

PREFLIGHT CHECK

Documents ····· On Board.
Airworthness, Registration, Journey Log, Insurance, POH, W&B, Emergency Chklist.
 Fire Ext ····· Secured & Not discharged.
 First Aid Kit ····· On Board.
 Controls ··· Free of motion and Correct.
 Fuel Selector ··· Off then Desired Tank.
 Clock ····· Local Time and Functional.
 Compass ····· Check for any leak & compass card present.
 Avionics Master/Electrical Switches/ Heater & Froster /Fan-Air/Alt Air · Off
 ELT ····· Switch is armed position.
Do not turn on unless it is emergency.
 Circuit Breakers ····· In.
 Mixture ····· Idle Cut Off.
 Propeller ····· Full Forward.
 Manifold ··· Closed (*All the way down*).
 Gear Handle ····· Down Position.
 Mags ····· Key removed and Off.
 Flaps ····· Easily move all the position. then extend fully.
 Trim ····· Check & Set.
 Emergency Gear Lever ··· Up Position.
If it is down, not be able to retract.
 Battery Master ····· Turn On.
 Hubbs Time ····· Noted.
 Fuel Gauges ····· Check adquate fuel.
 3 Gear Green Lights ····· Lit Up.
If Nav lights are on, this will be dim.
 Annunciator (*Alternator & Oil*) ····· ON.
 External Lights / Pitot Tube:
 ➤ Turn on / Check Visually / Intact
 ➤ Check – Pitot Tube Warms up.
 ➤ Check for Stall Warning Horn & Free of motion.
 Electrical Switches ····· Off.
 All Tie/ Cowl & Pitot Cover ··· Removed.
 Right Flaps ····· Checked.
Actuating arm & bonding strap – free of motion.

Right Aleron ····· Checked.
Actuating arm – free of motion.
 Right Wing Tip/ Bulb/surface. Checked.
 Right / Left Windows ····· Cleaned.
 Right/Left Engine Cowl Latches - Locked.
 Right side fresh air intake ··· Free from any obstruction.
 Left side small hole by cylander #2 ····· Check for any debris.
 Propeller · No damage & Screws Intact.
 Alternator Belt ····· Check for Tention.
 Landing Light ····· Properly in-place.
 Left side Temp Probe · Free & Attached.
 Right Wing Tip/ Bulb/surface. Checked.
 Left Aleron ····· Checked.
 Left Flaps ····· Checked.
 Top Antenna – GPS, COM1, COM2, ELT.
 LEFT & Right Stabilator ····· Intact, free of motion, Tail Cone bolt in place
Give a little tug to ensure Intact.
 Rudder · Slight Free of motion (*No push*)
 Fuel ··· Check Cap cascade, Qty, Drained.
Fuel Drain Check for any contamination / water. Fuel should be blue.
 Oil Quantity ····· Check for 6 – 8 qt.
 Oil Dip Stick ··· black rubber cascade.
EXTERNAL UNDERNEATH CHECK:
 Exhaust ····· Attched & Intact.
 Fuel Vent ··· Clear of any Obstruction.
 Gear Assembly.
 ➤ Tire Inflated. Nose 27 | Main 30PSI
 ➤ Tire thread good.
 ➤ Oleo Strut – Should be 2.75" ±0.25" (3 finger space).
 ➤ Nose Struct – 2.50" ±0.25"
 ➤ Brake Calibour – no red fluid leak.
 ➤ Gear door – properly attached to the aircraft.
 ➤ Down Lock Switch – making contact with down lock hook. No bent.
 ➤ Up Limit switch – should be stright & No bent.
 ➤ Under Left Wing – Oil Breacher ··· Check for any debris.
 Next to the Oil Breather.
 ➤ Tube to vent fuel from engine driven fuel pump when excessive pressure.
 ➤ Tube to vent fuel from electric boot pump.
 ➤ Vent from intake system of the aircraft – Over prime situation, eninge properly not shutdown, fuel will leak through sniffer valve out through this valve.
 Lower Service GPS Antenna ··· Endsure not thick coding of oil.
 Battery Vents · Free from Obstruction.
 Baggage Door ····· Closed.

PRE START:

Passengers ····· Briefed.
 Seats Belts ····· Fastened.
 Loose Objects ····· Secured.
 Flaps ····· Up.
 Fuel Selector ····· Lowest Tank.
 Doors ····· Secured.
 Brakes ····· Set.
Note: Cranking period – 10 sec. with 20 sec. rest between attempts. Max attempts 6. If no start, cool for 30 minutes.

STARTING ENGLINE – COLD:

Prop Area ····· Clear.
 Manifold ····· ½ Inch Open.
 Propeller ····· Full Fine.
 Battery Master / Fuel Pump ····· ON.
 Mixture · Prime (*Mixture full rich for 3 seconds*) then ICO.
 Mags ····· Engage Starting.
 When engine engages - Mixture full rich.
ENGINE START – HOT:
 Prop Area ····· Clear.
 Manifold ····· ½ Inch.
 Propeller ····· Full Fine.

Mixture ····· Idle Cut-Off.
 Battery Master / Fuel Pump ····· ON.
 Mags ····· Engage Starting.
 When Engine Start · Mixture Full Rich.

ENGINE START – FLOODED:

Prop Area ····· Clear.
 Manifold ····· Open Full.
 Battery Master / Fuel Pump ····· ON.
 Fuel Pump ····· Off.
 Mixture ····· Idle cut-off.
 Mags ····· Engage Starting.
 Mixture ····· Mixture Full Advance.
 Manifold ····· Retard.
 Mixture ····· Lean.

AFTER START:

Oil Pressure · Green (*in 30 Sec*). **If not Green stop the engine and trouble shoot.**
 Warm-up ····· 1400 -1500 rpm.
(Avoid prolonged idling at low rpm).
 Ammeter ····· Check Charging.
 Fuel Pump ····· Off.
 Start Up Time ····· Noted.
 Avionics Master ····· ON.
 Beacon / Nav Light (*same switch*) · ON.
 Transponder ····· Standby.
 Radio / Instruments / Nav Aids ··· Set.
Ensure Oil Temp in Green before Taxi.
 Rolling Break Test ····· Checked.
 Instruments ····· Taxi Test.
 ATIS ····· Obtain.
 Taxi Clearance for run-up ····· Obtain.
RUN UP:
 Area ····· Clear / Into Wind.
 Aircraft ····· Wheel Straight.
 Brakes ····· ON.
 Fuel Selector ····· Switch.
 Throttle ····· 1000 rpm.
 Temp / Pressure ····· Check.
 Mixture ····· Rich.

Propeller Full Fine.
 Throttle 2000 rpm.
 Temps / Pressures Check.
 Mags Check (Max 172/50 Diff).
 Mixture · Bring down until manifold drops, then go back where it was before.

Propeller Cycle: **Do not go lower than 1500 rpm.**
 1st time – Increase in Manifold pressure & dropping rpm.
 2nd time – Oil pressure – should be a drop.
 3rd time – Look outside of the windshield – no sign of oil sprayed.

Alternate Air Check - Closed.
 Alternator · Check Charging by on/off.
 Throttle Idle.

Throttle 1000 rpm.
Call GRN:118.4 For Taxi Clearance

CRUSING – Ref POH 5-19						
Press Alt Feet	Std Temp C°	55% Power		65% Power		75%
		RPM	RPM	RPM	RPM	RPM
S.L	15	23.7	21.7	26.1	24.1	26.3
1000	13	23.4	21.4	25.8	23.7	26.0
2000	11	23.0	21.1	25.4	23.4	25.6
3000	9	22.6	20.8	25.1	23.1	25.3
4000	7	22.3	20.5	24.7	22.8	24.9
5000	5	21.9	20.2	24.3	22.4	24.6
6000	3	21.6	19.9	24.0	22.1	24.3
7000	1	21.2	19.6	23.6	21.8	F.T
8000	-1	20.8	19.3	F.T	21.5	
9000	-3	20.5	19.0		21.1	
10k	-5	F.T	18.7		F.T	

BEFORE TAKE-OFF:
TOGO -> HDG:Runway -> Set Altitude -> Desired -> IAS:76KT
 Master, Fuel Pump, Landing, Strobe Light, Pitot Heat (as Required) ON.
 Transponder Alt.
 Instruments / Radio Set.
 Fan - AC Off.
 Mixture Rich.
 Propeller Fine.

Trim Set.
 Flaps As Required.
 Controls Free.
 Door Latched (top and bottom).
 Take-off Pilot Briefing Complete.
 Take off Time Noted.
Call TWR:120.1 For take-off Clearance

TAKE OFF: (Max Weight Take off – 2750 lbs).
 Windsock · Check Direction (left/right).

Heading Indicator · Confirm Runway.
 Manifold Pressure Full.
 Accelerate → 65-75 KIAS → Airspeed Positive → GO/NO GO → If GO → Rotate.
 Pitch · 76 (Vy – Gear Down & Flaps Up).

When Altitude Positive Rate:
 Tap on the brakes to stop the wheel spinning. & Gear Up.
 Manifold 25 Inch.
 Propeller 2500 rpm.
 Temps/Pressure Green.
 Landing/Strobe Light Off.

Once reached 87KIAS: Hit: IAS, Nav, AP

CLIMB: (APT: Attitude, Power, Trim)
 Fuel Pump On.
 Temps/Pressure Check.
 Vy – Best Rate of Claim.
 Gear up, Flaps up 87 KIAS.
 Gear Down / Flaps up 76 KIAS.
 Vx – Best Angle of Claim.
 Gear Up, Flaps Up 77 KIAS.
 Gear Down / Flaps up 70 KIAS.

Fuel Pump Off at altitude reached.

DECENT (Power Attitude, Trim)
 Fuel Pump ON.
 Throttle Reduce.
 Yoke · Push Down / Adjust as required.

CRUISE:
NAV, AP, FD, IAS ON
 Normal max power - 75% Set (24"/2400).

Temps/Pressure Check.
 Mixture Lean.
 Switch Fuel Selector every 30 minutes:
 Fuel Pump On → Switch Tank → Engine Running → Fuel Pump Off.
 Flight Instruments Check.
 Check Cylinders:
 CHT In Green (Under 350°F).
 EGT · In Green (1200°F to 1650°F)
 Outside Air Temp · Check For Icing.

PRE-LANDING:
 Weather/ATIS Obtained.
 Altimeter Set.
 Temps / Pressure Green.
 Seat Belt Fasten.
 Passenger Briefing Complete.
Call TWR 120.1: e.g. at Port Perry

DOWN WIND:
 Manifold Pressure 20 – 22 Inch.
 Propeller 2400 rpm.
 Mixture Rich.

Gear Down ≤ 130 KIAS & 3 Green.
E Ensure Panel Lights off for Gear Indication.
 Flaps 10° - Air speed ≤108 KIAS.
 Trim Set.
 Brakes Check/Feet Clear.
 Mags Both.
 Master, Fuel Pump, Landing Light · ON.
 Fuel Selector Fullest Tank.
 Temps/Pressures Green.
 Seats Belt Fastened.
 Air – AC Off.

BASE:
 Manifold Pressure 15 Inch.
 Flaps 20° - speed ≤108 KIAS.
Gear Check for Down & 3 Green.

ON FINAL: Max Landing – 2750 lbs
 Flaps Full / Desired.
 Landing Approach – Flaps 40° · 74 KIAS.

GUMPSS CHECKS:
 Gas (Fuel) · Switch to Fullest Tank (Fuel Pump is already ON).
Gear Down & 3 Green lights on.
 Mixture Full Rich.
 Propeller Full Fine.
 Switches (Landing Light) -As required.
 Windsock - Wind from Left or Right.
Landing Clearance Yes.

Overshoot (PAT: Power, Attitude, Trim)
 Props Fine.
 Mixture Rich.
 Throttle Full.
 Positive Climb. Flaps up in states.

Missed Approach
 Set Missed Approach Altitude.
 Hit TOGO.
 Set Full Power.
 Flaps Up.
 Hit Nav.

AFTER LANDING:
 Throttle 1000 RPM.
 Propeller Full Fine.
 Mixture Lean.
 Fuel Pump Off.
 Transponder Standby.
 Lights (Taxi Light) As Required.
 Flaps Retracted fully.
 Landing Time Noted.
 Flight Plan Closed.

Call GRN 118.4: Taxi to T2 Hangar.

SHUTDOWN:
 Flaps Check for Retracted.
 Fuel Pump / Lights / Air - AC Off.
 Avionics Master Off.
 Throttle Idle.
 Ignition Live Mag Check.
 Throttle 1000 rpm.
 Mixture ICO.
 Master / Mags Off.

EMERGENCY PROCEDURES:

ENGINE FIRE DURING START:

Mags ······ Crank Engine.
Mixture ······ Idle cut off.
Throttle ······ Open.
Fuel Selector ······ Off.
Abandon if fire continues.

Engine Power Loss during Take Off:

If sufficient runway remains for a normal landing, leave gear down and land straight head.
If area ahead is rough, or if it is necessary to clear the obstructions:

Gear Selector Switch ······ Up.
Emergency Gear Lever (aircraft equipped with backup gear extender) - **Locked in OVERRIDE ENGAGED Position.**

If sufficient altitude has been gained to attempt to restart:

Ma safe airspeed.
Fuel Selector ··· Switch to fullest tank.
Fuel Pump ······ ON.
Mixture ······ Check Rich.
Alternator Air ······ OPEN.
Emergency Gear Level ··· As Required.

If power is not regained, proceed with power off landing.

Engine Power Loss in Flight:

Fuel Pump ······ ON.
Fuel Selector ··· Switch to fullest tank.
Mixture ······ Check Rich.
Alternate Air ······ Open.
Engage Gauges · Check for Indication of cause of power loss.

If no fuel pressure is indicated, check tank selector position to be sure it is on the fullest tank.

When power is restored:

Alternate Air ······ Closed.
Fuel Pump ······ Off.

If power is not restored prepare for power off landing.

Trim ······ Set for 79 KIAS.

POWER OFF LANDING (Engine Failed):

Trim ······ Set to 79 KIAS.
Locate Suitable Field.
Establish Spiral pattern.
1000 ft. above field at downwind position for normal landing approach.
When field can easily be reached slow to 72 KIAS for shortest landing.

GEAR DOWN EMERGENCY LANDING

Touchdowns should normally be made at lowest possible airspeed with full flaps.

When committed to landing:

Landing Gear ······ Down.
Throttle ······ Close.
Mixture ······ Idle cut-off
Mags ······ Off.
Master Switch ······ Off.
Fuel Selector ······ Off.
Seat Belt ······ Fastened.

GEAR UP EMERGENCY LANDING :

In the event a gear up landing is required, proceed as follows:

Flaps ······ as desired.
Throttle ······ Idle cut-off.
Mixture ······ Off.
Mags ······ Off.
Fuel Selector ······ Off.
Seat Belt ······ Fastened.

Contact surface at minimum possible airspeed.

FIRE IN FLIGHT:

Source of fire ······ Check.

Electrical Fire (Smoke in Cabin):

Master ······ Off.
Vents ······ Open.
Cabin Heat ······ Off.

Land as soon as practicable.

Engine Fire:

Fuel Selector ······ Off.
Throttle ······ Closed.
Mixture ······ Idle cut-off.
Fuel Pump ······ Off.
Heater / Air - AC ······ Off.

Proceed with power off landing.

Loss of oil Pressure:

Land as soon as possible and investigate casuse.
Prepare for POWER OFF landing.

Loss of Fuel Pressure:

Fuel Pump ······ ON.
Fuel Selector ······ Check on full tank.

High Oil Temperature:

Land at nearest airport and investigate the problem.
Prepare for POWER OFF landing.

Alternator Failure:

Verify Failure:
Reduce electrical load as much as possible.
Alternator circuit breakers ··· CHECK.

Alt Switch ··· OFF for 1 second the ON.

If no output:

All Switch ······ Off.

Reduce electrical load as soon as practical.

If the battery is fully discharged, the gear will have to be lowered using the emergency gear extension procedure.
Position lights will not illuminate.

PROPELLER OVERSPEED:

Throttle ······ Retard.
Oil Pressure ······ Check.

Prop Control ······ Full DECREASE rpm, then set if any control available.

Airspeed ······ REDUCE.

Throttle ··· as required to remain below 2700 rpm.

EMERGENCY LANDING GEAR EXT'N.

Prior to emergency extension procedure:

Master (Batt & Alt) Switch ······ ON.
Circuit Breaker ······ Check.

Panel Lights ······ OFF (in daytime).

Gear Indicator bulbs ······ Check.

If landing gear does not check down and lock:

Airspeed ······ Reduce below 87 KIAS

Landng Gear Selector Switch ······ Gear DOWN position.

If Gear has failed to lock down, move and hold the emergency lever down to the EMERGENCY DOWN position.

If Gear has failed to lock down, move and hold the emergency lever down to the **EMERGENCY DOWN** position. If the nose Gear will not lock down using above procedure, slow the aircraft to the lowest safe speed attainable using the lowest power setting required for safe operation and accomplish the following: Landing gear does not check down, recycle Gear through up position, and then select gear DOWN

SPIN RECOVERY

Rudder ······ full opposite direction of rotation.

Control Wheel ······ full Forward while neutralizing ailerons.

Throttle ······ idle.

Rudder · Neutral (while rotation stops)

Control Wheel ······ as required to smoothly regain level flight attitude.

Speed	KLAS
Stall with Gear & Flaps – V _{SO}	53
Stall Clean – V _{SI}	66
Rotation Speed – V _R	65 – 75
Best Rate of Climb	
Gear Up & Flap Up – V _Y	87
Gear Down & Flap Up – V _Y	76
Best Angle of Climb	
Gear Up & Flap Up – V _X	77
Gear Down & Flap Up – V _X	70
Max Structural Cruising – V _A	
@2750 lbs	121
@1863 lbs	96
Landing Final Approach	74
Flaps 40° – Reference	
Landing Speed) V _{REF}	
When gusting, add ½ of gust factor to approach speed.	
Best Glide – V _{LD}	79
Red Radial Line (Never Exceed) – V _{NE}	190
Max Landing Gear Ext – V _{LE}	≤130
Max Landing Gear Retract – V _{LO}	≤109
Gear Extension / Retraction Time	7 Sec
Max Flap Extend – V _{FE}	≤108
Limitations:	
Maximum Crosswind	17kts
Yellow Arc (Caution Range – Smooth Air only)	149-190
Green Arc (Normal Operating Range)	58-108
White Arc (Flap Down)	53-108

Power Plant:	
Tachometer	
Green Arc. (Normal Operating Range)	500 - 2700 RPM
Red Line (Max Continuous Power)	2700 RPM
RPM Restrictions (McCauley Propeller Only) – Aviod Continuous Operations Between 1500 and 1950 RPM Below 15 Inches Map.	
Oil Temperature	
Green Arc (Normal Operating Range)	75°F - 245°F
Red Line (Maximum)	245°F
Oil Pressure	
Green Arc (Normal Operating Range)	60 – 90 psi
Yellow Arc (Caution Range)(Idle)	25 – 60 psi
Red Line (Minimum)	25psi
Red Line (Maximum)	100psi
Fuel Pressure	
Green Arc. (Normal Operating Range)	14 - 45psi
Red Line (Minimum)	14psi
Red Line (Maximum)	45psi
Radio Freq.	
ATIS	125.67
Ground	118.40
Tower	120.10
PA-1	122.90
Emergency	121.50
905-576-2398 Tower	7700
Emergency	7700
Communication Failure	7600
Hijacking	7500
Toronto Area Control Center	133.40
London Flight Center	123.15

STARTING WITH EXT POWER SOURCE

Master Switch Off.

All Electrical equipment Off.

Terminals Connect

External Power plug · Insert in fuselage

Proceed with normal Start:

Throttle lowest possible RPM

External Power Plug · · disconnect from Fuselage

Master Switch · · ON - Check Ammeter

Aviate, Navigate and Communicate

Aviate:

- Temp / pressure / Fuel Check
- Nav Aid / Radio Check
- Attitude, Altitude, VSI, Heading
- Airspeed Cross Check

Navigate:

- Time · Note the time of station or fix
- Turn your new heading
- Twist Reset Course Indicator
- Throttle as required
- Talk Make your report to ATC

Communicate:

- ATIS Get latest info
- Altimeter Cross Check
- ATC Interaction
- Position Report
- Emergency Communication

Do & Don't

- Warm-up the engine at 1400 to 1500 RPM. Avoid prolonged idling at low RPM, as this practice may result in fouled spark plugs.

Passenger Safety Briefing:

S. Seat Adjust. Seatbelt latch/unlatch, Doors/windows latch & Unlatch.

A. Air vent, Action in case of any passenger emergency.

F. Fire Extinguisher.

E. Exit door, Emergency evacuation plan, First Aid Kit & ELT.

T. Look out traffic for me.

Y. Any question?

Pre-Takeoff Pilot Briefing:

- Frequencies set
- Weather conditions / Winds
- Runway
- Flap settings ___ °
- Speeds: Rotate 65-75KIAS & Pitch for 76KIAS, after positive Rate - 87 KIAS
- Departure routes / Nav aids Set
- Initial Altitudes ___ feet
- Our Go-No Go point will be intersection of the runway.

- In the event of an engine failure during the takeoff roll we will stop straight ahead.
- If airborne, we will pitch for the 79kt, and land straight ahead.
- If an engine failure occurs above 1000 feet AGL we will consider returning to the airport.
- Once made to the field, set flaps as required.
- Unlatch Cabin door.
- Mixture cut, fuel off, mags off & master off.
- Are you good to go?

Pre-Takeoff Passenger Briefing:

- We are ready for takeoff.
- Stow any loose objects
- Say free of my controls
- Keep your seat belt on.
- Refrain from talking unless it is an emergency.
- Are you good to go?

Request Taxi to Main Apron

After initial call established with GRN.

- Oshawa Ground
- Piper Arrow
- Golf, Victor, Bravo, Victor,
- Over Tango 2
- Requesting Taxi to Main Apron.

ITPAID - Enroute Radio call

- "{some Place} Traffic"
- Piper Arrow, Golf, Victor, Bravo, Victor, Over {some place}
- at {___} feet,
- enroute for {some place}

ITPAID – Request Transition

- {some Control, ie., Toronto Center}
- Piper Arrow
- Golf, Victor, Bravo, Victor,
- Over {some place}
- at {___} feet
- request VFR transition through your airspace to {some place} maintaining {___} feet

Memory Aids

ITPAID – Identification, Tail Number, Place, Altitude, Intention, Destination.

POISEE - Problem, Option, Information, Select, Execute and Evaluate.

FLARE – Flaps, Lights, Auxiliary fuel pump, Radar transponder on, Engine mixture – example of after take-off checklist.

CIGAR – Controls, Instruments, Gas, Attitude (trim and flaps), Run-up – example of before take-off checks.

CRAFT – Clearance, Routing, Altitude, Frequency, Transponder

COWLS – Civilian, Obstacles, Wind, Length, Surface