

Flight Planning

- Weather
 - VFR minimums: visibility 3nm, ceiling 1000 ft. Personal minimums: visibility 5nm, ceiling 2000 ft.
 - Winds: 20 kts max, crosswind 10 kts max
 - No icing conditions.
 - Winds aloft
- Navlog
 - Waypoints every 10-20 nm.
 - Pilotage
 - Leg times, distances and headings noted
 - Airspace considerations
- Dep/Arr airport information
 - Field elevation
 - TPA
 - Runways, surface, length, obstacles, pattern direction
 - Service: mechanic, fuel
 - Remarks
 - Radio: weather, CTAF, GND/TOWER/Etc.
 - Airspace
 - Radio aids
- Fuel calculation: climb, cruise, reserve, contingency
 - Climb
 - Cruise
 - Reserve
 - Contingency
- Weight and balance
 - Empty
 - Fuel
 - Passengers
 - Baggage
 - Start time
 - TO weight
 - Moment and weight within limits
- Expected runways
 - Headwind
 - Crosswind
 - Required length, personal minimum 50% extra

PREFLIGHT

Preflight cabin reset

- Covers (engine, pitot tube)
- Manual, checklists, charts and other documents
- Parking brake
- Magneto's and starter key
When magnetos are on, any rotation of the propellor can ignite fuel
- Alternator & battery master switches
- Fuel pump / lights / pitot heat switches
- Avionics master switches
- Throttle & mixture
- Alt static air source
Off uses outside air pressure, On uses cabin air pressure but is less accurate
- Trim
- Fuel shutoff
- Fuel tank selector
- Flaps lever

REMOVE
ON BOARD
SET
OFF

OFF
OFF / BEACON ON
OFF
IDLE & CUTOFF
OFF

TAKEOFF
ON
BOTH
IN FLAPS POSITION

Preflight interior inspection

- Flight controls
- Battery master switch
- Lights & pitot heat
- Lights & pitot heat
- Flaps
Verify flaps both move correctly every 10°
- Avionics master switches
- Avionics equipment
Verify all equipment starts ok
- Transponder
When testing verify respond symbol shows
- Avionics master switches
- Annunciator panel
- Fuel quantity indicators
- Battery

FREE AND CORRECT
ON
ON / VERIFY WORKING
OFF
DOWN

ON
ON

TEST - STANDBY

OFF
TEST / VERIFY NORMAL
NOTE
OFF

External inspection

- Cabin
 - Baggage compartment
- Tail
 - Elevator
 - Rudder
 - Tiedown

CLOSED AND LOCKED

FREE AND CORRECT
FREE AND CORRECT
REMOVE

○ Trim tab <i>Trim tab should be flush with the elevator when set for takeoff</i>	VERIFY POSITION
○ ELT antenna	CHECK INTEGRITY
● Right wing	
○ Flap	SECURE DOWN
○ Aileron	FREE AND CORRECT
○ Tiedown	REMOVE
○ Fuel <i>Determine if refueling is required</i>	QUANTITY AND QUALITY
○ Com antennas	CHECK INTEGRITY
○ Wheel chocks	REMOVE
○ Tire	CHECK INTEGRITY
● Nose	
○ Oil	QUANTITY AND QUALITY
○ Propellor and spinner	CHECK INTEGRITY
○ Air inlets <i>Blockage reduces engine cooling</i>	CLEAR
○ Exhaust pipe	CHECK INTEGRITY
○ Air filter <i>Blockage reduced engine performance</i>	CLEAR
○ Nose gear	EXTENDED
○ Nose tire	CHECK INTEGRITY
● Left wing	
○ Fuel <i>Determine if refueling is required</i>	QUANTITY AND QUALITY
○ Pitot tube <i>Blockage gives false instrument airspeed readings</i>	CLEAR
○ Stall warning	CLEAR
○ Landing / taxi lights	CHECK INTEGRITY
○ Tiedown	REMOVE
○ Aileron	FREE AND CORRECT
○ Flap	SECURE DOWN
○ Wheel chocks	REMOVE
○ Tire	CHECK INTEGRITY

ENGINE START

Before engine start

- Passengers / baggage
Setup weight and balance in the sim
- Passenger briefing
 - Seatbelts
 - Loose items
 - Fire extinguisher
 - First aid kit
 - ELT
 - Other equipment
 - Feeling nausea
 - Exits
 - Emergencies
 - Sterile cockpit
 - No smoking
 - Phone in airplane mode
 - Questions
- Pilot briefing
 - Weather
 - Expected RW and Taxi route
 - RW length and length required
 - Departure
 - Enroute
 - Arrival
 - Arrival RW and length required

ON BOARD

Before start checklist

- Preflight
- Passenger & pilot briefing
- Doors
- Circuit breakers
- Beacon light
- Avionics master switches
Starting with avionics powered risks damage to the avionics equipment
- Fuel selector valve
- Fuel shutoff valve
- Parking brake

COMPLETED

COMPLETED

CLOSED AND LOCKED

IN

ON

OFF

BOTH

ON

SET

Priming is required for a cold engine, and engine is "hot" when it has been running in the last +- 20 minutes.

Engine start with priming

- Battery ON
 - Priming
 - Throttle 1cm / ¼ inch
 - Mixture CUTOFF
 - Fuel pump ON
 - Mixture RICH
 - Fuel flow MONITOR UNTIL PEAK
 - Mixture to cutoff when the fuel flow stops rising*
 - Mixture CUTOFF
 - Fuel pump OFF
 - Start
 - Propellor area CLEAR
 - Magnetos / starter START
- If expected flooded start, use flooded start procedure.*

Engine start without priming

- Battery ON
 - Throttle 1cm / ¼ inch
 - Mixture CUTOFF
 - Propellor area CLEAR
 - Magnetos / starter START
 - Mixture ADVANCE SLOWLY TO RICH
- If engine doesn't start, use priming procedure.*
If expected flooded start, use flooded start procedure.

Flooded engine start

- Battery ON
- Throttle FULL
- Mixture CUTOFF
- Propellor area CLEAR
- Magnetos / starter HOLD START
- As soon as the engine starts: throttle to idle*
- Throttle IDLE
- Magnetos / starter BOTH
- Mixture RICH

When engine starts

- Magnetos / starter BOTH
 - Throttle 1000 RPM
 - Oil pressure GREEN WITHIN 30 SECONDS
- Running the engine above 1400 RPM with cold oil temperature risks exceeding high oil pressure*

- Alternator
- Ammeter
- Mixture
 - Throttle
 - Mixture
 - Throttle

Leaning is required as there is not enough oxygen entering the engine whenever not flying

- Flaps
- Cabin lights & air

ON
 VERIFY CHARGING
 LEAN
 1200 RPM
 LEAN FOR PEAK EGT
 1000 RPM

UP
 AS REQUIRED

After start checklist

- Throttle
- Mixture
- Oil pressure
- Alternator
- Flaps
- Annunciator panel

1000 RPM
 LEAN
 GREEN
 ON / CHARGING
 UP
 EXTINGUISHED

TAXI

Before taxi

- Magnetos
Verify engine still running on each magneto
- Avionics master
- Transponder
- Nav radios
- Nav CDI
- Com 1
- Com 2
- Clock
- Weather
- Altimeter
- Heading indicator
- Flight instruments

- Oil temperature
*Only taxi when oil temperature > 75 F.
If still cold, run engine at <= 1400 RPM to heat up.*
- Airport diagram
- Taxi clearance
- Transponder
- Taxi light
- Nav light

CHECK L & R

ON
 1200 & STBY
 SET FREQUENCY
 SET OBS
 SET COMMS FREQUENCIES
 SET WEATHER FREQS
 SHOW TEMP AND Z TIME
 OBTAIN
 SET & VERIFY FIELD ELEV
 VERIFY COMPASS & SET RW
 CHECK CORRECT

> 75 F

STUDY
 OBTAIN
 SET SQUAWK & ALT
 AS REQUIRED
 AS REQUIRED

Taxi and nav lights are only required at night and in IMC. Usage is always ok for extra visibility

Taxi

- Parking brakes
- Toe brakes
- Speed
- Flight controls

Climb into the wind, dive away from the wind

RELEASED
TEST
LOW AROUND STRUCTURES
CROSSWIND CORRECTION

- During turns
 - Compass and heading indicator
 - Attitude indicator
 - Turn and slip indicator
 - Navigation instruments

MOVING CORRECTLY
STABLE
MOVING CORRECTLY
TRACKING

BEFORE TAKEOFF

Engine runup

- Position
- Parking brake
- Taxi light
- Flight controls
- Radios
- Oil pressure & temp

If still cold, run engine at ≤ 1400 RPM to heat up.

- Mixture
- Throttle
- Magnetos

Each magneto should not drop more than 150 RPM.

The difference between the two should be less than 50 RPM.

- Magnetos
- Engine instruments

Oil temp, oil pressure, vacuum and fuel flow should be green.

Ammeter should be ≥ 0 . Test correcting with landing light.

Check fuel quantity for abnormal levels.

- Annunciator panel
- Throttle
- RPM
- Engine instruments

Oil temp, oil pressure and fuel flow should be green.

Ammeter and vacuum can drop a bit.

- Flight instruments
- Throttle

INTO WIND, BEHIND RW
SET
OFF
FREE AND CORRECT
SET
GREEN

RICH
1800 RPM
CHECK

BOTH
CHECK

EXTINGUISHED
Idle
VERIFY > 500
CHECK

CORRECT
1000 RPM

Hold short

- Mixture LEAN IF NO IMMEDIATE T/O
- Flaps SET FOR T/O
- Normal T/O: 0. Short / soft field T/O: 10*
- Position SHORT OF RW
- Departure briefing
 - Runway number / runway length and required length
 - Takeoff procedure (normal, short, soft, obstacles, etc)
 - Emergencies (engine loss before T/O, loss before 1000 ft AGL, loss above 1000 ft AGL)
 - Departure instructions / procedure

Before takeoff checklist

- Runup COMPLETED
- Flight & engine instruments CHECKED
- Flight controls CHECKED
- Trim SET FOR T/O
- Mixture SET FOR T/O
- Rich if < 3000 ft MSL. Lean if > 3000 ft MSL*
- Flaps SET FOR T/O
- Normal T/O: 0. Short / soft field T/O: 10*
- Fuel CHECKED
- Departure briefing COMPLETED

TAKEOFF

Line up

- Transponder CHECK SQUAWK & ALT
- Pitot heat AS REQUIRED
- Only on if temp < 10°C AND in visible moisture*
- Wind CHECK
- Runway & final. CLEAR
- Landing & strobe lights ON
- Line up COMPLETED
- Runway heading VERIFY

Normal takeoff

- Clock START
- Crosswind correction APPLY
- Turn into Xwind. Release as airspeed increases*
- Throttle INCREASE TO FULL
- Engine instruments VERIFY NORMAL
- Oil pressure, oil temperature and vacuum green.*
- Ammeter ≥ 0 . Fuel flow normal above green.*
- Check fuel quantity for abnormal levels.*
- At Vr (55 kts) ROTATE SLOWLY
- Fly in ground effect until at 75 kts*

- At Vy (75 kts)
- Trim
- Toe brakes
- At 300 ft AGL and speed > 60 kts
- At 500 ft AGL and speed > 60 kts
- Engine instruments
- At 1000 ft AGL and obstacles cleared
*Stay at 75 kts is vertical speed is a requirement.
 85 kts cools the engine better.*

PITCH TO MAINTAIN 75 kts
 AS REQUIRED
 APPLY TO STOP SPIN
 FLAPS UP
 TURN TO HEADING
 CHECK
 ADVANCE TO 85 kts

After takeoff checklist

- Mixture SET
Rich if < 3000 ft MSL. Lean if > 3000 ft MSL
- Power, airspeed & trim SET
- Flaps UP
- Engine instruments CHECKED

CLIMB

Climb checklist (skip redundant items if just after takeoff)

- Fuel CHECK
- Engine instruments CHECK
85 kts if oil temp high
- Mixture SET
Rich if < 3000 ft MSL. Lean if > 3000 ft MSL
- Power, airspeed & trim SET
- Pitot heat AS REQUIRED
Only on if temp < 10°C AND in visible moisture

- Annunciator panel EXTINGUISHED
- Navlog CHECK
- Clock CHECK
- Heading CHECK AND ALIGNED
- Weather RECEIVED
- Altitude CHECKED, QNH SET

CRUISE

Cruise checklist (Repeat every 10 mins and at waypoints)

- Landing light OFF
- Fuel CHECK
- Engine instruments CHECK
- Mixture SET
Rich if < 3000 ft MSL. Lean if > 3000 ft MSL
- Power, airspeed & trim SET
- Pitot heat AS REQUIRED
Only on if temp < 10°C AND in visible moisture
- Annunciator panel EXTINGUISHED
- Navlog CHECK
- Clock CHECK
- Heading CHECK AND ALIGNED
- Weather RECEIVED
- Altitude CHECK, QNH SET

DESCENT

Before descent

- Fuel CHECK
- Engine instruments CHECK
- Mixture SET
Rich if < 3000 ft MSL. Lean if > 3000 ft MSL
- Power, airspeed & trim SET
- Pitot heat AS REQUIRED
Only on if temp < 10°C AND in visible moisture
- Annunciator panel EXTINGUISHED
- Heading CHECK AND ALIGNED
- Weather RECEIVED
- Altitude CHECK, QNH SET

- Approach briefing
 - Airport
 - Field elevation
 - Expected RW, length and length required
 - Approach procedure (pattern, instrument, etc)
 - Landing procedure (normal, short, soft, obstacles, etc)
 - TPA
 - Frequencies
 - Expected taxi route

During descent

- Landing light ON

- Power, airspeed and trim AS REQUIRED
- Mixture SET
Rich if < 3000 ft MSL. Lean if > 3000 ft MSL

Approach

Before entering approach

- Landing light ON
 - Mixture SET
Rich if < 3000 ft MSL. Lean if > 3000 ft MSL
 - Power, airspeed and trim AS REQUIRED
 - Flaps AS REQUIRED
Flaps 10 max speed: 110 kts. Flaps 20/30 max speed: 85 kts
 - Engine instruments CHECK
 - Pitot heat AS REQUIRED
Only on if temp < 10°C AND in visible moisture
- On final**
- Mixture SET
Rich if < 3000 ft MSL. Lean if > 3000 ft MSL
 - Heading VERIFY RW HEADING
 - Parking brake RELEASED

AFTER LANDING

- Flaps UP
 - Crosswind correction APPLY
Turn into Xwind
 - Vacate runway BEHIND LINE
 - Landing & strobe lights OFF
 - Taxi light AS REQUIRED
 - Pitot heat OFF
 - Mixture LEAN
 - Airport diagram STUDY
 - Taxi clearance OBTAIN
- Taxi**
- Speed LOW AROUND STRUCTURES
 - Flight controls CROSSWIND CORRECTION
Climb into the wind, dive away from the wind

SHUTDOWN

- Parking brake SET
- Transponder 1200 & OFF
- Avionics equipment OFF
- Avionics master switches OFF
- Make sure avionics masters are off before shutting down the engine*
- Mixture CUTOFF
- Magnetos OFF WHEN PROP STOPS
- Battery & alternator OFF
- External lights OFF EXCEPT BEACON
- Cabin lights & air OFF
- Trim SET FOR T/O
- Fuel tank selector L OR R
- Prevents crossfeeding*
- Passengers & baggage DEBOARD
- Tow plane AS REQUIRED
- Covers, chocks and tiedowns INSTALLED
- Parking brake RELEASED