

<p><b>FLIGHT PLAN SEQUENCE:</b></p> <p>1 – VFR: _____ / IFR: _____</p> <p>2 – <b>N</b> _____</p> <p>3 – Type &amp; equip: _____</p> <p>4 – TAS: _____ kts</p> <p>5 – Departure point: _____</p> <p>6 – Departure time: _____</p> <p>7 – Altitude: _____</p> <p>8 – Route -----&gt;</p> <p>9 – Destination: _____</p> <p>10 – Time En-route: _____</p> <p>11 – Remarks: _____</p> <p>_____</p> <p>12 – Fuel: _____</p> <p>13 – Alternate: _____</p> <p>14 – Pilot / Home base: _____</p> <p>15 – People on board: _____</p> <p>16 – Color: _____</p> <p>17 – Destination Contact: _____</p>	<p><b>8. Proposed Route of Flight:</b> _____</p> <p>_____</p> <p>_____</p> <p><b>Actual Clearance:</b> “<b>CLEARED to:</b> _____</p> <p><b>VIA:</b> _____</p> <p>_____ Cleared as filed: _____</p> <p><b>DP:</b> _____</p> <p><i>Diverse Departure:</i> 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.</p> <p><b>Expect:</b> FL _____ in: _____ minutes. <b>Void:</b> _____</p>
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**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)

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

**Instruments required for IFR flight = "Hac-a-Rat" **H**eading 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](http://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 align="center"><b>IAS to TAS</b></p> <p>Rule of thumb: Add 2% Per 1000' of altitude.</p> <p><b>Ex. Altitude – 8000'</b></p> <p align="center">IAS – 100 kts</p> <p><b>TAS = 100 + 16% = 116 kts</b></p>	<p>At service ceiling V<sub>x</sub> = V<sub>Y</sub></p>
	<p align="center"><b>VFR-ON-TOP Clearance</b></p> <ul style="list-style-type: none"> <li>* Permits operations above, below and between layers</li> <li>* Maintain appropriate VFR altitudes</li> <li>* Both VFR and IFR rules apply</li> <li>* Report reaching VFR-On-Top &amp; prior to any alt. changes</li> <li>* Separation is not always provided</li> </ul>

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

**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)**

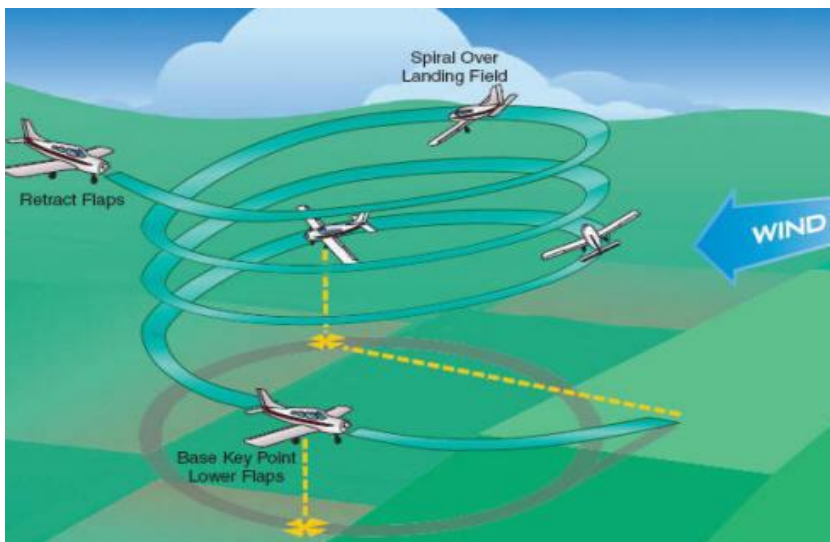
# Cruise - IMC Emergency Landing

(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.



**This page left intentionally blank: En-Route map goes here.**



# 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 ( <b>Vle</b> = _____ 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<sub>so</sub> //// **“Gusty” Vref** = 1.3 V<sub>so</sub> + 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

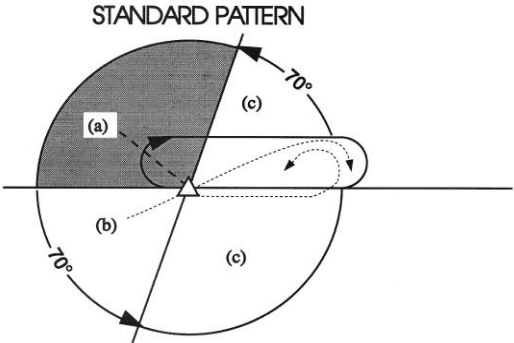
**“ POWER UP / PITCH UP / CLEAN-UP”**

Power.....	MAX mp / MAX rpm
* Carb heat.....	COLD
Climb Speed.....	<b>V<sub>x</sub></b> =_____ <b>V<sub>y</sub></b> =_____ Kts
Flaps.....	RETRACT slowly @ positive ROC
Gear.....	RETRACT @ positive ROC
Cowl flaps.....	OPEN
* Speed Brakes / Spoilers.....	Confirm RETRACTED
Multi:Vmc_____ V <sub>ss</sub> e _____ V <sub>xse</sub> _____ V <sub>yse</sub> _____	

**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<sub>x</sub> = \_\_\_\_\_ / V<sub>y</sub> = \_\_\_\_\_**
- 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
<b>BEFORE SHUTDOWN, 121.5 to be sure that ELT is not broadcasting</b>	
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;"><b>SPIN RECOVERY</b></p> <ol style="list-style-type: none"> <li>1) Power – Idle</li> <li>2) Ailerons – Neutral</li> <li>3) Rudder – Full OPPOSITE rotation direction</li> <li>4) Yoke – Full FORWARD w/ neutral ailerons</li> <li>5) Rudder – Neutral when rotation stops</li> <li>6) Yoke – Pull smoothly from dive</li> </ol>	<p style="text-align: center;"><b>P.A.R.E.</b></p> <p><b>P</b> - Power  <b>A</b> - Ailerons  <b>R</b> - Rudder  <b>E</b> - 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/>



**This page left intentionally blank: TAXI Diagram goes here.**

# 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

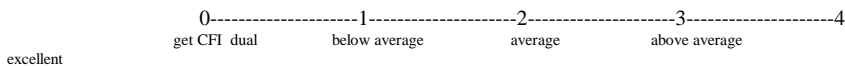
Per the POH: Calculate V-speeds, takeoff distance and takeoff distance to clear a 50' obstacle for the prevailing conditions.  $V_x = \underline{\hspace{2cm}}$  /  $V_y = \underline{\hspace{2cm}}$

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  $V_y$ .

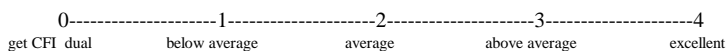


If you haven't achieved 70% of takeoff speed by the time 50% of the runway is used, ABORT!

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

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

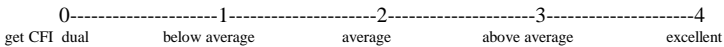
After takeoff, pick a spot to maintain runway heading



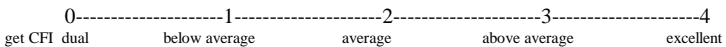
# Private Pilot – 30 minute Workouts

## LANDING

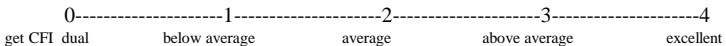
- Per the POH, calculate the following:
  - normal landing distance ..... \_\_\_\_\_
  - landing distance over the 50' obstacle .. \_\_\_\_\_
  - short-field..... \_\_\_\_\_
  - soft-field..... \_\_\_\_\_
- Put “spot” on runway & try to touch down there.
- Land on “Spot” with full flaps carrying a little power (see: “The Threshold of Immediate Control” by Rod Machado) at just above stall /  $V_{s1} = \underline{\hspace{2cm}}$  & hold nosewheel off as long as possible.



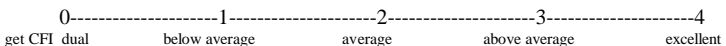
- EMERGENCY Procedures: do some and pick a spot where A/C will come to a stop based on published data.
- On takeoff, while on climb out, do some Dutch Rolls (Coordination exercise) while in this slow speed , high power configuration. Roll back & forth, keeping the nose nailed on a point. Level out at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



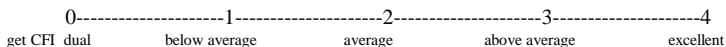
- Dutch Rolls @ cruise, keeping nose nailed.



- 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.