OBSERVATIONS

OF

A SEAPLANE PILOT EXAMINER

Dedicated to the hundreds of landplane
Pilots who have had to dry their brows
from perspiration and for other reasons
in their quest for the addition of
"Airplane Single-Engine Sea" on their
Pilot's Certificate.

Anders Christenson
FAA Pilot Examiner
GL 14-24

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OBSERVATIONS OF A SEAPLANE PILOT EXAMINER

What's so tough about flying floats? That is one of the questions I might ask an applicant during the oral phase of his seaplane check ride. Over the years that I have been an examiner for seaplane ratings, I've asked myself that question from time to time. There are some cold facts that say that piloting a seaplane safely can be an exacting thing. What is it then that causes the risk to be so high in an otherwise most enjoyable flight experience of power pilots?

I think a great deal of the problem lies right there. It is so much fun. It comes the closest to what we thought flying was going to be before we learned that it is filled with regulations, traffic patterns, radio navigation etc., and a much greater reliance than we thought possible on other people in the aviation picture. It comes the closest to flying as it was in the barn-storming era. It is just this feeling that causes otherwise excellent pilots to do things in a float-plane that they would never think of doing in a land-plane. Let me cite a very common example. A landplane pilot, when approaching for a landing at an airport, will very likely circle the airport above pattern altitude, then enter a downwind leg at a safe altitude, keep a safe altitude on base and have a reasonable distance on final approach. Put this same pilot in a seaplane and he very commonly will disregard downwind altitudes, base leg altitudes and final approach leg distances. I would like to see him use his imagination. I would like to see him decide where he wishes to touch down on the lake and then imagine a 75 foot wide runway beginning 300 feet before that point and extending for 2,000 feet beyond it. I want him to imagine an airport right there on the lake – then treat it like one – have the normal downwind, base and final legs. If we take all of our safety procedures that have been so well trained into us and use them in our seaplane flying, we will have a much better safety record.

I mentioned imagination. That is difficult to have with minimum experience. However, that is one of the items training should develop. Along that line I might ask an applicant how short a lake he would choose to land on, assuming there was no emergency. After considerable thought he will very likely say “about a half mile.” Then I ask him how much lake he would like to have in front of him for a take-off. The answer, quite commonly I’m pleased to quote, is “One mile.” My only concern then, since the problem was a non-emergency one, is why he would land on a lake whose length was not sufficient for a safe take-off. How long should a lake be for landing? The MN State Department of Aeronautics requires one mile of effective lake with a one to ten approach slope for the licensing of a seaplane base. Assuming, normally, a fifty foot bank with fifty foot trees surrounding the lake, this means that we need a little over a mile. How can we tell, before landing, if we have that distance? A good method is to fly the long length of the lake as much downwind as possible at an airspeed of 90 MPH. If the time is 45 seconds or more, you should have adequate room for a take-off.

So far in my discussion you have very likely seen my hint at the first big rule in float flying. It’s the same as in landplane flying – DON’T HURRY! It starts when preflighting the aircraft and floats. You must remember that once you’ve committed yourself to start the engine, you must have everything completed. That includes not only a thorough preflight of your equipment using a check list, but also just where the aircraft is going to go once the engine is started. Remember, movement is immediate. DON’T HURRY. Think over things such as wind, other planes, boats, people, etc.

Prospective seaplane pilots are always amazed that water spray can seriously damage a propeller. I have seen a perfectly good propeller ruined beyond repair in just 15 minutes of improper handling. But even more important and serious is the number of seaplanes that have capsized due to the same improper techniques. Both conditions can be avoided if the second rule is put into practice. NEVER EXCEED 1,000 RPM UNLESS you wish to

STEP TAXI, STEP TURN or TAKE OFF. In other words, the only time you should go above 1,000 RPM is when you want to go to full power.

There is some misunderstanding about the effective use of ailerons while idle taxiing. I see people terribly concerned with up ailerons and down ailerons. I always remember to think only of down ailerons. That cuts my remembering problem by one-half. The down aileron is deflected much farther from the horizontal plane than is the up aileron. It may not look that way, but just try it. Turn your control wheel until the underside of the aileron is parallel to the surface of the lake and just see how far up it is from neutral. You very likely remember your flight instructor's stressing the importance of aileron and elevator positions during windy days while taxiing on the airport. The beautiful part of seaplane taxiing is that it is the same. The elevator, however, should normally be held in the up position.

Here is just one more word about that second big rule – the 1,000 RPM limit. It is the combination of excess speed and power while attempting to taxi in a quartering tailwind situation that sets up the classic capsizing problem. If you limit yourself to the 1,000 RPM rule, the airplane will weathercock before you can get into a capsizing situation. Unless there is a gale blowing, the airplane will not capsize while pointing into the wind. So, if you are taxiing along with a quartering tailwind and find that you are no longer able to hold your bearing – that is, you are starting to weathercock – close your power – let it head into the wind and then make other plans. Your plans will not have to be – "How do I get out of this cockpit while I'm upside down?"

Sometime during the flight test I ask the applicant to shut down the engine and sail to a predetermined spot such as a buoy, dock or beach. Not uncommonly I see a great deal of insecurity at this point. The flaps come down and the rudder is pushed and the ailerons are whipped up and down. Let's think a moment about what we are trying to do. We are merely trying, to the best of the aircraft's capabilities, to change our sailing direction from straight downwind to either side. Let's just prove that the down aileron position is an effective sail area. With the engine shut down and water rudders and flaps up, neutralize the air rudder – put both feet on the floor – then turn the control wheel or stick to the right. You will notice that the left aileron is down and that the left wing will move back. That is the way it should be when you wish to sail to the right. Then try it to the left – the right aileron comes down and the right wing goes back. That is the way it should be when you want to sail to the left.

Then with the wheel to the left, push your right rudder and see the nose move farther to the right. Now you have the combination for sailing. The way I remember to sail, when the going gets grim, is TURN THE WHEEL OR MOVE THE STICK IN THE DIRECTION THAT YOU WISH TO SAIL AND PUSH THE OTHER RUDDER and then have faith. It is much easier for me to remember it that way from one float season to another than to remember such things as “Point the tail where you want to go.” Or “When you want to sail left, push right rudder and use opposite aileron.”

Some manuals mention the use of flaps in aiding your sailing. Think about it. Flaps provide more surface for the wind to act on resulting in added speed. Since both flaps must be lowered, the flap on the upwind side is providing more drag – just what we don’t want. In addition to that, remember that the rudder and ailerons are much more responsive when the airplane’s speed is the slowest in relation to the wind’s speed. It naturally follows then that by lowering the flaps we are taking away exactly what we want – controllability. I also find it extremely difficult to see where I’m sailing when some of those big flaps are lowered. However, if I wish only to sail directly backward in the swiftest manner possible, I will lower the flaps and open the doors. If I wish to sail using my power I certainly will use the flaps and even open the doors to control my movement over the water. Whenever you have a problem coming up that will require sailing, think it over very carefully, considering the wind as it will affect your aircraft. If the problem is a grim one, mentally prepare yourself either to start the engine or to get a little wet in making the aircraft go where you want it. A good float plane pilot puts his aircraft's safety ahead of his own comfort.

The third big rule to remember is – ALWAYS HAVE MINIMUM RPM AND WATER SPEED WHEN TURNING, INTENTIONALLY OR UNINTENTIONALLY, INTO THE WIND. This rule is no less important than the other two. It is often broken with dire consequences. There are so many circumstances that the pilot can get into where he does not recognize that the rule is being broken. Quite commonly, when I have asked the applicant to show me a left cross wind landing, I will ask him, while we are on final approach, "If I were to ask you to stay on the step after this landing and make a turn – which way would you turn – left or right?" All too often the answer I get is "Left." That is the wrong answer. It should be "Right." When centrifugal force and wind force point in the same direction, a powerful capsizing force goes to work. Yet this kind of accident happens. It happens also when taxiing downwind with a quartering tailwind – the pilot attempts to hold a bearing by increasing his power – (over 1,000 RPM) – the wind is too much – the plane begins to weathercock (this is an unintentional turn but a turn nevertheless) into the wind. The powerful capsizing force is at work and power must be reduced. Remember, anytime a turn, intentional or unintentional, is happening – when the airplane is turning into the wind, no matter how slight the turn, no power and minimum water speed are the order of the day.

I have been in many bull sessions when the discussion turns to the previous rule. The comment always arises – "If the wind is light, isn't it safe to make such a turn?" My only response to that is, "What do you think is a light wind?" I've had answers ranging all the way from one knot to eight knots. It is one of the variables that, if ignored, forces the new seaplane pilot to make a decision based on experience – experience that he really doesn't have. I have seen an eight knot wind on one of our local lakes churn the water surface to prominent white caps and two foot troughs. I have seen fifteen knot winds barely make a three inch wave. Much of that depends on the shape, size and depth of the lake and the wind direction. There are so many variables that my rule number three stands as is. I can't quote the source but someone once said, "There's nothing that teaches a man a better lesson than having a good scare." True - true, but often those scares take their toll.

I think step taxi and step turns are mainly a training maneuver. I say that because you should be able to fly floats for years without ever having to do any step work. Think of the risks involved. First, we should always think of our landing and take-off areas as being unimproved airports. Increasingly there seems to be more debris on and in the lakes and rivers. If you hit a half-filled beer can at step speeds you can damage your floats; hit a plank or something heavier and the chance of damage really increases. Secondly, the lakes are also becoming more crowded with fishermen, pleasure boats and water skiers. We must always watch out for these people. They tend to feel that what we consider a perfectly safe operation can be nothing but carelessness. There are several good reasons then to use speeds above idle taxi for take-offs and landings only.

However, if we are to do step taxi and step turns let us remember the fourth big rule. IF YOU ARE GOING TO INCREASE YOUR RPM ABOVE 1,000, ALWAYS BE HEADED DIRECTLY INTO THE WIND. Let's assume that you are going to make a cross wind take-off. After you have full power and the nose of the aircraft is at its highest pitch, begin your turn to the cross wind bearing. Don't establish a step taxi condition before you make the turn to a crosswind bearing. If you are going to make a step turn to the downwind, start your turn when the nose of the aircraft is at its highest pitch. Be sure that you do not turn to more than the exact downwind position.

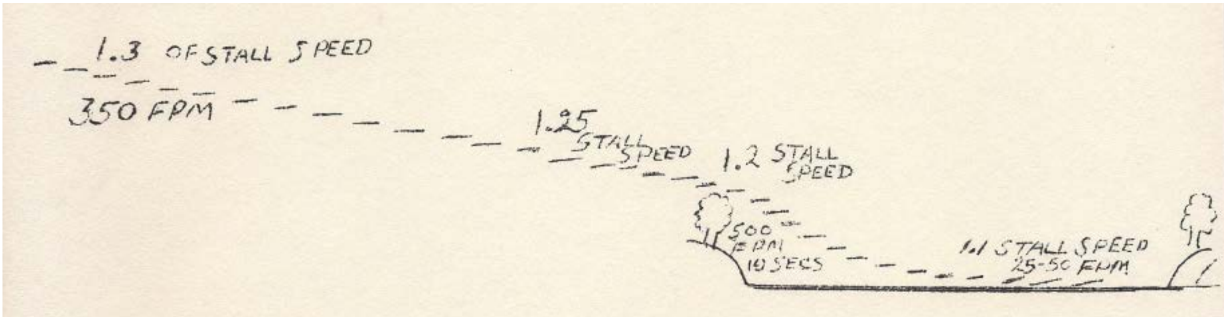
I always ask the applicant for a simulated high density altitude, maximum gross weight take-off. Normally, much of the training has been done at less than maximum allowable gross weight conditions. We simulate this by not allowing full power for the take-off sequence. I feel it's a valuable demonstration since all float plane pilots must, at times, abort a take-off.

They should, at some time in their training, have that experience. It's the attitude that every attempt at take-off must result in becoming safely airborne that causes seaplane pilots to, at times, end up in the trees.

In any take-off attempt the most important thing is to gain take-off speed. That sounds pretty basic, doesn't it, but I have seen good pilots humbled and a little confused when they have failed to reach that flying speed. In each of these cases, the pilot failed to attain that necessary item – constant acceleration – that feeling of the body being thrust backward, at times ever so slightly until flight occurs. Let's review the other feelings a body can feel. They are: 1) Bouncing – this is a water condition, waves, etc. felt as an up and down movement on your seat. That can be stopped, more or less, by forward pressure on the wheel or stick. 2) Porpoise – the fronts of the floats are being held too low – felt as your head and shoulders move forward and back. That can be stopped by applying pressure to the wheel. 3) Bow drag – the bows, fronts, of the floats are being held too low – felt by the whole body as brakes are being applied or, as in less severe cases, as all forces stopping. This is stopped by a slight back pressure on the wheel. As the aircraft's speed increases, the pilot must change its attitude to accommodate the changing forces. The attitude for fastest acceleration is always just slightly nose up from bow drag. This means that in order to get that fastest acceleration, you must, at times during the take-off, get just a bit of bow drag so that you know where the least attitude drag is. A take-off, then, is one of constantly small corrections until the aircraft is airborne.

The one thing that we do not want on a glassy water landing is a flare-out to a landing. We cannot flare-out because on a glassy water surface we cannot see where the surface is. With that one goal in mind, we must have a procedure that makes the landing possible. Earlier in these observations, I mentioned that the lake should be at least one mile long. It is important that our procedure fits for that length of lake. I find, quite normally, applicants taking over two miles of lake to get on the water. We must remember that in order not to have a flare-out, we must have very little attitude change while on final. Let's assume fifty foot banks with fifty foot trees surrounding the lake. In order to have little attitude change on final we will have to be quite close to the tops of the trees as we come over the shoreline – let's say twenty-five feet. This should give us one hundred and twenty-five feet to descend to the water's surface. Remembering that we don't want to land on the beach on the far side, we have only about 35 to 40 seconds, once we've passed the shoreline, to get the job done.

How can it be done? First, we must know of any errors in our airspeed indicator at stall speeds using a landing configuration of desired flaps. Secondly, we must be aware of any errors in the vertical speed indicator. These are two very important instruments for the glassy water landing. Let's start the whole sequence from just after the turn onto final approach till touch down. At the start of the final, you should be about six hundred feet above lake level – this gives you about 475 feet to descend till the shoreline. At an average descent rate of three hundred and fifty feet per minute – at an airspeed of 1.3 times the stall speed for approach configuration – you will need a minimum of a 1½ mile final before reaching the shoreline. Remember, control airspeed using the elevator and the rate of descent by the throttle. When you arrive over the tops of the trees, at the shoreline, you should have gradually slowed to 1.2 of your stall speed. From that point to the water's surface, you must descend about 125 feet within a time span of 35 to 40 seconds. In order to get that job done, with a slow descent rate of 25 to 50 feet per minutes for the last 25 feet of descent to the surface, you will have to increase your rate of descent for a short time after passing the shoreline. When you are at the shoreline, decrease your power to about a 500 feet per minute descent. At the same time increase your attitude to an airspeed of 1.1 times stall speed for about ten seconds. Then hold your attitude and increase your power for a rate of descent of 25 to 50 feet per minute. Maintain that condition until touch down. After touch down, close the throttle. The whole profile should look like this:



In summary let me stress that the rules I have suggested are very basic. They are not so complicated that they cannot be remembered from one season to another. They are the rules most often broken that end in accidents. They are the procedures most often done inadequately during flight tests. They can be used as instrument panel placards on seaplanes.

Here they are again:

1. DON'T HURRY.
2. NEVER EXCEED 1,000 RPM UNLESS YOU WISH TO STEP TAXI, STEP TURN, OR TAKE-OFF.
3. ALWAYS HAVE MINIMUM RPM AND WATER SPEED WHEN TURNING INTENTIONALLY OR UNINTENTIONALY INTO THE WIND.
4. IF YOU ARE GOING TO INCREASE YOUR RPM ABOVE 1,000 ALWAYS BE HEADED DIRECTLY INTO THE WIND.

Practicing the four rules just mentioned and the glassy water landing technique should guarantee happy times while flying floats. However, there are two other areas of float flying skills that are absolutely necessary if we are to fly to another lake and stay for a period of time. They are:

1. Beaching, buoying, docking, and
2. Tying-down for a stay.

After the choice of area for tying-down and its associated problems have been considered, we have to have some procedures to get to the tie-down site. Choice of a tie-down site will be discussed later, but very often an air search for a site prior to landing is much more economical than searching for one while taxiing.

An important point that I want to firmly state – it is not possible to maneuver the seaplane to any site you might want to go. It's all right to admit that fact. As the pilot gains experience there are more sites from which to select. In gaining that experience there is one more rule that the pilot must remember. WHEN BEACHING, BUOYING OR DOCKING, ALWAYS BE HEADED INTO THE WIND. We must keep the wind on the nose of the aircraft if we are to maintain any positive control. An aircraft with the wind on its tail has much less control and it certainly will continue to increase its water speed to nearer the wind velocity. (The only possible exception to this is if the pilot is operating a seaplane on a river where there is a current to consider. Then we have the force of the current as well as the wind force to consider. However, if you have a choice when landing on a river, land into the wind and not the current).

If the wind is blowing toward the dock or beach that you wish to go to, you must stop the aircraft's engine and use your sailing technique. Notice that if things are going badly you can always re-start your engine, pull to safety and try it again. Never get yourself into a situation where you have no desirable options.

If the wind is blowing from the shore and you wish to dock or beach, you have a much easier job. Keep a slow speed – stopping the engine well before getting to the beach or dock. In this situation the air and water surface are usually quite calm and the last part of your problem should be handled with a paddle.

If there is an on-shore or off-shore cross-wind, the problem of docking or beaching can be more difficult. Just remember to plan your approach with the wind as much as possible on the aircraft's nose. Remember always to have a desirable option if things are going badly. DESIRABLE OPTIONS DECREASE WITH THE WIND ON THE TAIL OF YOUR AIRCRAFT.

When you are working up to a buoy you should usually be able to taxi slowly to it from the downwind position. Stop the engine and coast up to it. If you can't do that, the rule still holds—you'll have to sail back to it.

All applicants for a seaplane rating should be trained in how to take care of the aircraft after they have arrived at either the beach or dock. Contrary to popular belief, the float plane is not a boat. It must not be treated as such when one is faced with the problem of safely securing it for any length of time. The plane is very susceptible to wind. The floats are even more susceptible to the lake bottom conditions such as rocks—both large and small--stones, pebbles and even sand. Wave action caused by wind and boats can rock the aircraft resulting in damage to the floats. Naturally the best situation would be a sheltered area with a grass or mud bottom, free of any abrasive materials. These are some of the things the pilot must consider when choosing an area for securing a seaplane. Very seldom will we have the ideal situation, but we should always attempt to get as close as possible to it.

An aircraft float is a fragile thing. For the job it has to do it is fantastically well designed. But, as with all things aeronautical, there are many compromises. A float must be light in order to keep the aircraft's useful load as high as possible. The float that Edo Corporation makes for the Cessna 172 is the 2000 model. Each one weighs about 110 pounds and has the ability to hold 2,000 pounds of weight above the water. In order to stay light the hull is 4/100ths of an inch thick, a compromise to durability. The sides and bottoms are riveted to bulkheads and the keel. The pounding that the floats take while taking off and landing in any wave condition is absorbed by the floats' bottoms and sides and the rivets. Basically, the main "shock absorber" is a continuous destruction of the float—where the rivets hold the structure together. With this very basic information about the construction of a float let us continue with securing procedures. The plane and floats must be tied-down securely to minimize movement. Certain amounts of rope are needed for the job. Normally the following number and lengths of 3/8” rope should be available: two 50’, two 30’, four 15’. Make sure that there is a loop braided into one end of each length and that the other end is prepared so that it will not unravel. Caution – after using, be sure that all knots are out of the lines. Now, let’s tie down the aircraft for the night. Work the tail of the aircraft as far up on the beach as you can—getting the wing’s angle of attack as low as possible. Work a wooden post under the keel at the step or under the float aft of the step in order to keep abrasive action of the lake bottom at a minimum. Tie off the tail 45° to each side on shore—this should keep the tail from moving in a wind. Using the loop end of a long length of line, fashion a loop about the wing strut. Pull it up on the wing strut and tie off the other end as low and as parallel to the wing as possible. If enough line remains, tie off the fronts of the floats in the same manner. If you have reason to feel that a bad storm is on its way, it’s very acceptable to remove the float covers and flood the front compartments—the resulting lower angle of attack and added weight will make the aircraft even more secure. Naturally, flooding all compartments results in absolute stability.

If the aircraft is to be secured to the side of a dock, the risk of damage to the floats is greater. However, if that is what must be done, be sure that the aircraft is pointed lakeward, and that the side of the float is not rubbing against the dock posts. Some kind of shock absorbing material should be placed between the posts and the floats. If possible, tie off the wings. Once again, the idea is to make the aircraft as secure as possible.

These are the two most common methods of temporary tie-downs. As a parting shot on this topic, also remember that it may not be possible to find a good site near where you want to be. In that case, consider the aircraft’s safety before your comfort and find a suitable place.

Not only the most difficult but also the most important part of training is evaluating the student's progress. As instructors, we must be sure that we have taught a skill that can be evaluated. Any goal we choose has a certain number of problem solving steps associated with it. In evaluating the student's progress on any of these steps we, as instructors, must guard ourselves from instructing. We must be careful to word the problem so that the student will clearly understand it. During evaluation, any communication, other than of a social nature, make it impossible to evaluate that skill. As the student gets closer to the final flight test, more time should be given to evaluation. The problem assigned should be more complex—the periods of instructor silence, longer.

During the last training period before the flight test, the instructor should act the part of the examiner—remembering to give problems only and no solutions. The most difficult part of evaluating is seeing something going badly and not immediately suggesting a solution to the worsening condition. I do not advocate aircraft damage or personal injury—that is where the instructor's experience is important. The flight test guide for any flight test lists the skill requirements that must be evaluated by both the instructor and the examiner.

The most common error resulting in bad accidents is the take-off and climb out phase. It is that unseen force, down-draft, that causes much of the problem. In order to demonstrate the viciousness of that force, find a fairly good site lake on a windy day. Approach the lake downwind at normal approach airspeed--set up a constant descent rate of about 200 feet per minute—trim for a hands-off condition—set it all up to clear the trees at the shore line by about 25 feet. With everything set, just sit back and watch the descent rate on the vertical speed indicator after passing the shore line. Observe everything carefully—it will really make a believer out of the student. It's the best method of demonstrating the effects of down-draft that I have ever used.

After the student has seen the effects of down-draft, his perception of landing and take-off areas and problems associated with these areas should be apparent in the evaluation process.

Much too often the majority of seaplane training is done on fairly large lakes. When this is done, the student gets almost no chance at solving real problems such as:

1. The real need to make a cross-wind landing;
2. The real need to carefully plan the approach and touch-down area;
3. The real need to measure the lake length before landing;
4. The real need to plan the take-off and departure path.

The ultimate problem to assign a student would be to handle all details from working a weight and balance problem to a tie-down at a pre-determined spot on another lake a short distance away.

Points certainly worth mentioning are the changes in the new Part 61 of the Federal Aviation Regulations. If the applicant has a Commercial License and wishes a seaplane rating he has a choice of taking the flight test for a seaplane rating limited to Private Pilot Privileges or having the rating attached to his Commercial License as Airplane Single-Engine Sea. It is a matter of proficiency. However, the applicant must declare his intent before the flight test begins. If a Private Pilot Airplane Single-Engine Land—wishes to take a Commercial Flight Test in a seaplane, at least part of the test would include demonstrating proficiency in Complex Aircraft. However, applicants for seaplane ratings who have a Commercial License need not demonstrate proficiency since it was already done once before. Likewise, a Private Pilot wishing a rating need not demonstrate complex aircraft.

In addition to a demonstration of Preflight operations, flight at critically slow airspeeds, Emergency operations, and (for Commercial applicant) steep turns as outlined in the appropriate Flight Test Guide, the applicant for a seaplane rating must do the following (I quote verbatim from appropriate flight test guides):

Private Pilot Airplane AC-61-54

Flight Test Guide (Part 61 Revised)

C. Seaplane Taxiing

1. Description – The applicant may be asked to demonstrate taxiing at slow speeds and on the step, into the wind, downwind, and crosswind. Turns to downwind headings, step turns, sailing, docking, and simulated or actual approaches to a buoy should be included. The applicant should demonstrate taxiing with and without the use of a water rudder, if the seaplane is so equipped.

2. Acceptable Performance Guidelines – the applicant's performance shall be evaluated on the basis of his proper use of flight controls, power, and water rudder to safely and effectively maneuver the seaplane. Any faulty technique which results in a hazardous situation shall be disqualifying.

D. Seaplane Takeoffs

1. Description – The applicant may be asked to demonstrate takeoffs into the wind, and with light crosswind components. He may also be asked to demonstrate, when feasible, or to describe in detail any or all of the following:

a. High-density altitude takeoffs from glassy water;

b. Takeoffs from choppy water or ocean swells; and

c. Takeoffs from streams or inlets with significant current or tide and downstream wind.

2. Acceptable Performance Guidelines – The applicant's performance shall be evaluated on the basis of his smooth operation of the power and flight controls, directional control, and ability to achieve an efficient planning attitude promptly and to make a smooth, effective transition to flight. Misuse of the controls, consistent retarding of takeoffs by premature rotation for liftoff, or failure to take immediate corrective action to stop porpoising while on the step shall be disqualifying.

E. Seaplane Landings

1. Description – The applicant may be asked to demonstrate landings into the wind, and with light crosswind components. Landing approaches should be made in accordance with the established traffic pattern for the area used, and with a final approach speed of approximately 1.3 times the power-off stalling speed in landing configuration (1.3 Vso), or the final approach speed recommended by the aircraft manufacturer. A straight course should be maintained during touchdown and throughout the runout on the surface. The applicant may also be asked to demonstrate, if feasible, or to describe in detail any of the following:

a. Landing on glassy water;

b. Landing on choppy water or ocean swells; and

c. Emergency landing on airports or unprepared fields.

2. Acceptable performance Guidelines – The applicant's performance shall be evaluated on the basis of the accuracy of his approaches, drift correction, correct use of the controls in flight and on the surface, and landing technique. He shall maintain the desired final approach speed within +5 knots, and touch down smoothly within the area specified by the examiner.

The following information is taken from:

Commercial Pilot Airplane AC61-55

Flight Test Guide (Part 61 revised and corrected according to Advisory Circular 61-78 dates 10-10-74).

C. Seaplane Taxiing

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2. Acceptable Performance Guidelines – The applicant shall display a high degree of competence and professional ability in taxiing under various conditions. Performance shall be evaluated on the applicant's knowledge of and ability to precisely and accurately use flight controls, propeller thrust, and water rudder, with consideration of wind velocity and water currents to precisely maneuver the seaplane along a predetermined course. Any lack of knowledge or ability to analyze and cope with existing conditions, faulty techniques, or hesitation in the proper use of controls shall be disqualifying.

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1. Description – The applicant may be requested to demonstrate takeoffs into the wind, and with light crosswind components. He may also be asked to demonstrate, when feasible, or to describe in detail any or all of the following:

a. High-density altitude takeoffs from glassy water;

b. Takeoffs from choppy water or ocean swells; and

c. Takeoffs from streams or inlets with significant current or tide and downstream wind.

2. Acceptable Performance Guidelines – The applicant shall display a high degree of competence and professional ability during takeoffs under various conditions. Performance shall be evaluated on the applicant's knowledge of and ability to precisely and accurately operate the power and flight controls to achieve precise directional control, and to achieve prompt and efficient planing and takeoff attitude. This shall include a smooth, effective transition to flight with full consideration of wind conditions and other factors that may adversely affect the takeoff. Any lack of knowledge or inability to cope with existing conditions, or failure to achieve proper planning or takeoff attitude, or failure to take timely action to prevent porpoising while on the step, shall be disqualifying.

E. Seaplane Landings

1. Description – The applicant may be asked to demonstrate landings into the wind, and with light crosswind components. Landing approaches should be made in accordance with the established traffic pattern for the area used, and with a final approach speed of approximately 1.3 times the power-off stalling speed in landing configuration (1.3 Vso), or the final approach speed recommended by the aircraft manufacturer. A straight course should be maintained during touchdown and throughout the runout on the surface. The applicant may also be asked to demonstrate if feasible, or to describe in detail any of the following:

a. Landing on glassy water;

b. Landing on choppy water or ocean swells; and

c. Emergency landing on airports or unprepared fields.

2. Acceptable Performance Guidelines – The applicant shall display a high degree of competence and professional ability during landing under various conditions. Performance shall be evaluated on the applicant's knowledge of and ability to use power and flight controls in such a manner as to achieve precise and accurate approaches that will lead to smooth touchdowns within the area specified by the examiner. This shall include correcting for wind effect during approaches and landings, maintaining a desired final approach speed, and the correct use of flight controls. Any lack of knowledge or ability to analyze and cope with existing conditions, or improper technique to achieve accurate approaches and landings, shall be disqualifying.

(The underlining was my contribution). You have noticed there is definitely a higher skill level required for the Commercial Seaplane Rating.

Even though life preserver jackets are not listed on the equipment check list from either flight test guide, they are required by regulation. As a good float-plane pilot friend of mine will testify, "It's a good thing they are required." I know from personal experience that he will not pull away from shore unless all occupants are wearing life jackets. He has good reason for the rule. Coast Guard approved life preservers are a required item for each occupant of the aircraft while on the water – it's the law.

These observations have been an attempt by me to give some guidance to the instructor and the student along the watery road to the seaplane rating.

Thank you for reading my observations.

Anders J. Christenson