

PREFLIGHT

Weather Density Altitude
Weight & Balance Flight Plan
Frequencies & Phone #'s Alternate Airfields
Papers: AROW Airworthiness, Registration,
Operating Limits (POH/AFM, Placards), Weight
& Balance, Pilot Certificate, Current Medical

**WALK AROUND - A CRITICAL LOOK FOR
DAMAGE OR ANYTHING UNUSUAL**

COCKPIT

Control Wheel Lock or Belts Remove
Parking Brake Set
Ignition Off, Key Removed
Avionics Power Switch Off
Master Switch On
Flaps Check Operating Range, UP
Fuel Selector Valve Desired Tank
Fuel Quantity Check
Pitot Heat Test
Lights & Strobes Check
Windows Clean
Static Pressure Alt. Source Valve Off
Hobbs/Tachometer Record Time
Master Switch Off

EXTERIOR

ALWAYS USE THE SAME SEQUENCE

Tie-Downs, Chocks, Gust Lock Remove
Pitot & Static Covers Remove
Fuel Check Quantity, Color, Water, Dirt
Caps/Drains/Vents OK
Oil Check Level, Dipstick Seated
Belts, Engine, Exhaust, Leaks Check
Cowling, Inspection Covers Secure
Air Intake Clear
Propeller/Spinner Check for Damage
Stall Warning Test
Ailerons & Flaps Free & Secure
Wings Free of Ice, Snow, Frost
Pitot & Static Ports Unobstructed
Fuselage, Antennas Undamaged
Rudder, Elevator, Trim Tab Free & Secure
Tires, Brakes, Struts Main 4.5", Nose 3.25"
Baggage Door, Tow Bar Close & Secure

INTERIOR

Inspection & Passenger Briefing Completed
Brakes Test & Set
Seat Tracks Secure
Belts & Harnesses Secure
Loose Items, Baggage Secure
Flight Documents/Charts Organized

START

Avionics Power Switch Off
Beacon & Navigation Lights On
Circuit Breakers In
Fuel Selector Valve Desired Tank
Carburetor Heat Off
Mixture Rich
Throttle Open 1/4 inch
Brakes Test & Set Again
Propeller Area **CLEAR PROP**
Master Switch On
Electric Fuel Pump On
Ignition Switch (Prime if Needed) Start
Throttle Adjust to 800-1200 RPM
Oil Pressure Check Green
Avionics Power Switch, Radios On

PRE-TAXI & TAXI

Flaps Up
Avionics/Radios On/Set Frequencies
Transponder STBY
ATIS or AWOS Listen & Note
Altimeter Set
Test & Set: Brakes, Compass, Altitude,
Heading & Turn Indicators, and Inclinometer
Landing/Taxi Lights As Required

RUN-UP

Brakes Set & Hold
Seats, Belts, Harnesses Upright & Secure
Cabin Doors, Windows Closed & Latched
Flight Controls Free & Correct
Primer In & Locked
Fuel Selector Proper Tank, Quantity OK
Fuel Pump Off, Check Fuel Pressure, **ON**
Mixture Rich or Appropriate
Elevator & Rudder Trim Set for Takeoff
Annunciator Panel Press to Test
Autopilot & Air Conditioner Check, Off
Throttle 2000 RPM
Check:

Magnetos

R,B,L,B
(Up to a 175 RPM drop in either
Magneto or 50 RPM differential)

Carburetor Heat

On, Off, leave Off

Vacuum Gauge

Normal (5 inches ± .1)

Amps/Volts

In the Green

Oil Pressure & Temp.

In the Green

Throttle 1000 RPM, Check Idle & Friction
Flaps Set for Takeoff
Pitot Heat As Required
Heading Indicator Adjust to Compass
Transponder ALT

FLIGHT

BE READY TO ABORT TAKEOFF

NORMAL TAKEOFF

Proper Runway	Check Runway Heading
Traffic	Check
Strobes, Landing Light	On when Cleared
Flaps & Trim	Set for Takeoff
Carburetor Heat	Off
Electric Fuel Pump	On, Pressure OK
Mixture	Rich (above 5,000, Lean)
Brakes	Release
Throttle	Full Open
Oil Pressure & Temperature	In the Green
Elevator	Rotate at 52-65 KIAS (60-75)
Vy/Vx	76/64 KIAS (87/74)
Normal Climb Out	76 KIAS (87)

SHORT FIELD

Follow the initial steps from the **NORMAL TAKEOFF** checklist above, then:

Flaps	25°
Brakes	Hold & then Release
Throttle	Full Open
Oil Pressure & Temperature	In the Green
Elevator	Rotate 41-49 KIAS (47-56)
Initial Climb Speed	45-54 KIAS (52-62)
Flaps	Retract Slowly at Safe Altitude

CLIMB

Airspeed	76-87 KIAS (87-100)
Throttle	Full Open
Mixture	Rich (above 5,000, Lean)
Engine Instruments	Check
Landing/Taxi Lights	Off
Flight Plan	Call to Open

CRUISE

Power	75% or Less
Elevator & Rudder Trim	Adjust
Mixture	Lean above 5000
Fuel	Change Tanks as Required
Fuel Pump	Off (On when changing Tanks)
Engine & Flight Instruments	Consult
Altimeter	Set QNH
Heading Indicator	Adjust to Compass

DESCENT

Carburetor Heat	On as Required
Power	2500 RPM
Airspeed	122 KIAS (140)
Mixture	Full Rich
ATIS/AWOS	Listen & Note, Set QNH
Wind	Check Direction & Crosswind

LANDING CHECKLIST

Brakes	Pressure in Pedals
Undercarriage	Down & Welded
Mixture, Master, Magnetos	Rich, On, Both
Fuel Selector Valve	Proper Tank
Electric Fuel Pump	On
Oil	Pressure & Temperature OK
Hatches & Harnesses	Secure
Seat Backs	Most Upright Position
Carburetor Heat	On
Autopilot & Air Conditioner	Off
Landing/Taxi Lights	On

NORMAL LANDING

Mixture	Full Rich
Electric Fuel Pump	On
Power	As Required
Approach Airspeed	75 KIAS (86) Flaps Up
Flaps	As Required, ≤102 KIAS (117)
Final	66 KIAS (76) (Flaps 40°)
Carburetor Heat	Off AT 200 feet
Brakes	Minimum Required

SHORT FIELD LANDING

Full flaps and enough power to maintain the desired airspeed and approach flight path. Reduce speed during flareout and contact the ground at close to the stalling speed. Brake while holding nose wheel off ground.

GO AROUND

Throttle	Full Open
Carburetor Heat	Off
Electric Fuel Pump	On
Flaps	Retract to 25°
Airspeed	64 KIAS (74)
Flaps	Retract Slowly after 76 KIAS (87)

AFTER LANDING

Flaps (NO STEP unless flaps up)	Up
Electric Fuel Pump	Off
Landing/Taxi Light	As Required
Strobes	Off
Transponder	STBY
Trim	Takeoff

SHUT DOWN

Parking Brake	Set if Necessary
Avionics/Electrical/All Lights/ELT	Off
Magnetos	Check; R,B,L, B
Mixture	Idle Cut-Off
Ignition Switch & Master Switch	Off
Hobbs/Tachometer	Record
Chocks, Tie Downs, Covers, Doors	Secure
Flight Plan	Call to Close

EMERGENCIES

MAINTAIN CONTROL

LOSS OF OIL PRESSURE HIGH OIL TEMPERATURE

Land Aircraft As Soon As Possible
Prepare for Power Off Landing

POWER LOSS – TAKEOFF

If sufficient runway remains for a normal landing, land straight ahead.

If insufficient runway remains, maintain safe airspeed, make only shallow turns to avoid obstructions, flaps as situation requires.

If sufficient altitude has been gained to attempt a restart – maintain safe airspeed:

Fuel Selector Switch to tank containing fuel
Electric Fuel Pump Check On
Mixture Check Rich
Carburetor Heat On
Primer Locked

If power is not regained, proceed with power off landing.

POWER LOSS - IN FLIGHT

ATTEMPT RESTART:

Fuel Selector Switch to tank containing fuel
Electric Fuel Pump On
Mixture Rich
Carburetor Heat On
Primer In & Locked
Master, Magnetos Check On, Both
Engine Gauges Check for Cause

If no fuel pressure is indicated, check tank selector position again

If time permits, turn the ignition switch to L then to R then back to BOTH. Move the Throttle and Mixture control levers to different settings. Try other fuel tanks. Water in the fuel could take some time to be used up, and allowing the engine to windmill may restore power. If power loss is due to water, fuel pressure indications will be normal.

IF POWER IS RESTORED:

Carburetor Heat Off
Electric Fuel Pump Off

IF POWER IS NOT RESTORED - POWER OFF LANDING:

Airspeed (Best Glide) 76 KIAS (87)
Note Wind Look for Best Landing Site
Establish Spiral Pattern; try to be at 1000 feet above field at downwind position.

Radio Emergency Call
Transponder Squawk 7700
Passengers Brief
Approach 66 KIAS (76)
Touchdown at lowest possible airspeed with full flaps.

When Committed to Landing:

Ignition Off
Master Switch Off
Fuel Selector Off
Mixture Idle Cut-Off
Seats Upright, Belts, Harnesses Secure
Doors Unlatch

LOSS OF FUEL PRESSURE

Electric Fuel Pump On
Fuel Selector Check on Full Tank

ENGINE FIRE - START

Starter Crank Engine
Mixture Idle Cut-Off
Throttle Open
Electric Fuel Pump Off
Fuel Selector Off

If fire continues for more than a few seconds, then fire should be extinguished by the best external means.

FIRE IN FLIGHT

ELECTRICAL FIRE (Smoke in Cabin):

Master Switch Off
Vents Open
Cabin Heat Off
Land as soon as practicable

ENGINE FIRE:

Fuel Selector Off
Throttle Closed
Mixture Idle Cut-Off
Electric Fuel Pump Off
Heater & Defroster Off

Proceed with power off landing procedure.

ALTERNATOR INOPERATIVE LIGHT:

Ammeter Check to verify Inop. Alternator
 Electrical Load Reduce
 Alternator Circuit Breaker Check & Reset
 Alternator switch (ALT) Cycle, Off, On
 If power is not restored, turn off ALT, leave
 Battery (BAT) on. Battery is the only
 remaining source of electrical power.
 Reduce electrical loads, land ASAP

AMMETER INDICATES HIGH OUTPUT:

High reading may be caused by a low
 battery, or other abnormal electrical load.
 If interlocked BAT/ALT switch, turn ALT Off,
 use battery only, land ASAP. If separate
 BAT/Alt switches, cycle BAT switch. If the
 Ammeter reading does not decrease within
 five minutes, turn BAT switch Off, use
 alternator only and land as soon as possible.

USEFUL DATA

Rate of Climb – Sea Level, Std. ° 730 FPM
 Service Ceiling 13650 Feet
 Landing - 50', Sea Level, Std. ° 1400 Feet
 Landing - Ground Roll 920 Feet
 Takeoff - 50', 25% flaps, SL, Std. ° 1680 Feet
 Takeoff - Ground Roll 900 Feet
 Maximum Weight (Ramp) 2558 Lbs
 Empty Weight (varies/each aircraft) 1600 Lbs
 Maximum Useful Load 958 Lbs
 Fuel Capacity: Std 50 USG (48 usable)
 24 USG usable, each tank (17 to tabs)
 (unusable fuel included in empty weight)
 Oil (included in empty aircraft weight) 8 USQ
 Fuel Type 100 LL (Blue), 100 (Green)

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IMPORTANT SPEEDS

		KIAS	MPH
Climb, Best Angle	Vx	64	74
Climb, Best Rate	Vy	76	87
Stall (full flaps)	Vso	49	56
Stall (flaps up)	Vsi	55	63
Max Speed, flaps	Vfe	102	117
Max Structural Cruise	Vno	125	144
Maneuvering Speed	Va		
2550 lbs		113	130
1634 lbs		89	102
Never Exceed	Vne	154	177
Crosswind Landing (max demo)		17	19
Rotation		52-65	60-75
Enroute Climb		87	100
Best Glide (1.6nm/1000 ft.)		76	87
(Flaps Up, No Wind, Power Off, 2550 Lbs.)			
Approach		75	86
Final Approach (full flaps)		66	76

CRUISE PERFORMANCE

Standard Temperature - 59°F/15°C, No Wind
 Wheel Fairings Installed, 2550 Lbs.

RPM	% Power	KTAS	GPH	NMPG
2,000 feet MSL:				
2220	55%	97	7.8	12.4
2360	65%	110	9.0	12.2
2520	75%	119	10.6	11.2
6,000 feet MSL:				
2300	55%	102	7.8	13.1
2460	65%	116	9.0	12.9
2600	75%	125	10.6	11.8
10,000 feet MSL:				
2380	55%	108	7.8	13.9
2540	65%	122	9.0	13.6

10,000 feet MSL, Economy

(Mixture leaned to 100° F Rich of Peak EGT)

-----*	55%	104	6.3	16.5
-----*	65%	119	7.6	15.7

* Not provided in Pilot Operating Handbook

KTAS = Knots True Airspeed
 KIAS = Knots Indicated Airspeed
 KCAS = Knots Calibrated Airspeed

**Rule of Thumb – KIAS to KTAS, add 2%
 per 1000' of altitude.**