



**REDBIRD**TD™
TABLE-MOUNTED FLIGHT TRAINING DEVICE

**REDBIRD**TD²™

INSTRUCTION MANUAL



Manufactured in the United States

www.redbirdflight.com

DISCLAIMER

The Redbird TD/TD2 are an FAA approved Basic Aircraft Training Device (BATD)* that represents a generic high-wing, single-engine, piston aircraft. This manual contains information on how to setup, use and troubleshoot the Redbird TD/TD2. The reader of this manual is expected to know how to fly an aircraft or to be participating in a structured and approved flight training program. This manual is in no respect a tutorial in visual flight, instrument flight or navigation. Its only purpose is to introduce the Redbird TD/TD2 hardware and software to enable a pilot to use this training device.



*With optional rudder pedals

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1

GETTING STARTED

Your Redbird TD/TD2 is designed for easy setup and operation so that you can begin flying immediately.



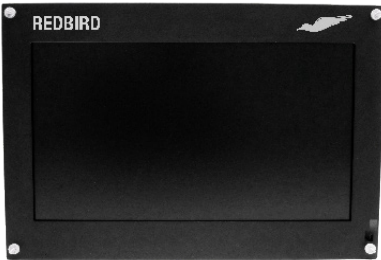
Retain all original packaging and shipping materials.



Any unauthorized software on your Redbird TD/TD2 is prohibited and will void your warranty.

Getting to Know Your Redbird TD/TD2

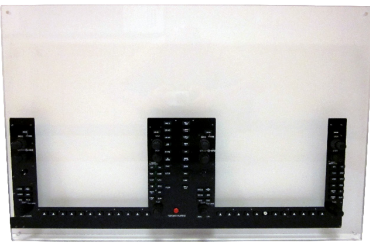
What's in the boxes:



Monitor



Lower Instrument Panel



Acrylic



Speakers*

(*Optional - HDMI monitors include built-in speakers)



Thumbscrews



Adjustable Supporting Leg*

(*Not needed if installed on optional Redbird TD Table)



Panel Thumbscrews



Keyboard



Computer

Redbird TD Specifications:

ITEM	SPECS
TD Assembled	Dimensions: 28.9" wide, x 24.25 deep, 49.12" tall Weight: 96.5 lbs Power: domestic-120 V, international-220V
Lower Instrument Panel	Dimensions: 28.5" wide, x 24.25" deep , x 10" tall Weight: 48-1/2 lbs Other: (4) thumbscrews, (1) USB cable
Upper Instrument Panel	Dimensions: 28" wide, x 6.81" deep, x 19" tall Weight: 37-1/2 lbs Other: (1) power cable, (1) video cable, (1) USB cable, (4) loose thumbscrews
Adjustable Supporting Leg	Dimensions: 19" (extends to 22")
Computer	Dimensions: 16" wide, x 17" tall x 7-1/4" deep Weight: 10 1/2 lbs Other: (1) power cable
Speakers*	System Details: 22 x right/left channel speaker - 1.5 Watt - wired Connector Type: 1 x headphones (mini-phone stereo 3.5 mm), 1 x DC power input, 1 x audio line-in with 1 USB cable
Keyboard	Dimensions: 11.3" wide X 8.9" tall X 1.0" deep Other: Compact Touch-pad with USB cable

(*Speakers are optional - HDMI Monitors include built-in speakers)

TD - Simulated Aircraft Performance Specifications: (See next page for TD2)

Speed

Maximum Sea Level 126 Knots

Rate of Climb at Sea Level 730 FPM

Service Ceiling 14,000 FT

Takeoff Performance

Ground Roll 960 FT

Total Distance Over 50 FT Obstacle 1630 FT

Landing Performance

Ground Roll 575 FT

Total Distance Over 50 FT Obstacle 1335 FT

Stall Speed

Flaps Up, Power Off 48 KIAS

Flaps Down, Power Off 43 KIAS

Fuel Capacity 56 GAL

Engine 180 HP

Propeller: Fixed Pitch, Diameter 76 IN

Simulated Aircraft Limitations:

SYMBOL	SPEED	KIAS
V_{NE}	Never Exceed Speed	163
V_{NO}	Maximum Structural Cruising Speed	129
V_A	Maneuvering Speed	98
V_{FE}	Maximum Flap Extended Speed	110
V_X	Best Angle of Climb	63
V_Y	Best Rate of Climb	75

GETTING STARTED

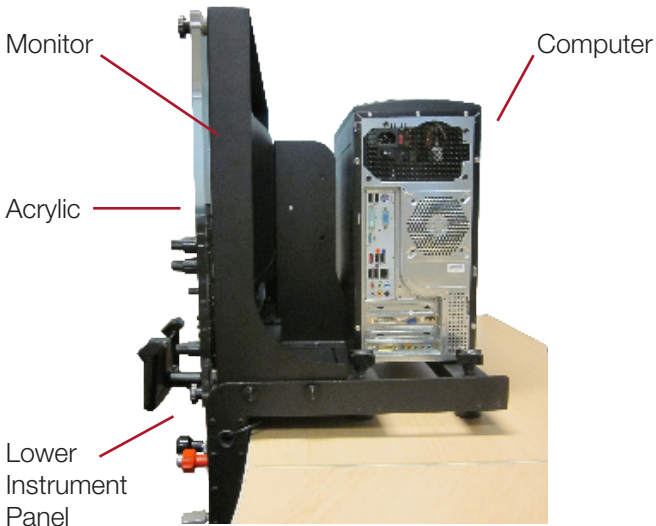
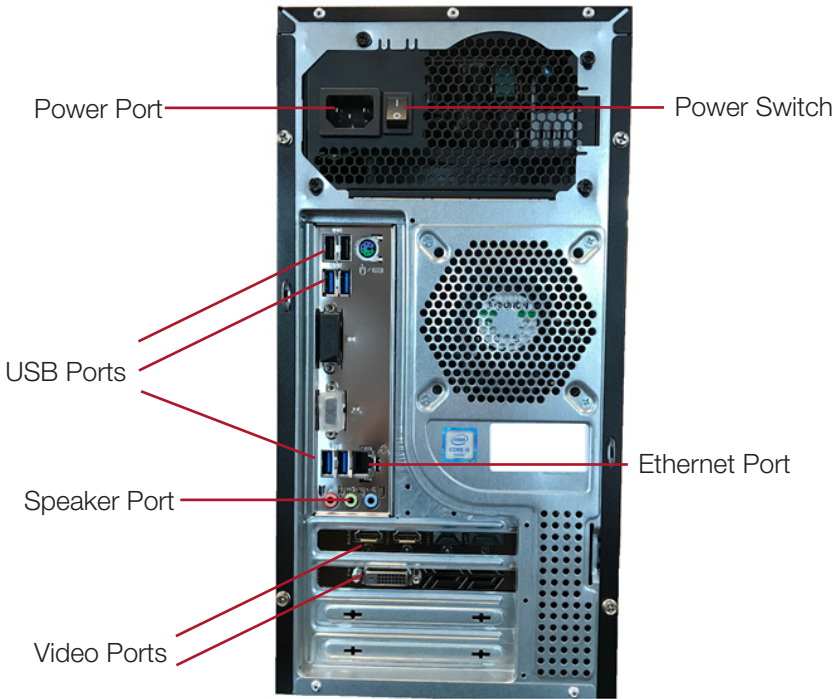
TD2 - Simulated Aircraft Performance Specifications:

		<u>High Performance</u>
Speed		
Maximum Sea Level	126 Knots	145 Knots
Rate of Climb at Sea Level	730 FPM	924 FPM
Service Ceiling	14,000 FT	18,100 FT
Takeoff Performance		
Ground Roll	960 FT	795 FT
Total Distance Over 50 FT Obstacle	1630 FT	1514 FT
Landing Performance		
Ground Roll	575 FT	590 FT
Total Distance Over 50 FT Obstacle	1335 FT	1350 FT
Stall Speed		
Flaps Up, Power Off	48 KIAS	54 KIAS
Flaps Down, Power Off	43 KIAS	49 KIAS
Fuel Capacity	56 GAL	92 GAL
Engine	180 HP	230 HP
Propeller: Fixed Pitch, Diameter	76 IN	79 IN

Simulated Aircraft Limitations:

SYMBOL	SPEED	KIAS	HIGH PERFORMANCE
V_{NE}	Never Exceed Speed	163	175
V_{NO}	Maximum Structural Cruising Speed	129	140
V_A	Maneuvering Speed	98	110
V_{FE}	Maximum Flap Extended Speed	110	140
V_X	Best Angle of Climb	63	64
V_Y	Best Rate of Climb	75	84
V_{LO}	Maximum Landing Gear Operating Speed	-	180
V_{LE}	Maximum Landing Gear	-	152

GETTING STARTED



NOTE: the TD and TD2 are equipped with automatic voltage detection. You may safely power your simulator using a standard 110V or 220V power supply

2

Setting Up Your Redbird TD/TD2

This chapter will guide you through the Redbird TD/TD2 setup.

Preflight Checklist

USE THE FOLLOWING ITEMS TO SETUP YOUR REDBIRD TD/TD2

Lower Instrument Panel with (4) thumbscrews, (1) USB cable
Adjustable Supporting Leg
Upper Instrument Panel with (1) power cable, (1) video cable, (1) USB cable, (4) loose thumbscrews
Computer with power cable
Keyboard
Speakers



THINGS TO KNOW PRIOR TO INSTALLATION

You will need a sturdy, solid table with a maximum tabletop thickness of 2.25" including rails and the underlying structure.

There must be at least 29" between the legs.

If you are not installing your TD/TD2 on the optional Redbird TD Table, you must install the adjustable supporting leg.

No tools are required for installation. The assembly is performed by hand-tightening only. The use of tools may lead to damage.

Lift all items from both sides using correct lifting techniques.

Seek assistance when lifting larger items.

Retain all original packaging and shipping materials.

Any unauthorized software on your Redbird TD/TD2 is prohibited and will void your warranty.

STEP 1: Position the Instrument Panels and Install the Adjustable Supporting Leg

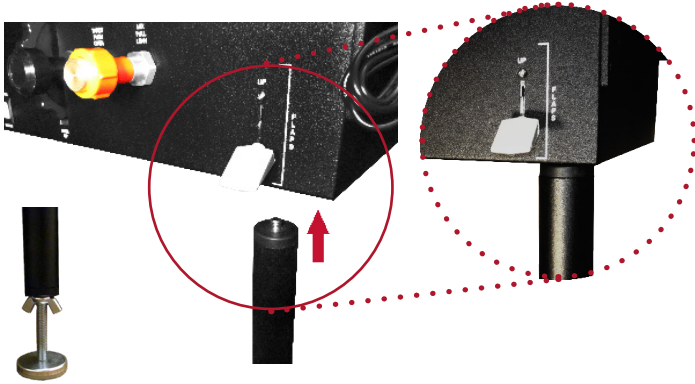
Lower Instrument Panel

- Slide the Lower Instrument Panel onto the table.
- Hand-tighten the (4) thumbscrews to ensure secure clamping of the Lower Instrument Panel to tabletop. The panel should be firmly secured and fixed in place. Tighten only as much as is needed to prevent movement. Do not over-tighten as this may cause damage.



Install the Adjustable Supporting Leg*

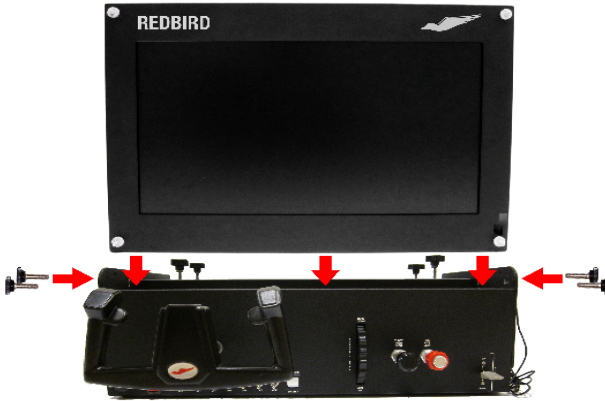
- Position the Adjustable Supporting Leg under the threaded opening at the bottom right hand corner of the Lower Instrument Panel.
- Hand-tighten the leg so that it is fully secured to the Lower Instrument Panel.
- To adjust the Adjustable Supporting Leg height, twist the lower portion of the leg until the foot pad has reached the floor. Hand-tighten the wing nut to secure the leg.



(*Not needed if installed on optional Redbird TD Table)

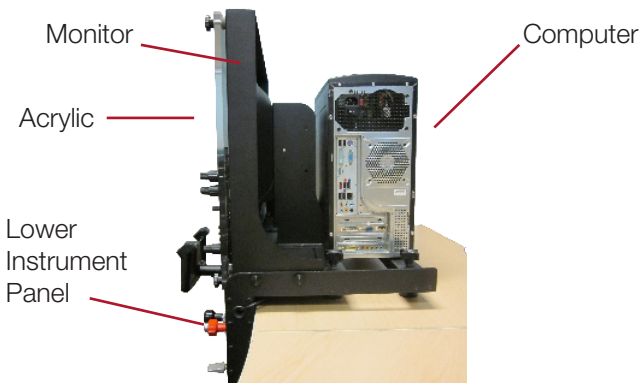
Monitor

- Position the Monitor on top of Lower Instrument Panel, so that the holes are aligned.
- Pass the (4) loose thumbscrews through the aligned holes to attach the Monitor and Lower Instrument Panels.
- Hand-tighten the thumbscrews so that the Monitor is fully secured.



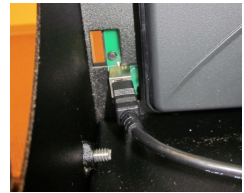
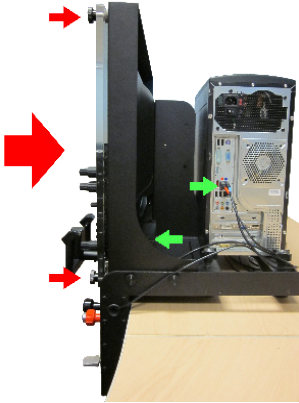
STEP 2: Position the Computer

- Place the Computer behind the Monitor on the Lower Instrument Panel.
- Ensure the back of the Computer is positioned to the right of the Monitor for easy access to the Computer ports.



STEP 3: Place and Connect the Acrylic

- Slide the Acrylic onto the four screws on the monitor frame.
- Hand-tighten the thumbscrews so the Acrylic is fully secured.
- On the bottom left corner of the back of the monitor, plug the red USB cable into the USB port on the Acrylic. Plug the other end into the USB port marked in red on the back of the computer.



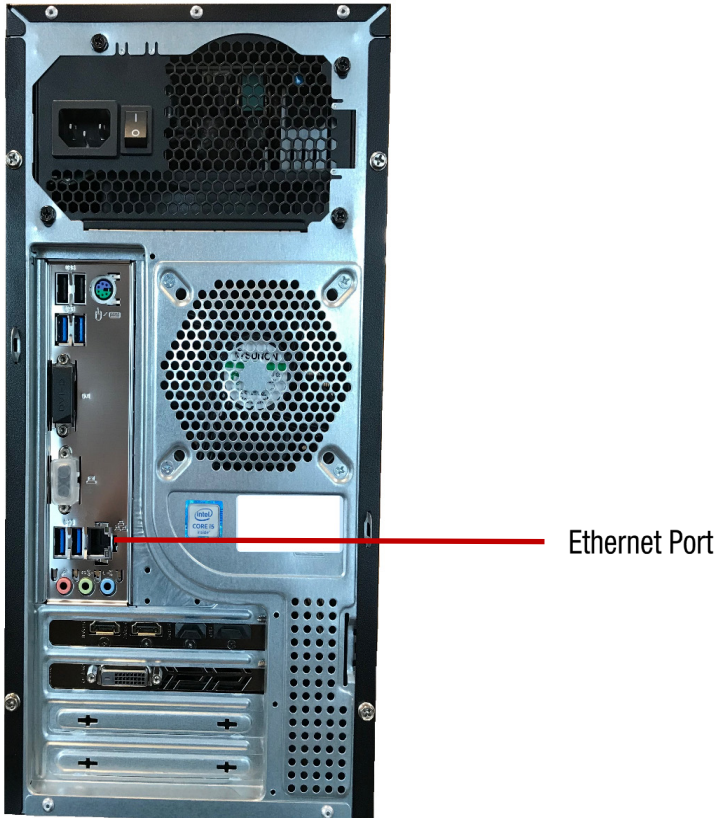
REFER TO STICKER ON TOP OR SIDE OF COMPUTER FOR INSTRUCTIONS ON ATTACHING CABLES AND COMPONENTS

STEP 7: Optional Setup and Equipment

Internet Setup

To access the Internet for Redbird software updates and downloads:

- Connect one end of an Ethernet cable (not included) to the Ethernet port on the back of your TD/TD2 computer.
- Connect the other end to your network outlet.



Rudder Pedal Setup

The Redbird TD/TD2 is compatible with Alloy RD-1 rudder pedals, and some other third party rudder pedals.

- With the simulator turned off, plug the USB pedals into any available USB port located on the back of the computer.
- Refer to the online calibration guide to properly calibrate your rudder pedals at simulators.redbirdflight.com/support/rd1-calibration-guide



Install the rudder pedals prior to powering on the Redbird TD/TD2.

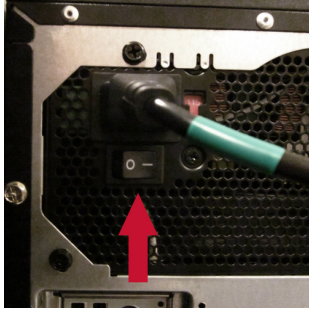
3

Using Your Redbird TD/TD2

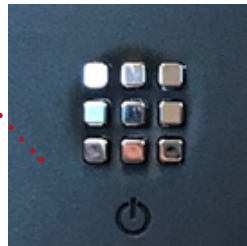
The Redbird TD/TD2 has many features which will help improve your flying skills. For example, you can fly anywhere in the world, day or night in a variety of weather conditions.

Start Up

- On the back of the computer, ensure the power switch is turned on.



- Push the power button located on the front of the Computer.



NOTE: The power button on the front of your TD/TD2 may look like either of these buttons.

The Redbird TD/TD2 will start and the NAVIGATOR FREE FLIGHT screen will appear.

DISPATCH

POSITION

Start From
Enter Airport, Navaid, or Waypoint Ident

TIME

DAWN
DAY
DUSK
NIGHT

WEATHER

Visibility 50 SM
Wind Direction 360
Wind Speed 0 KT
Gusting To 0 KT
Turbulence None

Cloud Coverage SKC (0/R)
Cloud Base 0 AGL
Precipitation Type None
Precipitation Rate Very Light

RESET START FLIGHT

STARTING A FLIGHT ON THE TD (See page 30 for TD2)

With the Redbird TD there are several ways to begin a flight:

1. FREE FLIGHT
2. SAVED FLIGHT
3. DOWNLOADED FLIGHT SCENARIO

First, let's start a **FREE FLIGHT**.

You can start a FREE FLIGHT on the ground at any airport, or in the air at any location on the planet.

We'll begin by configuring and starting a **FREE FLIGHT ON THE GROUND**.

STEP 1: Type the ICAO code for the desired airport into the START FROM field. In this example, we'll use KHYI which is San Marcos Regional Airport in San Marcos, Texas, USA. Select a runway from which to take off.

The screenshot displays the 'DISPATCH' interface with three main panels: POSITION, TIME, and WEATHER.

- POSITION:** Features a 'Start From' search field containing 'khyi'. Below it, a list of airports is shown, with 'KHYI: San Marcos Muni' selected. Underneath, a list of runways is displayed: RWY 8, RWY 13, RWY 17, RWY 26, RWY 31, and RWY 35.
- TIME:** Shows three time-of-day options: DAWN, DMY (highlighted in blue), DUSK, and NIGHT.
- WEATHER:** Contains various weather parameters with dropdown menus:
 - Visibility: 50
 - Wind Direction: 360
 - Wind Speed: 0
 - Gusting To: 0
 - Turbulence: None
 - Cloud Coverage: SKC (0/0)
 - Cloud Base: 0
 - Precipitation Type: None
 - Precipitation Rate: Very Light

At the bottom right of the WEATHER panel, there are 'RESET' and 'START FLIGHT' buttons.

In this case, we've selected Runway 17

The screenshot shows the 'DISPATCH' interface with three main panels: POSITION, TIME, and WEATHER. The POSITION panel shows 'Start From' as 'KHYY: San Marcos Mun' and 'Runway' as 'RWY 17'. The TIME panel has 'DAY' selected. The WEATHER panel shows default settings: Visibility 50 SM, Wind Direction 360, Wind Speed 0 KT, Gusting To 0 KT, Turbulence None, Cloud Coverage SKC (0/8), Cloud Base 0 AGL, Precipitation Type None, and Precipitation Rate Very Light. A 'START FLIGHT' button is visible at the bottom right.

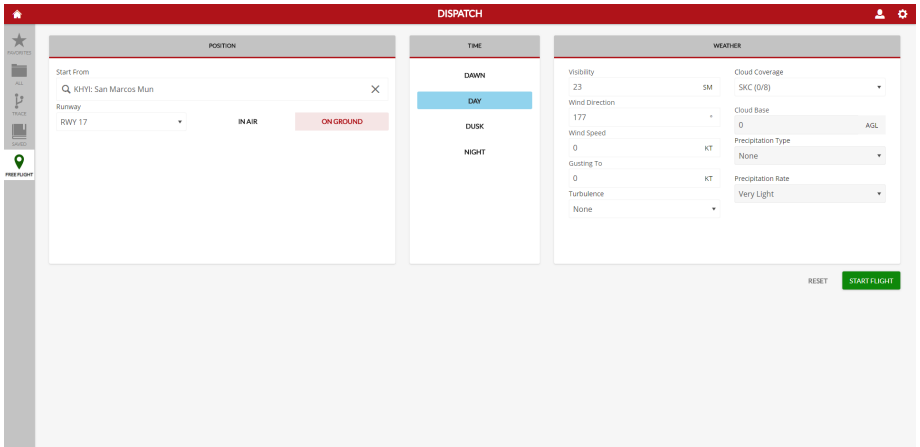
STEP 2: Under TIME select the time of day during which you would like your flight to occur.

STEP 3: Under WEATHER, default selections are already present. If you leave these settings unchanged the weather for your flight will be “perfect” (no wind, no clouds, no precipitation, 50 miles visibility).

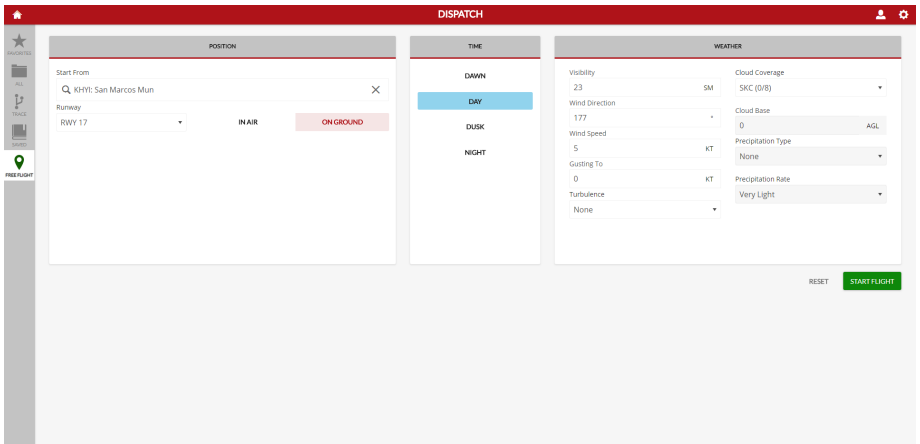
For this example, let's change the weather settings. Here, the VISIBILITY has been changed to 23 statute miles. The number can be changed using the up/down arrows, or by clicking on the visibility field and typing in the desired value.

This screenshot is identical to the first one, but the 'Visibility' field in the WEATHER panel is now set to '23' SM. The 'START FLIGHT' button remains visible at the bottom right.

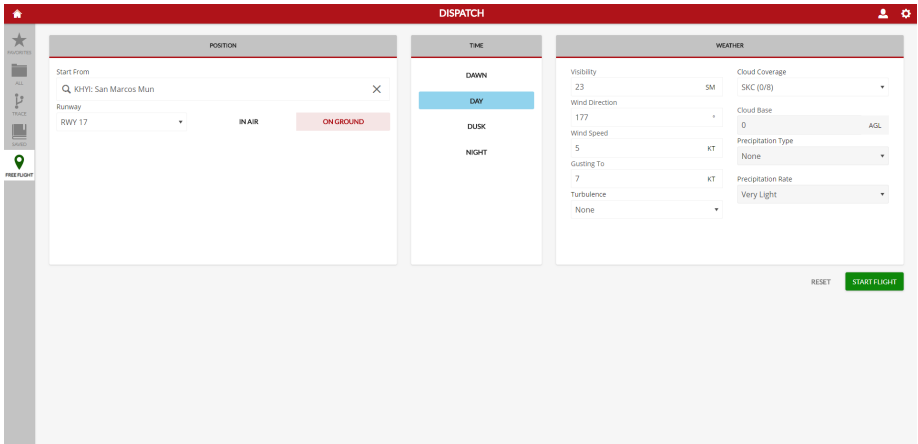
Here we've changed the WIND DIRECTION to 177°. Note that wind direction always indicates the direction the wind is blowing from. In this case, the wind is blowing from 177°, or almost directly out of the South.



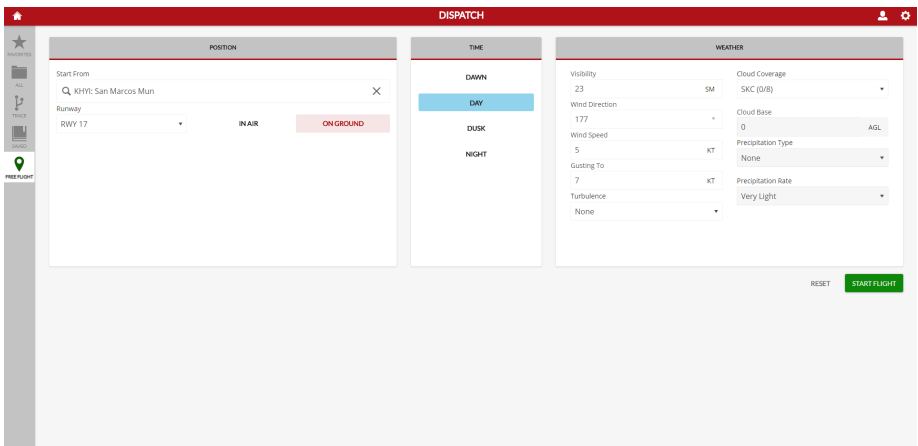
Now, we'll set the WIND SPEED to 5 knots.



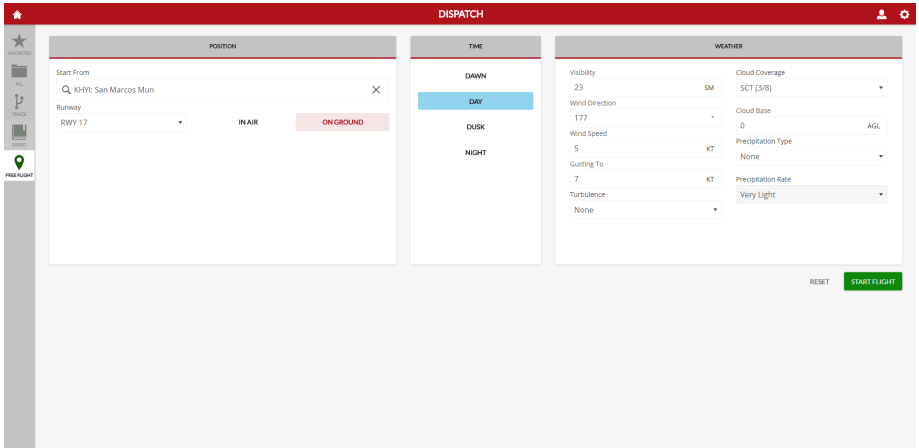
To add gusty wind conditions, we'll set the wind GUSTING TO value to 7 knots. Note that if the GUSTING TO value is equal to or less than the WIND SPEED, no wind gusts will be present during your flight.



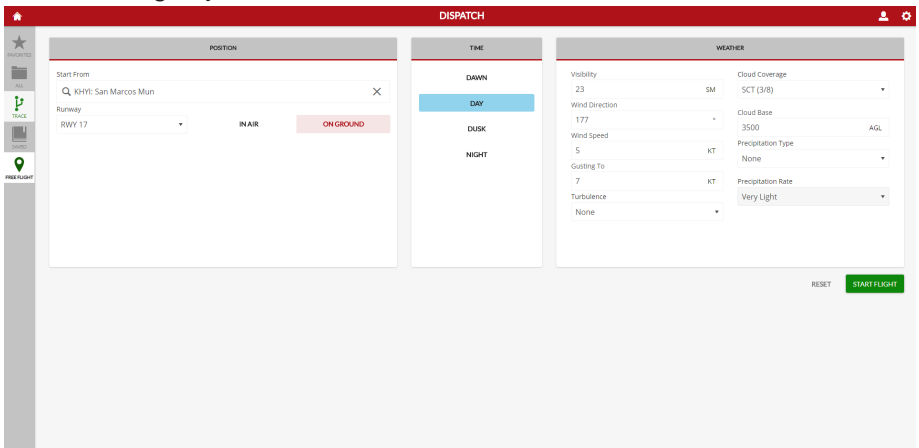
Set TURBULENCE using the drop down menu. Available TURBULENCE settings are NONE, LIGHT, MODERATE, HEAVY, and SEVERE.



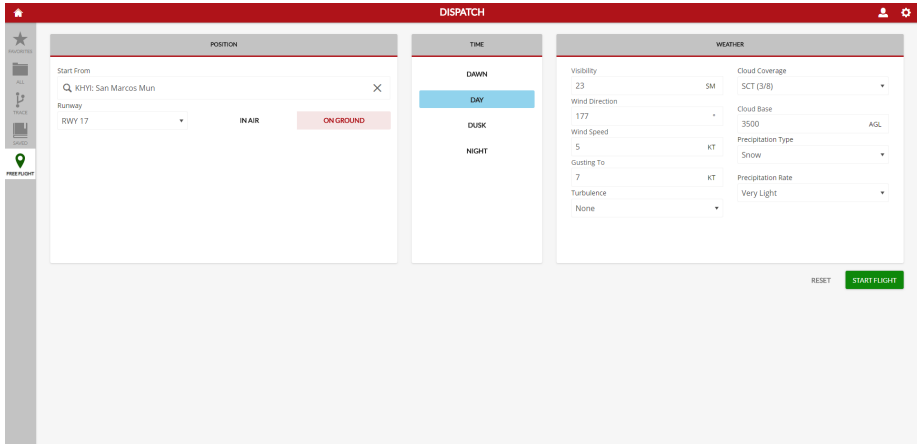
CLOUD COVERAGE is expressed in eighths, ranging from 0/8 of the sky obscured by clouds (no clouds at all), to 8/8 of the sky obscured by clouds (total overcast). Here we'll select 3/8 CLOUD COVERAGE, which will give us scattered clouds.



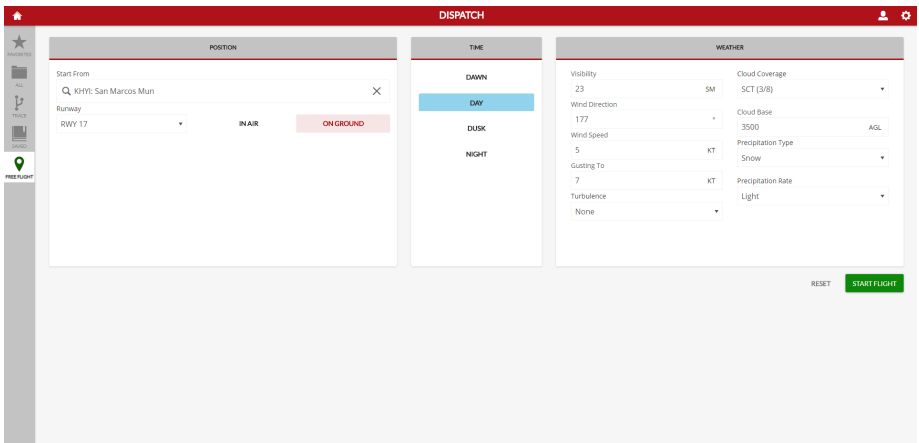
CLOUD BASE defines the altitude above which the cloud coverage begins (where the bottoms of the clouds are). The CLOUD BASE in this example is set to 3,500 feet AGL (Above Ground Level). So, since the airport elevation at San Marcos Regional Airport is 595 feet MSL (above Mean Sea Level) and we've set the CLOUD BASE to 3,500 feet AGL, the bottoms of the clouds will be at 4,095 feet MSL. Since the altimeter in your airplane indicates your airplane's altitude above mean sea level, you can expect to encounter clouds at and above 4,095 feet according to your altimeter.



Let's set PRECIPITATION TYPE to SNOW. You could also choose RAIN, or NONE.



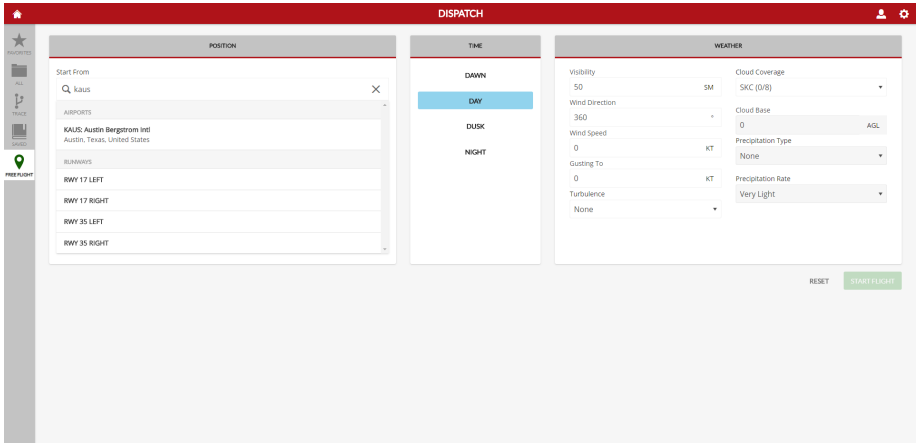
Under PRECIPITATION RATE we're setting LIGHT. The available choices are VERY LIGHT, LIGHT, MODERATE, HEAVY, and VERY HEAVY. Note that if you have selected NONE for PRECIPITATION TYPE, the PRECIPITATION RATE selection doesn't matter since there is no precipitation.



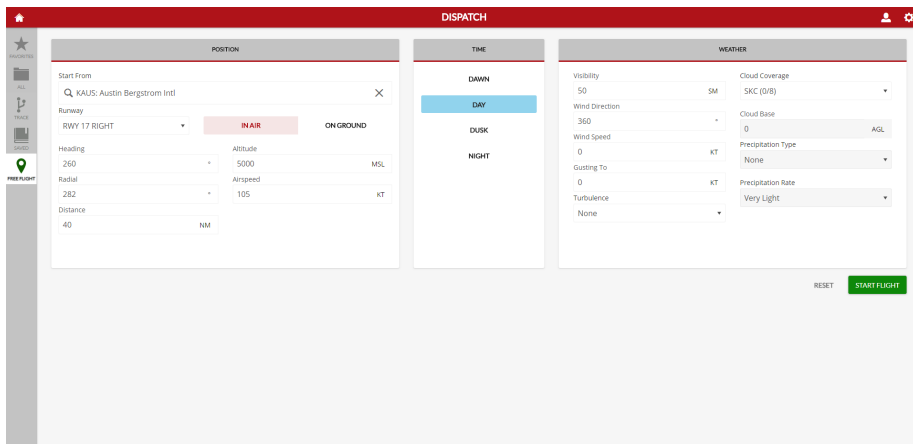
You are now ready to click START FLIGHT. Once the simulation has loaded, you will appear at the airport and on the runway you selected in a paused state. Press the F12 key to unpause and begin your flight.

Now, let's see how to start a **FREE FLIGHT IN THE AIR**.

Select FREE FLIGHT on the far left side of the screen



STEP 1: Type the ICAO code for the desired airport into the START FROM field. In this example, we'll use KAUS which is Austin-Bergstrom International Airport in Austin, Texas, USA. Select a runway from which to take off. Select "KAUS – Austin Bergstrom Int'l" and not one of the runways listed.



STEP 2: Once you have clicked on “KAUS – Austin Bergstrom Int’l” the following screen will appear. Click the IN AIR button to reveal the in-air menu items. By default, Navigator places your airplane on a 5-mile final approach for the runway indicated in the RUNWAY drop down menu to the left of the IN AIR button. However, you may position the airplane anywhere you choose.

In this example, we’re going to change where this IN AIR flight begins.

Set HEADING to 260°

Set ALTITUDE to 5,000 feet MSL

Set AIRSPEED to 105 knots

Set RADIAL relative to KAUS to 282° (282° FROM KAUS)

Set DISTANCE from KAUS to 40 nautical miles

STEP 3: You may also set the TIME and WEATHER conditions as desired at this time. For this example, we are keeping the default settings (daytime, perfect weather).

Select START FLIGHT to begin your flight. Once loaded, your flight will begin in a paused state. Press F12 to unpause.

STARTING A FLIGHT ON THE TD2 (See page 21 for TD)

Starting a flight on the TD2 works the same as starting a flight on a TD, with the exception of one additional menu of settings.

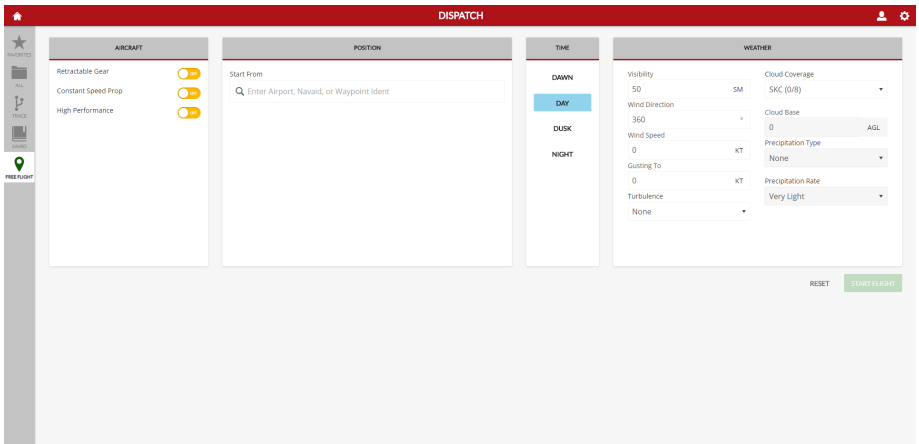
When starting a FREE FLIGHT, you should first set RETRACTABLE GEAR, CONSTANT SPEED PROP, and HIGH PERFORMANCE settings in the AIRCRAFT menu. Each of these three choices can be set ON or OFF.

RETRACTABLE GEAR – makes your airplane’s landing gears retractable – enables the landing gear position handle on your TD2

CONSTANT SPEED PROP – gives your airplane a constant speed prop – enables the blue prop pitch handle on your TD2

HIGH PERFORMANCE – makes your airplane a high performance Cessna 182 Skylane – when unselected, your aircraft is a Cessna 172 Skyhawk

Your TD2 can simulate several different configurations of the Cessna 172 Skyhawk and Cessna 182 Skylane, regardless of whether you are using a steam instrument panel or a glass instrument panel.



When launching a saved flight in the TD2, the CONFIRM FLIGHT START screen will include menu items that allow you to select the performance attributes of your airplane.

CONFIRM FLIGHT START

5 Mile Final

Lined up for landing

Aircraft

Retractable Gear



Constant Speed Prop



High Performance

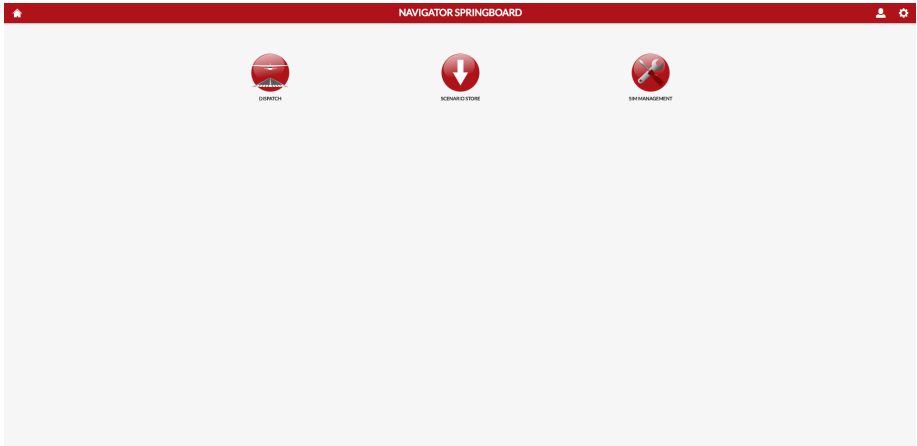



CANCEL

START FLIGHT


Navigator Springboard

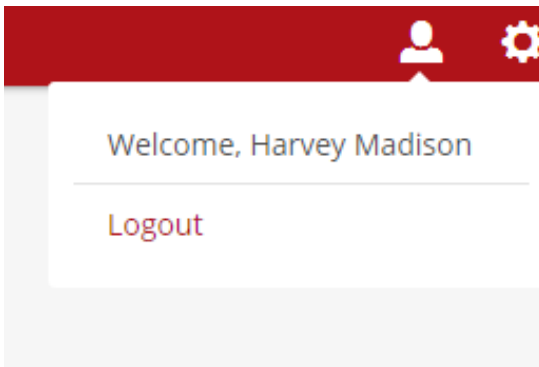
By clicking on the HOME icon  in the upper left corner of Navigator, you can access the NAVIGATOR SPRINGBOARD which gives you access to all functions available to you.



Clicking on the GEAR  icon in the upper right corner of the screen brings up the PERIPHERALS status screen, indicating the connection status of the various hardware controls attached to your simulator. In this example, the simulator computer “pinged” the Internet connection and received a response in 1 millisecond. The simulator computer pinged connected hardware and received a response in under 4 milliseconds from each, all signs of a healthy system.

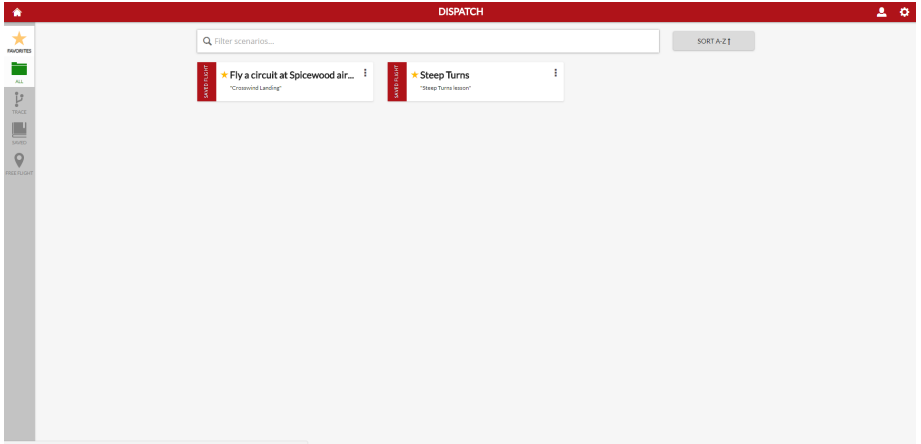
PERIPHERALS	
✓ Internet	1ms
✓ Switch Panel	<4ms
✓ Yoke	<4ms
✓ Throttle	<4ms
✗ Rudder Pedals	N/A

Clicking on the  icon displays who is currently logged into the simulator using their pilot key. This menu also allows the user to logout of this account.



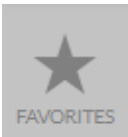
In the DISPATCH menu, there are 5 tabs on the left side of the screen from which to choose. The first one is the FAVORITES tab.

In this example, two of the missions that are saved to the simulator have been marked as favorites, so they appear in this menu. Any saved flight can be marked or unmarked as a favorite by clicking on the “star” icon.

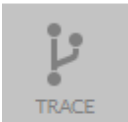


A saved flight is a favorite if the star is filled-in. 

A saved flight is not a favorite if the star is an outline. 



The ALL tab will display all saved and downloaded flights on your simulator.



The TRACE tab will display any specialty flights downloaded from Redbird (such as Guided Independent Flight Training flights purchased from Redbird).



The SAVED tab displays all flights that you have saved on the simulator yourself, and flights downloaded from the Scenario Store (other than TRACE flights).



To SAVE a flight, start a FREE FLIGHT with the location, time and weather variables set however you wish. Launch the flight.

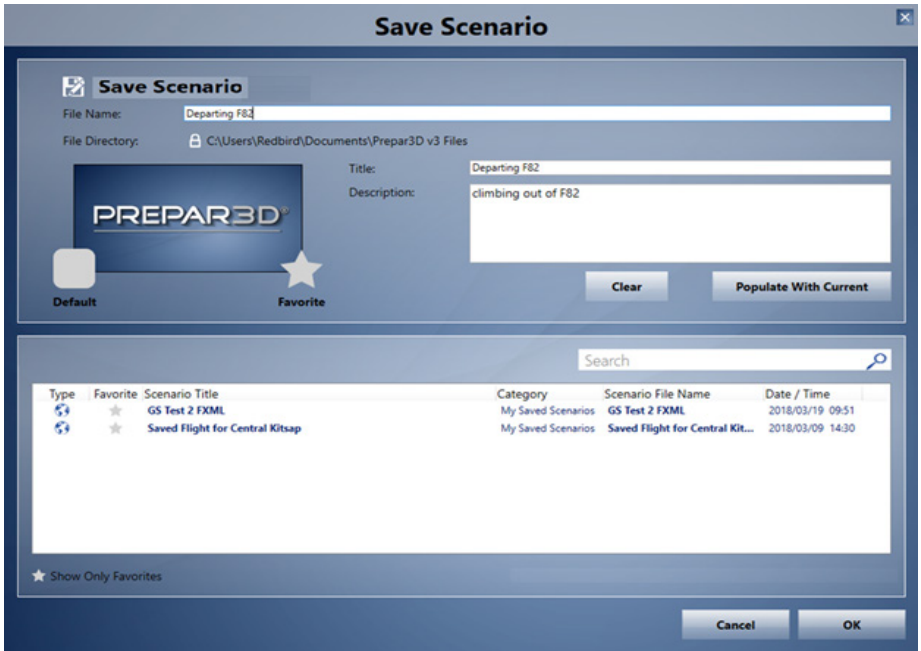
Once the flight has loaded, you may save the flight before unpausing the flight, or you may unpause the flight and fly the airplane until you have the airplane in exactly the situation and/or location at which you wish to save the flight.

In either case, it's easiest (though not necessary) to pause the flight before following these steps to save your flight:

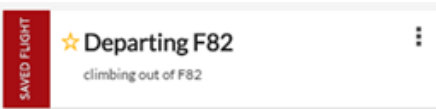
STEP 1: Press and briefly hold the ALT key on your keyboard until menu options appear at the top of your central screen. Move the cursor to "Scenario" and click on it, then select "Save..."



STEP 2: Type a File Name, Title, and Description into the fields shown below, then click OK.



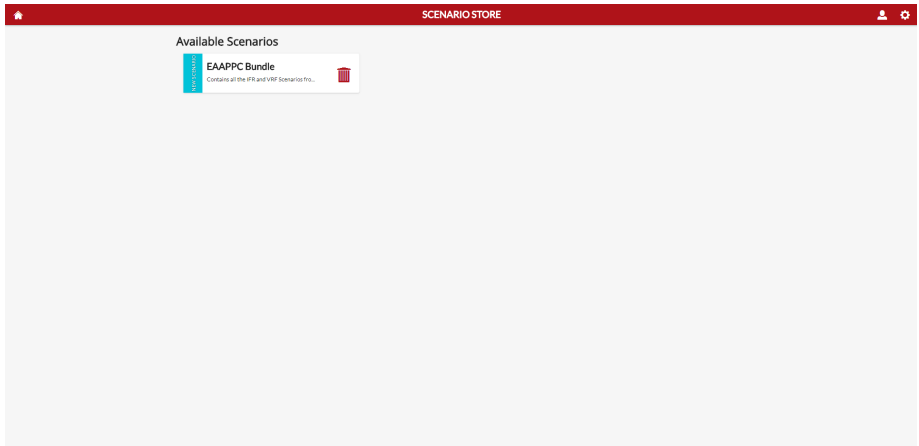
Your saved flight will now appear in the SAVED menu in Navigator.



Now, when you select this saved flight, your simulator will load the flight at the point at which you saved it, in exactly the same conditions and location.

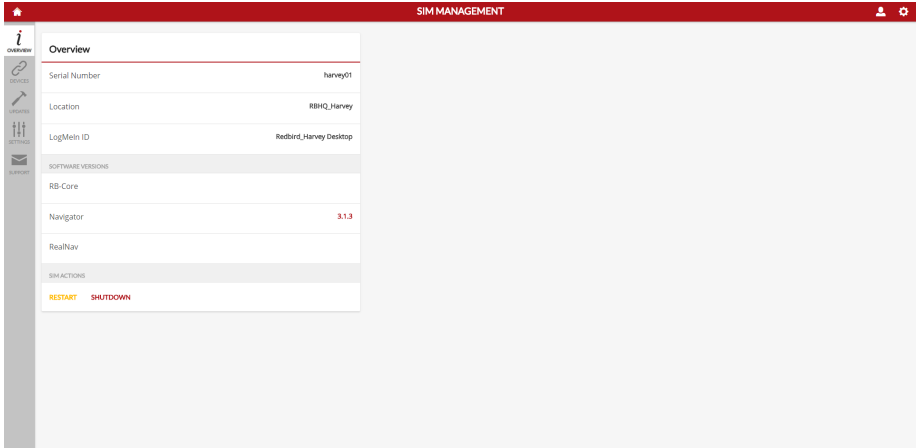
To delete the flight, click the icon on the saved flight and select DELETE SCENARIO.

Selecting the SCENARIO STORE option on the Navigator Springboard takes you to a screen where you may review available scenario downloads for your simulator. In this example, EAA Pilot Proficiency Center scenarios are available. To download, click the cloud icon on the right side of the EAAPPC bundle. Once the download is complete, these flight scenarios will appear in your SAVED flights tab of the DISPATCH menu.

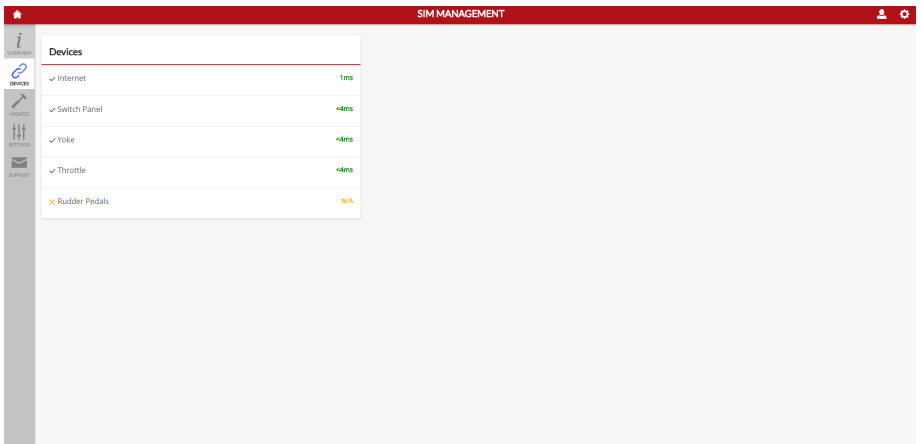


Selecting the SIM MANAGEMENT option on the Navigator springboard takes you to a screen with 5 tabs.

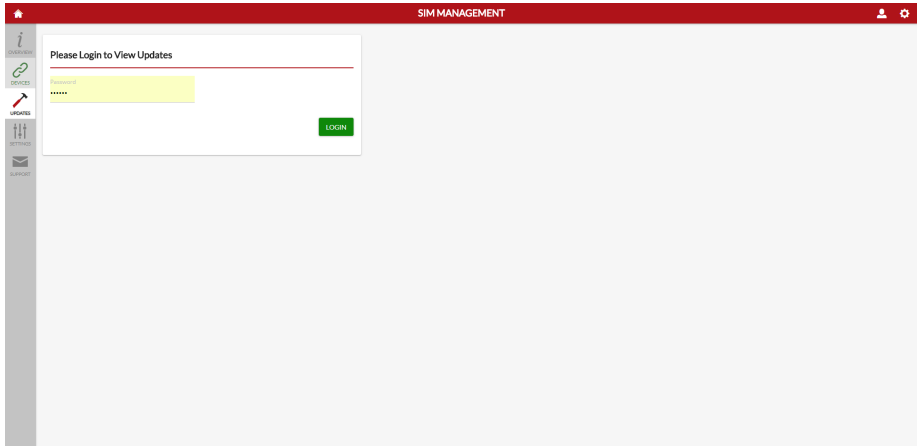
The OVERVIEW tab provides basic information about your simulator and software version. You can also RESTART or SHUT-DOWN the simulator from this screen.



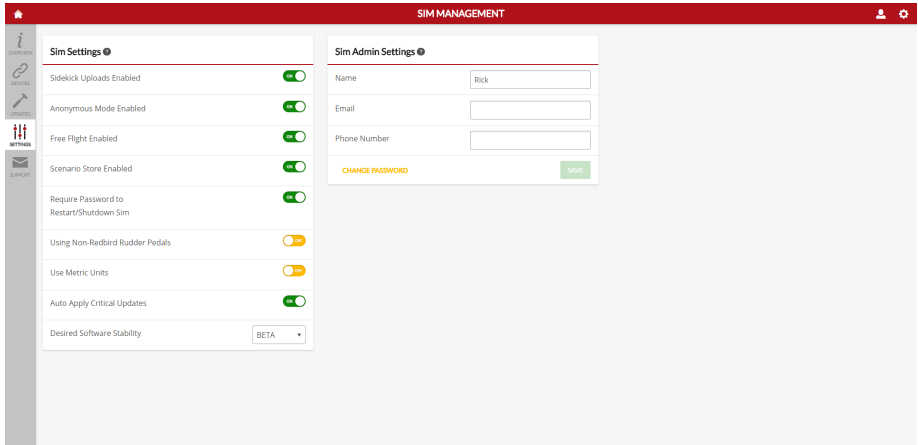
The DEVICES tab provides information similar to the peripherals status screen.



The UPDATES tab allows you to check with Redbird software servers over the Internet to check if any software updates are available for your unit. A password is required to access this screen. Contact your sim administrator to use this tab to check for updates, or contact Redbird directly.



The SETTINGS tab (another password protected screen) allows you to set administrative options. Contact your sim administrator to use this tab to check for updates, or contact Redbird directly. Available enable/disable options include Sidekick Uploads, Anonymous Mode, Free Flight, Scenario Store, Password Needed to Shut-down/Restart, Use Non-Redbird Rudder Pedals, Auto-Install Critical Updates, and Software Stability settings (Beta or Stable).



The SUPPORT tab allows you to open a support case with Redbird directly over the Internet. Simply fill out the form and a Redbird Technical Support Representative will review your issue and contact you, usually the same or next business day.

The screenshot shows a web interface titled "SIM MANAGEMENT" with a red header bar. On the left, there is a vertical sidebar with icons for "OVERVIEW", "DEVICES", "ISSUES", "SETTINGS", and "SUPPORT". The "SUPPORT" icon is highlighted. The main content area displays a "Contact Support" form with the following fields:

- Your First Name:** Pat
- Your Last Name:** Smith
- Your Email Address:** patsmith@lovetofly.com
- Please Describe the Issue:** Lorem ipsum dolor sit amet, consetetur adipiscing elit. Integer nec odio...

At the bottom of the form, there are two buttons: "CANCEL" and "OPEN SUPPORT CASE".

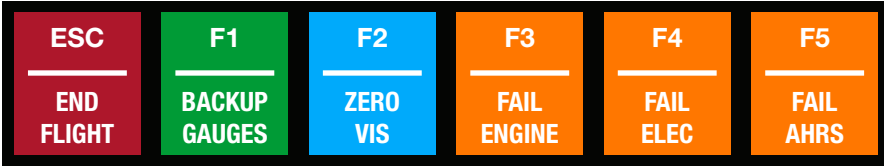
WHILE IN FLIGHT

KEYBOARD FUNCTIONS

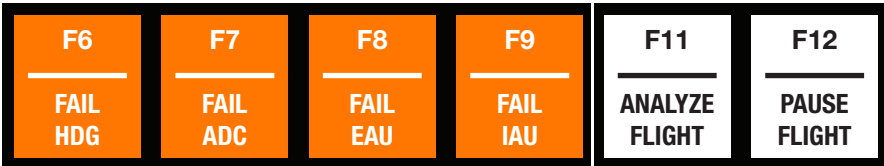
The function keys on the keyboard allow you to end a flight, enable/disable aircraft failures, show/hide gauges, pause/resume flight, clear/show visibility, and show/hide the flight analysis window. Pressing a function key will activate the failure/action. Pressing it again will disable this failure/action. The following pages will define those key functions for the Redbird TD/TD2 steam gauge configuration.



Keyboard Functions for TD/TD2 with Glass Panel



GLASS GAUGE FAILURES	HOT KEY	DESCRIPTION
End Flight	ESC	Terminates the active flight and returns you to the Begin Flight Menu
Add'l Gauges	F1	Displays the aircraft's gauges (see image on page 38)
Zero Visibility	F2	Reduces the visibility to zero
Fail Engine	F3	Fails the engine
Fail Electrical	F4	Fails the electrical system
Fail AHRS	F5	Fails the attitude and heading reference system



GLASS GAUGE FAILURES	HOT KEY	DESCRIPTION
Fail HDG	F6	Fails the heading indicator
Fail ADC	F7	Fails the air data computer
Fail EAU	F8	Fails the engine/airframe unit
Fail IAU	F9	Fails the integrated avionics unit
Analyze Flight	F11	Displays Flight Analysis window (see page 39 to learn how to use this feature)
Pause Flight	F12	Pauses flight
Brake	Ctrl + B	Wheel Brakes

Keyboard Functions for TD/TD2 with Analog/Steam Panel

ESC	F1	F2	F3	F4	F5
END FLIGHT	BACKUP GAUGES	ZERO VIS	FAIL ENGINE	FAIL ELEC	FAIL ALT

STEAM GAUGE FAILURES	HOT KEY	DESCRIPTION
End Flight	ESC	Terminates the active flight and returns you to the Begin Flight Menu
Add'l Gauges	F1	Displays the aircraft's gauges (see image on page 38)
Zero Visibility	F2	Reduces the visibility to zero
Fail Engine	F3	Fails the engine
Fail Electrical	F4	Fails the electrical system
Fail ALT	F5	Fails the altimeter

F6	F7	F8	F9	F11	F12
FAIL PITOT	FAIL STATIC PORT	FAIL VACUUM	FAIL AUTO-PILOT	ANALYZE FLIGHT	PAUSE FLIGHT

STEAM GAUGE FAILURES	HOT KEY	DESCRIPTION
Fail Pitot	F6	Fails the pitot
Fail Static Port	F7	Fails the static port
Fail Vacuum	F8	Fails the vacuum
Fail Autopilot	F9	Fails the autopilot
Analyze Flight	F11	Displays Flight Analysis window (see page 39 to learn how to use this feature)
Pause Flight	F12	Pauses flight
Brake	Ctrl + B	Wheel Brakes

F1- Show Backup Gauges:

Pressing the F1 key displays the backup gauges so that you can practice partial panel flying. Glass TD/TD2 shown below.

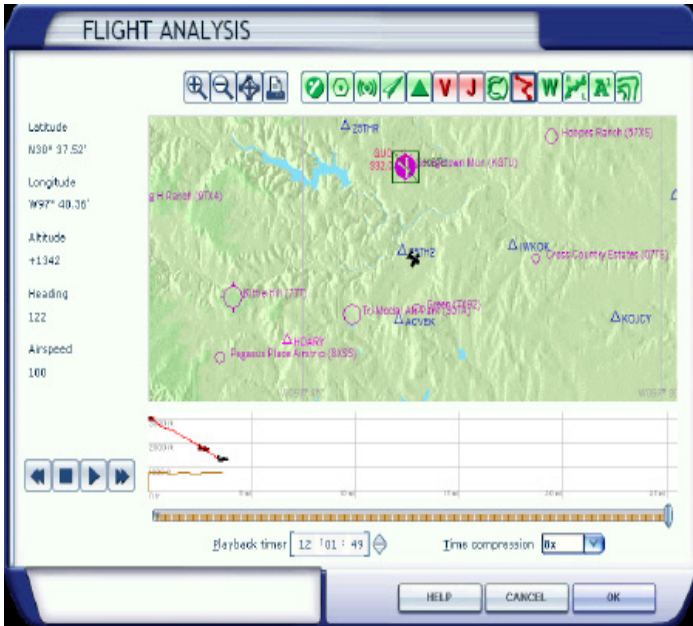


Pressing the F1 key displays the trim and flap gauges. Steam TD/TD2 shown below.



F11- Flight Analysis

Pressing the F-11 key will display the Flight Analysis window. Flight Analysis helps you evaluate your skills as a pilot on any flight. The Flight Analysis dialog box contains a map depicting the horizontal path of the flight, a vertical analysis graph, and controls for animating the flight analysis playback. You do not need to complete a flight before viewing the analysis.



Flight Analysis will reset under the following conditions:

- The aircraft crashes
- You select or create a new flight

Controls

Use the controls to play, rewind, fast forward, or stop the flight analysis playback.



Using the Playback Slider

Use the playback slider to move to a particular point in the flight analysis. You can drag the slider and move across a large area, or move the slider slowly to view a second-by-second analysis. Dragging the playback slider affects playback on the map, as well as in the vertical analysis graph.



Using the Flight Analysis Map

The flight analysis map displays the horizontal path of your flight. When you play the flight analysis, the airplane on the map will move along the path you flew, trailing a red line. You can observe how well you flew a traffic pattern at an airport or how well you flew an instrument approach.

You can zoom in or out on the map, or you can choose not to display airspace lines or other elements.

To view a larger or smaller area of the map:

- Click the plus or minus buttons above the map to zoom in or out.



To turn a map element on or off :

- Click on the element's corresponding icon above the map.

To see the horizontal path of the flight:

- Click the control arrow play or drag the playback slider and observe the small airplane on the map.



Using the Dynamic Text Boxes

The latitude, longitude, altitude, heading and airspeed is displayed on the left side of the map. When you play the flight analysis the values in these text boxes update as the flight progresses—a valuable tool for analyzing how well you held heading, altitude or airspeed. (You cannot type new values in the dynamic text boxes when using the map in Flight Analysis.)

Latitude	N30° 37.52'
Longitude	W97° 40.36'
Altitude	+1342
Heading	122
Airspeed	100

To see dynamic text box values:

- Click the forward or rewind controls or drag the playback slider and view the values change in the dynamic text boxes.

Using the Vertical Analysis Graph

The vertical analysis graph displays your vertical path along the flight. The left side of the graph is marked off in altitude. The bottom of the graph is marked off in distance. The graph helps you evaluate how well you held altitude, or how precisely you ascended or descended.

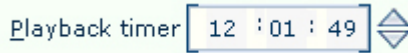


To see the vertical path of the flight:

- Click the forward or rewind controls or drag the playback slider and view the values change in the dynamic text boxes, or zoom in and out by clicking the plus or minus buttons.

Using the Playback Timer

Use the Playback Timer to play back parts of the flight, or to skip to a particular part of the flight. You will also see the Playback Timer values change during control playback or if you drag the playback slider. To use the timer, click on the hours, minutes, or seconds or click the spin box to adjust the time.



Using Time Compression

Use time compression to slow down or speed up the playback of the flight analysis from 0.025 times (or 1/40th) normal speed to 128 times normal speed.

To adjust Time Compression, select a speed here.



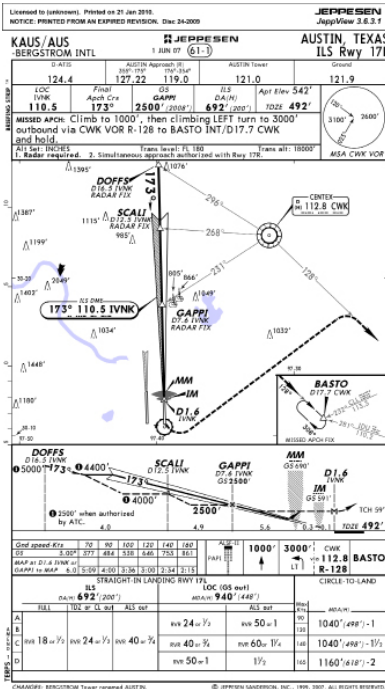
4

Tips - Practicing Approaches

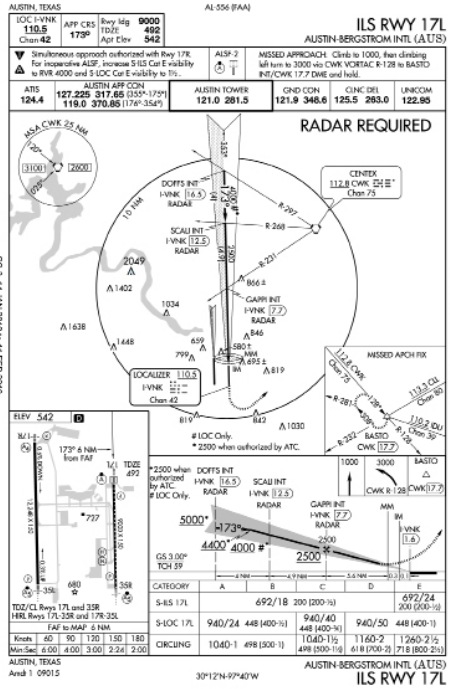
This chapter provides tips on how to setup a flight to practice instrument approaches.

Practicing Approaches

Here are a few guidelines that will help you to setup a flight to practice instrument approaches. Once you have selected the approach that you would like to fly, all of the necessary settings for aircraft position and weather may be derived by studying the approach plate (NOS and Jeppesen approach plates are represented throughout the setup). For this example, we have chosen the ILS 17L into Austin-Bergstrom International Airport. We will set the airplane up on a vector to intercept the final approach course.



Jeppesen Approach Plate

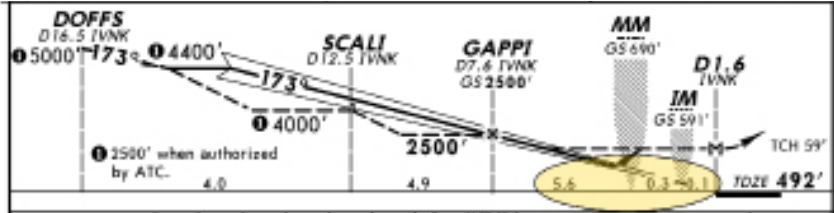


NOS Approach Plate

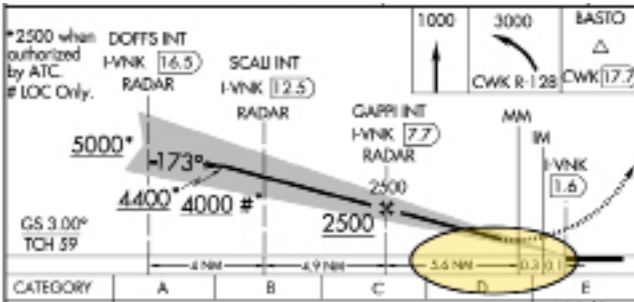
STEP 1: Determine the Aircraft's Starting Position

DISTANCE from the selected airport:

To determine the proper distance, find the distance from the final approach fix to the runway on the approach plate and add 10 miles.



Jeppesen Approach Plate



NOS Approach Plate



In our example the distance from the final approach fix to the runway is 6 miles ($5.6 + 0.3 + 0.1 = 6.$) Therefore our starting distance will be 16 miles ($10 + 6 = 16.$)

POSITION

Start From

Runway
 IN AIR ON GROUND

Heading	Altitude	MSL	Airspeed
143	2500	90	KT

Radial
 348 Distance 16 NM

TIPS - PRACTICING APPROACHES

ICAO code for the selected airport:

Enter the ICAO code for the airport. For our example the code is KAUS.



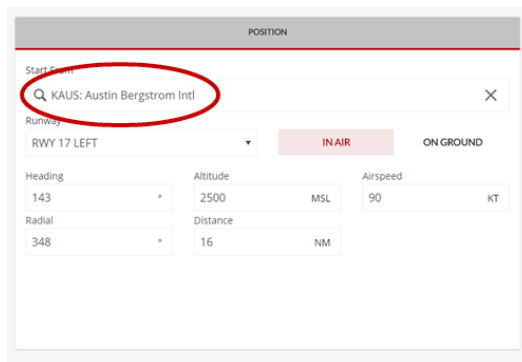
Jeppesen Approach Plate



NOS Approach Plate



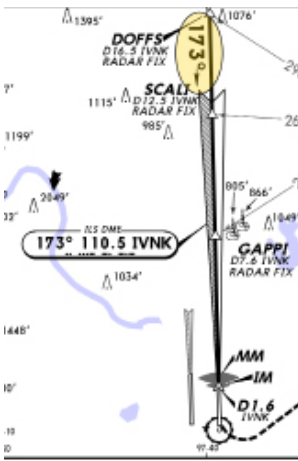
When using NOS charts, if the ICAO code found on the approach plate is a three letter code (ex. AUS), a “K” must be added in the continental U.S. to the beginning of the code (KAUS). If the code contains a number (ex. T82,) no “K” is needed.



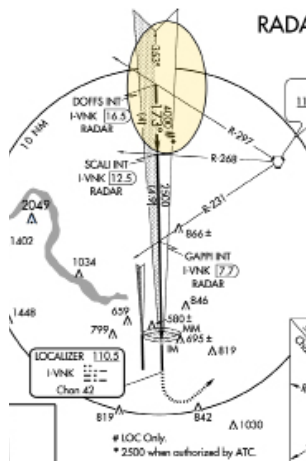
BEARING from the selected airport:

To determine the proper bearing from the airport, find the reciprocal of the final approach course and subtract 5°. If you are using NOS charts, the reciprocal will be published, however if you are using charts that do not publish the reciprocal of the final approach course, you will need to calculate it. To do this, do one of the following:

- If the final approach course is 001° - 180°: add 180° to the final approach course
- If the final approach course is 181° - 360°: subtract 180° from the final approach course



Jeppesen Approach Plate



NOS Approach Plate



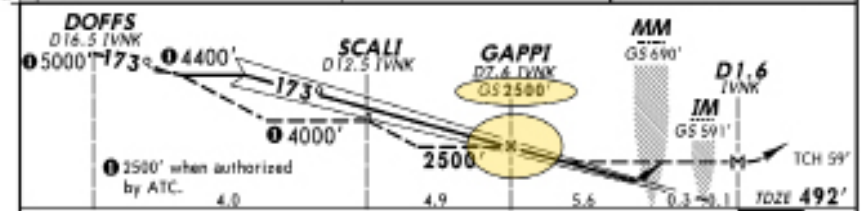
In our example the final approach course is 173°, the reciprocal of which is 353°. Therefore our bearing will be 348° (353° - 5°).

POSITION			
Start From			
KAUS: Austin Bergstrom Intl			
Runway			
RWY 17 LEFT		IN AIR	ON GROUND
Heading	Altitude	Airspeed	
143	2500 MSL	90	KT
Radial	Distance		
348	16 NM		

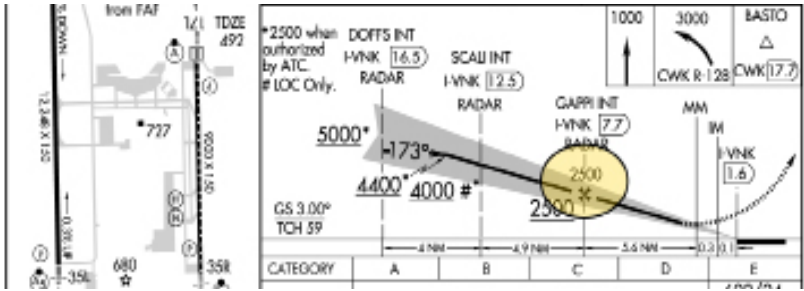
TIPS - PRACTICING APPROACHES

Aircraft ALTITUDE:

For altitude, use the assigned altitude at the final approach fix.



Jeppesen Approach Plate



NOS Approach Plate

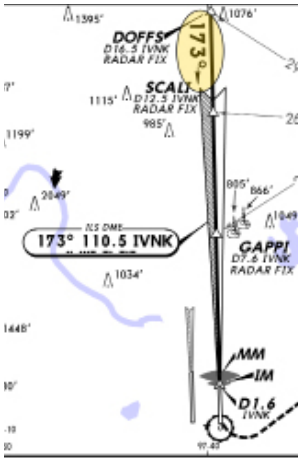


In our example the altitude at the final approach fix is 2500'. Therefore our starting altitude will be 2500'.

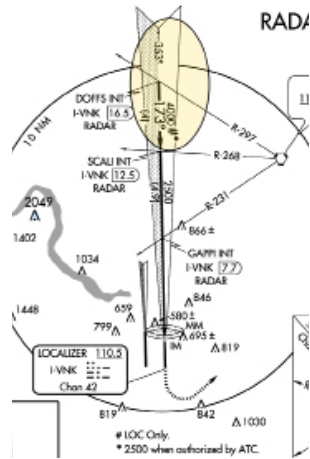
Heading	Altitude	Airspeed
143	2500 MSL	90 KT

Aircraft HEADING:

To determine the proper aircraft heading, take the final approach course and subtract 30°.



Jeppesen Approach Plate



NOS Approach Plate



In our example the final approach course is 173°. Therefore our heading will be 143° (173° - 30°).

POSITION			
Start From			
KAUS: Austin Bergstrom Intl			
Runway			
RWY 17 LEFT	IN AIR	ON GROUND	
Heading	Altitude	Airspeed	
143	2500 MSL	90 KT	
Radial	Distance		
348	16 NM		

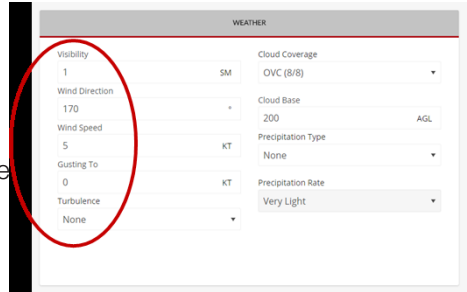
STEP 2: Set the Weather

Wind:

Set the wind to be favorable to the desired runway. In our example, the desired runway is 17L, therefore we will set our wind to 170 at 5 kts with no gusts. To challenge yourself, add gusts or set a crosswind.

Visibility on the Ground:

Find the visibility minimums on the approach plate. In our example, the visibility minimum is 1800 feet, therefore the visibility should be set at no less than 1/2 mile.



STRAIGHT-IN LANDING RWY 17L					Max Elev 125	CIRCLE-TO-LAND
ILS DA(H) 692' (200')			LOC (GS out) MDA(H) 940' (448')			
	Final	TDZ or CL out	ALS out	ALS out		MDA(H)
A					90	1040' (498') - 1
B				rvr 24 or 1/3	125	
C	rvr 18 or 1/2	rvr 24 or 1/3	rvr 40 or 1/4	rvr 40 or 1/4	145	1040' (498') - 1 1/2
D				rvr 50 or 1	165	1160' (618') - 2

Jeppesen Approach Plate

CATEGORY	A	B	C	D	E
S-ILS 17L		692, 18	200 (200-1/2)		692/24 200 (200-1/2)
S-LOC 17L	940/24	448 (400-1/2)	940/40 448 (400-1/2)	940/50	448 (400-1)
CIRCLING	1040-1	498 (500-1)	1040-1 1/2 498 (500-1 1/2)	1160-2 618 (700-2)	1260-2 1/2 718 (800-2 1/2)

NOS Approach Plate

Rain:

Choose the desired rain intensity.

Cloud Coverage:

Choose overcast.

Cloud Bases:

Set the cloud bases to the altitude (MSL) where you would like to break out. If you would like to shoot the approach to minimums, set the cloud bases at or a few feet above your decision height.

		STRAIGHT-IN LANDING RWY 17L			LOC (GS out)		CIRCLE-TO-LAND	
		ALS 692' (200')			MDA/H: 940' (448')			
		ILS	LL out	ALS out	ALS out		Max Kts	MDA/H
SIS 17L	A				rvr 24 or 1/2	rvr 50 or 1	90	1040' (498') - 1
	B						133	
	C	rvr 18 or 1/2	rvr 24 or 1/2	rvr 40 or 3/4	rvr 40 or 3/4	rvr 60 or 1 1/4	148	1040' (498') - 1 1/2
	D				rvr 50 or 1	1 1/2	165	1160' (618') - 2

Jeppesen Approach Plate

		CATEGORY	A	B	C	D	E
7L and 35R 15R and 17R-35L to MAP & NM	680			692	18	200 (200-1/2)	692/24 200 (200-1/2)
	35R	S-ILS 17L					
		S-LOC 17L	940/24	448 (400-1/2)	940/40 448 (400-3/4)	940/50	448 (400-1)
	90 120 150 180 400 300 224 200	CIRCLING	1040-1	498 (500-1)	1040-1 1/2 498 (500-1 1/2)	1160-2 618 (700-2)	1260-2 1/2 718 (800-2 1/2)

NOS Approach Plate

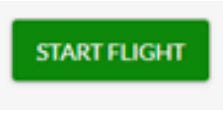


In our example the decision height is 692' MSL. Therefore we will set our cloud bases to 750' MSL.

WEATHER

Visibility 1 SM	Cloud Coverage OVC (8/8)
Wind Direction 170	Cloud Base 200 AGL
Wind Speed 5 KT	Precipitation Type None
Gusting To 0 KT	Precipitation Rate Very Light
Turbulence None	

STEP 3: Click Start Flight



All flights begin in a paused state. To begin flying, press the F12 pause button on the keyboard.

5

Troubleshooting

This chapter contains solutions to problems which may prevent you from flying your Redbird TD/TD2. If you have a problem with your Redbird TD/TD2, there is usually a simple and quick solution.

Troubleshooting Tips

Redbird lists solutions to problems from the most likely to least likely solution.

Computer won't power on or start up:

- Make sure the power switch on the back of the computer is turned on.
- Ensure that all power cables are firmly connected to the computer and to the electrical outlet.
- Ensure the power cables are not severely bent.
- Test the power cables and outlets by plugging them into another wall outlet.
- Test the wall outlet by plugging in other devices.
- Check to see if the power light is on (located in front of the computer near the power button.)
- If the power light is on, push down and hold the power button for at least 10 seconds until the computer turns off.
- Restart the computer.

The computer stops responding or a solid blue screen appears:

- If you are unable to get a response by pressing a key on your keyboard, push down and hold the power button for at least 10 seconds until the computer turns off.
- Restart the computer.

There's no sound from the speakers:

- Check the speaker's USB and audio cable to ensure it's plugged in correctly.
- Check for damaged or frayed cables.
- To eliminate any possible interference or static, turn off nearby fans and fluorescent or halogen lights.
- Test audio by plugging in ear buds in the audio port.

Keyboard is inoperable:

- Check the keyboard's USB cable to ensure it's plugged in correctly.
- Check for damaged or frayed cables.
- Unplug keyboard and plug in to a different USB port.
- Restart the computer.

The Navigator Menu doesn't appear:

- Ensure the power and video cables are firmly secured.
- Ensure the video cables are not severely bent or have broken pins.
- Test the power outlets by plugging it into another wall outlet.
- Test the wall outlet by plugging in other devices.
- Ensure the power light is on (located in front of the computer.)
- Restart the computer.

Unable to launch flight in the Navigator Menu:

- If the Navigator Menu displays an error, ensure that all power and USB cables are connected to the computer.
- Ensure all flight conditions are chosen and filled in correctly and that there are no errors.
- Ensure the keyboard is properly connected to the computer (see keyboard is inoperable.)
- Reboot the simulator if the problem still exists.

Unable to end flight:

- If the ESC button on the keyboard is inoperable, make sure the keyboard is properly connected to the computer (see keyboard is inoperable.)
- Restart the computer.

TROUBLESHOOTING

In the Navigator Menu, system displays an error:

- Ensure the USB cables are properly connected to the computer.
- Unplug USB devices and plug back in to different USB ports.
- Restart the computer.

The switches, yoke, throttle, knobs and or buttons are inoperable:

- Ensure all the USB cables are firmly secured.
- Try turning the knobs smoothly and steady at a moderate speed for best results.
- Restart the computer.

If the problems has remained unresolved, visit our website at www.redbirdflight.com, or contact Redbird Service Department for additional support.



TDsupport@redbirdflight.com
Monday - Friday 8:00 am - 6:00 pm CT
US Central Time
(512) 301-0755

KEEPING YOUR SOFTWARE UP-TO-DATE

If your TD/TD2 is connected to the Internet, Navigator can search for software updates for your simulator. If you are not connected to the Internet, see Chapter 1 – Setting Up your Redbird TD/TD2, Optional Equipment on page 16 for Internet setup instructions.

For TD/TD2 Updates:

- Starting from the Navigator main menu (Navigator Springboard) click on the SIM MANAGEMENT button (see p. 39).
- On the left side of the window, select UPDATES
- Type in your password and click LOGIN (see your administrator if you need the password)
- Click the REFRESH button – Navigator will contact Redbird software servers on the Internet and check for any available software updates.
- If a software update is available, it will be downloaded. Follow the simple on-screen instructions to install the update.

Learning More, Service and Support

The Redbird TD/TD2 comes with a one (1) year warranty, which includes software updates and service and replacement parts as needed. After the first one (1) year warranty, Redbird offers optional two (2) year warranty extension.



Any unauthorized software on your Redbird TD/TD2 is prohibited and will void your warranty.

Contact Redbird Service and Support if you:

- Can't find what you are looking for in this manual
- Need to return items for warranty and repair
- Lost your original shipping and packaging materials
- Have problems with your order, such as missing or wrong parts



support@redbirdflight.com
Monday - Friday 8:00 am - 6:00 pm CT
US Central Time
(512) 301-0755

Returning Items for Warranty and Repair

Prepare all items being returned for repair as follows:

1. Prior to returning materials, ensure you've tried all troubleshooting and spoken with a Redbird Service Department personnel.
2. Call Redbird Service Department at 512-301-0755 Monday through Friday 8:00 am - 6:00pm CT (US Central Time), excluding holidays, to obtain a return.
3. The following guidelines apply when packing the product for repair:
 - Include your name, address and contact phone number
 - All products being returned for warranty service must be carefully packed in the original box and packing materials. Any damage incurred due to improper packing or use of other packing materials will void the warranty and all repairs will be chargeable to customer.
4. During Redbird's product warranty, the customer will be responsible for postage, insurance and/or shipping cost incurred to ship the product to Redbird's Customer Service Department, and Redbird will be responsible for the shipping cost incurred to return the product back to the customer's specified address within the contiguous United States (48 states and DC.)
5. You also assume the risk of loss during shipment to Redbird Services.
6. Collect On Delivery (C.O.D.) packages are not accepted.
7. *The TD/TD2 packaging and shipping materials are designed for protection. If the Redbird TD/TD2 is not shipped in its original packaging to Redbird Customer Service Department for custom repair and support, Redbird will not be liable for damages other than what is specified by the client. If needed, Redbird will provide replacement packaging at the customer's expense.

Returning Address:

Redbird Flight Simulations

Attention: Customer Service Department
2301 E. St. Elmo Rd., Suite 100
Austin, TX 78744

WARRANTY

WARRANTY PERIOD

The warranty hereof shall mean a period of one (1) year from the original date of purchase for parts & labor. In the event that the product required for replacement is no longer in production and/or is obsolete, Redbird will repair the unit with similar or like parts of equal function. If a similar or like part is not available, a charge may be incurred to the owner, for any upgraded part substituted.

WARRANTY TERMS AND CONDITIONS ON Redbird TD/TD2 products

1. Redbird warrants that the product you have purchased is free from manufacturing defects in materials and workmanship when dispatched from our warehouse.
2. The receipt of purchase shall be provided as proof of the date of purchase and the warranty period commences as of that date. Proof of purchase will be required in the event of any discrepancy.
3. The warranty will not apply to any product purchased from a dealer/reseller other than an authorized Redbird dealer/reseller.
4. This warranty applies to the original purchaser only and is not transferable.
5. The warranty automatically becomes void if the product has been physically damaged or rendered defective (a) as results of an accident, misuse, fire, lightning, malicious damage, water damage, abuse or other circumstances beyond Redbird's control; (b) by the use of parts or peripherals not authorized by Redbird; (c) as a result of normal wear and tear; (d) by use in an improper operating environment; (e) by improper installation and operation or unauthorized modification of the product; (f) by the serial number or product code sticker being removed or defaced; (g) as a result of a service rendered by anyone other than Redbird authorized service center or its authorized service agents; (h) as a result of the product not being operated in conformity with Redbird's user manual.
6. Replacement product or parts may include re-manufactured or refurbished parts or components. All replacement parts are warranted for one (1) year.
7. Your LCD Monitor included contains thousands of individual pixels. These monitors typically contain a small number of pixels that do not function normally. Your display has been inspected and is in compliance with the manufacturer's specifications, indicating that any pixel defects do not affect the operation or use of your monitor.
8. In all circumstances, the user must ensure that the product is packed in appropriate packing. Any damage due to improper packing will void product warranty and the cost incurred to repair damaged product will be customer's responsibility.
9. Software related faults resulting from customer installed software, incorrect software installation or usage or software viruses shall not be considered as product faults and may incur a charge for rectification.
10. Redbird is not responsible for damages of any kind including, but not limited to, direct or indirect damages, lost profits, lost savings, or other special incidental, exemplary or consequential damages whether for breach of contract, tort or otherwise, or whether arising out of the use of or inability to use the product, even if Redbird or any dealer, distributor or authorized service provider / partner have been advised of the possibility of such damages, or any claim by any other party. This warranty does not deprive the Owner/Customer of any rights or remedies under that Trade Practices Act 1974 and/or under any other applicable commonwealth, State or Territory legislation.

WARRANTY (con't)**To Obtain Warranty Service:**

1. Contact our Customer Service Department Monday through Friday 8:00am – 6:00pm CT (US Central Time), excluding holidays, to determine the nature of the problem. If product needs to be returned for repair, an RMA # (Return Material Authorization number) may be issued. Redbird's Authorized Service Centers may not accept any returned product without RMA # if an RMA # was issued to you. Contact Customer Service to determine if you need an RMA # before preparing your return shipment.
2. The following guidelines apply when packing the product for repair:
 - Include your name, address, and contact phone number
 - All products being returned for warranty service must be carefully packed in the original box and packing materials. Any damage incurred due to improper packing or use of other packing materials will void the warranty and all repairs will be chargeable to customer.
 - If issued to you, the RMA# must be clearly printed on the shipping label (not on the box).
3. During Redbird's product warranty, the customer will be responsible for postage, insurance and/or shipping cost incurred to ship the product to Redbird's service center and Redbird will be responsible for the shipping cost incurred to return the product back to the customer's specified address within the United States of America (50 states and DC), Canada, Mexico and Puerto Rico. For all other regions customer is responsible for postage, insurance and/or shipping costs both to and from Redbird's service center.
4. Redbird is not responsible or liable, for missing components and/or damage to the unit caused by any shipping to or from any Authorized Redbird Service Center. All claims of damage should be directed to the appropriate shipping carrier.

For Customer Service, please contact Redbird at:**Redbird Flight Simulations**

Attention: Customer Service Department
2301 E. St. Elmo Rd., Suite 100, Austin, TX 78744

Tel: 1-512-301-0755

Email: support@redbirdflight.com

Web: <http://www.redbirdflightsimulations.com>



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