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Remember: FAR Part 91 §91.3 (a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

Pre-Takeoff

1. Trim – TAKEOFF
2. Flaps – 0° - 10°
3. Mixture – RICH
(above 3000ft lean for MAX RPM)
4. Carb Heat – COLD
5. Transponder – ALT
6. Lights – ALL ON
7. Record Time

Normal Takeoff

1. Throttle – FULL IN
2. Rotate – 50 KIAS
3. Airspeed – 73 KIAS

Enroute Climb

1. Airspeed – 70 - 78 KIAS
2. Throttle – FULL
3. Carb Heat – COLD
4. Mixture

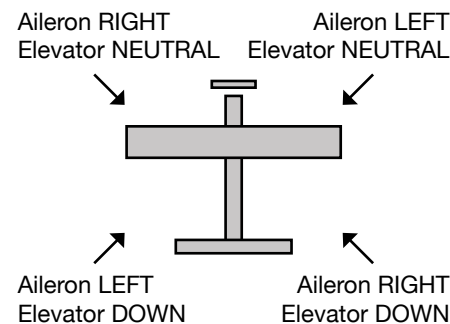
| | |
|------------|-----------------|
| < 3000 ft | RICH |
| >= 3000 ft | LEAN TO MAX RPM |

Cruise

1. Power – LESS THAN 75%

| Alt | -20°C | ISA | +20°C |
|------|-------|------|-------|
| 3000 | 2450 | 2525 | 2525 |
| 3500 | 2475 | 2550 | 2550 |
| 5500 | 2500 | 2600 | 2600 |
| 7500 | 2575 | 2650 | 2650 |
2. Elevator Trim – SET
3. Heading Indicator – CALIBRATED
4. Lights – AS NEEDED
5. Time – RECORD
6. Carb Heat – COLD (or AS NEEDED)
7. Mixture – MAX CYL TEMP minus 50

Crosswind Taxi



Before Descent

1. Altimeter – SET
2. Fuel Selector Valve – BOTH
3. Runway and Taxi Diagram – READY
4. Lights – ALL ON
5. Seat Backs – UPRIGHT
6. Belts, Harnesses – SECURE

Descent

1. Carb Heat – HEAT
2. Power – AS DESIRED
3. Mixture – SMOOTH (idle = full rich)

Before Landing

1. Autopilot – OFF
2. Fuel Selector Valve – BOTH
3. Mixture – RICH
4. Carb Heat – HEAT

Normal Landing

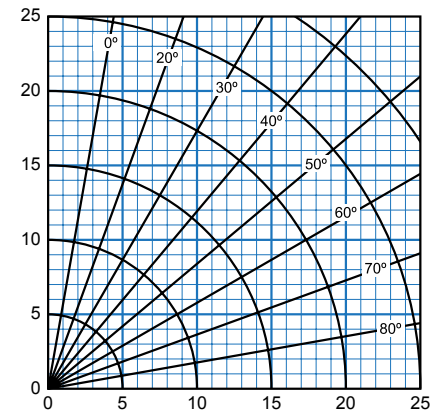
1. Flaps – DOWN 30°-40°
2. Airspeed – 65 KIAS on short final

Flaps Up Landing

1. Airspeed – 70 KIAS on short final

Go Around

1. Power – FULL
2. Carb Heat – COLD
3. Flaps – 20°
4. Airspeed – 55 KIAS
5. Flaps – 10° until obstacles cleared
6. Airspeed – 75 KIAS
7. Flaps – UP



Before Starting Engine

1. Preflight Inspection – COMPLETE
2. IMSAFE
3. Weight & Balance – CHECK
4. Fuel Required – CHECK
5. Weather – CHECK
6. Departure Procedure – PLANNED
7. Route – PLANNED
8. Charts – AVAILABLE
9. Destination Airports – RWY & FREQ
10. Passenger Briefing
 - a. No smoking
 - b. Seatbelt
 - c. Fire extinguisher
 - d. Exits – door, windows, baggage
 - e. Don't touch the controls including pedals
 - f. Distractions during taxi, takeoff & landing
 - g. Exchange of controls
 - h. Help me look for traffic
 - i. Connect your headset
 - j. Air Vents
11. Headsets – CONNECTED
12. Seats, Belts, Shoulder Belt – ADJUST
13. Fuel Selector Valve – BOTH
14. Avionics Power – OFF
15. Circuit Breakers – CHECK IN
16. Brakes – HOLD

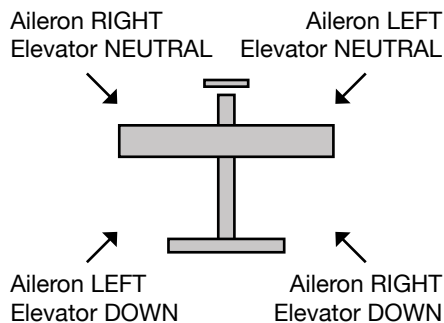
Starting Engine

1. Mixture – RICH
2. Carburetor Heat – COLD
3. Master Power – ON
4. Beacon – ON
5. Prime – AS NEEDED (0 - 6 STROKES)
6. Throttle – OPEN 1/8 INCH
7. Brakes – HOLD
8. Propeller Area – CLEAR, SHOUT
9. Start
 - a. Ignition Switch – START
 - b. Throttle – 1000 RPM
10. Oil Pressure – CHECK GREEN
11. Avionics Power Switch – ON
12. Headsets – ON
13. Transponder – 1200 VFR, STANDBY
14. Lights – AS REQUIRED
15. Flaps – UP
16. Mixture – LEAN
17. Turn Coordinator & Attitude Indicator – WAIT FOR NO FLAG
18. Autopilot Self Check – PASS
19. Parking Brake – OFF
20. Current Time – RECORD

Fire During Start

1. Ignition Switch – CONTINUE CRANKING so it sucks the fire into the engine.
2. If engine starts
 - a. Power – 1800 RPM
 - b. Wait – for a few minutes
 - c. Mixture – IDLE CUT OFF
3. If engine fails to start
 - a. Throttle – FULL POWER FORWARD
 - b. Mixture – IDLE CUT OFF
 - c. Cranking – CONTINUE
 - d. Fuel Shutoff Valve – PULL OUT
 - e. Aux Fuel Pump Switch – OFF
 - f. Fire Extinguisher – ACTIVATE
 - g. Master Switch – OFF
 - h. Ignition Switch – OFF
4. EVACUATE & EXTINGUISH fire

Crosswind Taxi



Fuel

Left Wing Sump Ports – CLEAN, 100LL
Nose Sump Ports or Drain – CLEAN, 100LL
Right Wing Sump Ports – CLEAN, 100LL

Right Wing Tank

Test Fuel – RETURN TO TANK
Fuel Level – CHECK
Fuel Filler Cap – SECURE

Left Wing Tank

Fuel Level – CHECK
Fuel Filler Cap – SECURE

Tires

Roll forward & back – TIRES INFLATED & UNDEMANAGED

Cabin – After

Baggage Compartment – CONTENTS SECURE
Baggage Door – CLOSED AND LOCKED

After Shutdown

Tie Downs – INSTALLED
Avionics Switch – OFF
Master Switch – OFF
Ignition Switch – OFF
Fuel Selector – LEFT
Control Lock – INSTALLED
Pitot Cover – INSTALLED
Passenger Door – LATCHED
Log Book – HOBBS & TACH

Speeds

| | | |
|---------------------------|-----|------|
| Rotation | 50 | KIAS |
| Vy – Best Rate of Climb | | |
| Sea Level | 73 | KIAS |
| 10,000 | 68 | KIAS |
| Vx – Best Angle of Climb | | |
| Sea Level | 59 | KIAS |
| 10,000 | 61 | KIAS |
| Va – Maneuvering Speed | | |
| 2300 lbs | 97 | KIAS |
| 1950 lbs | 89 | KIAS |
| 1600 lbs | 80 | KIAS |
| Vglide – Best Glide Speed | 68 | KIAS |
| Final Approach Speed | | |
| Flaps 0° | 70 | KIAS |
| Flaps 10°-40° | 65 | KIAS |
| Short Field (flaps 30°) | 61 | KIAS |
| Max Flaps Extended Speed | | |
| 0° – 10° | 110 | KIAS |
| 10° – 40° | 85 | KIAS |

Aborted Takeoff

1. Throttle – IDLE
2. Brakes – APPLY
3. Flaps – RETRACT for improved braking
4. Mixture – IDLE CUTOFF if necessary

Engine Failure After Takeoff

Pitch for Landing speed

1. Airspeed – 65 KIAS (flaps UP)
60 KIAS (flaps DOWN)
2. Flaps – AS REQUIRED

Before Landing

1. Mixture – IDLE CUT OFF
2. Fuel Selector – OFF
3. Ignition Switch – OFF
4. Master Switch – OFF
5. Cabin Door – UNLATCH

Run up

1. Radios – SET to TOWER / CTAF
2. Brakes – SET
3. Seat Backs – UPRIGHT
4. Seats & Seat Belts – CHECK SECURE
5. Doors & Windows – CLOSED & LOCKED
6. Flight Controls – FREE & CORRECT
 - a. Aileron
 - b. Elevator
 - c. Rudder
7. Flight Instruments - SET
 - a. Horizon – CALIBRATE
 - b. Heading & Compass – CALIBRATE
 - c. Altimeter – VERIFY
 - d. Turn Coordinator – NO FLAG
 - e. Attitude Indicator – NO FLAG
8. Autopilot Check
 - a. Autopilot AP Button – ENGAGE
 - b. Flight Controls – OVERPOWER AP
 - c. AP Disconnect – OPERATIONAL
 - d. Autopilot – OFF
9. Fuel Selector Valve – RECHECK BOTH
10. Fuel Quantity - CHECK
11. Elevator Trim – TAKEOFF
12. Engine Check
 - a. Mixture – RICH (below 3000ft)
 - b. Throttle – 1800 RPM
 - c. Magnetos – DROP < 125 RPM on either or 50 RPM difference
 - d. Oil Temperature - GREEN
 - e. Oil Pressure – GREEN
 - f. Vacuum Gauge – GREEN
 - g. Ammeter – CHECK (no discharge w/ load)
 - h. Annunciator Panel – NO WARNINGS
 - i. Carburetor Heat – RPM DROP
 - j. Throttle IDLE – ENGINE SMOOTH
 - k. Throttle – 1000 RPM
13. Throttle Friction Lock – ADJUST
14. Air Conditioner (if installed) – OFF
15. Parking Brake – CHECK RELEASED
16. Flaps – SET FOR TAKEOFF (0° normal, 10° short field)
17. Squawk Code – SET
18. Flight Plan – SET
19. Nav / GPS Switch – SET
20. Autopilot (if installed) – OFF
21. Review Takeoff Procedures
22. Review Departure Procedure
23. Lights – AS REQUIRED
24. Current Time - RECORD



Engine Failure During Flight

Pitch for Best Glide

1. Airspeed – 70 KIAS
2. Look for Landing Site

Fuel / Engine Controls

3. **Shutoff** Valve – PUSH IN (fuel on)
4. **Selector** Valve – BOTH
5. **Mixture** – RICH (if necessary)
6. **Throttle** – CHECK
7. **Carb** Heat – ON
8. **Master** Switch – ON
9. **Magneto** Switch – BOTH
10. **Primer** – IN and LOCKED

Restart Engine

11. Aux Fuel Pump Switch – ON
12. Propeller not windmilling
 - a. Throttle – IDLE
 - b. Ignition Switch – START
 - c. Throttle – ADVANCE

If Engine Restarts

- Aux Fuel Pump Switch – OFF
(If fuel flow goes to 0, turn Aux Fuel Pump back ON)

If Engine Doesn't Restart

13. Mixture – IDLE CUT OFF
14. Fuel Selector Valve – OFF
15. Ignition Switch – OFF
16. Master Switch – ON (for avionics)

Perform Landing or Ditching Checklist

Excessive Fuel Vapor

Fuel flow fluctuations of 1 GPH or more, or power surges.

Stabilize Fuel Flow

1. Fuel Pump Switch – ON
2. Mixture – ADJUST for SMOOTH operation
3. Fuel Selector Valve – SELECT OPPOSITE TANK (if problems continue)
4. Fuel Pump Switch – OFF (after fuel flow has stabilized)



Engine Fire in Flight

Put out Fire

1. Mixture – IDLE CUT OFF
2. Fuel Selector Valve – OFF
3. Ignition Switch – OFF
4. Aux Fuel Pump Switch – OFF
5. Master Switch – OFF
6. Cabin Heat and Air – OFF (overhead vents ok)
7. Airspeed – 100 KIAS
(increase speed to starve flames within Vno=129 and Vne=163, watch altitude)

Perform Landing or Ditching Checklist

Electrical Fire in Flight

Put out Fire

1. Master Switch – OFF
2. Vent, Cabin Air, Heat – CLOSED
3. Fire Extinguisher – ACTIVATE
4. Avionics Switch – OFF
5. All Switches except ignition – OFF

After Fire is Out

6. Vents / Cabin Air / Windows – OPEN
- If necessary, restart electronics slowly**
7. Circuit Breakers – CHECK but do not reset
 8. Radio Switches – OFF
 9. Master Switch – ON
 10. Avionics Master Switch – ON
 11. Radio / Electrical Switches – ONE AT A TIME, prepared for fire to restart

Cabin Fire

Put out Fire

1. Master Switch – OFF
2. Vents / Cabin Air / Heat – OFF to avoid drafts
3. Fire Extinguisher – ACTIVATE

After Fire is Out

4. Vents / Cabin Air / Windows – OPEN
5. Land safely as soon as possible

Wing Fire

1. Switches: Landing, Taxi, Nav, Strobe, Pitot Heat – OFF
2. Perform SIDESLIP to keep flames away from tank and cabin.
3. Land using flaps only as required

Empennage

Rudder Gust Lock – REMOVE

Tail Tie-Down – DISCONNECT

Rudder – CHECK FOR FREEDOM OF MOVEMENT

Elevator – CHECK FOR FREEDOM OF MOVEMENT

Elevator Trim Tab – CHECK FOR SECURITY

Antennas – SECURE

Right Wing Trailing Edge

Flaps – SECURE, NO DAMAGE

Aileron – FREEDOM OF MOVEMENT, YOKE TURNS TOO, NO DAMAGE

Aileron – CONTROL ROD NOT BOUND

Aileron – HINGES AND BOLTS SECURE

Right Wing

Wing Leading Edge – NO DAMAGE

Wing Tip – NO DAMAGE

Tie Down – DISCONNECT

Nose

Engine Oil Level – 5-8 QTS (8 for long flight)

Air Filter – CLEAN

Engine Cooling Air Inlets – CLEAR

Nose Wheel Strut – 4 FINGERS

Nose Tie Down – DISCONNECT

Spinner – SOLIDLY ATTACHED

Propeller – SOLIDLY, NO NICKS / CRACKS

Static Pressure Source – CLEAR

Left Wing

Wing Leading Edge – NO DAMAGE

Wing Tip – NO DAMAGE

Tie Down – DISCONNECT

Pitot Tube – CLEAR

Fuel Tank Vent – CLEAR

Stall Warning Opening – CHECK

Left Wing Trailing Edge

Flaps – SECURE, NO DAMAGE

Aileron – FREEDOM OF MOVEMENT, YOKE TURNS TOO, NO DAMAGE

Aileron – CONTROL ROD NOT BOUND

Aileron – HINGES AND BOLTS SECURE

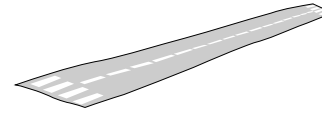
Preflight Checklist

Cabin

- Pitot Tube Cover - REMOVE
- Hobbs - RECORD TIME
- Pilot's Operating Handbook - PRESENT
- Registration & Airworthiness Certificates - CURRENT & PRESENT
- Control Wheel Lock - REMOVE
- Static Pressure Alternate Source - OFF
- Fire Extinguisher – CHARGED
- Ignition Switch – OFF
- Avionics Power Switch - OFF
- Master Switch – ON
- Avionics Switch – ON
- Avionics Cooling Fan – AUDIBLE
- Avionics Switch – OFF
- Flaps – DOWN
- Annunciators - OPERATIONAL
- Fuel Quantity Indicators - CHECK LEVEL

Lights & Pitot Heat

- Switches for Beacon, Landing, Taxi, Nav, Strobe, Pitot - ON
- Beacon Light – ON
- Tail White Light – ON
- Right Wing Green – ON
- Landing, Taxi Lights - ON AND CLEAN
- Left Wing Red – ON
- Pitot Tube – WARM
- Lights and Pitot Heat - OFF
- Master Switch - OFF



Forced Landing

Radio

1. Squawk 7700
2. 121.5 or ATC
3. MAYDAY MAYDAY MAYDAY / Callsign
4. Position / Altitude
5. Problem: "Engine Failure" "Fire" etc.
6. Intended landing site

Prepare

7. Seats and Seat Belts – SECURE
8. Seat Backs – UPRIGHT POSITION
9. Loose or Heavy Objects incl baggage – SECURE or JETTISON

Site Check (if engine running)

10. Airspeed – 60 KIAS
11. Wing Flaps – 20°
12. Selected Field – FLY OVER, noting terrain and obstructions. Retract flaps when at a safe altitude and airspeed

Approach

13. Wing Flaps – AS REQUIRED (DOWN early if power loss expected)
14. Airspeed Flaps 0° 65 KIAS
Flaps 10° - FULL 60 KIAS

On Short Final

15. Avionics Switch – OFF
16. Master Switch – OFF
17. Doors – UNLATCH
18. E.L.T. – ACTIVATE IF NECESSARY

After Landing

19. Mixture – IDLE CUT OFF
20. Ignition Switch – OFF
21. E.L.T. – DEACTIVATE IF NECESSARY

Ditching

Radio

1. Squawk 7700
2. 121.5 or ATC
3. MAYDAY MAYDAY MAYDAY / Callsign
4. Position / Altitude
5. Problem: "Engine Failure" "Fire" etc.
6. Intended landing site

Prepare

7. Seats and Seat Belts – SECURE
8. Seat Backs – UPRIGHT POSITION
9. Loose or Heavy Objects incl baggage – SECURE or JETTISON

Approach

10. Direction
 - a. Light Winds – PARALLEL to WAVES
 - b. High Winds – INTO WIND
11. Airspeed
 - a. Power – 65 KIAS
300 ft/min DESCENT
 - b. Flaps 10° - FULL – 65 KIAS
 - c. Flaps Up – 70 KIAS
12. Flaps – 20° to 40°

On Short Final

13. Master Switch – OFF
14. Doors – UNLATCH
15. E.L.T. – ACTIVATE IF NECESSARY

Touchdown

16. Level Attitude at established rate of descent. Wings level.
17. Face – CUSHION

After Landing

18. Mixture – IDLE CUT OFF
19. Evacuate – If needed, open windows to flood cabin and equalize pressure.



Excessive Rate of Charge

Full scale deflection of Ammeter

1. Alternator – OFF
2. Non-essential electrical equip. – OFF
3. Land as soon as possible

WARNING Compass deviations up to 25° may occur with alternator off

Electrical Failure

Low voltage annunciator

Excessive rate of discharge

RUNNING ON BATTERY ONLY

Cycle Electronics

(likely bogus over voltage sensor trip)

1. Avionics Switch – OFF
2. Alternator Circuit Breaker (ALT FD) – CHECK IN
3. Master Switch (both sides) – OFF
4. Master Switch – ON
5. Low Voltage Annunciator (VOLTS) – CHECK OFF
6. Avionic Master Switch – ON

If VOLTS annunciator lights again

(likely a real problem. Reduce electrical load and land)

1. Alternator – OFF
2. Non-essential electrical equip. – OFF
3. Land as soon as possible

Visibility & Cloud Clearance Requirements

| Airspace | Vis | Distance from Clouds |
|----------------------------------|------|------------------------------------|
| B | 3 sm | clear of clouds |
| C | 3 sm | 1,000 above 500 below 2,000 horiz |
| D | 3 sm | 1,000 above 500 below 2,000 horiz |
| E <10,000 MSL | 3 sm | 1,000 above 500 below 2,000 horiz |
| E ≥10,000 MSL | 5 sm | 1,000 below 1,000 below 1 sm horiz |
| G Day ≤1,200 AGL | 1 sm | clear of clouds |
| G Day >1,200 AGL & <10,000 MSL | 3 sm | 1,000 above 500 below 2,000 horiz |
| G Day ≥10,000 MSL | 5 sm | 1,000 below 1,000 below 1 sm horiz |
| G Night ≤1,200 AGL | 3 sm | 1,000 above 500 below 2,000 horiz |
| G Night >1,200 AGL & <10,000 MSL | 3 sm | 1,000 above 500 below 2,000 horiz |
| G Night >1,200 AGL & ≥10,000 MSL | 5 sm | 1,000 below 1,000 below 1 sm horiz |

Minimum Altitudes

Congested

1,000 feet above obstacle within 2,000 feet

Non-congested

500 feet AGL

Water / sparsely populated

500 feet from person, vessel, vehicle or structure

Supplemental Oxygen

>12,500 MSL ≤14,000 MSL

Crew for flight segments > 30 min

>14,000 MSL ≤ 15,000 MSL

Crew

> 15,000 MSL

All occupants

SVFR Minimum

- ATC clearance
- Clear of clouds
- 1 sm visibility
- If night, pilot and plane IFR certified
- To take off or land – 1 sm ground visibility if measured, otherwise 1 sm in-flight visibility.

Night Operations

Sunset – Sunrise

Required: Nav Lights (position lights)
Beacon (anti-collision)

When safe: Strobes

Suggested: Landing / Taxi Lights

1hr after Sunset – 1 hr before Sunrise

Carry passengers w/o 3 full stop landings

Short Field Takeoff

- Flaps – 10°
- Mixture – RICH (lean above 3000 for max RPM)
- Carb Heat – COLD
- Use Full Length of Runway

Takeoff

1. Brakes – FULL
2. Throttle – FULL IN
3. Brakes – RELEASE
4. Rotate – 55 KIAS
5. Airspeed – 59 KIAS

After Obstacle

6. Airspeed – 75 KIAS
7. Flaps – UP

Soft Field Takeoff

- Flaps – 10°
- Mixture – RICH (lean above 5000 for max RPM)
- Carb Heat – COLD
- Don't Stop
- Minimal Brakes

Takeoff

1. Yoke – FULL BACK (to keep weight off nose wheel)
2. Add FULL POWER SMOOTHLY
3. Hold nose just off ground (don't stall)
4. Until 75 KIAS – NOSE DOWN (to stay in ground effect)

After positive rate of climb

5. Flaps – UP

Short Field Landing

1. Flaps – DOWN FULL
2. Airspeed – 61 KIAS
3. Power – IDLE after obstacle
4. Touchdown – STEEP ANGLE
5. Brakes – HEAVY BRAKING
6. Flaps – RETRACT

Soft Field Landing

1. Flaps – DOWN FULL
2. Airspeed – 61 KIAS
3. Power – SLIGHT POWER UNTIL TOUCHDOWN
4. Flare – GENTLY BLEED OFF SPEED
5. Touchdown – KEEP FRONT WHEEL UP
6. Brakes – NO / MINIMUM BRAKES

Steep Turns

1. Clear the Area
2. Roll out $\pm 10^\circ$ of entry heading
 - Maintain altitude $\pm 100'$
 - Maintain airspeed $\pm 10kt$
 - Maintain bank $\pm 5^\circ$

Ground Reference Maneuvers

1. Clear the Area
2. Choose altitude 600-1000' AGL
 - Maintain altitude $\pm 100'$
 - Maintain airspeed $\pm 10kt$

Slow Flight

1. Clear the Area
2. Power idle, pitch up, flaps to slow
3. Flaps – FULL
4. Full power, pitch down, flaps to recover
 - Always at least $>1500'$ AGL
 - Maintain altitude $\pm 100'$
 - Maintain airspeed $+10kt/-0kt$
 - Maintain bank $\pm 10^\circ$

Power Off Stall

1. Clear the Area
2. Configure for landing
3. Perform Stall
4. Pitch down, full power to recover
5. Perform go-around. After positive rate of climb, full power and reduce flaps
 - Always at least $>1500'$ AGL
 - Straight: Heading $\pm 10^\circ$
 - Turning: Specified bank $<20^\circ \pm 10^\circ$

Power On Stall

1. Clear the Area
2. Configure for takeoff (Slow to $\sim 55 kt$)
3. Perform Stall
4. Recover
 - Always at least $>1500'$ AGL
 - Straight: Heading $\pm 10^\circ$
 - Turning: Specified bank $<20^\circ \pm 10^\circ$

Hypoxia

Symptoms

- Blue fingernails & lips
- Headache
- Decreased reaction time
- Impaired judgement
- Euphoria
- Visual impairment
- Drowsiness
- Lightheadedness or dizziness
- Tingling in fingers & toes
- Numbness

Actions

- Descend
- Supplemental oxygen

Dehydration

Symptoms

- Thirst
- Fatigue
- Headaches
- Cramps
- Dizziness
- Weakness
- Nausea
- Tingling of hands & feet

Actions

- Drink water

Hyperventilation

Symptoms

- Anxiety
- Rapid breathing
- Visual impairment
- Lightheadedness or dizziness
- Tingling sensations
- Hot & cold sensations
- Muscle spasms

Actions

- Slow breathing
- Re-breathe from bag

Carbon Monoxide Poisoning

Symptoms

- Exhaust odor
- Headache
- Blurred vision
- Dizziness
- Drowsiness
- Loss of muscle power

Actions

- Turn off heater
- Open air vents & windows
- Supplemental oxygen



Lost Communications VFR

1. Radio volume
2. Radio frequency
3. Headset connection
4. Handheld radio
5. Alt frequency
 - a. Ground
 - b. TRACON / ARTCC
 - c. Nearby airport
 - d. 121.5
6. Squawk 7600
7. Land at untowered if possible
8. Enter pattern and expect light signal
9. Monitor and squawk 7700 and emergency land if necessary
 - a. Fuel level
 - b. Battery voltage (24V)
 - c. Amp meter (discharge = no alternator)

Light Gun Signals

| | | |
|--|----------------|----------------------|
| | Steady Green | Cleared to Land |
| | Flashing Green | Return for Landing |
| | Steady Red | Give way and Circle |
| | Flashing Red | Unsafe - Do not land |
| | Alt. Red/Green | Extreme Caution |

Diversion

1. Slow Down to 100 KIAS or less
2. Circle if necessary
3. Airport info
 - a. Elevation
 - b. TPA
 - c. Runway Length & Layout
 - d. Pattern direction
 - e. Frequencies
4. Get current location
5. Locate destination airport on charts
6. Plan Route (iPad, GPS, VOR, paper)
 - a. Distance
 - b. Course / heading
 - c. (Cross radials)
7. Calculate time & fuel burn
8. Get the weather (ATIS / AWOS)
9. Plan Approach & Landing
 - a. Choose Runway
 - b. Pattern Entry
10. Radio Calls
11. Cruise, Descent, Landing checklists

Time & Fuel

| Time & Fuel | | | |
|-------------------|------------|------------|--|
| Speed 100 kt | | | |
| Fuel Burn 8.5 gph | | | |
| Dist (nm) | Time (min) | Fuel (gal) | |
| 3 | 2 | 0.2 | |
| 5 | 3 | 0.4 | |
| 8 | 5 | 0.6 | |
| 10 | 6 | 0.9 | |
| 13 | 8 | 1.1 | |
| 15 | 9 | 1.3 | |
| 18 | 11 | 1.5 | |
| 20 | 12 | 1.7 | |
| 23 | 14 | 1.9 | |
| 25 | 15 | 2.1 | |
| 28 | 17 | 2.3 | |
| 30 | 18 | 2.6 | |
| 35 | 21 | 3.0 | |
| 40 | 24 | 3.4 | |
| 45 | 27 | 3.8 | |
| 50 | 30 | 4.3 | |

Pressure Altitude

| Indicated Altitude | Altimeter Range | | | | | | | | |
|--------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| | 27.75-28.24 | 28.25-28.74 | 28.75-29.24 | 29.25-29.74 | 29.75-30.24 | 30.25-30.74 | 30.75-31.24 | 31.25-31.74 | |
| 0 | -2000 | -1500 | -1000 | -500 | 0 | 500 | 1000 | 1500 | |
| 1000 | -1000 | -500 | 0 | 500 | 1000 | 1500 | 2000 | 2500 | |
| 2000 | 0 | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | |
| 3000 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | |
| 3500 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | |
| 4500 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | |
| 5500 | 3500 | 4000 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | |
| 6500 | 4500 | 5000 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | |
| 7500 | 5500 | 6000 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | |
| 8500 | 6500 | 7000 | 7500 | 8000 | 8500 | 9000 | 9500 | 10000 | |
| 9500 | 7500 | 8000 | 8500 | 9000 | 9500 | 10000 | 10500 | 11000 | |
| 10500 | 8500 | 9000 | 9500 | 10000 | 10500 | 11000 | 11500 | 12000 | |
| 11500 | 9500 | 10000 | 10500 | 11000 | 11500 | 12000 | 12500 | 13000 | |

Climb Performance

Add 1.1 gal fuel for taxi & takeoff.
Add 10% for each 10° over standard temperature.

| Press Alt | Temp (°C) | Speed (KIAS) | Rate (FPM) | Time (min) | Fuel (gal) | Dist (nm) |
|-----------|-----------|--------------|------------|------------|------------|-----------|
| 0 | 15 | 73 | 770 | 0 | 0.0 | 0 |
| 500 | 14 | 73 | 748 | 1 | 0.2 | 1 |
| 1000 | 13 | 73 | 725 | 1 | 0.3 | 2 |
| 1500 | 12 | 73 | 700 | 2 | 0.5 | 3 |
| 2000 | 11 | 72 | 675 | 3 | 0.6 | 3 |
| 2500 | 10 | 72 | 653 | 4 | 0.8 | 4 |
| 3000 | 9 | 72 | 630 | 4 | 0.9 | 5 |
| 3500 | 8 | 72 | 605 | 5 | 1.1 | 7 |
| 4000 | 7 | 71 | 580 | 6 | 1.2 | 8 |
| 4500 | 6 | 71 | 558 | 7 | 1.4 | 9 |
| 5000 | 5 | 71 | 535 | 8 | 1.6 | 10 |
| 5500 | 4 | 71 | 510 | 9 | 1.8 | 11 |
| 6000 | 3 | 70 | 485 | 10 | 1.9 | 12 |
| 6500 | 2 | 70 | 463 | 11 | 2.1 | 14 |
| 7000 | 1 | 69 | 440 | 12 | 2.3 | 15 |
| 7500 | 0 | 69 | 415 | 14 | 2.5 | 17 |
| 8000 | -1 | 69 | 390 | 15 | 2.7 | 19 |
| 8500 | -2 | 69 | 368 | 16 | 3.0 | 21 |
| 9000 | -3 | 68 | 345 | 17 | 3.2 | 22 |
| 9500 | -4 | 68 | 320 | 19 | 3.5 | 25 |
| 10000 | -5 | 68 | 295 | 21 | 3.7 | 27 |
| 10500 | -6 | 68 | 273 | 23 | 4.0 | 30 |
| 11000 | -7 | 67 | 250 | 24 | 4.2 | 32 |
| 11500 | -8 | 67 | 225 | 27 | 4.6 | 35 |
| 12000 | -9 | 67 | 200 | 29 | 4.9 | 38 |

Cruise Performance

Cruise Power 75% or less

| Press Alt | Press | | | | Press | | | | Press | | | |
|-----------|-------|------|------|-----|-------|------|------|-----|-------|------|------|-----|
| | OAT | RPM | KTAS | GPH | OAT | RPM | KTAS | GPH | OAT | RPM | KTAS | GPH |
| 2000 | -9 | 2400 | 111 | 8.0 | 11 | 2500 | 116 | 8.4 | 31 | 2500 | 115 | 7.9 |
| 2500 | -10 | 2425 | 112 | 8.1 | 10 | 2525 | 117 | 8.4 | 30 | 2525 | 116 | 7.9 |
| 3000 | -11 | 2450 | 113 | 8.2 | 9 | 2525 | 117 | 8.4 | 29 | 2525 | 117 | 7.9 |
| 3500 | -12 | 2475 | 114 | 8.3 | 8 | 2550 | 118 | 8.4 | 28 | 2550 | 117 | 7.9 |
| 4000 | -13 | 2500 | 115 | 8.4 | 7 | 2550 | 118 | 8.4 | 27 | 2550 | 118 | 7.9 |
| 4500 | -14 | 2500 | 116 | 8.3 | 6 | 2575 | 119 | 8.4 | 26 | 2575 | 119 | 7.9 |
| 5000 | -15 | 2500 | 116 | 8.2 | 5 | 2575 | 119 | 8.4 | 25 | 2575 | 119 | 7.9 |
| 5500 | -16 | 2500 | 116 | 8.2 | 4 | 2600 | 120 | 8.4 | 24 | 2600 | 120 | 7.9 |
| 6000 | -17 | 2500 | 116 | 8.1 | 3 | 2600 | 120 | 8.4 | 23 | 2600 | 120 | 7.9 |
| 6500 | -18 | 2525 | 117 | 8.2 | 2 | 2625 | 121 | 8.4 | 22 | 2625 | 121 | 7.9 |
| 7000 | -19 | 2550 | 118 | 8.3 | 1 | 2625 | 121 | 8.4 | 21 | 2625 | 121 | 7.9 |
| 7500 | -20 | 2575 | 119 | 8.4 | 0 | 2650 | 122 | 8.4 | 20 | 2650 | 122 | 7.9 |
| 8000 | -21 | 2600 | 119 | 8.5 | -1 | 2650 | 122 | 8.4 | 19 | 2650 | 122 | 7.9 |
| 8500 | -22 | 2600 | 120 | 8.5 | -2 | 2650 | 122 | 8.3 | 18 | 2650 | 122 | 7.8 |
| 9000 | -23 | 2625 | 120 | 8.4 | -3 | 2650 | 122 | 8.2 | 17 | 2650 | 122 | 7.7 |
| 9500 | -24 | 2625 | 121 | 8.4 | -4 | 2650 | 122 | 8.1 | 16 | 2650 | 121 | 7.6 |
| 10000 | -25 | 2650 | 122 | 8.4 | -5 | 2650 | 122 | 8.0 | 15 | 2650 | 121 | 7.5 |
| 10500 | -26 | 2625 | 121 | 8.2 | -6 | 2650 | 121 | 7.8 | 14 | 2650 | 120 | 7.3 |
| 11000 | -27 | 2625 | 120 | 8.1 | -7 | 2625 | 120 | 7.6 | 13 | 2625 | 119 | 7.2 |
| 11500 | -28 | 2600 | 120 | 7.9 | -8 | 2625 | 118 | 7.4 | 12 | 2625 | 118 | 7.0 |
| 12000 | -29 | 2600 | 119 | 7.7 | -9 | 2600 | 117 | 7.2 | 11 | 2600 | 117 | 6.8 |