DA40-180 (Ted Yin v1.0a)

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 ..... check
- 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
- Instruments
  - Alternate Static .... check
  - GPS/System/Ann. ..... check
  - AP ..... MET/HDG
  - Heading/Altitude ..... set
  - Com/Nav/FPL ..... set
  - MFD Range/Track Up ... set
  - Instruments ..... scan
  - Lights ..... as required
  - (ADSB Handheld ..... on)
- 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

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

- (ADSB Handheld ..... off)
- Flight Plan ..... close
- Hobbs Time ..... note
- Under Seats ..... check
- Gust Lock ..... on
- Pitot Cover ..... on
- Tiedowns/Chocks ..... on
- Canpoy/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
- Turn: 30/45/60° .. 58/68/83

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 67-80
- Safe Altitude
  - Prop ..... 2400 RPM
  - Pump ..... off
  - Lights ..... as required

Climb

- T/O: Vy ..... 67-54 KIAS
- Cruise ..... 76-80 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
- Transponder .... 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 ..... 76-80 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

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 Brkrs. ..... 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<O/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 ..... [>26] [>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 Rwys?
  - 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
  - AWC https://aviationweather.gov/
  - Windy https://www.windy.com/
  - COD 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 & Energey Bars
- "IMSAFE" & "PAVE"