

DA40-180 (Ted Yin v1.0)

Ground Operations

Initial

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

Walkaround

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

Pre-Start

- ▶ Passenger brief
- ▶ Rear Door secure
- ▶ Canopy pos. 1/2
- ▶ Seat Belts on
- ▶ Brakes test/set
- ▶ Circuit Brkrs. check
- ▶ Strobe (ACL) on
- ▶ Avionics off
- ▶ Essential Bus off
- ▶ Mixture idle cutoff
- ▶ Prop high RPM
- ▶ Friction adjust
- ▶ Master (Battery) on
- ▶ Rudder Pedals adjust
- ▶ G1000 DB Date check
- ▶ Fuel Selector least

Start

- ▶ Throttle 1.2"

- ▶ Electric Pump on
- ▶ Warm
 - Mixture 1-3 sec
- ▶ Cold
 - Mixture 3-5 sec
 - Throttle 0.4"
- ▶ "Prop Clear!"
- ▶ Mags. start
 - Mixture rich
- ▶ Throttle 1000 RPM
- ▶ Mixture lean (peak)
- ▶ Oil Pressure 15 sec
- ▶ Electric Pump off
- ▶ Alternators on
- ▶ Engine Inst. check
 - Fuel Pressure ... 14-35 psi
 - Volts/Amps ... 25-30V/2-75A

Pre-Taxi

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

Run-Up

- ▶ Brake set
- ▶ Seat Belts check
- ▶ Canopy/Door lock
- ▶ Door Warning off
- ▶ Flight Controls check
- ▶ Heading/Altitude set
- ▶ Com/Nav/FPL set
- ▶ Engine
 - Fuel Selector fullest
 - Mixture rich
 - Throttle 2000 RPM
 - Cycle Prop x3 ... -250-500
 - Mags. L/R ... -175, +/-50
 - Alternate Air check
 - Indicators check
 - Throttle idle
 - Throttle 1000 RPM
 - Mixture lean
 - Each Tank ... 1 min, 1500
- ▶ Full Check (initial)
 - Alternate Static check
 - GPS/System/Ann. check
 - AP MET/HDG

- MFD Range/Track Up ... set
- Instruments scan
- Lights as required
- (ADS-B 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 (Standby Alternator ... off)
- ▶ Master off

Post-Flight

- ▶ (ADS-B Handheld off)
- ▶ Flight Plan close
- ▶ Hobbs Time note
- ▶ Under Seats check
- ▶ Gust Lock on
- ▶ Pitot Cover on
- ▶ Tiedowns/Chocks on
- ▶ Canopy/Door lock

Flooded Engine

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

Airspeeds (KIAS)

- ▶ **Vr** 59
- ▶ **Vs0** 49, **Vs1** 52
- ▶ Mass ... 2646/2535/2205/1874
- ▶ **Vg** 76/73/68/60
- ▶ **Vy(Up)** 76/73/68/60
- ▶ **Climb(T/O)** ... 67/66/60/54
- ▶ Approach
 - Up 76/73/68/60
 - T/O 74/72/66/59
 - LDG 73/71/63/58
- ▶ **Va** MAM 40-227
- ▶ yes 111 @ 2646-2284
- ▶ no 108 @ 2535-2161
- ▶ o/w 94 @ <2284/2161
- ▶ Steep Turn: <=45°, >=68

In-Flight Operations

Pre-Takeoff

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

Takeoff

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

Climb

- ▶ T/O: Vy 67-54 KIAS
- ▶ Cruise 76-60 KIAS
 - Flaps UP
- ▶ **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**
 - Economy ... max EGT, <=75%
 - Best ... 100°F (55°C) lower
 - Higher Power richen
- ▶ High Altitude **pump** on
- ▶ Flow Check (↻15 min)
 - Trim, 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)/min.

Pre-Landing

- ▶ ATIS/Rwys/Approach Plan
- ▶ "CCGUMPSF"
 - **G** Fuel Selector
 - **M** **Mixture** rich
 - **P** **Pump** on
 - **P** **Prop** high RPM
 - **S** Seat Belts secure
 - **F** Flaps as required
- T/O <108 KIAS
- LDG <91 KIAS
- ▶ Trim as required
- ▶ Lights as required
- ▶ Approach Speed 73-58
- ▶ (Air Conditioner off)

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
- ▶ Canopy open (partially,
DO NOT unlock rear door during flight)

Engine Failure

- ▶ Short Flow

1. Fuel Selector fullest
2. **Mixture** full/check
3. **Pump** on
4. Alternate Air on
5. Mags. check all

Glide and Trim

- Airspeed 76-60 KIAS
- Windmill 1.45nm/1kft
- Stationary 1.7nm/1kft
- ▶ Wind and Landing Site
- ▶ Longer Flow
 - Engine Inst. check
 - Short Flow

Windmill Restart

- Airspeed 70-80 KIAS
- Mags. both
- **Mixture** lean then slowly richen

Stationary Restart

- Airspeed 80 KIAS
- Electrical off
- Avionics off
- Master on
- Mags. start

Engine-off Landing

- Fuel Selector off
- **Mixture** idle cutoff
- Mags. off
- Master off
- Belt and Seat check
- Flaps LDG (when able)
- 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

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

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 [I>26] [I>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

Flight Planning Checklist (Ted Yin v0.5)

Airports

- ▶ ATIS/Tower/Ground Frequencies
- ▶ Runways and Pattern
 - Rwy Length
 - Multiple Rwy's?
 - TPA & Directions
- ▶ Descent and Approach Plan
 - Slow Down (engine cooling)
 - Reach TPA in time with stable rate
 - Terrain Hazards
- ▶ Taxiways and FBO (Refueling)
- ▶ Obstructions/Mountains
- ▶ Emergency Landing during T/O
- ▶ Airport Guide (check website)

Route

- ▶ Cruising Altitude
 - Westerly vs. Easterly (even/odd kft)
 - Glide Range
 - Terrain Separation (e.g. 2000+)
 - Cloud Clearance (Detour?)
 - Climb Performance & Oxygen
- ▶ Obstructions
- ▶ Flat Land vs. Mountains
 - Highway is a good start
- ▶ SUA/TFR
- ▶ Fuel Reserve & Diversions

Aircraft

- ▶ Fuel
- ▶ Weight and Balance
 - MTOW
 - CG before/after the flight
- ▶ T/O & LDG distance to clear obstacles

Weather

- ▶ Airports
 - Ceiling
 - Visibility
 - Wind (crosswind, gusts)
 - Density Altitude
- ▶ En Route
 - Cloud Base & Coverage
 - Wind Aloft
 - Icing (freezing point, day/night?)
 - AIRMET & SIGMETs
 - IMC
 - Convective Weather
 - Known Icing Conditions
- ▶ Global Picture
 - Fronts
 - Satellite Image (trend of moisture)
- ▶ Resources

- AlWC <https://aviationweather.gov/>
- Windy <https://www.windy.com/>
- C0D <https://weather.cod.edu/satrad/>

Before Go

- ▶ This Sheet
- ▶ Leidos (1800wx) Briefing
- ▶ PPL & Med & Driver's License
- ▶ Flight Bag
- ▶ Garmin inReach Beacon
- ▶ iPad: foreflight pack up
- ▶ Water & Energy Bars
- ▶ "IMSAFE" & "PAVE"