and are sitting on the end of the runway with your engine running. *"Wait a minute"* you say. *"What's this box thing in the middle of the window?"* That's your control stick.

Using the mouse pointer, you can control two components of the Ultralight's motion; pitch and roll. Pitch is the motion that makes the Ultralight's nose appear to rise or sink. Climbing and diving are accomplished mostly through the control of pitch. Roll is the motion that makes the Ultralight roll (lower one or the other wing). Flying upside down can be accomplished mostly through the control of roll.

Note that turning is accomplished by both pitch and roll control.

The square box with the tick marks in the middle of the box and at the middle of the edges is the attitude control window.



The pointer (workstation arrow) in the control window allows you to control your Ultralight's movement.

To control the Ultralight:

1 Move the pointer inside the box.

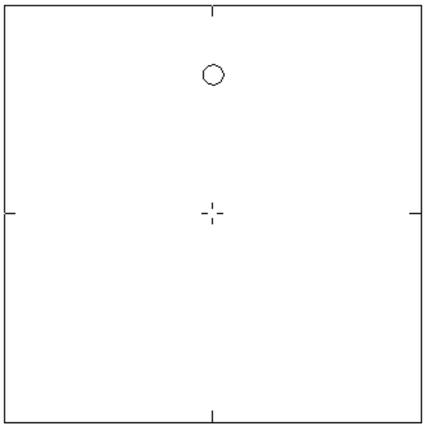
   Before you can move the control stick, you must unlock it. You do so by clicking MB1 while the pointer is in the control box.

2 Now as you move the pointer, a circle follows the pointer around.

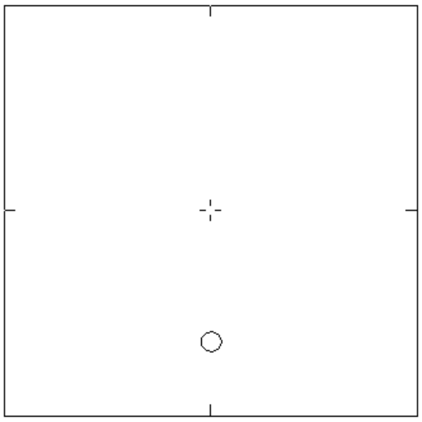
   Do not click MB1 while the pointer is in the box, or the control stick locks. If you lock the control stick by accident, click MB1 again and it will unlock.

3 Move the control stick in any direction by pushing the pointer in the desired direction.

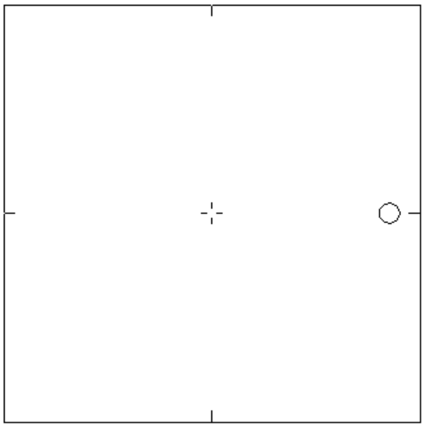
When you are flying and move the pointer above the center of the control box, the Ultralight will pitch forward (the nose drops).



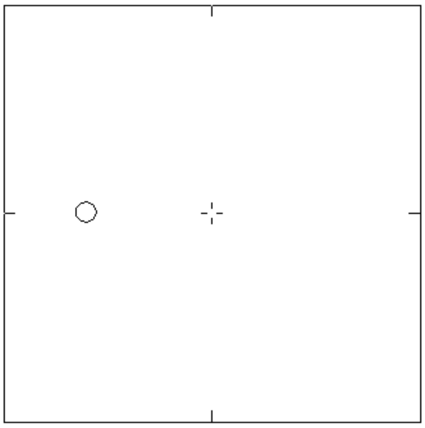
When you are flying and move the pointer below the center of the control box, the Ultralight pitches back (the nose rises).



When you are flying and move the pointer to the right of the center, the Ultralight will roll right (lower the right wing)



When you are flying and move the pointer to the left of the center, the Ultralight will roll left (lower the left wing).



If you combine left and right movements from the center or up and down movements from the center, your Ultralight both pitches and rolls.

While your Ultralight is on the ground and you do this, nothing will happen. When you get into the air and move the control stick as described above., you will see the effect it has on how your Ultralight flies.

You can also control stationary objects using the mouse. Some stationary objects are in the FLT$STATIONARY hangar. You can elevated and rotate a stationary object. Elevation is like looking up or down. Rotation is like turning your head to the left or right. Of course, the simulator allows you to continuously rotate or elevate in any direction, unlike your head.

The rates of motion are determined by the distance of the workstation pointer from the center of the control box. The further the pointer is from the center, the faster the eye will elevate or rotate.

Your engine is running and the control stick is active in the control box.

Taking Off

To takeoff:

1. Move the control stick slightly above the center of the control box, but make sure it is centered left/right.
2. Now you need to power up the engines using the thrust gauge, so you can move forward. You can control the engine power by using the up arrow and down arrow keys. If you press the up arrow key, you increase the engine's power. Similarly, pressing the down arrow key decreases the engine's power.
3. Press the up arrow key about 10 times to get the engine to full power.

   Your Ultralight begins to move slowly at first, but then it begins to accelerate.
4. Wait about 10 seconds until you pick up speed, then move the control stick slightly below the center of the control box.

   The Ultralight rises off the runway easily. Do not jerk the pointer around or you will quickly overcontrol the Ultralight and crash.

   If you are watching yourself from the camera view and the Ultralight seems small, use the Next Screen and Prev Screen keys to adjust the view.

You are flying! Enjoy!

If for no apparent reason, the windows disappear and the dialog box reappears on the screen, it means you have crashed. In this case, begin the simulator and try again.

If you can get off the ground successfully and remain airborne for more than a minute, you have taken your first step toward becoming a simulator fighter jockey or instrument-competent simulator pilot.

Remember that a simulator cannot substitute for real flying time. Simulator time can be valuable, but it is not a replacement for real experience. So don't think that you're ready for the real thing. That requires many hours of instruction both at the class level as well as with a flight instructor.

Receiving your wings

For a job well done, even if you crashed a few times, you have earned your FLIGHT wings.

Thank you for flying the friendly DIGITAL workstation skies.

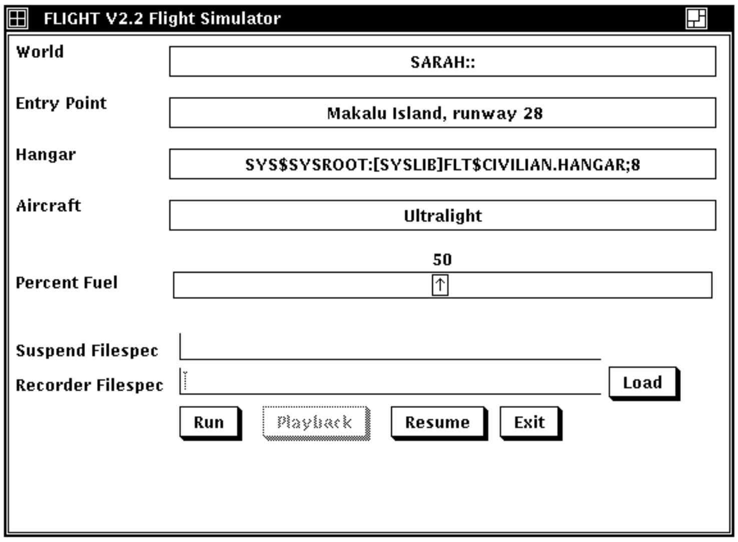
2

Understanding the Simulator Environment

In Chapter 1, you learned some basic information about the FLIGHT simulator and took a flying lesson. In this chapter, you will learn more about the simulator environment, controls, and customizing some of its features.

Introducing the Simulator Environment

Before you see the FLIGHT simulator on your workstation screen, the FLIGHT Simulator dialog box appears on your screen. As discussed earlier, you control many aspects of the simulator, such as entering, configuring, and exiting from the simulator, using the options on the dialog box.



Before you start the simulator, you choose the values for the World, Entry Point, Hangar and Aircraft you will use while in the simulator.

To change the value for a dialog box field:

1 Place the pointer on the box next to the field.

2 Press and hold MB1.

3 Choose a new value from the submenu and release MB1.

The new value appears in the field.

The items available on the submenus reflect the options you chose when you installed the simulator.

The default value for fuel is 50%.

To increase the amount of fuel:

1 Place the pointer on the arrow in the Percent Fuel field.

2 Press and hold MB1 and move the pointer to the right to increase the fuel percentage.

3 Release MB1 when you reach the amount of fuel you want.

Running a Simulation

Run allows you to start the FLIGHT simulator.

When you click on Run, you begin the FLIGHT simulator with the world, entry point, hangar, aircraft, and fuel capacity you entered in the Flight Simulator dialog box.

Playing Back a Simulation

Playback allows you to playback a interactive simulation that you recorded. You can record a flight and play it back.

To record a flight:

1 Click on Recorder Filespec: before you run the FLIGHT simulator.

2 Enter a file name for the flight recording.

3 Click on Load.

4 Click on Run.

The FLIGHT simulator begins.

5 Press [11] to begin the flight recording.

6 Fly as usual and exit from the simulator when you are finished recording the flying you want.

To playback a recording, click on Playback. FLIGHT plays the simulation back to you. Note that none of the flying controls work while FLIGHT plays back the simulation.

Resuming a Simulation

Resume allows you to resume a previously suspended simulation. You can suspend a simulation and resume it at another time.

To suspend a simulation that you are running, resuming, or playing back:

1 Press [PF1] [-] at any time during the simulation.

FLIGHT displays the Flight Simulator dialog box.

2 Enter a filename for the suspended simulation, then click on Suspend Filespec:, and enter a filename for the suspended simulation.

To resume a suspended simulation:

1 Click on Suspend Filespec:, and enter the file name of the suspended simulation.

If you do not enter a file name, FLIGHT saves the suspended simulation to SUSPEND.FLIGHT.

2 Click on Resume.

Exiting from the Simulator

Click on Exit to leave the Flight Simulator.

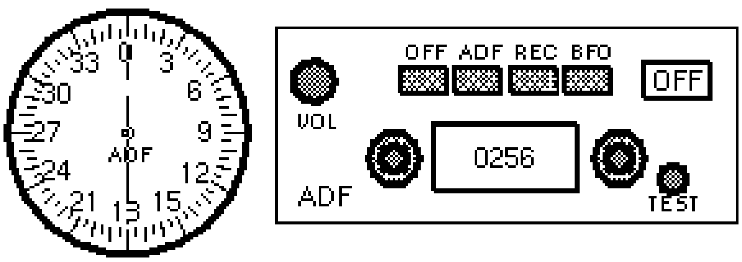
Using Other Aircraft Controls

In Chapter 1, you flew the Ultralight. You will notice as you fly aircraft other than the Ultralight from the Civilian hangar and others that the instrument panel will differ from aircraft to aircraft. This section discusses the use and operation of some of the instruments found in the Ultralight such as the radio, and instruments and instrument controls found in other aircraft such as the ADF console, the VOR receiver, and screen switches.

Using the ADF Console

The ADF console is a navigational instrument.

You can operate the ADF console using the mouse. Depending on the aircraft you are flying, usually one or more is present. The following ADF console is in the Cherokee 140 D which is from the Civilian hangar.

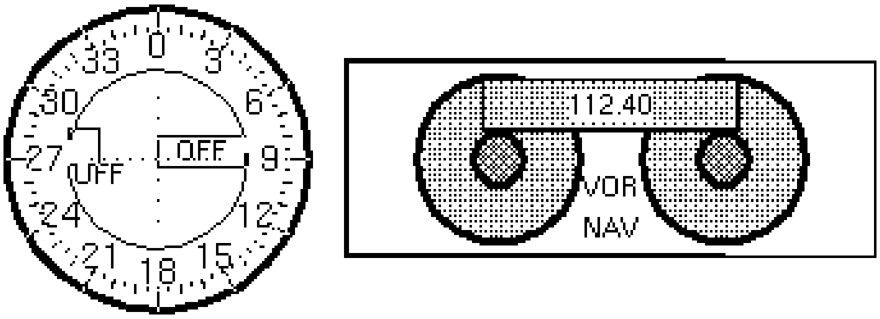


To control the frequency-readout, click MB1 on a number in the console which increments the number. Click MB3 on the number to decrement it. When the console frequency is tuned to an NDB in the world, and is within range, the ADF indicator needle shows the direction toward the NDB relative to the aircraft's heading.

Using the VOR Receiver

The VOR receiver is a navigational instrument.

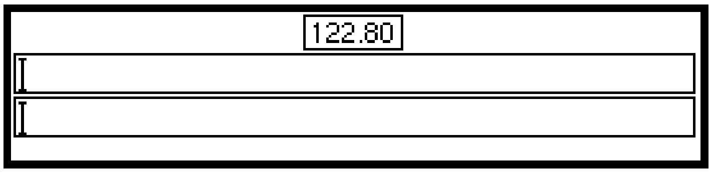
You operate the VOR receiver, both the console and the indicator, using the mouse, if one or more is present in the aircraft you are operating. The following VOR receiver is in the Cherokee 140 D which is from the Civilian hangar.



To control the frequency-readout of the VOR receiver, click MB1 on the number in the console to increment the number. Click MB3 on the number to decrement it. When the console frequency is tuned to a VOR in the world, and is within coverage range, you can use the VOR indicator needle to determine the azimuth of the vehicle relative to the VOR. (The VOR may also be tuned to ILS localizers.) To control the dial of the VOR indicator, called the Omni-Bearing Selelctor (OBS), you use the mouse also. If you click on the radial part of the OBS, the dial rotates to bring the postion that you click on to the top. The OBS setting is combined with the radio signal received by the VOR to determine the Course Deviation Indicator (the vertical needle) and the TO-FROM indicator display.

Using the Radio

If a radio is available in the aircraft you are operating, then a frequency readout appears at the top of it. The following radio is in the Cherokee 140 D available in the Civilian hangar.



The frequency you select determines whose radio transmissions you can hear. If you click MB1 on the frequency number, the number is incremented. If you click MB3 on the frequency number, the number is decremented.

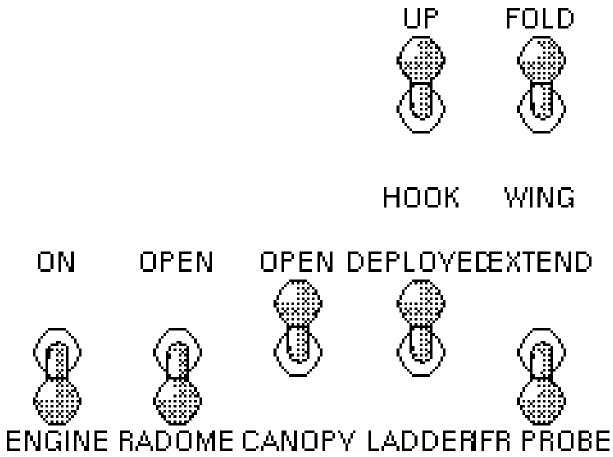
By typing on the keyboard, you can transmit on the radio. The radio echos and transmits what you type.

You can edit what you type by using the <x), Ctrl/J, Ctrl/U and Return keys for editing commands at the DCL level.

If other users transmit on your frequency and are using the same world server, their transmissions appear on the top line of your radio.

Using the Screen Switches

Some aircraft have switches that appear on the instrument panel. The following screen switches are in the F/A-18 Hornet located in the Modern Jet1 hangar.



To flip the swiches to an "on" or "off" position, use the mouse. Move the pointer to the side of the switch that you want that you want to toggle it to. Then click MB1 and the switch flips to the side you clicked on.

Make sure you click in the area the switch is located in, otherwise, the switch will not toggle. If you click MB1 on the side of a switch that is already on, it has no effect.

Customizing the Simulator

You can customize many different features of the FLIGHT simulator like hangar access, object simulation, keyboard definitions, graphic appearance of a plane, and world access.

Using Other Hangars

FLIGHT allows you to specify the hangars you want to use when you install FLIGHT, as well as the hangars you want to use when you run FLIGHT.

To specify the list of hangars FLIGHT displays when you choose Hangar from the Flight Simulator dialog box, create a text file that contains the filenames of all the hangars you want to use. You should place no more than one file name on each line, and each line in the file should have a file name on it. You can use wildcard characters in the file names.

For example, FLIGHT can access the hangars listed in the following file.

```
SYS$COMMON:[SYSLIB]FLT$CIVILIAN.HANGAR
SYS$COMMON:[SYSLIB]FLT$MODERN_JET*.HANGAR
SYS$COMMON:[SYSLIB]FLT$WW1.HANGAR
```

By default, the hangar specified by FLT$HANGAR, the server specified by the HANGAR qualifier when you start FLIGHT, and all the hangars in SYS$LIBRARY are listed. Therefore, you do not need to list those hangars in the file. However, if you do happen to list them more than once, FLIGHT will not display an error message.

Once you create this file, you must define the logical name FLT$HANGAR_LIST to point to it. When you start FLIGHT, it reads the file. Thus, when you choose Hangar from the Flight Simulator dialog box, Flight displays all the hangars in your file and defined by logicals. Thereafter, to change hangars, choose Hangar from the Flight Simulator dialog box to select any of the hangars.

When you start FLIGHT, FLIGHT attempts to load a hangar according to the following rules:

> If you specified the /HANGAR qualifier, FLIGHT attempts to load the hangar named by the qualifier.
>
> Otherwise, if the FLT$HANGAR logical is defined, FLIGHT attempts to load that hangar.
>
> Otherwise, FLIGHT does not load any hangar at startup and when you choose Aircraft from the Flight Simulator dialog box, the menu is empty. You must select a hangar before FLIGHT allows you to start a simulation.

FLIGHT organizes aircraft into hangars. Each hangar is stored in a single file with the default filename extension of HANGAR. Several hangars are provided with FLIGHT. You can select differnt hangars using the **Configure Simulator** option on the simulator's main menu.

When you start the simulator, however, one hangar is chosen by default. The system default is established at the time when FLIGHT is installed on your system. If you want to change the default for yourself, you can define the logical name FLT$HANGAR as the name of any valid hangar on your system:

```
$ DEFINE FLT$HANGAR MYDISK:[MYDIRECTORY]MYHANGAR.HANGAR
```

When you start the simulator, FLIGHT looks for the specified hangar.

You can add the list of hangars that appear on the **Change Hangar** submenu to it as well. You can define the logical name, FLT$HANGAR_LIST, so it points to a file containing the names of hangars which you want to include in the hangar list. You can use wildcards in your file specification. Every line in the file must contain a file specification; only one file specification is allowed on each line.

FLIGHT always includes the names of hangars found in SYS$LIBRARY, which is where FLIGHT places the default hangars at installation time.

If you place a file called FLT$HANGAR_LIST.DAT with the file specifications into your default directory, FLIGHT uses that file if you do not define the FLT$HANGAR_LIST logical.

Using Other Worlds

FLIGHT allows you to specify the world you will use when you install FLIGHT, as well as the world you will use when you run FLIGHT. You select a world by specifying the server that loads the world you want to use. Therefore, you can use different worlds by selecting different servers.

To specify the list of servers FLIGHT displays when you choose World from the Flight Simulator dialog box, create a text file that contains the filenames of all the servers you want to use. You should place no more than one node name on each line, and each line in the file should have a node name on it.

For example, FLIGHT can access the servers listed in the following file:

```
SARAH::
PIXEL::
ANVIL::
SCOOTA::
```

By default, the server specified by FLT$SERVER, the server specified by the SERVER qualifier when you start FLIGHT, and the local node are used. Therefore, you do not need to list those servers in the file. However, if you do happen to list them more than once, FLIGHT will not display an error message.

Once you create this file, you must define the logical name FLT$-SERVER_LIST to point to it. When you start FLIGHT, it reads the file. Thus, when you choose World from the Flight Simulator dialog box, Flight displays all the servers list in your file. Thereafter, to change servers, choose World from the Flight Simulator dialog box to select any of the servers defined in your file.

When you start FLIGHT, FLIGHT attempts to connect to the server according to the following rules:

1. If you specified the /SERVER qualifier, FLIGHT attempts to connect to the server named by the qualifier.
2. Otherwise, if the FLT$SERVER logical is defined, FLIGHT attempts to connect to that server.
3. Otherwise, if the SYS$NODE logical is defined, FLIGHT attempts to connect to that server which is the local node.
4. Otherwise, FLIGHT does not connect to any server at startup and when you choose Entry Point from the Flight Simulator dialog box, the menu is empty. You must select a server before FLIGHT allows you to start a simulation.

Simulating New Aircraft, Weapons and Instruments

You can define your own aircraft, weapons and instruments using the FLIGHT hangar compiler. In summary, a text file containing hangar commands that describe one or more objects is converted into a form that the simulator can use. Once this is done, you can fly the aircraft you created like you would any other. All of FLIGHT's aircraft, weapons and instruments present were developed this way.

For more information about object simulation and the hangar compiler, see Chapter ??? in the *FLIGHT Reference Manual*.

Defining Keyboard Functions

You can redefine nearly every key on the keyboard using a logical name, FLT$KEYMAP, that points to a text file holding the key definitions. FLIGHT provides a default definition of the keyboard in the file SYS$LIBRARY:FLT$KEYMAP.DAT, which contains a full implementation of the available commands for the keyboard. For more information about the keyboard definitions file, see Chapter ??? in the *FLIGHT Reference Manual*.

Controlling Graphics Display

FLIGHT allows you to specify whether you want to place emphasis on color graphics or smooth animation. In FLIGHT, these two things are mutually exclusive. If you want to place emphasis on color, define FLT$ANIMATION as FLICKER. If you want to place emphasis on smooth animation, define FLT$ANIMATION as SMOOTH.

If you have a black and white monitor, the FLT$ANIMATION logical has no effect.

Other Major Functional Areas

FLIGHT provides you with a variety of control mechanisms to make the simulation run somewhat realistically and enjoyably.

Controlling the Engines

There is only one set of controls for engine thrust; that is, multiple engines are not supported as separate thrusting devices. You can control the throttle settings using [^] and [v] the up arrow and down arrow keys and [PF1][^] and [PF1][v].

Afterburners

If your aircraft has afterburner capabilities, you can engage and disengage them by pressing [DO]. Afterburners will not engage if the engine is idled.

If you gave your aircraft the STATIONARY characteristic, then the engines do not have any effect.

Note that as a pilot you only have control of the throttle setting. The actual amount of power (thrust) produced by the engine is related to several factors in the simulation, like altitude and the engine design parameters.

You must turn the engines on before any thrust is generated. In all default aircrafts, the engine start switch is located on the screen and labeled "ENGINE". See Section ??? for more information describing how to flip screen switches so that you can start your engine. After the engine is turned on, you can turn it off by flipping the switch back to the "OFF" position.

Restarting the engine

Finally, the engine may turn itself off for a variety of reasons. If you notice that your engine is out, you must manually restart it by flipping the engine start switch to OFF and then back to ON. If it fails to restart, then the problem that stopped is still occuring. In this case, you must locate the error and correct it.

Controlling the Rudder

You can control the rudder by using the right arrow (rudder right) and left arrow (rudder left) keys. Each time you press either key, the rudder angle changes by 10%.

If you gave your aircraft the STATIONARY characteristic, then rudder motions have no effect. (That is, it becomes a stationary object like the objects in FLT$STATIONARY.)

Using Weapons

An aircraft does not have to carry weapons. If weapons are available, you can fire or launch them by pressing [F17] [F18] [F19] or [F20]. Each key represents a weapon bank, numbered from 1 to 4, respectively. The weapons in the banks are determined by the design of the aircraft you are flying. The weapons are fired or launched in order from the first to the last in the bank. The ordering is taken from the aircraft design information.

Enabling Weapons

Before you can fire or launch any weapons, press [.] to turn on the weapons system. Likewise, press [.] to turn off the weapons system. When the weapons system is turned on, you see a crosshair sight (also known as a Head-Up-Display or HUD) displayed in the pilot view.

When you fire weapons, they are fired in a direction and from a location determined by the aircraft designer. The direction is usually forward.

Using Brakes

Brakes are available on all aircraft. Use [4] to increase the brake force and [1] to decrease it. Whenever you press either key the brake force increases or decreases by the amount defined for the aircraft.

Using the Warning Indicators

Depending on the type of your aircraft, FLIGHT provides two audio warning indicators. One is a stall warning and the other is a high-g-loading warning. Both emit a bell tone. In the case of the second type of warning, the louder the bell, the closer you are to pushing your aircraft beyond its design limits. You can turn the stall warning on or off by using [2]. The high-g-loading warning cannot be turned off.

Using the Ground Crew

When you stop your aircraft on the ground, you can refuel and rearm to the levels specified at the beginning of the simulation using the dialog box. Press [,] to rearm the aircraft if it has any weapons and PF1 , to refuel the aircraft. You can not refuel or rearm your aircraft while flying.

Distributing Simulations

FLIGHT allows you to run up to 8 simulation in the same world; that is, you can share the same world with up to 8 users, all flying around and fighting each other in the same place.

To enable this feature, define the logical name FLT$SERVER_NODE as the name of the node on which the FLIGHT server, an installation option of the FLIGHT VMSINSTAL kit, is installed. This node does not have to be a VAXstation, only a VAX/VMS computer.

When you enter the simulator, FLIGHT automatically enters your aircraft into the world you specified. As soon as you enter the simulation, you will be able to locate others who have specified the same node in their FLT$SERVER_NODE logical name definition.

A second way to specify the FLIGHT server is through the use of the SERVER qualifier on the FLIGHT/SIMULATOR command. This qualifier overrides the FLT$SERVER_NODE logical name, which is intended to provide a default server for FLIGHT to use if no other server is explicitly specified.

If you do not define FLT$SERVER_NODE as a logical name and you also do not specify the SERVER qualifier, then FLIGHT assumes the server is installed on the current node. If the node you specify as the server node does not have the server installed on it, you will see the following message:

```
%SYSTEM-F-NOSUCHOBJ, network object is unknown at
remote node
```

If the node you specify as the server node cannot complete the connection for any reason (for example, the 8 player limit is reached, or the server is incorrectly configured), you will see the following message:

%SYSTEM-F-LINKEXIT, network partner exited

Detecting Collisions

When collision detection is on, your aircraft and any weapons that it carries can be damaged whenever they make contact with other objects. The simulation server that you connect to or other participants using the same server can create these objects.

Only users on other nodes that specify that they want collision detection can potentially collide with you and your weapons. If do not want to dogfight with others on the same server, turn off collision detection when you invoke the simulator. This is done by specifying /NOCOLLISION on the FLIGHT/SIMULATOR command. Collision detection is somewhat expensive and can slow down your simulation if you are using the local node as the FLIGHT server.

You cannot collide with other objects which you have created, such as your own weapons. Also, damage to your aircraft can change its behavior or destroy it.