Review of

T-37B Tweet for P3Dv4

Created by SimWorks Studios

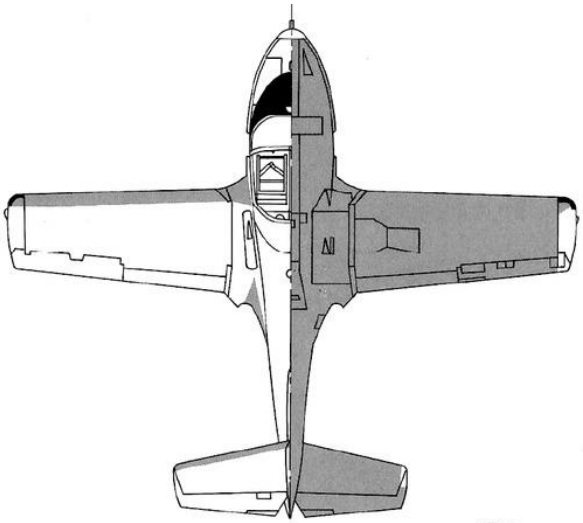
Intro

The T-37B Tweet is a twin engine, two seated military jet trainer aircraft built by Cessna in the years between 1955 and 1975. The B-version, which is covered in this review, is an improved and upgraded A-version featuring improved avionics as well as the more powerful engines ➔ the 2x Continental-Teledyne J69-T-25 turbojets which each provides 1,025 lbf of thrust, equal to 4.56 kN.

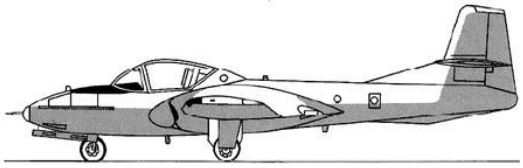
The T-37 has been in the USAF service since it was introduced and has been a primary jet trainer for new fighter pilots when transitioning onto jets and multi-engines until its retirement back in 2009. The side-by-side configuration is perfect for a better student-instructor interaction, which was one of the reasons why the T-37 was selected as the new trainer aircraft for the USAF.

Often the aircraft was referred to as either ‘the Screaming Mimi’ or the ‘6,000 pound dog whistle’ or just the ‘Converter’ (converts fuel and air into noise and smoke) due to the extremely high pitch of the sound coming from the engine – the sound was actually so loud that buildings at bases where the Tweet was stationed, had to be soundproofed.

General Information & Aircraft Specs

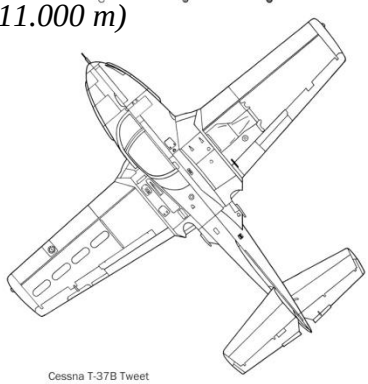


- **Produced by** *Cessna*
- **National Origin** *United States*
- **First Flight** *October 12th 1954*
- **Introduction** *1957*
- **Role** *Military Trainer Aircraft*
- **Production** *1955-1975*
- **Built** *1269 aircrafts (T-37)*
- **Status** *USAF – retired in 2009*

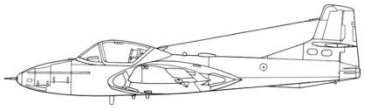


- **Crew** *2*
- **Length** *29 fr 3 in (8,92 m)*
- **Wingspan** *33 ft 99.3 in (12,581 m)*
- **Height** *9 ft 2 in (2,79 m)*
- **Wing Area** *201 sq ft (18,7 m^2)*
- **Aspect Ratio** *6.2:1*
- **Airfoil** *NACA 2418 at root & NACA 2412 at tip*
- **Empty Weight** *4,056 lb (1.840 kg)*
- **MTOW** *6,574 lb (2.982 kg)*
- **Power Plant** *2x Continental-Teledyne J69-T-25 turbojets, 1,025 lbf (4.56 kN) each*

- **Max Speed** *425 mph (684 km/h, 369 kn)*
- **Cruise Speed** *360 mph (580 km/h, 310 kn) at 35,000 ft (11.000 m)*
- **Stall Speed** *85 mph (137 km/h, 74 kn)*
- **Range** *932 mi (1.500 km, 810 nmi)*
- **Service Ceiling** *38,700 ft (11.800 m)*
- **Rate of Climb** *3,370 ft/min (17,1 m/s)*



Cessna T-37B Tweet



Purchase, Download and Installation

I purchased this addon at www.Store.Flightsim.com and the purchase and download went easy and without any issues. The connection to the download server was really good, so the download was completed within a few moments.

The download contains a zip-file which you of course have to unzip before being able to continue and the unzipped file contains a 767MB installer named 'Installer_SWS_T_37B_20200103.exe'. The installer is very user friendly and you just have to follow the on-screen instructions to complete the entire installation. There is no 'auto-find' the main P3D folder, instead the installer uses the default path C:\users\xxx\documents\Prepar3Dv4 Add-ons\ - this you can of course manually override by selecting your own preferred path to a different folder of your choice.

The entire installation was completed in less than a minute and during the installation I also had the possibility to create a desktop icon as a shortcut for the included manual and checklist. After the installation was completed I started by entering my virtual hangar to se if the installation was successful, and it was - In the virtual hangar I found one model with a total of 5 liveries perfectly placed and ready for selection.

Included in the add-on there is a 203 pages PDF manual together with an 86 pages PDF checklist. The manual and checklist contains information about normal and emergency procedures, operational limitations, flight characteristics, all weather operations, performance data together with detailed description of the various onboard systems and instrumentation etc. When looking at the manual as well as the checklist, it does really look like original documents used by real pilots, but if that is true I cannot verify – the documents does however provide a more realistic integration to the simulation.

Both PDF files can be found using the shortcuts placed on your desktop during installation or on the default path:

'C:\Users\XXX\Documents@Prepar3Dv_4_Add-ons\SimWorksStudios\SWS_T37B_Tweet\Manual\'

There are no external tools included but instead a nice onboard simulation tool where you have several options for various customizations as well as setting the aircraft for either a cold and dark state, if you wish to do the entire start-up as realistically as possible, or you can select a ready for taxi or even ready for takeoff state, which will perform the start-up automatically for you. Starting up the Tweet manually takes about 5 minutes from cold and dark to ready for flight – I would recommend this manual start-up to get the most out of the simulation, but if you just want to get airborne, then the quick start using the ready for taxi or ready for flight state is a superb feature. This tool can be activated when you have loaded a flight and uses the 'shift+1' key-command.

Other features using the customization tool is e.g. that you can select to fly either solo or with an instructor – changing this selection will add/remove the instructor in the right seat or the student in the left seat. Additionally you can also select who the pilot in command should be – of course this only if you fly with a two crew operation. When selecting the pilot in command, you will see the hands of the selected pilot, grab the flight control stick and throttle as well as put his feet up on the rudder pedals.

You can also change the visible appearance of the student and the instructor's helmet visor by selecting the visor to be either raised or lowered. Those are some small details that absolutely make the simulation just a bit more interesting. The tool also features a sheet for various radio frequencies and a list of the TACAN channels and respective UHF frequencies for use when flying VOR/ILS flights.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External

I started my test with a walk-around the aircraft like a pre-flight inspection, just to get a good view on the model itself. The model is stunning and appears very authentic with lots of details, and the model also features the distinctive short landing gear, the wide and square wings and the wide and flat canopy – beautifully created with a great focus on details.

The model is absolutely of a high quality and the textures used are as well. The textures are multi-layer textures showing off the aircraft perfectly with details like the metal plates covering both the wings the fuselage, the nose and tail etc. as well as the small rivets that holds the metal plates, various markings and some degree of wear and tear which is just perfect for this elder bird. The appearance is a used and old aircraft which however is very well maintained with a good, clean and beautiful polish.

There are several animations included on the model – here both the external animations such as the controls (ailerons, elevator and rudder), the gear up/down, the gear suspension, the wheels rotating, the nose wheel steering, the speed-brake, the flaps, the landing lights which drops out beneath the wings and the canopy etc. but you also have some animations from the cockpit which are visible from the outside of the aircraft. These animations are e.g. the pilots turning their heads when entering a turn but also the helmet visor that goes up/down for both the instructor and the student. All animations are smooth and very realistic.

You also have some various effects like the lights and the smoke from the engines exhaust on startup and during flight – when powering up the engine the first burst of smoke is a medium dense black smoke which quickly is blown away. Hereafter a rather large and also medium dense white smoke is visible and when this smoke is blown away you now see a combined black and white smoke which is rather dense and takes a while before being blown away. The smoke effect when flying is also very realistic with a black and medium dense smoke.

The lights are clear and with a bright shine – I noticed that the anti-collision lights were created as a rotating beacon which is really awesome. The landing lights are very powerful and yet soft and illuminates the ground nicely – when activating the landing lights, the lights are lowered from beneath the wings and when doing this on the ground, you can easily see the entire light animation where the light moves on the ground and into position.

The atmosphere that surrounds this aircraft is really amazing and truly a very realistic and exiting experience preparing for a flight and performing a dawn pre-flight inspection. The model is very true to real life and just screams of high-end quality.


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Internal

Now, jumping into the cockpit I now found myself sitting in a very realistic virtual environment. There is no 2D cockpit in this addon however, there is a comprehensive and beautiful virtual cockpit featuring a complete cockpit environment with systems, gauges, buttons, switches, levers etc.

The virtual cockpit is as well as the model, created with superb attention to details and realism and the virtual cockpit is certainly also of a high level of quality. You can customize the seated configuration using the onboard simulation tool (Shift+1) as previously described, making the flight customized for exactly the setup you want to use on the specific flight.

Looking out the windshield is actually an experience itself – the glass is certainly not a new and scratch-free glass in perfect condition but instead it is created to look old and used with a very realistic number of scratches to indicate realistic wear and tear for such an elder aircraft. Awesome indeed!

Another feature that I really enjoy is the movable and zoom-able knee-board which by default contains a map over the area of Vance AFB in Oklahoma – this map you can move around using your mouse, but even better, you can actually change the map on the knee-board and thereby add you own map of the flight you are going to perform. This is not something you can do using a built-in tool, but something you need to do manually by changing the file named 'SWST37VC_kneeboard_D' found in the aircrafts main textures folder, with a new file, however you can only do this if you are able to convert your image file to be a .dds file.

There are several animations added to the virtual cockpit – here e.g. the controls like the sticks and the rudder pedals, but also the various levers (gear, throttle etc.), buttons, switches, canopy, moving head and arms of the pilots, pilots visor and the various needles in the old steam gauges etc. All animations are created very life-like and with smooth motions – absolutely also high quality.

The textures used are also of a high quality – the textures are multi-layer textures showing off the cockpit environment beautifully as an old and used cockpit, still very well maintained, but with a certain degree of wear and tear all around. The gauges are beautiful and the entire environment sets a superb background for a very realistic atmosphere. The 3D performance or depth performance is perfect with a full 360 degree view and the finish is superb with a clean, smooth and very realistic appearance.

Included are also some effects like the internal lighting effect covering the panel which is a red night light, illuminated gauges where the lights can be dimmed in two sections (engine instruments and flight instruments). You also have movable swan-neck side lights on each side of the cockpit – they are able to be moved but I could not get them to work meaning that I could not light them up.

All lights are clear with a soft shine which provide a very authentic environment using the aircraft for dusk/night/dawn operations.

Another effect is the rain drop effect on the windshield – here SWS has included the A2A rain effect providing a superb and realistic environment when e.g. taking off or coming in for landing.

Overall I find the virtual cockpit to be a high quality environment where SWS had kept a keen focus on creating the environment as true to real life as possible – e.g. a small but still significant detail is the circuit-breakers – they actually work but are however not programmed for default errors. SWS have succeeded nicely in creating the old cockpit in my opinion.


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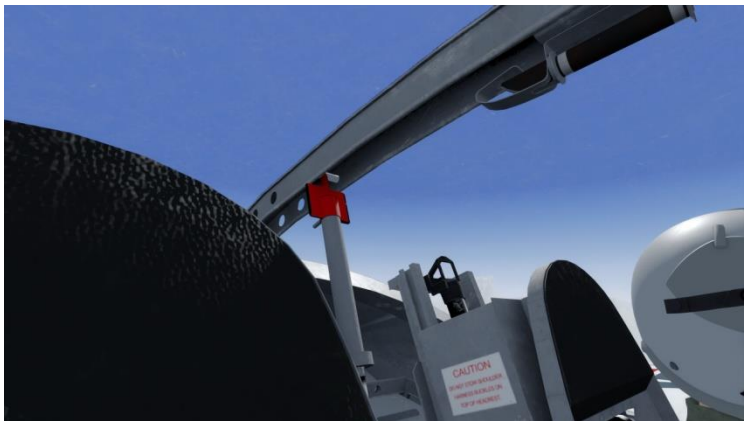
CAUTION


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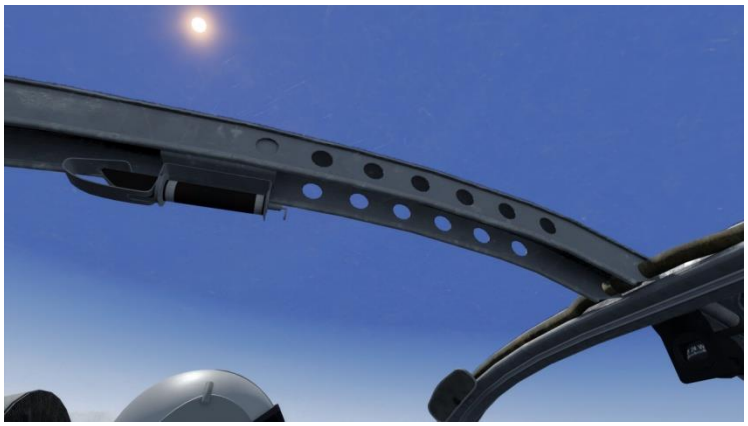
MAP CASE



Sound

You have a complete environmental sound set included, as well as the almost iconic engine sound perfectly integrated into this simulation. The engine sound set features a very realistic sound where you can hear the extremely high pitch of the two Continental-Teledyne J69-T-25 turbojet engines as they powers up. The engine sound is true to real life and you can really hear the reason for the various nicknames that this bird had over the years – e.g. the 'Screaming Mimi', 'the 6,000 punds dog whistle' or the 'Converter' which probably was the mostly used nickname.

The engine sound set covers all aspects of the engine from start-up to shutdown also including all the various rpm settings. The sound set is very authentic, awesome and absolutely ear-piercing.

Another sound set that is included is the environmental sound set featuring all sounds related to the usage of switches, buttons, levers and various chimes as e.g. landing gear, flaps down but no gear, overspeed warning and stall warning. The sound set also covers the movement of flaps, gear and canopy etc. as well as the wind outside and the shake/rumble when entering a stall or flaring the aircraft. All the environmental sounds are also very realistic, and they are an essential part of creating a very realistic atmosphere in the virtual cockpit.

I tested the various sound sets (both internal and external sound sets) in first a stereo setup and thereafter a 2.1 setup featuring two front speakers and an active sub and finally I tested the sounds in a complete 7.1 surround sound setup. The sound performed perfectly in all tests and is certainly high quality sound sets with clear and authentic sounds.

Flight Dynamics and Characteristics

I started my test flights by climbing inside the virtual cockpit and set my configuration to be a solo flight. I started up the engines and prepared for a taxi to the active runway. Now this should have been easy, but I discovered that I could not steer the nose wheel which made the taxi extremely difficult – to get the nose wheel steering activated you need to map a key to the default 'No Smoking' chime and then activate that key when you wish to use the nose wheel steering – then you can control the aircraft during taxi.

You have a great panoramic view from the cockpit and even better when flying solo, so orientation during taxi is no problem. Getting the aircraft to start rolling does requite quite a lot of thrust, but when the aircraft starts to roll you can take back the throttles to almost idle and the aircraft will still keep rolling at a slow speed.

When taxiing, the aircraft engines behavior is quite similar to other jet engines or even turbo-prop engines. Here I am referring to the delay when spooling up and down the rpms which is something you need to take into your calculation, both when taxiing but also especially when flying the final approach.

Taxiing over a rough surface – which you of course do not normally do, I would assume would have an impact on the various needles in these old steam gauges. However, I did not see any impact except for the G-meter where the needles were very sensitive and reflected every single little bump.

Reaching the runway preparing for take-off I felt great and very excited – the cockpit environment is so awesome and realistic and especially the high frequency noise coming from the engines, just kicks the experience to a higher level. I got the take-off clearance and applied full throttle – the acceleration is actually not that fast and powerful which you would think when hearing the noise the engines makes, but I gained speed at a fair pace and experienced the aircraft to be very steady and easy to control when blasting down the runway. The corrections that I had to make to keep the aircraft on the centerline, was only using the rudder with just tiny corrections and the result was immediate.

Raising the nose and feeling the aircraft lift off was exiting – the aircraft is certainly very steady and firm on the flight controls – actually very pilot friendly, also in rough weather. I set the climb to be a slow and enjoyable climb with a 5 to 10 degree nose up which gave me extra airspeed – this is a good thing when flying an aircraft which you are not familiar with.

I noticed that the controls are very smooth, very responsive and very sensitive but also that when you e.g. make a bank and thereafter centers the control stick, the bank also has a tiny delay which in some cases can lead to an over-bank which you then have to counteract. This is not something that I normally see in a simulation, but indeed very true to real life as I remember my own real life experiences. Truly an awesome detail, and that detail is absolutely a detail that makes the experience flying this bird even more profound, realistic and authentic.

During my test flights I also tested the characteristics of stalling this aircraft and what I discovered was the following. First I tried to see if I were able to make a high-speed stall by making an aggressive elevator input – this did result in a high-speed stall which in real life must have been a very unpleasant experience. No spin however during this stall test.

Then I tested a straight out level stall with the nose about 25 degrees up. The result was first a stall warning and small cockpit shake, then a nose drop and a wobbly flying experience, but I was still able to maintain flight however, when stalling the aircraft with the nose up at about 25 degrees and at the same time during a bank angle of about 40 degrees, the aircraft entered something very similar to a flat spin which was fairly realistic. I could not just let go of the controls to exit the spin – here I had to stop the rotation and increase my airspeed before being able to exit the spin. No problem though – the spin-recovery was easy, intuitive and pilot friendly.

To complete the stall tests I also tested if there were a difference in the stall speeds on config #1 vs config #2, being gear and flaps up versus down and the result is yes – you can fly the aircraft slower when the gear and flaps are down. Actually when the gear is down and the flaps are lowered in max position, you almost run out of enough thrust to maintain enough airspeed to keep the aircraft flying, so do be careful if coming in on a low final approach.

Additionally I also tested the impact the spoiler and gear would have on the IAS if any, and the result was perfectly according to my expectations – of course I could see an impact when using the spoiler or when lowering the gear – the gear gave a small indication of loss of airspeed whereas the spoiler had a greater impact.

When lowering or raising the flaps I should also be able to see an impact on the nose position towards the horizon, and this was also the result when testing this specific characteristic however, I do believe that the result is the opposite than what I experienced. When lowering the flaps I would assume the nose would pitch downward, but my experience was that the nose instead pitched upwards… I think that could be a tiny flaw in the flight dynamics.

Finally I also tested more chimes as the overspeed warning which was perfectly activated when exceeding the max IAS. Also when flying the approach and lowering the flaps without lowering the gear activated a chime for missing landing gear – very nice and according to real life as far as I know.

Coming in for landing the aircraft is also steady, very controllable and just very enjoyable to fly – the lading is easily performed with a flair that seems to be very close to the runway – this makes sense since this aircrafts main gear is rather short making the aircraft sit close to the ground. Flying the approach and landing during stormy weather is also fairly easy, just remember to keep the airspeed up and not over-control the aircraft and you will be able to land the aircraft without much difficulties – it is not that heavily impacted on crosswind – probably due to the very flat design.

Conclusion

To wrap up my experience of this classic military bird created by SimWorks Studios, then this is absolutely an awesome simulation where the developers has had a perfect focus on all details from the model, the virtual cockpit, the original systems, the textures and to the comprehensive and detailed flight dynamics.

The model is very authentic and features so many 'eye-candy' details. The virtual cockpit is beautiful and resembles an old and used but still perfectly maintained cockpit environment and the textures are high quality multi-layer textures that truly shows off the aircraft beautifully.

This is a perfect addon for the serious flight simmer that loves the old classic birds – this addon have it all, great authenticity, realism, atmosphere, high level of quality – in short, just an awesome aircraft that I certainly would recommend for my fellow simmers.

The T-37B Tweet scored a superb 4.82 out of 5 and really set the bar high for future developments from SWS. I also would like to thank you SimWorks Studios for creating this beautiful rendition of this classic old military jet-trainer – you have done an exceptionally great work on creating this aircraft and I hope to see many more developments from you.

Rays Aviation

Technical Requirements and Review Computer Specifications

System Requirements (recommended by SWS)

- 6 GB GPU RAM or better (min 4GB)
- Quad Core processor at 3.6 GHz or better
- 16 GB RAM or more (min 8 GB)
- OS Win10
- 1.76 GB of HDD free space
- Visual C++ 2017 (included)

Review Computer Specifications

- Windows 10 (64-bit)
- Windows 7 (32-bit) (secondary system)
- Intel Core™ i7-4790K 4x4.00GHz (Turbo 4x4.40GHz)
- Asus Maximus VII Ranger (ROG-series)
- Antec Kuhler H20 650 Water Cooler
- Kingston HyperX Beast-series 32Gb DDR3-2133 RAM
- 500Gb Samsung 850 EVO SSD
- 3Tb Seagate Barracura (7200rpm, 6Gb/s)
- Asus GeForce GTX 980 Strix OC 4Gb
- 1000/1000Mbit Fiber Internet Connection
- Prepar3D v4+
- REX SkyForce3D