



# PA-11 Cub Special

For Microsoft Flight Simulator (MSFS 2020)



To get full enjoyment of the aircraft in this package, please read this Manual thoroughly and carefully.

**Warning: The manual and models in this package must not be used for real flight training purposes.**

For Support, please see last page of this Manual.

## **HISTORY:**

Considered by many to be the ultimate Cub, the Cub Special was effectively an intermediate stage between the famous J-3 and the equally famous PA-18 Super Cub.

Featuring greater horsepower than the J-3, the Cub Special was known for its high performance, without sacrificing the light weight and simplicity of the J-3 airframe. Principle changes from the J-3 were an enclosed cowling over the more powerful engine, with the engine thrust angle canted downwards 4 degrees; the fuel tank was increased in capacity to 18 gallons and relocated to the port wing; the seats were re-designed, with square backs that provided more support; and the cross bracing between the instrument panel and the firewall removed the tubes from the instrument panel to between the rudder pedals which give a little more foot room in the front.

The PA-11 is also flown most often from the front seat, unlike the J-3, although it can in fact be soloed from either seat.

The PA-11 was first flown in 1945, and a total of 1323 were built before the PA-18 Super Cub took over.

The model represents a slightly modernized present-day version, equipped with radio and transponder.

## CONTROLS



1. RPM (counter-clockwise)
2. Airspeed
3. Compass
4. Altimeter
5. Altimeter - Kohlsman adjustment knob
6. Oil temperature
7. Oil pressure
8. Primer
9. Radio
10. Transponder
11. Battery Master switch
12. Avionics Master switch
13. **Click spot (screw):** Open upper door and left-side window
14. **Click spot (screw):** Open lower door
15. **Click spot (screw):** Remove pilots
16. **Click spot (screw):** Put tie-down ropes

Note: L-4's came with various makes of the instruments. The altimeter adjustment for ambient air pressure here works by either allowing the height above seal level to be displayed (if instrument unadjusted), or the knob can be used to bring the needle to zero, which then shows the pilot altitude above the airfield where the aircraft took off.



1. **Magnetos**
2. **Carb heat**
3. **Cabin heat**
4. **Fuel valve**

Note: Elevator trim works slowly when activated by joystick controller. This is hard-coded into the sim.



1. Lower door handle
2. Upper door click spot



### 1. Fuel quantity

Red ball indicates actual fuel quantity.

## **FLYING PA-11 Cub Special**

The PA-11 has minimal instrumentation. As such, the pilot will have to pay special attention to the aircraft's environment and attitude, by observing outside of the cockpit. Overall, the best indicator of safe flight will be accurate airspeed.

### **Flying the PA-11:**

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#### Limiting and Recommended Airspeeds

VX (best angle of climb) 50 mph

VY (best rate of climb) 55 mph

VNO (max structural cruise) 100 mph

VNE (never exceed) 226 mph

VR (rotation) 39 mph

VS1 (stall, clean) 40 mph

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Best range/fuel consumption is at 75% power, which equates to 2100 rpm

### **A. BEFORE STARTING ENGINE**

1. Check fuel supply
2. Check freedom of movement of flight and engine controls.
3. Fuel supply control to "OFF".
4. Throttle closed.
5. Magnetos to "OFF."
6. Carburetor heat control "OFF."
7. Cabin heat control knob "OFF."

### **B. STARTING ENGINE**

1. Set brakes in cabin.
2. Set throttle approximately 1/10 open.

4. Push fuel valve switch to ON.
5. Ensure magnetos switch BOTH.
6. Start engine by pulling the propeller (Ctrl-E.).

### **C. ENGINE WARM-UP**

1. As soon as engine starts, advance throttle slightly to idle at 700 R.P.M. Check engine instruments. If oil pressure gauge does not indicate pressure within 80 seconds, stop engine immediately, check and correct trouble before any further operation. Oil temperature during operating should not rise above 220°F. and oil pressure should not fall below 30 pounds. With engine warm, idling speed should be 550-600 R.P.M.
2. Rev engine up to 2100 R.P.M. on both magnetos. Switch to LEFT and RIGHT magnetos. R.P.M. drop should not be over 75 R.P.M.

CAUTION—Do not operate engine on either single magneto for more than 30 seconds at a time, as this tends to foul the non-operating spark plugs in the ignition circuit of the magneto that is switched off.

### **D. TAXIING**

1. Open throttle to start airplane in motion; then close throttle to a setting sufficient to keep airplane rolling. Do not keep throttle advanced so that it is necessary to control taxi speed of airplane with brakes. This causes unnecessary wear and tear on brake and tires.
2. Taxi slowly (speed of a fast walk) controlling direction with rudder, which is connected to a steerable tail wheel. Use brakes only for positive, precision ground control when necessary.
3. Taxi upwind with stick back, downwind with stick forward. When ground winds are in excess of 15 M.P.H., turn into wind using ailerons in direction of turn; apply ailerons away from the turn when turning down wind. This procedure helps to prevent the wind “picking up” a wing during windy, gusty conditions. Always make ground turns slowly.

## **E. GENERAL FLYING**

1. For takeoff use full throttle, headed into wind. Airplane loaded will become air-borne at approximately 39 M.P.H. Best climb speed is at an indicated 55 M.P.H.
2. Indicated R.P.M. for max. cruising speed of 100 M.P.H. is 2500. Take-off R.P.M. is 2800. Do not fly at full throttle over 3 minutes
3. Use CARBURETOR AIR HEAT when engine runs “rough” and tachometer shows drop in R.P.M., which may be due to ice forming in carburetor. Tachometer should re-cover to within 50 R.P.M. below normal when using carburetor heat. Push heater to “OFF” position, and if icing condition has been cleared, R.P.M. should return to normal. Continued use of carburetor heat will only cause increased fuel consumption and loss of power.
4. Maximum permissible diving speed is 122 M.P.H.

## **F. APPROACH AND LANDING**

1. Push carburetor heat ON prior to throttling back for glide, or for any other flight manoeuvre.
2. Glide between 50-60 M.P.H. depending upon loading of airplane and gust conditions.
3. NOTE—“Clear” engine by opening throttle gently, every 200-250 feet of descent during along glide so that engine temperature will be maintained. Throttle action on the part of the pilot should be smooth and gentle at all times.

## **G. PARKING**

1. After-termination of flight, enter flying time in aircraft and engine logbooks.
2. Turn ignition and fuel OFF.
3. Under excessively windy conditions, airplane should be tailed into wind for parking.

## **H. STOPPING ENGINE**

1. Never cut switch immediately after landing as this causes engine to cool too rapidly.
2. Idle engine, especially in high temperature operating conditions, for several minutes. It is advisable to switch to each magneto for 30-second intervals to allow gradual cooling of engine. This helps to prevent overheating of spark plug insulators and will lessen tendency for “after-firing.”
3. Check for carburetor heat OFF during idling.
4. Push fuel lever to off when ready to shut down engine.

## **For Safe Flying:**

**DO NOT BECOME AIRBORNE WITHOUT CHECKING THE FUEL SUPPLY:** It only takes a few minutes to gas up. It may save you a forced landing.

**DO NOT TAXI WITH CARELESSNESS:** Taxi slowly and make turns to clear the area in front of the nose. Know the proper use of the controls for taxiing in a strong wind.

**OBEY AIR TRAFFIC RULES:** Keep a constant lookout for other aircraft. Follow the rules so that pilots of other planes will know what you are going to do.

**DO NOT MAKE FLAT TURNS:** This is particularly important when making power-off turns. You steer with the ailerons, not the rudder.

**MAINTAIN SPEED:** Don't be fooled by the increase in ground speed resulting from a down wind turn. Keep sufficient airspeed.

**DO NOT LET YOUR CONFIDENCE EXCEED YOUR ABILITY:** Don't attempt instrument flying in adverse weather conditions unless you have the proper training and the necessary instruments. Instrument flying is a highly developed science. Don't pioneer.

**MAKE USE OF THE CARBURETOR HEATER:** The carburetor heater is your friend. Know when to use it. Remember that it's easier to prevent ice in the carburetor than to eliminate it after it has formed.

**DO NOT PERFORM AEROBATICS AT LOW ALTITUDES:** Aerobatics started near the ground may be completed six feet under the ground. There's safety in altitude.

**DO NOT ALLOW INDECISION IN YOUR JUDGMENT:** Be certain! You can't afford to make errors of judgment. "I think I can make it" is on the list of famous last words.

**THE GOOD PILOT IS THE SAFE PILOT:** It's better to be an old pilot than a bold pilot.

A big "thank you!" to everyone that helped with this first aircraft for MSFS, especially to Ron (DA40CGDFQ) and Bill (lionheart) over at the FS Think Tank discord forum. Bill, aka Lionheart Creations Ltd., deserves extra mention for his tireless patience with my endless questions and for supplying gauge samples. You can find Bill's work here: <http://lionheartsimulations.com/> .

## Support:

[support@flight-replicas.com](mailto:support@flight-replicas.com)

All requests for support must be accompanied by the following information:

1. Place/website where your PA-11 Cub Special was purchased;
2. Order number;
3. Name used when purchasing; and
4. Date of purchase.

**No support will be available without this information.**

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