



## Piper Cub Standard Procedures and Flight Maneuvers N1141V

### Preflight

#### I. Interior:

1. Mags off
2. Throttle closed (back)
3. Fuel selector on (forward)
4. Set trim for takeoff
5. Check ELT Light out
6. Check tach times (oil change, hundred hour & annual)
7. Set instruments and check intact
8. Check Carb Heat off
9. Check all control connections are secure and cables are not fraying
10. Check security of seatbelts
11. Check documents (AROW)
12. Drain fuel from tank (no water, no sediment, light blue color 100LL)

#### II. Exterior

1. Right Landing Gear Strut and Wheel Assembly:
  - a. Attachments secure (castle nuts & cotter pins)
  - b. No leaks in hydraulic lines (red hydraulic fluid)
  - c. Check brakes for worn pads and disks
  - d. Tire inflated properly, secure, and not overly worn
  - e. Check tension of bungee shock
2. Fuel
  - a. Visually check quantity (12 gal capacity)
  - b. Secure fuel cap
  - c. Drain fuel from lower sump, below engine
3. Engine Compartment
  - a. Oil quantity (4 quarts max – 3 quarts min.)
  - b. Ignition harness secure
  - c. No significant oil leaks
  - d. Cowling pins secure
  - e. Inspect propeller for stress cracks and dents, check secure
4. Left Landing Gear Strut and Wheel Assembly:
  - a. Attachments secure (castle nuts & cotter pins)
  - b. No leaks in hydraulic lines (red hydraulic fluid)
  - c. Check brakes for worn pads and disks
  - d. Tire inflated properly, secure, and not overly worn
  - e. Check tension of bungee shock

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5. Left Wing:
  - a. Strut and attach points secure
  - b. Control cable and attachments (no fraying or corrosion)
  - c. Check pitot tube for damage and blockage
  - d. Untie ropes
  - e. Leading edge smooth (no dents)
  - f. Spar check (some flex, no abnormal movement)
  - g. Aileron attachments (secured with cotter pins, cables secure and not fraying)
  - h. Aileron moves freely (control cable is not binding or corroded)
  - i. Check for fabric damage (punctures, wrinkles, etc.)
  - j. Check wing surface for unusual wrinkles
6. Fuselage (left side):
  - a. No fabric damage (punctures, wrinkles, etc.)
  - b. Green house screws in place and secure
  - c. Check belly for fabric damage and fluid leaks
7. Tail Section:
  - a. Horizontal stabilizer and trim mechanism secure
  - b. Vertical stabilizer secure and no fabric damage
  - c. Elevator attachments (secured with cotter pins, cables secure and not fraying)
  - d. Elevator moves freely (control cable is not binding or corroded)
  - e. Flying wires secure
  - f. Rudder attachments (secured with cotter pins, cables secure and not fraying or corroded)
  - g. Rudder moves freely (tail wheel holds tension when locked in)
  - h. Control surfaces free and no contact
  - i. Check for fabric damage (punctures, wrinkles, etc.)
8. Tail Wheel:
  - a. Untie rope
  - b. Steering springs and chains in place (under some tension)
  - c. Check bushings at steering spring attach points for wear
  - d. Leaf spring secure and not damaged
  - e. Dust cover in place
  - f. Check general condition of tailwheel
9. Fuselage (right side):
  - a. No fabric damage (punctures, wrinkles, etc.)
  - b. Green house screws in place and secure
  - c. Check belly for fabric damage and fluid leaks
10. Right Wing:
  - a. Strut and attach points secure
  - b. Control cable and attachments (no fraying or corrosion)
  - c. Check pitot tube for damage and blockage
  - d. Untie ropes
  - e. Leading edge smooth (no dents)
  - f. Spar check (some flex, no abnormal movement)
  - g. Aileron attachments (secured with cotter pins, cables secure and not fraying)
  - h. Aileron moves freely (control cable is not binding or corroded)
  - i. Check for fabric damage (punctures, wrinkles, etc.)
  - j. Check wing surface for unusual wrinkles

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## Starting Engine

**USE EXTREME CAUTION; ALWAYS ASSUME ENGINE IS GOING TO START!  
NO SOLO PROPPING!**

### Priming:

- Brakes on
- Throttle closed (back)
- Mags off
- Control stick back
- Brakes, closed, and off (challenge and respond)

### Starting:

- Brakes on
- Throttle cracked (open ¼ inch)
- Mags on both
- Control stick back
- Brakes, cracked, and contact (challenge and respond)
- When engine starts:
  - Throttle back to idle
  - Check oil pressure (40 psi) if oil pressure does not come up shut down engine

## Taxi

- Use minimum power and braking to taxi (no faster than a brisk walk)
- Use rudder pedals to steer
- Place controls in proper position to correct for wind (dive away from the wind, climb into it)
- Make slow S-turns for visibility ahead of the plane
- Taxi on the edge of the runway
- Check for traffic on final and on the runway in both directions before crossing

## Pre-Takeoff Check (run-up)

### C.I.G.A.R.S.

**C – Controls:** move stick through full box pattern checking for freedom of movement and correct control positions (stick to the left, left aileron up)

**I – Instruments:** tachometer stable, airspeed indicator 0 MPH, compass check on known heading, altimeter set to field elevation, oil pressure 40 psi (in the green), oil temperature 100-180 (in the green)

**G – Gas:** carb heat closed (off), primer in and locked, tank full (level checked on preflight, notice indicator), selector on (forward)

**A – Attitude:** trim set for takeoff (mid scale)

**R – Run-up:** throttle up to 1500 RPM, mag check switch to left and mag notice RPM drop, switch back to both then switch to right mag and notice RPM drop then switch back to both. No more than 75 RPM drop on each or 50 RPM between the two and smooth running check carb. heat

**S – Safety:** seat belts and door secure, traffic pattern clear

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## **Normal Procedures**

### **Normal Takeoff**

1. Roll onto center line
2. Check wind and apply correction
3. Hold stick just aft of center and smoothly apply full power
4. Check oil temperature (100-180) and pressure (40psi)
5. Hold aircraft straight with rudder pedals and control drift with ailerons
6. As the aircraft accelerates neutralize the controls (coordinated flight)
7. Set up a slightly nose high attitude (raise nose so horizon intersects the frame at the "V" where the door closes to approx. 50 MPH)

### **Wheel Takeoff**

1. Roll onto center line
2. Check wind and apply correction
3. Smoothly apply full power and ease the stick full forward
4. Check oil temperature (100-180) and pressure (40psi)
5. As tail rises smoothly reduce forward stick pressure to hold aircraft level (do not allow it to assume a nose low attitude)
6. When the aircraft accelerates to takeoff speed apply slight back pressure to level off
7. Raise the nose to establish the proper climb attitude

### **Normal Climb**

1. Smoothly apply full power
2. Raise nose so horizon intersects the fuselage where bar attachments meet at the door latch, this will give a climb speed of approximately 50 MPH
3. Trim to relieve control pressure

### **Descents**

1. Carb heat on (out)
2. Reduce throttle as necessary (usually to 1500 RPM)
3. Allow nose to drop just below the horizon
4. Trim to relieve control pressure

### **Level off from Climbs and Descents**

1. Nose to the horizon (wings parallel to horizon)
2. Set power to cruise setting (usually 2100 RPM)
3. Carb. heat in (off, if leveling from a descent)
4. Trim to relieve control pressure
5. Check oil temperature (100-180) and pressure (40psi)

### **Normal Landing**

1. Maintain an attitude with the nose slightly below the horizon (approx. 50-55 MPH)
2. Use trim as necessary to relieve control pressure
3. Establish and maintain wind correction
4. Apply enough back pressure to smoothly level off just above the ground allowing to slow down to gently touch down on all three wheels just at stall speed
5. As the plane slows apply full back stick to prevent bouncing
6. As the plane rolls out maintain directional control with rudders and place controls as needed for wind correction
7. Plan to roll out with minimal use of brakes

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### **Wheel Landing**

1. Maintain an attitude with the nose slightly lower than a normal landing (approx. 55-60 MPH)
2. Use trim as necessary to relieve control pressure
3. Establish and maintain wind correction
4. As the ground approaches rotate to allow the main gear to roll smoothly on to the ground
5. After the mains are on the ground slowly apply forward stick as the plane slows (keeping the tail up)
6. After the tail touches apply full back stick to prevent bouncing
7. As the plane rolls out maintain directional control with rudders and place controls as needed for wind correction
8. Plan to roll out with minimal use of brakes

### **Go-Around**

1. Smoothly apply full power
2. Carb heat in (off)
3. Establish climb
4. Re-trim to relieve control pressure

### **Traffic Pattern**

NOTE: Standard traffic patterns at non towered airports are left hand turns; however some airports use right traffic. Consult a current AFD.

NOTE: All legs should be made at a distance from the runway that will allow for a unpowered glide to a landing on the runway.

#### **Climb Out (Upwind Leg)**

1. After takeoff establish a climb and wind correction
2. At 300 ft AGL lower nose to check for traffic then resume climb
3. At 500 ft AGL make a turn to crosswind leg

#### **Downwind Leg**

Always watch for traffic entering the pattern and adjust accordingly

1. Maintain pattern altitude (800 ft AGL, 900 ft indicated at Hampton)
2. Establish wind correction (crab angle) to keep pattern square (downwind parallel to runway)
3. At mid field pull carb heat on (out)
4. Abeam the touchdown point smoothly reduce power to idle
5. Maintain altitude to "bleed off" speed (50-60 MPH)
6. Set trim as needed to relieve control pressure
7. With runway at about a 45 degree angle off the shoulder turn base leg

#### **Base Leg**

Always watch for traffic entering the pattern and adjust accordingly

1. Establish proper descent attitude, nose slightly below the horizon
2. Establish wind correction (crab angle) to keep pattern square (final aligned with runway)
3. Check for traffic on final and on runway
4. Turn to align with the runway (final)

#### **Final Approach**

Always watch for traffic entering the pattern and adjust accordingly

1. Establish proper descent attitude for type of landing, nose slightly below the horizon
2. Establish wind correction (crab angle) to keep pattern square (final aligned with runway)
3. Double check traffic on runway and wind conditions

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4. Switch crosswind correction from a crab to wing low method before touchdown

### **Pattern Departure (recommended methods)**

1. Straight out, or
2. Left turn 45 degrees from crosswind leg, or
3. Straight out on crosswind leg
4. No right turns below pattern altitude

### **Pattern Entry (recommended methods)**

1. Enter downwind at a 45 degree angle to pattern altitude, or
2. Enter a crosswind leg at pattern altitude over the center of the runway to join a downwind

## **Flight Maneuvers**

### **Clearing Turns**

NOTE: Should be done prior to starting any maneuver, pilot should constantly scan for traffic

1. Make a 90 degree turn to the left or right and scan for traffic then return to heading or
2. Make a 360 degree turn (either direction) to scan for traffic

### **Slow Flight**

1. Clear the area
2. Carb heat on (out)
3. Smoothly reduce power to 1500 RPM
4. Maintain altitude to “bleed off” airspeed (to 45 MPH)
5. Trim as necessary to relieve control pressure
6. Use power to control altitude and pitch to control airspeed
7. As power is added use right rudder to maintain heading  
(correct left turning tendencies at high Angle Of Attack, low airspeed, and high power settings)

### **Recovery**

1. Smoothly apply cruise power
2. Carb heat off (in)
3. Lower nose to horizon as airspeed increases
4. Re-trim to relieve control pressure

### **Power Off Stall (Approach to landing)**

1. Clear the area
2. Carb heat on (out)
3. Smoothly reduce power to 1500 RPM
4. Maintain altitude to “bleed off” airspeed (by applying smooth increasing back pressure)
5. Maintain heading throughout the maneuver (control yaw with rudders)

### **Recovery**

1. Relieve back pressure allowing nose to lower to the horizon (break the stall)
2. Simultaneously, smoothly apply full power
3. Carb heat off (in)

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4. When airspeed increases (controls “firm up”) establish climb
5. Level off at assigned altitude

### **Power On Stall (Departure Stall)**

1. Clear the area
2. Carb heat on (out)
3. Smoothly reduce power to 1500 RPM
4. Maintain altitude to “bleed off” airspeed (to 50 MPH)
5. When airspeed slows to 50 MPH, carb heat in, smoothly apply full power, allow pitch to increase
6. Keep pitching up slowly until stall
7. Maintain heading throughout the maneuver (control yaw with rudders)

### **Recovery**

1. Relieve back pressure allowing nose to lower to the horizon (break the stall)
2. Carb heat off (in)
3. When airspeed increases (controls “firm up”) establish climb
4. Level off at assigned altitude

### **Steep Turns**

NOTE: Bank angle should not exceed 60 degrees

1. Clear the area
2. Begin from level flight
3. Roll into 45-60 degrees of bank in either direction
4. Rolling through about 30 degrees of bank begin adding back pressure to maintain altitude
5. Roll out on entry heading (after 360 deg. turn) then immediately roll into opposite direction turn
6. Roll out and level off on entry heading, altitude, and airspeed
7. Maintain constant altitude, airspeed, and bank angle throughout the maneuver

### **Ground Reference Maneuvers**

NOTE: Ground reference maneuvers should be flown no faster than maneuvering speed at an altitude of 800-1000ft AGL in an area allowing for a safe power off landing. Bank angles should not exceed 45 degrees.

#### **Turns Around a Point**

1. Choose a reference point and clear the area
2. Enter downwind
3. Maintain a constant altitude, airspeed, and radius from the point by increasing and decreasing bank angles as increases and decreases occur in ground speed

#### **S-Turns Across a Road**

1. Choose a reference line and clear the area
2. Enter downwind
3. Maintain a constant altitude, airspeed, and radius from the point
4. Inscribe two half circles of equal radius, one on each side of the reference line by increasing and decreasing bank angles as increases and decreases occur in ground

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speed. The plane should only momentarily be wings level crossing the reference line between turns

## **Emergency Procedures**

### **Engine Out in Cruise**

1. Establish best glide speed (50 MPH)
2. Find a suitable landing area
3. Troubleshoot:
  - Carb heat on (out)
  - Check oil temp. and pressure in the green
  - Primer in and locked
  - Check fuel quantity
  - Fuel on
  - Throttle open (forward)
  - Mags on (both)
4. Proceed with power off landing

### **Engine Out on Takeoff (below 500 ft)**

1. Land straight ahead

### **Engine Out on Takeoff (500-1000 ft)**

1. Make turn back to runway
2. Land opposite direction

### **Rejected Takeoff**

1. Throttle back to idle
2. Maintain directional control
3. Keep the tail on the ground (apply back stick)
4. Brake as necessary

### **Fire in Flight**

1. Pull fuel shutoff to off (back)
2. Land as soon as possible (engine off)

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## Piper Cub Information Sheet – N1141V

Empty Weight	779.0
Useful Load	441
Baggage Capacity	20 lbs.
Gross Weight	1220
Takeoff roll @ max gross wt.	370 ft
Landing roll @ max gross wt.	290 ft
Fuel Capacity	12 gal
Fuel Burn	4.4 gal/hr
Cruise Range (no reserve)	2.7 hrs
Best rate of climb	450 ft/min
Absolute Ceiling	14,000 ft
Cruise Speed	73 mph
Top Speed	83 mph
Stall Speed	39 mph
Best Glide Speed	50 mph
Approach Speed	45-55mph
Green Arc	39-90 mph
Yellow Arc	90-122 mph
Red Line	122 mph

### Engine:

Continental 65 HP, Four Cylinder, Horizontally Opposed, Air & Oil cooled

Maximum RPM	2550
Oil Capacity	3 qt. min – 4 qt. max
Oil Pressure	40 psi
Oil Temperature	100-180 °F

### Brakes:

Hydraulic, Heel Type Pedals

### Propeller:

Fixed Pitch

### Ailerons:

Frise Type

### Tailwheel:

Full Swivel (steerable to 18 degrees either side of center)

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