C-177B N19762 Procedures

from Margaret Leber's Garmin Pilot account

Normal Procedures

Preflight

Preflight Inspection

CABIN --

- Control Wheel Lock : REMOVE
- Fuel Selector Valve : BOTH
- Fuel Shutoff Valve Knob : ON (safety-wired)
- Ignition Switch : OFF
- Avionics Power Switch : OFF
- Master Switch : ON
- Flaps : 30 deg
- Fuel Quantity Indicators : CHECK QUANTITY
- Strobes, Beacon, Navigation and Landing lights : CHECK operating
- Master Switch : OFF

LEFT WING LEADING EDGE --

- Pitot Tube Cover : REMOVE and CHECK pitot for stoppage
- Stall Warning Opening : CHECK for stoppage
- Stall Warning System : CHECK proper operation

NOTE -- To check the Stall Warning system, place a handkercheif over the vent opening and apply suction; a sound from the warning horn will confirm system operation.

LEFT WING --

- Left Wing tie-Down : DISCONNECT
- Left Main Wheel Tire : CHECK for proper inflation
- Fuel Tank Sump Quick-Drain Valve : DRAIN into sample cup
- Fuel Quantity : CHECK VISUALLY for desired level
- Fuel Filler Cap : SECURE

LEFT WING TRAILING EDGE --

- Aileron and Flap : CHECK freedom of movement and security
- Fuel Tank Vent Opening : CHECK for stoppage
- Baggage Door : CHECKED and LOCKED

EMPENNAGE --

- Rudder Gust Lock : REMOVE
- Tail Tie-Down : DISCONNECT
- Control Surfaces : CHECK freedom of movement and security

RIGHT WING TRAILING EDGE --

- Aileron and Flap : CHECK freedom of movement and security
- Fuel Tank Vent Opening : CHECK for stoppage

RIGHT WING --

- Wing Tie-Down : DISCONNECT
- Main Wheel Tire : CHECK for proper inflation
- Fuel Tank Sump Quick-Drain Valve : DRAIN into sample cup
- Fuel Quantity : CHECK VISUALLY for desired level
- Fuel Filler Cap : SECURE

NOSE --

- Right-Side Passenger Door : Securely closed
- Static Source Opening (both sides of fuselage) : CHECK for stoppage
- Strainer Drain Knob : DRAIN and CLOSED
- Engine Oil Level : CHECK, 6 quarts
- Propeller and Spinner : CHECK for nicks and security
- Carburetor Air Filter : CHECK for restrictions by dust or other foreign matter
- Alternator Belt : CHECK in place and proper tension
- Landing Light(s) : CHECK for condition and cleanliness
- Nose Wheel Strut and Tire : CHECK for proper inflation
- Nose Tie-Down : DISCONNECT

Takeoff Briefing

- Enroute/destination Weather : Discuss
- Departure ATIS/AWOS/ASOS : Obtain and review
- NOTAMS : Review
- Performance : Review T/O run, avail runway, obstacles on departure
- Weight & Balance : Review
- Departure Runway Condition : Review
- Winds : Review
- Vr : Rotate at 50 KIAS
- Vx : Initial climb at 65 KIAS
- Vy : Continue climb at 80 KIAS
- Departure route :
- RTO - stop or go : discuss stop/go criteria
- Fuel policy : discuss
- Roles : Review roles

-- The Operator's Guide to Human Factors in Aviation (OGHFA) is a project of the Flight Safety Foundation (FSF) European Advisory Committee, and was used as a reference in preparing this checklist.

Before Starting Engine

- Preflight Inspection : COMPLETE
- Seats, Belts, Shoulder Harness : ADJUST and LOCK
- Fuel Selector Valve : BOTH
- Avionics Power Switch, Autopilot, Electrical Equipment : OFF

CAUTION -- The avionics power switch must be OFF during engine start to prevent possible damage to avionics.

- Brakes : TEST and SET
- Cowl Flaps : OPEN
- Circuit Breakers : CHECK IN

Starting Engine

- Mixture : RICH
- Propeller : HIGH RPM
- Carburetor Heat : COLD
- Master Switch : ON
- Prime : AS REQUIRED (1 to 6 strokes; none if engine is warm)
- Throttle : OPEN 1/2 INCH
- Propeller Area : CLEAR
- Ignition Switch : START (release when engine starts)
- Oil Pressure and Temperature : CHECK
- Turn Coordinator : Check level and no flag
- Avionics Master : ON
- Directional gyro : set to magnetic compass heading
- Attitude Indicator : Check erect
- Altimeter : Set field elevation or altimeter setting
- Program Avionics : Enter flight plan, tune radios
- COM 2 Active (WX) : null
- COM 2 Standby (Ground) : null
- Copy ATIS : null
- COM 1 Active (Tower) : null
- COM 1 Standby (Approach) : null

During taxi

- Airspeed Indicator : ~0 allowing for taxi speed & wind speed & direction
- Attitude (AI) : Verify erect; instrument has no flag
- Altimeter : proper elevation
- Turn coordinator : correct direction of turn; ball moves toward outside of turn; no flags
- Directional gyro (DG) : accurate to direction of taxi
- Vertical speed indicator (VSI) : zero

Before Takeoff

- Brakes : SET AND HOLD
- Cabin Doors and Window(s) : CLOSED and LOCKED
- Flight Controls : FREE and CORRECT
- Stabilator and Rudder Trim : TAKEOFF
- Flaps : 10 deg
- Flight Instruments (Altimeter and DG) : Check SET
- Fuel Selector Valve : check BOTH
- Mixture : RICH (below 3000 feet)
- Auxiliary Fuel Pump : CHECK (then OFF
- Throttle : 1,800 RPM
- Propeller : CYCLE high to low twice, then HIGH
- Carburetor Heat : CHECK (for RPM drop)
- Magnetos : CHECK Variance 50 RPM Max drop 150 RPM
- Suction Gage : CHECK
- Throttle : IDLE, then 1,000 RPM
- Engine Instruments and Ammeter : CHECK
- Radios : SET
- Autopilot : OFF
- Beacon, Navigation Lights, Strobes, Landing lights : ON as required
- Throttle Friction Lock : ADJUST
- Brakes : RELEASE

Takeoff/cruise

Normal Takeoff

- Wing Flaps : 0-10 deg (10 deg preferred)
- Carburetor Heat : COLD
- Throttle : FULL
- Elevator Control : LIFT NOSE WHEEL (at 50 KIAS)
- Climb Speed : 65-75 KIAS (Vx=65, Vy=80)
- Wing Flaps : Retract

Climb

- Airspeed : 70-85 KIAS
- Prop RPM : 2,500 - 2,700 RPM
- Throttle : 24" Hg to full
- Mixture : RICH BLO 3000' ABV 3000' LEAN for max EGT - 50 deg F
- Cowl Flaps : OPEN as required

Cruise

- Power : 15-24" 2100-2700 RPM (Recommend <75%)
- Stabilator and Rudder Trim : ADJUST
- Mixture : LEAN
- Cowl Flaps : CLOSED

Landing

Instrument Approach

- COM2 active: ATIS/AWOS/ASOS : Weather Frequency
- COM2 standby: Ground control : Ground Frequency
- Copy WX : Open ATIS ScratchPad
- Altimeter setting : CHECK SET
- COM1 active: Approach : null
- COM1 standby:Tower/advisory : null
- Navigator PROC : Load or activate approach
- VHF (ILS/LOC/VOR) approach? : Tune navaid & ID, select CDI VLOC
- NAV1 CDI : Select VLOC or GPS?

Approach brief --

- Approach type : Brief
- Runway number : Brief
- LOC/VOR frequency : Check tuned and IDed
- Approach course : Brief
- Runway length : Brief
- Field elevation : Brief, calculate TPA
- Visualize flight path relative to approach :
- Glide path angle : Note- brief if not 3 deg
- MSA : Brief
- FAF : Brief name and altitude
- Select landing config point : 3-5 nm from FAF
- DH/MDA : Brief
- Controlling viz/RVR : Brief
- Height above ground at minimums : Brief
- Missed approach : Brief - check navaids tuned
- Exit and taxi plan : Brief

Descent

- Mixture : ADJUST for smooth operation (full rich for idle power)
- Power : AS DESIRED
- Carburetor Heat : AS REQUIRED (to prevent carburetor icing)
- Wing Flaps : AS DESIRED

Before Landing

- Seats, Belts, Harness : SECURE
- Fuel Selector Valve : BOTH
- Mixture : RICH
- Carburetor Heat : ON (apply full heat before closing throttle)
- Propeller : HIGH RPM
- Airspeed : 70-80 KIAS (Flaps UP)
- Wing Flaps : AS DESIRED (0-10 deg below 115 KIAS, 10-30 deg below 90 KIAS))
- Airspeed : 60-70 KIAS (Flaps DOWN)
- Stabilator and Rudder Trim : ADJUST

Normal Landing

- Touchdown : MAIN WHEELS FIRST
- Landing Roll : LOWER NOSE WHEEL GENTLY
- Braking : MINIMUM REQUIRED

After Landing

- Wing Flaps : UP
- Carburetor Heat : COLD
- Cowl Flaps : OPEN

Securing the Airplane

- Parking Brake : SET
- Avionics Power Switch, Electrical Equipment, Autopilot (if installed) : OFF
- Mixture : IDLE CUT-OFF (pulled full out)
- Ignition Switch : OFF
- Master Switch : OFF
- Control Lock : INSTALL
- Fuel Selector Valve : RIGHT

Missed Approach

- Throttle : Full
- Prop : 2,700 RPM
- Carb Heat : COLD
- Flaps : 20 deg
- Airspeed : 65 KIAS
- Flaps : Retract slowly
- Cowl Flaps : Open

Other

Short Field Takeoff

- Wing Flaps : 15Â°
- Carburetor Heat : COLD
- Brakes : APPLY
- Throttle : FULL OPEN
- Mixture : RICH (above 3000 feet, LEAN to obtain maximum RPM)
- Brakes : RELEASE
- Stabilator Control : LIFT NOSE WHEEL at 50 KIAS
- Climb Speed : 57 KIAS (until all obstacles are cleared)
- Wing Flaps : RETRACT slowly after obstacles are cleared

Short Field Landing

- Airspeed : 60-70 KIAS (flaps UP)
- Wing Flaps : FULL DOWN (30 degrees)
- Airspeed : 61 KIAS (until flare)
- Power : REDUCE to idle after clearing obstacle
- Touchdown : MAIN WHEELS FIRST
- Brakes : APPLY HEAVILY
- Wing Flaps : RETRACT

N19762 Notes

Weight and balance -- Basic Empty Weight 1,699.00 lbs Maximum Take-off- Weight 2,500 lbs Basic Empty Moment 177,497.00 Basic Empty CG 104.47" Front seat arm: 93" Rear seat arm: 134" Cargo arm: 162" Fuel: 50 gal. (two 25 gal. fuel bays in wing at sta. +112; 49 gal. usable=294 lbs)

Equipment -- Engine: Lycoming O-360-A1F6D flat-4 normally aspirated 180 hp (135 kW) Propeller: McCauley B2D34C211/82PCA-6 hydraulic constant speed pitch 12.1-26.0Â° @ 30" station

Performance -- Max: 136 knots (157 mph, 250 km/h) Cruise: 124 knots (143 mph, 230 km/h) Range: 604 nm (695 mi, 1,120 km) Service ceiling: 14,600 ft (4,450 m) Rate of climb: 840 ft/min (4.27m/s)

Physical -- Length: 27 ft 8 in (8.44 m) Wingspan: 35 ft 6 in (10.82 m) Height: 8 ft 7 in (2.62 m) Wing area: 174 ftÂ² (16.2 mÂ²)

Airspeeds -- Vso: 45 KIAS Vs1: 54 KIAS Vfe: 10Â°: 115 KIAS, 20Â°-30Â°: 90 KIAS Va: 102 KIAS @ max gross Vne: 167 KIAS

Abnormal Procedures

Balked Landing / Go-Around

- Throttle : FULL OPEN
- Carburetor Heat : COLD
- Wing Flaps : 20 degrees (immediately)
- Climb Speed : 65 KIAS
- Wing Flaps : RETRACT SLOWLY
- Cowl Flaps : OPEN

Inadvertent Icing Encounter

- Pitot Heat Switch : ON
- Change altitude : To leave icing conditions
- 180 degree turn : CONSIDER
- Cabin Heat : MAXIMUM
- Windshield Defrost : MAXIMUM
- Cabin Air Control : AS REQUIRED
- Throttle : INCREASE
- Carburetor Air Filter Ice : MONITOR for SIGNS
- Mixture : AS REQUIRED
- PLAN a LANDING at the NEAREST AIRPORT and/or suitable off airport landing site :
- Flaps : LEAVE RETRACTED
- Approach Speed : 75 to 85 KIAS
- Landing : perform in LEVEL ATTITUDE

NOTE -- Open the throttle to increase engine speed and minimize ice build-up on propeller blades. Watch for signs of carburetor air filter ice and apply carburetor heat as required. An unexpected loss in engine speed could be caused by carburetor ice or air intake filter ice. Lean the mixture for maximum RPM, if carburetor heat is used continuously. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable off airport landing site. With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for significantly higher stall speed.Leave wing flaps retracted. With a severe ice build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in a loss of stabilator effectiveness. Perform a landing approach using a forward slip, if necessary, for improved visibility.Approach at 75 to 85 KIAS depending upon the amount of ice accumulation. Perform a landing in a level attitude.

Landing with a Flat Tire (Main)

- Approach : NORMAL
- TOUCHDOWN : GOOD TIRE FIRST, hold airplane off flat tire as long as possible

Emergency Procedures

Engine Failure During Takeoff Run

- Throttle : IDLE
- Brakes : APPLY
- Wing Flaps : RETRACT
- Mixture : IDLE CUT-OFF
- Ignition Switch : OFF
- Master Switch : OFF

Engine Failure On Takeoff (Low Altitude)

- Airspeed : 70 KIAS
- Mixture : IDLE CUT-OFF
- Fuel Shutoff Valve : OFF
- Ignition Switch : OFF
- Wing Flaps : AS REQUIRED
- Master Switch : OFF

Engine Failure In Flight

- Airspeed : 75 KIAS
- Carburetor Heat : ON
- Fuel Selector Valve : BOTH
- Mixture : RICH
- Primer : IN and LOCKED
- Auxiliary Fuel Pump : on 3-5 seconds with throttle open 1/2" then OFF
- Ignition Switch : BOTH (or START if propeller is stopped)

Emergency Landing Without Engine Power

- Airspeed : 75 KIAS (flaps UP) 65 KIAS (flaps down)
- Mixture : IDLE CUT-OFF
- Fuel Shutoff Valve : OFF (pull sharply to break safety wire)
- Ignition Switch : OFF
- Wing Flaps : AS REQUIRED (30 degrees recommended)
- Master Switch : OFF
- Doors : UNLATCH PRIOR TO TOUCHDOWN
- Touchdown : SLIGHTLY TAIL LOW
- Brakes : APPLY HEAVILY

Precautionary Landing With Engine Power

- Wing Flaps : 15 degrees
- Airspeed : 65 KIAS
- Selected Field : FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
- Avionics Power Switch and Electrical Switches : OFF
- Wing Flaps : 30 degrees (on final approach)
- Airspeed : 66 KIAS
- Master Switch : OFF
- Doors : UNLATCHED PRIOR TO TOUCHDOWN
- Touchdown : SLIGHTLY TAIL LOW
- Ignition Switch : OFF
- Brakes : APPLY HEAVILY

Ditching

- Radio : TRANSMIT MAYDAY on 121.5MHz giving location and intentions
- Heavy Objects (in baggage area) : SECURE or JETTISON
- Approach : High Winds, Heavy Seas -- INTO THE WIND Light Winds, Heavy Swells--PARALLEL TO SWELLS
- Wing Flaps : 30 degrees
- Power : ESTABLISH 300FT/MIN DESCENT AT 55 KIAS

  NOTE -- If no power is available, approach at 65 KIAS with flaps up or at 60 KIAS with 10 degree flaps

- Cabin Doors : UNLATCH
- Touchdown : LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
- Face : CUSHION at touchdown with folded coat
- Airplane : EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so cabin doors can be opened.
- Life Vests and Raft : INFLATE

Engine Fire During Start

- Cranking : CONTINUE, to get a start which would suck the flames and accumulated fuel through the carburetor and into engine

  -- If engine starts:

- Power : 1800 RPM for a few minutes
- Engine : SHUTDOWN and inspect for damage

  -- If engine fails to start:

- Throttle : FULL OPEN
- Mixture : IDLE CUT-OFF
- Cranking : CONTINUE
- Fire Extinguisher : OBTAIN (have ground attendants obtain if not installed)
- Engine : SECURE
- Master Switch : OFF
- Ignition Switch : OFF
- Fuel Selector Valve : OFF
- Fire : EXTINGUISH using fire extinguisher, wool blanket, or dirt
- Fire Damage : INSPECT, repair damage or replace damaged components or wiring before conducting another flight

Engine Fire In Flight

- Mixture : IDLE CUT-OFF
- Fuel Shutoff Valve : OFF (pull sharply to break safety wire)
- Master Switch : OFF
- Cabin Heat and Air : OFF (except overhead vents)
- Airspeed : 105 KIAS (if fire is not extinguished, increase glide speed to find an airspeed which will provide an incombustible mixture)
- Forced Landing : EXECUTE (as described in Emergency Landing Without Engine Power)

Electrical Fire In Flight

- Master Switch : OFF
- Avionics Power Switch : OFF
- All Other Switches (except ignition switch) : OFF
- Vents/Cabin Air/Heat : CLOSED
- Fire Extinguisher : ACTIVATE (if available)

WARNING -- After discharging an extinguisher within a closed cabin. Ventilate the cabin.

-- If fire appears out and electrical power is necessary for continuance of flight:

- Master Switch : ON
- Circuit Breakers : CHECK for faulty circuit, do not reset
- Radio Switches : OFF
- Avionics Power Switch : ON
- Radio/Electrical Switches : ON one at a time until short circuit is localized
- Vents/Cabin Air/Heat : OPEN when it is ascertained that fire is extinguished

Cabin Fire In Flight

- Master Switch : OFF
- Vents/Cabin Air/Heat : CLOSED (to avoid drafts)
- Fire Extinguisher : ACTIVATE (if available)
- Flight : Land the airplane as soon as possible to inspect for damage

WARNING -- After discharging an extinguisher within a closed cabin, ventilate the cabin

Wing Fire In Flight

- Navigation Light Switch : OFF
- Pitot Heat Switch (if installed) : OFF
- Strobe Light Switch (if installed) : OFF

NOTE -- Perform a sideslip to keep the flames away from the fuel tank and cabin, and land as soon as possible using flaps only as required for final approach and touchdown.

Static Source Blockage (Erroneous Instrument Reading Suspected)

- Alternate Static Source Valve : PULL ON
- Vent windows : CLOSED
- Airspeed : Consult appropriate calibration tables

Electrical Power Supply System Malfunctions Over-Voltage Light Illuminates

- Avionics Power Switch : OFF
- Master Switch : OFF (both sides)
- Master Switch : ON
- Over-voltage Light : OFF
- Avionics Power Switch : ON

-- If over-voltage light illuminates again:

- Flight : TERMINATE as soon as possible

Ammeter Shows Discharge

- Alternator : OFF
- Nonessential Radio/Electrical Equipment : OFF
- Flight : TERMINATE as soon as possible