

V-Speeds	
V_{BG} flaps Up/Down.....	70/65
V_R (flaps 0°/25°)	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

Preflight	
<i>Dirty Work</i>	
Fuel Sump.....	Both Clear
Dip Fuel.....	Record
Engine Oil.....	10-12 Qts
<i>In-Cabin</i>	
Documents	ARROW
Tach/Hobbs.....	Recorded
Control Lock.....	Removed
Emergency Equipment.....	Check
Magnetos.....	Off
Alternate Static.....	Closed
Circuit Breakers.....	In
Electrical Equipment.....	Off
Bat. Switch.....	On
Fuel Quantity	Set
Flaps	Full
Avionics/Fan.....	On,Fan,Off
Bat. Switch.....	Off
<i>Exterior Inspection</i>	
Walk Around.....	Complete
Engine Fuel Flush.....	No Water
Tire Pres. Nose/Main..	49/42 PSI

Before Start	
Tiedowns/Chocks	Out
Towbar	Stowed
Baggage Door	Secured
Passenger Briefing	Standard
Seats/Seat Belts	Set, Secure
Parking Break	Set
Circuit Breakers	Check
Avionics	Off
Fuel Selector	Both
Cowl Flaps	Open

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

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
Avionics	On, Set
Flaps	Retract
Transponder	ALT
Parking Break	Off
Breaks	Test

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

Runup Flow

Mixture Full Rich
Throttle 1700-2000 RPM
Oil PressureTemp 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, 700/Carb In
Mixture Lean for Taxi
Circuit Breakers In
Alternate Static Check

Before Takeoff

Doors & Windows Secured
Carb. Heat Off
Flaps Set
Trim Set
Cowl Flaps Full Open
Lights As Req.

Departure Briefing

Takeoff Distance Briefed
Terrain & Obstacles Briefed
Takeoff Minimums Briefed
Departure Procedure Briefed

Abnormal Operations

Rejected Takeoff Briefed
Engine Power Loss briefed
 (below & above ≈ 600' AGL)

Takeoff

Confirm Runway # Confirmed
Targ. Airspeed 53-78 KIAS
Flaps 0-20
Mixture Full Rich/Target EGT
Carb Heat Cold
Throttle Full Power
Rotate 70 KIAS
Flaps Retract at 70 KIAS

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

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

Cruise	
Targ. Airspeed.....	87-96 KIAS
Power... 15"-23" /	2200-2450 RPM
Prop.....	As Req.
Mixture	Leaned
Trims	As Req.
Cowl Flaps.....	As Req.

Descent	
Fuel Selector	Both
Cowl Flaps.....	As Req.
Rudder Trim.....	Reset
Mixture.....	Rich
Carb Heat	As Req.
Power.....	As Req.
ATIS, Arrival, & Approach	Briefed
Terrain & Taxi	Briefed
Specials.....	Briefed

Before Landing	
Seat & Belts.....	Secure
Fuel Selector	Both
Mixture	Rich
Propellor	High RPM
JPI.....	Check
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 & Pull Key
Master Switch	Off
Position Plane	Chocks
Cowl Flaps.....	Closed
Parking Break.....	Set

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 breakerscheck
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 ≈ 102.5 KIAS.
- Wings-level best glide speed (V_{bg}) at 2,150 lbf gross weight is ≈ 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'