

PREFLIGHT

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

WALK AROUND - A CRITICAL LOOK FOR DAMAGE OR ANYTHING UNUSUAL

COCKPIT

Control Wheel Lock	Remove
Parking Brake	Set
Ignition	Off, Key Removed
Master Switch	On
Flaps	Extend
Fuel	On, Check Quantity
Low Vacuum Warning Light	On
Cooling Fan	Listen
Pitot Heat	Test
Lights & Strobes	Check
Windows	Clean
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, Water, Dirt
Caps/Drains/Vents	OK
Oil	Check Level
Belts, Engine, Exhaust, Leaks	Check
Air Intake	Clear
Propeller/Spinner	Check for Damage
Stall Warning	Test
Ailerons	Free & Secure
Flaps	Secure
Pitot & Static Ports	Unobstructed
Fuselage, Antennas	Undamaged
Rudder, Elevator, Trim Tab	Free & Secure
Tires, Brakes, Front Strut	OK

INTERIOR

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

START

Brakes	Test & Set
Avionics (Radio – Electrical)	Off
Beacon & Navigation Lights	On
Circuit Breakers	In
Fuel	On
Carburetor Heat	Off
Prime	As Required
Mixture	Rich
Throttle	Open ½ inch
Brakes	Test & Set Again
Propeller Area	CLEAR PROP
Master Switch	On
Ignition Switch	Start
Throttle	Adjust to 1000 RPM
Oil Pressure	Check Green
Avionics	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	Secure
Cabin Doors	Closed & Latched
Flight Controls	Free & Correct
Primer	In & Locked
Fuel	Switch On, Quantity OK
Mixture	Rich or Appropriate
Elevator Trim	Set for Takeoff
Throttle	1700 RPM
Check:	

Magnetos

R,B,L,B
(Up to a 125 RPM drop in either Magneto or 50 RPM differential)

Carburetor Heat

On, Off, leave Off

Suction Gauge

Normal (4.5 to 5.4)

Amps/Volts

In the Green

Oil Pressure & Temp.

In the Green

Throttle	1000 RPM, Check Idle & Friction
Flaps	Set for Takeoff, 0° to 10°
Pitot Heat	As Required
Heading Indicator	Adjust to Compass
Transponder	ALT

FLIGHT

BE READY TO ABORT TAKEOFF

NORMAL TAKEOFF

Proper Runway Traffic Check Runway Heading
Strobes, Landing Light On when Cleared
Flaps & Trim Set for Takeoff
Carburetor Heat Off
Mixture Rich (Above 3,000, Lean)
Brakes Release
Throttle Full Open, 2280 RPM +
Oil Pressure In the Green
Elevator Rotate at **50 KIAS** (58)
Vy/Vx **67/55** KIAS (77/63)
Normal Climb **70-80** KIAS (81-92)

SHORT FIELD

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

Flaps 10°
Brakes Hold & then Release
Throttle Full Open
Elevator Tail Low, Rotate **50** KIAS (58)
Initial Climb Speed **54** KIAS (62)
Flaps Retract Slowly After **60** KIAS (69)

CLIMB

Airspeed 65-75 KIAS (75-86)
Throttle Full Open
Mixture Rich (Above 3,000, Lean)
Engine Instruments Check
Landing/Taxi Lights Off
Flight Plan Call to Open

CRUISE

Power 1900-2550 RPM
Elevator Trim Adjust
Mixture Lean
Engine & Flight Instruments Consult
Altimeter Set QNH
Heading Indicator Adjust to Compass

DESCENT

Carburetor Heat On as Required
Power Reduce, As Desired
Mixture Adjust, Full Rich for Idle Power
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 On & Sufficient
Oil Pressure & Temperature OK
Hatches & Harnesses Secure
Seat Backs Most Upright Position
Carburetor Heat On
Landing/Taxi Lights On

NORMAL LANDING

Mixture Rich
Power As Required
Airspeed **60-70** KIAS (69-81) Flaps Up
Extend Flaps As Required, 0° to 30°,
extend below 85 KIAS (98)
Final **55-65** KIAS (63-75) Flaps Down
Brakes Minimum Required

SHORT FIELD LANDING

Airspeed **60-70** KIAS, flaps up (69-81)
Extend Flaps 30°, extend below
85 KIAS (98)
Final Maintain **54** KIAS (62)
Power Reduce to Idle as
Obstacle is Cleared
Brakes Heavy
Flaps Retract

GO AROUND

Throttle Full Open
Carburetor Heat Off
Flaps Retract to 20°
Airspeed **55** KIAS (63)
Flaps Retract Slowly

AFTER LANDING

Carburetor Heat Off
Pitot Heat Off
Flaps Up
Landing/Taxi Light As Required
Strobes Off
Transponder STBY
Trim Takeoff

SHUT DOWN

Parking Brake Set if Necessary
ELT Listen 121.5 to check that it is Off
Avionics/Electrical/All Lights Off
Magnetos Check; R,B,L,B
Mixture Idle Cut-Off
Ignition Switch Off
Master Switch Off
Control Lock Install
Hobbs/Tachometer Record
Chocks, Tie Downs, Pitot Cover Secure
Cabin Doors Secure
Flight Plan Call to Close

EMERGENCIES

MAINTAIN CONTROL

POWER LOSS - TAKEOFF

Airspeed	60 KIAS (69)
Mixture	Idle, Cut-Off
Fuel	Off
Ignition Switch (Magnetos)	Off
Flaps	As Required
Master Switch	Off
Doors	Unlatch

POWER LOSS - IN FLIGHT

ATTEMPT RESTART:

Airspeed (Best Glide)	60 KIAS(69)
Carburetor Heat	On
Primer	In & Locked
Fuel Shutoff Valve	On
Mixture	Rich
Master	On
Ignition Switch	BOTH (or START if Propeller is stopped)

IF RESTART FAILS – FORCED LANDING:

Airspeed (Best Glide)	65 KIAS (75), Flaps Up
Note Wind	Look for Best Landing Site
Try to be at 1000 feet AGL when Downwind	
Radio	Emergency Call
Transponder	Squawk 7700
Passenger	Brief
Approach	60 KIAS (69), Flaps Down
Swats, Belts Harnesses	Secure
Mixture, Fuel, Ignition, Master	Off
Doors	Unlatch
Touchdown	Tail Low, Near Stall Speed
Brakes	Heavy

ENGINE FIRE - IN FLIGHT

Airspeed	85 KIAS (98)
Increase glide speed to extinguish fire	
Fuel Shutoff Valve	Off
Master Switch	Off
Mixture	Idle Cut-Off
Cabin Heat & Air (except Upper Vents)	Off
Land As Soon As Possible	

ELECTRIC FIRE - IN FLIGHT

Ignition (Magnetos)	On
Master & all other switches	Off

(Continued – see top of next column)

Vents/Cabin Air/Heat	Closed
Fire Extinguisher	Use if Necessary
Ventilate After Using Extinguisher	

IF FIRE APPEARS TO BE OUT:

Master	On
Circuit Breakers	Check, but Do Not Reset
Radio/Electrical	On, one at a time to locate short circuit
Vents/Cabin Air/ Heat	Open when fire is out

CABIN FIRE – IN FLIGHT

Master Switch	Off
Vents/Cabin Air/Heat	Closed
Fire Extinguisher	Activate and Ventilate

WING FIRE – IN FLIGHT

Navigation Lights, Strobes	Off
Pitot Heat	Off
Try side slipping to keep flames away from fuel tanks and cabin. Land ASAP with Flaps Retracted	

ICING – IN FLIGHT

Turn Back or Change Altitude	Consider
Pitot Heat	On
Cabin Heat	Full
Carburetor Heat	Use as Required
Throttle	Open to Increase Engine Speed & Prevent Buildup on Propeller
Flaps	Not Recommended
Final	65 to 75 KIAS (75-86)
Stall Speed	Will be Higher due to ice
Windshield	Open Window & Scrape Ice
Land ASAP	Off Airport If Necessary

ENGINE FIRE - GROUND

Cranking	Continue
IF ENGINE STARTS:	1700 RPM for a short time, shutdown and inspect for damage.

IF ENGINE FAILS TO START:

Throttle	Full Open
Mixture	Idle Cut-Off
Cranking	Continue to Attempt a Start
Fire Extinguisher	Ready
Master Switch	Off
Ignition (Magnetos)	Off
Fuel Shutoff Switch	Off
Extinguish Fire	Use Extinguisher, Wool Blanket or Dirt
Inspect for Damage	Repair or Replace

ELECTRICAL PROBLEMS

LOW VOLTAGE LIGHT ILLUMINATES DURING FLIGHT (ammeter – discharge):

Radios Off
 Alternator Circuit Breaker Check that it is In
 Master Switch (both sides) Cycle
 Low Voltage Light Check that it is Off
 Radios On

If the light goes on again:

Turn alternator side of master switch off, turn nonessential radio & electric off; terminate flight as soon as practical.

AMMETER SHOWS EXCESSIVE RATE OF CHARGE (full scale deflection):

Alternator Off
 Alternator Circuit Breaker Pull
 Nonessential Radio & Electric Off
 Terminate flight as soon as practical.

USEFUL DATA

Rate of Climb – Sea level 715 FPM
 Service Ceiling 14,700 Feet
 Takeoff - total/50 ft obstacle 1340 Feet
 Landing – total/50 foot obstacle 1200 Feet
 Maximum Weight (Ramp) 1675 Lbs
 Empty Weight (varies/each aircraft) 1109 Lbs
 Maximum Useful Load 566 Lbs
 Fuel Capacity: Std. 26 USG (24.5 usable)
 Large 39 USG (37.5 usable)
 (unusable fuel is included in empty weight)
 Oil (included in empty aircraft weight) 7 USQ
 Fuel Type 100 LL (Blue), 100 (Green)

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IMPORTANT SPEEDS

		KIAS	MPH
Climb, Best Angle	Vx	55	63
Climb, Best Rate	Vy	67	77
Stall (full flaps)	Vso	35	40
Stall (flaps up)	Vsi	40	46
Final Approach, 30° flaps	Vref	55-65	63-75
Max Speed, flaps	Vfe	85	98
Max Structural Cruise	Vno	111	128
Maneuvering Speed	Va		
1670 lbs		104	120
1500 lbs		98	113
1350 lbs		93	107
Never Exceed	Vne	149	171
Crosswind Landing (max demo)		12	14
Rotation		50	58
Normal Climb		65-75	75-86
Enroute Climb		70-80	81-92
Best Glide (1.5nm/1000 ft.)		60	69
Approach		60-70	69-81
Final Approach (full flaps)		55-65	63-75

CRUISE PERFORMANCE

Standard Temperature - 59°F/15°C, No Wind
 Speed Fairings, 1670 Pounds

RPM	% Power	KTAS	GPH	NMPG
2,000 feet MSL:				
2000	48%	81	4.3	18.8
2100	55%	87	4.7	18.5
2200	62%	92	5.1	18
2300	69%	97	5.7	17
2400	77%	102	6.3	16.2
6,000 feet MSL:				
2100	49%	84	4.4	19.1
2200	56%	90	4.7	19.1
2300	63%	96	5.2	18.5
2400	70%	101	5.8	17.4
2500	78%	106	6.4	16.6
10,000 feet MSL:				
2200	51%	87	4.5	19.3
2300	57%	94	4.8	19.6
2400	63%	99	5.3	18.7
2500	71%	105	5.8	18.1

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

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