

## Flying Guide Introduction

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Welcome to the RealAir Simulations SF260 flying guide. You will find this guide essential, even if you are an experienced pilot and FS2004 user, since it contains important tips for setting up this unique aircraft to fly properly within the simulator.

This latest version for FS2004 includes a host of updates mostly revolving around the Virtual Cockpit. In particular we have included our proprietary new smooth gauge technology, introduced in our acclaimed Spitfire XIV — giving this SF260 the clearest, smoothest moving gauges you will have ever seen in an FS2004 Virtual Cockpit. In addition, all switches and levers in the VC can be clicked on and manipulated, meaning you can now fly the SF260 from the VC at all times without ever needing to use the 2D panel.

You will find that the new, crystal-clear, ultra-smooth gauges make IFR flight in the VC an absolute delight. The smooth gauge movement coupled with the comprehensive IFR panel-fit means that, using the instruments alone, you can sense what the aircraft is doing like never before. When zoomed right in you will notice a genuine improvement on even the best 2D gauges! That's right, VC gauges that are smoother in movement and clearer than the best 2D gauges!

Another major enhancement is the inclusion of the latest version of RealView, our system for giving the simulator pilot a sense of the acceleration forces that would be experienced by a real-life pilot. RealView also includes a stall-buffet simulation that reproduces the marked buffet experienced in the SF260 as it approaches and flies through the stall.

The following pages give useful information about all aspects of operating the SF260 in FS2004, written in plain language. For more detailed, technical operating procedures please refer to the Pilot's Detailed Checklist PDF, included with this package.

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## **History and Development of the SF260**

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The SF260 was designed by the master Italian aircraft designer Stelio Frati, who was born in 1919 and worked mostly in Milan. Frati quickly established a reputation for designing very sleek and efficient aircraft that made maximum use of limited power. The hallmark of all his designs is aesthetic beauty, clean lines and extremely light controls.

After serving his apprenticeship in Milan, Frati became first a teacher in aircraft design and later a freelance designer and aerodynamicist. In 1955 he designed one of his best known aircraft, a two seater cruising/sport aircraft made of wood, known as the Falco. This exquisite aircraft was the basis for the future SF260.

The Falco had a top speed of 210 knots despite the small 160 hp engine. This phenomenal performance was achieved by sculpting the Falco to be the sleekest, lowest-drag machine available anywhere in the world for its class. The addition of retractable undercarriage gave it even less drag.

In 1966 Frati designed an all-metal variation on the wooden Falco, which had largely been manufactured in kit form by Frati design enthusiasts. Marchetti took on the manufacturing task. The addition of tip tanks gave the emerging SF260 a military look as well as the increased capacity needed by the more powerful Lycoming 260hp engine with constant speed adjustable prop.

Currently there are some 850 SF260s flying around the world. Ownership extends to collectors and private enthusiasts who appreciate this unique aircraft's wonderful handling capabilities which not only make the SF260 a great aerobatic machine but also capable of full IFR cruising with excellent cruise ability.

In the last decade or so, increasing numbers of SF260s have been converted for military training use, including some "air combat" schools which allow private pilots to experience dog fight routines. Air Combat USA is one such school, and their courses appear to be growing in popularity.

Other SF260s have been deployed by NATO forces as fighter trainers and even as actual fighters in some under-developed countries for whom jet fighters are prohibitively expensive. With the SF260's very thin wings, which taper perfectly and are lamina flow, it is not surprising that it has been used for quasi-military purposes. A sliding bubble canopy, adapted from the Falco, affords the SF260 pilot a superb view.

It is a tribute to the genius of Stelio Frati that not only are the Falcos, and their natural successor the SF260, still flying almost half a century after the first design came off the drawing board, but that the SIAI-Marchetti SF260 is currently still the best performing GA aircraft in its class.

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## New Features

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### New Features

This new version of the RealAir SF260 is brimming with innovative new features, these features include:

- Visible and audible pre and post stall buffeting.
- An advanced version of RealView, simulating the g effects experienced by pilots in-flight.
- Wing-tip vortices that are independent for each wing.
- Realistic engine torque effects.
- Crystal clear VC gauges with perfectly smooth movement (no more stuttering VC gauges).
- New refinements to the SF260's already acclaimed aerodynamics.
- A pilot who moves his head to always look in the direction of flight.
- The pilot also regularly scans the sky, keeping an eye out for traffic.
- Three new civilian liveries.
- All VC switches and levers can be clicked on and manipulated
- New controls have been added to the VC including pitch trim, park-brake and fuel cut-off
- A magnetic compass that moves more realistically than ever before.

### What we haven't changed

This latest release of the RealAir SF260 is **not** an all-new version. All-in-all our SF260 customers were very happy with the SF260 as it stood before this update, but with the extremely positive feedback our smooth gauge technology received when first seen in our Spitfire XIV, we decided that our long-running SF260 would benefit greatly from this gauge technology.

So, this version uses the same exterior 3D model as our previous SF260 releases with some changes made to animations only (plus three new liveries). The VC 3D model is also closely based on the previous version's 3D model.

This has allowed our small development team to remain focused on future aircraft releases while giving you, our customer, an improved version of what we hope is one of your favourite FS2004 aircraft.

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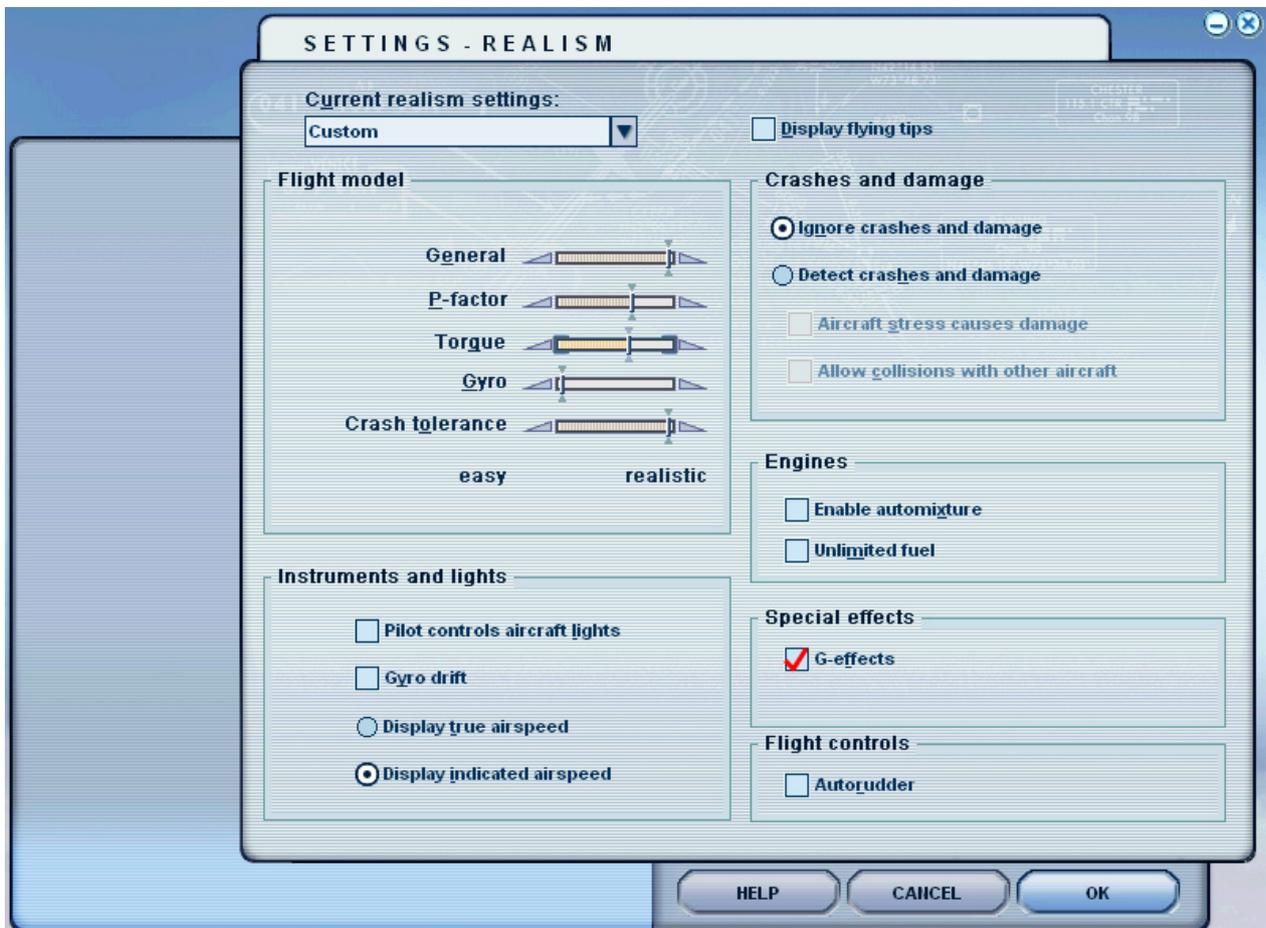
## Setting Up the SF260 in FS2004

The very first thing you need to do is to set up FS2004 in make the SF260 fly as intended when we designed it. The most important menu to go to now before flying, especially if you want spinning capability, is the REALISM menu. Access this menu by pressing ALT then choose Aircraft/Realism. Some of the realism settings are optional, but if you want to fly this aircraft to its design specifications you must set the general realism slider to the maximum (ie fully right). You must also set auto-rudder to off (leave the box unchecked). Without these settings the SF260 will not be able to spin!! We highly recommend the use of rudder pedals or a stick with a rudder twist-grip.

We also strongly advise when first flying that you set the p-factor to zero until you've got used to the basic handling of this aircraft. We recommend a p-factor setting, if you want this optional feature, of about two thirds. When "on" (ie: the slider positioned anywhere right of zero) the SF260 will drift to the left on take off, needing right rudder to correct, and will also slightly yaw and roll to the left when flying, especially at low airspeeds with throttle set high.

You can use rudder trim once established in cruise or climb by using the standard FS2004 keys for this function (default keys are: press CTR Enter - on the keypad).

The other options are "G effects" which we recommend to be "on" (crossed in the menu) and aircraft damage due to stress will persuade you whilst flying not to overcook the elevator at high speeds!



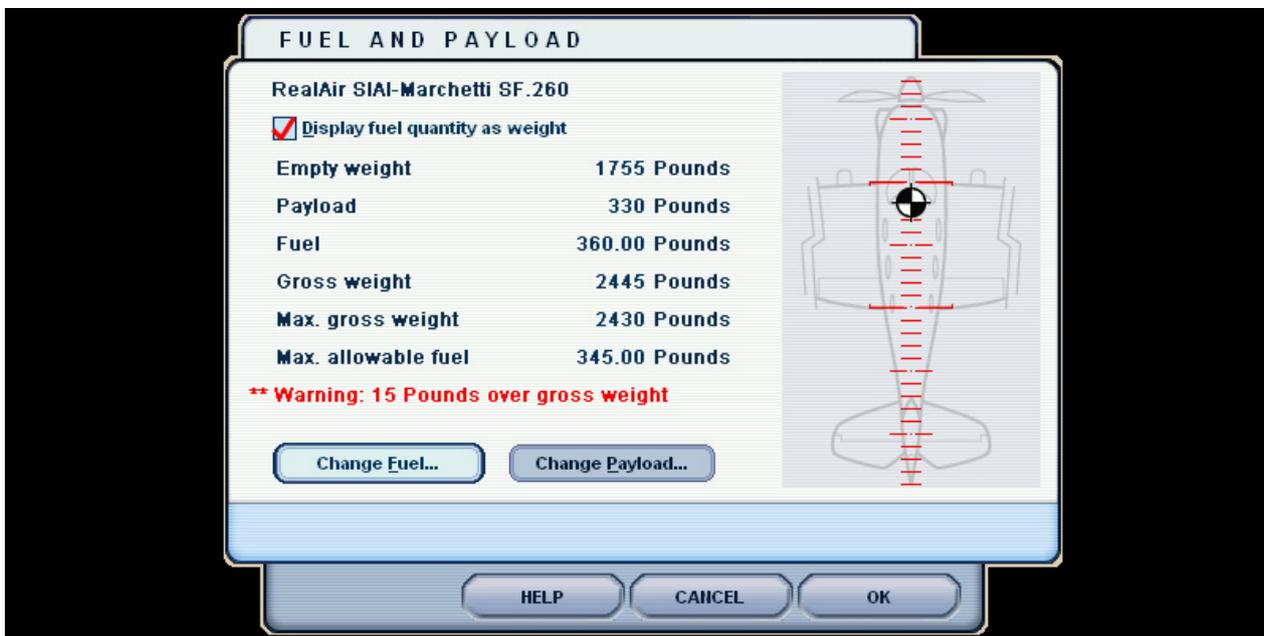
Our recommended settings in the realism menu.

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## Fuel and Payload

Next, check your payload by opening the aircraft/fuel and payload menu. If you load the SF260 after flying another aircraft, you may see that you are overloaded. If you get this message (in red) within this menu then reduce the fuel payload. If you are wishing to perform aerobatics you will find the SF260 responds much better, and faster, with a low fuel load. We recommend ZERO fuel in the two aux (wing-tip) tanks and around 50% each in the other two tanks.

If you are attempting loops and/or other high "G" manoeuvres and find you are constantly stalling, this will be because either you are using too much elevator and/or you are too heavily loaded for dynamic handling. In other respects, for cruising and normal flying, a full load is perfectly OK. Please also note that the pilot and copilot should be similar in weight. If there is a mismatch then you might need to use rudder trim (see above) to counterbalance the resulting drift.



If you are over gross weight reduce fuel and always empty the wing tanks before spinning.

## FS2004 Display Settings

The RealAir SF260 visual model benefits greatly from making a few adjustments to your FS2004 Display settings. Our recommended display settings are as follows:

- Go to 'Options/ Settings/ Display/ Aircraft' and set 'Global Aircraft Quality' to **High** (or maximum) and make sure 'Aircraft reflections' is turned on (checked).
- We recommend turning anti-aliasing on as it makes a significant improvement to the appearance of FS2004, and has very little effect on framerates with recent video cards. As a general rule, you will get better performance by leaving "anti-aliasing" off in FS2004, and turning anti-aliasing on via you video card display settings.

## Loading the SF260 for the first time

After starting FS2004, find the RealAir SF260 by going to the Aircraft menu and scrolling down to the RealAir section, and choosing the 'SIAI-Marchetti SF260'.

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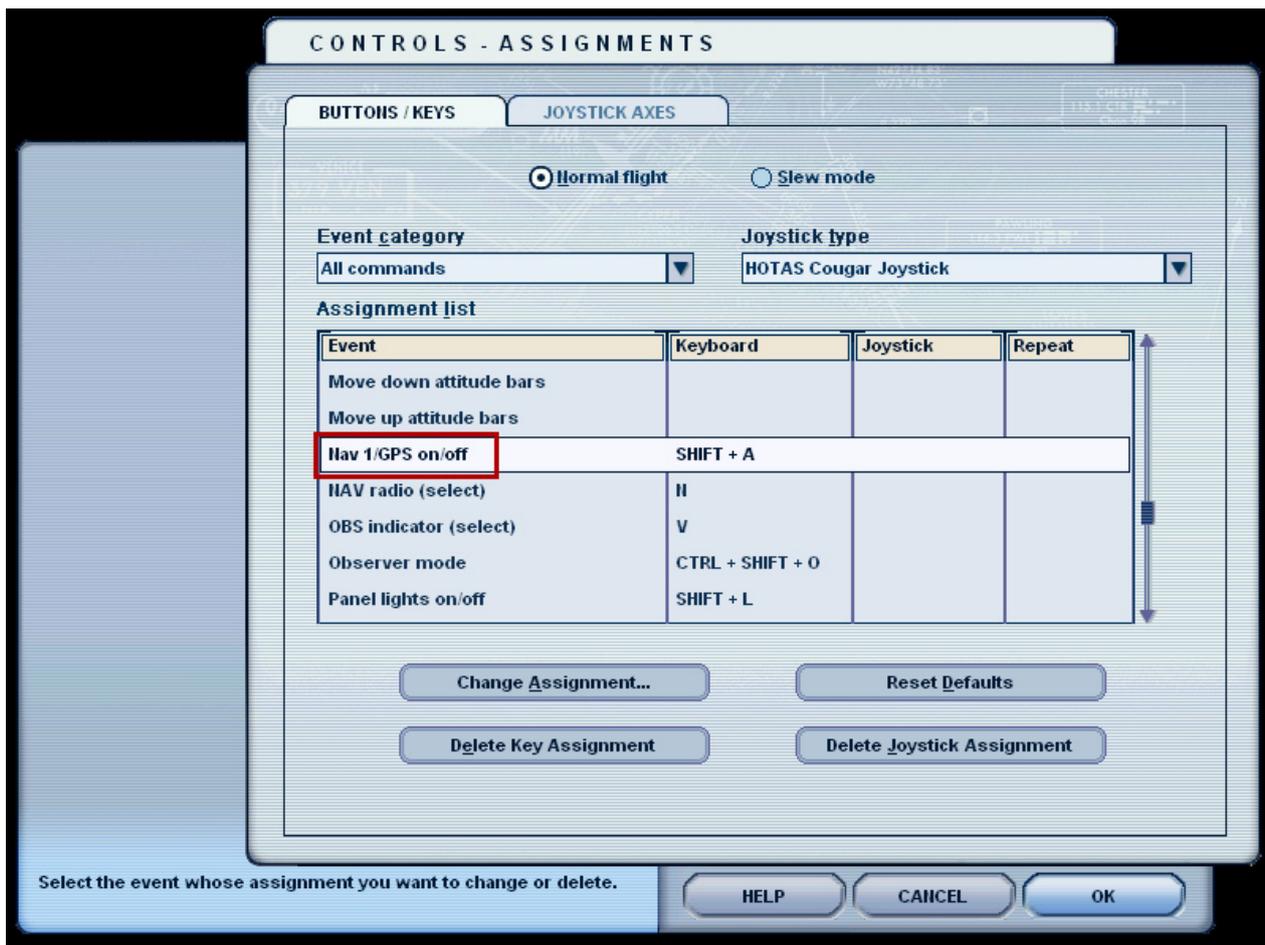
## Sounds

You may wish to balance the volume between the engine sounds, the sound effects, and your air traffic control messages. The ATC messages tend to be a lot quieter in relation to our high level sound files. Open up the FS2004 'Control/ Sounds' menu and adjust the relative volume of engine, cockpit, environment and ATC sounds. You may want to also adjust the relative volume of our sounds effects. Most of the sound effects apart from the engine are adjusted with the cockpit and environment sliders.

## Autopilot and GPS

The SF260 has full autopilot, IFR and GPS capability. However, in the real Marchetti there is generally an absence of a fixed GPS, and therefore no dedicated GPS/NAV toggle switch. The RealAir SF260 does enable you to switch between these two modes (although for authentic flying we don't recommend it), by using standard or non standard key presses.

You can find out what key-press is currently set for this function on your computer by accessing the Control/assignments menu in FS2004 and scrolling down until you see the GPS/NAV 1 toggle key listed. Once this key is enabled you can use the autopilot slaved to either your NAV 1 radio or slaved to the GPS/autopilot.



Setting the GPS/NAV 1 key-press.

## Configuration Wizard

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The 2005 RealAir SF260 includes a new application, the Config Wizard, that allows you to set various configuration options on your SF260 installation.

**Please Note: Before using the Config Wizard, it is essential that you make sure that FS2004 is not running.**

To start the Config Wizard, go to:

**'Start/ All Programs/ RealAir Simulations/ SF260 2005/ SF260 Config Wizard'**

Alternatively you can use the shortcut on your desktop (named 'SF260 Config Wizard'). The Wizard will run you through the various options that can be set, and includes a brief description of what effect each option has on the SF260 when in FS2004.



The screenshot above illustrates the '2D Panel Type' page of the Config Wizard. The text at the bottom right briefly explains what effect each selectable option will have on the SF260. Each of the Wizard's pages has a similar description.

Once you've run through the entire Wizard and clicked 'Finish' on the last page, you can start FS2004 and load the SF260 — your changes will now be in effect.

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## 2D Panels

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When you load the SF260, the first thing you will see is the 2D panel. Depending on what option you chose in the SF260 Config Wizard, you will either see a large 2D IFR panel that takes up most of the screen, or you will see a small "mini-panel" that runs along the bottom of the screen. These two options are explained more below.

### Mini-Panel Only

The mini-panel contains only the essential gauges, the ones used the most. It is not designed to be used as the main panel.

When you have chosen "Display mini-panel only" in the config wizard, the SF260 virtual cockpit is intended to be the main panel. The VC contains all the switches and gauges you need for all flight operations and the mini-panel is meant only as a backup, if you want the high-visibility it affords.



The mini-panel, displayed when you Choose "Display mini-panel only" in the Config Wizard.

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## Full 2D Panels

If you have chosen "Display full 2D panels" in the Config Wizard, the first thing you will see when you load the SF260 in FS2004 is a large 2D IFR panel that takes up most of the screen. Of course we do not expect you to fly permanently with this panel! It is there in order to access the Prop and Mixture controls, and also to access the NAV 2 instruments. Please note you can access the lights, and the prop and mixture functions by pressing the standard FS2004 keys on your keyboard in the other smaller panels. To gain access to the "normal" sized 2d panel press SHIFT 2. To go straight to the Virtual Cockpit press "S".



The "IFR" 2D panel

We gave the normal 2d panel plenty of room in order to see where you are going at the same time as accessing the majority of essential panel functions. If you need to access light switches, the prop and mixture controls, or the NAV 2 instruments, you now have a choice of either switching briefly back to the IFR panel (Press Shift 2) or to press the standard FS2004 keys to access the above functions.

We anticipate that most users will do the vast majority of their flying in virtual cockpit mode, and you will see why when you load the Virtual cockpit panel. But for those who prefer 2d panels, the above shot shows all the instruments you will ever need for normal cruising and VFR navigation, plus radios and autopilot (Press SHIFT 3) and GPS (Press SHIFT 4).

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The main 2D panel

If you want a good view still in 2d mode you can use the "mini" panel, which is a fully rendered cut down version of the normal panel. To access the mini panel press "W" at any time. To exit the mini panel and return to the normal panel press "W" again.



The "mini" 2D panel

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## 2D Pop-Up Panels

The SF260 includes a number of pop-up 2D panels (available if you choose "Display mini-panel only" **and** "Display full 2D panels" in the Config Wizard) that provide extra functionality, accessed via the following key-presses:

**Shift 3:** Opens the SF260's radiostack panel.

**Shift 4:** Opens the default FS2004 hand-held GPS.

**Shift 5:** Opens the fuel-tank selector and elevator trim panel.

**Shift 6:** Opens the RealView control panel.

## Virtual Cockpit

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Most of the improvements made to this latest version of our SF260 are found in the virtual cockpit. The VC now features our highly acclaimed smooth gauge technology, meaning the gauges in the SF260's VC are both clearer and have smoother animation than even the best 2D panels found in any FS2004 aircraft (including the SF260's own 2D panel). Also, unlike with previous SF260 releases, every single function can be directly accessed and manipulated via our virtual cockpit, from the most important controls such as the throttle and mixture, down to such items as the altimeter pressure knob, HSI controls, canopy latch and so on.



The main, forward VC panel. Clearer and smoother in movement than the best 2D panels.

When you load the Virtual Cockpit (Press "S" once) from the normal 2d panel, you should see a very clear picture. Other virtual cockpits tend to be somewhat blurred and indistinct, but the SF260 virtual cockpit is extremely clear and the instruments and gauges are pin-sharp, especially when zoomed in close. Please experiment with zoom levels to adjust your preferred view. We recommend a zoom setting of 0.75 as being ideal.

You'll have noticed by now that you are placed on the right side of the cockpit. This is not a mistake. The SF260 military training version, which our aircraft is based on, follows the military tradition of Pilot in Command sitting in the right hand seat. You'll get used to this very quickly. The advantage of this layout is the PIC has the control stick in right hand and the engine/prop controls in the left.

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## Panel Functions and Controls

All RealAir SF260 panel functions are fully controllable with the mouse. Each panel gauge and function has a pop-up tooltip (enable tooltips in FS2004 to make these appear). Almost all switches and levers are fully operational. The level of control available in the VC matches or exceeds that available in the 2D panel, so you never need to go back to the 2D panel during a flight if you don't want to. Also, if you have owned earlier versions of our SF260 you will notice we have removed the "strip" panel (previously accessed via "shift-6") — it is no longer needed with this VC.

## Virtual Cockpit Lighting

The lighting in the SF260 VC is dramatically improved by having the cabin lights switched on at all times, including during daylight hours. Unfortunately the lighting in FS2004 is such that when you're flying towards the sun, even at midday, the VC forward panel becomes far too dark, making the gauges quite difficult to read. This is cured largely by keeping the cabin lights on at all times.

This version of the SF260 includes a new light switch, the "instr" (short for "instrument") light switch at the bottom-left of the VC panel. Turn this switch on at night and you will see back-lighting on the VC gauge faces. This back-lighting can be switched on/off independently of the cabin lights. As a final note, this switch will only appear to function during dawn, dusk and night hours — during daylight hours it will appear to have no function.

## VC Gauge Quality Settings

As mentioned earlier, our SF260 VC takes advantage of our smooth gauge technology. This technology basically means the gauges have been created using a totally different method to that normally used in Microsoft Flight Simulator aircraft, and because of that there are a few things you should know about using this specific VC.

Switching gauge graphic quality to 'low' in the FS2004 'Display/ Aircraft' properties dialog will have very little effect on simulator performance. This setting will **only** affect the display quality of a few of the VC gauges, namely the square engine gauges, the electrical switches and the radios.

Conversely, switching VC gauge quality to 'High' in the SF260 Config Wizard will have a large effect on the display quality of the gauges (all but the ones listed in the paragraph above). You may also see a slight performance boost from setting VC gauge quality to 'Low' in the SF260 Config Wizard, but this is not evident on all machines tested.

When you set VC gauge quality to 'High' in the SF260 Config Wizard, you will find the instrument faces and needles ultra-sharp when viewed up close (ie when you zoom in). The downside of this clarity is that they will appear to "shimmer" when you zoom out to levels less than 0.50. This 'shimmer' is actually due to two things, firstly the high resolution of the SF260's gauges, and secondly the movement created by our RealView technology. If you find this shimmering a problem, try switching VC gauge quality to "Low Quality" in the SF260 Config Wizard. This will remove all trace of shimmering from the VC gauges but will make the gauges slightly less clear when viewed up close, but they will still be clearer than the gauges in most other FS2004 virtual cockpits.

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## SF260 Virtual Cockpit Construction Details

This VC is made similarly to how movie sets are made — it is meant to be viewed from the default eyepoint location only. If you move the eyepoint dramatically you will find that some things start to look a little strange. For example if you move the eyepoint down dramatically the instrument surrounds will look like they're pointing up strangely, also if you move the eyepoint very far across to the left you will find most of the switches on the forward panel will be strangely distorted to the left. **These are not mistakes!** The VC has been made this way to give the very best mix of visual quality and low system overhead.

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## RealView

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The RealView (tm) system is a proprietary system developed by RealAir, that simulates the forces experienced by a pilot in-flight.

This latest version features three sliders that you can adjust in-flight.

RealView gives the impression of the pilot's head (that is, your head!) being pushed around by the movements of the aircraft. If for example you pull back on the stick, the SF260's nose will rise as your head is pushed down by the g-force. This delay or inertia adds significantly to the feeling of 'being there' while you are flying. RealView also has the advantage of being completely smooth in operation and is not in the least disturbed by extreme manoeuvres, very handy in such a manoeuvrable aircraft.

Stall buffet is a new and revolutionary addition to the RealView system. It is linked to the flight model stall buffet function, which itself is a new innovation. When the SF260 reaches very high angles of attack or is close to the stall you will see the whole aircraft Virtual Cockpit violently shake, accompanied by stall buffeting sounds. This emulates the very marked degree of stall buffet in the real SF260.

Realview settings can be changed in-flight by pressing **Shift 6** and moving the sliders.



The RealView panel is accessed by pressing Shift 3.

The SF260's default RealView startup strength can be permanently set in the SF260 Config Wizard. You can choose between "Off", "Low", "Medium" and "High".

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## Spot View Settings

For sedate flying we highly recommend setting your spot views options thus:

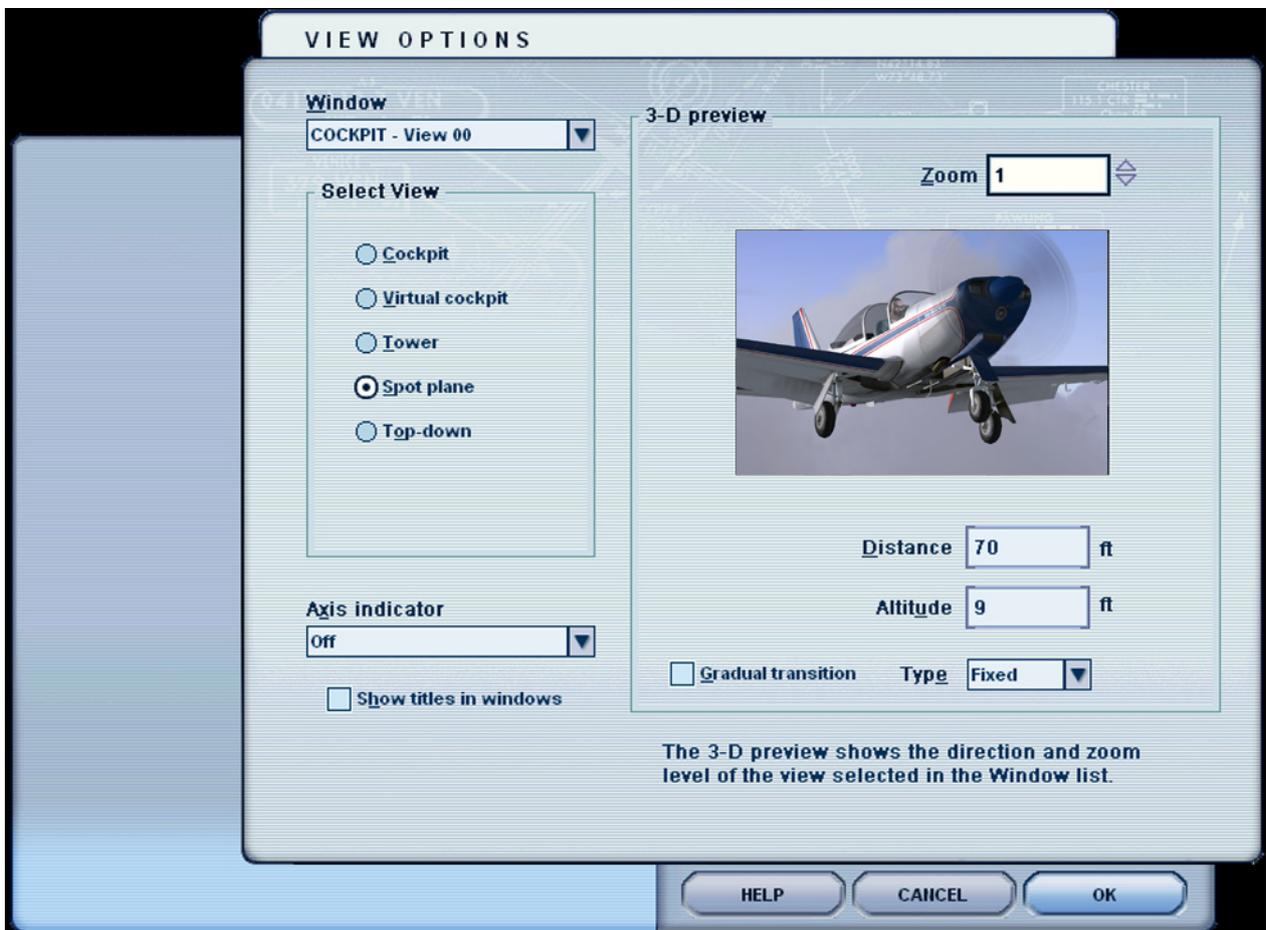
Go to 'Views/ View Options' and set:

Distance: 50-70 feet

Gradual Transition box: ticked

Aspect: Fixed

If you are doing extreme manoeuvres or spinning the gradual transition mode is not a good way to see the aircraft in spot view. We recommend in this case setting Gradual Transition to **off** but retaining the **fixed** view. This way you will see the spinning motion much better in spot view.



The best settings for viewing extreme and aerobatic manoeuvres in spot view.

## General Flying

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OK, so now everything is set, we can go flying. You are on the runway, keen to go. One thing you should know about the SF260: It has what is described in aerodynamic terminology as a "critical" wing. In terms of how this affects your use of this aircraft, it means the SF260's wing either "flies" or "doesn't fly". It is a very thin wing, very efficient and low-drag when at flying speed, but it doesn't stall like other GA aircraft. There is no "mush" on the stall, it will drop, and drop like a brick! It also has a higher stall speed than most comparable aircraft, so the SF260 has powerful, and draggy, flaps to aid lift on take off and of course landing.

Being capable of up to 6 Positive "G" the SF260 has plenty of elevator power and pilots report flying her with literally finger and thumb, so light is the feel. Despite this power we have made the FS2004 SF260 extremely smooth in pitch control, especially in the first third of movement, and the elevator control gradually increases in power as you apply back pressure. Note "pressure", not "pull" because pulling implies yanking the stick. This is not necessary, and your turns, climbs and loops will be much better and smoother if you apply gradual back pressure. Surprisingly, the SF260 has a weak down elevator and can normally not achieve much more than 1.6 to 2.0 negative "G". Thus you will find down elevator less sensitive.

Please also note that high "G" in tight turns, especially with high fuel loads, can result in an immediate stall or even incipient spin. The same goes for climbing in aerobatics. At high fuel loads do not exceed 4g pull-ups unless you are faster than 185 knots. At low fuel loads a 190 knot climb can pull 5g. Much more than these limits can result in a stall and collapse of the climb. If you hear the stall warning, immediately ease the back pressure. After a while you will get used to getting the maximum possible climb rate in aerobatics for a given



The SF260 features powerful flaps that are very effective during landing.

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loading and speed. You will find at the top of a loop you can pull the stick all the way back as the positive "G" reads lower than 2.5. Note, there is a g meter at the lower right of your 2d and 3d panels, or you may find it more convenient to monitor the g force by pressing Shift Z twice, whereupon information is displayed by Fs2004 at the top of your screen. This is very useful especially while performing aerobatics.

ALWAYS set one notch of flap (20 degrees) when taking off, no matter what the load. Set your trim to about half a notch. The trim gauge is combined with the fuel gauge (Press Shift 5) or can be viewed below the throttle quadrant in the VC. Note, do NOT over-rotate. At 65-70 knots just a little back pressure is all that's needed to get airborne. It is easy to stall almost immediately after you have left the tarmac if you are too brutal with the elevator.

If you want to fly with p-factor enabled, expect some right rudder deployment. The real SF260 does not have a rudder trim. But you can use the standard Fs2004 trim keys for this function (see Fs2004 documentation).

Climb fully loaded will be 1700-1800 feet per minute, and quite a bit more with light fuel loads. Cruise climb speed can be 100-120 knots, and most efficient climb nearer 90 knots. Once at cruise altitude you can throttle back and pull back the blue prop control lever for more efficient cruising. Please refer to the Pilots Operating Reference for detailed specifications about climb, cruise and general management of the engine and controls.

## **Cruising and Mixture Control**

FS2004 requires that you reduce fuel mixture rather sooner than you would have to in the real world. If you find take off sluggish at high altitude airports, it might be because you forgot to slightly reduce mixture (the red lever). Start to reduce the mixture at around 3000 feet, and if you are climbing to high altitudes you'll need to gradually reduce mixture more and more for optimum performance. With mixture at the right setting, you can cruise all the way to 19,000 feet in the SF260, but best cruise performance is much lower, at around 7000 to 9000 feet.

The blue prop lever can be pulled to lower the rpm when cruising and cruise-climbing. Typically you might cruise with a setting of 2,400 rpm. Don't forget to return mixture to full rich and the prop lever to fine when approaching and landing.

## **Side Slipping**

As well as being the first ever aircraft for flight simulator that could spin predictably with rudder only, RealAir's SF260 was also the first aircraft to implement proper side slipping capability. We continue these features, with further refinements, in this new FS2004 version.

Side slipping is useful when you need to quickly reduce altitude after an excessively high approach. With most FS aircraft you would have to "go around". With the SF260, you simply cross the rudder and aileron controls, which takes some practice. You'll find you can lose height very rapidly, especially with gear and flaps deployed, when slipping. Take care to gently return to normal attitude well before the flare!

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## General Flying Tips

1. Take off with a half to one notch of up trim (press Shift 5 to see the trim indicator).
2. Always set one stage of flaps for take off and rotate at 70 knots - gently!
3. A good climb speed is 100+ knots. Reduce mixture as you climb.
4. Best Cruise altitude is approximately 7000-9000 feet.
5. To switch between GPS and NAV 1 autopilot, use the standard FS2004 key.
6. Downwind for a landing the best speed is around 100 knots.
7. First stage flap restricted to less than 125 knots. Gear and full flap below 108 knots.
8. Use at least one stage of flap for landing or full flap with high loading.
9. Final approach at 90 knots - over the fence at 85 knots - flare at 75 knots.
10. Never attempt to stall on to the runway. The SF260's critical wing shape can lead to sudden stalls and you can damage the gear badly. Always use adequate speed for landing and sometimes a little throttle just before the flare can help achieve a "greaser".
11. With heavy fuel loads, turning tight at approach speeds can lead to an instant stall and spin which is not recoverable at approach height. Use thrust to aid turns with more than 35 degrees roll and do not let the airspeed bleed off.
12. Tight turning with even light loads requires thrust due to induced drag. You can stall easily pulling 4 or 5 positive G at high speed and high bank angles. As soon as you hear the stall buzzer, ease the stick pressure forward slightly.



With heavy fuel loads, turning tight at approach speeds can lead to an instant stall and spin.

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## Advanced Flying

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The SF260 is a stable and pleasurable cruising aircraft, and the RealAir version is no exception. You can cruise with exceptional stability, either manually or on autopilot. The autopilot can be slaved to the GPS or the NAV 1 radio - see information about this in the "Setting up FS2004" section. IFR flying is as good in the SF260 as any other FS aircraft and it is important to realise we did not design this aircraft just as an aerobatic concept. In fact we believe the SF260 is actually MORE stable in cruise mode than most available GA aircraft for flight simulator, and we have ensured that IFR procedures and ILS landings under autopilot are easily achieved. Please make sure when shooting an ILS approach that you have plenty of time to capture the glide-slope. This will ensure that your final approach is handled well by the autopilot.

Provided you have set general realism to maximum, the SF260 is uniquely capable of a wide range of aerobatic manoeuvres including spinning, loops, hammerhead turns, immelmans, chandelles and some more bizarre manoeuvres which you will discover with experimentation. A good way to see how well your aerobatics are executed is to set up spot view in FS2004. To see the spinning motion clearly in spot view please set FIXED view and UNTICK the gradual transition box. This way you'll see a smooth view of your exploits. Another very entertaining way to see your aerobatics is by using the "tower" view in FS2004. With this view you can fly as though a radio control enthusiast and with smoke on (press "I") you can see and record some spectacular routines to an imaginary air show audience.



The SF260 is capable of a wide range of manoeuvres, such as inverted flight.

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## How to spin

Our understanding of spinning is that the aircraft should stall, with one wing deeper stalled than the other, and that auto-rotation occurs by use of initially full back elevator and full rudder. NO aileron should be used when spinning. To spin the RealAir SF260 is a simple and easy manoeuvre: At an altitude of at least 5000 feet, reduce speed by climbing with the throttle cut. At the point of stall (around 60-70 knots), pull the stick right back and apply FULL rudder (note that in FS2004, left spins are usually better than right spins due to prop torque and other factors). The aircraft will drop its left wing and auto-rotation will begin. After some airspeed acceleration, it will stabilise and you are now spinning, and in most cases the spin will even continue if you centre the rudder but keep the stick fully back. Alternatively, the spin will also continue, once established, if you release the back pressure and spin with just rudder. To recover, ease the stick slightly forward and if necessary apply some opposite rudder.

## Loops

For safe, easy looping we strongly advise that you empty the tip tanks (aux left and right) before attempting this manoeuvre. A successful loop requires at least a 4g pull up with full power, and with high loading the SF260 can easily stall and the loop will collapse. Using about 50% in the wing tanks is usually a good fuel load to enable high G routines such as this. Do not yank the stick back into a loop, but apply firm back pressure. You can refer to the included G meter on the panel, but eventually you will instinctively get the feel for the right amount of elevator. As the speed falls away near the top of the loop you can gradually apply more and more elevator. Reckon on losing 100 knots from the entry point to the top of the loop, so the minimum speed for safe looping is around 170 knots, and when you first try this, we advise you start with much higher airspeed (say 190 knots or more) until you get used to handling this aircraft. Recovering from a loop will need a fast dive and as before you should take care not to use too much back elevator to avoid stalling.

## Other Routines

Hammerheads are very satisfying. To execute a hammerhead pull up into a perpendicular climb with full power. As the airspeed bleeds off apply left or right rudder, and as the nose begins to turn CENTRALISE the rudder, or apply some power with the rudder still deployed. As you reach near zero airspeed the aircraft will naturally "fall" away and begin a steep dive. Recover with gradual back pressure. This routine is very difficult to get right and requires a lot of practice.

Many other aerobatics are possible and the variations are almost endless. One extremely spectacular manoeuvre is to spin whilst in a steep climb, or do a snap roll, which is essentially a spin in the horizontal plane. Watching these routines in tower view with smoke on should give you hours of pleasure!

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## **Keys**

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SHIFT 1 - Toggle the normal panel on/off. ('Mini-panel only': Toggle mini-panel on/off)

SHIFT 2 - Toggle IFR panel on/off. ('Mini-panel only': No effect)

SHIFT 3 - COM and NAV Radios, ADF and autopilot

SHIFT 4 - GPS (note GPS is fully functional but must be toggled - see the GPS section)

SHIFT 5 - Fuel tank selector and trim indicator

SHIFT 6 - RealView control panel

SHIFT E - Canopy open/close (check out the sound!)

Shift L - Toggles the virtual cockpit cabin lights on and off

L - All lights on (press again to turn all lights off)

W - Mini Panel (fully rendered)

Individual Lights can be switched on and off using the light switches in the Virtual Panel and IFR panel.

Note 1 - The SF260 (in FS2004) does not use the CTR L key for lights.

Note 2 - By default the SF260 loads with VC Panel lighting ON. This is because FS2004 rather exaggerates the effect of darkness on the panel face when facing towards the sun, and near dusk and dawn, so we made sure you get good panel lighting at all times. However at night, if you wish to see the atmospheric back-lit gauges without the normal panel lights, you can easily do this by switching off the VC cabin light. At all other times we recommend keeping the VC light on – even in the daytime.

## **Support**

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### **Technical information and support / known issues**

There are no known faults or technical problems running the RealAir SF260 with a standard version of FS2004 or with the official FS9.1 patch. The SF260 has been exhaustively tested and if you have a reasonably fast computer (2 GHz with 512+ RAM and a reasonably good 3D graphics card) you should not see any problems at all.

If you do have any problems running the SF260, or experience graphic problems or long loading of textures it is likely there is something in the way that your computer is set up which is causing this. We cannot guarantee that the RealAir SF260 is compatible with any or all third party utilities or add-ons. There are so many of them it is not realistic to test the SF260 with every third party add-on.

If you don't see or hear some of the effects, lights or other features of the SF260 you should please check the following are enabled in your FS2004 options:

Hardware Lighting Effects: ON and slider maximised

Render to texture: ON

Gauge low/high quality: Either, makes no difference

Because of the high resolution textures, it is normal to experience a brief pause when switching views, as your PC loads the necessary texture files into RAM. This happened even on a machine we tested on which had 2 GB RAM. This is the cost of having such high quality textures, and is a minor one we feel.

The SF260 has 16 bit wide-stereo sound effects. To hear these at their best please enable high quality in your sound options in FS2004. This setting may require a reasonably powerful sound card.

We welcome support queries but please first thoroughly read the documentation accompanying our aircraft in case you have missed something obvious!

You can find our email addresses at: [www.realairsimulations.com](http://www.realairsimulations.com)

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## Credits

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**Sean Moloney:** Aircraft 3D modelling (exteriors + interiors), aircraft textures, panels, gauges, document layout and website

**Rob Young:** Flight modelling, sounds, lighting effects, support and document writing.

**Tim Westnutt:** Beta-test lead and flight model advisor on this update plus all-round great help! Thanks for everything Tim!

## Acknowledgements

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We also extend our continued thanks to Steven "Beach" Comer, James F Bond and Peter Sidoli for flight and beta testing on earlier versions of our SF260.

## About RealAir Simulations

RealAir Simulations was set up in 2000 and its first release was a Citabria for Fly! II. Since then we have specialised in, but not restricted ourselves to, high performance propeller driven aircraft with aerobatic capabilities for Microsoft Flight Simulator.

All our aircraft have been awarded the highest accolades by magazines and websites. Our Marchetti SF260 is one of the all-time most successful GA aircraft ever produced for Flight Simulator, winning the coveted 'Avsim Gold Medal For Excellence in Flight Sim Design' (among other awards), and our freeware aircraft have won Flightsim.com's gold award as voted by their subscribers.

Our Cessna 172SP is used for official training at the Kangan/ Batman TAFE Aeronautical Academy in Melbourne and is currently a freeware release.

Our Super Decathlon won PC Pilot magazine's 'Classic Award' and a 5/5 rating, as did the SF260. All our aircraft have also won numerous awards from websites and magazines all around the world.

## About the RealAir Simulations Authors:

**Sean Moloney** is a graduate in Visual Communications, with honours. He is a student pilot who first teamed up with Rob Young to design the Citabria for Fly! II while still at university. He also works as a freelance graphic designer/illustrator and resides in Brisbane, Australia. Sean designs all the graphics, gauges and 3d models for RealAir.

**Rob Young** spent 25 years as a professional musician before turning to simulation. He has designed flight aerodynamics for many of the major flight simulator developers. He designed the flight models for Fly! II on behalf of Terminal Reality and since changing to Microsoft Flight Simulator has designed the aerodynamics for a diverse group of developers including Lago, JustFlight, Eaglesoft, and MAAM-Sim, picking up awards for nearly every aircraft he has co-designed. Rob currently lives in London.

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## Other RealAir Simulations Aircraft

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Try our **Spitfire XIV**, One of the most highly awarded aircraft for Microsoft Flight Simulator in recent years. Brimming with unique features such as RealView, an engine failure simulation, smooth gauge technology, super realistic flight model and much more.



Our **Super Decathlon** was the first tail dragger for Flight Simulator with true tail dragger handling. PC Pilot gave it a 5/5 review and declared it a 'PC Pilot Classic'.



The RealAir **Scout** is the bush version of the Decathlon with heavy duty undercarriage as well as amphibious floats and different flying characteristics. Comes with custom scenery.

