Preflight

In-Cabin

Documents	ARROW
Tach/Hobbs	Recorded
Control Lock	Removed
Emergency Equipment	Check
Magnetos	Off
Alt. Static	Check Closed
Circuit Breakers	In
Electrical Equipment	Off
Bat. Switch	On
Fuel Quantity	Set
Flaps	Full
Avionics/Fan	On,Fan,Off
Light	Nav/Stro/Land/Bea
Bat. Switch	Off

Dirty Work

Fuel Sump	Both Clear
Dip Fuel	Record
Engine Oil	10-12 Qts
Engine Fuel Flush	No Water
Tire Pres. Nose/Main	49/42 PSI

Exterior Inspection

Walk Around	Complete
Tiedowns/Chocks	Out
Baggage Door	Secured
Towbar	Stowed

Before Start

Exterior Inspections	Complete
Passenger Briefing	Standard
Seats/Seat Belts	Set, Secure
Parking Break	Set
Circuit Breakers	Check
Avionics	Off
Fuel Selector	Both
Cowl Flaps	Open

Start

Carburetor Heat	Cold
Throttle	Open 1/2", Set
Propellor	High RPM, Set
Mixture	Rich, Set
Battery Master	On
Beacon	On
Ext. Lights	On as Required
Prime	As Required
Prop. Area	Clear Prop
Ignition	Start
Oil Pressure	Green 30s/60s
Ammeter	Check, On, Charge
Mixture	Lean for Taxi
Avionics	On, Set
Flaps	Retract
Transponder	ALT
Parking Break	Off
Brake	Test

Ready to Taxi

Garmin Database	Updated
ATIS	Copied
Transponder	Set
COM & NAV	Set
Initial Alt	Set
Initial Heading	Set
Exterior Lights	Set
Clearance	Recieved

Engine Run-Up

Seats/Belts	Secure
Cabin Doors	Closed
Flight Controls	Free & Correct
Autopilot	Check, Off
Flight Instruments	Set
Fuel Quantity	Check
Cowl Flaps	Open
Fuel Selector	Both
Mixture	Full Rich
Propellor	High RPM
Throttle	1800 RPM
Oil Pressure/Temp	Green
Cyl. Head Temp	Green
Ammeter	Check
Annunciators	Check
Vacuum	4.6-5.4 Hg.
Magnetos	Check R & L
(max drop 150; max Δ 50)	
Propellor	Cycle 3X
Carb Heat	Hot
Throttle	Idle
Throttle	700 RPM
Carb Heat	Cold
Mixture	Lean for Taxi

Before Takeoff

Doors & Windows ..... Secured
Carb. Heat ..... Off
Flaps ..... 0-20°
Trim ..... Set
Cowl Flaps ..... Full Open
Lights ..... As Req.
Takeoff Checklist ..... Review

Departure Briefing

Abnormal Operations

Lose Power On Runway ... Briefed
Lose Power After Runway . Briefed
(below & above ≈ 1000' AGL)

Takeoff

Confirm Runway ..... # Confirmed
Target Airspeed ..... 53-78 KIAS
Mixture ..... Rich/Target EGT
Carb Heat ..... Cold
Throttle ..... Full
Rotate ..... 70 KIAS
Flaps ..... Retract at 70 KIAS

**IF I LOSE THE ENGINE,
I WILL PUSH IMMEDIATELY!**

Cruise Climb 1000 AGL

Target Airspeed ..... 87-96 KIAS
Power/Prop ..... 23"/2450 RPM
Mixture ..... Rich
Cowl Flaps ..... As Req.

Cruise

Power/Prop ... 15"-23"/2200-2450 RPM
Mixture ..... Leaned
Cowl Flaps ..... As Req.

Descent

Fuel Selector ..... Both
Cowl Flaps ..... As Req.
Rudder Trim ..... Reset
Carb Heat ..... As Req.
Power ..... As Req.
ATIS/Specials ..... Copied
Arrival & Approach ..... Briefed
Terrain & Taxi ..... Briefed

Before Landing

Seat & Belts	Secure
Fuel Selector	Both
Mixture	Rich
Propellor	Slow to High RPM
Cowl Flaps	As Req.
Rudder Trim	Neutralize
Ext. Lights	As Req.
Pitot Heat	As Req.

Normal Landing

Airspeed Flaps Up	70-78 KIAS
Wing Flaps	0 to 40°
Airspeed Flaps Down	61-70 KIAS

After Landing

Flaps	Full Retract
Cowl Flaps	Open
Carb. Heat	Cold
Mixture	Lean for Taxi
Lights	As Required

Securing Aircraft

Hobbs & Tach	Record
Lights	Off
Avionics	Off
Throttle	700 RPM
Mixture	Idle Cutoff
Magnetos	Off & Show Key
Master Switch	Off
Position Plane	Chocks
Cowl Flaps	Closed
Parking Break	Set

V-Speeds

V_{BG} flaps Up/Down	70/65
V_R (flaps 0°/20°)	60/50 KIAS
V_X sea/10K	59/63 KIAS
V_Y sea/10K	80/63 KIAS
V_A	89-110 KIAS
V_{S_0}/V_{S_1}	48/53 KIAS

Electrical Fire (Smoke in Cabin)

Master switch ..... off
Avionics master ..... off
Electrical switches ..... off

If no smoke:

Circuit breakers ..... note tripped
Circuit breakers ..... off
Master switch ..... on

If no smoke:

Avionics master ..... on

Alternator Failure

Verify failure .....
Reduce electrical load as much as possible .....
Alt circuit breakers ..... check
Alt switch ..... off, wait, then on

If no output:

Alt switch ..... off
Reduce electrical load and land as soon as practical .....

Note: Checklist is a WIP. Missing emergency procedures (like engine failure) as per 14 CFR § 91.503.

Table 1: Rate of climb/descent (ft. per min)

ft/NM	**Ground speed (knots)**					**Angle**
	60	75	90	105	120	
210	210	265	320	370	425	2.0°
318	318	398	478	557	637	3.0°
530	530	665	795	930	1065	5.0°
745	745	935	1120	1305	1490	7.0°

Table 2: Additional runway length required to clear low, close-in obstacle

	Climb Angle		
	745'/NM	530'/NM	318'/NM
200' obstacle	1,224'	1,720'	2,867'
150' obstacle	816'	1,147'	1,911'
100' obstacle	408'	574'	956'

Note:

- Assumes takeoff performance data is based on clearing a 50' obstacle.
- Subtract obstacle's distance from runway end from required runway length.
- Return back to the departure briefing.

Table 3: Archer flight maneuver entry speeds at 2,150 lbf

Maneuver	**KIAS**
Steep Turns	100
Steep Spiral	90
Chandelles	100
Lazy Eights	100
Eights on Pylons	100

Note:

- Design maneuvering speed (V_A) at 2,150 lbf gross weight is $\approx$ 102.5 KIAS.
- Wings-level best glide speed (V_{bg}) at 2,150 lbf gross weight is $\approx$ 69 KIAS.

Table 4: Speed versus pivotal altitude at 100' MSL elevation

Ground speed (knots)	**Approximate pivotal pltitude (MSL)**
80	650'
85	750'
90	800'
95	900'
100	1,000'
110	1,150'
115	1,250'
120	1,350'