

## 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
<b>2,000 feet MSL:</b>				
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
<b>6,000 feet MSL:</b>				
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
<b>10,000 feet MSL:</b>				
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.**