

Review of

Yak-55M

Created by A1R Design

### *Intro*

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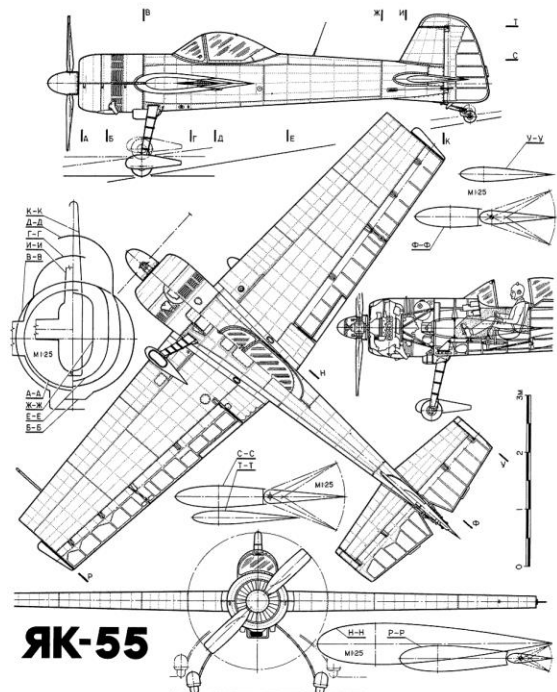
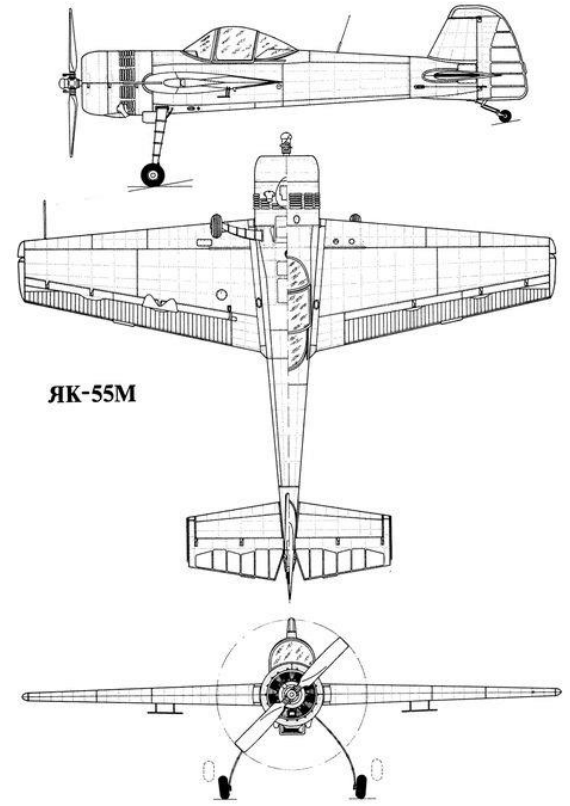
The Yak-55 is a single seated, single engine, high powered all-metal cantilever aerobatic monoplane built by Yakolev since the early 1980's. The aircraft features a tailwheel configuration with fixed titanium sprung main landing gear. An abundance of power is provided with the 360 horsepower Vedeneyev M14P 9-cylinder radial engine driving a two-bladed V-530TA-D35 propeller. Additionally the aircraft features a teardrop sliding canopy and wings mounted midway up the fuselage and which are built with a thick and symmetrical section to aid inverted flights.

The M-version covered in this review, is an updated version featuring smaller wings to meet the high requirements of roll rate demands of DOSAAF. The Yak-55M archives an impressive roll rate of 345 degrees per second as well as a g-limitation of -6 to +9. The aircraft stalls at 100 km/h (54 knots) and has a never exceed speed of 450 km/h (240 knots). A total of 106 M-version aircraft were built by the end of 1993 and the aircraft has proved itself very successful in various aerobatic competitions at all levels.



## General Information & Aircraft Specs

- **Produced by** *Yakovlev*
  - **National Origin** *Soviet Union*
  - **First Flight** *28<sup>th</sup> of May 1981 (Yak-55)*
  - **First Flight** *May 1989 (Yak-55M)*
  - **Role** *Aerobatic monoplane*
  - **Built** *106 aircrafts (M-version) until 1993  
108 aircrafts (55-version)*
  - **Status** *Active*
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- **Crew** *1*
  - **Capacity** *1*
  - **Length** *23 ft 11 in (7,29 m)*
  - **Height** *9 ft 2 in (2,80 m)*
  - **Wingspan** *26 ft 7 in (8,10 m)*
  - **Wing Area** *138 sq ft (12,8 m<sup>2</sup>)*
  - **Gross Weight** *1,885 lb (855 kg) for aerobatics*
  - **MTOW** *2,150 lb (975 kg) for ferry flights*
  - **Power Plant** *1x Vedeneyev M14P 9-cylinder radial engine – 268.5kW / 360.1hp*
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- **Max Speed** *165 kn (190 mph / 305 km/h)*
  - **Stall Speed** *54 kn (62 mph / 100 km/h)*
  - **Ferry Range** *381 nmi (438 mi / 705 km)*
  - **Vne Speed** *240 kn (280 mph / 450 km/h)*
  - **Rate of Climb** *3,050 ft/min (15,5 m/s)*
  - **G-limits** *+9, -6*
  - **Roll Rate** *345 degrees per second*



## *Purchase, Download and Installation*

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I purchased this addon at [www.store.flightsim.com](http://www.store.flightsim.com) and the purchase and the download went easily and without any issues. The file downloaded is named *ADB-120-YAK-55M-FSX-P3D* and is a 223Mb zip file which only took about 1½ minute to download due to a very good connection to the download server.

The installation was also very easy – the included installation wizard took care of the entire installation which also only took a few moments. There were no current updates available to the version installed so the version tested is the version v1.1 for Prepar3Dv4+.

The installation wizard features an ‘Auto-Find’ the correct installation folder which is the standard P3D directory. This you can of course always override during the installation process and thereby select your preferred installation folder. As info, LM recommends not to install inside the main P3D directory probably due to potential issues when upgrading the platform.

After the installation was completed I entered the virtual hangar and found the aircraft perfectly placed within the virtual hangar, with one model and a total of 5 liveries.

Included in the pack is also a 28 page PDF manual featuring various basic information as a quick overview, recommended settings, specs, diagrams, performance, limitations, a beautiful overview of the instrumentation with explanations, a complete checklist from pre-flight-inspection to engine shut-down and so on. The manual is easy to read and I recommend going through it before taking the aircraft for the first spin. The manual can be located in the aircraft folder and during the installation process you are also able to create a desktop icon for the manual.

I did not find any other tool or similar to support this aircraft addon.

## *External*

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I started my test with a complete walk around the aircraft just like a pre-flight inspection, and this to get a complete view of the aircraft from all sides. The aircraft is bigger than I had expected for an aerobatic bird but very streamlined and very beautiful.

The model features the unique designs of the aircraft as e.g. the tall main landing gear, the sliding canopy and the wings placed midway up on the fuselage – I compared the model with several pictures of the real aircraft which I found online, and the resemblance was really good. It seems that there has been a lot of focus on creating this bird in accordance to real life and AIR designs has done this with great success.

The textures used are high quality multi-layer textures that are beautifully created. The textures shows the aircraft as being used but very well maintained and polished which looks great and gives a very realistic visual experience of the aircraft. Also the textures shows a great many details of the model, the wings and the fuselage – even down to the small markings, rivets, curves and other specific details – I am very impressed by the visual appearance of this model.

There are not that many animations included in this model – this of course is fair enough since this aircraft in real life does not feature that many movable parts. All animations are very well created with a realistic appearance and motion. The animations are e.g. the sliding canopy, the controls being the ailerons, the rudder and the elevator, also rotating wheels and gear suspension are included as well as the propeller and the exhaustion pipes underneath the engine cowl.

I did not find that many effects included in the model – You have a smoke effect when starting up the engine where the smoke first starts as a short time, medium dense, dark smoke which appears on the top half of the engine and hereafter there comes a less dense white/grey smoke below the engine which is quickly blown away by the propellers. The quality of the smoke looked very similar to the default engine smoke from the P3Dv4 platform.

I could not find the light switch for neither the external nor the internal lights – also I could not find any external lights on the model like beacon, wingtip or landing lights which probably is very well in accordance to real life... I don't really know – strange though, because this is the first time I have tested an aircraft without any lights and this surely limits the usage of this aircraft for daytime operations only.

The model is very authentic and true to real life as I can see it, and the experience and the atmosphere created around this aircraft is really good and provided me with a very realistic experience.

If you click 'Shift+2' a window appears where you are able to configure a few details – this e.g. the aerobatic angle mounted on the wingtip to aid the pilot during aerobatics, but also a tie-down for

parking, show/hide the pilot and covers for the pitot-tube. Here you can also select a few options for the virtual cockpit which I'll get back to in the section for the internals. For the tie-down and mounting/dismounting the aerobatic angle you need to be on ground with the engine off and at a standstill, otherwise the features will not be implemented.

I did not find any pre-flight inspection tool or e.g. a virtual maintenance hangar or similar tool which I have seen in other add-ons however, overall I am certainly very impressed with the model, the accuracy and the level of detailing and quality.







## *Internal*

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After the walk around the exterior of the aircraft I now climbed inside to view the cockpit. There are no 2D cockpit included in this add-on but instead a very beautiful and realistic virtual cockpit. The cockpit is quite simple meaning not very complex with a lot of systems and switches etc. however, looking around in the virtual cockpit was still quite an experience.

I absolutely love the authenticity created with this bird – here I e.g. refer to all the legends found around in the virtual cockpit; they are not in English and for me impossible to understand. Of course I could recognize most of the instruments but it was still quite a challenge to get the quick overview of the functionality of the various buttons and switches and levers – here the manual helped me out a lot and I later found out that I could just place the mouse cursor over a switch, and the legend would now pop-up / appear in English. The legends in the original language are really an awesome detail which absolutely provides and creates a superb authentic experience for the simmer.

The textures used are high quality multi-layer textures, showing a very realistic environment with some degree of wear and tear and lots of details. The gauges are beautiful and very realistic and in general looking around the virtual cockpit was a really good experience. The 3D experience is perfect and the finish is really beautiful and realistic, and my experience was certainly like being inside a real Yak-55M cockpit.

The cockpit can be slightly modified using the ‘Shift+2’ command as shortly described in the section of the exterior – here you are able to add e.g. a transponder and select if you want the altimeter to show the altitude in meters or in feet. Here you are also able to make a quick start-up of the engine as well as a quick shut-down.

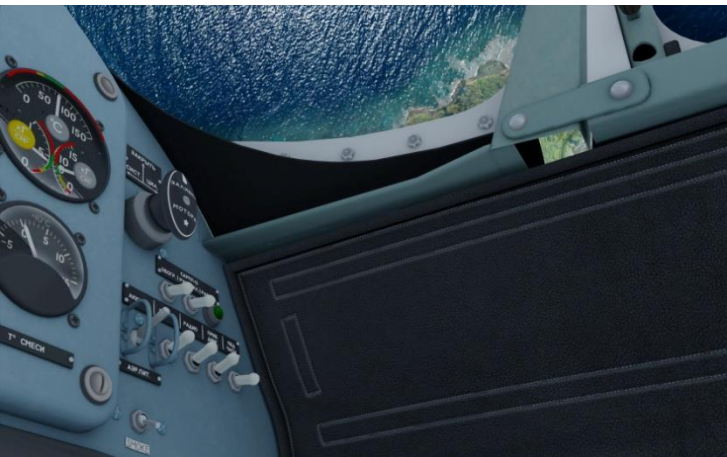
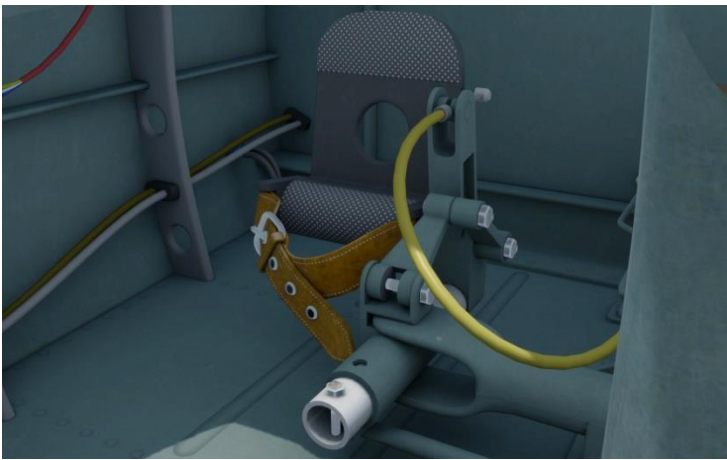
There are several animations included as e.g. the control stick, the throttle, the rudder and the gauges, switches and the canopy etc. All animations are very well made with a smooth and realistic motion that fits the model and adds to the overall experience of the aircraft.

I did not see that many effects in the virtual cockpit – there were no light effect but when starting up the engine there were a kind of small cockpit panel shake effect which was nice. I also noticed that when taxiing over a rough surface as grass, the g-meter needle would bounce up and down. The effect on the instrument needles was however only limited to the G-meter needle. This could have been nice to see an impact on all the other instruments as well.

Overall my experience of the virtual cockpit is great – very realistic, very authentic and absolutely an awesome experience.







## *Sound*

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The sounds included in the Yak-55M add-on covers the complete engine rpm sounds as well as start-up and shutdown of the engine. There are also an environmental sound set covering the sound of clicking a switch or a button, moving a lever and sliding the canopy open/close. The aircraft features no flaps or retractable gear and therefore there are of course no sounds for these movements.

The sound of the engine is absolutely awesome – there is a deep rumble when the engine is at idle and that rumble just sounds like power getting ready to be released. Both inside the cockpit as well as outside, the engine is very loud especially when throttling up to max power setting – The quality of the engine sound is superb and very realistic. I found a few movies on YouTube so that I could reasonably compare the engine sound against the real world sound, and the resemblance is in my opinion really good.

The environmental sounds are also good quality and overall the sound sets included in this add-on absolutely helps in creating a very authentic and certainly a very realistic environment and experience of flying this awesome bird.

I tested the sound in first ordinary stereo, then in a 2.1 setup featuring two front speakers and an active sub and finally in a complete 7.1 surround sound setup – the sounds performed perfectly in all tests. I certainly would recommend using the 7.1 setup for such an awesome engine sound – that really gave me goose bumps on my back.

## *Flight Dynamics and Characteristics*

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I started my flight tests by climbing inside the cockpit and starting up the engine – already now I was very excited simply because the rumble from the engine is just so awesome. The view from the cockpit is good but since this aircraft is featuring a tailwheel configuration, the nose position is of course rather high minimizing the forward view – this does make the aircraft more difficult to taxi because you either have to lean much to one of the sides or raise the seat all the way up.

The taxi from the apron and to the runway was still easy – when throttling up the engine, the propellers quickly reached enough power to make the aircraft roll and I could taxi the aircraft with a very low rpm-setting. Controlling the aircraft using the rudder is fair – the reaction is quick and firm and the same with the wheel brakes, they are very efficient and will stop the aircraft very fast.

Performing the takeoff can be done with either full power which makes the takeoff roll very short, or you can apply just about 25% throttle and the aircraft will still gain enough speed to be able to take off in a slow and comfortable manner. If you take off with a quickly increase of throttle you will encounter a fair torque to the right side due to the propeller however, this is easily compensated by applying some left rudder.

It is very much fun to perform a climb in this aircraft because you can almost climb the aircraft with a 90 degrees nose up - the engine is really powerful and the aircraft has a very low weight.

In general this aircraft is very easy to fly, the controls are firm and the reaction time for control inputs on each element (aileron, elevator and rudder) is immediately executed. Cruising is very relaxing if you trim the aircraft properly – it almost flies itself and you have a superb view almost all 360 degrees around.

Performing aerobatics I quickly realized that this was exactly what this aircraft was designed to do – it rolls extremely quickly and you are able to do all thinkable aerobatic maneuvers without that much effort. Even flying inverted is super easy which probably is due to the design of the wings. One thing I did notice was that you have to be a bit careful on pulling the stick, because I found that the aircraft tends to go into a high-speed stall easily. I also tested the aircraft's ability to perform a 'Skip-Stewart' and this aircraft does it super easily just like the Pitts models – the maneuver is done at a few feet in the air where you raise the nose high while making an aggressive bank angle and rudder in the opposite direction – here keeping the flight line straight along the runway and the altitude at the same height all the way.

The aircraft stalls easily as I mentioned in regards to the high-speed stalls, but a regular or ordinary stall is also easy to provoke. When flying the aircraft close to the stalling speed you do have to be very cautious or you will encounter a stall and a possible spin afterwards. When the aircraft stalls the aircraft flips over very quickly and if you try to counteract the roll, you will most times over-control the

aircraft resulting in an opposite roll before entering the spin. Absolutely a lot of fun for an aerobatic person like me, but also something you need to be aware of when e.g. flying a landing pattern.

Landing the Yak-55M is overall quite easy however it can also be rather challenging – of course during stormy weather conditions everything can be challenging and especially when the controls are so responsive as in this aircraft. What I discovered during several approaches and landings was that when you cut the power setting to idle, the aircraft only slows down very slowly, and this can be an issue on shorter fields. The aircraft just keeps on flying and the flair tends to come a long way down the runway – I know that I of course could just come in lower and at a lower airspeed, but my experience with the stalling of this aircraft tells me to have a little more airspeed available as safety on both base and final.

I also tried coming in high on final and this was a nice experience – using the side-slip maneuver works great with this aircraft. The aircraft is easy to control in this maneuver and the result is a higher descent rate with a superb view of the runway and the surroundings.

Touching down and applying the wheel brakes will decrease your speed and at first I was a bit worried if I would over-brake the aircraft hereby lifting the tail and smashing the nose and propeller into the ground, but this was not possible – no matter how fast I came down the runway and how much I held the wheel brakes, the tail never lifted... This I do find a bit strange and I would think it is not that true to real life.





## *Conclusion*

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To wrap up my experience of the Yak-55M created by A1R designs, then this is a really well made, high quality aircraft add-on that surely will provide the simmer with a realistic and awesome aerobatic experience.

The aircraft model is very well made and resembles the real Yak-55M beautifully. There has been a lot of focus on the details and the textures used are high quality multi-layer textures, that brings the aircraft to life and support the realistic atmosphere surrounding this bird.

The cockpit is high quality with great work on details, textures and overall the entire environment and I absolutely love the legends which are in the original language. Superb detail !

I find this aircraft to be very realistic in both its appearance externally and internally but also in regards to the sounds and the flight dynamics. The aircraft is very sensitive on the controls and certainly an excellent aerobatic bird for sure.

If you like to test your skills within the aerobatic world, then this is an aircraft that I most certainly can recommend trying out. It will put your skills to the test and bring you lots of fun when you finally master it.

I rate the Yak-55M with a good 4.5 out of 5 stars – truly an exceptional experience I had testing this aircraft and I would like to thank A1R Designs for creating this beautiful aircraft.

## **Rays Aviation**



## *Review Computer Specifications*

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- 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
- Prepar3D v4+
- REX SkyForce3D for P3Dv4