BASIC KEY COMMANDS

Display/Hide Kneeboard: F10
(includes a complete list of key commands)

Command	Key
Pause	P
Full Screen Mode (no menus or taskbar)	ALT+ENTER
Display Menu Bar (in Full Screen Mode)	ALT
Cycle Views (Cockpit, Virtual Cockpit, Tower, Spot Plane)	S
Panel On/Off	W
Display/Hide Other Panel Windows	SHIFT+2 through SHIFT+9
Change Simulation Rate	R (press + and – to increase/decrease)
Look Around	SHIFT+Num Pad 1 through 9 or move joystick hat switch
Display/Hide ATC menu	` (ACCENT)
Engine Autostart	CTRL+E
Decrease Throttle	F2
Increase Throttle	F3
Decrease Propeller rpm	CTRL+F2
Increase Propeller rpm	CTRL+F3
Lean Mixture	CTRL+SHIFT+F2
Enrich Mixture	CTRL+SHIFT+F3
Landing Gear Up/Down	G
Retract Flaps (in increments)	F6
Extend Flaps (in increments)	F7
Slew Mode On/Off	Y

Microsoft game studios™

Microsoft®

Flight Simulator 2004
A Century of Flight
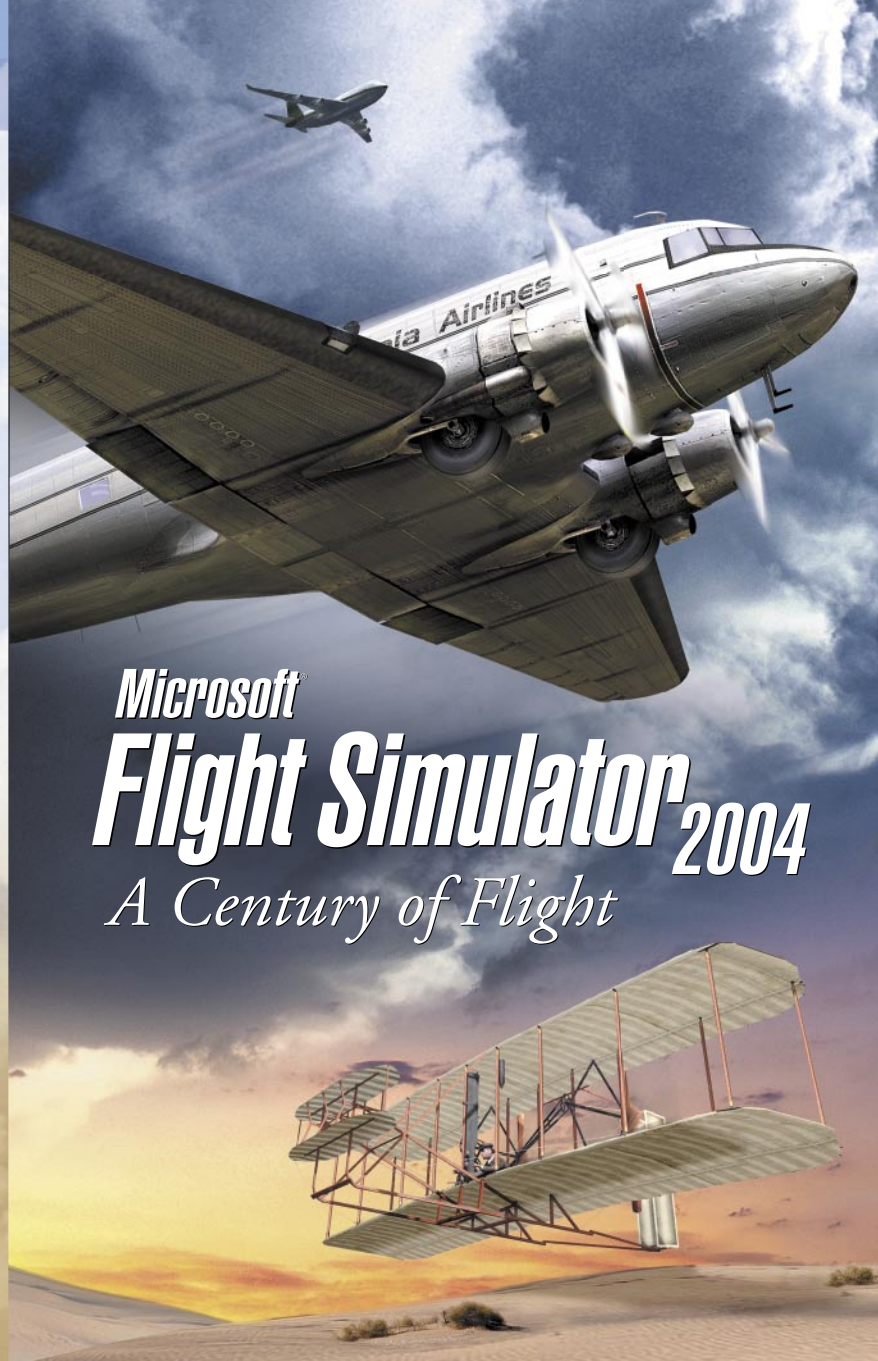
SAFETY WARNING

About Photosensitive Seizures

A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns that may appear in video games. Even people who have no history of seizures or epilepsy may have an undiagnosed condition that can cause these "photosensitive epileptic seizures" while watching video games.

These seizures may have a variety of symptoms, including lightheadedness, altered vision, eye or face twitching, jerking or shaking of arms or legs, disorientation, confusion, or momentary loss of awareness. Seizures may also cause loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

Immediately stop playing and consult a doctor if you experience any of these symptoms. Parents should watch for or ask their children about the above symptoms— children and teenagers are more likely than adults to experience these seizures.

The risk of photosensitive epileptic seizures may be reduced by taking the following precautions:

- Play in a well-lit room.
- Do not play when you are drowsy or fatigued.

If you or any of your relatives have a history of seizures or epilepsy, consult a doctor before playing.

CONTENTS

Almost four years *of exhausting work and meticulous experimentation went into making the Wright Flyer's first 12-second powered flight a success.*

FIRST FLIGHTS

ON A COLD DECEMBER DAY in 1903, after weeks of testing on the windy dunes at Kitty Hawk, North Carolina, the Wright Flyer sputtered to life. At 10:35 A.M., the Flyer, propellers whirring, began to slide down its narrow track. Then it lifted from the track and rose above the sands of Kitty Hawk. The flight lasted only 12 seconds and covered a mere 120 feet. But there was no doubt—on that windy December 17, the Wright brothers had realized a human dream. They had flown!

Just 30 years later, the Douglas DC–3 was making regular airline service comfortable and profitable. Three and a half decades after that, on February 9, 1969, the first Boeing 747 (left, bottom) thundered into the skies over Everett, Washington.

Now, it's your turn to fly into history.
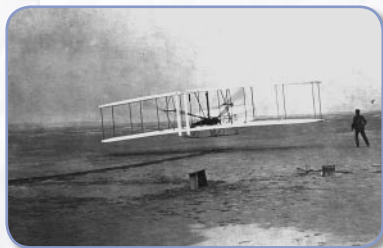
Air Force Historical Research Agency Photo

Corbis

The Wright Flyer's first successful flight (above, top) *was shorter than the economy-class section of a Boeing 747.*

INSTALLING FLIGHT SIMULATOR

If your computer doesn't support automatic installation, follow these steps

1. Insert **Flight Simulator 2004 Disc 1** into your CD drive.
2. Click **Start** on the taskbar.
3. Point to **Settings** and/or select **Control Panel**.
4. Double-click **Add/Remove Programs**.
5. For Windows 98, 98SE, or ME, select the **Install/Uninstall** tab, and click **Install**. For Windows 2000 or XP, select **Add New Programs** and click **CD or Floppy**.
6. Follow the instructions that appear on your screen.

During setup, select **Express** to install all necessary Flight Simulator files in their default locations. Otherwise, click **Install** to choose one of two installation options: **Compact** or **Complete**. If you need to conserve disk space, choose the **Compact** setup option. If you want to optimize flying performance, choose **Complete**.

TO START FLIGHT SIMULATOR

• Double-click the **Flight Simulator 2004** icon on the Windows desktop.

Note: You'll need to have Disc 4 in your CD drive each time you start Flight Simulator. If you've chosen **Compact** installation, you'll also need to keep Disc 4 in your CD drive during flight.

LEARNING TO FLY

IT'S BEEN A FULL CENTURY since the Wright Flyer's first powered flight. At first, the skies were empty and the airspace unrestricted. It was an age of slow speeds, spruce-and-fabric wings, and airfields that were also corn fields. In the following decades, aviation filled the skies with beautiful aircraft and awesome adventure, while technology allowed pilots to travel through all kinds of weather. Within a few decades of the birth of powered flight, pilots and passengers were soaring across continents, racing over oceans, and jetting around the world in less than a day. It was a century when the airplane brought distant lands closer and changed people's sense of space and time—a century when the world learned to fly.

Hulton Archive/Getty Images

Posters celebrated the Vickers Vimy's nonstop transatlantic crossing.

EXPERIENCE THE DREAM

The centennial of powered flight has enjoyed a healthy share of media coverage. But it's one thing to learn about history, and quite another to experience it. And that is what *Flight Simulator 2004: A Century of Flight* is all about—allowing you to experience the dream of flight firsthand.

By piloting the Wright Flyer on the windswept dunes at Kitty Hawk, navigating the Ryan NYP "Spirit of St. Louis" across the dark North Atlantic, and bringing in a sophisticated Boeing 747–400 for a smooth landing in Tokyo, you can experience the range of technology that defined the first hundred years of powered flight. You'll slip into the cockpits of some of the century's greatest aircraft and pilot them on their historic flights. And once you take flight, you'll have a greater appreciation for what those early aviators may have felt as they followed the train tracks, squinted into the wind, pushed in the throttle, and roared aloft.

A CENTURY OF FLIGHT

"The best way to understand pilots—even pilots who lived 75 years ago—is simply to fly with them," writes *Flying* magazine columnist and West Coast editor Lane Wallace in her introduction to **A Century of Flight**. In nine evocative stories, Wallace recounts her experiences with the historic aircraft featured in Flight Simulator and reflects on their legacies.

Savoring the rare opportunity to sit in Amelia Earhart's Vega, Wallace writes, "'This is where she sat,' I whisper wonderingly to myself, well aware of how few people since then have ever been allowed to sit in the silence of this carefully preserved cathedral …"

A Century of Flight

Each Century of Flight story includes links to re-created historical flights. After reading about each aircraft, its famous flights, and its notable pilots, you can fly into history—piloting the de Havilland DH–88 Comet in the MacRobertson Air Race, or flying an early airline route through the Rocky Mountains in a Douglas DC–3.

Amelia Earhart's Vega in Flight Simulator

To read about—and fly—the nine historical aircraft in Flight Simulator, click **Century of Flight** on the left side of the main screen.

GETTING STARTED

Early pilot training included little more than mastering a few simple rules and then giving it a try. The rest was left to instinct, good sense, and knowing the lay of the land. But pilots quickly discovered that there was a lot more to learn about flying.

Getting Started

There's a lot to know about Flight Simulator, too, and that's part of its fun and challenge. In Flight Simulator, you can learn what it takes to fly some of the world's finest aircraft. **Getting Started**—with John and Martha King of King Schools—gives you an introduction to key features and a gateway to your first flight.

To begin exploring Flight Simulator, click **Getting Started** on the left side of the main screen.

FLYING LESSONS

Flight Simulator offers two ways for you to learn to fly: Climb into the cockpit and fly by the seat of your pants—as many of the first pilots did—or learn using the same techniques that modern pilots employ, progressing through the ranks of Student, Private, Instrument, Commercial, and Airline Transport courses by taking **Flying Lessons** with instructor Rod Machado. Flying Lessons combines in-depth ground school tutorials with integrated flying lessons, starting in the Cessna Skyhawk SP Model 172 and moving up to the Beechcraft Baron 58 and Boeing 737–400. You'll even earn a certificate upon successful completion of each category.

Flying Lessons

To learn to fly, or to earn a new Flight Simulator pilot rating, click **Flying Lessons** on the left side of the main screen.

THE LEARNING CENTER

As you explore Flight Simulator—taking lessons, flying around, trying new aircraft—be sure to spend some time in the **Learning Center**, your source for answers and information about Flight Simulator. The Learning Center offers more than 120 articles covering the full range of Flight Simulator topics, such as basic flight instruments, using the mouse in the cockpit, and setting weather themes. You'll also learn about new features, such as dynamic weather and changes to Air Traffic Control, as well as advanced flying topics such as Flying Taildraggers, Flying Twin-Engine Aircraft, and Flying Jets.

The Learning Center

Navigating through the Learning Center is much like browsing the Web; each article includes related links that connect you to other articles. The Learning Center also offers three different ways to find information: **Key Topics** presents a visual way to explore major Flight Simulator themes, the **Site Map** offers a comprehensive table of contents, and the **Index** allows you to find articles by topic.

To visit the Learning Center, click **Learning Center** on the left side of the main screen. To begin exploring, you'll want to read articles such as The Big Picture, Just Get Me Flying, and Step-by-Step Guide.

CREATE A FLIGHT

Once you've learned to fly, Flight Simulator's skies are wide open to you. Choose your aircraft, your starting location and time, and the prevailing weather … then start flying. To design your own adventure, click **Create a Flight** on the left side of the main screen.

SELECT A FLIGHT

Flight Simulator features historical and modern flights that take you to some spectacular destinations. These flights cover a wide range of difficulty, and include detailed briefings that make your flying adventures even more realistic. To choose a flight, click **Select a Flight** on the left side of the main screen.

FLIGHT SIMULATOR NEWS

If you have an Internet connection, **News** can download the latest information about Flight Simulator. To get updates, click **News** on the left side of the main screen.

MULTIPLAYER

Flight Simulator lets you try formation flying, aerobatic competitions, and air racing with friends and other pilots over a network, on the Internet, or on Zone.com.

To set up or join a multiplayer session, click **Multiplayer** on the left side of the main screen. To learn more, read the **Multiplayer** article in the Learning Center.

SETTINGS

You can modify Flight Simulator to suit your preferences or to maximize your computer's performance. The **Settings** screen lets you adjust your preferences for display, sound, Air Traffic Control, scenery, realism, weather, and much more.

To customize Flight Simulator, click **Settings** on the left side of the main screen. To learn more about Settings, read the articles on Realism, General Settings, Display, and Sound in the Learning Center.

FLYING TO AUSTRALIA

On November 12, 1919, Australian pilot Ross Smith, his brother Keith, and two mechanics (above, center) began a journey that took them over lands no one had ever seen from the air. They planned to fly their Vickers Vimy more than 11,000 miles from England to Australia—a route many pilots had already tried and failed.

Each day they covered new ground and new skies, landing on roads, farm fields, and even racetracks. On December 10, the team began their final leg toward Darwin, Australia, pushing the Vimy to its maximum range.

*To read more about the Vimy and to re-create this historic flight, click **Century of Flight** on the left side of the main screen.*

DREAMS OF THE SKY

FOR THOUSANDS OF PILOTS who learned to fly in the Curtiss JN–4D "Jenny" during World War I, the postwar skies were an open opportunity. Barnstormers looped and swooped above gasping crowds and, for many people, airplanes were still such a new sight that nearly every flight was an impromptu air show. The Curtiss Jenny, which performed in many such spectacles during the 1920s, introduced the public to flight.

It was an era when pilots dreamed of adventure. In 1920, Tex Marshall, his wife Katherine, and their friend Frank Palmer set out for Ohio from Florida in a pair of Curtiss Jenny airplanes. They had no set schedule, few certain landing fields, and inaccurate maps. As Marshall soon discovered, the sky was as full of challenge as of wonder. One challenge had a name: weather.

The Curtiss Jenny starred in many antics during the barnstorming years.

WEATHER

Like the early flyers' aspirations, the skies in Flight Simulator have no limits. Just as you can re-create Tex Marshall's cross-country flight, fly a Curtiss Jenny through a barn near Findlay, Ohio, and pilot the daring "Hell Stretch" airmail route across the stormy Allegheny Mountains, you can also customize many kinds of weather—from severe thunderstorms to a clear blue afternoon—to test your skills.

Clouds are one of the most marvelous and challenging parts of flight, and they're the centerpiece of Flight Simulator's improved weather system. Flight Simulator now features **Dynamic Weather**; three-dimensional clouds build and change realistically with the temperature and time of day, and even blow across the sky. The dynamic weather system also generates rain, snow, and fronts that develop based on atmospheric conditions.

Flight Simulator's new **Weather Themes**—preset weather conditions centered on your aircraft's current location—generate challenging flying scenarios with just a few clicks. Select "Cold Fronts" to fly through fast-moving storms, "Fogged In" to test your instrument skills, "Winter Wonderland" to spend a beautiful day flying amid snow flurries, or one of seven other preset themes that let you experience complex weather conditions without having to set conditions along your flight path.

The Ford 4–AT Tri-Motor prepares for takeoff in the "Winter Wonderland" weather theme.

AIRMAIL'S ROCKY DEBUT

On May 15, 1918, the United States Postal Service began airmail service. When the first pilot, George L. Boyle, was ready to depart Washington, D.C., his Curtiss JN–4 "Jenny" refused to start: the plane was out of gas. And that was just the beginning of his trouble.

Eventually, Boyle took off, following train tracks. But as the tracks circled, so did he. Then, after running out of gas, Boyle crashed in a field.

*To read more about the Curtiss Jenny and to re-create this historic flight, click **Century of Flight** on the left side of the main screen.*

Of course, you can still create custom weather piece by piece, defining cloud layers, winds aloft, visibility, precipitation, and temperature. Watch raindrops spatter the windscreen of your Beechcraft King Air 350 during a low-level run in coastal Alaska, or slice through a stratus layer on your climb through 30,000 feet in the Bombardier Learjet 45. With an Internet connection, you can fly in **Real-World Weather** by downloading current conditions. You'll confront the same weather that you'd encounter most anywhere in the world, in real time.

To read more about Flight Simulator's improved weather functions, read the articles in the **Weather** section of the Learning Center.

INSTRUMENT FLYING

The need to fly in all conditions eventually led engineers and pilots to develop techniques for flying without the aid of ground references. In 1929, Jimmy Doolittle made the first instrument-only flight using an altimeter, artificial horizon, and directional gyro to take off, circle, and land.

Flying with instruments in Flight Simulator, you have access to the same navigation aids and instruments available to real-world instrument-rated pilots. You can create VFR (Visual Flight Rules) and IFR (Instrument Flight Rules) flight plans with the **Flight Planner**; selected aircraft include IFR panels, which show all key instruments, avionics, and controls on the screen. The Flight Simulator NavData database, supplied by Jeppesen, includes the world's VORs (VHF omnidirectional receivers), NDBs (nondirectional radio beacons), ILSs (instrument landing systems), low- and high-altitude airways, and intersections.

To learn more about using navigational aids in Flight Simulator, read the articles on **Navigation** in the Learning Center.

Compare the cockpits of the Curtiss Jenny (top), the Vega (middle), and the Boeing 777–300 (bottom), and see the evolution of instrumentation during flight's first century.

HISTORICAL FLIGHTS

FLIGHT SIMULATOR lets you re-create more than a dozen historical flights. To fly these adventures, click **Century of Flight** on the left side of the main screen.

Labels on world map: Anchorage, New York, Saint John's/Harbor Grace, Londonderry, Clifden, London, Paris, Santiago, Buenos Aires, Cape Town, Darwin, Melbourne

Labels on inset map: Salt Lake City, Denver, Findlay, Bellefonte, San Francisco, St. Louis, Columbus, New York, Los Angeles, Washington D.C., San Diego, Kitty Hawk, Daytona Beach, Mexico City

Legend:

→	1903 Wright Flyer	→	Ford 4–AT Tri–Motor
→	Curtiss JN–4 "Jenny"	→	de Havilland DH–88 "Comet"
→	Vickers Vimy	→	Douglas DC–3
→	Ryan NYP "Spirit of St. Louis"	→	Piper J–3 Cub
→	Vega		

OF DISTANCE AND TERRAIN

THE FIRST PILOTS spent much of their time flying precariously at exhibitions and in aerial circuses. But it wasn't long before they attempted long-distance travel. In 1911, the first aircraft flew across the entire United States when Calbraith Rodgers piloted his "Vin Fiz" Wright EX biplane from New York to Long Beach, California. During the 49-day journey, Rodgers spent more than 82 hours in the air and crashed 69 times.

CROSSING THE ATLANTIC

For more than 15 years after the first powered flight at Kitty Hawk, no airplane had flown nonstop across an ocean. Over land, pilots could often remedy emergencies by landing for repairs. Over open water, however, any malfunctions, mechanical failures, or mistakes turned all the more critical.

In 1919, the transatlantic crossing became reality. John Alcock and Arthur Whitten Brown piloted a Vickers Vimy from Newfoundland to Ireland in just under 16 hours.

Corbis

Charles Lindbergh with the Spirit of St. Louis

In the spring of 1927, aviators lined up for another challenge: flying nonstop from New York to Paris. Many had already failed when Charles Lindbergh tried a new and daring approach—simplicity— using a single-engine plane flown by a single pilot. Lindbergh bounced down the muddy runway at Roosevelt Field in the cloudy dawn of May 20, and the world held its breath for more than 33 hours as Lindbergh's airplane was sighted at various points en route. At long last, the buzz of an engine was heard over Paris and the small silver airplane circled, landed, and rolled to a stop. Suddenly, Paris and New York were closer to each other, and pilots gained a new perspective on distance and terrain.

The Spirit of St. Louis circles above Paris in Flight Simulator.

A FLYING GEOGRAPHY LESSON

In Flight Simulator, pilots don't just fly above the realistic terrain of an artificial world. They fly above the terrain of *this* world, to and from highly detailed cities and more than 23,000 airports, complete with taxiway and runway signs. True-to-life aircraft soar above realistic ground textures that replicate actual geographic features. Enhanced three-dimensional landmarks, including the lighted signs of Las Vegas and the familiar iron arches of the Eiffel Tower, combine with stunning natural landmarks like Niagara Falls, the Grand Canyon, and Mount Everest to make Flight Simulator a unique tool for exploring the planet.

ISLAND AIRLINES

Several decades after jet aircraft first took to the skies, a small airline still flew a fleet of Ford 4–AT Tri-Motors for their short-hop, short-field circuit from Port Clinton, Ohio, to small islands in Lake Erie.

Island Airlines billed itself as "The Shortest Airline in the World." The Ford Tri-Motors served as school buses, flying students from the outer islands to high school campuses. Some islands were so close that when the plane landed, its wheels were still spinning from takeoff.

To read more about the Ford Tri-Motor and to re-create Island Airlines flights, click **Century of Flight** *on the left side of the main screen.*

To learn more about terrain and scenery objects, read the **Scenic Highlights** article in the Learning Center.

Flight Simulator offers the chance to re-create not only history's milestones, but your own favorite travels and flights as well. To get a sense for how real a simulation can be, try this exercise: Fly your Flight Simulator aircraft to a place you know well, and see how the experience brings memory to life.

Similarly, when you re-create the Vickers Vimy's first transatlantic crossing in Flight Simulator, you'll get a sense of the distance across the Atlantic Ocean that no book or film can truly convey. Or try Amelia Earhart's transatlantic flight at the controls of her Vega, and look down as you leave the Newfoundland coast and set out across the dark north Atlantic. In a way, Flight Simulator encompasses history.

THE SCENERY BELOW

From aviation's early days, flying has changed the way pilots looked at the world. Topographic features you've never noticed—or needed to notice—from the ground suddenly become all-important from the air. If you're following a river, that river becomes part of your flight's navigational plan. Or perhaps you use landmarks, such as small ponds, dirt roads, or a stand of trees to gauge final approaches or estimate glide slopes. Again, the scenery below has become an essential part of your flight. And the array of scenery that lies beneath your wings in Flight Simulator can be amazing.

Have you ever wanted to fly to a certain airport or over particular terrain during various seasons? It's possible in Flight Simulator. When you change the season, you also change the ground texture: In winter, snow cloaks the prairies; spring turns the hills green. Changing the season gives you a challenge, and a different feel for a place you thought you knew so well.

To learn more, read the **Time and Season** article in the Learning Center.

Wyoming in Summer

Wyoming in Winter

San Francisco at Dusk

With a balance of efficiency, *range, speed, and payload, the Douglas DC–3 was the first aircraft to earn a profit just by carrying passengers.*

TECHNOLOGY TAKES OFF

THE PURSUIT OF SPEED

When Transcontinental Air Transport began service in 1929 using a combination of railroads and Ford Tri-Motor flights to travel across the United States, brochures touted a miraculous 48-hour coast-to-coast journey.

In the early 1930s, the new streamlined Vega became the favorite of record-coveting pilots. Wiley Post flew a Vega during his 1931 around-the-world flight, as did Amelia Earhart when she became the first woman to fly solo across the Atlantic in 1932. In 1934, the de Havilland DH–88 Comet—the first British aircraft with retractable landing gear, flaps, and variable pitch propellers—won the MacRobertson Air Race, flying between England and southern Australia in slightly less than 71 hours.

The swift and reliable Douglas DC–3, which was able to carry more people than the Ford Tri-Motor and with greater speed and efficiency, became one of the most widely used transportation aircraft in the world during the 1930s and 1940s.

Hulton Archive/Getty Images

The Douglas DC–3 quickly became the hero of many early airlines.

NAVIGATION

For early pilots, the land was their chart on clear days. Just as in the real world, it's easiest to navigate in Flight Simulator by simply looking out the window and following landmarks, a technique called *pilotage*. Using pilotage, a clock, and a magnetic compass, you can practice *dead* (or *deduced*) *reckoning*.

To learn more about pilotage and dead reckoning, read the **Old-Fashioned Navigation** article in the Learning Center.

The DH–88 Comet races to Melbourne, Australia, in Flight Simulator.

Until the 1920s, pilots relied on written flying instructions that described air routes using the locations of prominent buildings, hills, roads, and trees. Today's complex aviation charts contain more than 200 symbols to help pilots navigate. Flight Simulator's **Map** offers an improved full-color terrain display to show the location of your aircraft at any time. You can also navigate in Flight Simulator using radio-based navigation.

To learn more about navigational aids, read the **Aviation Charts**, **Everything You Need to Know about a VOR**, and **Automatic Direction Finder** articles in the Learning Center.

GPS

From the magnetic compass to radio beacons, navigational technology has made many strides. The global positioning system (**GPS**) is the latest landmark advancement in electronic navigation, using satellite transmissions to plot your aircraft's position. To help you navigate, Flight Simulator simulates two sophisticated GPS receivers. Both units feature terrain mapping as well as airport and facility information that you can access during flight.

Flight Simulator models sophisticated GPS receivers.

To learn more about GPS features, read the **Using the GPS** article in the Learning Center.

THE KNEEBOARD

Early pilots sometimes pasted their charts to boards, which they strapped to their legs to keep the charts from blowing out of the open cockpit. Today, pilots use similar kneeboards to stay organized and keep important information close at hand. The Flight Simulator **Kneeboard** holds your flight briefing and aircraft checklists, a complete list of keyboard shortcuts for operating controls, and both a navigation log and a log of radio communications. You can display or hide the Kneeboard during flights by pressing **F10**.

To learn more about the Kneeboard, read the **Using the Kneeboard** article in the Learning Center.

AIR TRAFFIC CONTROL

As the skies became busier, Air Traffic Control (ATC) evolved to make flight safer and more efficient. Flight Simulator brings you into the ATC conversation with enhanced interactive **Air Traffic Control**. Real-time Air Traffic Control clears you to take off and land, issues directional instructions, and lets you hear controllers speaking to other aircraft. ATC can also issue in-flight IFR clearances, handle altitude changes en route, and direct you to nonprecision and precision approaches to multiple runways at airports around the world, including airports without control towers. You might begin your flying day by talking to ATC from a 747–400 on an instrument flight from Rome, and conclude by getting landing clearance into London.

To learn more about ATC, read the **Air Traffic Control** articles in the Learning Center.

Dean Conger/CORBIS

THE FIRST 'JUMBO JET'

Since the first Boeing 747 (above) was built, Boeing has delivered more than 1,230 747s. Today's 747–400 features digital systems as well as greater power, range, and fuel efficiency than any previous 747 model.

A Boeing 747–400 includes …

… 171 miles of wiring.

… 6 million parts, including some 3 million fasteners.

… a tail as high as a six-story building.

… a cockpit with 365 gauges, lights, and switches.

… wings that each weigh 28,000 pounds (12,700 kilograms)—10 times the entire weight of Boeing's first airplane, the 1916 B&W.

THE AIRCRAFT

Get to know the Flight Simulator fleet's historic and modern aircraft.

1903 Wright Flyer	*On December 17, 1903, the Wright Flyer became the first aircraft to achieve controlled powered flight.*
Curtiss JN–4D "Jenny"	*The Curtiss Jenny carried the first United States airmail and proved a favorite airplane for barnstormers.*
Vickers F.B.27A Vimy	*The Vimy astounded the world with record-breaking flights, including the first nonstop Atlantic crossing.*
Ryan NYP "Spirit of St. Louis"	*Flying nonstop between New York and Paris, Charles Lindbergh and the Spirit of St. Louis made history.*
Ford 4–AT Tri-Motor	*Nicknamed the "Tin Goose," the Ford Tri-Motor pioneered early airline and air transport routes.*
Model 5B and 5C Vega	*In the hands of pilots such as Amelia Earhart and Wiley Post, the Vega set many records during the 1930s.*
de Havilland DH–88 "Comet"	*The DH–88 Comet won the 11,000-mile MacRobertson race from England to Australia in 1934.*
Douglas DC–3	*The DC–3 revolutionized air transportation and airline service during the 1930s and 1940s.*
Piper J–3 Cub	*The simple, inexpensive Piper Cub lifted a generation of pilots into the skies for the first time.*
Robinson R22 Beta II	*The two-seat Robinson R22 is among the most popular, least expensive helicopters in the world.*
Schweizer SGS 2–32	*The all-metal SGS 2–32 aerobatic sailplane has held many of the world's soaring records.*
Extra 300S	*A lightweight aerobatic champion, the 300S features a 300-horsepower engine and exquisite control.*
Cessna Skyhawk SP Model 172	*The latest model of the popular single-engine C172, the Skyhawk SP makes a stable and trusty trainer.*
Cessna Skylane Model 182S	*More powerful than the Skyhawk SP, the Skylane provides a good first step into a complex aircraft.*
Cessna Grand Caravan C208B	*Known as a tough, dependable airplane, the Grand Caravan flies in and out of most any airport.*
Cessna Caravan C208 Amphibian	*Equipped with both landing gear and floats, the Caravan Amphibian can fly to most any destination.*
Mooney M20M "Bravo"	*The Mooney Bravo is among the fastest single-engine piston aircraft currently produced.*
Beechcraft Baron 58	*The Baron 58 combines sleek Beechcraft design with the performance of twin engines.*
Beechcraft King Air 350	*A workhorse, the King Air 350 is the latest model in the world's most successful line of turboprop aircraft.*
Bell 206B JetRanger III	*A winning formula for safety and value makes JetRanger the world's most popular helicopter series.*
Bombardier Learjet 45	*The Learjet 45 holds the honor of being one of aviation's most popular business jets.*
Boeing 737–400	*Flown by many airlines, the Boeing 737–400 sees service worldwide.*
Boeing 747–400	*The 747–400's size, range, speed, and capacity rank this plane atop its class of large passenger jets.*
Boeing 777–300	*A long-range, fuel-efficient twinjet, the 'Triple Seven' marks the latest development in the Boeing family line.*

The Boeing 777 was the first jet airliner designed solely using computer modeling. Computers also link cockpit flight controls to the aircraft's control surfaces.

EXPANDING YOUR DREAMS OF FLIGHT

SINCE THE EARLIEST DAYS of flying, pilots have gathered to compare notes on weather, aircraft, landing fields, and flying techniques. It was in this camaraderie that they analyzed past flights and dreamed of new adventures.

Modern pilots and others in the aviation community still gather to share information about flight and flying. Discussions cover topics ranging from the latest radios and engine-out procedures to turbine aircraft and beautiful three-point landings. This "hangar talk" happens spontaneously—in the pilot lounge, the briefing room, or the airport restaurant—whenever pilots and aviation enthusiasts gather for more than a few minutes at a time. For Flight Simulator pilots, one of the favorite gathering places is on the Web, at any one of the many sites for Flight Simulator enthusiasts.

Latest in a long lineage: The Boeing 777's rollout, April 9, 1994.

THE WEB COMMUNITY

For two decades, Flight Simulator has been the hub of the flight simulation community, and the growing interest in discussing Flight Simulator topics and technology led enthusiasts to take their hangar talk online. Many Web sites offer forums where pilots discuss the latest Flight Simulator technology and provide new perspectives and tips on expanding your Flight Simulator interests.

Flight Simulator offers its own hangar at **www.microsoft.com/games/flightsimulator**. It's the best place to browse for Flight Simulator-related information and links to Flight Simulator sites worldwide that offer a variety of downloadable scenery, panel, and aircraft add-ons.

Well into the age of jets, a Piper Cub revives the roots of aviation.

ADDING AIRCRAFT

In the past century, aviation manufacturers have produced hundreds of aircraft types, from classic biplanes and jet airliners to flying boats and helicopters. Once you've experienced the world of Flight Simulator, you may want to add more aircraft to your Flight Simulator fleet. Amateur and professional developers around the world have created thousands of add-on aircraft, which are available at computer stores and on the Web.
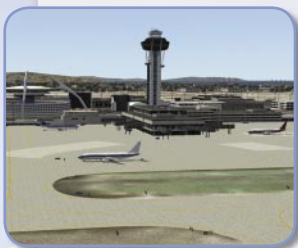
PILOTING VIRTUAL AIRLINES

Virtual airlines operate scheduled flights to most every destination in the world. Each airline has its own style—some fly passenger airliners, others fly cargo aircraft, and still others fly beat-up bush planes. Logging time with a virtual airline is a great way to structure your Flight Simulator experience. Apply for a virtual flying job and see if you can pass the test to earn the captain's seat. Once you're hired, you can download the airline's aircraft, scenery, and training materials, and use Flight Simulator to complete your assigned flights.

Virtual airlines visit the world's busiest airports, as well as rural landing strips.

To learn more about online Flight Simulator resources, add-on aircraft, or virtual airlines, read the article on **Expanding Your Hobby** in the Learning Center.

THE NEXT CENTURY OF FLIGHT

Celebrate the centennial of powered flight—from barnstormers to Boeing jets—as you take to the skies with Flight Simulator on your own adventures into the next century of flight.

SUPPORT OPTIONS

For all of our support offerings, visit **http://support.microsoft.com**. In Canada, visit **http://microsoft.ca/support/**.

To get started, try the following:

- For articles targeted at specific issues, visit the Microsoft Knowledge Base at **http://support.microsoft.com**.
- To work with a Microsoft Support Professional over the Internet, submit your issue at **http://support.microsoft.com/directory/onlinesr.asp**.
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