

Supplemental Seaplane Knowledge

When and where did the first Seaplane Fly? It first flew on March 28, 1910 by Henri Fabre in Marseille France.

What are the currency requirements to take passengers in a seaplane? You must have 3 takeoffs and landings in the last 90 days in the aircraft's category (airplane) and class (single engine sea) to take passengers.

At what angle should you intersect large waves? Intersect the waves at a 45 degree angle.

What is the step? It's the area of the float that provides minimum drag/maximum acceleration.

How do you know you are on step? For the most part your sight picture will somewhat match your idle taxi sight picture. When in idle taxi, note where the shoreline intersects something noticeable in the cockpit (whiskey compass, a nut/bolt, etc...) so you can match that same intersection on step.

What part of the float contacts the water when a glassy landing has been properly executed? If you are holding the step attitude on your glassy approach/landing, then the floats will contact the water on the step area. Because glassy water maximizes the surface drag/tension on the floats, it is ideal to contact the water slightly higher than step attitude which is our area of minimum drag/maximum acceleration.

Are night landings on the water legal? If so, what type of landing would you use? Yes, they are legal. BUT not advisable. If you do need to do a night landing on the water, consider using the glassy water landing procedure.

Do you get more prop spray when taxiing downwind or upwind? The water splashing up from the floats can be pushed into the propeller arc by a tailwind. A headwind tends to carry water away from the propeller. To minimize prop spray, consider reducing power and ensure your elevator input maximizes the distance between the propeller and water level.

Why does a plow turn work? When in the plow attitude (nose high), there is a "reverse weathervane" effect because the center of buoyancy shifts towards the rear. This makes the nose the longest arm, thus causing the nose to point away from the wind.

How do you know you are downwind on your plow turn? With neutralized rudders and ailerons while in the plow, the airplane will "reverse weathervane." This points the nose away from the wind. So, if you continue in the plow attitude with neutralized rudder and aileron inputs for 3-5 seconds after completing the turn, the airplane will settle in a tailwind. Using your sight references will also tell you when you have completed the 180 degree turn.

Imagine you've applied full power for takeoff, but the airplane will not accelerate past the plow attitude onto the step. Why might that have occurred? There are various potential issues, but one to consider is that you might have water in one or more of your float compartments.

Is there anything you can do to help shorten your takeoff run in glassy water? In addition to employing the glassy water takeoff procedure, you can step taxi around the lake in an "s" pattern to give yourself some ripples to reduce the surface tension.

What does a seaplane need to be complex? A seaplane only needs a constant speed propeller and flaps to be complex. Unlike a land plane, it does not need retractable landing gear.

Can you take a seaplane under a bridge while on the water? While flying? We know we can't fly an airplane under a bridge, but we are a vessel when on the water. So long as we are on the water (idle taxi, on the step, one float on the water during a glassy water takeoff, etc...) we are legal.

Should your passenger's seatbelts remain fastened while water taxiing? Since your passengers aren't crew, they're still required to remain belted while the airplane is moving.

When landing and parking near an ocean island, what are some things to consider?

1. The island will provide some protection from larger waves on the leeward side. So landing and parking there would be advantageous.
2. The tides will change throughout the day, so parking on the beach for more than a brief stint may cause a problem. Consider anchoring or mooring in deeper water.
3. If staying with the airplane while at anchor, 3:1 line length is sufficient. However, 7:1 is advisable when leaving the aircraft.
4. Tie the mooring or anchor line to the front of the floats to allow the airplane to weathervane with wind shifts.
5. Review sailing procedures since you may use these to back away from the beach for parking. You may need to move one direction or the other to avoid a sand bar or shallow reef behind you. So make sure you understand the different control inputs to use during power on and power off sailing. To keep it as simple as possible, remember that 2 things are always the same: 1. Water rudders are up so they don't counteract your control inputs/directional control. And 2. Your aileron and rudders are always cross controlled when desiring to move one direction or the other. To move back laterally during power off sailing, point the stick where you want to go and press on the opposite rudder. The wind will push you backward while the floats will track straight backwards through the water in the direction you are pointing your stick. To move back laterally during power on sailing, press on the rudder in the direction you want to go and point the stick in the opposite direction. The wind will push you backward while the thrust from your propeller will propel you in the direction of your rudder.

What can you do if you've lost one of the compartment plugs in the rear of floats while away from your base of operation? You may borrow the plugs from your front compartments to cover the rear compartments as the front compartments encounter very little water compared to the rear compartments.

Why might a controlling agency close their body of water to seaplane traffic? Among other possible reasons, one to consider is the risk of seaplanes introducing invasive species. Since we can carry various insects, vegetation, etc... to other bodies of water, we ought to be vigilant to clear our floats of any unintended passengers. This will preserve our freedom as seaplane pilots by reducing our negative ecological impact.

Would you prefer to install a cruise prop or climb prop on a seaplane? The climb prop provides more thrust at slower speeds (takeoff) when it is crucial to overcome water drag.

Would you ever keep it in ground effect on glassy takeoff? No, as this would be a dangerous thing to attempt when you have no depth perception over glassy water. You can't reliably know if you are level or descending to touch down in a nose-low attitude faster than the hull speed.

Are you able to legally fly an amphibious aircraft without a seaplane rating? Yes, just keep it off the water until you satisfactorily complete your check ride at Jack Brown's.

What is the *main* purpose of the compartments? The compartments prevent the CG shift that occurs with water sloshing back in forth in the floats.

Why are the springs on the rudder horn? They allow you to control the air rudder even if the water rudders become stuck by debris. Without them the entire rudder system would be locked if the water rudders became lodged in place.

What is the rule of thumb to determine if the wave height is under the maximum allowed for your floats? 10% of the float length is the maximum wave height you should interact with.

If you find yourself stuck on the water due to storms with strong winds, what would be your course of action?

1. Try to beach on the upwind side of the lake, sheltered from high waves and using houses/trees/rising terrain as a buffer from the wind.
2. Leave water rudders up to avoid side loads from shifting gusts. This will allow the airplane to more freely weathervane.
3. Neutralize the stick, or even apply nose down elevator input to keep the airplane from digging into the less stable heels of the floats.
4. Try to avoid tailwind to headwind turns, even at idle, as the waves picking up your upwind wing expose you to capsizing.