

FLIGHT PLAN SEQUENCE:

1 – VFR: _____ / IFR: _____

2 – **N** _____

3 – Type & equip: _____

4 – TAS: _____ kts

5 – Departure point: _____

6 – Departure time: _____

7 – Altitude: _____

8 – Route ----->

9 – Destination: _____

10 – Time En-route: _____

11 – Remarks: _____

12 – Fuel: _____

13 – Alternate: _____

14 – Pilot / Home base: _____

15 – People on board: _____

16 – Color: _____

17 – Destination Contact: _____

8. Proposed Route of Flight: _____

Actual Clearance: “**CLEARED to:** _____

VIA: _____

_____ Cleared as filed: _____

DP: _____

Diverse Departure: Cross DER at or above 35'; climb straight ahead at no less than 200' per nautical mile (nm) to 400' above DER; turn in any direction while maintaining at least 200' per nm until reaching an appropriate altitude, such as an IFR altitude or MEA.

Expect: FL _____ in: _____ minutes. **Void:** _____

DEPARTURE FREQUENCIES

ATIS / AWOS / ASOS : _____

Clearance Delivery : _____

Ground Control : _____

Tower : _____

Departure : _____

Initial Departure Freq. : _____

FSS : _____

_____ : _____

ARRIVAL FREQUENCIES

ATIS / AWOS / ASOS : _____

Clearance Delivery : _____

Ground Control : _____

Tower : _____

Departure : _____

Initial Departure Freq. : _____

FSS : _____

_____ : _____

Departure Weather: _____ **Info:** _____

Destination Weather _____ **Info:** _____

Alternate Weather _____ **Info:** _____

Winds Aloft _____

Pireps / Freezing level _____

NOTAMS _____

CLOSE VFR Flight Plan with _____ **@** _____ **. _____ FSS on Arrival**

PRE-FLIGHT INSPECTION

CABIN

| | |
|-----------------------------------|-----------------------|
| * control locks..... | REMOVED |
| elevator trim..... | Set to "0" |
| avionics master..... | OFF |
| ignition switch..... | OFF and keys on panel |
| landing gear selector switch..... | DOWN before master |
| master switch..... | ON |
| fuel quantity..... | Check GAUGES |
| alternator warning light..... | check on |
| stall warning..... | CHECK |
| master switch..... | OFF |
| flaps..... | DOWN |
| static drain..... | Drained |
| * fire extinguisher | Check PRESSURE |
| POH..... | in Aircraft |

RIGHT WING

| | |
|---------------------------------|---|
| flap..... | check position & security |
| aileron..... | Check freedom of movement & security |
| wing tip and landing light..... | condition & security |
| wing..... | overall condition |
| main landing gear..... | tire condition, strut, psi: _____ microswitches, door, brakes, j-locks & wheel well |
| fuel vent..... | check for stoppage |
| * fuel drain..... | Check for water, sediment & proper fuel grade |
| de-icing boots..... | CHECK |
| * fuel quantity..... | CHECK VISUALLY |

NOSE

| | |
|----------------------|---|
| engine oil..... | proper amount & clean |
| cowl..... | check security |
| air inlet..... | check clean |
| prop & spinner..... | check for nicks & security |
| alternator belt..... | condition & security |
| landing light..... | condition & security |
| nose gear..... | tire condition, strut, door, psi: _____ |
| * fuel drain..... | Check for water, sediment & proper fuel grade |
| windshield..... | cracks & cleanliness |

LEFT WING

| | |
|---------------------------------|---|
| main landing gear..... | tire condition, strut, psi: ____ microswitches, door, brakes j-locks & wheel well |
| fuel vent..... | check for stoppage |
| * fuel drain..... | Check for water, sediment & proper fuel grade |
| * fuel quantity..... | CHECK VISUALLY |
| stall warning..... | freedom of movement |
| pitot / static masts..... | check for stoppage |
| wing..... | Overall condition |
| wing tip and landing light..... | condition & security |
| * aileron..... | Check freedom of movement & security |
| flap..... | check position & security |
| de-icing boots..... | CHECK |

EMPENNAGE

| | |
|----------------------------|--|
| ventral surfaces..... | check condition |
| * control surfaces..... | check freedom of movement, condition & security |
| de-icing boots..... | CHECK |
| * trim tabs..... | check freedom of movement, condition & security |
| antennas..... | Security & cleanliness |
| wing & tail tie-downs..... | Removed |

TOW BAR..... “STOWED”

Basic instruments and equipment must be on any airplane for VFR flight?"

"Goose-a-Cat" **G**as gauge - **O**il pressure - **O**il temperature - **S**eatbelts - **A**irspeed indicator - **C**ompass - **A**ltimeter - **T**achometer

Evidence that the airplane that we're about to fly is airworthy?

"Tape-Arow" **T**ransponder inspection (every 24 months) - **A**nnual inspection - **P**itot static check (every 24 months) - **E**LT check (yearly)

Airworthiness inspection - **R**egistration - **O**perating limitations - **W**eight & balance

Instruments required for IFR flight = "Hac-a-Rat" Heading indicator - **A**djustable altimeter - **C**lock - **A**ttitude indicator - **R**adios - **A**lternator/generator - **T**urn coordinator

Aircraft and Pilot Currency

| | |
|-----------------------------|---------|
| F.R. & Medical | 24 mo |
| Transponder | 24 mo |
| Altimeter / Pitot static | 24 mo |
| Annual | 12 mo |
| IFR | 6 mo |
| VFR | 90 days |
| VOR test [FAR 91.171(a)(2)] | 30 days |

Months are calendar

Weather Briefing

1. Type of briefing and Flight
2. Aircraft ID and Pilot's name
3. Aircraft Type
4. Departure airport
5. Route of flight
6. Destination
7. Cruise Altitude(s)
8. ETD and ETE

VOR CHECK

| | |
|-----------------|---------------|
| Ground Check | +/- 4 degrees |
| VOT Test Signal | +/- 4 degrees |
| Dual VOR Check | within 4 " |
| Airborne check | +/- 6 degrees |

Record: **Date:** _____

Place: _____

Bearing Error: _____

Signature: _____

BEFORE ENGINE START

| | |
|-------------------------------|---------------------------|
| Charts..... | on board |
| Flashlight..... | checked |
| * Control locks..... | REMOVED |
| * Controls..... | FREE & proper response |
| * Seats & Belts..... | Adjusted & SECURE |
| Load & baggage..... | SECURE |
| * Weight & CG..... | CHECKED |
| * Altimeter..... | Set to field elevation |
| Avionics..... | OFF |
| Circuit breakers..... | Check |
| Electrical switches..... | OFF except alternator |
| Gear handle..... | "DOWN" before Master "ON" |
| Oxygen..... | Charged & available |
| Cowl flaps..... | OPEN |
| Flaps & flap handle..... | UP and UP |
| * Trims..... | "Free" & SET for takeoff |
| Fuel selector..... | BOTH / SOP |
| Master / Battery Switch..... | ON |
| * Fuel quantity..... | Re-check |
| Stall warning..... | Check |
| Strobe / Rotating beacon..... | ON |
| Passenger Briefing..... | Complete |

"Aviation in itself is not inherently dangerous, but to an even greater degree than the sea, it is terribly unforgiving of any carelessness incapacity or neglect."

STARTING ENGINE

| | |
|-----------------------------------|---|
| * Fuel quantity..... | Adequate and Balanced |
| Gear lights..... | GREEN lights / NO RED |
| Mixture..... | SOP – Rich or Idle cutoff |
| Fuel boost pump..... | SOP |
| Prop..... | HIGH RPM |
| Magneto switches..... | ON |
| Carb Heat..... | COLD |
| Primer..... | 2-4 shots if engine cold |
| Throttle..... | PUMP 1-2X. Leave open ¼ inch. |
| Prop area..... | CLEAR |
| Master switch..... | ON |
| Start sequence..... | Initiate |
| Mixture..... | If at IDLE, advance slowly to rich as engine fires |
| Oil Pressure/Temp..... | GREEN |
| Fuel pressure..... | Check |
| Hydraulic warning indicators..... | Check |
| Alternator output..... | CHARGING |
| Avionics Power Switch..... | ON |
| Radios..... | ON & set for Departure |
| Transponder..... | “STBY” / 1200 |
| ATIS..... | COPIED |
| Altimeter..... | SET to field elevation |
| Density Altitude..... | Calculate |
| Engine instruments..... | in Green / Normal ranges |
| Instrument Air..... | Above 3 psi |
| Annunicator / Warning Lights..... | Press to Test / Clear |
| Fuel Selector..... | Opposite tank for taxi / SOP |
| Fuel pump..... | Off for taxi |
| Autopilot..... | Preflight check & then OFF |

Flooded Engine - Weak intermittent firing followed by puffs of black smoke from the exhaust stack indicates over-priming or flooding. Excess fuel can be cleared from the combustion chamber by the following procedure: MASTER Switch- OFF; Set the MIXTURE control at FULL LEAN and the THROTTLE at FULL OPEN; crank the engine through several revolutions with the starter. Repeat the starting procedure without any additional priming

TAXI

BEFORE TAXI

| | |
|--------------------|----------------------|
| Radios..... | Tune & Check |
| Lights..... | As required / needed |
| Autopilot..... | Verify OFF |
| Parking brake..... | Off |

→TAXI Clearance - N _____ @ _____ with _____

ready to taxi: N ___ / S ___ / E ___ / W ___ departure to: _____...

also requesting handoff for Flight Following.”

→ ATC: Taxi to RW: _____ using taxiway: _____

TWR: _____ Departure: _____ Squawk: _____

| | |
|-------------------------|---|
| Mixture..... | LEAN for Taxi |
| Brakes..... | CHECK |
| Flight Instruments..... | Monitor |
| IAS..... | 0 |
| Attitude..... | Erect |
| * Altimeter..... | within 75' of field elevation |
| VSI..... | 0 or note error |
| DG heading | = compass & turns correctly |
| Turn & Bank..... | Shows proper turns ball moves opposite |
| Alternate Static..... | check OFF |
| Flight Director..... | ON / SOP |

Remember the FOUR things that can wreck today in this airplane.

- 1) **Thunderstorms**
- 2) **Icing**
- 3) **Continued VFR flight into IMC**
- 4) **Mid-Air Collisions**

(Bob Miller, MCFI)

“Let’s get one thing straight. There’s a big difference between a pilot and an aviator. One is a technician and the other is an artist in love with flight”

(Elrey Jeppesen)

Turn, Time, Twist, Throttle, Talk

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TAKEOFF BRIEFING

Vr - _____ kts = _____ (average speed kts) = _____ (feet per second)

Weight / Pressure Altitude / Ground Roll / Grnd roll >50' Obst.

_____/_____/_____/_____

T/O Distance _____ / _____(feet per sec) = _____ (sec's to Vr speed)

(-10% for each 9kt headwind // +10% for tailwind up to 10kt // +15% for dry grass runway)

V1 _____ **V2** _____ **Vr** _____ **Vx** _____ **Vy** _____

Multi: **Vmc** _____ **Vsse** _____ **Vxse** _____ **Vyse** _____

Takeoff Distance per POH

Liftoff Speed / Avg. Speed / Avg. Speed / 1000' / 1250' / 1500'
 (Knots) (Knots) (Feet Per Second)

| | | | | | |
|-----|----|------|-------|-------|-------|
| 50 | 25 | 41.7 | 23.98 | 28.77 | 35.97 |
| 52 | 26 | 43.3 | 23.09 | 28.86 | 34.64 |
| 54 | 27 | 45.0 | 22.00 | 27.77 | 33.33 |
| 56 | 28 | 46.7 | 21.41 | 21.41 | 32.11 |
| 58 | 29 | 48.3 | 20.70 | 25.87 | 31.05 |
| 60 | 30 | 50.0 | 20.00 | 25.00 | 30.00 |
| 62 | 31 | 51.7 | 19.34 | 24.17 | 29.01 |
| 64 | 32 | 53.3 | 18.76 | 23.45 | 28.14 |
| 66 | 33 | 55.0 | 18.18 | 22.72 | 27.27 |
| 68 | 34 | 56.7 | 17.63 | 22.04 | 26.45 |
| 70 | 35 | 58.3 | 17.15 | 21.44 | 25.82 |
| 72 | 36 | 60.0 | 16.66 | 20.83 | 25.00 |
| 74 | 37 | 61.7 | 16.20 | 20.25 | 24.31 |
| 76 | 38 | 63.3 | 15.79 | 19.74 | 23.69 |
| 78 | 39 | 65.0 | 15.38 | 19.23 | 23.07 |
| 80 | 40 | 66.7 | 14.99 | 18.74 | 22.48 |
| 85 | 43 | 71.6 | 13.96 | 17.45 | 20.94 |
| 90 | 45 | 75.0 | 13.33 | 16.66 | 20.00 |
| 95 | 48 | 80.0 | 12.50 | 15.62 | 18.75 |
| 100 | 50 | 83.3 | 12.00 | 15.00 | 18.00 |

*** For the non-"Anal" types use the following "Rule of Thumb" ***

If 70% of takeoff speed (Vr) is not obtained by 50% of runway used, ABORT

Vr = _____ / 70% = _____ // Runway length = _____ / 50% = _____

GROUND CHECK / RUN-UP

CIGAR

C.....Controls Check
I.....Instruments SET
G.....Gas (proper tank, pump on, etc)
A.....Attitude (flaps & trims)
R.....Run-Up - SOP for A/C

BEFORE TAKEOFF

>>> Set HSI / OBS to runway heading <<<

LCA

LIGHTS..... Stobes, navs, landing
CAMERA..... Transponder (so ATC can see U)
ACTION..... any other action to be performed:

Cabin doors..... CLOSED and LOCKED
* Seats / Belts / Harnesses..... SECURE and LOCKED
* Flight Controls..... FREE and CORRECT
Flight Instruments..... SET
Fuel Selector..... BOTH / SOP
Mixture..... RICH (below 3000')
Props..... Full FORWARD
Auxiliary Fuel Pump..... Low wing – ON
High wing - ON (check for rise in fuel pressure) then OFF
* Elevator & Rudder trim..... TAKEOFF settings
Cowl flaps..... confirm OPEN
Throttle friction lock..... Adjust
* Radios..... SET & identified
Transponder..... “ALT” / 1200 or “assigned code”
* Autopilot..... verify OFF
Pitot heat / Anti-Ice..... Considered
Exterior lights..... Considered
* Primer..... In & “LOCKED”
Auto-Feather..... ON
Synchronphaser..... OFF (King Air B200 can be on)
Pressurization..... SET
Passenger Briefing..... Complete
Parking Brake..... Confirm “released”

EMERGENCIES *Engine Failure / Fire / Malfunction*

Before Vr: _____ / After Vr _____ (Runway remaining)
After Vr -Low altitude: < 1000 ft. **DO NOT TRY TO TURN BACK!!**
After Vr -High Altitude: > 1000 ft. Return A/P Heading: _____

→T.O. Clearance – N _____ @ RW: _____ ready for Takeoff.....
→ATC: Cleared for T.O. Fly: _____

Quote: “Takeoffs are OPTIONAL... Landings are MANDATORY.”

TAKEOFF / DEPARTURE

“DUCK UNDER” Non-Controlled Traffic Patter Exit = 300’ below TPA

Confirm that HSI / OBS is set to runway heading

BLITTS

- B**..... Boost pump ON
- L**..... Lights as Required
- I**..... Instruments SET & IDENTIFIED
- T**..... Transponder “ALT” 1200 or assigned code
- T**..... Takeoff time noted
- S**..... Seats, belts, doors secured

Normal

- Flaps..... 0
- Carb Heat..... COLD
- Power..... MAX mp / MAX rpm
- Mixture..... Full RICH (except above 3000’)
- Elevator Control..... LIFT NOSE WHEEL at _____
- Vr** _____ KIAS
- Climb Speed..... **Vy** _____ KIAS
- Brakes..... APPLY momentarily
- Landing gear..... RETRACT in climb out
- Multi-engine..... **Vsse** _____ KIAS

Short Field Takeoff

- Flaps..... _____ / SOP
- Carb Heat..... COLD
- Brakes..... APPLY
- Power..... FULL mp / MAX rpm
- Mixture..... Full RICH (except above 3000’)
- Elevator Control..... Maintain slightly tail-low attitude
- Vr** _____ KIAS
- Climb Speed..... **Vx** = _____ KIAS
- Brakes..... APPLY momentarily / airborne
- Landing gear..... RETRACT @ > obstacles

Takeoff Minimums: _____

Departure Proc: _____

Diverse Departure: Cross DER at or above 35'; climb straight ahead at no less than 200' per nautical mile (nm) to 400' above DER; turn in any direction while maintaining at least 200' per nm until reaching an appropriate altitude, such as an IFR altitude or MEA.

EMERGENCY Return Information

Return hdg: _____ Freq: _____ Course: _____

FAF: _____ Altitude: _____ Distance: _____

CLIMB

- Airspeed..... _____ KIAS
- Power (Normal Climb)..... Full Power & RPM to at least 1000 agl, then _____ " mp / _____ rpm
- Power (Maximum Performance).... MAX mp / MAX rpm
- Fuel Selector value..... BOTH / SOP
- Mixture..... FULL RICH (may be leaned above 3000')
- Cowl Flaps..... FULL OPEN
- Yaw Damper..... ON /SOP
- ECS system..... SOP
- Oxygen..... On when required
- NAV Radios..... SET & Identified
- Engine Instruments..... Monitor
- Fuel Gauges..... Switch to all tanks above FL5.0
To be sure all tanks are flowing

TIME, FUEL, AND DISTANCE TO CLIMB

[From Sea Level]

Weight / Pressure / Temp / Climb / Rate / Time / Fuel / Distance
 Altitude C Speed of min used NM
 FT KIAS Climb gals
 fpm

_____/_____/_____/_____/_____/_____/_____/_____

Turn, Time, Twist, Throttle, Talk

CRUISE

FLARE

F..... FLAPS UP (wing & cowl)
L..... Lights as required
A..... Auxiliary FUEL Pump (if On)
R..... Radar Transponder - ON
E..... Engine (Lean above 3000')

CRUISE Power settings: _____ - _____" MP / _____ - _____rpm

Va: _____ **Vb:** _____ **Vno:** _____ **Vmo:** _____ **Vne:** _____

FLIGHT FOLLOWING

Manufacturer/ N# / type / position / altitude / route / destination

FDC NOTAM 4/4386 = "All aircraft, if capable, shall maintain a listening watch on VHF guard 121.5"

PIREP FORM (www.aopa.org/asf/skyspotter)

Location _____ Time _____ Altitude _____
 A/C Type _____ Clouds _____
 Vis/Precip _____ Temp _____ Wind _____
 Turb/Icing _____
 Remarks _____

FREQUENCY: Flight Watch: 122.0

FSS: 122.2 and as published

| Kts=nmh | // | mph = smpm |
|------------|----|------------------|
| 60 = 1 | // | 69 = 1.15 |
| 75 = 1.25 | // | 86.25 = 1.43 |
| 90 = 1.50 | // | 103.5 = 1.72 |
| 100 = 1.66 | // | 115 = 1.91 |
| 110 = 1.83 | // | 126.5 = 2.10 |
| 120 = 2.00 | // | 138 = 2.30 |
| 130 = 2.17 | // | 149.5 = 2.49 |
| 150 = 2.50 | // | 172.5 = 2.87 |
| 180 = 3.00 | // | 207 = 3.45 |
| 200 = 3.33 | // | 230 = 3.83 |
| | | kts X 1.15.= mph |

| | |
|--|--|
| <p>IAS to TAS</p> <p>Rule of thumb: Add 2% Per 1000' of altitude.</p> <p>Ex. Altitude – 8000'</p> <p style="padding-left: 40px;">IAS – 100 kts</p> <p>TAS = 100 + 16% = 116 kts</p> | <p>At service ceiling V_x = V_Y</p> |
| | <p>VFR-ON-TOP Clearance</p> <ul style="list-style-type: none"> * Permits operations above, below and between layers * Maintain appropriate VFR altitudes * Both VFR and IFR rules apply * Report reaching VFR-On-Top & prior to any alt. changes * Separation is not always provided |

| REQUIRED IFR REPORTS | |
|--|---|
| <p style="text-align: center;">ANY TIME</p> <ul style="list-style-type: none"> * Vacating assigned altitude * Changing "VFR-On-Top" altitude * Unable 500FPM climb or descent * Missed approach * TAS change 10 kts or 5% * NAV or comm. Loss or impairment * Anything affecting flight safety * Hazardous / not forecast weather | <p style="text-align: center;">HOLDING</p> <ul style="list-style-type: none"> * Time and altitude reaching a holding fix or clearance point * Leaving assigned holding fix / point <p style="text-align: center;">WHEN NOT IN RADAR CONTACT</p> <ul style="list-style-type: none"> * Leaving FAF (or procedure) inbound * Revised estimate . 3 minutes * Where charted or on request |

Turn, Time, Twist, Throttle, Talk

EN-ROUTE

Flight Watch: 122.0

Expected Handoffs

Weather / FSS / ATC / En-Route

(Maine, New Hampshire & Vermont)

| | <i>AP</i> | <i>//</i> | <i>WX</i> | <i>//</i> | <i>FSS</i> | <i>//</i> | <i>ATC</i> |
|---------------|-----------|-----------|--------------|-----------|---------------------|-----------|-------------------------|
| _____ / _____ | AUG | | 118.325 | | 122.6 | | 128.35 PWM |
| | | | 207-623-0432 | | | | |
| | BGR | | 127.75 | | 122.2 | | 124.50 BGR |
| | | | 207-947-5293 | | | | |
| _____ / _____ | BML | | 135.175 | | 122.35 | | 135.75 BC |
| | | | 603-449-3328 | | | | |
| | BTV | | 123.8 | | 122.6 | | 121.1BTV / 120.35 BC |
| | | | 802-658-8382 | | | | |
| _____ / _____ | 6B8 | | 119.275 | | 121.725 | | 135.70 BC |
| | CON | | 132.32 | | 122.3 / 2 | | 127.35 BC |
| | | | 603-224-6558 | | | | |
| _____ / _____ | IFG | | 135.775 | | 122.55 | | 125.5 PWM / 128.20 BC |
| | | | 207-935-2882 | | | | |
| | EEN | | 119.025 | | 122.1T / 109.4T | | 123.75 BC |
| | | | 603-358-6424 | | | | |
| _____ / _____ | LCI | | 133.525 | | 122.3 | | 134.75 BC |
| | | | 603-295-3835 | | | | |
| | LEB | | 118.65 | | 122.5 / 2 | | 134.70 BC |
| | | | 603-298-8780 | | | | |
| _____ / _____ | MHT | | 119.55 | | 122.1R / 114.4T | | 124.90 BC |
| | | | 603-668-8992 | | | | |
| | MPV | | 132.675 | | 122.6 / 2 | | 135.70 BC |
| | | | 802-229-2037 | | | | |
| _____ / _____ | HIE | | 118.525 | | 122.4 | | 135.75 BC |
| | | | 603-837-2769 | | | | |
| | ASH | | 125.1 | | 122.3 | | 124.90 BC |
| _____ / _____ | PWM | | 119.05 | | 122.25 | | 25.5N/119.75S/128.20 BC |
| | | | 207-775-1039 | | ATIS / 207-874-7914 | | ASOS |
| | PSM | | 132.05 | | 122.25 | | 125.05 BC |
| _____ / _____ | DAW | | 135.275 | | 122.25 | | 125.05 BC |
| | RUT | | 118.375 | | 122.3 | | 135.70 BC |
| _____ / _____ | SFM | | 120.025 | | 122.25 | | 119.75 PWM |
| | | | 207-324-1958 | | | | |
| | VSF | | 134.125 | | 122.5 | | 134.70 BC |
| | | | 207-886-6006 | | | | |

(GLIDE RATE: GA Rule of thumb: Every 1000' agl = 1.5 miles of glide)

Turn, Time, Twist, Throttle, Talk

Cruise - IFR Communications Failure

Actions required by FAR 91.185

- The route assigned by ATC in the last clearance received.
 - If being radar vectored, the direct route from the point of radio failure to the fix, route, or airway specified in the radar vector clearance.
 - In the absence of an assigned route, the route ATC has advised to expect in a further clearance.
 - In the absence of an assigned or expected route, the route filed in the flight plan.
 - The altitude or flight level assigned in the last ATC clearance.
 - The minimum altitude or flight level for IFR operations.
 - The altitude or flight level ATC has advised to expect in a further clearance.
1. Squawk **7600**
 2. Descend to a VFR altitude (no other IFR traffic should be at a VFR altitude in IMC conditions.)
 3. Fly to known VFR conditions or get on the first instrument approach you can find and land.

True Altitude: Actual height in feet above mean sea level.

Absolute Altitude: Actual height above the ground.

Pressure Altitude: Weight of the atmosphere measured in inches of mercury, millibars, or hectopascals.

Density Altitude: Equals pressure altitude corrected for non-standard temperature.

FLIGHT MANEUVERS – S.W.A.T.

S – Surface / W – Waether / A. Airspace / T - Traffic

(Bob Miller, MCFI)

<http://www.rjma.com/flight/airwaves/>

Turn, Time, Twist, Throttle, Talk

(GLIDE RATE: GA Rule of thumb: Every 1000' agl =1.5 miles of glide)

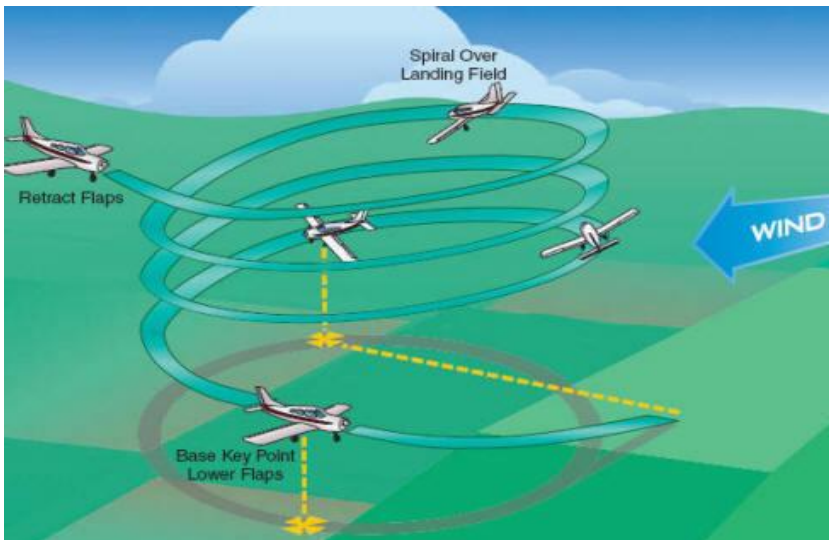
Cruise - IMC Emergency Landing

(Bob Miller, MCFI)

<http://www.rjma.com/flight/airwaves/>

- 1. Advise ATC:** Declare an emergency . . . even at the first sign of engine difficulty. This will enable ATC to begin clearing the airspace below you.
- 2. Achieve Best Glide Speed:** This is the same thing you do with an engine failure in VFR.
- 3. Hit the "Nearest" Button on Your GPS:** Know your GPS unit well enough to instantly locate the nearest suitable airport.
- 4. Point the Airplane in the Direction of the Nearest Airport:** Here is the best reason to always operate at the highest possible altitude whenever in IMC conditions. Hopefully, you are within glide range to an airport. If not, continue following these suggestions and hope for the best!
- 5. Attempt an Engine Restart:** Don't start troubleshooting the engine or attempting a restart until you are pointed to the nearest airport. Minutes and seconds apply in this scenario.
- 6. Circle Over the Nearest Airport:** Using the GPS moving map, begin a standard rate circling turn over the the airport. Monitor your descent rate so as to reach the base key point 500' AGL (see illustration below).

Your goal is to make a controlled descent through the clouds to VFR conditions below and close enough to glide to the runway.



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DESCENT

DESTINATION AIRPORT: _____ **Ele:** _____ **TPA:** _____

ATIS/AWOS/ASOS freq: _____ CTAF: _____ on _____

Ground: _____ / Clearance Delivery: _____ on _____

FSS: _____ on _____ / Center: _____ on _____

Destination ATIS information _____ Zulu Time: _____

Winds _____ - _____ Peak gust _____ Vis _____

Sky Conditions _____ @ _____ | _____ @ _____ | _____ @ _____

Temperature _____ Dew: _____ Altimeter: _____

Density Altitude _____ Runway in Use _____

Remarks _____

NOTAMS: _____

Approach Control: Facility:* _____ on _____

(* After Initial Contact if not on IFR flight plan or Flight Following.)

Who are you / What are you / Where are you / What do you want

ie: “Lebanon Tower / Cessna Cutlass RG – N9554B / 20 NW / 5,500 / to land...” or...
“Lebanon Tower, Ckerokee N3969K / 20 NW / 5,500. / requesting practice VOR 25
approach / then Missed to Hold with further request...”

➔ **ATC Instructions:** _____

| | |
|-------------------------|--|
| * Altimeter..... | SET |
| Fuel selector..... | Fullest tank / Both |
| Ignitions..... | Arm / SOP |
| Mixture..... | ENRICHEN as required |
| Propellers..... | Forward as desired (Beware of Noise Abatement restrictions) |
| Cowl Flaps..... | CLOSED |
| Auto-Feather..... | On |
| Synchrophaser..... | Off (KA B200 can stay on) |
| * Nav Radios..... | SET & Identified |
| Wing Flaps..... | SOP / 10' < _____ / 30' < _____ |
| Carburetor Heat..... | FULL HEAT as required |
| Passenger Briefing..... | Complete |

Note - The landing gear may be lowered below _____ **KIAS** to increase the rate of descent.

Turn, Time, Twist, Throttle, Talk

APPROACH - (M.A.R.T.H.A.)

M – Missed approach procedure :

- CLIMB straight ahead at MAX rate of climb to: _____
- Climb (L) (R) turn to altitude of _____
- To some particular heading: _____
- Go to some FIX: _____, “and HOLD”
- _____ Standard Hold (right turns)
- _____ Non-Standard (left turns)

A – Approach plan big picture: ILS: _____ / LOC: _____ / GPS: _____
VOR: _____ / NDB: _____ / TACAN: _____ / DME Arc: _____

IAF: _____ / Altitude: _____ / FAF: _____ / _____

R – Radio frequencies available, tuned & identified:

Localizer: _____ / _____ NDB: _____ / _____

VOR: _____ / _____ DME: _____ / _____

T – Time from FAF: 90: _____ / 120: _____ / 150: _____ / 180: _____

H – Heading: Outbound (IAF): _____ / Inbound (FAF): _____
PT Outbound: _____ / PT Inbound: _____

A – Altitude at MDA: _____ ’ / DH: _____ ’

Here are several instrument approach rules you should always pay attention to: (Bob Miller, MCFI)

Instrument Approach Rule # 1: *Never descend on an instrument approach unless you are established on a solid black line printed on the published approach procedure.*

Instrument Approach Rule # 2: *Never descend below the minimum altitude published for that solid black line.*

Instrument Approach Rule # 3: *Never descend below the published minimum descent altitude (MDA) or decision altitude (DA) unless*

- A. the flight visibility is equal or greater than that prescribed in the published approach procedure, and**
- B. Runway lighting system is visible, or**
- C. Landing runway is visible.**

-- FAR 91.175

Turn, Time, Twist, Throttle, Talk

PRE-LANDING BRIEFING

Flaps-**Vfe** < _____ kts Gear-**Vle** < _____ kts

Vref _____ kts w 30' flaps

Vs _____ kts

Vs1 _____ kts

Vso _____ kts

TPA _____

Demonstrated crosswind capability – _____ kts

EMERGENCY BRIEFING:

During Pattern Approach & TPA: _____

Final Approach & Go Around: _____

If **ALTERNATE airport** is necessary: **D.R.A.F.T.** = **D**–Destination / **R**–Route
A–Altitude / **F**–Fuel needed / **T**–Time to get there.

Alternate Airport per FAR 91.169... *When to file* = 1-2-3 Rule (1 hr before and 1 hr after ETA, the ceiling will be at least 2000' above the airport elevation and the visibility will be at least 3 statute miles.

- *Weather at Alternate to qualify* = 600/2 (precision) or 800/2 (non-precision)
- *No published instrument procedure at Alternate* = *VFR conditions apply*
- *Minimum Weather conditions at Alternate to qualify* = *Published Minimums*

ALTERNATE AIRPORT: _____ / _____ / Elev: _____

Non-Standard Alternate Minimums apply to this airport? – Yes ___ / No ___

Navaid - _____ / _____ / Rwy ldg: _____ / TDZE: _____

ATIS: _____ / App Con: _____ / Tower: _____ / TPA: _____

FSS: _____ / Gnd: _____ / Other _____ / _____

Procedures: _____ / _____ / _____ / _____

Procedures: _____ / _____ / _____ / _____

Procedures: _____ / _____ / _____ / _____

Quote: “*The aircraft G-limits are only there in case there is another flight by that particular airplane. If subsequent flights do not appear likely, there are NO G-limits!*”

Turn, Time, Twist, Throttle, Talk

This page left intentionally blank: Approach plate or airport information diagram goes here.

BEFORE LANDING

G.U.M.P.F.E.S.T. = Gas/Undercarriage/Mixture/Props/Flaps/Seats(belts)/Trim

- * Seats and Belts..... SECURE
- Fuel Selector..... BOTH / Fullest tank
- Landing Gear..... DOWN (**Vle**= _____ KIAS)
- Landing Gear..... Green Light – visually check
- Mixture..... RICH
- Carb Heat..... Check (apply full heat before closing throttle)
- Propeller..... HIGH RPM (Check for Noise Abatement)

Set GPS - HSI /OBS to Runway Heading if not on IFR approach

As protection against shear-induced stalls...

“Calm” Vref = 1.3 V_{so} //// **“Gusty” Vref** = 1.3 V_{so} + ½ Gust Factor

Calm wind: **Vso**: _____ X 1.3 = _____ **Vref** KIAS

Gusty: Vref: _____ (from above) + ½ Gust Factor of: _____ = _____ **Vref** KIAS

(Thomas A. Horne “Flying Final” AOPA July 2003)

CTAF: _____ **Frequency:** _____

Initial Contact if different from approach frequency... ie. → *“Cherokee 69K, contact Manchester Tower on 121.30...”*

→ CTAF instruction: _____

→ Landing Clearance: _____

Quote: Death is nature’s way of telling you to watch your AIRSPEED”

”Final is clear... Check the GEAR!!!”

LANDING

Approaching the Traffic Pattern at an “Un-Controlled”

- Transition from en-route, 500' – 1000' above traffic pattern
- Confirm runway in use, and pattern direction. RWY: _____
- Left Hand Pattern _____ / Right Hand Pattern _____
- Turn Upwind: Heading: _____
- Turn 045 degrees either left or right depending on pattern type
- Turn 180 degrees back to airport. Start descent to pattern altitude. Use normal traffic pattern entry procedures.
- Enter at TPA of: _____'

Normal Landing

Airspeed..... _____ KIAS (flaps UP)
Flaps..... AS DESIRED / SOP
Airspeed..... _____ KIAS (flaps DOWN)
Trim..... ADJUST
Touchdown..... MAINS first
Landing Roll..... LOWER nose wheel gently
Braking..... MINIMUM required

Short Field Landing

Airspeed..... _____ KIAS (flaps UP)
Flaps..... _____ degree < _____ KIAS)
Airspeed..... MAINTAIN _____ KIAS
Trim..... ADJUST
Power..... REDUCE to idle as obstacle is cleared
Touchdown..... MAINS first
Braking..... APPLY HEAVILY
Flaps..... RETRACT for maximum brake effectiveness

Quote:” There are Rules and there are Laws. The rules are made by men who think that they know better how to fly your airplane than you do. Laws (of Physics) were made by the Great One. You can, and sometimes should suspend the Rules but you can never suspend the Laws”

WHEN LANDING IS CONFIRMED

| | |
|------------------------------|-----------------------|
| Flaps..... | LANDING Config |
| Yaw Damper..... | OFF |
| Autopilot..... | OFF |
| Speed Control..... | confirm OFF |
| Speed brakes / Spoilers..... | Confirm RETRACTED |
| Propeller(s)..... | FULL FORWARD |
| Mixture..... | FULL RICH |
| Power levers..... | Beta range or Reverse |

GO-AROUND / GOING MISSED

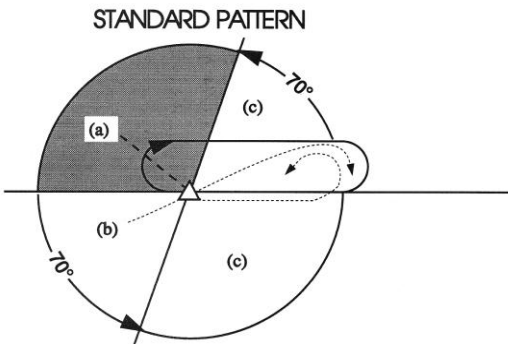
“POWER UP / PITCH UP / CLEAN-UP”

| | |
|--|---|
| Power..... | MAX mp / MAX rpm |
| * Carb heat..... | COLD |
| Climb Speed..... | V_x =_____ V_y =_____ Kts |
| Flaps..... | RETRACT slowly @ positive ROC |
| Gear..... | RETRACT @ positive ROC |
| Cowl flaps..... | OPEN |
| * Speed Brakes / Spoilers..... | Confirm RETRACTED |
| Multi:Vmc_____ V _{ss} e _____ V _{xse} _____ V _{yse} _____ | |

GO'IN MISSED: 99% of all missed approaches in the USA use this order:

- 1) **FULL POWER – clean-Up and CLIMB straight ahead at MAX rate of climb. V_x = _____ / V_y = _____**
- 2) **Turn to some particular heading..... _____**
- 3) **Level off at some ALTITUDE..... _____**
- 4) **Go to some FIX and hold..... _____**

from the AIM: *(d) While other entry procedures may enable the aircraft to enter the holding pattern and remain within protected airspace, the parallel, teardrop and direct entries are the procedures for entry and holding recommended by the FAA.*



“Missed-Approach means ‘CLIMB’... not reading the approach plate while farting around in the cockpit a couple of hundred feet in the air!!!”
John Conrad, MCFI

Turn, Time, Twist, Throttle, Talk

AFTER LANDING

| | |
|----------------------|-----------------|
| Exterior lights..... | Considered |
| Trims..... | Set for Takeoff |
| Wing Flaps..... | UP |
| Carb Heat..... | COLD |
| Cowl Flaps..... | OPEN |
| Transponder..... | 1200 / STBY |
| Anti-Ice..... | OFF |
| Fuel Pumps..... | OFF |

TAXI

LEAN MIXTURE for taxi / SOP if different

ATC: _____ **TAXI** - Ground freq: _____
 “N_____ @ _____ to taxi to: _____”
 →ATC: Taxi to: _____ using taxiway: _____.

SECURING AIRCRAFT

| | |
|---|---------------------------|
| Parking Brake..... | SET |
| Throttle..... | 1000 RPM |
| BEFORE SHUTDOWN, 121.5 to be sure that ELT is not broadcasting | |
| Avionics Power Switch..... | OFF |
| Electrical Equipment..... | OFF |
| Mixture..... | IDLE |
| Throttle..... | CLOSE as RPM drops |
| Ignition Switch..... | OFF – key on top of panel |
| Control Lock..... | INSTALL |

* = “Killer Items” / SOP = Standard Operating Procedure

| | |
|---|---|
| <p style="text-align: center;">SPIN RECOVERY</p> <ol style="list-style-type: none"> 1) Power – Idle 2) Ailerons – Neutral 3) Rudder – Full OPPOSITE rotation direction 4) Yoke – Full FORWARD w/ neutral ailerons 5) Rudder – Neutral when rotation stops 6) Yoke – Pull smoothly from dive | <p style="text-align: center;">P.A.R.E.</p> <p>P - Power A - Ailerons R - Rudder E - Elevator</p> |
| <p><i>bablaney@ncia.net</i> (Revised 08/29/2005)</p> <p>I have given credit when I knew who said what. If I missed anyone I need to give credit to, please contact me. I put these sheets into 5.5X8.5 matte page protectors and write on them with ultra fine point Vis-à-vis markers. I fill as many blanks as I can before the flight, and the rest as I'm flying. Any questions/concerns, please feel free to write. BB</p> | |

I strongly recommend the following web sites to learn every day!!!

<http://www.rjma.com/flight/airwaves/>

<http://www.dauntless-soft.com/>

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Private Pilot – 30 minute Workouts

Review FAR parts 91 & 830 & POH

Quote: "Some people fly so far behind the airplane that if they had a mid-air, they wouldn't even be involved!!!"

Ron Caraway, MCFI

TAKEOFF

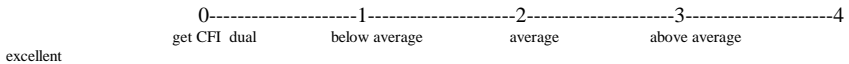
Per the POH: Calculate V-speeds, takeoff distance and takeoff distance to clear a 50' obstacle for the prevailing conditions. $V_x = \underline{\hspace{2cm}}$ / $V_y = \underline{\hspace{2cm}}$

A/C weight / Pressure Alt / Ground Roll / ground Roll . 50'

 / / /

(-10% for each 9kt headwind // +10% for tailwind up to 10kts // +15% for dry grass runway)

- 1) Actually measure the runway and then see if it's true.
- 2) Execute a soft-field takeoff (nurse aircraft off the ground at the lowest possible speed and fly at one (1') foot above the ground until V_y .

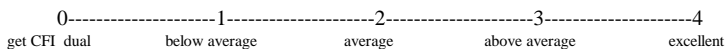


If you haven't achieved 70% of takeoff speed by the time 50% of the runway is used, ABORT!

At Takeoff... E.S.C.A.P.E.

- E.- Exits
- S – Signal
- C – Commands
- A – Assess conditions outside
- P – Procedures
- E – Equipment

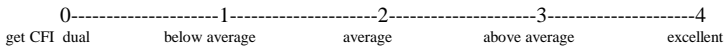
After takeoff, pick a spot to maintain runway heading



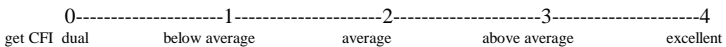
Private Pilot – 30 minute Workouts

LANDING

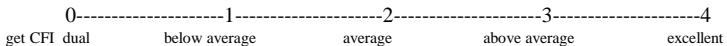
- Per the POH, calculate the following:
 - normal landing distance _____
 - landing distance over the 50' obstacle .. _____
 - short-field..... _____
 - soft-field..... _____
- Put “spot” on runway & try to touch down there.
- Land on “Spot” with full flaps carrying a little power (see: “The Threshold of Immediate Control” by Rod Machado) at just above stall / $V_{s1} =$ _____ & hold nosewheel off as long as possible.



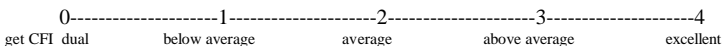
- EMERGENCY Procedures: do some and pick a spot where A/C will come to a stop based on published data.
- On takeoff, while on climb out, do some Dutch Rolls (Coordination exercise) while in this slow speed , high power configuration. Roll back & forth, keeping the nose nailed on a point. Level out at cruise flight level & trim immediately for hands-off flying.



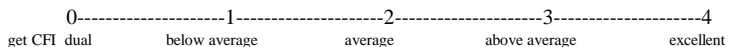
- Dutch Rolls @ cruise, keeping nose nailed.



- Steep Turns – 720 degrees each way & rolling out on specific heading and altitude. (keep head outside)



- Hoodwork: fly straight & level / shallow turns / track navaid / put hands in lap & keep level and “On heading” by rudder pedals only.



Pro Pilot – 30 minute Power Workout

Quote: “In truth, if you don’t use it... you lose it!” ”

John Conrad, MCFI

Note: John Conrad’s Holding Entry from any direction & any timer: “Fly to the fix, turn to the outbound heading and hack the watch. On the Outbound leg, dial up the inbound leg on the OBS & determine which side of the radial the aircraft is on. Make a 180 degree turn toward the inbound radial or bearing. Fly back to the fix and start holding.”

- 1) While tracking a navaid, pick a # between 1 & 360 and choose left or right (holding clearance) 1 minute legs. Take a turn at level flight... then... add power, re-trim and climb 1000’ - level off, set power, fuel pumps, cowl flaps, etc., & go another turn in level flight... then... slow plane to config & speed used inside F.A.F. (Vref - _____) (gear, flaps, etc.) then go another turn... then... descend 1000’, level off... one more turn.

0-----1-----2-----3-----4
get CFI dual below average average above average excellent

- 2) (Multi-engine) At this point the engines are nice and cool... pull one engine back to 0 thrust and go through engine failure and feathering checklist... while still in holding pattern.

0-----1-----2-----3-----4
get CFI dual below average average above average excellent

- 2a) (Single-engine) fail the attitude indicator or turn off GPS... then... fly approach to airport

0-----1-----2-----3-----4
get CFI dual below average average above average excellent

- 3) Carry approach through to Circling Minimums and Circle to land... make a short-field approach & transition into a soft-field touchdown without wasting any runway. Check armpits

0-----1-----2-----3-----4
get CFI dual below average average above average excellent

Pro Pilot – 30 minute Power Workout

2) Missed Approach - 99.9% of all missed approaches in the USA use this order:

- 1) Full Power, Clean-Up & Climb straight ahead at MAX rate of climb. V_x - _____ / V_y - _____.
- 2) Turn to some particular heading
- 3) Level off at some altitude
- 4) Go to some fix and "hold"

0-----1-----2-----3-----4
get CFI dual below average average above average excellent

3) At altitude... "I SMELL SMOKE... I SEE FLAMES!!!"

0-----1-----2-----3-----4
get CFI dual below average average above average excellent

Here's what should happen: Push the yoke aggressively forward, retarded the throttle, reached down switched the fuel valve to "closed," pulled the throttle to idle, the mixture to idle cut-off, and switched the ignition off. On the way down, make a simulated "may-day" call, advising ATC of the fire, aircraft position, and the intention to land immediately!!!

Fire or Smoke - First Action Should be: Point the Airplane Downward!

6. Engine failure in IMC

0-----1-----2-----3-----4
get CFI dual below average average above average excellent

1. ***Advise ATC:*** so they can clear the airspace.
2. ***Achieve Best Glide Speed:***
3. ***Hit the "Nearest" Button on Your GPS:***
4. ***Point the Airplane in the Direction of the Nearest Airport:***
5. ***Attempt an Engine Restart:*** only after heading for airport.
6. ***Circle over nearest airport:*** standard rate circling turn down. Monitor descent rate so as to reach the base key point 500'agl

Your goal is to make a controlled descent through the clouds to VFR conditions below.