Introduction

Congratulations on your decision to fly the floatplane. Float flying is exhilarating, and for many of us, it was a major reason for joining BEFA.

The purpose of this notebook is to give you the basic knowledge and skills to fully enjoy flying the floatplane. The information provided should be considered a supplement to the airplane’s POH, the FAA’s Airplane Flying Handbook and the current FAR/AIM.

The Airplane

BEFA’s floatplane is 758NF, a C-172 Hawk XP on Edo 248B-2440 floats. The airplane is very similar to the wheel version, but has some differences:

- The landing gear is replaced by floats which incorporate a water rudder steering system.
- The airplane’s Teledyne Continental IO-360-K engine has an STC which permits it to operate with 210 BHP at 2800 RPM for periods of up to 5 minutes.
- The standard, 76 inch propeller is replaced by an 80 inch propeller of flatter pitch for improved takeoff performance on water.
- Interconnect springs are added between the rudder and aileron control systems. These aid in maintaining coordinated flight.
- Two tail cone rudder centering bungees are added. These will center the air rudder, even if the water rudders are jammed by debris.
- Corrosion-proofing, stainless steel control cables and additional structure to help withstand the pounding that the airplane takes on floats.
- The airplane’s useful load is significantly reduced. The floats increase the empty weight, reducing the payload from just over 600 pounds on wheels, to 340 pounds.

The Floats

Floats are numbered to indicate the amount of fresh water, in pounds, they displace. Edo 2440 floats each displace 2,440 pounds of fresh water, so the total buoyancy of 758NF is 4,880 pounds. Since airplane’s maximum gross weight is 2,550 pounds, this may seem like overkill. But the FAA requires that the floats have a buoyancy of 180 percent of the airplane’s maximum weight. This means that each individual float must be capable of supporting 90 percent of the floatplane’s maximum gross weight.

The FAA also requires that the floats have “a sufficient number of watertight compartments to provide reasonable assurance that the floatplane will stay afloat if any two compartments are flooded.” The minimum number of watertight compartments is four. 758NF has seven compartments in each float.
The Airplane’s V Speeds

The floatplane’s airspeed limitations and recommended airspeeds for emergency and normal procedures are changed from the wheel plane version:

<table>
<thead>
<tr>
<th>Speed</th>
<th>Description</th>
<th>KIAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vne</td>
<td>Never Exceed Speed</td>
<td>163</td>
</tr>
<tr>
<td>Vno</td>
<td>Maximum Structural Cruising Speed</td>
<td>129</td>
</tr>
<tr>
<td>Va</td>
<td>Maneuvering Speed: At maximum gross weight (2550 lbs.)</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>At only 2050 lbs.</td>
<td>93</td>
</tr>
<tr>
<td>Vfe</td>
<td>Maximum Flap Extended Speed</td>
<td>85</td>
</tr>
<tr>
<td>Engine</td>
<td>Failure At Takeoff: Flaps Up</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Flaps 20°</td>
<td>60</td>
</tr>
<tr>
<td>Maximum</td>
<td>Glide: At maximum gross weight</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>At only 2050 lbs.</td>
<td>63</td>
</tr>
<tr>
<td>Landing</td>
<td>Without Power: Flaps Up</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Flaps 20°</td>
<td>60</td>
</tr>
<tr>
<td>Takeoff</td>
<td>Normal climb out</td>
<td>60-70</td>
</tr>
<tr>
<td></td>
<td>Maximum performance (Flaps 20°)</td>
<td>56</td>
</tr>
<tr>
<td>Enroute</td>
<td>Climb: Normal, Flaps Up</td>
<td>80-90</td>
</tr>
<tr>
<td>Vx</td>
<td>(Sea level)</td>
<td>56</td>
</tr>
<tr>
<td>Vy</td>
<td></td>
<td>72</td>
</tr>
<tr>
<td>Landing</td>
<td>Approach: Normal, Flaps Up</td>
<td>65-75</td>
</tr>
<tr>
<td></td>
<td>Confined Area, Flaps 30°</td>
<td>55-65</td>
</tr>
<tr>
<td></td>
<td>Full Power, Flaps 20°</td>
<td>60</td>
</tr>
<tr>
<td>Balked</td>
<td>Landing</td>
<td>55</td>
</tr>
<tr>
<td>Vso</td>
<td>Stall, landing configuration, forward CG</td>
<td>42</td>
</tr>
<tr>
<td>Vs1</td>
<td>Stall, flaps up, forward CG</td>
<td>48</td>
</tr>
</tbody>
</table>

The maximum demonstrated crosswind velocity is reduced from 20 KIAS on wheels to 13 KIAS on floats.
Terms and Definitions

Pilots of wheelplanes are familiar with much of the nomenclature associated with operating floatplanes. Some unique terms that you might not know are:

- **Amphibian**—an airplane that can be operated from both land and water.
- **Afterbody**—that portion of the float extending from step to stern.
- **Beam**—float width, at its widest point.
- **Bilge**—lowest point or area inside a float where water collects.
- **Bow**—front end of the floats.
- **Bracing Wires**—steel wires (or rods) with threaded ends to tighten and rig floats. These are also called “flying wires.”
- **Bulkhead**—structural upright partitions separating the compartments of the float.
- **Bumper**—rubber protective covering installed on the bow of the floats.
- **Center of Buoyancy**—theoretical point of support on the floats.
- **Chine**—the intersection of the bottom and the side of a float.
- **Forebody Length**—length from step to bow of the float.
- **Keel**—structural member extending from below the bumper, along the length of the bottom of the float to the step.
- **Mooring cleat**—metal fitting with projecting ends on which a rope can be fastened.
- **Sister Keelson** (or simply, Keelson)—additional longitudinal structural members, fastened between the keel and chine, for additional strength.
- **Skeg**—fitting installed at the step where the keel terminates.
- **Spreader Bars**—tubing attached to the inner portion of each float to maintain a predetermined distance between the floats.
- **Spray Rail**—an extrusion or surface attached to the forward section of the float chines. These act as extensions of the chines and deflect the spray out and down, protecting the propeller.
- **Step**—the longitudinal break in the keel line approximately midway down the float.
- **Strut**—the vertical members that connect the float to the fuselage and a diagonal member installed between the top of one vertical strut and the bottom of the other to provide fore and aft stiffness.
- **Water Line**—the longitudinal line or position on the float marking where it rides in the water when the seaplane is at rest.
Before You Launch

Because of the varying and frequently changing conditions of the water surface, operation of an airplane on water is somewhat different than operating one on land. However, operating a floatplane is no more difficult than operating a landplane for a well trained pilot.

Characteristics of Water

A floatplane pilot must understand the characteristics of water. Because of its weight, water can exert tremendous force. This force produces drag as floats are propelled on the surface. Water is a fluid and, if not disturbed, seeks its own level and lies flat and glassy. If water is disturbed by winds, currents or objects traveling on its surface, waves are created. Wave conditions can be a limiting factor in floatplane operations.

Wind usually provides the force that generates waves, and the velocity of the wind, together with the fetch—the distance that the wind travels over the water—determines the size of the waves. Waves of sufficient size can damage the airplane and may create a capsizing hazard.

Although determining wind velocity and direction is sometimes difficult from the air, with some practice, judging wind velocity on the water is fairly straightforward. A large body of water such as Lake Washington resists wave motion until a wind velocity of about 2 knots is attained. As the wind increases above 4 knots the water is covered with a pattern of waves that may vary between wide limits. As the wind force increases, the waves become larger and travel faster. When the wind reaches a constant velocity, waves develop into a series of equidistant parallel crests of the same height.

At velocities above 9 knots, the waves grow in proportion to the fetch. The surface near the downwind shore of a large lake or bay may be far rougher than the surface near the upwind shore, even though the wind velocity is constant across the surface. This effect may be observed in Lake Washington by contrasting conditions at Kenmore and Renton during periods of moderate northwest winds.

When the wind increases to 12 knots, waves break at their crests and begin to create whitecaps. Above 15 knots, moderate waves with many whitecaps are formed. This is too rough for most small floatplanes. BEFA requires that a pilot have more than 25 hours in a floatplane before initiating a flight in winds above 12 knots and prohibits launching if the winds are greater than 15 knots.

There are several characteristic of wind swept water which aid in determining wind direction. Whitecaps appear to move back into strong winds. When the wind decreases and the whitecaps disappear, lines or streaks of foam often remain. The pattern of waves may also be used to determine wind direction. Wind-produced waves form shapes that resemble the letter “C” with the wind blowing from the open side of the letter. If you are
facing the wind, wind-driven waves take the shape of smiles. If the wind is behind you, the waves appear as frowns.

Whitecaps alert the floatplane pilot to potentially dangerous wind-driven waves, but no similar indicator exists for boat wakes or swells, which are also hazardous to floatplanes.

One boat wake on an otherwise calm lake is easily seen. When the lake contains many boats, however, it can be difficult to pick out significant wakes. The south end of Lake Washington experiences heavy boat traffic during the summer. Exercise extreme caution when operating in such conditions.

Swell systems are often difficult to detect from the air. Often more than one swell system affects the same body of water. Swells produce no telltale whitecaps, but they may be visible as breaking waves along a shoreline. Generally the most dangerous swells are found in large bodies of unprotected water, such as Puget Sound.

Seaplane Landing Areas

Some state and local governments permit floatplane operations on lakes and waterways, while others impose restrictions. Before operating a floatplane on public waters, check on restrictions. The Seaplane Pilots Association publishes the Water Landing Directory, which lists seaplane bases throughout the country. Locally, the Washington Department of Transportation offers the Washington State Seaplane Pilot’s Guide. BEFA maintains a loose leaf binder called Floatplane Destinations, which contains very detailed descriptions of some local landing areas. Unfortunately none of these is comprehensive. It may be necessary to contact the controlling agency of a particular body of water to determine if it can be used as a floatplane landing area. The AIM (section 7-5-7) lists some government agencies which might provide information about potential landing areas. Finally, BEFA has its own area approval requirements for landings by float pilots. Your instructor or a BEFA check pilot can explain these to you.

Safety Rules for Floatplanes

Part 91 of the FAR contains the right-of-way rules for floatplanes on water. It also has rules for seat belt use and exceptions for floatplane movement on the water. FAA Advisory Circular 91-69A recaps floatplane safety and right-of-way rules. In addition, the Coast Guard manual, Navigation Rules, International-Inland applies to floatplanes when water-born. Rule 18 of the manual requires that floatplanes “keep well clear of all vessels and avoid impeding their navigation.” However, if a risk of collision exists, it requires that floatplanes follow the same right-of-way rules as other vessels.

Floatplane pilots must become familiar with navigation aids such as buoys and day and night beacons. Consult Coast Guard manual, CG 193, Aids to Marine Navigation of the United States.
The Preflight Inspection

If possible, the preflight inspection should be accomplished before the floatplane is launched. This eliminates the need to spin the airplane on the dock to look at each side.

Before commencing the walk around, check the fuel level. If you need fuel, you’d like to have the truck coming while you complete the rest of the preflight.

A word about fueling: As noted earlier, 758NF’s payload with full fuel is only xxx lbs. If the weight of the pilot, passenger, and rear seat/baggage area stuff exceeds that, it will be necessary to leave some fuel in the truck. Never fly the airplane over its maximum gross weight. The floatplane is a “fuel on demand” airplane. The fuel truck driver will not add fuel until the pilot requests it. Your instructor will show you how to use the calibrated fuel card in the airplane. If you determine that additional fuel is necessary, you should wait at the airplane for the fuel truck. BEFA’s rules require that the pilot be present when the plane is fueled. You should assist the fueler by handing the hose up to him to avoid hose nozzle damage to the wing.

Take care in sampling the fuel tanks. On land, the floatplane rests in a more nose low attitude than wheeplanes. The fuel sumps are at the rear, or high end of the tanks. To insure that any water is detected, raise the nose (or lower the tail) of the plane before taking the fuel samples. To do this, wait until the float truck has raised the airplane, or until the airplane is on the ramp, or, tip the tail down in its tiedown spot and hold it with the tail tiedown strap while taking samples. Take samples with the GATS jar in the airplane and return the fuel sampled to the tanks.

Follow the preflight inspection checklist in the POH rigorously. Always pump the floats. Look closely at the propeller and empennage. These are areas that can be damaged by spray. Pay particular attention to the floats, water rudders and the cables and pulleys. These are the most damage-prone parts of the airplane. The floats can be dinged by a careless pilot during docking, ramping or beaching, or by an inattentive float truck driver. Report any damage using the BEFA discrepancy sheet.
Launching and Casting Off

Launching and Securing the Airplane at the Dock

758NF is tied down on BEFA’s ramp when not being flown, so a training flight usually starts with a launching exercise. We use a float truck to transport the airplane from its tiedown to the lake. Your instructor and the float truck driver will explain the process, but it will be necessary for you to handle lines, holding the airplane stable as it is launched and then to position and secure it to the dock. Walk the airplane as far out on the dock as possible before cleating off the mooring lines. This will permit other floatplanes to be positioned on the dock behind it. Use at least two lines to secure the airplane to the dock unless you are casting off immediately. If you will be tied up for some time, it’s a good idea to use a pair of spring lines in addition to the bow and stern lines. A spring line runs diagonally from one end of the float to a point on the dock opposite the other end of the float. The spring line on the bow keeps the plane from moving forward while the stern spring line prevents the plane from moving backwards, and so prevent it from rubbing back and forth against the dock. If the dock does not have tires, use the tires in the airplane to protect the floats.

The Cast Off—Preparation

Casting off from the dock in a floatplane is relatively easy in calm, unobstructed water. At Renton, however, it’s very often windy and boat traffic can greatly complicate the movement of the airplane from the dock.

A successful cast off begins with a thorough check for boats or other obstacles and a check of wind direction and velocity. The wind is an important consideration not only because of its effect on the lake surface but also because of the strong weathervaning tendency of the floatplane. When free floating, the airplane will quickly weathervane, or point into the wind, and then drift downwind. It’s important to determine which direction the floatplane will turn and see if the tendency to weathervane will aid or hinder the castoff.

Consider a contingency plan in case the engine doesn’t start. The best alternatives probably include paddling or sailing to clear the dock. In strong winds or currents, if there are no airplanes tied behind you, you might run a line around a cleat and hold both ends in your hand and start the engine before casting off. This is particularly useful if the airplane has not been flown for some time.

After determining that you have a sound plan for casting off, load your passengers and complete the safety briefing.
Before untying the airplane, complete the before start checklist:

<table>
<thead>
<tr>
<th>Item</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water rudders</td>
<td>Down</td>
</tr>
<tr>
<td>Fuel</td>
<td>Both</td>
</tr>
<tr>
<td>Cowl flaps</td>
<td>Open</td>
</tr>
<tr>
<td>Circuit breakers</td>
<td>In</td>
</tr>
<tr>
<td>Mixture</td>
<td>Rich</td>
</tr>
<tr>
<td>Master switch</td>
<td>On</td>
</tr>
<tr>
<td>Auxiliary fuel pump</td>
<td>High</td>
</tr>
<tr>
<td>Throttle</td>
<td>Forward for 4 seconds</td>
</tr>
<tr>
<td>Auxiliary fuel pump</td>
<td>Off</td>
</tr>
<tr>
<td>Master switch</td>
<td>Off</td>
</tr>
</tbody>
</table>

**Cast Off Techniques**

Often, casting off involves nothing more than pushing the airplane straight ahead. At Renton, because the floatplane is most often on the end of the north-south dock, it is usually possible to castoff just by pushing the plane toward Mercer Island. When the wind is calm, the airplane will exhibit no weathervaning tendency and it will be easy to start the engine and taxi away from the dock. If launched into a headwind the airplane will hold its heading, but will drift back toward the dock if the engine does not start. The more difficult situation occurs with a quartering tailwind. After the castoff, the airplane’s weathervaning tendency will cause it to start to turn back toward the dock if the engine is not quickly started.

In other situations it’s not possible to cast off straight ahead. If the airplane is behind another airplane on the dock, or if it is moored on a dock which lies perpendicular to the desired launch path, it will be necessary to turn the airplane on the dock before casting off. When the passenger briefing is complete, untie the float lines and rotate the nose of the floatplane 90 degrees from the dock. Take care not to catch the water rudders between the airplane and the dock. They are fragile. When the airplane is perpendicular to the dock and all turning motion has stopped, back the stern of the floats up to the dock, step onto the left float and walk quickly to the cabin. Once inside, slide seat forward to reach the rudder pedals, turn the master switch on and immediately start the engine. Remember that as soon as it is pushed from the dock the floatplane will start to weathervane and drift if there is any wind. You need to minimize the time it takes to get the engine going. After the airplane has taxied clear of the dock you may fasten your harness and adjust your headset.

The floatplane’s weathervaning may help or hinder your effort to castoff. At Renton, if the winds are from the north or northwest, the floatplane will point toward the desired taxiing path. This weathervaning is problematic only if there are obstacles in the way. With a tailwind, however, the airplane’s tendency to point into the wind can be troublesome. If there is experienced help on the dock, ask that someone hold the airplane perpendicular to the dock until you’ve started the engine. If no help is available, you’ll need some way to delay the weathervaning until the plane’s engine can be started.
Counter the plane’s tendency to swing back toward the shoreline by giving it some momentum toward the lake before stepping onto the float. That should delay the turn into the wind long enough to start the plane’s engine.

**Common Castoff Problems**

Most castoff problems occur when the floatplane’s weathervaning tendency catches the pilot off guard. Even in a light wind the Hawk XP floatplane will weathervane quickly, so be prepared and have a contingency plan. Complete the passenger safety briefing and prestart checklist and push the seat back before untying. Then, untie, start the engine quickly and taxi clear of the dock before donning headsets or fastening seatbelts and harnesses.
**Taxiing and Sailing**

There are three positions or attitudes in which a floatplane can be moved on the water. These are the idling or displacement position, the plowing position and the planing or step taxi position.

**Displacement Taxiing**

When taxiing with the engine idling, the floatplane will remain in a displacement condition supported solely by the floatation properties of the floats. This is displacement or idle taxiing. Do not idle faster than 800 RPM. At higher power settings the propeller may pick up water spray. In calm or light wind conditions, the elevator control should be held full back to raise the floatplane’s nose to further reduce the possibility of spray on the propeller and to improve maneuverability.

Steer by moving the water rudders. Just as in a wheelplane, depress the rudder pedal in the direction of the desired turn. Keep the elevator full aft and the power setting as low as possible. Because of torque and the propeller’s slip stream effect, the floatplane will turn more easily left than right, but turns in both directions are easily made in light wind conditions.

When taxiing and turning in wind, position the controls as you would in a conventional gear wheel plane. From an upwind to a crosswind heading, keep the control wheel aft and the ailerons deflected into the wind (climb into a headwind). From a crosswind to a downwind heading, move the control wheel forward and deflect the ailerons away from the wind (dive away from a tailwind).

If the winds are strong, it may not be possible to make a downwind displacement turn. The floatplane’s weathervaning tendency will cause it to point back up into the wind. If this occurs it will be necessary to use the plow taxi turn or to sail the airplane downwind. Both of these techniques are considered below.

**Plow Taxiing**

While plow taxiing is an accepted technique for turning the floatplane in strong winds, it is hard on the airplane and potentially dangerous. Because of this, many instructors demonstrate the turn, but do not have students perform it. It is a required task in the PTS, but one which, in practice, should be avoided if possible. We’ll consider this further after learning how the plow turn is performed.

In an idle taxi position the large amount of surface area behind the airplane’s center of buoyancy (CB) makes the airplane weathervane into the wind. Holding the elevator full back and increasing power raises the nose into what is called the “plow attitude.” This lifts the front end of the floats out of the water and drives the afterbodies into the water, causing the center of buoyancy to move aft. The more power added, the greater the pitch increase, and the farther aft the CB moves. As the CB moves aft, the increased surface
area forward of the CB reduces the floatplane’s weathervane tendency. If pitch is increased to the point that there is more surface forward of the CB than behind it, the weathervaning tendency will be reversed and the floatplane will weathervane to a downwind heading.

When making a plow turn, it should be performed to the left. With high pitch attitude and moderate power, the three left-turning forces will be strong. Prepare for the left turn by first turning right in a displacement taxi as far as the wind will permit. This exposure to a left crosswind will create a strong left-turning weathervaning force which can be used to help initiate the turn. When you add left rudder from this position, the airplane will be ready to turn left, and will be carried through the upwind position with a good deal of momentum. As you pass through the upwind position, the right crosswind will begin to fight the turn. Complete the turn by initiating the plow position as you apply full aft elevator and add the power necessary to reverse this weathervaning. Also, add full right aileron. This will provide normal aileron correction for the crosswind to keep the upwind wing down. When you gain a tailwind component, change to full left aileron for the crosswind correction. Reaching a downwind heading, neutralize the ailerons, reduce power to idle and keep the airplane straight downwind. Idle taxiing downwind is a very unstable situation and you may again need to use the plow position to hold your heading.

Seems like a lot of effort to turn downwind. And, is it really necessary to make a downwind turn in strong winds? Given the risks of the plow turn, probably not. With high power and little air flowing over the floatplane’s engine, plow turns can overheat the engine. The spray created during the turn can cause erosion of the propeller. It’s a dangerous maneuver because, as its CG moves higher, the floatplane becomes less stable and, in a strong crosswind, could overturn. If the wind is strong enough to preclude a downwind displacement turn, it may be also strong enough to capsize a plowing floatplane. The conservative approach is to sail the plane downwind if a displacement turn can’t be made.

**Sailing**

Sailing is a procedure used to move the floatplane in winds too strong to permit a downwind displacement turn. It may also be used if engine cannot be started and the airplane is floating free of a dock. The airplane, in a displacement attitude, is merely being permitted to drift with the wind, while being yawed to influence the direction of drift.

 yawing influences the path of the floatplane because the keel effect of the floats resists any sideways motion and causes the airplane to move in a direction parallel to the floats—toward where the tail of the airplane is pointed. The floats define the track on which the airplane will move, and the flight controls can be used to yaw the airplane to point this track in the direction you want to go.

Two tools are available to achieve this yaw—the rudder and the adverse yaw of the ailerons. To turn the plane, simply turn the ailerons in the direction of the desired turn
and depress the opposite rudder pedal. This puts the downward deflected aileron on the same side of the floatplane as the deflected rudder, permitting the wind to strike both surfaces and yaw the tail away from the deflected controls. The weathervaning nature of the floatplane resists this yaw. As you turn the floatplane away from its upwind heading, you expose it to a crosswind component which tries to straighten it back out. The more that the floatplane turns away from its original upwind heading, the stronger the weathervaning force becomes, until it is equal and opposite to the yawing force created by the downward deflected aileron and the rudder. This is the limit that the floatplane can be turned by the flight controls.

To prepare the floatplane for sailing, retract the water rudders. If they are left down, they will impede directional control. Keep the control wheel full forward to prevent the stern of the floats from submerging. If the rudder and ailerons are neutralized, the floatplane will drift directly downwind. By manipulating the controls, however, the Hawk XP can be steered about 30 degrees left or right of a direct downwind track.

The responsiveness of the flight controls in steering the floatplane while sailing vary directly with the amount of airflow over the controls—control is enhanced by slowing the airplane’s speed over the water. Leave the wing flaps retracted and doors closed to maximize directional control. If, on the other hand, a long distance is to be covered and steering is not critical, you may lower the flaps and open the doors to increase speed.

The floatplane can be sailed either with or without power. Most sailing is accomplished without power, but in very high winds, engine power may be used to control the rate of backward drift. It is also possible to use power to tack into a tight space or to move crosswind. If engine power is used to maintain the airplane’s forward position on the water, so that it is neither drifting back nor moving ahead, the keel effect is neutralized. Free from keel effect, yawing the floatplane away from its upwind heading will have quite a different result than it did in power-off sailing. Yawing the nose to the right, by use of right rudder and left aileron, exposes the left side of the fuselage to the wind. The wind striking the left side of the airplane creates a force to push the airplane to the right. As long as the airplane has no forward or aft motion, it will drift to the side to which its nose is deflected.

Power-on sailing is more limited in its application than power-off sailing because it requires strong wind to work. Since there should be no forward motion when the floatplane is being sailed, the wind must be at least strong enough so that under idle power, the airplane is prevented from moving forward. If the wind is not quite strong enough to offset the idle thrust of the engine, flaps may be extended to increase the surface area exposed to the wind, magnifying the wind’s force and arresting the airplane’s forward motion.

By combining idle taxiing and sailing, it is possible to tack downwind into a tight position on the dock. As in other floatplane operations, be conservative until you’ve mastered the maneuver. In high winds, the airplane is unforgiving of errors.
A clever application of power-on sailing is to parallel park in strong wind conditions. By configuring the flaps so that at idle power, the floatplane drifts backwards slightly with the wind, it is possible to add just enough power to eliminate the drift so that the floatplane is neither moving forward or backwards on the water. The plane is therefore configured in such a way that its drift can be controlled by adjusting power only. By use of rudder and opposite aileron you can steer the plane sideways into a confined spot on the dock. As you approach the dock, anticipate that the wind will decrease in the shelter of whatever downwind obstacle you have maneuvered around. Be ready to reduce power to prevent the floatplane from moving forward.

**Step Taxiing**

The step taxi may be thought of as a takeoff run that never accelerates to liftoff speed. It is used to travel quickly across the water. It can also be employed to takeoff from a body of water of limited size. This is described later.

To step taxi, complete the pre-takeoff checklist, set the flaps at 20°, retract the water rudders and smoothly add full power. Maintain a straight course with the air rudder and allow the floatplane to pass through the plow position and accelerate onto the step. Once the plane is solidly on the step, retract the flaps to reduce lift and reduce the power to the minimum that maintains the planing attitude. Trim for the most efficient planing attitude. It is not possible to specify a single power setting for remaining on the step. Water conditions will dictate the amount of drag experienced and occasional power adjustments may be necessary. If the airspeed indicator begins to register, reduce power to lower the speed. If the floatplane’s nose begins to rise, you’re falling from the step and need additional power to maintain the step taxi attitude.

To make a step taxi turn, visually clear the area and fully deflect the aileron in the direction of the turn. This will keep the inside wing from lifting. Gently add rudder pressure to begin the turn. Because of the left turning tendency of the airplane, a left turn may require no more than a relaxation of right rudder pressure. The centrifugal force in step turns can be a capsizing hazard, so keep the turn radius conservative. Because the floatplane’s center of buoyancy is forward of its center of gravity when it’s on the step, it is directionally unstable. A gently initiated turn can progress into a tight turn unless the pilot applies opposite rudder. Make small, frequent rudder inputs to maintain the desired turn rate.

At first step taxi turns will feel uncomfortable. A wings-level, uncoordinated turn in an airplane does not feel natural. And, while the floatplane is safer and more stable in these turns than it feels, care must be taken to keep the turn radius appropriately large and the ailerons fully deflected into the turn. Maintaining the slowest possible airspeed while remaining on the step through the turn is very important, but it’s also important to not get too slow. In the turn, the drag on the floats increases and the airplane will decelerate unless you increase the power. If the airplane is allowed to slow, it will begin to oscillate, or porpoise, and come off the step. If this happens, add power or shallow the turn rate. The airspeed will increase and the porpoising should stop. Of course, if the
magnitude of oscillations has become uncomfortably large, you should reduce power to idle, apply full aft elevator and come off of the step. Step turns in winds may be dangerous. If the wind’s force acts together with the centrifugal force of the turn, the capsizing hazard is increased. In a turn from a downwind to an upwind heading, as might be performed in preparation for takeoff, the wind and the centrifugal force are acting in the same direction. Extreme care must be taken and this turn should not be attempted in winds above 7 knots.

The step taxi can be used to cover large distances quickly, but it has drawbacks. Because it is noisy it’s prohibited at some locations, such as the south end of Lake Washington. As we’ve seen, if not done carefully, the centrifugal force in step turns is a capsizing hazard. It’s also hard on the airplane. The high-power setting and relatively low airspeed cause poor engine cooling. The prolonged time on the step causes wear on the floats and exposes them to the hazard of debris on the surface. For these reasons, the floatplane pilot should avoid step taxiing whenever possible, eliminating the need to taxi long distances by carefully selecting landing areas.
Takeoffs

A plan view of the Will Rogers-Wiley Post Seaplane Base at Renton is shown on the following page. All floatplane takeoffs and landings must take place in the area between the departure end of runway 33 and the south tip of Mercer Island, which is labeled, “Seaplane Operations Area.” If boat traffic and winds permit, remain on the extended runway centerline.

Noise Abatement

BEFA’s Rules of Operation require that we observe the noise abatement procedures of the airports where we fly. At the Will Rogers-Wiley Post Seaplane Base (W36), we follow the Renton Airport noise abatement procedures, even though W36 is not technically part of the Renton Airport. Become familiar with these procedures. Noise abatement during takeoff is not voluntary, it’s a requirement. It’s important to get the prop back to 2,600 as quickly as practical. Climb above 1200 AGL before crossing shorelines.

The Run-Up

The run-up is performed while moving on the water. After obtaining the ATIS, complete the before takeoff checklist. With the water rudders down, begin the run-up by holding the elevator full aft and bringing the power up to 1,800 RPM. As the nose rises in the plow position, the torque, P factor and propeller slip stream will tug the airplane to the left. Maintain a straight course with added right rudder pressure. Check the engine instruments, the magnetos and cycle the propeller three times. Limit the power drop to no more than 300 RPM. Divide your attention inside and outside the airplane while completing the checklist items.

Before Takeoff

While the run-up is necessary only on the first takeoff of the lesson, the before takeoff checklist must precede every takeoff. The flow check starts at the floor and goes up and across to the left:

- Clearing turn: Complete
- Water rudders: Up
- Fuel selector: Both
- Cowl flap: Open
- Flaps: 20°
- Mixture: Per Fuel Flow placard (17 GPH at SL)
- Propeller: Forward
Diagram of float operations area at Renton………………
The clearing turn is a 360 degree displacement taxi turn to check for traffic on the water and in the air.

Before starting the takeoff slide, review the procedure for a low-level engine failure. Although airplane engines are extremely reliable, every takeoff should be viewed as a potential opportunity for an engine out landing. Always allow enough room on takeoffs for a landing that requires no more than a 30 degree turn to final, if the engine falters.

Normal Takeoff

After completing the before takeoff and emergency checklists, call the tower, if appropriate. Align the airplane into the wind, hold full aft elevator and smoothly add full power for takeoff. Check the tach to ensure that you’re achieving the promised 2,800 RPM. Keep the elevator full aft as the floatplane’s nose rises in the plow position. As the bows of the floats rise, the spray pattern created moves aft. When the spray is just behind the wing struts, relax the back pressure on the elevator to permit the plane to accelerate onto the step. If properly trimmed, the Hawk XP will require little, if any, forward control wheel pressure to transition from the plow to the step. Relaxing the back pressure and returning the yoke to a neutral position should be sufficient to achieve a planing attitude. Once on the step, you should fine tune the pitch to minimize the amount of float surface area contacting the water. Reset elevator trim, if necessary, to hold the desired pitch. The optimum pitch attitude is roughly neutral, but there is no good visual reference for it. You achieve it by feeling for it. If you move the elevator slightly while planing, you will feel the changes in drag—too flat and the front of the floats drag; too high and the afterbodies are pushed into the water. Midway between, where minimum float contact is made with the water, will feel smooth. This is the slippery spot which can only be identified by feel.

Holding a straight course across the water during takeoff requires constant attention to the rudders. Considerable right rudder is needed during the initial power application to offset the left-turning tendencies of the floatplane. Less pressure is required as the floatplane transitions to the step, but numerous small corrections will be necessary to keep the floatplane’s nose straight.

Although the Hawk XP POH suggests that “light back pressure” be applied to lift off, rotation is not necessary. If held on the slippery spot, the floatplane will break off the water by itself when it attains liftoff speed. Any back pressure which lifts the nose very much beyond the slippery spot may cause the floats afterbodies to contact the water, prolonging the takeoff slide.

After liftoff, pitch for a positive rate of climb and, when safely in a stable climb, reduce the propeller to the “top of the green”—2,600 RPM—and bring the mixture back to 16 GPH. Retract the wing flaps slowly. Climb out as you would in any airplane. Best rate of climb at sea level is 72 KIAS. At approximately 700 AGL, bring the throttle back to 25 inches and the propeller to 2,300 RPM. Lean the mixture to 10 GPH. Maintain best rate of climb speed.
Drag on Takeoff

A noticeable difference from a wheelplane takeoff is the very large amount of drag that must be overcome during a floatplane takeoff. On the step, water drag increases as the square of the water speed so that relatively small increases in speed cause large increases in drag. A low liftoff speed is desirable to reduce the hydrodynamic drag, lessen the takeoff run and associated pounding on the floats and airframe. Anything that reduces the liftoff waterspeed is good for the floatplane. For that reason, we use 20° flaps in a normal takeoff and takeoff into headwinds whenever practical.

Porpoising

Porpoising is a pitch oscillation caused by improper elevator input. It occurs when the angle between the floats and the water surface exceeds the upper or lower limit of the floatplane’s pitch angle. If the pilot attempts to force the airplane onto the step prematurely, or delays in relaxing the yoke to permit the floats to move to the step, a cyclic oscillation may be initiated.

The floatplane will travel smoothly across the water while on the step, so long as the floats remain within a moderately tolerant range of trim angles. If the trim angle is held too low, water pressure in the form of a small crest or wall is built up under the bow of the floats. As the floatplane’s forward speed increases to a point, the bow of the floats will no longer remain behind this crest, and is abruptly forced upward as the floatplane rides over the crest. As the crest passes the step and on to the stern of the floats, the bow of the floats abruptly drops into a low position. This again builds a crest or wall of water in front of the bow resulting in another oscillation. Uncorrected, each oscillation is larger than the last.

If the trim angle is held too high, the airplane will struggle to remain in an extreme nose high plowing attitude, but will fall forward, creating the wall of water under the bow of the floats and initiating the oscillation cycle.

Correction for pilot-induced porpoising is made by applying momentary elevator back pressure at the top of an oscillation, preventing the bow of the floats from digging back into the water. The back pressure must be applied and held until porpoising is damped. If porpoising continues, reduce the power to idle, apply aft elevator pressure and cancel the takeoff run.

In adverse water conditions such as heavy swells, porpoising can become severe. This may be extremely hazardous because the oscillations create a capsizing danger. Make correction for extreme porpoising by immediately retracting the throttle, applying full aft elevator and aborting the takeoff.
Variations on the Normal Takeoff

Winds, currents and terrain can change the nature of the takeoff. The normal takeoff can be modified to suit various water conditions encountered as described below.

Rough Water Takeoff

Rough water takeoffs should be avoided whenever possible because of the potential damage to the floatplane. Floats and their attachment hardware are particularly vulnerable to the pounding of rough water, and the cumulative effect of repeated rough water operations can damage the airframe. If practical, avoid rough water by taxiing to protected areas or just waiting for calmer conditions.

The objective in a rough water takeoff is to lift off the water as quickly as possible to minimize the punishment taken by the airplane. Fortunately, takeoff performance is almost always improved by rough water. There is less drag due to cavitation (air pockets where the water contacts the floats) and strong headwinds reduce the liftoff speed, even further reducing hydrodynamic drag.

Facing into the wind that is causing the rough water will orient the airplane perpendicular to the waves, the most stable orientation in which minimum rocking of the wings occurs. Begin a rough water takeoff in a similar manner as a normal one, but take care to add takeoff power just as the bow is rising on a wave. This prevents the bow from digging into the water and helps keep the spray from the propeller. As the spray pattern moves behind the struts, relax the back pressure enough to let the airplane accelerate onto the step. Once on the step, the airplane will bounce from one wave crest to the next, with the nose tending to rise higher with each bounce. If not corrected, each successive wave will be struck with increasing severity. To correct this, smooth forward elevator pressure should be used to hold a fairly constant pitch attitude that permits the airplane to skim across each wave as speed increases. As the floatplane accelerates to approximately 40 KIAS, apply full flaps. Adding full flaps will cause a slight nose-down movement, so be prepared to add slight elevator back pressure to maintain the optimum planing angle.

The application of full flaps on the step provides an infusion of additional lift. The floatplane can be pulled from the water at a lower water speed than during a normal takeoff. Once in the air, relax the pitch and accelerate in ground effect, soft field style. After a stable climb has been established, retract the flaps to 20° and bring the propeller back for noise abatement. Complete the climb out in the same manner as for a normal takeoff.

A word about rotation: In relatively smooth water, because rotation may immerse the float afterbodies, the added hydrodynamic drag will more than offset the added lift from the increased angle of attack. During a rough water takeoff, however, it may be possible to rotate to pull the airplane off the water because the float afterbodies do not contact the waves between crests. If the water is sufficiently rough that you can rotate and not put the afterbody of the floats in the water, do it.
Glassy Water Takeoff

Glassy water describes the perfectly smooth water surface that results from the absence of any wind. Glassy water presents two serious takeoff problems—drag and disorientation.

The slick surface of glassy water contacts the float continuously everywhere it is exposed to the water, exerting a large amount of water drag. During the takeoff slide, the floatplane’s acceleration onto the step will be noticeably sluggish. With the large amount of drag, it will be more sensitive on the step and small deviations from the correct pitch attitude will be more noticeable.

Once established on the step, apply full aileron deflection to lift one float out of the water. In no-wind conditions either float may be lifted but, because of the airplane’s left turning tendency, it will be easier to lift the right float. If there is any crosswind, lift the downwind float. As the float leaves the surface, reduce the aileron deflection to minimize the loss of aerodynamic lift. With one float out of the water, hydrodynamic drag is effectively halved. On the other hand, the vertical component of lift is slightly reduced due to the bank angle, and added aerodynamic drag is created from the deflection of the ailerons. In normal water conditions, the reduced water drag is essentially offset by this accompanying loss of lift and increased aerodynamic drag. Where hydrodynamic drag is greater than normal, however, the one float takeoff technique will shorten the takeoff slide.

To keep the takeoff path straight with a float out of the water, it is necessary to cross control with the rudder. The disadvantage of this is that it places the floatplane in a slight slip, increasing aerodynamic drag. To get maximum performance during a glassy water takeoff—if the takeoff area permits—keep the airplane coordinated and let it continue the takeoff in a gentle turn. This minimizes aerodynamic drag.

During the takeoff slide the bank angle should be kept as small a possible to minimize the amount of vertical lift lost. As the floatplane accelerates on one float, and airflow increases over the ailerons, progressively reduced aileron deflection is required to keep the bank angle constant. Concentrate on keeping the single float on the step, feeling for the slippery spot just as you would on a normal takeoff. Avoid the urge to rotate to get the airplane off the water. Doing so will only produce afterbody drag—and drag is what you are trying to overcome.

Disorientation is a serious threat in a glassy water takeoff. Because there is no visually detectable surface, there is danger of inadvertently flying the floatplane back onto the water after liftoff. As the airplane breaks water, establish a positive rate of climb by use of the attitude indicator, the vertical speed indicator and the altimeter. After reducing the propeller to 2,600 RPM for noise abatement, climb without any further power adjustments or flap setting changes until the floatplane is at least 200 feet above the water. Then slowly retract the flaps. At 700 AGL, shift to the “quiet cruise” configuration as you would for other takeoffs.
Crosswind Takeoff

Terrain and water conditions may not permit a takeoff directly into the wind. Terrain may force a low overflight of land or an immediate low-level turn after an upwind takeoff, creating a hazardous situation or a noise abatement problem. Water conditions in which a swell system or boat wakes are moving perpendicular to the wind may also make an upwind takeoff dangerous. In situations such as these a crosswind takeoff can be the best choice.

The maximum demonstrated crosswind component for the Hawk XP is 13 knots—achieved by an experienced professional pilot during certification test flights. Don’t attempt a crosswind takeoff if any whitecaps are present.

If a cross wind takeoff must be made, and you’ve determined that you can safely do so, it is preferable to start the takeoff into the wind and then turn to the crosswind heading once on the step. However, this may not be possible in a restricted takeoff area.

If it is necessary to initiate the takeoff while exposed to the crosswind, position the floatplane on the desired crosswind heading, keeping the ailerons fully deflected into the wind. For best directional control leave the wing flaps up and the water rudders extended until the airplane is on the step. Smoothly add full power. As it moves to the plow attitude, the floatplane’s tendency to weathervane upwind will be sharply reduced. It may even start to turn downwind, so be prepared. Upwind rudder may be necessary. As the floatplane transitions to the step and directional control is stable, retract the water rudders and extend the wing flaps. Keep the ailerons deflected into the wind.

As the floatplane transitions onto the step, the center of buoyancy moves forward, restoring the upwind weathervaning tendency. It is critically important to control weathervaning and to keep the upwind wing down while on the step. Use downwind rudder pressure to keep the airplane straight and hold the upwind wing down with aileron deflection. If the upwind wing lifts, the downwind float may submerge, creating a capsizing hazard. If weathervaning is not arrested, the resulting turn into the wind can force the downwind float further into the water, causing an abrupt downwind turn and increasing the risk of capsize. If there appears to be any risk that the downwind float is being submerged, reduce the throttle to idle and abort the takeoff.

Once on the step with stable directional control, hold full aileron deflection and accelerate to liftoff speed. The downwind float may lift off before the airplane is ready to fly. Do not rotate. Relax the aileron deflection to limit the upwind bank angle and allow the airplane to come off the water as it would in a normal takeoff.
Confined Area Takeoff

Takeoffs from small lakes and/or where terrain requires an immediate turn after liftoff are challenging and require precise technique. If the takeoff body of water is small, start the takeoff run while headed downwind and make a step turn into the wind. Care must be taken in the turn because the wind and centrifugal force will be acting in the same direction and present a capsizing risk.

If an obstacle must be cleared, use an obstacle clearance speed of 56 KIAS. Do not retract the flaps until the obstacle has been cleared. If an immediate turn after liftoff is necessary to avoid terrain, climb at 60 KIAS and roll into a 30° bank turn. Do not retract the flaps. Do not adjust the throttle or propeller. Because the confined area takeoff is a maximum performance maneuver, the propeller speed reduction for noise abatement is omitted. Upon completion of the turn, retract the flaps, bring the propeller to 2600 RPM and complete the takeoff in the same manner as a normal takeoff.
Flying Characteristics

The Hawk XP on floats has almost the identical flying characteristics as it has on wheels, with two differences—on floats the airplane has more drag and less yaw stability.

Drag

The floatplane has numerous sources of parasite drag. The large amount of surface area on the floats is a significant source of drag, as are the float attachment hardware and docking lines that extend into the slipstream. The consequence of this increased drag is slower cruise speed and reduced climb performance. Although the floats are a significant source of drag, they also produce lift. The useful consequence of this is that they reduce the stall speed a couple of knots lower than it was when the airplane was on wheels.

Yaw Stability

Just as noticeable as the increase in drag is the change in yaw stability caused by the floats. A wheelplane has relatively positive yaw stability because it has a large vertical stabilizer well aft of its yaw axis and not very much surface area in front of the yaw axis. If the plane deviates from coordinated flight, the stabilizer’s exposure to the slipstream creates a side force that acts to straighten the airplane out, returning it to coordinated flight. This positive yaw stability is the reason that most light wheelplanes stay more or less coordinated without much attention to the rudder by the pilot.

When floats are installed, the surface area in front of the yaw axis is increased. If the airplane deviates from coordinated flight, the side areas of the floats forward of the yaw axis are exposed to the slipstream and create a force which acts to increase the yaw. To mitigate this condition, some floatplanes have additional surface area added to the tail. Beavers, for example, have a vertical fin at the outboard edge of each horizontal stabilizer. The Cessna 206 has a large ventral fin when in the float configuration. This increased area adds yaw stability in flight, but it exacerbates the undesirable weathervaning behavior of the floatplane on the water. 736NN has no additional vertical tail surface, but it does have a spring interconnect system between the ailerons and rudder to enhance directional stability. Despite the interconnect system, the airplane will stray from coordinated flight more easily than it would on wheels, and so the pilot must be more attentive to the rudders than in a wheelplane.
Landings

Before landing, make a thorough inspection of the landing area. Complete a flyover at a safe altitude, but one low enough to permit a detailed look at the landing site. Check the wind direction and velocity. As discussed earlier, winds above 15 knots are too punishing for the Hawk XP. Look for obstacles. Large pieces of wood are usually easily seen, but watch out for waterlogged, partially submerged debris. Watch for shallow spots when landing in tidal areas and near river outflows. Be alert for wires strung across waterways.

Power boats on lakes are a serious hazard. During some summer days at the south end of Lake Washington, there are periods where boat and jet-ski traffic is so heavy that it is almost impossible to land a floatplane safely.

Check to insure that there is adequate space for the takeoff after landing. One way to estimate the available takeoff distance is to time the flyover at a known speed. Time the proposed takeoff area in both directions to assure that ground speed is not unduly distorted by the winds aloft. On a standard day at sea level, the Hawk XP requires nearly 1,900 feet to takeoff and clear a 50 foot obstacle. On Lake Calligan it’s almost 2,500 feet. On a hot day, it may approach 3,500 feet. Be familiar with the takeoff performance table in the POH and don’t attempt a landing if you’re not certain that you can takeoff again.

Normal Landing

The technique of landing a floatplane in other than glassy or rough water is very similar to that of a wheelplane. However floatplanes are much less forgiving of having a nose low attitude on touchdown. A floatplane landed nose low will dig the front ends of the floats into the water, experiencing excessive water drag and yaw stability problems. If the nose low attitude is extreme, the floatplane can be flipped onto its back. Therefore, a good floatplane landing technique should be one which resembles a wheelplane technique, but is modified to eliminate any chance of a nose low attitude near the water. This is accomplished as follows:

If a pattern is to be flown over the landing area, turn to a downwind heading. It is important to touch down into the wind whenever practicable. Begin cooling the engine as soon as practicable. Bring the throttle back to 20 inches. Complete the before landing checklist. The flow is up and across to the left:

<table>
<thead>
<tr>
<th>Water rudders</th>
<th>Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel selector</td>
<td>Both</td>
</tr>
<tr>
<td>Cowl flap</td>
<td>Closed</td>
</tr>
<tr>
<td>Wing flaps</td>
<td>20° (below 85 KIAS)</td>
</tr>
<tr>
<td>Mixture</td>
<td>17 GPH at SL</td>
</tr>
<tr>
<td>Propeller</td>
<td>Forward (below 15 inches)</td>
</tr>
<tr>
<td>Seat belts and passenger briefing</td>
<td>Complete</td>
</tr>
</tbody>
</table>
Continue cooling the engine by bringing the throttle back. Abeam the intended touchdown point, reduce the throttle to attain airspeed of 70 KIAS. Apply 10° of flaps. Descend at 500 FPM. On base leg, increase flaps to 20° maintain the descent rate and slow to 65 KIAS. On final approach, maintain the descent rate and airspeed of 55 to 65 KIAS. Perform the centerline check:

<table>
<thead>
<tr>
<th>Water rudders</th>
<th>Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propeller</td>
<td>Forward</td>
</tr>
</tbody>
</table>

To avoid the nose low attitude near the water, start the round out earlier than you do in a wheelplane. At about 20 to 30 feet above the surface, increase the pitch slightly, but not so much that you level off. As the airplane slows down from this pitch increase, increase the pitch a little more, maintaining a positive rate of descent. Be careful to maintain a positive rate of descent. If the airplane is leveled off prematurely, its airspeed will decay while it is too high above the water. Continue this sensitive descending flare until you find yourself descending with a slight nose up attitude. Once this is achieved, do not flare any more until you are a few feet off the water. Then resume the flare. Hold the floatplane off just as you do in a wheelplane, touching down with almost full aft elevator. Generally, touchdown at a speed just above a stall will land the floatplane gracefully on the step. A full stall touchdown may result in the heels of the floats contacting the surface first, which is safe, but not very graceful.

Most pilots feel that use of power to achieve the sensitive descending flare helps in the landing. It is acceptable, however, to land power off. The difficulty with a power-off landing is that the flare must be timed almost perfectly to attain a smooth touchdown. Often, beginning pilots, trying to hold the bow of the floats high, will flare early, stalling the floatplane and dropping roughly onto the rear of the floats.

The water surface exerts a great deal of drag on the plane’s floats. Recall that the drag from contact with the water increases as the square of the touchdown speed. Land as slowly as practicable. Reduce power to idle as soon as touchdown is made. Maintain the step attitude as long as possible for a smooth landing run. When the airplane decelerates sufficiently, its nose will raise as it passes through the plow position and returns to the displacement mode. As soon as the nose rises in the plow, hold the elevator full aft. When the floatplane returns to the displacement mode, complete the after landing checklist:

<table>
<thead>
<tr>
<th>Water rudders</th>
<th>Down</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowl flaps</td>
<td>Open</td>
</tr>
<tr>
<td>Wing flaps</td>
<td>Up</td>
</tr>
<tr>
<td>Transponder</td>
<td>Standby</td>
</tr>
</tbody>
</table>
Landing Downwind

Know the wind direction before landing. The hydrodynamic drag on landing touchdown creates a pitching moment on the floats. The force of the moment depends on the speed of the touchdown. If landing with any kind of tailwind, the increased touchdown speed will make the elevator noticeably less effective at countering the increased pitching moment. In his book, *Notes of a Seaplane Instructor*, Burke Mees observes that there is some critical wind velocity for a given floatplane above which a downwind landing cannot be made. The landing will result in so much water drag that full aft elevator will be insufficient to overcome the resulting pitching moment, and it will not be possible to stop the airplane from pitching forward into the water. When landing with a light tailwind the increased pitching moment will be noticeable. Landing with moderate or strong tailwinds, however, is positively unsafe and may result in the airplane capsizing.

Variations on Normal Landings

As with takeoffs, the nature of a landing may be changed by winds, currents, terrain and other factors encountered by the pilot. The following describes how landing techniques may be modified to meet varying conditions.

Rough Water Landing

Rough water landings damage the floatplane and should be avoided whenever possible. BEFA’s floatplane has suffered thousands of dollars in damages attributed to poor pilot technique in rough water. If the water is very rough at the intended landing site, search for a protected area with smooth water.

While avoidance is preferable, rough water landings are sometimes necessary. If one must land in rough water, the objective should be to touch down at the slowest possible waterspeed with virtually no descent rate. An airspeed of 50 KIAS provides an adequate margin above stall with full flaps. The pitch attitude should be flatter than in a normal landing. The slow waterspeed will minimize the impact of the waves on the floats at touchdown. The flat attitude will allow the floats to smoothly cut through the wave crests instead of slamming into their sides. The touchdown is done with full flaps, power on to minimize the descent rate, and as gently as possible. It is analogous to a soft field landing in a wheelplane. Use power to hold the floats slightly above the water in the proper attitude, and then make a small power reduction to allow them to smoothly contact the water.

As soon as the floats contact the water, reduce the throttle to idle to make the water run as short as possible. As the floatplane decelerates and pitches up into the plow position, the waves will slam the float bottoms. Nothing can be done to prevent that, and attempting to add power to smooth it out only prolongs the water run and the airframe pounding. After the floatplane is off of the step, complete the after landing checklist.
Glassy Water Landing

In the absence of wind or other disturbances, the water surface is smooth and featureless, making it impossible to determine height above the mirror-like glassy surface. A pilot attempting a landing flare in these conditions is at risk of flying onto the water without flaring or of flaring high and stalling. To overcome this risk a completely separate landing technique is necessary. This technique will allow you to make consistently safe touchdowns without knowing your height above the surface.

The glassy water landing technique utilizes a gradual, controlled power-on descent, in a nose high landing attitude, all the way to the water’s surface. The descent must combine a forward speed suitably slow to be safe at touchdown with a vertical descent angle sufficiently shallow to permit a smooth touchdown onto the water.

The first step in a glassy water landing is to select the final approach path. If practical, set up the descent over land, where you still have depth perception. Be sure that the approach path leads to a long stretch of water since this procedure requires a lot of runway. Glassy water implies a no-wind condition so any landing direction is acceptable, and you can base the choice of approach solely on terrain considerations. If terrain or noise abatement considerations do not permit an approach over land, select an appropriate path over the water that still permits a long gradual descent. Once the approach path is determined, turn a long final to give yourself plenty of time to set up.

Complete the before landing checklist. Cross the shoreline and begin the set up at 200 feet AGL. Set the power to obtain a 100 to 200 FPM descent with flaps 20° and a pitch attitude slightly higher than that used in a normal landing. As the airplane’s approach stabilizes, fine-tune the throttle to fix the descent at exactly 100 FPM. With the proper pitch attitude at this descent rate, the airspeed will tend to settle at about 55 KIAS.

Once this descent is established, maintain it all the way to the water. This is essentially an instrument maneuver. Watch the airspeed indicator and the vertical speed indicator. Add power to slow the descent and pitch to slow the airspeed. Check the horizon to keep the wings level and glance at the water occasionally to make sure that the landing area is clear and that you have sufficient space to complete the landing. Aside from these brief glances outside, stay on the gages. The sensation of ground effect may let you know when you are getting close to the water, but resist any temptation to flare. Instead, maintain the proper pitch attitude and continue the descent all the way to touchdown. When the floats touch, verify that you are on the water, close the throttle and ease the elevator aft. Because the touchdown speed is faster than in a normal landing, abrupt elevator input may cause the airplane to lift off again, so be gentle with this input. Complete the after landing checklist as in a normal landing.
**Crosswind Landing**

As we observed earlier, crosswind operations are usually not necessary in a floatplane. Landing and takeoff areas are large enough that you will almost always be able to land directly into the wind. However, there will be times when a narrow waterway, boat traffic, terrain or other considerations may make a crosswind approach and landing safer than an upwind landing. Again, crosswind operations must be performed within the performance limitations of the floatplane. The Hawk XP has a demonstrated crosswind capability of 13 knots—attained by a professional test pilot. Don’t attempt a crosswind landing if whitecaps are present.

The floatplane crosswind landing technique is identical to that in wheelplanes. Complete the before landing checklist. Establish the final approach airspeed at 55 to 65 KIAS. Lower the upwind wing just enough to compensate for the wind’s drift and use opposite rudder to maintain a straight course. This is a side slip.

Don’t rely on the water surface to provide accurate drift information. The ripples on the water will be moving sideways across the landing path, creating an illusion of drift when there may be none. Use a point on the shoreline, an anchored boat or a buoy as a reference point.

Touch down on the upwind float, in the proper pitch attitude, with no drift. As soon as the upwind float contacts the water, close the throttle and maintain positive control of the airplane throughout the water run. As long as the floatplane remains on the step it has a strong weathervaning tendency. If not controlled, it could lead to a water loop. To keep the floatplane straight as it decelerates, hold full aileron into the wind, use the air rudder to maintain the desired course, and pitch for the smoothest ride. After the airplane is off of the step, complete the after landing checklist.

Landing with a sideways drift will cause uncomfortable yawing on touchdown. If the yaw is severe it creates a hazard of a water loop. For this reason, good crosswind technique is important.

**Confined Space Landing**

Even though a floatplane can land in a shorter area than it can takeoff, situations may arise where a short field or confined space landing is called for. Wind and water conditions may dictate landings in confined portions of larger lakes. Sheltered water may occur in a short finger of a large lake when the main body contains prohibitively rough water. Boat traffic on a large lake may restrict the usable length of the landing area.

In a wheelplane, short field technique consists of a spot landing followed by an effort to minimize the length of the after-landing roll. In a floatplane, the after landing run is already quite short, so a confined space landing is essentially a spot landing.
After completing the before landing checklist, fly a stabilized final approach descent at 55 KIAS with full flaps. If required, use power to stabilize the approach. The slower airspeed will reduce the amount of float in the flare. The added drag from full flaps causes the airplane to decelerate faster in the flare, minimizing the landing distance.

A successful confined space landing requires a well-judged approach. If you are too high to hit the spot, go around. If you are low, but there is no obstacle to clear, you can use power to drag it to the spot. Pay attention to descent rate and airspeed. The airplane tends to sink if the pitch attitude is too flat, so use power to maintain the 55 knot airspeed. As in all landings, select the final approach course so that terrain doesn’t hinder a go around option.

The flare is demanding. As you start the flare, the airplane is already slower than in a normal landing. The full flaps cause faster deceleration and so the already slower airspeed decreases more quickly, making it very easy to get too slow and to sink in the flare. Be ready to add power and relax the pitch slightly to prevent a drop-in touchdown. After touchdown, reduce the throttle to idle and smoothly move the yoke aft as the airplane comes off of the step. Complete the after landing checklist.
Emergency Procedures

Section 3 of the C-172 Hawk XP POH float supplement contains operational checklists for engine failures and forced landings. Review these carefully. Also review the basic Hawk XP POH for other emergency operational checklists.

Safe Emergency Landing Areas

Not all water provides a safe emergency landing site. In the Pacific Northwest, much of the open water is often too rough for a safe landing in a small floatplane. By planning your flight carefully, however, it should be possible to remain within gliding distance of safe emergency sites. Sheltered bays and open fields provide suitable places for emergency landings should that be necessary. Just as you constantly scan the terrain for possible emergency sites when flying a wheelplane, during a floatplane flight, continually evaluate where a safe emergency landing might be made. If you can find no good answer to that question when flying over mountains or rough water, return to a safer area.

Engine Failure in Flight

There are two categories of engine emergencies—those which result in only partial power loss, or occur high enough that you have time to attempt to remedy the problem before being forced to land, and those which require an immediate landing. In either case, begin your response to the emergency by following an A, B, C sequence:

A is for airspeed. Establish best glide speed. In the Hawk XP at maximum gross weight of 2550 lbs., that is 70 KIAS. At only 2,050, it’s 63 KIAS. Use your weight and balance calculation to extrapolate an appropriate airspeed. If in doubt, stay a little fast. Remember that pulling the propeller control to the lowest possible pitch, all the way to the rear, significantly reduces drag and improves glide distance.

B is for best landing area. Pick a landing site. Obviously water is preferred, but it must be safe water. An open field will work fine for a floatplane if safe water isn’t available. The floats will permit the plane to touchdown without a problem on soft or rough hard surfaces that would tear the gear off of a wheelplane.

C is for corrective actions, checklist and communicate. If the engine loses power or fails at a sufficiently high altitude, you will have time to complete the items on the engine out emergency checklist in an attempt to identify and remedy the problem. Generally, start from the floor and move up and to the left:

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixture</td>
<td>Full rich</td>
</tr>
<tr>
<td>Magnetos</td>
<td>Both</td>
</tr>
<tr>
<td>Primer</td>
<td>In and locked</td>
</tr>
<tr>
<td>Fuel Shutoff</td>
<td>On (pushed in)</td>
</tr>
</tbody>
</table>
Time and altitude permitting, try to restart the engine by pushing the throttle one half open and switching the auxiliary fuel pump on low for 3 to 5 seconds. If the propeller is not windmilling, turn the ignition to Start.

Consult the emergency checklist to insure that you haven’t skipped any steps. As time permits, make a radio call to the appropriate facility to inform someone of the problem and set the transponder code to 7700. If the engine hasn’t been restarted when within 500 feet of the surface, stop all trouble shooting attempts and prepare for the emergency landing.

If the engine failure occurs on takeoff or when cruising at or below 500 feet AGL, you may only have time to establish an appropriate airspeed and land the plane. The important task is to maintain control of the airplane all the way to the surface. Don’t attempt to multitask by trouble shooting near the surface. Treat best glide as a minimum speed. Without power, near the surface, airspeed is your friend. Recall that the Hawk XP has a high sink rate at low airspeeds, and stalling the airplane will cause the nose to pitch down, spoiling the power-off approach.

**Emergency Landing**

If you haven’t been able to restart the engine by 500 feet AGL, prepare for the emergency landing. Time permitting, execute the before landing checklist:

- Water rudders: Up
- Mixture: Idle cut-off
- Full Shutoff Valve: Off
- Magnetos: Off
- Doors: Unlatched and blocked open

As with a wheelplane, plan the final approach into the wind so that touchdown can be made at the slowest possible ground speed. Maintain an airspeed of at least 70 KIAS with the wing flaps up. Leave the master switch on until you’ve selected the final flap setting. As you start the round out, deploy full flaps and turn the master switch off.

If the landing is on the water, touchdown slightly tail low and, after touchdown, hold the control wheel full aft. If the landing is on land, the touchdown should be as flat as possible. Avoid pitching up so much that the afterbodies of the floats strike the surface first. A pitching moment is created and, if the contact is hard enough, the plane may be pitched forward. As soon as the floats contact the ground, hold the control wheel full aft to prevent the plane from nosing over.

Turning the fuel and electrical off guards against a fire on landing. Completing this checklist assumes that the time necessary to do so is available. If the engine fails on takeoff, you most likely will only have time to push the nose over to avoid a stall and land the airplane.
Emergency Landing on Glassy Water

If you are unable to judge your height above the surface, and have no power, it’s going to be very difficult to land the floatplane. Recall that a glassy water landing uses a power on approach, in the nose up landing attitude, with a 100 to 200 FPM descent. No attempt is made to flare. The nose-high attitude and slow descent rate are held until the floats contact the water.

But what if the engine has stopped over glassy water? How can the airplane be landed on water that has an indistinct surface?

Since you must flare if you have no power, finding some visual clues to help judge the flare is your best hope. The most reliable reference is a shoreline. If forced to land without power on glassy water, try to make the landing approach parallel to a shoreline and as close to it as possible. That will permit you to estimate where the surface is and make a flare to landing.

If you are unable to reach a shoreline, look for something on the surface to give you a clue—birds, a moored boat, a buoy or some debris in the water. Upon finding a visual reference, use it to help determine where to flare.

A glassy water landing with power is a challenging exercise. Without power, and with no reference on the surface, it’s nearly an impossible maneuver. Treat large bodies of glassy water with great respect and avoid flying over the middle of them. Instead, remain within gliding distance of a shoreline to facilitate an emergency landing.
After Landing

After landing, the floatplane must be secured. Like a boat, it can be tied to a dock, pulled up on a beach, anchored or moored to a buoy. It can also be put on the stationary ramp to be taken out of the water by the float truck. These can be very simple maneuvers, or, depending on the wind velocity and direction, they may require precise technique.

Docking

As with almost all procedures in flying, a successful docking begins with completion of a “before operation” checklist:

<table>
<thead>
<tr>
<th>Radios and headsets</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seatbelts</td>
<td>Unfastened</td>
</tr>
<tr>
<td>Doors</td>
<td>Open</td>
</tr>
<tr>
<td>Seat</td>
<td>Back for easy exit</td>
</tr>
</tbody>
</table>

After completing the checklist, determine the wind direction and velocity. Kenmore has four good rules for docking. If possible, the floatplane should be docked:

- Into the wind
- On the upwind side of the dock
- With the floats parallel to the dock, and
- As slowly as practicable

It is preferable to dock into the wind so that weathervaning doesn’t turn you away from your desired track, but rather maintains the heading and slows the airplane as you approach the dock. By approaching from the upwind side of the dock, you use the wind to hold the floatplane near the dock.

Approach the dock at as shallow an angle as obstructions will permit. When clearing an obstacle such as a piling, use as large an angle as required, but, when clear of the obstacle, shallow the angle. Turn parallel to the dock as you approach close enough to step from the float to the dock. Time the engine shutdown so that the floatplane stops just as it arrives at the dock. This is a skill that requires practice. With little or no wind, the airplane will continue forward for a time after the engine has stopped. With a moderate headwind, however, it will stop quickly. Turn the master and magnetos off before exiting the cockpit.

It is not possible to overstate the importance of timely engine shutdown and of holding the airplane off of the dock. If the float hits the dock, even at a very slow speed, a ding or crease will result. Be conservative. Pull the mixture early, rather than late.

If you must dock with a crosswind, try to choose an approach with the wind blowing onto the dock. As you approach the dock at an angle, the weathervaning will help to turn you parallel to the dock. If a crosswind is blowing off of the dock, it’s a more difficult
exercise. The weathervaning will oppose your turn to parallel and, if the engine is stopped prematurely, the wind will blow the airplane away from the dock. To overcome the weathervaning, you may need to maintain idle taxi speed until you have made the turn parallel to the dock so that the water rudders have the necessary steering authority to complete the turn and the floatplane has sufficient inertia to carry within stepping distance of the dock. Docking with a crosswind blowing off of the dock will take more dock space than docking into the wind or with a wind blowing onto the dock, so be prepared.

Docking is simplified if you are using a dock designed for floatplanes and if there are no boats or other floatplanes tied in your way. There are usually no pilings on floatplane docks. However, much of your docking will be done with space limitations, such as docking between the pilings at Poulsbo or behind a floatplane already tied to the dock at Renton. How much space you will need depends primarily on the wind and current, as they determine both your turning ability and stopping distance. As you develop your ability to judge how maneuverable the airplane is and how quickly it will stop under varying wind and water conditions, be conservative and select open spaces. Gradually, you will become comfortable with tighter spaces, but remember that, on the water, near obstacles, the floatplane is very unforgiving of any error.

Because of obstacles, some docks will permit only a straight in, nose first docking. It’s best to avoid these, but if you must dock nose in, find a part of the dock that will allow you to do so with a direct headwind. The headwind will slow the floatplane as it approaches the dock, and the weathervaning will help you by maintaining the direct heading. Approach the dock as slowly as possible by turning off one magneto and shut down the engine so that the airplane stops just as it reaches the dock. Be conservative. If you shut the engine down a little early, you can paddle the last few feet. If, on the other hand, you collide with the dock at just 2 or 3 knots, you’ll do significant damage to the floats.

If you must dock nose-in and can only approach the dock with a crosswind, go to another dock. The risk of banging a wing on the obstacle as the airplane weathervanes is just too great.

Even without obstacles on the dock, docking with a tailwind must be avoided. A tailwind causes the airplane to continue moving toward the dock and to weathervane when the engine is stopped. Once again, the probability of damage to the airplane is too great to risk.

No two dockings are the same. For every situation, evaluate the relationship of the dock to the wind and current, if any, and choose the most favorable place to dock. For an unfamiliar dock, inspection is best done from the air, before landing. Do not begin an approach to a dock without a plan. Remember that insurance is more expensive for floatplanes than for wheelplanes primarily because wheelplane pilots don’t have to dock.
Beaching

If conditions are unfavorable for docking, or if there is no dock available, you may want to beach the floatplane. To identify an acceptable beach, conduct a thorough aerial inspection. Look for submerged rocks, stumps or pilings in the water. Also, examine the surface of the beach above the waterline for obstacles.

When you have picked a beach that looks sandy and free of obstructions, plan the approach and touch down far enough from the beach to remain clear of any obstacles that might have been missed during the aerial inspection. After landing, taxi as close to the beach as practical without risk of hitting any underwater obstacles, then turn parallel to the beach to carefully survey the area for an approach path that is obstacle free.

After concluding that it’s safe to do so, slowly approach the beach at a 45 degree angle, on an upwind heading. The 45 degree approach permits a turn to open water if necessary to avoid an obstacle.

Shut the engine off to slowly drift up to the beach. Ensure that the master and magnetos are off and walk to the front of the float with the paddle to guide the floatplane around any obstructions. Upon contacting the beach, raise the water rudders, step off of the float and, using the wing lines, turn the airplane so that its tail can be pulled back up onto the beach. Lift the airplane up by the tailcone and pull the floats up onto the beach. Be sure that the water rudders are retracted before pulling the floats through the sand.

To secure the floatplane, tie a line from the tail tiedown ring to a tree or log. If wind is expected, additional lines will be necessary. Use the wing strut tiedown loops to secure the airplane to trees or onshore logs. Avoid leaving a floatplane secured on the beach if the water is rough enough that waves will rock the airplane up and down—lifting the floats and then slamming them down on the beach.

If the floatplane is beached in salt water, pay attention to the tide. An outgoing tide may leave the plane high and dry, while an incoming tide, coupled with an offshore breeze could refloat the plane and blow it away. When beaching in salt water, stay near the airplane. If the tide is ebbing, you can reposition the plane periodically so that it stays afloat. If the tide is flowing, tend the lines on the stern cleats to prevent the plane from floating away.

Mooring

At some destinations it may not be practical to dock or beach the floatplane. Mooring the airplane to a buoy can be a very satisfactory way to secure it. After checking for obstructions in the water, approach the buoy from a downwind heading at a slow idle. Position the buoy on the outboard side of the left float and time the engine shutdown so the plane arrives at the buoy with little or no forward speed. Secure the plane by tying the end of a V-shaped bridle to the bow cleat of each float and then running a line from the middle of the bridle to the mooring buoy. If the floatplane is to be left for any length
of time, run a second, redundant line from the floats to the buoy. Retract the water rudders and the plane will be free to weathervane around the buoy. Be sure that the bridle and other lines securing the airplane are short enough that it won’t hit anything if the wind shifts and it weathervanes to the opposite side of the buoy.

**Anchoring**

If you are unable to dock or beach the floatplane, and if there are no appropriate buoys for mooring, it may be necessary to anchor the floatplane offshore. Select an area that will be out of the way of moving vessels, and in water deep enough to ensure that the floatplane will not be left high and dry during low tide. Adjust the anchor line length to be approximately seven times the depth of the water. After dropping anchor with the floatplane headed into the wind, allow it to drift backward so the anchor is set. To determine that the anchor is holding the floatplane at the desired location, select two fixed objects nearby or on shore that are lined up, and check to assure that these objects remain aligned. If they do not, it means that the anchor is dragging on the bottom.

As with mooring, sufficient room should be allowed for the floatplane to swing around without striking other anchored vessels or nearby obstacles. Be sure that the water rudders have been retracted.

If anchoring the seaplane overnight or for longer periods of time, an additional, heavier anchor should be used. This anchor should be dropped about twice as far ahead as the first anchor and about thirty degrees to one side of the seaplane.

Where did these anchors come from, you might ask. Well, you had to plan for the exercise and carry them with you in the airplane. Which suggests some further considerations: Anchors are heavy and the payload of the floatplane is limited. And anchors often have hard, sharp surfaces which can severely damage fragile, aluminum floats if not handled carefully. For those reasons, BEFA does not keep an anchor in the floatplane and does not encourage its use. If you conclude that only anchoring can be used to secure the airplane at your planned destination, you should probably consider a different destination.

**Ramping**

Unless someone is flying after you, and takes the floatplane while it is in the water, you will conclude your flight by ramping the airplane so that it can be lifted out of the lake with the float truck. Absent a strong quartering tailwind, ramping the floatplane is a fairly easy maneuver. With the water rudders down, keep the yoke full aft, line up on the center of the ramp and taxi toward it at the lowest possible speed. When the floats are two feet or so from the ramp, add just enough power to raise the bow of the floats and let them slide up the ramp. Because the ramp at Renton is not very steep, not much power is required. The power application causes water to be pushed in front of the floats.
cushioning the collision with the ramp. Use just enough power to accomplish the task. The floats should be stuck on the ramp, but only just stuck. After the airplane’s forward momentum stops, raise the water rudders. Perform the mag check and shut the engine down normally.

If power is added too soon, or if too much power is used, the plane will build up momentum and hit the ramp at too high a speed. While the float keels are sturdy and not normally damaged in a ramping, too much speed will punish them.

If insufficient power is used, the floats may not both stay stuck on the ramp. Raising the water rudders assures that they will not be damaged if the airplane slides backward before it can be lifted out of the water. If one or both floats do slide backwards, don’t be alarmed. If the airplane hasn’t twisted too far on the ramp, it is possible to grab the bow lines and hold the floats against the ramp until the float truck is positioned under the spreader bars. Even if the airplane has turned at a sharp angle on the ramp, it may be possible to use the lines to straighten it enough to get the float truck under it. If not, push the airplane off of the ramp and try again.

If ramping with a strong crosswind, it may not be possible to approach directly on the center line of the ramp because of the airplane’s weathervaning tendency. This sometimes occurs at Renton when the wind is strong from the Northwest. In such a case, approach the ramp straight downwind and then use the weathervaning to align it on the center line of the ramp just before contact is made.

Although not allowed at Renton, floatplanes are sometimes stored on ramps. If the plane is to remain on the ramp in your absence, tie the bow lines to the ramp before leaving. If the airplane will be left overnight, secure it with additional lines from the stern cleats and/or the wing lines.
Conclusion

You have mastered the mechanics of flying the floatplane. Your glassy water landing is a thing of beauty. Other pilots remark on your deft docking technique. You are good to go solo, right? Well, maybe so…maybe not.

While hand-eye coordination is important, it’s even more critical that the float pilot have good common sense. We’ve only touched briefly on the application of sound judgement in this notebook. It’s difficult to know how to include such an abstract concept. But thoughtful decision making is critically important for pilots. If you have a problem in the floatplane, it probably won’t be failure to hold the slippery spot on the takeoff slide or inability to master the flare in the landing that trip you up. Review of NTSB reports reveals that damage to floatplanes almost always is caused by careless decision making by float pilots.

Be thoughtful when you fly. Be conservative in your decisions. Pay attention to the wind direction and velocity. Never land downwind. Don’t attempt the tough downwind turns. If the water seems a little too rough, it probably is. Don’t push it. Wait for a calmer day. Be particularly careful about docking. Select docks with ample space for the approach. Never dock downwind, and be alert for adverse currents. Keep the wings away from obstructions. Take care with the water rudders. Ask for help on the dock. Be slow and deliberate—take the time to work out your plan before you act on it.

We are extremely fortunate to have a floatplane at BEFA. Very few airplane operators offer float flying and no other float operator will permit non-instructors to fly floatplanes solo. Only at BEFA! Even if you earned your float rating with them, all other operators require that you rent an instructor along with the floatplane. Let’s operate the airplane thoughtfully and ensure that it stays in the fleet.