

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 Remove
Parking Brake Set
Ignition Off, Key Removed
Master Switch On
Flaps Extend
Fuel Selector Valve Both
Low Vacuum Warning Light Check On
Avionics Power Switch On
Cooling Fan Listen
Pitot Heat Test
Lights & Strobes Check
Windows Clean
Static Pressure Alt. Source Valve Off
Baggage Door (Child's Seat Installed) Lock
Hobbs/Tachometer Record Time
Avionics Power Switch Off
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 & Flaps Free & 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 Power Switch Off
Beacon & Navigation Lights On
Circuit Breakers In
Fuel Selector Valve Both
Carburetor Heat Off
Prime As Required
Mixture Rich
Throttle Open 1/8 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 Power Switch On
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 Closed & Latched
Flight Controls Free & Correct
Primer In & Locked
Fuel Selector Valve Both, Quantity OK
Mixture Rich or Appropriate
Elevator & Rudder Trim Set for Takeoff
Autopilot & Air Conditioner Check, Off
Throttle 1700 RPM
Check:

Magnetos

R,B,L,B
(Up to a 150 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 Check Runway Heading
Traffic Check
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, 2300 RPM +
Oil Pressure & Temperature In the Green
Elevator Rotate at **55** KIAS (63)
Vy/Vx **76/60** KIAS (87/69)
Normal Climb Out **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 **51** KIAS (59)
Initial Climb Speed **56** KIAS (64)
Flaps Retract Slowly After **60** KIAS (69)

CLIMB

Airspeed 70-80 KIAS (81-92)
Throttle Full Open
Mixture Rich (above 3000, Lean)
Engine Instruments Check
Landing/Taxi Lights Off
Flight Plan Call to Open

CRUISE

Power 2100-2700 RPM
Elevator & Rudder 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 Selector Valve Both & Sufficient
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 Rich
Power As Required
Airspeed **65-75** KIAS (75-86) Flaps Up
Extend Flaps As Required, 0° to 30°,
10° Below 110 KIAS(127)
20° to 30° Below 85 KIAS (98)
Final **60-70** KIAS (69-81) Flaps Down
Brakes Minimum Required

SHORT FIELD LANDING

Airspeed **65-75** KIAS, flaps up (75-86)
Extend Flaps 30°
Final Maintain **61** KIAS (70)
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 60 KIAS (69)

AFTER LANDING

Carburetor Heat, 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 & Master Switch Off
Fuel Selector Valve LEFT or RIGHT
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 **65** KIAS (75) If Flaps Up
60 KIAS (69) If Flaps Down
Mixture Idle, Cut-Off
Fuel Selector Push Down, Rotate to Off
Ignition Switch (Magnetos) Off
Flaps As Required
Master Switch Off
Doors Unlatch

POWER LOSS - IN FLIGHT

ATTEMPT RESTART:

Airspeed (Best Glide) **65** KIAS(75)
Carburetor Heat On
Primer In & Locked
Fuel Selector Valve Both
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
Passengers Brief
Approach 60 KIAS (69), Flaps Down
Seats Upright, Belts Harnesses Secure
Mixture, Fuel, Ignition, Master Off
Doors Unlatch
Touchdown Tail Low, Near Stall Speed
Brakes Apply Heavily

ENGINE FIRE - IN FLIGHT

Airspeed **100** KIAS (115)
Increase glide speed to extinguish fire
Fuel Selector Push Down, Rotate to Off
Master Switch Off
Mixture Idle Cut-Off
Cabin Heat & Air (except Upper Vents) Off

ELECTRIC FIRE - IN FLIGHT

Ignition (Magnetos) On
Master, Avionics & 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
Avionics Power Switch On
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

Landing/Taxi/Navigation Lights, Strobes Off
Pitot Heat Off
Try side slipping to keep flames away from
fuel tanks and cabin. Land ASAP with Flaps
only as required for Approach & Touchdown

ICING – IN FLIGHT

Turn Back or Change Altitude Consider
Pitot Heat On
Cabin Heat & Defroster Outlets Full & Open
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 Selector Push Down, Rotate to 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):

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

If the low voltage 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 700 FPM
 Service Ceiling 13,000 Feet
 Takeoff - total/50 ft obstacle 1625 Feet
 Landing – total/50 foot obstacle 1280 Feet
 Maximum Weight (Ramp) 2407 Lbs
 Empty Weight (varies/each aircraft) 1433 Lbs
 Maximum Useful Load 974 Lbs
 Fuel Capacity: Std 43 USG (40 usable)
 Long Range 54 USG (50 usable)
 Integral 68 USG (62 usable)
 (unusable fuel included in empty weight)
 Oil (included in empty aircraft weight) 8 USG
 Fuel Type 100 LL (Blue), 100 (Green)

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IMPORTANT SPEEDS

		KIAS	MPH
Climb, Best Angle	Vx	60	69
Climb, Best Rate	Vy	76	87
Stall (full flaps)	Vso	33	38
Stall (flaps up)	Vsi	44	51
Final Approach, 30° flaps	Vref	60-70	69-81
Max Speed, flaps	Vfe	85	98
Max Structural Cruise	Vno	127	146
Maneuvering Speed	Va		
2400 lbs		99	114
2000 lbs		92	106
1600 lbs		82	94
Never Exceed	Vne	158	182
Crosswind Landing (max demo)		15	17
Rotation		55	63
Normal Climb		70-80	81-99
Enroute Climb		75-85	86-98
Best Glide (1.5nm/1000 ft.)		65	75
Approach		65-75	75-86
Final Approach (full flaps)		60-70	69-81

CRUISE PERFORMANCE

Standard Temperature - 59°F/15°C, No Wind
 Speed Fairings, 2400 Pounds

RPM	% Power	KTAS	GPH	NMPG
2,000 feet MSL:				
2100	50%	91	5.8	15.7
2200	55%	97	6.3	15.4
2300	62%	103	6.9	14.9
2400	69%	109	7.7	14.2
2500	76%	114	8.5	13.4
6,000 feet MSL:				
2100	47%	88	5.5	16.0
2200	52%	95	5.9	16.1
2300	57%	101	6.4	15.8
2400	63%	107	7.0	15.3
2500	69%	113	7.8	14.5
2600	77%	119	8.6	13.8
10,000 feet MSL:				
2200	49%	91	5.7	16.0
2300	53%	98	6.0	16.3
2400	58%	105	6.5	16.2
2500	64%	111	7.1	15.6
2600	70%	117	7.8	15.0

KTAS = Knots True Airspeed

KIAS = Knots Indicated Airspeed

KCAS = Knots Calibrated Airspeed

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