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Boat ...or Floats

Different means to the same end

Written by Robert Murray

A look into the different techniques for handling flying boats and floatplanes around docks, on ramps and in the boonies, with tips on the best facilities for each.

Docks

Due to their wing position and outrigger floats, most flying boats present certain difficulties for approaching a dock, although the Lake can be paddled into position under moderate to calm wind conditions and the Seabee has a reversing prop to take the crunch out of a brisk arrival. Standard procedure is to nose into the dock, rather than come alongside. Low, narrow docks provide best access for this type and in some cases a wing float can be rested on or across the dock to bring the hull in closer. The Lake, Teal and other boats that sit low to the water will also fit nicely against the corner of higher docks, providing bumpers are used along the leading edge of the wing and between the dock and hull. Under most circumstances, it is advisable to have assistance from experienced personnel on the shore, to catch a line or fend off a wing tip.

High wing, float equipped aircraft have a distinct advantage for approaching and maneuvering in and around docks, providing the pilot steers clear of pilings, flagpoles, trees and other obstacles that might catch a wing tip. Loading and unloading is also easier in this type, especially if there are doors on either side of the fuselage and float struts provide lashing points for bulky external loads, such as boats and canoes.

Construction of docks for seaplane use should take into consideration mean water level and seasonal variations. Floating docks are best for most situations

and whenever possible should have an L or T shaped configuration to provide approaches into the wind. The facing or apron around the dock should project deeply enough into the water to prevent chines and spray rails from catching - a common source of float damage. If the dock is located in an area of heavy pleasure boat or commercial water traffic. placing the dock between the boats and aircraft will lessen the hazards of wake damage.

Oddly enough, the flying boat, which is designed primarily for water operation, tends to be based on land -- while the landplane, which has been converted to straight floats, is generally restricted to water operations.

Ramps

There are two basic types of ramps. The first can vary from a stretch of smooth beach to beautifully constructed wood or concrete incline built for the purpose of taxiing an amphibious boat or float equipped aircraft out of the water. In many cases it will also accommodate non-amphibious seaplanes that are dollied or winched ashore for tiedown or servicing. For a flying boat owner, in particular, there is nothing quite so appealing as a wide, smooth gentle sloping ramp that will enable him to go ashore, drain the hull and service his ship -- and if there is any one maneuver that will thrill the natives, it is a seaplane coming out of the water on its own steam. The key to building a good ramp is slope; it should have a gradual incline, extending far enough into the water, that wheels can make contact freely and the plane reenter the water without banging the aft section of the hull. If the ramp is mainly for float use, cedar or treated wood is preferred. Concrete or asphalt have advantages for amphibians.

The second type of ramp often consists of little more than a small raft secured to the shore, with one end tipped below the water surface. A seaplane can be taxied onto the ramp, even at moderate speed, wedging itself in place until the pilot shuts down and moves forward along one float, to the shore. By tying a rope to a rear strut, the plane can be pushed free and turned around, with the heels of the floats pulled as high as they will go on the ramp. Don't forget to retract the water rudders. This places the aircraft in tie-down position and ready for the next flight. When tying a seaplane back to the shore, it is sometimes easier and more effective to substitute float strut tie-down for wing ropes. The important consideration is to keep the plane positioned over the ramp should

winds or high water force it higher on the ramp.

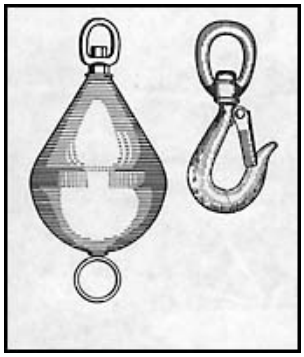
Tethering out your forty thousand dollar aircraft with a forty cent piece of cord will give your insurance agent the heartburn. Use a four dollar, dacron line and everyone will sleep better.

Buoys

Much of the lore for handling a seaplane follows from what we know about ships - sailing craft in particular. And as many sailboats can be found moored out in the water, free to track the wind, this arrangement works well for aircraft, with one possible exception. Float planes tend to sit very high on their gear and the one fear of tying them out, is a sudden squall or strong gust catching the plane under the tail, flipping it over before it can weathercock. Mooring an aircraft in a river current or a tidal flow can be similarly dangerous if high winds are likely to occur.

The chief virtue of mooring an aircraft to a buoy or anchor is the lack of stress that results from having the plane face into the wind, and so long as it can follow this natural tendency it will ride high waves and strong winds without difficulty. Flying boats are particularly suited to this arrangement, because they generally sit low in the water, making them difficult to upset. Twin float aircraft come equipped with cleats attached the float bows and a rope bridle or other Y-shaped attachment is used to secure the plane to a buoy. Placing the bridle around the float struts or propeller are other alternatives. Hulled aircraft have a single ring or cleat attached to the bow, along the center line of the aircraft. Unfortunately this is not true for the Lake. Its modest cleat is installed on the port side of the nose causing the ship to 'fishtail' in strong winds. However, anyone frequently using this method of securing the aircraft can easily install a second cleat on the opposite side of the bow.

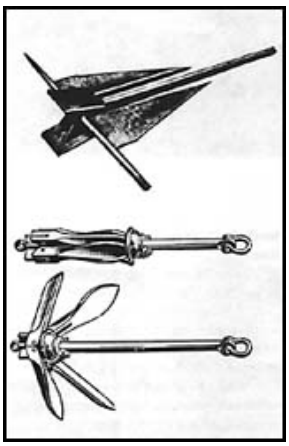
Permanent moorings consist of a heavy anchor block, galvanized chain, swivels to prevent the chain kinking and a flotation device to keep one end afloat for securing the vessel. The weight ratio or holding ability of a fixed mooring will depend on bottom conditions, drag profile of the aircraft and other practical considerations. The best source of information comes from marine suppliers, marina operators and cordage manufacturers. Aviation publications, owners' manuals and the like tend to use words such as 'sufficient' or 'adequate' when the correct advice may be seven hundred pounds and forty-five degrees of scope. Remember too that concrete weighs heavier on land than in water.



Mooring an aircraft offers one other minor handicap - how do you get to the dock and back? Unless an inflatable raft has been left on the buoy or carried aboard, it is essential to have assistance from shore, preferably in a Boston Whaler or similar design that will fit against floats or wing and hull without causing damage. Beware of metal boats - your seaplane is bound to come off second best.

There are a variety of anchors suitable for seaplane use, the two most common being the Danforth, which is relatively light for its size and the cast, folding type that has four flukes and is particularly good in rocks. Again, bottom conditions must be considered along with the amount of

weight and bulk you wish to carry aboard. Pamphlets are available from cordage manufacturers offering excellent advice for choice of line and methods of laying line. The importance of scope - the amount and angle of line between anchor and vessel, is well explained and suggestions for laying two or more anchors, particularly as it applies to pleasure cruisers, can be useful information for a seaplane operator. Tips on knot tying is another bit of useful lore, common to marine publications.



Beaches

One of the maneuvers often overlooked by instructors is the business of beaching a seaplane. This is less true for a check-out in a flying boat, where learning to approach a firm gently sloping beach, with wheels extended, making way as slowly as possible until the gear touches, and then blasting the plane out of the water and turning it around for departure is one of the more dramatic maneuvers. As one boat instructor commented, "it's not for the faint of heart...you have to use power judiciously to keep moving, or you'll get stuck, sure as hell."

Float planes generally present fewer problems unless the shore is overgrown with trees, or very rocky, where common sense would suggest that the pilot wade in front of the plane or probe the water with a paddle to locate rocks. stumps, etc. Once it is in shallow water, the plane can be turned around, and the heels of the floats pulled up on the shore. If the plane is to be left unattended, it should be secured with a tail line.

A useful variation on these beaching techniques, for both float and hulled aircraft, is to unload in shallow water -- waders can be helpful here, and if the beach is unfriendly to an aluminum bottom, play out the aircraft on a long line tied off at the shore. This implies an offshore wind condition and should be considered during the approach...

Amphibians

Seaplanes with training wheels - that's what operators of pure float planes or pure flying boats call

the amphibians, and a for a bush plane that has no airports to go to, wheels are an unnecessary complication. They add considerably more expense for both purchase and maintenance and lower the useful load. Since relatively few of us fly under bush conditions, having amphibious gear means that we can go from land to water or water to land for greater aircraft utility, easier servicing and increased safety. For pilots who must do their water flying during a limited season, having an amphibian is comparable to combining the family car and a pleasure boat. The wheels are there for regular airport activity without compromising the pilot's ability to make a weekend or holiday trip to the lake. In colder climates it also eliminates the need for change-over from wheels to floats each spring and back to wheels again in the fall. If most of your flying would normally originate from a land airport, this type may be your best choice.

Slips

One of the more effective and perhaps least expensive seaplane tie-downs is a slip, cut into a shoreline. This implies a relatively constant water level and a grassy, firm piece of shore - sandy or rocky conditions are better served with a ramp. A back-hoe, bulldozer or steam shovel can do the job in short order. The idea is to cut an incline back into the shore that is comfortably wider than the float gear and yet narrow enough to contain the aircraft and allow easy access along the sides, for tie down. The plane can be suspended on lines within the slip or pulled, tail-out, on the back of the slip. Again, if the water level is fairly regular, it is possible to erect a pole shed or quonset type hangar over a slip. I have also seen hangars built on floating docks, along with their more normal location, high above the waterline.

Tidal areas present the most difficult problems for seaplane operation. Ramps must be extra long -- some ingenious rail platforms have been devised at one time or another, and floating docks that could be collared to pilings, for a boat, call for swiveling arms or some other rig, to be useful at low tide when pilings would represent serious obstacles.

Source: 1976 Water Flying Annual