

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 Brkr. 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 Strokes 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 @ below 2284/2161
- ▶ Steep Turn: <=45°, >=68

In-Flight Operations

Pre-Takeoff

- ▶ Abort Plan/Lost Comm.
- ▶ Canopy/Door lock
- ▶ Trim T/0
- ▶ Fuel Selector fullest
- ▶ Flaps T/0
- ▶ 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/0: 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/0 <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/0
- ▶ 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/0
- ▶ 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 [E>26] [E>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