Review of

Piper Comanche 250

Created by A2A Simulations

The Comanche 250 is a single engine, low wing, four-seated aircraft built by Piper Aircrafts since 1958 and is an all-metal, light weight aircraft with a tricycle retractable landing gear. The 250 is a member of the larger series of Comanche aircraft and features a 250Hp (186 kW) Lycoming O-540 engine.

Over the years the aircraft had several upgrades as e.g. the manually operated flaps in the early models were upgraded to be electrically actuated flaps in the later models and which became standard in 1962. Also the majority of 250's were fitted with a carbureted engine but a few were also manufactured with fuel-injected versions of the same engine.

One of the characteristics of the Comanche 250 is the wingtip fuel tanks which became available in 1961. The internal fuel load can hold 60 US gallons of fuel where the wingtip tanks can hold additional 30US gallons in total.

- **Produced by**   *Piper Aircraft*
- **National Origin**   *United States*
- **First Flight**   *May 24, 1956*
- **Introduction**   *1958*
- **Role**   *Civil Utility Aircraft*
- **Produced**   *1957-1972*
- **Built (qty)**   *4,857*
- **Unit Costs**   *$17,850 - $36,890*
- **Status**   *Out of production*
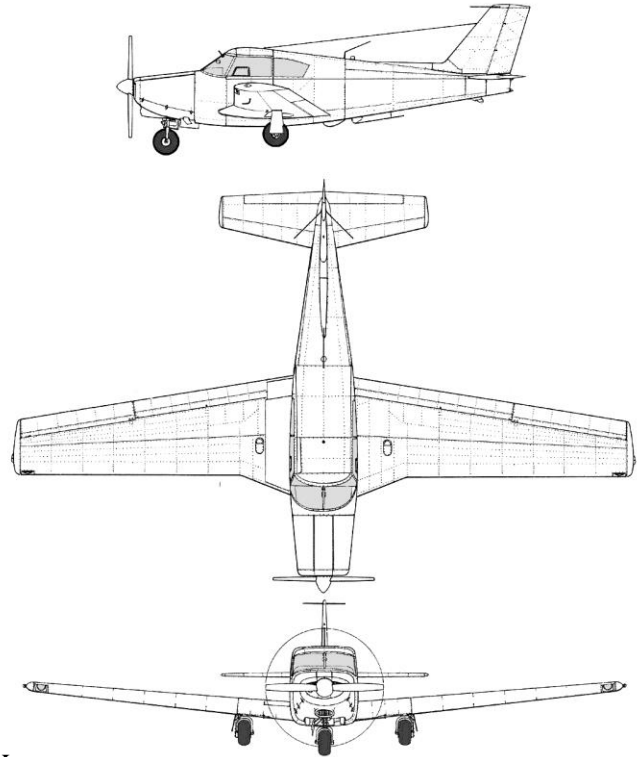
- **Crew**   *1*
- **Capacity**   *1 Crew + 3 Passengers*
- **Length**   *24 ft 10 in*
- **Height**   *7 ft 5 in*
- **Wingspan**   *36 ft 0 in*
- **Empty Weight**   *1,690 lbs*
- **MTOW**   *3,000 lbs*
- **Power Plant**   *Lycoming O-540-A w/ 250Hp*
- **Propeller**   *1x 3-bladed McCauley 77 in Constant Speed or*
                        1x 3-bladed MT Propeller 74 in Constant Speed

Piper Pa-24 Comanche

- **Range**   *928 nmi (75% power) → 1,108 nmi (45% power)*
- **Service Ceiling**   *20,000 ft*
- **Vne - Never Exceed**   *203 mph (229 mph w/ stabilator tips installed)*
- **Vno - Max Structural Cruise**   *180 mph*
- **Va - Design Maneauvering**   *144 mph (2,800 lbs) & 120 mph (1,900 lbs)*
- **Vfe - Max Flaps Extended**   *125 mph*
- **Vlo - Max Gear Operation**   *125 mph*
- **Vle - Max Gear Extended**   *150 mph*
- **Vx - Best Angle of Climb**   *84 mph*
- **Vy – Best Rate of Climb**   *105 mph*
- **Vs – Stall, Normal Config**   *71 mph*
- **Vso – Stall, Landing Config**   *64 mph*
- **Final w/ 27^0 Flaps**   *90 mph*
- **Max Crosswind**   *17 kts*
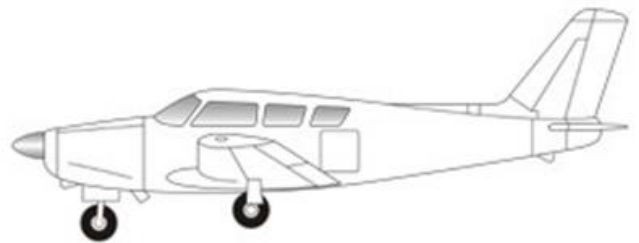
Purchase, Download and Installation

I purchased this addon through www.Store.Flightsim.com and the purchase was easy – very similar to purchase made on FSPilotShop. The server features a good a solid connection providing the download with a good performance speed and I had no interruptions or similar. The entire download of the 191MB zip file was completed within 2 minutes or so.

The file is named *ATS-540-Comanche_P3Dv4_Professional* and is actually not a huge file even though this aircraft is a complex and high quality aircraft. Performing the installation of the aircraft was easy and very user friendly, simply just activate the installation wizard and the rest is almost automatic – you can of course select directory for installation but the wizard features an 'auto-find' meaning that it automatically finds the path to your P3Dv4 installation folder. You can install the aircraft in your main folder as normally done in e.g. FSX, or you can select a directory outside the sim-folder which actually is recommended by LM.

After the installation had completed I saw there were an update to the aircraft – this was a 34,55MB update which I of course quickly downloaded and installed. This update changed the original version to be the v18.12.31.0 instead and which also is the version tested for this review.

I checked my virtual hangar after the installation was completed and found one model with four liveries nicely placed under A2A Simulations.

Together with this aircraft you also get a *Comanche Pilot's Manual for P3Dv4* which is a 102 page PDF file. In the manual you find features, various specifics about e.g. the engine, the systems and the performance including charts etc. You also find procedures, limitations, handling and developers notes. The entire manual is quite thorough and complex and does require much time to read and understand – however you can of course just focus on what you find important but my recommendation would be to read most of it – it is a good read and it does provide you with a better understanding of this aircraft.

Additionally there are also two small programs included in this aircraft; one is the *Comanche Aircraft Configurator* and the other is the *Comanche Input Configurator*. Both programs can be accessed from your Windows start menu or you can find them on *C:/Users/'Your Name'/Documents/Prepar3Dv4 Add-Ons/A2A*.

The *Input Configurator* is an assignment tool that can be used to assign axis, buttons or levers on your flight control setup – please do remember that if you use this tool, then don't use other assignment tools since that could cause double assigning of functions to a button, a lever or an axis. The assignment tool is easy to use but is limited to only this aircraft and a set of specific selections – that of course is a nice idea if you have several A2A simulation aircrafts where you can make a specific profile for each, but if you fly a variety of aircrafts I would probably recommend to use the built-in tool in P3Dv4.

The *Aircraft Configurator* enables you to select a specific GPS system to use and implement into the cockpit however, this requires that you have purchased a third-party GPS system from either RealityXP or Flight1. These systems are not included and the GPS selection is as standard set to default.
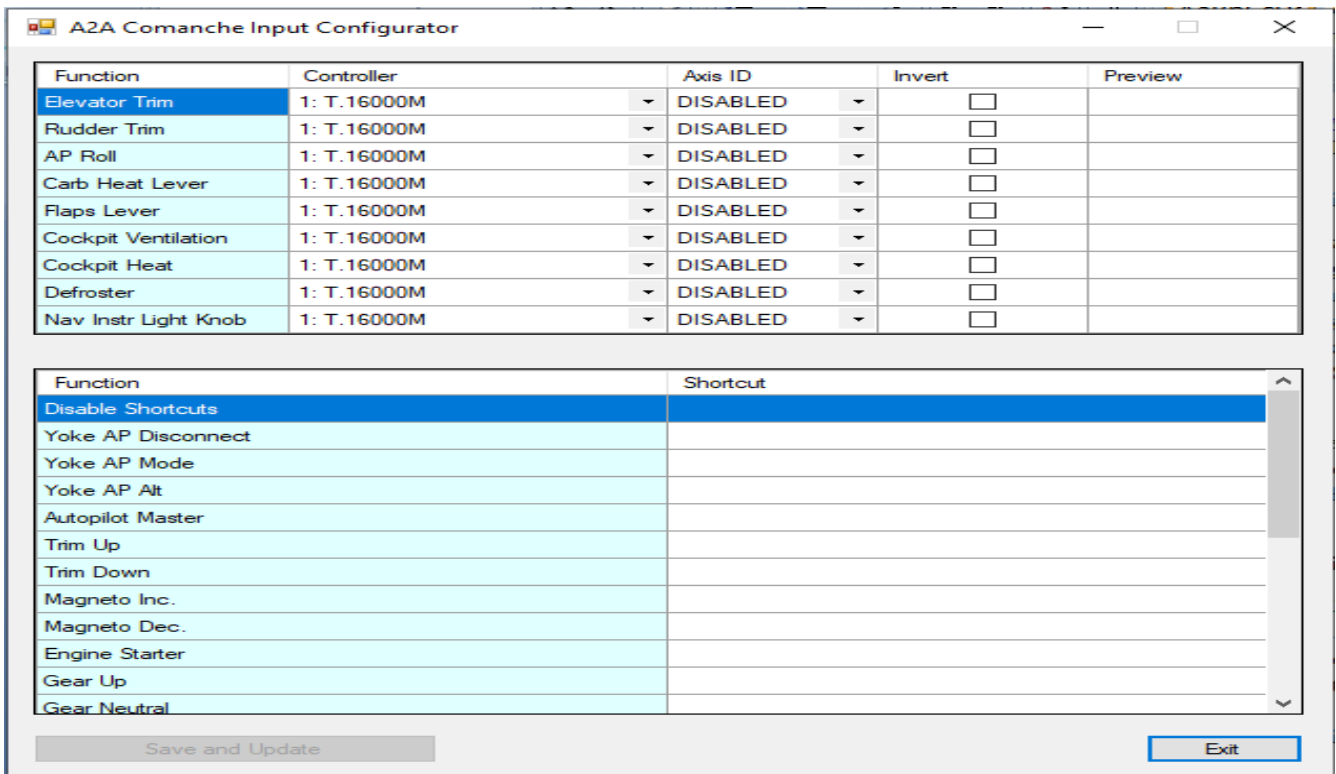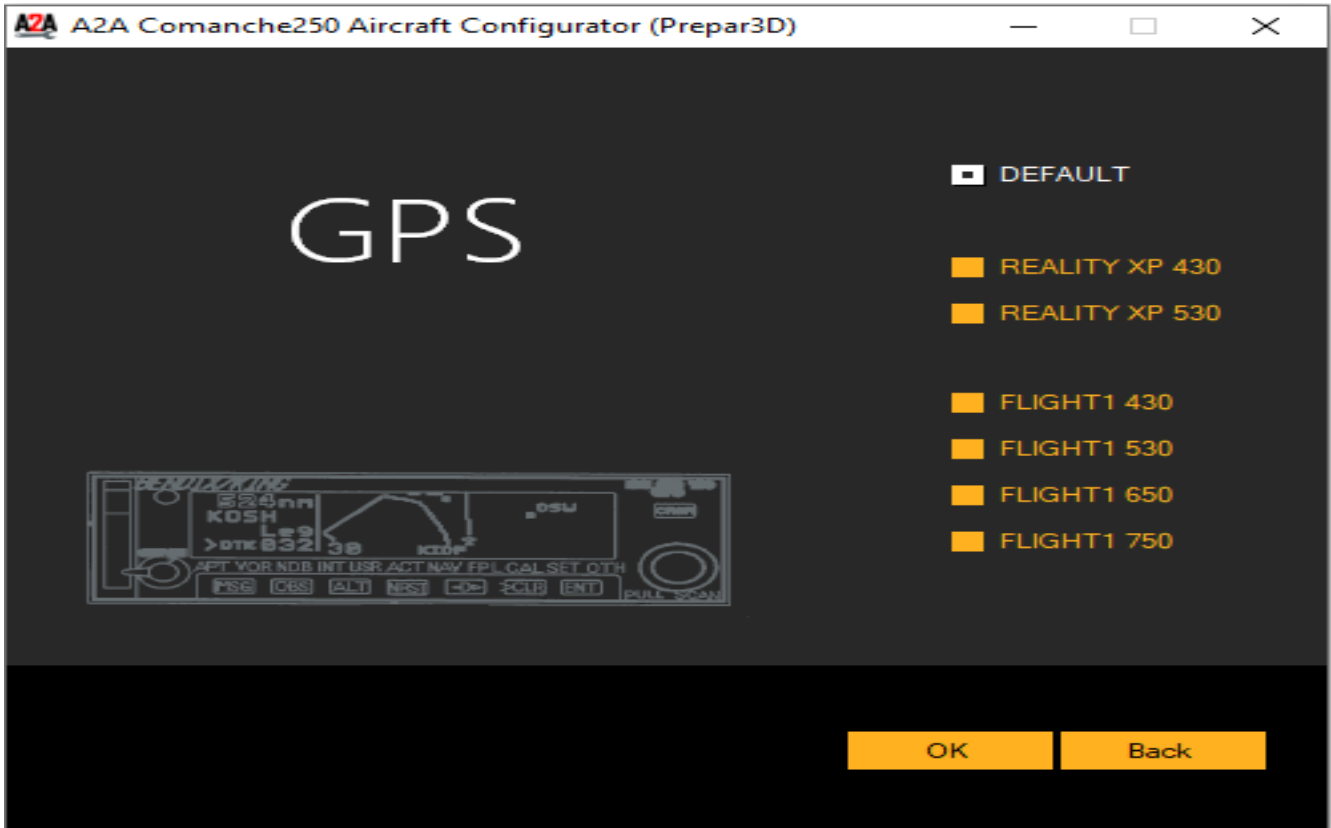
Taking a look at the model itself was a really nice experience. I do expect a high level of quality much above normal standards when the aircrafts are developed by A2A Simulations - this Comanche model absolutely meet my expectations perfectly. The model is beautifully created with a great focus on detailing and authenticity where the model is created with all the distinctive features like the wide wing roots, the streamlined fuselage, the additional and selective wing tanks as well as the extra elevator tip pieces and the pointy spinner.

The textures used are high quality multi-layer textures showing a model that is true to real life by e.g. showing age with various degrees of wear and tear. This is really awesome since that makes the appearance of the aircraft to be more authentic and thereby providing a more realistic environment for the flight simmer. The textures also features the various metal plates that covers the wings and the fuselage also including all the small rivets, small scratches, dents and various markings – Everything adds to the superb experience of this old bird.

The model is a complete model also featuring several different animations such as the control surfaces like the elevator, the ailerons and the rudder and also other animations like the gear up/down, wheels rotating, nose wheel steering, gear suspension, flaps at various settings, canopy door and the propeller etc. All animations are very realistic and created with a smooth motion.

There are also various effects included in the model – this e.g. the propeller turning and changing slightly according to rpms. Also the engine start-up smoke, even though very sparse, is created and accompanied with a realistic shake which makes the engine start-up very realistic. Of course you also have the very well made light effect providing a soft but yet still bright shine from the various lights (strobe and wing). The landing lights are fair and illuminate the ground nicely with a dimmed shine.

As I have seen on other aircrafts from A2A, this aircraft pack consists of the complete experience package featuring the payload and fuel manager, the virtual hangar for customizing the aircraft and performing maintenance as well as the very detailed pre-flight inspection. All these features as well as several other features are found using the Shift+number keys.

For the simmers that are not familiar with these features, then the virtual hangar is a feature where you can customize the aircraft with various selectable changes – this can be the tire type, the battery type, enable or disable wing tanks, close gabs between e.g. wing root and fuselage and add or disable several other specific parts like the elevator tips or the specific propeller. You can also here perform maintenance on the aircraft by changing the oil or other fluids or parts or even performing an entire overhaul – you have to do this to maintain the aircraft since the wear and tear and usage will have an impact on the aircraft over time potentially resulting in errors during flight. To enter the virtual hangar you do need to be on the ground and with the engine off.

The pre-flight inspection makes it possible for the simmer to perform a walk-around the aircraft to check the current state of the aircraft and to potentially find errors that needs to be corrected. Each inspection point is nicely shown on the path around the aircraft and by clicking on the point a window pops up with detailed information about that specific point also featuring illustrations and images. You can actually also jack up the aircraft and thereby examine the landing gear properly by raising and lowering the gear – this is within one of the other shift+number key windows named 'Controls'.

In the payload and fuel manager you can add fuel for both the left and right wing and of course also for the wingtip tanks if they are mounted on the aircraft (can be enabled/disabled in the virtual hangar). Here you can also select how many people to be on the flight and how much baggage etc. and the best part of this is that by adding people or fuel to the aircraft, the aircraft immediately respond to it. E.g. adding weight results in a new aircraft profile where the aircraft is heavier and thereby the suspension is pushed and the aircraft sits closer to the ground surface and vise versa by removing weight.
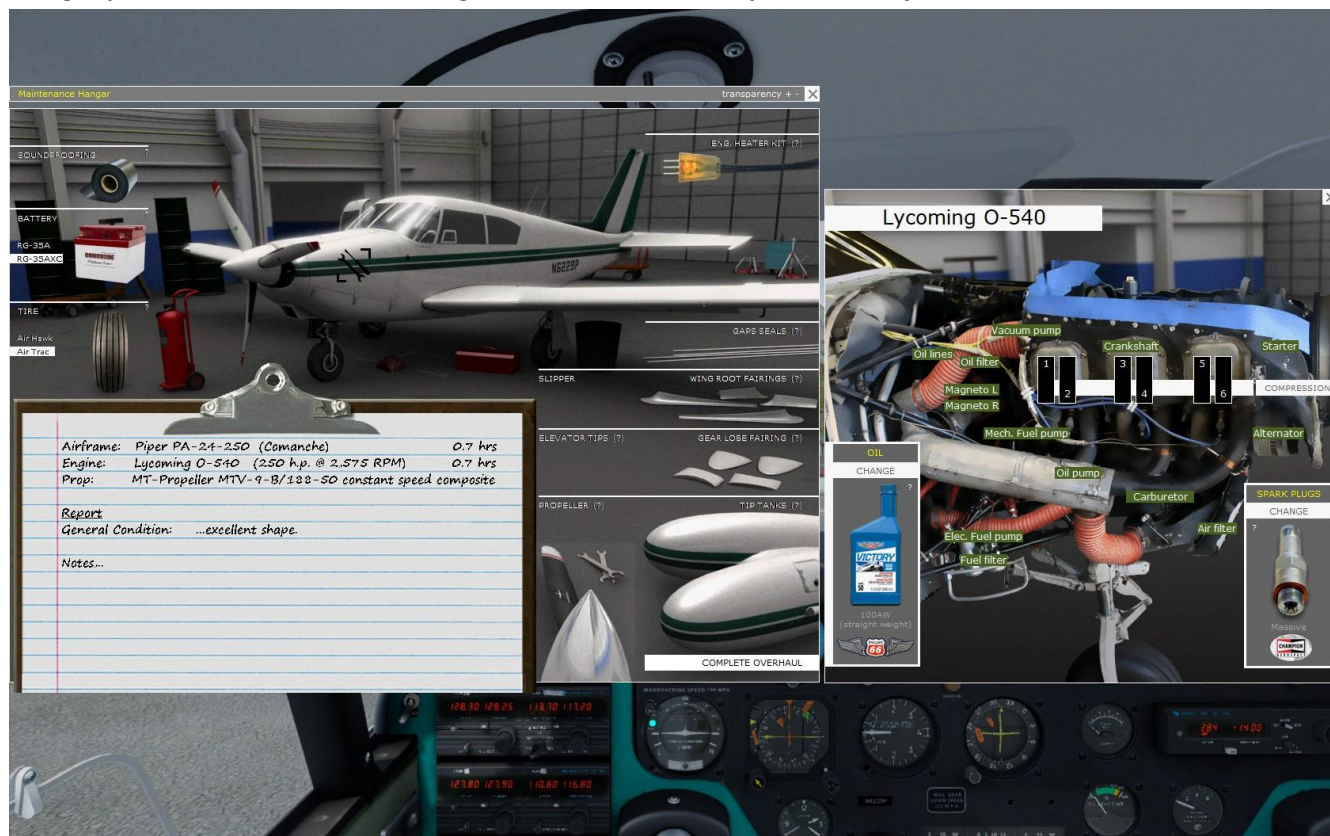
The various windows using the Shift+Number keys with the Payload and Fuel Manager in the center
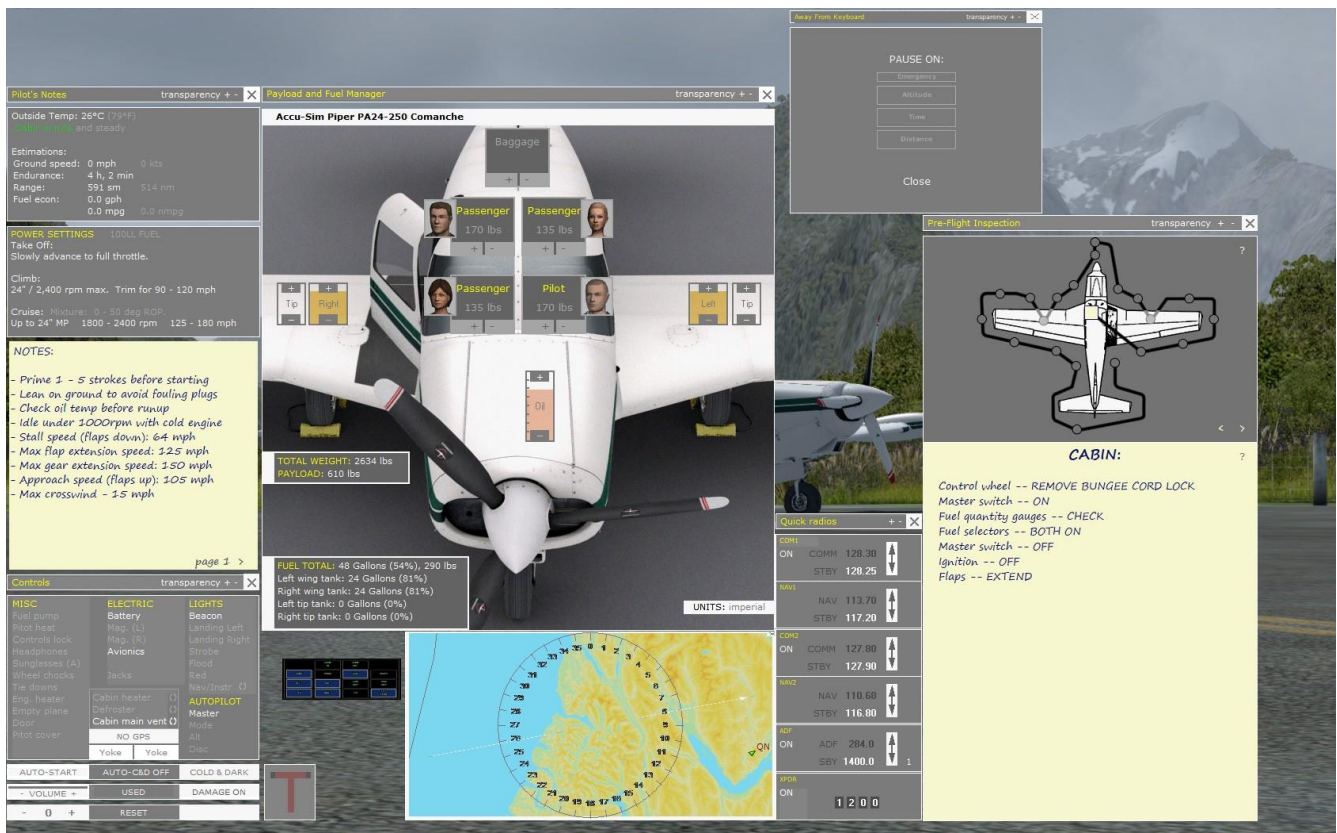
Images from the Pre-Flight Inspection
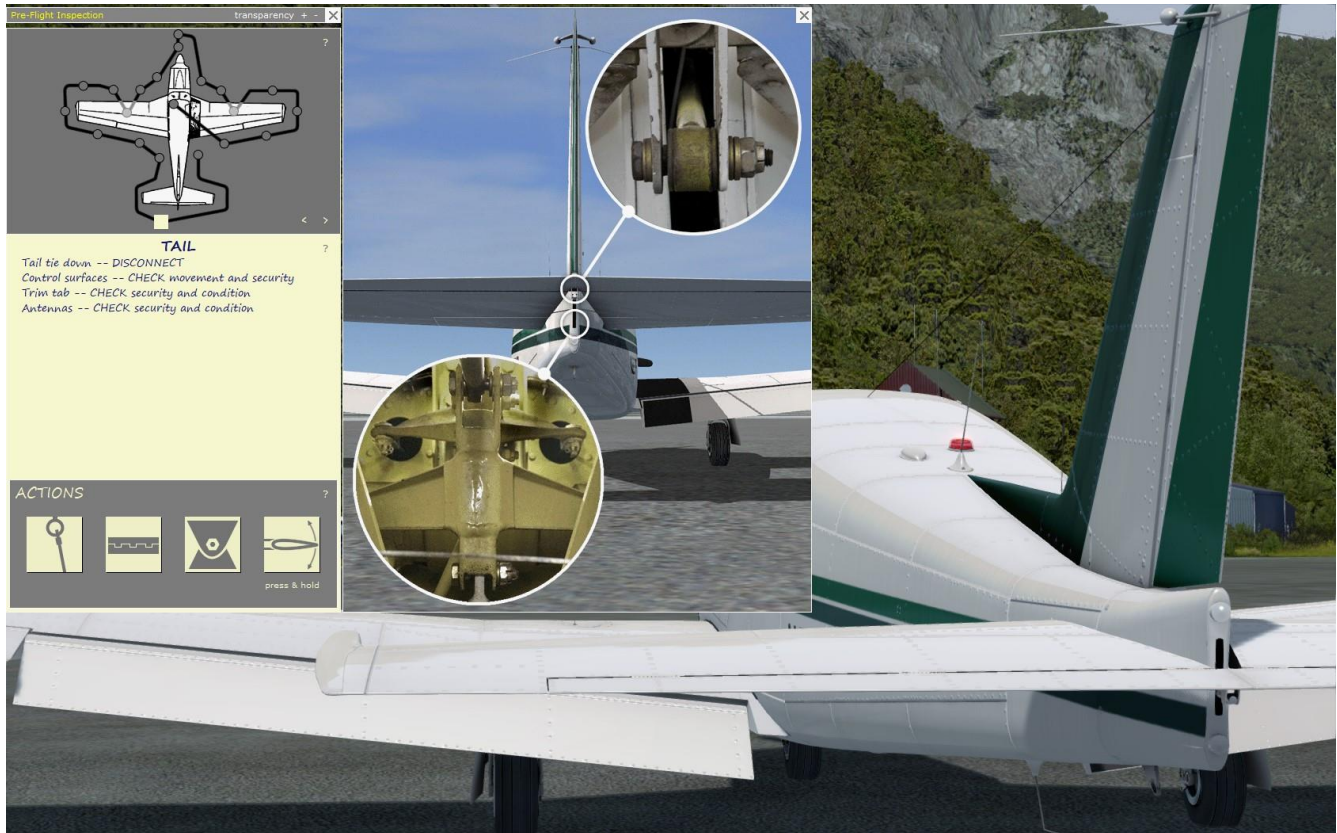
Images from the Maintenance Hanger and with the aircraft raised on jacks

The Comanche also features a beautiful and authentic virtual cockpit that is perfectly modeled featuring an abundance of high quality details. The environment is very realistic and creates a perfect atmosphere when flying this old bird.

Looking around the cockpit I saw an old cockpit with old instruments etc. but absolutely not an old worn-out cockpit, more an old and perfectly cared for and maintained cockpit showing some degree of wear and tear various places. E.g. the fabrics on the seat is lighter at the front end/edge then in the center providing a used and realistic look for an aircraft of age. Also the carpets on the floor in front of the front seats are stained which looks like oil or grease stains or it could also be dirt or mud. I also found several scratches around the cockpit as well as worn-off paint on some of the few metal plates especially around the screw hole in the corner of these metal plates. All textures used are multi-layer, high quality textures that absolutely provides the simmer with a very realistic environment and an authentic cockpit experience.

The 3D performance is exceptional and you truly feel like you are inside a real Comanche cockpit. The finish is also super and it is quite obvious that A2A Simulations once again has kept a focus on details, realism, authenticy and of course also eye candy and actually an abundance of it.

There are multiple animations added to this cockpit like the yokes, the rudder pedals, the various levers, buttons, switches, the door and many more. All animations are created with a smooth and realistic motion and fits the environment perfectly.

There are also various effects included as e.g. when starting up the engine, the cockpit panel will shake until the engine is at idle. Increasing the rpms I also notised that the cockpit panel would change 'shake profile' so that the shake appears very realistically according to a specific rpm setting. I did not notise any needle shake in the various gauges which I would have expected from e.g. the VSI when taxiing over a rough surface. Neither any needle shake if I touched down hard however, here I got a very good panel shake instead.

Another effect that is awesome is the raindrop effect on the windshield. Sitting in the cockpit and looking out the windshield I see the raindrop scattered around my view with realistic boubles, but it gets better because when the engine is at idle the raindrop just hits the windshield however, when you apply power and increases the rpms the raindrops will be blown upwards with a dynamic speed that is in accordance to the rpms meaning that the more power you apply, the faster the raindrops move upwards.

The aircraft also features a simplified autopilot which is controlled using the knob connected to the 'Turn Coordinator' gauge. The heading is selected using you navigation gauge and on the yoke you will find an 'auto-pilot disengage button'. I did not find a 2D cockpit for this addon.

Sound

The sounds created for this addon is absolutely superb and features both a sound set for the entire rpms settings on the engine also including startup and shutdown, and also a variety of additional and various environmental sounds covering everything from switches being clicked, flaps moving, wheels rotating, brakes squeezing and many more. All sounds are created with a focus on realism and support the flight simulation experience superbly by creating a very realistic and authentic sound-atmosphere.

The engine sound is a deep rumble that just increases in volume when increasing the power setting – an awesome experience that really give me chills on my back because I can really hear the immense power being provided by the engine.

Flying at cruise and enjoying the scenery still provides a great and realistic sound experience – and if you throttle down to idle you will now hear the wind outside which will increase in volume if you increase your IAS by making a more rapidly descent.

I have tested the sound sets in both ordinary stereo using a stereo headset, but also in a 2.1 environment using 2 front speakers and an active sub and finally also within a 7.1 surround sound environment. The sound performance was perfect in all tests and the sound is clean, clear and absolutely very authentic.

Ground handling is easy with this aircraft – it reacts quickly when changing the throttle setting and when you apply the wheel brakes you get an instant decrease of taxi speed. The nose wheel steering is very easy and the aircraft can turn within a very small diameter.

The forward view is excellent as well as the view to both sides providing a great overview when taxiing the aircraft. When the engine is at idle you do not need to use the wheel brakes for the aircraft to be at a standstill.

Performing the engine tests prior to takeoff with the wheel brakes applied, I noticed that the nose of the aircraft would go downward according to the throttle setting meaning the more throttle I gave the more the nose went downward and pushing the nose gear suspension to its limit – this is of course also very well in accordance to real life.

Another thing that I noticed was the IAS gauge – when you in the virtual hangar selects the elevator tips to be mounted, it is stated that the Vne speed will increase due to better stability – this was surprisingly also added to the gauge itself, so when I applied the elevator tips the gauge changed to now show an increased Vne speed. That is a great detail!

The IAS gauge also nicely displays the Vno, Vs, Vso, Vfe and Vlo speeds perfectly and in accordance to the specs of the aircraft. Increasing the rpms when performing the takeoff I would expect some yaw due to the rotation of the propeller. I did detect a yaw but it was easy to counteract also when the wheels lifted off the ground – defiantly nothing like taking off in the Bonanza V-tail.

Flying the Comanche is much like other GA aircrafts – it's a low wing structure but with a nice V-shaped profile which provides a good stability. You can easily trim the aircraft so that you minimize your workload and on top of that the aircraft also features the simplified autopilot to also ease the work and potential stress in the cockpit.

I started out with a climb to see if I could reach the service ceiling of 20,000' – at first the Comanche climbed fast and steady but crossing the 15,000' mark the climb is radically reduced. I reached a total of 24,700' but it really took a long time to reach that altitude and after passing the 20,000' mark it was a climb with about 250'/min indicated on the VSI. I think the flight dynamics regarding the service ceiling is fairly realistic because what is stated is not necessarily the absolute maximum altitude. Also I couldn't have reached this altitude without constantly checking and changing the mixture setting.

Testing the impact of lowering the flaps was performed as the next series of tests. Flying at a constant rpm and suddenly lowering the flaps resulted in the nose going downward which it also should. Also if I counteracted this motion and kept the nose angle the same as well as keeping the rpms the exact same, I saw that the IAS would decrease which I would also expect due to more drag. Additionally I also did

this test by lowering the gear instead of the flaps and the result was that the nose angle stayed the same and the IAS began to decrease again due to more drag as per real life.

Next test was the stall and spin tests and here I tried out stalls with criteria as straight-out with level wings and 25 degree nose up and secondly with a bank angle of 45 degrees and 25 degrees nose up to both the left and right side. I did these tests both with full power and with idle power and also with flaps and gear down versus flaps and gear up. All tests were performed at an altitude of about 2,500'.

The result was not the same for each setup. In general I would say that stalls that appeared with the engine at idle were very gentle and normally just resulted in the nose dropping both when flying straight out with level wings and when making a turn. A few times it did result in a short spin which was easily recovered.

The stall that happened with full throttle were a lot more aggressive and mostly resulted in loss of lift on the left wing forcing the wing downward as well as the nose. If I didn't counteract this it resulted in a spin which, however was easily recovered by changing the throttle to idle, pushing the nose down and counteracting the rotation with the rudder, then level the wings and softly pull out of the dive.

Just before entering the state of stall the aircraft became very much alive and wobbly, and when the stall kicked in you heard a rumbling sound, the wind and also a sound of metal being dented – the sound set for the stall is absolutely awesome.

Flying the final and landing the Comanche was easy – the aircraft is very steady and quick on the response of my control inputs, so even though flying the final in gusty weather was not really that difficult. I also tried coming in extremely high on the final to see if the aircraft was able to perform a side-slip and of course it was. I tried out both a left and a right side-slip and I could see the altimeter spinning down rapidly while the IAS was still within normal state – that is a superb characteristic built into this addon.

Flaring the Comanche also works nicely and when the wheels touch down on the runway, you get a nice cockpit panel shake effect. The harder you touch down the more severe the effect will be.

Since this aircraft is an old GA aircraft you don't have that many chimes or sounds at all – you do have a beeping sound when you disengage the autopilot and you also get a highly annoying sound when you lower the flaps and set the throttle to idle without lowering the landing gear. No warning when stalling the aircraft other than the wind and the rumble. Over-speeding the aircraft also does not activate a warning but of course the sound of the wind gets very loud.
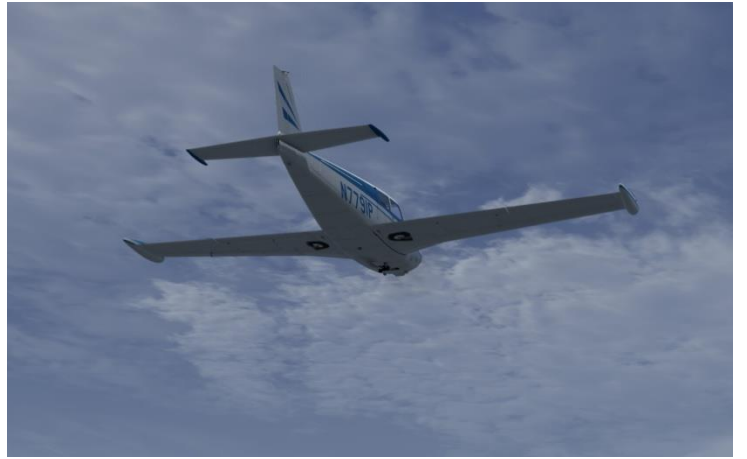
Conclusion

Overall this is a superb and excellent rendition of the Comanche 250 that seems true to real life – I am of course not qualified to state that it truly is like the real Comanche since I have never flown that aircraft in real life, but it does fly like I expected it to according to the various specs and my personal real aviation experience.

I find the Comanche to be very authentic and I love the focus and the detailing that A2A Simulations has given this aircraft both in regards to the model, the cockpit, the flight dynamics and the sound as well as to the experience package. This aircraft can be used by simmers that just want to get flying in a realistic environment to simmers that want all the aspects of flight including maintenance and the pre-flight inspection – this is absolutely awesome!

The Comanche is certainly a high quality aircraft in all regards – pricewise well… yes it is quite expensive compared to other addon aircrafts but the complexity, the quality and the experience you get flying this bird is just so much better. Personally I find the price fair and I certainly am looking forward for spending many more hours flying this aircraft.

I have tested several A2A Simulation aircrafts and this Comanche is the same high level of quality that you also find in e.g. their Bonanza, the PA28-180 and their P-51 – Truly an awesome flight simulation experience that I can only recommend, especially if you enjoy the experience of flying GA aircraft and even more if you like old classic GA aircrafts.

The Comanche scored a beautiful 4.88 out of 5 – Thanks to A2A Simulations for creating yet another high quality aircraft. Keep up the great work!

Rays Aviation

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
- 150/150Mbit Fiber Internet Connection
- Lockheed Martin Prepar3D v4+
- REX SkyForce3D