

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 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'