



**Yakovlev Yak-52**  
*for X-Plane 12*  
**USER MANUAL**

# Introduction

The Yakovlev 52 Russian military trainer is capable of awesome aerobatics with its sturdy construction and 360 hp, 9 cylinder radial engine. With a roll rate in excess of 120 degrees per second and its impressive vertical performance the aircraft effortlessly completes advanced aerobatic manoeuvres. The aircraft is equally at home completing gentle turns and dives with the canopy open for a more leisurely flight. The Yak is used in Eastern European countries for basic through to advanced military flying training. The aircraft were built under licence from Yakovlev by the Romanian aircraft manufacturer, Aerostar. Over 1800 have been produced to date starting from 1979.



# Support

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Should you experience difficulties or require extra information about the Virtavia Yak-52, please e-mail our technical support at [tech.support@virtavia.com](mailto:tech.support@virtavia.com)

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# Exterior Model

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## About this model

This model is a conversion to X-Plane 12 of the FSX/MSFS version released in 2024.

# Quick Start

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**Starting from cold** – Assuming the aircraft was left in the fully shut down state and all switches and levers are in their usual OFF position, then follow the quick start procedure below or alternatively follow the provided .PDF checklist.

**Take-Off** - a large radial engine with a very light airframe means that getting airborne in the Yak-52 is not a 'go to full throttle and pull back the stick' affair. Practice will be required.

The little Yak's take-off run is unsurprisingly quite short. The amount of payload has little effect on take-off with this aircraft, getting airborne is quite easy. However it is necessary to apply a few degrees of nose-up pitch and set flaps to DOWN (flaps can only be up or down). Set the propeller pitch lever to approximately 30-50% of its travel. It's possible to take off with the lever fully back (max. coarse), but the engine will over-rev if the throttle is set to full. Release the parking brake (mounted on the control column) and advance the throttle gently to no more than 50% initially. Sudden input or going to full throttle will cause the aircraft to accelerate very quickly and this can overpower the nosewheel. So be very careful with a) throttle input and b) rudder/nosewheel input, too much of either can cause you to depart the runway ! Once 50 km/h is shown, gradually increase throttle to 100%. Rotate at 100 km/h, stay at 100% throttle, concentrate on staying straight, then apply back stick pressure to get off the ground. Once positive climb is achieved, raise the gear and flaps and dial out the nose-down pitch trim which was put in earlier. The Yak is a challenge to get off the ground but satisfying once it is mastered. Some right wing down trim is already built-in which helps to keep the wings level.

## Autopilot

The Yak-52 does not have an autopilot

## Approach & Landing –

Landing the Yak-52 is much easier than taking off.

*Approach* : The aircraft has no speedbrakes so merely throttling back will allow the considerable frontal drag to slow the aircraft down. Reduce speed until 150 km/h is reached and you can enter the pattern.

*Final* : Slow to 140 km/h and lower the undercarriage. At 130 km/h extend the flaps. Maintain a steady rate of descent of around 300 ft/min is achieved and speed is 120 km/h.

*Landing* : When the runway threshold is visible, hold speed at 120 kts. Once over the runway at 10-20 ft, cut throttles and pull the control yoke back to bleed off speed to 110 km/h and touch down at 100-110 km/h. Attempt to alight on all the mainwheels only.

## Lighting

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The Yak-52 only has wingtip lights. There is no provision for internal lighting so night flying is prohibited.

Please refer to the cockpit section of this manual for information regarding light switch location.

# Cockpit

The Yak's cockpit is open and comfortable. The instruments are all metric type except for the altimeter. The arrangement may unfamiliar to Western eyes but this will become second nature after a few flights.

Upper Panel Area :



1. **Accelerometer.** Shows units in 'g'.
2. **Warning Annunciators.** The amber 'stalling speed' lamp is useful when landing as it lights at the ideal touchdown speed.
3. **Standby Compass.**
4. **Navigation Lights Switch.**
5. **Airspeed Indicator.** In Kilometers Per Hour (100 km/h = 54 kts).
6. **Attitude Indicator.** The rotary knob on the left adjusts the horizon bar.
7. **Combined Vertical Speed and Turn/Slip instrument.**

Lower Panel Area :



1. **Engine RPM Indicator.** The needle will read over 100% if the prop pitch is set fully coarse, maintain 80-100% RPM using the prop pitch lever rather than the throttle.
2. **Altimeter.** Standard early post-war analogue type with baro setting knob. Calibrated in feet.
3. **Radio Magnetic Indicator.** The numerical disc indicates aircraft heading. The larger yellow needle indicates the direction of the currently tuned NAV1 station relative to the aircraft heading. The smaller ADF needle is currently non-operational.
4. **Engine Multi-Gauge.** Left to right, Fuel Pressure, Oil Temperature, Oil Pressure.
5. **Combined Ammeter / Voltmeter.** The larger needle indicates Main Bus Amps, the smaller one the battery Volts.
6. **Fuel Quantity Indicator.** Each block represents an increment of 5 liters.
7. **Manifold Pressure Gauge.** Calibrated in Kilograms per Centimeter Squared.
8. **Chronometer.** Functions as a simple clock in this model.
9. **Carburetor Air Temperature Gauge.** This will show at maximum unless the temperature is below 15C.
10. **Cylinder Head Temperature Gauge.**

Left Side Panel :



1. Brakes Air Pressure Gauge.

2. Undercarriage Status Lamps - retracted.

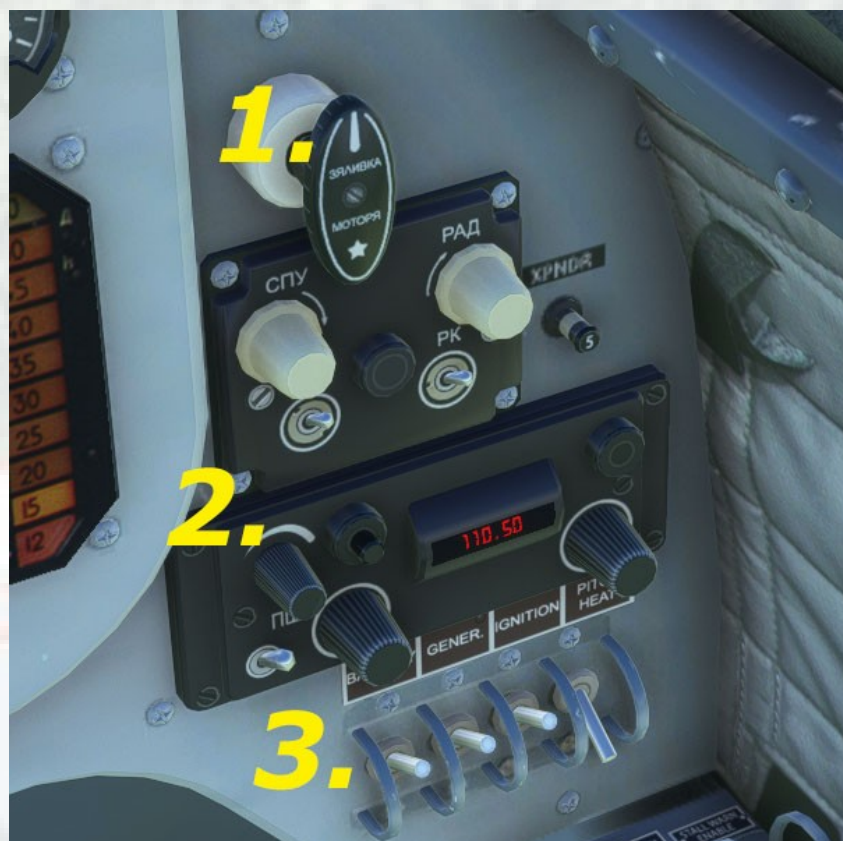
3. Undercarriage Status Lamps - extended.

4. Landing Gear Lever.

5. Flaps Status Lamps.

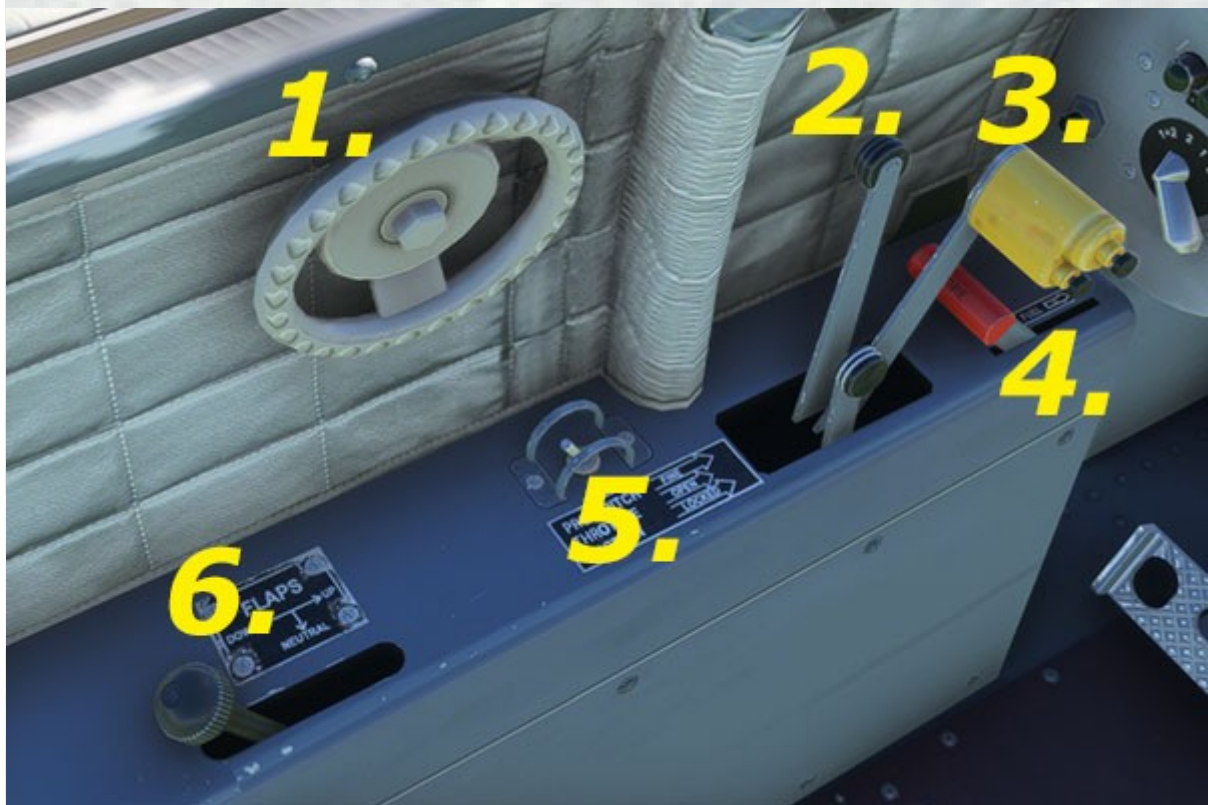
6. **Magneto Switch and Starter.** The standard 3-position magneto switch. Position 4 is to the left, past '1+2' and is spring loaded to run the engine starter. The battery switch must be ON for engine starting.

Right Side Panel :



1. **Engine Fuel Primer Handle.** Not functional in X-Plane.
2. **NAV Radio.** Not presently functional in X-Plane.
3. **Electrical System Switches.** Left to right - Master Battery, Generator on/off, Master Ignition (NF), Pitot Heat.

Left Side Console :



1. Pitch Trim Wheel.

2. Propeller Pitch Lever.

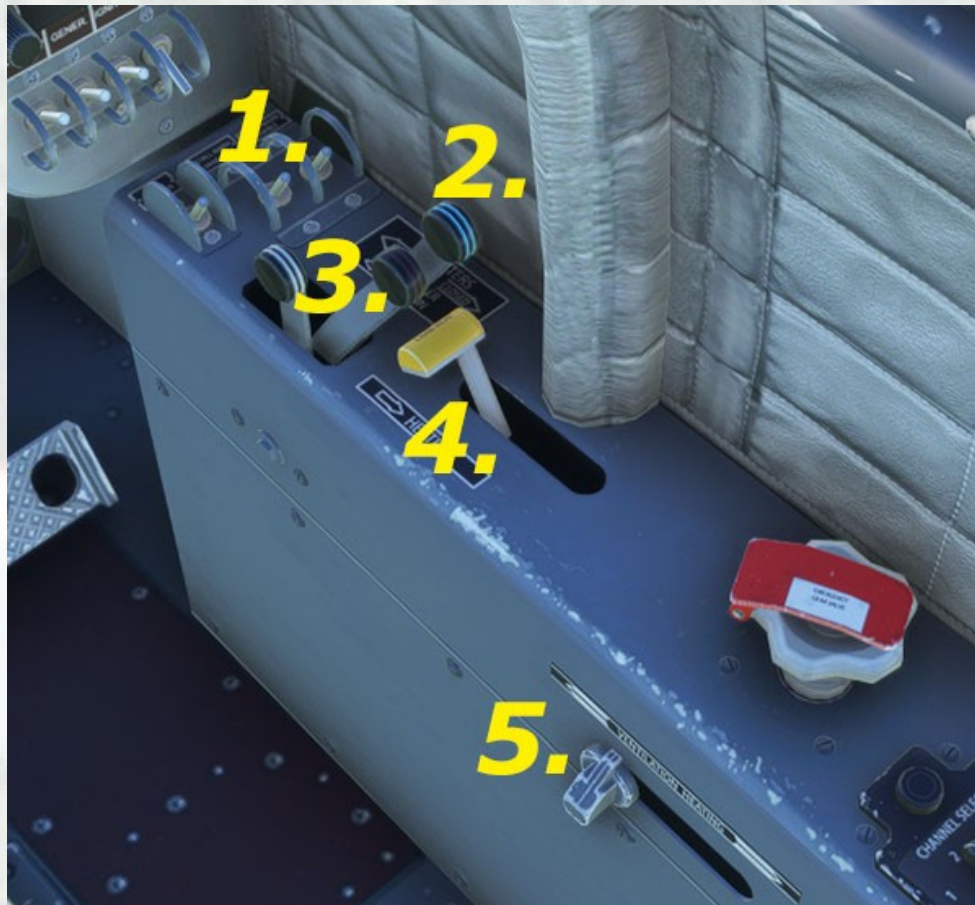
3. Throttle Lever.

4. Engine Fuel Shutoff Lever. Not functional in X-Plane.

5. Passenger Visibility Switch. Not functional in X-Plane.

6. Flaps Lever.

Right Side Console :



1. **Electrical System Switches.** Left to right - oil dilution, stall warn vane heat, stall warn enable (no function in simulator).
2. **Oil Cooler Flap Control Lever.**
3. **Cowl Flaps Control Lever.**
4. **Carburetor Heat Control.**
5. **Cabin Ventilation Control.** (No function in simulator).

# Yak-52 Specifications

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## Specifications (nominal, clean configuration)

- Engine: Vedeneyev M-14P 9-cylinder air-cooled radial
- Power: 360 h.p. at 3,000 feet
- Maximum speed: 285 km/h, 152 knots ASL
- Cruise speed: 190 km/h, 100 knots at 3,300 feet
- Service ceiling: 13,000 feet
- Range: 550 km, 340 miles
- Wingspan: 9.30 m, 30 ft 6 in.
- Length: 7.75 m, 25 ft 5 in.
- Height: 12.70 m, 8 ft 10 in.
- Wing area: 15 m<sup>2</sup>, 161.5 square feet.
- Fuel Capacity: 122 L (32 US Gal., 27 Imp. Gal.)
- Empty Weight: 1,015 kg, 2,238 pounds
- Maximum Weight: 1,305 kg, 2,877 pounds
- Armament: None
- Maximum bombload: None

## Speed Limitations

- Full Flaps: 170 km/h, 92 knots
- Landing Gear Extended: 190 km/h, 100 knots
- Never Exceed Speed: 360 km/h, 190 knots
- Stall Speed, Flaps Down: 85 km/h, 46 knots

# Yak-52 Procedures

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## Engine Start

1. Check Parking Brake ON.
2. Turn Battery switch ON.
3. Turn Nav lights ON.
4. Set Throttle Lever to IDLE.
5. Kohlsman - SET.
6. Engine Shutters – OPEN (leave closed in v. cold conditions).
7. Prop Pitch Lever – 30-50%.
8. Start Engine – turn magneto knob fully to the left.
9. Generator Switch - ON
10. Pitot Heat Switch – ON, if conditions warrant.
11. Carb Heat Lever – ON, if conditions warrant.
12. Landing Flaps operation CHECK.
13. Altimeter set to ZERO.
14. Fuel Quantity Status CHECK.

## Taking Off

1. Set Parking Brake OFF.
2. Increase throttle to 30% RPM.
3. Test Brakes.
4. Check/Set Flaps DOWN.
5. Increase throttle to 50%.
6. Apply 100% power smoothly.
7. At 100 kts, apply back stick and lift off.

## After Take- Off

1. Landing Gear RAISE.
2. Pitch Trim ADJUST LEVEL.
3. Landing Flaps RAISE.
4. Propeller Pitch Lever - Adjust as required.
5. Engine Shutters OPEN (if closed at take-off).

## Approach and Landing

1. Retard throttle to idle.
2. Extend Landing Gear at 140 km/h.
3. Extend Landing Flaps fully at 130 km/h.
4. Apply power to maintain speed to runway threshold.
5. Limit descent rate to 300 fpm.
6. Apply back stick to lose speed at 10 ft.
7. Make 2-point Touchdown at 100-110 km/h.

## After Landing

1. Retract Landing Flaps.
2. Pitot Heat - OFF.
3. Carb Heat - OFF.
4. Taxi to parking area.
5. Set Parking Brake ON.

## Shutdown

1. Throttle - IDLE.
2. Prop Pitch – MIN (lever fully back).
3. Set Nav Lights to OFF.
4. Magneto Switch – set to Zero.
5. Engine Shutters - CLOSED
6. Generator Switch - OFF
7. Master Battery Switch – OFF.
8. Exit aircraft.