

Ground Operations

Initial

- ▶ Papers - A.R.O.W.
- ▶ Controls - free & correct
- ▶ Mags. - key out
- ▶ Mixture - idle cutoff
- ▶ Throttle - idle
- ▶ Electrical - off
- ▶ Essential Bus - off
- ▶ Avionics - off
- ▶ Master - on
- ▶ Fuel Pump - check
- ▶ Fuel - note
- ▶ Flaps - check & set T/0
- ▶ Lights/Pitot - test
- ▶ Master - off
- ▶ Hobbs Time - note

Walkaround

- ▶ Canopy/Door - check
- ▶ Fuel/Oil - test/sample
- ▶ Caps/Drains/Vents
- ▶ Surfaces/Controls
- ▶ Stall Strips/Fairings
- ▶ Exhaust/Antennas
- ▶ Prop/Air Intakes x3
- ▶ Pitot/Static/Stall
- ▶ Gear/Tires/Brakes
- ▶ Ties/Chocks
- ▶ Final Walkaround

Pre-Start

- ▶ Rear Door - secure
- ▶ Rudder Pedals - adjust
- ▶ Seat Belts
- ▶ Parking/Brakes - test/set
- ▶ Circuit Brkr. - check
- ▶ Strobe (ACL) - on
- ▶ Avionics - off
- ▶ Fuel Selector - least
- ▶ Canopy - pos. 1/2
- ▶ Passenger - brief

Start

- ▶ Prime
 - Mixture - idle cutoff
 - Prop - high RPM
 - Friction - adjust
 - Master Bat. - on
 - Throttle - 1.2"
 - Electric Pump - on
 - Warm
 - Mixture - 1-3 sec

- Cold
 - Mixture - 3-5 sec
 - Throttle - 0.4"
- ▶ "Prop Clear!"
- ▶ Mags. - start
- ▶ Throttle - 1000 RPM
- ▶ Oil Pressure - 15 secs.
- ▶ Electric Pump - off
- ▶ Master Alt. - on
- ▶ Engine Inst. - no Xs
- ▶ Volts/Amps - [25-30] [>0]
- ▶ Fuel Pressure - 14-35 psi
- ▶ Mixture - lean (peak)

Pre-Taxi

- ▶ Flaps - UP, then T/0
- ▶ Lights - as required
- ▶ Avionics - on/set
- ▶ GPS - DB date
- ▶ Fuel Totalizer - enter
- ▶ ATIS - PFD/backup/AP(?)
- ▶ Radio - test
- ▶ Transponder - squawk
- ▶ Check - TC/AI/HSI<->MC
- ▶ Clearance - obtain
- ▶ Brakes - release/test

Run-Up

- ▶ Parking Brake - set
- ▶ Seat Belts - check
- ▶ Canopy/Door - lock
- ▶ Door Warning - off
- ▶ Flight Controls - correct
- ▶ Instruments - scan
- ▶ Alternate Static - check
- ▶ AP - MET/HDG
- ▶ Trim - T/0
- ▶ Fuel Selector - fullest
- ▶ Hdg./Alt. Bugs
- ▶ GPS/Status Bar/Ann. Test
- ▶ MFD Range/Track Up
- ▶ Comm/Nav/VOR/FP
- ▶ Mixture - rich
- ▶ Throttle - 2000 RPM
- ▶ Cycle Prop x3 - 250-500
- ▶ Mags. L/R - 175, 50.
- ▶ Alternate Air - check
- ▶ Engine Inst. - check
- ▶ Idle Check
- ▶ Throttle - 1000 RPM
- ▶ Mixture - lean
- ▶ Lights - as required
- ▶ ADSB Handheld - on

Shutdown

- ▶ ELT - check (121.5)
- ▶ Avionics - off
- ▶ Electrical - off
 - ACL Strobes - on
- ▶ Throttle - 1000 RPM
- ▶ Mags. - off then both
- ▶ Mixture - idle cutoff
- ▶ Mags. - key out
- ▶ Tach Time - note
- ▶ Master - off

Post-Flight

- ▶ ADSB Handheld - off
- ▶ Tiedowns/Chocks
- ▶ Pitot Cover
- ▶ Gust Lock
- ▶ Close Flight Plan
- ▶ Hobbs Time - note
- ▶ Check Under Seats
- ▶ Canopy/Door - lock
- ▶ Post-Flight Walkaround

Flooded Engine

- ▶ Electric Pump - off
- ▶ Mixture - lean (full aft)
- ▶ Throttle - 1/2 position
- ▶ Mags. - start
- ▶ When engine fires:
 - Throttle - idle
 - Mixture - rich (rapidly)
- ▶ Finish up normal start

Airspeeds (KIAS)

- ▶ Vr = 59
- ▶ Weights
 - 2646/2535/2205/1874 lbs
- ▶ Vg = 76/73/68/60
- ▶ Vy(Up) = 76/73/68/60
- ▶ Vy(T/O) = 67/66/60/54
- ▶ Approach Speeds
 - Up - 76/73/68/60
 - T/O - 74/72/66/59
 - LDG - 73/71/63/58
- ▶ Va
 - MAM 40-227
 - yes - 111 @ 2284-2646
 - no - 108 @ 2161-2535
 - below 2161/2284 - 94

In-Flight Operations

Pre-Takeoff

- ▶ Abort Plan/Lost Comm.
- ▶ Canopy/Door - lock
- ▶ Fuel Selector - fullest
- ▶ Flaps - T/O
- ▶ **Mixture** - rich
- ▶ **Prop** - high RPM
- ▶ Pitot Heat - as required
- ▶ Review Airspeeds
- ▶ Time - note/start

Takeoff

- ▶ "Lights, Camera, Action"
 - **Electric Pump** - on
 - Mixture/Prop/Throttle
- ▶ Engine Inst. - green
- ▶ Vr - 59; then 67-60 KIAS
- ▶ Safe Altitude
 - **Prop** - 2400 RPM
 - **Pump** - off
 - Lights - as required

Climb

- ▶ T/O: Vy = 67-54 KIAS
 - 68 minus 1.8 per 100 lbs under 2646
- ▶ Cruise
 - Flaps - UP
 - Vy = 76-60 KIAS
- ▶ **Mixture** - rich
 - >5000 hold const. EGT
- ▶ **Prop** - 2400 RPM
- ▶ **Throttle** - full
- ▶ Engine Inst. - green
- ▶ Trim - as required
- ▶ High Altitude - **pump** on

Cruise

- ▶ Flaps - UP
- ▶ **Throttle** - 21-24"
- ▶ **Prop** - 1800-2400 RPM
- ▶ **Mixture**
 - Higher Power - richen
 - Economy: max EGT & ≤75%
· Best: 100°F(55°C) lower
- ▶ High Altitude - **pump** on
- ▶ Flow Check (≈15 min)
 - Trim, Fuel (Switch tanks)
 - Mixture/Prop/Throttle
 - Flaps, Engine Inst.
 - Pump, Mag., Master
- ▶ CHT: 150-400°F
- ▶ Oil: 165-220°F

Descent

- ▶ **Mixture** - richen slowly
- ▶ **Throttle** - as required
- ▶ **Prop** - 1800-2400 RPM
- ▶ High Altitude - **pump** on
- ▶ CHT Cool Down
 - ≤ 50°F(22.8°C) per min.

Pre-Landing

- ▶ ATIS/Rwys & Patterns
- ▶ "CCGUMPSF"
 - **G**: Fuel Selector
· downwind/fullest
 - **M**: **Mixture** - rich
 - **P**: **Prop** - high RPM
 - **P**: **Pump** - on
 - **S**: Seat Belts - secure
 - **F**: Flaps - as required
· T/O <108 KIAS
· LDG <91 KIAS
- ▶ Trim - as required
- ▶ Lights - as required
- ▶ Approach - 73-58 KIAS

Go Around

- ▶ **Throttle** - full
- ▶ Vy - 67-54 KIAS
- ▶ Flaps - T/O
- ▶ Safe Altitude
 - **Prop** - 2400 RPM
 - **Pump** - off
 - Lights - as required
 - Cruise Climb

Post-Landing

- ▶ **Throttle** - 1000 RPM
- ▶ **Mixture** - lean
- ▶ Flaps - UP
- ▶ **Electric Pump** - off
- ▶ Pitot Heat - off
- ▶ Trim - T/O
- ▶ Lights - as required
- ▶ Clearance - obtain

CO Contamination

- ▶ Cabin Heat - off
- ▶ Ventilation - open
- ▶ Emergency Windows - open
- ▶ Forward Canopy - partially open (DO NOT lock/unlock rear door during flight)

Engine Failure

- ▶ Short Flow
 - Fuel Selector - fullest

- **Mixture** - full/check
- **Pump** - on
- Alternate Air - on
- Mags. - check all
- ▶ **Glide and Trim**
 - **Speed**: 76-60 KIAS
 - Windmill: 1:8.8, 1.45nm/1kft
 - Stationary: 1:10.3, 1.7nm/1kft
- ▶ Wind and Landing Site
- ▶ Longer Flow
 - Engine Inst.
 - Short Flow Again
- ▶ Windmill Restart
 - Airspeed ≥ 70 KIAS
 - **Mags.** - both
 - **Mixture** - lean then slowly richen
- ▶ Stationary Restart
 - Airspeed ≥ 80 KIAS
 - Electrical - off
 - Avionics - off
 - Master - on
 - **Mags.** - start

- ▶ **No Restart**
 - Fuel Selector - off
 - **Mixture** - idle cutoff
 - Mags. - off
 - Master - off
 - Belt and Seat - check
 - Unlatch Door
 - Brace

Engine Fire

- ▶ Cabin Heat - off
- ▶ Emergency Descent
- ▶ Landing is ensured
 - Fuel Selector - off
 - **Throttle** - full
 - **Pump** - off
 - Master - on
 - Emergency Windows - open
- ▶ Engine-off Landing

Electrical Fire

- ▶ Cabin Heat - off
- ▶ Emergency Switch - on
- ▶ Master - off
- ▶ Emergency Windows - open
- ▶ Forward Canopy - partially
- ▶ Land ASAP

C172S-G1000 (Ted v1.2)

Initial

- ▶ Papers - A.R.O.W.
- ▶ Control Lock - off
- ▶ Mags. - key out
- ▶ Mixture - idle cutoff
- ▶ Throttle - idle
- ▶ Avionics - off
- ▶ Fuel Shutoff - on
- ▶ Fuel - both
- ▶ Master - on
- ▶ Fuel - note
- ▶ Flaps - down
- ▶ Lights/Pitot - test
- ▶ Avionics on/off - fans
- ▶ Master - off
- ▶ Hobbs Time - note

Walkaround

- ▶ Fuel/Oil - dip/sample
- ▶ Caps/Drains/Vents
- ▶ Surfaces/Controls
- ▶ Exhaust/Antennas
- ▶ Prop/Belt/Air Intake
- ▶ Pitot/Static/Stall
- ▶ Gear/Tires/Brakes
- ▶ Ties/Baggage Door
- ▶ Final Walkaround

Pre-Start

- ▶ Doors - secure
- ▶ Belts/Seat Track
- ▶ Brakes - check, set
- ▶ Circuit Brkr. - check
- ▶ Passenger - brief
- ▶ Beacon - on
- ▶ Avionics - off
- ▶ Fuel - both

Start

- ▶ Stby. Battery - test/arm
- ▶ Engine Ind. - no Xs
- ▶ Volts - [E>24] [M<1.5]
- ▶ Amps - S<0/ann on
- ▶ Prime:
 - Mixture - idle cutoff
 - Brakes - secure
 - Master - on
 - Throttle - slight
 - Aux. Pump - on
 - Mixture - prime
 - warm: 0-3 sec
 - cold: 3-5 sec
 - Aux. Pump - off

- ▶ Mixture - 3/4 rich
- ▶ "Prop Clear!"
- ▶ Mags. - start
- ▶ Throttle - 1000 RPM
- ▶ Oil Pressure - 30 secs.
- ▶ Volts/Amps - [E>24] [M<0]
- ▶ Mixture - lean for taxi

Pre-Taxi

- ▶ Flaps - up
- ▶ Lights - as required
- ▶ Avionics - on/set
- ▶ GPS - DB date
- ▶ Fuel Totalizer - enter
- ▶ ATIS - PFD/backup/AP(?)
- ▶ Radio - test
- ▶ Transponder - squawk
- ▶ Check - TC/AI/HSI->MC
- ▶ Clearance - obtain
- ▶ Brakes - test

Run-Up

- ▶ Brakes - set
- ▶ Seat Belts - check
- ▶ Doors/Windows - secure
- ▶ Flight Controls - correct
- ▶ Instruments - scan
- ▶ Alternate Static - check
- ▶ AP - MET/HDG
- ▶ Trim - takeoff
- ▶ Fuel - on/both
- ▶ Hdg./Alt. Bugs
- ▶ GPS/Status Bar/Ann. Test
- ▶ MFD Range/Track Up
- ▶ Comm/Nav/VOR/FP
- ▶ Mixture - rich
- ▶ Throttle - 1800 RPM
- ▶ Mags. - 150, 50
- ▶ Engine Inst. - check
- ▶ Idle Check
- ▶ Throttle - 1000 RPM
- ▶ Mixture - lean
- ▶ Lights - as required
- ▶ ADSB Handheld - on

Pre-Takeoff

- ▶ Abort Plan/Lost Comm.
- ▶ Fuel - on/both
- ▶ Flaps - 0-10°
- ▶ Mixture - rich
- ▶ Aux. Pump - off
- ▶ Pitot heat - as required
- ▶ Review Airspeeds
- ▶ Time - note/start

Takeoff

- ▶ "Lights, Camera, Action"
 - Mixture/Throttle
- ▶ Engine Inst. - green
- ▶ Vr - 55 kts
- ▶ Vx - 62 kts, Vy - 74 kts

Climb / Cruise

- ▶ Cruise Climb - 75-85 kts
 - Flaps - up
- ▶ Mixture - lean >3000'
- ▶ Flow Check (↻15 min)
 - Fuel, Trim
 - Flaps, Engine Inst.
 - Mixture, Throttle
 - Master, Mag., Pump

Descent

- ▶ Mixture - richen slowly
- ▶ Throttle - as required
- ▶ Flow Check

Pre-Landing

- ▶ ATIS/Rwys & Patterns
- ▶ "CCGUMPSF"
 - G: Fuel - on/both
 - M: Mixture - rich
 - S: Seat Belts - secure
 - F: Flaps - as required
- ▶ Trim - as required
- ▶ Ldg. Light - on
- ▶ Approach - 80-65 kts

Post-Landing

- ▶ Throttle - 1000 RPM
- ▶ Mixture - lean
- ▶ Flaps - up
- ▶ Pitot Heat - off
- ▶ Trim - takeoff
- ▶ Lights - as required
- ▶ Clearance - obtain

Shutdown

- ▶ ELT - check (121.5)
- ▶ Avionics - off
- ▶ Lights - off
 - Beacon - on
- ▶ Throttle - 1000 RPM
- ▶ Mags. - off then both
- ▶ Mixture - idle cutoff
- ▶ Mags. - key out
- ▶ Master - off
- ▶ Tach Time - note
- ▶ Stby. Battery - off

Post-Flight

- ▶ ADSB Handheld - off
- ▶ Tiedowns/Chocks
- ▶ Pitot Cover
- ▶ Fuel - switch to L/R
- ▶ Gust Lock
- ▶ Close Flight Plan
- ▶ Hobbs Time - note
- ▶ Check Under Seats
- ▶ Cabin / Baggage - lock
- ▶ Post-Flight Walkaround

Engine Failure

- ▶ Short Flow
 - Fuel - on/both
 - Mixture - full/check
 - Electrical Pump - on
 - Alternate Air - on
 - Mags. - check all
- ▶ **Glide and Trim**
 - **Speed: 68 kts**
 - **Ratio: 9, 1.48nm/1000ft**
- ▶ Wind and Landing Site
- ▶ Longer Flow
 - Engine Indicators
 - Short Flow Again
- ▶ **No Restart**
 - Fuel - off
 - Mixture - idle cut-off
 - Prop/Throttle - off
 - Mags. - off
 - Master - off
 - Belt and Seat - check
 - Unlatch Door
 - Brace
- ▶ Approach - 80/70/65 kts