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## SOP APPENDIX A: THE BASICS

Rudder Control - Keep the ball centered - no slipping or skidding, particularly on turns.

Remember on turns P factor [differential loading of the prop] and use of aileron effect the use of rudder. Each creates yaw effect. [Down aileron creates lift and drag which ='s yaw]

Scan - learn how and keep at it so it becomes second nature - 75%

looking outside - 25% instrument checks [alt, ball, course, those that need to be "in the green"]

Turns. Clear opposite to your turn i.e. left turn - clear right; right turn - clear left. This is particularly important in the pattern.

Pitch Control - Never forget at low altitude **PITCH CONTROLS AIRSPEED  
POWER CONTROLS ALTITUDE.** Get used to establishing takeoff climb speed and seeing the attitude over the nose to the horizon for that speed - then establish that attitude on every takeoff before checking speed. Same thing with cruise climb and best glide.

Horizon - it is your friend! Pay attention to the horizon reference off the top of the panel in level flight and turns. The horizon reference will always tell you where you are in space (climbing or descending).

Wind Direction/runway Direction - Your compass (or D.G.) is your friend. The top of the compass rose tells you where you are going and the bottom where you are coming from. To tell whether the wind is from the front, left, right, behind and anything in between, look at the compass (DG) rose. To determine which runway is in use at a strange airport look at the compass rose. Draw an imaginary line across the compass rose from the runway heading to the other side of the rose. That will tell you which of those runways you are looking at is the right one and which end to land on. (don't forget to add a zero to the runway numbers e.g. runway 4 is heading 40 degrees.

Straight and Level Flight - Get your attitude indicator on level then look over the nose to the horizon and mentally note how high the horizon is off the top of the panel and keep that distance as you are scanning for traffic. **DON'T FIXATE ON THE ALTIMETER** [or anything else]. If you maintain the sight picture to the horizon you won't be far of the next time you do check the altimeter.

Climbs and Descents - Start recovery at 10% of rate of climb or descent. In a climb at 500' fpm start level off at 50' below target altitude. Climb power should be maintained until the A/C reaches desired cruise speed then set throttle to cruise rpm's then trim. **NOTE: TRIM ONLY AFTER DESIRED CRUISE SPEED IS REACHED.**

Turns - Under normal circumstances (and always when in the pattern) turns should not exceed 30 degrees of bank. The steep turn is a practice maneuver and not intended to become a habit especially when low and slow.

Trim - Set the attitude with the stick hold it there THEN AND ONLY THEN use the trim to take the control pressure off your hand. Make it a habit to trim every time you change pitch so that if you get distracted the airplane will stay where you put it and not end up in a stall or dive. The latter is the primary reason for good trim habits. The second reason is it makes flying a whole lot more precise, less tiring, and more fun.

Plan Ahead - This is called being ahead of the airplane. It means you know what you have to do next well in advance of the time when you have to do it. Think ahead as to the next TWO things you have to do.

Checklist Discipline - USE IT ALL THE TIME EVERY TIME! USE IT IN THE AIR as well as on the ground. Do a flow check then check it against the checklist. Do not use the checklist as a "To Do List" you will not catch errors as you will if you flow check first. When it is time for configuration changes and for landing - flow check then use the list.

Pattern Altitude - Always maintain pattern altitude when in the pattern starting with the 45. It is easier to see other A/C and to be seen when at the same altitude.

Takeoff - Hold nose on the centerline with rudder. There will be a left turning tendency when you go to full throttle (torque effect) and when you rotate (P -factor) keep the nose on the centerline. Release control pressure gently after liftoff for pitch to  $V_y$  and learn sight picture on horizon for  $V_y$ . Maintain extended runway centerline by using a visual reference aid to maintain centerline and to establish correct crab (if visual reference slides left or right correct with crab. Climb with wings level, let a/c weathervane into the wind if it is so inclined.

Landings - Keep the nose on the centerline with your feet and move left and right with the stick. If you need left or right rudder to stay on centerline DO NOT GIVE UP ON IT. Especially when you get low and round out to a landing. Keep the nose on the centerline. At round out you are getting slow and you will need progressively more rudder. Eyes to the end of the runway and fly level over the runway. As you lose speed the nose wants to drop. Progressively add elevator to keep the nose up (elevator losing effectiveness as the A/C slows). Eyes down the runway allows your peripheral vision to tell you when you are level and height over the runway. When a couple of feet off pull nose up to takeoff pitch for a soft touchdown.

On downwind mark a spot representing the end of the first third of the runway. If you have not touched down when you pass that spot go around!

IF YOU GET LOW ON FINAL ADD POWER as well as back pressure on the stick (just pitching up reduces airspeed and increases sink rate- power must be added first). Note that simply by adding power the nose will come up from increased air flow over the elevator.

## **SOP APPENDIX B: FUELING SAFELY**

1. Static electricity is created by fuel flowing through the hose.
2. Attach grounding clip to A/C FIRST and remove it LAST.
3. Ensure the nozzle is touching the fuel filler neck opening while you are fueling (to dissipate static charge from flowing fuel).
4. Never fuel while preheating.
5. Never fuel inside a building
6. Turn all electrical devices off and do not use cell phone or radio while fueling.
7. If any fuel gets on your skin, wash immediately (lead is toxic and AVGAS is heavily leaded). Do not breath the vapors.
8. If any TCP gets on skin, wash immediately. TCP extremely toxic.
9. Do not fuel if lightning is in the vicinity.
10. Don't allow anyone to smoke within 50 feet of fueling operations
11. If refilling a portable container touch the container with the nozzle before removing the lid to fill up to allow static charge access to ground.
12. Double check that fuel tank caps are replaced after fueling and securely Fastened.
13. Double check that the fuel card makes it back into the plane.

**TO PREVENT DAMAGE TO THE AIRCRAFT DO NOT LEAVE THE NOZZLE IN THE FILLER NECK AND WALK AWAY**

## **SOP APPENDIX C: ABC'S OF EMERGENCIES**

(This is an example of a mnemonic checklist)

- A - Airspeed - Get on Best Glide and don't lose altitude doing it. Learn pitch Attitude (visual reference to horizon) and trim setting at idle for Best Glide so you don't waste time
- B - Best Field - be aware of wind quadrant and locate best field. Pick one close. Are you on downwind, base, or final to a good one (don't forget to look below you). Enter momentary steep bank look below you then look outward. Avoid long approaches. Visualize pattern legs from where you are. At 1500' you should be on a downwind - at 1000' you should definitely be on a pattern leg!
- Pick - (1) Field or road (2) Water (3) Trees .In this order. Pick field with nearby alternate if possible. If you land wings level at normal landing speed you have over a 90% chance of walking away.
- Altitude - Are you high. If so fix it - S turns/ Slips/flaps. Better to be high than low, err on the side of being high if there is no alternate landing area.
- C - Checklist - Flow check, then look at written list if time (know the flow!). Attempt restart (if restart fails gas off)
- D - Declare Emergency- Transponder 7700 first, then radio 121.5(Mayday) - Tail No./typeA/C/position/souls on board/. As to position hit GPS nearest button and give ATC bearing and miles to nearest airport (it's quick and simple); for the more precision minded ( who are at a high altitude with plenty of time and seek to occupy their mind with something other than watching the operation of the laws of gravity) go to the waypoint page and read off the coordinates for your position.
- E - Exit Preparation - seat belts/doors open and blocked/emergency equipment ready.
- F - Fire Prevention - Check Gas off - electric off (after flaps set)

**DON'T WORRY ABOUT DAMAGE TO THE AIRPLANE!** It used to belong to a bank now it belongs to an insurance company.

**SOP APPENDIX D: SET UP TO APPROACH AND LAND AT A NON - TOWERED AIRPORT**

[For reference see AC 90-66A and AOPA Safety Advisory "Operations at Non Towered Airports"]

A. As part of pre flight planning consider position of the runways from the compass direction of your inbound leg and draw diagram of the runway positions and numbers for your kneeboard together with radio frequencies so everything is available at a glance.

[ A diagram is available in the Facilities Directory].

B. Visualize the geometry of the pattern superimposed on the runway diagram.[Google Earth may be helpful.

C. As to which runway to use listen to the AWOS (ATIS at Towered airports) for wind direction indicating favored runway (wind angle less than 90 degrees to runway heading ). The simplest way to quickly determine the favored runway is to look at the directional gyro or vertical compass for wind direction and runway number which will show which runway is less than 90 degrees. Otherwise subtract the wind direction from the runway headings [remember you add a zero to each runway number to determine the heading]. For example at Bay Bridge with runway headings of 110 and 290 degrees if the wind is from the northeast at 010 degrees runway 29 has to be favored since 110 less 10 is 100.

D. After getting AWOS listen to Unicom to see if there are aircraft in pattern; taking off; or landing and what runway is in use. if wind is close to 90 degrees angle ask Unicom for a runway advisory (which runway is in use) before committing yourself to a pattern.

E .At this point (10 miles out) call airport traffic and announce your position (miles out, altitude and compass quadrant plus landmark if there is one) and intentions (inbound to runway \_\_\_\_\_.) E.g:

"Who you are , where you are, what you plan to do, where you are (for those who missed the first part of your call)"

Make sure all lights are on including landing light for visibility. [Always refer to yourself by Type of A/C.(eg "Tecnam Eaglet Light Sport" No one knows what a "November" looks like]

G. Preferred pattern is 45 degree angle to the downwind leg. See references above. On short runways less than 4000' students set up angle to end of runway not to the middle to give yourself more time on downwind to slow down and set up for landing . If

you are entering the pattern from the opposite side of the airport("upwind leg"), cross over the airport 500' above pattern altitude and proceed to the downwind side two miles clear of the downwind leg and turn in to a 45 staying clear of downwind traffic. Least favored is the straight in approach .STRAIGHT INS ARE NOT APPROVED FOR CSP STUDENTS OR RENTERS UNLESS IN AN EMERGENCY SITUATION! Straight ins must yield to all pattern traffic and give periodic announcements as to position as they conflict with traffic established in the pattern .[AC -66A. Any A/C doing a non-emergency straight should plan for a side step to an upwind if others are in the pattern - this usually does not happen so extreme vigilance is required from other pilots. Whenever you hear a straight in called assume you are dealing with a dangerous character!]

ON DOWNWIND AT AN UNFAMILIAR AIRPORT CHECK OFF BOTH ENDS OF THE RUNWAY FOR EMERGENCY LANDING AREAS. ALSO NOTE A SPOT REPRESENTING ONE THIRD OF THE LANDING RUNWAY - IF YOU HAVE NOT TOUCHED DOWN AT THIS POINT GO AROUND!

H. Flow check and review checklist on the 45 or earlier before turning downwind. Check again on downwind. Reduce rpm as soon as you are on downwind trim to 5K over approach speed maintain pattern altitude. When abeam landing runway numbers reduce rpm and trim to approach speed first flaps and reduce altitude for base leg turn.. Call all turns before turn is made. You are most visible when wings are up in a bank and when you call your turn other eyeballs focus on turn area and will see the banked wings. This is particularly important for light colored small A/C.

Clear all pattern turns opposite the direction of the turn -" CLEAR RIGHT" "CLEAR LEFT"( verbalize it so it becomes habit) - remember the danger of the straight in (base or final) who thinks one call (sometimes none) 8 miles out gives him a right of way over all others established in the pattern and expects you to clear out of his way .

J. Turn base 45 degrees off landing runway numbers no lower than 300' below pattern altitude for visibility by other A/C. NEVER TURN BASE UNTIL THE AIRCRAFT IN FRONT OF YOU HAS TURNED FINAL AND HAS PASSED YOUR WINGTIP (See, AOPA Safety Advisory, " Operations at Non Towered Airports - Fig 6").Once turn is completed 2nd flaps and adjust trim as necessary to maintain approach speed. Do not lower flaps in a turn if it can be avoided in the event of a differential flap extension which could result in a sudden rush of intestinal matter to the heart and a fouled up approach. Adjust altitude as necessary for proper altitude for turn to final [TO INCREASE ALTITUDE WHEN LOW ADD POWER NOT JUST ELEVATOR]

POWER ='S ALTITUDE  
ELEVATOR='S SPEED

k. Turn final at an altitude which hopefully will allow a power off descent to the runway

in the event of engine failure [unless gusty winds where some power should be carried as well as additional speed of at least ½ the gust factor]. On the turn to final keep the nose down and aimed at the numbers, reduce power to idle, add final flaps when landing assured (adjust trim as necessary). Adjust power if necessary to maintain proper approach path; maintain centerline [nose on or parallel to centerline with your feet -move left and right as necessary with the stick] and nose down to hold aim point steady. Slip off any excess altitude (forward or side slip as appropriate to conditions). Note on power off approaches: if you don't get nose down on the turn you will fly through the proper approach path and be too high. If properly trimmed you will need little to no back pressure on the stick. If a side slip will be necessary due to crosswind add some altitude since the vertical component of lift is shifted in the slip and you will descend faster and remember to think about wind direction on downwind:

Early turn to final if you have a tailwind on base.

Late turn to final if you have a headwind on base.

Altitude adjustment for final turn if wind coming down the runway or if there is light wind

In both cases by the time the turn is completed the wind should have you sliding towards the centerline and give you time to set up a slip to lock on to the centerline and have a stable approach.

**NO PATTERN TURN SHOULD EXCEED 30 DEGREES OF BANK**

**IF YOU CANNOT HOLD THE A/C'S NOSE ON THE CENTERLINE IN A SLIP THE X WIND EXCEEDS THE A/C'S CAPABILITY and a more favorable runway must be used..**

OK to land on the upwind side of the runway on a x-wind landing but never on the downwind side!

L. After round-out make sure fuselage is parallel to or lined up with the centerline. When low over the runway just before touchdown do not attempt to angle toward the centerline with rudder. After touchdown stick full left or right as necessary into the wind to keep wind from raising the wing. Keep flaps down for aerodynamic braking and back pressure on the stick to keep weight off the nose wheel as long as possible.

**IF YOU ARE UNCOMFORTABLE ON THE APPROACH OR LANDING -APPLY FULL POWER AND GO AROUND AND ONCE YOU DECIDE TO GO AROUND NEVER CHANGE YOUR MIND. Always have a go around in mind - a landing is nothing more**



than a cancelled go around.

## SOP APPENDIX E: SOLO TAKEOFF BRIEFING

1. Visualize the location of the emergency landing areas [45 degrees each side of the centerline]. Remind yourself that when you reach your destination Airport you will look at where the emergency landing areas are off the end of each runway as well as the available overrun area.

2. Review takeoff procedures:

A. Unless with an instructor, left hand on stick and right hand on throttle during takeoff roll [allows right hand to go to brake quickly if necessary]. Keep hand on throttle throughout climb-out [to prevent creeping]. [Applies to all A/C with hand brake except Sky Arrow]. In toe brake aircraft after brakes are released for the takeoff roll get heels on the floor to prevent inadvertent application of the brakes.

B. In all A/C except Sky Arrow, before starting takeoff roll put in a little right rudder and be prepared to increase it as power goes in ["right rudder right way"]. In all A/C pull forward far enough to straighten the nose wheel before adding full power.

C. Add power firmly but smoothly - do not quickly ram on full power -add right rudder as power goes in. Power creates left turning tendency (slip stream) ramming in full power is bad for the engine and causes A/C to veer sharply left potentially departing the runway - bad for you.

Check engine instruments "in the green"

D. Call-outs on takeoff roll:

"RPM'S up "- verification that RPM's 5000 or better - if not ABORT.

"Airspeed alive" - verification that airspeed indicator operating - if not ABORT.

If anything does not sound or feel right - ABORT

E. Abort Procedure: [immediate action!]

Power - Idle

Brake - Apply

Stick - Back [to assist braking]

[If it is apparent you are going to depart the runway and do something ugly - ignition, master, and fuel - OFF]

F. Rotation - add more right rudder as necessary to counter increase in left turning tendency as you rotate.

G. Maintain extended runway centerline. Pick a reference point to maintain runway centerline. If it drifts left or right set up crab to stop drift.

H. Pitch attitude. Learn pitch attitude for  $V_x$  or  $V_y$  by visual reference on the horizon to get on it quickly after rotation by reducing pressure on the stick as necessary.

I. Don't do intersection takeoffs. Runway behind does you no good. It shortens the abort distance.

J. ENGINE FAILURE AFTER TAKEOFF [immediate action necessary!]

PUSH NOSE DOWN AGGRESSIVELY - To steep final approach attitude to gain flying speed due to high angle of attack.

LAND STRAIGHT AHEAD OR 45 degrees left or right. Once flying speed is achieved FLAPS DOWN, IGNITION, MASTER ,FUEL -OFF

DOORS OPEN - LAND WINGS LEVEL at slowest possible speed.

DO NOT WORRY ABOUT DAMAGING THE AIRPLANE! It belonged to the insurance company as soon as the engine quit.

DO NOT ATTEMPT TO RETURN TO THE AIRPORT IF UNDER 1000 FEET [you will need to make at least a 270 degree turn and need 3000' of runway. You may need a 360 degree turn depending on the point of rotation and length of the runway. The lower you are the steeper will be your bank increasing your stall speed creating a high risk of an unrecoverable stall, particularly since you may have a tail wind.

In the unlikely event you make the turn your approach will not be stable with a high risk of rolling yourself up into a ball on landing.]

## SOP APPENDIX F: Tower Procedure Class D/E

Note: Most towers this small do not have a radar, just binoculars. They often only have one person working several frequencies. Give specific position reports and be patient. Use your lights to help the controller find you. Don't forget to let the controller know you are a student so he can give you extra help.

### LANDING PROCEDURES

A. Listen to ATIS

B. Initial Contact 10 miles out:

Ident - A/C type and full N-number  
Position (compass quadrant)  
Altitude  
Advise "inbound with information(Atis Code)"

C. Establish 2 way Communication [Tower must respond with your call sign "A/C calling \_\_\_\_\_ standby" does not establish communication]

D. Tower will instruct what runway in use; what leg of the pattern to fly and when to next contact the tower e.g. " fly right downwind to runway 33 report midfield"

E. Do not report turns in pattern unless asked to. You must be given a clearance to land by the tower. If you do not receive it when you turn base assume the tower has become distracted and ask if you are cleared

F. On landing you will usually be told where to turn off the runway. If not turn off when you are ready and stop after clearing hold short line. You must have a clearance to taxi. Call ground and ask for taxi clearance to where you want to go. If you are confused about taxiways to use ask for a progressive taxi and you will be given turn by turn instructions.

TAKEOFF PROCEDURE (Unless doing an immediate takeoff where you will be cleared to taxi direct to the runway)

A. Get Atis information

B. Contact Ground tell them who you are and location on field and are ready to taxi. You will be given clearance to the appropriate runway.

C. When you are ready to go, position at the hold short line, call the Tower and tell

them you you have information (ATIS) are ready on (runway number) and direction of departure (quadrant) or closed pattern etc. You will then be cleared for takeoff.

D. Proceed to runway and take off. You must stay on the Tower frequency until released by the Tower because you may receive A/C advisories or other directions to remain clear of inbound or outbound traffic the Tower is controlling! Release occurs when the Tower tells you "frequency change approved" allowing you to change to whatever frequency you want. If Tower has not released you when you reach the boundary of the Class D/E airspace Call Tower and advise you are leaving its airspace ie "Easton Tower ----(A/C type and number) is departing your airspace." Tower will respond by giving you a frequency change approval.

Note: The Tower may be handling ground as well as airborne traffic on the same frequency

Stay alert! Controllers make mistakes. Notwithstanding a clearance look to make sure there is no conflicting traffic, that you have been cleared for the correct runway etc. If you are unsure of the instruction use the most important words there are in communications (there are only two of them) 'SAY AGAIN'

## RADIO RESPONSE

When given instructions by the Tower (or any other ATC Facility) you must respond indicating to the controller that you heard and understood. Generally this means you give your aircraft number and repeat the instruction. If you misunderstood it gives the controller a chance to correct your error. If the controller is giving you information as opposed to an instruction such as an altimeter setting simply responding by giving your aircraft number is sufficient. "Roger " simply means you have received the controller's last transmission.. More informative but not the best is "Wilco" which means you not only received the last transmission but you understand it and will comply with it even though the controller has to take it on faith that you understood it and has no opportunity to correct you. Don't get in the habit of using either response - repeat the instruction. What you can't do is get a transmission directed to you and remain silent.

## "UNABLE"

Whenever you are given an instruction by a controller with which you can not safely comply simply respond "UNABLE." The Controller may grumble but cannot override

you. You are the pilot in command and ultimately responsible for safe operation. An example is being told to turn off at a taxiway after landing when you are going too fast to make the turn.

*Note: The Easton Tower controllers love to have guests, especially student pilots who bring them cookies! To set up a tour, call 410-770-5968.*

**SOP APPENDIX G: Radio Procedures For x-Country  
(Exclusive of the SFRA and towered airspace including class B)**

A. Contact Flight Service to open your Flight Plan.. The frequencies to contact Flight Service are indicated over the VOR box for the nearest VOR to your location. The standard frequencies for FS are: 121.5 ( emergency), 122.2, 122.6, 123.6 ( no tower FSS on field), 122.0 (flight watch). All Flight Service stations monitor 122.2 and 121.5. [Note: do not use frequencies showing an "R" as these require a nav. Radio].

Generally speaking you will use 122.2. When calling FSS you must tell them on what frequency you are listening since otherwise they will have to search for you on all their frequencies. Also it is a good idea to tell them your location on initial call- up since different persons handle different geographical sectors. Always identify the station you are calling. The station for your sector is below the nearest VOR box on your sectional. For example Baltimore is Leesburg and Cape May is Millville. The FSS is always referred to as "Radio" The initial call is as follows:

"Leesburg Radio November \_\_\_\_\_ east of W29 listening on 122.2"  
[ Leesburg responds]

"November \_\_\_\_\_ is VFR from w29 to \_\_\_\_\_ and requests flight plan be opened at 10 o'clock local"  
[Leesburg acknowledges and verifies opening]

You now have your basic safety net and a search for you will start when you are 30 minutes past your flight plan ETA. If it becomes apparent you will be late call Flight Service and ask them to extend your ETA to the appropriate time. Always file a flight plan even if you are going to use Flight Following (sometimes called "radar service" also referred to as "radar advisories") because radar service is discretionary on a workload basis and you may not get it. The flight plan is your backup.[ Note: once you have pre-flighted and are ready to go you can open your flight plan by telephone by calling the FSS number and give them your estimated takeoff time as the time to open the plan. This has the advantage of reducing workload once in the air. Just don't forget to call and cancel it if you abort the trip for any reason!]

B Contact Approach Control for Radar Service. After the flight plan is opened the next call is to the approach/departure control covering your sector. The frequency can be found in the Facilities Directory for the airport you are departing or on the list of radar approach control frequencies which are behind the Legends on the sectional chart. The frequencies are listed by degrees of radial from the VOR to your location. Don't worry if you call the wrong one, they will advise you to switch and give you the correct frequency. The call is as follows:

" \_\_\_\_\_ approach (ex: "Potomac Approach" for Baltimore) November \_\_\_\_\_

[Approach responds]

"November \_\_\_\_\_ is a Sky Arrow Light Sport southeast of W29 at [altitude] VFR to \_\_\_\_\_ requesting radar service."

[Approach responds and gives you a transponder code which you punch in. The controller may ask you to "ident" which you do by punching the ident button one time, don't hold it in. This causes a bloom on the radar screen and the controller will advise he has radar contact and your location and altitude]. Your safety net is now complete. If you have an emergency you are with a controller and he knows where you are if you have to make an off field landing, From this point everything is similar to instrument flight and you will receive advisories as to potentially conflicting traffic to which you will respond by advising that you "are looking" or that you "have the traffic." If the conflict appears dangerous the controller will tell you to turn to a heading and/or change altitude which you had best do promptly. Don't acknowledge the call, just do it and acknowledge later. If the traffic is too close for comfort you should ask for vectors to avoid it.

Things to read back to controllers:

1. Instructions
2. Clearances
3. Altimeter settings

Controllers can help you if you get lost by giving you vectors to a destination. If you are concerned about weather you can ask if they are "painting any weather" along your route (they cannot see clouds but they can see rain).

Never hesitate to ask for radar service. Controllers prefer to give you radar service even if on occasion they are too busy to give it to you. They would rather have you identified, know where you are going, and be in contact with you on the radio than have you up there as a UFO zipping around messing them up and threatening the traffic for which they are responsible.

C. Handoffs. During your flight you may pass out of the approach control's area. At this point one of two things will happen. Usually you will be "handed off" to the new controller. If this happens you will simply be told to contact the new approach and be given the frequency (your controller has contacted the new approach and told them to expect you). All you need to do is call the new approach. They may or may not come back with a new transponder code. For example:

" November \_\_\_\_\_ contact Patuxent Approach on 120.05."

You acknowledge the instruction, put in the new frequency and call Patuxent Approach:

" Patuxent Approach November \_\_\_\_\_." [the controller will respond Promptly]



The second thing that might happen is if the controller is too busy for a handoff he/she will advise you that "radar service is terminated, squawk VFR and you may contact Patuxent Approach on 120.05." You acknowledge the instruction and call in to Patuxent Approach using the same procedure as your initial call for starting radar service, advising who you are ,where you are, where you are going and requesting radar service. If they don't give you a contact frequency ask for one.

D Changing Altitude or Heading .Advise the controller of any altitude or heading changes before they are made. Don't ask permission but wait until your transmission is acknowledged before making the changes:

"Dover Approached be advised \_\_\_\_\_ is climbing out of three- thousand five- hundred for five thousand five-hundred.  
[wait for acknowledgement , then execute]

Same procedure for a route or destination change.

E. Avoiding Traffic - When the controller advises you have traffic near you, respond that you "are looking" or "have the traffic." If the traffic appears to be uncomfortably close and you don't see it, ask the controller for "an avoidance vector." You may not get an avoidance vector unless you ask.

F. Cancelling Radar Service. While you are on radar service you must stay on the controller's frequency unless you advise the controller you want to leave the frequency. If you wish to leave the frequency to, for example talk to flight service (amend flight plan, get weather etc) ask for a frequency change. The controller will approve the frequency change. When you finish go back to the controller's frequency and call in saying " \_\_\_\_\_approach November \_\_\_\_\_ is with you".

When your destination airport is in sight advise your controller. The controller will announce your frequency change (to the tower or CTAF ) is approved and tell you to Squawk VFR (1200) or at a class B or C airport hand you off to the tower. Do not cancel until you are sure you have the correct airport as the controller can assist you in finding it.

G. Closing the Flight Plan. You must close your flight plan either by radio or by telephone. If by radio call the FSS servicing the area of your destination airport and advise that you have the airport in sight and wish to close your flight plan. Or once on the ground call the FSS number 1 800 992 7433 and close.

### Flight Watch (EFAS)

Flight Watch (Enroute Advisory Service) is an FSS weather service available between 6AM and 10 PM local for aircraft flying between 5000 and 18000 feet. The frequency is always 122.0. You may be able to reach it below 5000' depending on your location. If not, climb to 5000 or better. Only selected FSS provide flight Watch services (see AFD). If you do not know the FSS servicing your area the call is as follows:

“Flight Watch this is November \_\_\_\_\_[give location relative to an airport or VOR] listening on 122.0 over”]

You must give your location so the appropriate transmitter can be activated by Flight Watch.

Flight Watch only deals with weather and pilot reports (PIREPS). It does not accept or amend flight plans . For content and examples of PIREPS see AIM 7-1-20. It is important to report unforecast weather.

## SOP APPENDIX H: BAY BRIDGE RADIO CALLS - AIM 4-1-9b

### OUTBOUND:

Radio Check - "Bay Bridge Unicorn November radio check" [if no response key mike 5 times runway lights should come on if you are transmitting]

Before Takeoff - "Bay Bridge traffic Tecnam departing runway departing to the East [or staying in the pattern etc or whatever else you are going to do] Bay Bridge"

### INBOUND:

Listen to AWOS/ASOS for weather/winds before 10 miles out. Listen to unicorn frequency for aircraft calls indicating runway in use.

When 10 miles out - " Bay Bridge traffic Tecnam \_\_\_ 10 miles to the[northeast etc] at [altitude] inbound to runway \_\_\_" If the runway in use is not apparent from the AWOS or from aircraft calls then: "Bay Bridge Unicorn what is your active runway please ?"

Pattern Calls: - advise when you enter each pattern leg as follows:

On a 45 - "Bay Bridge Traffic Tecnam entering a 45 for

When calling pattern legs you can add calls such as 5 miles out or : "midfield downwind" to be more precise on your position particularly when the pattern is crowded. Also use local landmarks wherever possible to make your position more obvious [example:- Bay bridge traffic Tecnam \_\_\_ 5 miles out to runway 11 abeam Kent Narrows Bay Bridge" or "Bay Bridge Traffic Tecnam \_\_\_ turning downwind to 29 at the watertower"

IN ALL CASES THE OBJECT OF RADIO CALLS IS TO INFORM OTHER PILOTS AND CONVEY THE FOLLOWING INFORMATION IN THIS ORDER;

WHO YOU ARE INFORMING (Pilots in the area - Bay Bridge Traffic)

WHO YOU ARE (Aircraft type and number)

WHERE YOU ARE AND WHAT YOU ARE GOING TO DO OR ARE DOING (inbound - entering a 45 - turning base etc)

REPEAT WHO YOU ARE INFORMING (In case they missed the first part of your call - "Bay Bridge traffic" - as there are multiple airports on the same frequency)

Downwind: - "Bay Bridge traffic Tecnam turning downwind to runway \_\_\_ Bay Bridge"

Base Leg - "Bay Bridge traffic Tecnam turning Base to runway \_\_\_ Bay Bridge"

Final - "Bay Bridge traffic Tecnam \_\_\_ turning final to runway Bay Bridge."

AFTER LANDING AND TURNING OFF THE RUNWAY:

" Bay Bridge traffic Tecnam \_\_\_ is clear of the active runway \_\_\_\_ [say runway number]

## SOP APPENDIX I: LANDINGS

[Strive to insure that, when compared to the number of takeoffs, they add to an equal number]

A good landing starts with a good pattern flown at the correct altitude and constant thinking ahead about the next two things you have to do. A standard pattern is left at 1000' AGL (above ground level) or as otherwise indicated on the AWOS or ATIS, chart, AFD or, as to direction, the segmented circle.

- A. Be at proper pattern altitude as soon as you enter the pattern ( aircraft can see each easier if they are at the same altitude). Think about wind speed and direction. The straight in base or final is unfavored and requires you to stay clear of others in the pattern and give periodic announcements as to your position (because on straight ins no one knows exactly where you are unless you call out mileage or landmarks). When you are in the pattern always assume this procedure will be ignored by others!
- B. Preferred pattern entry is a 45 degree angle to the downwind leg. AIM 4-3-3. On short runways less than 4000' set up the angle to the end of the runway not the middle to allow more time on downwind to slow down and set up for landing. If you are entering the pattern from the opposite side (upwind side), cross over the airport at least 500' above pattern altitude and proceed to the downwind side two miles clear of the downwind leg and turn in to a 45 staying clear of downwind traffic. If you cross over the airport and turn directly into the downwind you must give way to other traffic in the pattern or on a 45 - always assume this procedure will be ignored by others. Review the landing list on the 45, implement it, then check it again on downwind.
- C. Downwind is set up approximately one mile off the runway [you can use your GPS for this then note how far up the strut (high wing) or down the wing (low wing) the runway appears and use that reference in the future]. On downwind slow to flap operating speed (white arc) and trim to recommended speed - 5 to 10 knots above approach speed depending on the aircraft, to account for speed reduction when flaps are lowered.[Approach speed should be no lower than 1.3 V<sub>so</sub> unless the POH says otherwise]. **CHECK BOTH ENDS OF THE RUNWAY FOR EMERGENCY LANDING AREAS.** Note any points that indicate 1/3 of the landing runway. You should touch down no further than the 1/3rd point otherwise GO AROUND!

Think about what the wind speed and direction will do to you on final

- D. Call your turns early so you are not rushed and don't turn late. Late turns cause steep banks - the stall speed goes up and trouble looms. Never use more than a

30 degree bank in the pattern (20 degrees is better) - you are too low and slow for steep banks, particularly on the turn to final!

Another major reason to call turns early is so people can have time to focus on your turn area and see you when your wings go up and you are most visible. This is particularly important for small aircraft. Do not set flaps in a turn if it can be avoided in the event of a differential flap extension which will cause anxiety [the ailerons will overcome the roll ].

E.. Clear the area opposite the turn and verbalize it. On a left turn "Clear right" etc. One day you will see someone on a straight in base or final with no radio call, or if a call is made thinks that gives them a right of way over others in the pattern. Many instrument pilots doing practice approaches seem convinced they occupy an elevated status and are particularly dangerous in this regard.

F. The base leg starts the landing approach. Altitude at the turn should be no lower than 300' below pattern altitude for visibility by other aircraft. Speed should be no lower than 1.4 V<sub>so</sub> unless the POH says otherwise. Generally, the base leg turn starts when when the aircraft crosses and imaginary line projecting 45 degrees from the landing runway numbers. To insure that two aircraft do not occupy the same runway at the same time do not begin the base leg turn until any aircraft ahead of you has turned final and has passedt your wingtip!

When the turn is completed you are at the "key " position where you evaluate whether you have to lose or gain or maintain altitude for a correct turn to the final leg . Your altitude for the turn to final depends on the wind direction and velocity and whether you plan on a power on or power off approach [ the latter depending how well your engine is running or perhaps on how much you trust it in general!].

G. The final approach leg:

1. Turn at the correct time to complete the turn on centerline and at the correct altitude. This requires you to "play the wind":

Early turn if you have a tailwind on base.

Late turn if you have a headwind on base.

Altitude adjustment for final turn if the wind is coming down the runway or if there is a light wind.

The timing is matter of judgment based on wind speed with the object of

having the drift during the turn placing you on the centerline or slightly upwind so you will drift to it without any drastic maneuvering .If things get drastic level off and go around! Remember a steep turn on final will usually result in cross controlling which risks an unrecoverable stall! Altitude is determined by the wind and whether you want a power off or low power approach or a power on approach. Turn in high (1) for a power off descent (2) if there is significant wind down the runway (3) you anticipate a slip to landing to deal with cross winds ( you will lose altitude while side slipping because the vertical component of lift is shifted increasing the rate of descent)

2. When turning on to final keep the nose down - if you level off in, or shortly after the turn you will very quickly fly through your planned approach path and end up very high very quickly. This is particularly embarrassing when you are turning in high anyway for a power off approach etc.
3. When the turn is completed quickly establish the correct attitude to your aim point. This is the distance from the top of the panel to the end of the runway or the numbers or whatever other aim point you choose. The correct attitude picture will become apparent with sufficient practice. ONCE ESTABLISHED MAINTAIN IT with pitch and power to hold the correct approach path. Don't let the nose creep up or you will fly through the approach path and end up high! WHEN LOW TO INCREASE ALTITUDE ADD POWER NOT JUST PITCH . At low power settings increasing elevator creates induced drag which slows the aircraft further, reduces lift and at low speeds causes an increased rate of descent as well as serious stall risk due to an increased angle of attack.

When the turn is completed, quickly set up any required right or left side slip to avoid being blown off centerline (adjusting the slip as necessary to hold centerline). Speed should be no lower than 1.3 VSO unless the POH says otherwise. KEEP UP YOUR AIRSPEED ON FINAL.

4. High or Low approach - Which One to Use:

"Any approach that requires power is low and the airplane won't make it to the runway without power. Any approach that doesn't Require power is either right on the money or high"

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Approach Slope Indicators (PAPI Lights etc) - If your home field has them and you are flying light aircraft ignore them in VFR day conditions. They are set for power on approaches in heavy aircraft and do not exist at many airports. Concentrate on altitude (AGL!) and the runway sight picture which creates the

correct approach path for your aircraft regardless of where you are. View the lights as crutches for the needy and make sure you are not needy (except at night at an unfamiliar airport where you may well be very needy).

High Approaches - Used for:

The power off approach- which is viewed by many as the safest since it creates an "out" if your engine fails on final and should therefore be used as the "normal " approach. Give serious consideration to this when you are in a low fuel condition (or when the little green man in the engine is making it sound funny or making the gauges read weird). Practice this approach so you can judge the turn-in altitude correctly.

Emergency approaches - they will usually be engine out. You want to come in high until you are certain you have the field made - the wise person says, "You can shed altitude but you can't gain it."

Strong winds coming down the runway - groundspeed is low and the angle of descent will be steeper so start high.

Cross wind where a significant side slip will be required to hold centerline. Due to the shift in the vertical component of lift the rate of descent in a side slip is greater than in a wings level approach.

Obstacles -Where it is necessary to clear obstacles at the approach end of the runway (steep angle of descent) and reduce float.

Low Approach with Power- Used for:

Heavy aircraft

Those who never think about an engine failure

Gusty wind conditions or turbulence add one half the gust factor or 5K or more to your normal approach speed to avoid a sudden loss of lift and loss of control effectiveness particularly with strong gusty crosswinds.

Those who are not confident of their ability to slip off excess altitude when necessary.

Those who feel the need for speed and crave loud engine sounds!



## Use Of Flaps:

Whether using a high or low approach if there is a strong wind coming down the runway do not put in full flaps until the landing is assured.

In turbulence or strong or gusty cross winds or headwinds partial flaps or no flaps at all has two benefits: (1) increases speed over the threshold, maintaining control surface effectiveness and (2) reduces the risk of the A/C not "sticking" to the runway after touchdown. [see also, the comment below regarding flying the plane onto the runway].

## 5. Staying on Centerline:

Use side slips to stay on centerline on final approach (unless in a cross wind then stay on the upwind side of the runway). If you consistently use side slips to stay on centerline cross wind landings will seem easy. Once you are low on the runway after round-out if you are not on centerline DO NOT attempt to maneuver to the centerline, either land off center or, if so far off so that you are a threat to runway lights and other creatures that live in the grass, go around.

Side slipping is easy if you do not think about rudder. Just think about keeping the nose down (see 3 above) on or parallel to the centerline and move left or right with the stick. The rudder takes care of itself because as you move the stick left or right keeping the nose on or parallel to the centerline automatically gives you the correct rudder position. Remember THE NOSE KNOWS!

If you are slipping to counteract a cross wind set the slip in enough to hold centerline and HOLD IT do not give up on it and level the wings once you are on centerline. If you do you will be blown off centerline and have to slip back all over again creating a wobbly unstable approach with implications to your sense of well being. Normally the slip will almost come out as you get down close to the runway as the wind will die somewhat due to friction but if it does not land on the upwind wheel if necessary. Unless the laws of gravity are on vacation the other wheel will come down as you slow on the rollout. After touchdown keep the stick or wheel into the wind so the upwind wing is not lifted.

## G. The Round-out, Flare, and Touchdown:

The round-out is when you come level into ground effect about 20 feet off the runway surface (about the distance of your wingspan). At this point power is reduced. Immediately after round-out concentrate on holding the A/C level over the runway to prevent ballooning. If there are no control inputs the plane will slow and fall toward the runway in a nose down attitude as a result of the elevator losing lift and causing the tail to come up and the nose to go down

(remember the elevator's function is to elevate the nose).

After rounding out look down the runway to the end on short runways, several hundred feet on long runways so that your peripheral vision sees your position relative to the edge of the runway. This allows the best judgment of your height and rate of descent. **DO NOT STARE AT THE PAVEMENT IMMEDIATELY AHEAD OR BESIDE YOU.**

As the plane starts to settle the object is to control the rate of descent while rotating the nose to the touchdown attitude. As the plane descends put in enough stick pressure to stop the descent then a second later the descent begins again and a little more stick pressure is required to raise the nose and keep the plane from touching down. This is not one slow pull on the stick but a series of pulls (pressures) creating a slight saw tooth descent ending in the normal case with the nose in the same attitude (pitch) as it is at takeoff. See, AOPA Flight Training (August 2007). Do not have the nose excessively high (like the plane is smelling something bad) because if you misjudge your height you will run out of speed rapidly and drop in, or worse if there is a strong wind it may cause you to lose control.

Whenever there is a strong wind or turbulence increase speed and fly the plane on to the runway with just enough pitch at touch-down to keep the nose wheel from contacting ahead of the mains. This will insure your control surfaces remain effective and prevent the wind from playing with you. [see the comments above regarding no flap or partial flap landings].

After touchdown stick full left or right as necessary into the wind to keep the wind from raising the wing. Keep flaps down for aerodynamic braking and back pressure on the stick to keep weight off the nose wheel as long as possible.

**IF YOU ARE UNCOMFORTABLE ON THE APPROACH OR LANDING - APPLY FULL POWER AND GO AROUND. ONCE YOU DECIDE TO GO AROUND NEVER CHANGE YOUR MIND!** Always have a go around in mind. A Decision to go around is never wrong - a landing is nothing more than a cancelled go around.

## **SOP APPENDIX J: VFR INTO IMC (Instrument Meteorological Conditions)**

[There is no glory in this for the non-instrument rated pilot]

Until you experience it there is no way to explain how fast you get disoriented once you lose the horizon. You will swear that up is level; that level is down; that a bank is level and everything in between. Unless you have some instrument training, practice under the hood regularly, and have the discipline to STAY ON and BELIEVE YOUR INSTRUMENTS you will probably become a number in the accident statistics.

Any time you are subject to spatial disorientation you are in instrument conditions and must stay on the gauges. THIS DOES NOT MEAN FLYING ONLY IN CLOUDS. You are subject to disorientation ANY TIME YOU LOSE THE HORIZON and cannot maintain aircraft attitude control by referring to the natural horizon. This can happen while flying at night or when the visibility is poor due to rain, fog or haze as well as when inadvertently penetrating a cloud usually due to flying under a lowering ceiling. For the VFR pilot this is a real emergency and you must do the following:

- A. Focus only on the instruments to achieve stable level flight. Do not look outside!
- B. TRIM
- C. Contact ATC and declare an emergency. They will give you vectors to the nearest airport with VFR conditions.
- D. Any attitude change or turn should be made only when necessary and should be very gentle and smooth. Turns no more than 15 degrees of bank; climbs no more than 10 degrees of pitch; descent power reductions only 100 rpm at a time and no more than 500 fpm descent rate. All power changes should be slow and smooth.

The best solution is an instrument rating, but absent that practice regularly under the hood with an instructor or Safety Pilot (properly rated and current in the aircraft).

### **FLYING OVER WATER**

Without an instrument rating do not fly over large bodies of water at night or in hazy conditions where you may lose sight of the shore line. You can easily put yourself in a situation where you lose the horizon and immediately become disoriented. Be especially wary of over water flying in hot humid weather conditions where haze is present or may develop. In haze or at night be careful when flying the pattern to a runway where the approach end terminates at a large body of water. Once you pass the numbers there may be no horizon reference causing immediate disorientation.

## SCUD RUNNING

Scud Running is flying under a low ceiling. It is not recommended for those who wish to become "old" pilots for the following reasons:

1. The ceiling may lower or seem to lower due to rising terrain causing a collision with an obstruction, or flight visibility fades away creating flight into IMC.
2. The contrast between the cloud deck and terrain can create a false sense of safe clearance between the clouds and terrain when in fact there is not..
3. When forward visibility is unrestricted an illusion can develop suggesting the end of the cloud layer is just ahead . This can happen when there is a thickening cloud layer which appears darker than the area between the lower part of the cloud deck and the surface . This can cause flight into terrain or chasing the horizon until fuel is exhausted.

If visibility diminishes or the ceiling seems to be lowering the safest course is a 180 degree turn to go back where you came from. Conditions will usually be better behind you.