AIRHART AVIATION

FLOAT PLANE SAFETY

Kelowna, BC Canada
V1Y9P4
PH. 250.762.9830
E-MAIL: info@air-hart.com

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FLOAT PLANE SAFETY

RULE ONE : COMMON SENSE AND PROPER JUDGMENT

The pilot of a floatplane is pretty much on their own. Floatplane pilots must choose their own landing sites for each landing and determine if they are safe. Are there any floating logs or debris, deadheads, or rocks under the water? Is the water deep enough, too rough, or glassy? What about boat traffic? Which way is the wind blowing? Is it gusty? Can you turn the plane around? How is the dock?

All you can do in these situations is use your best judgement based on the conditions, your experience, and your training.

RULE TWO: DON'T RUSH YOURSELF

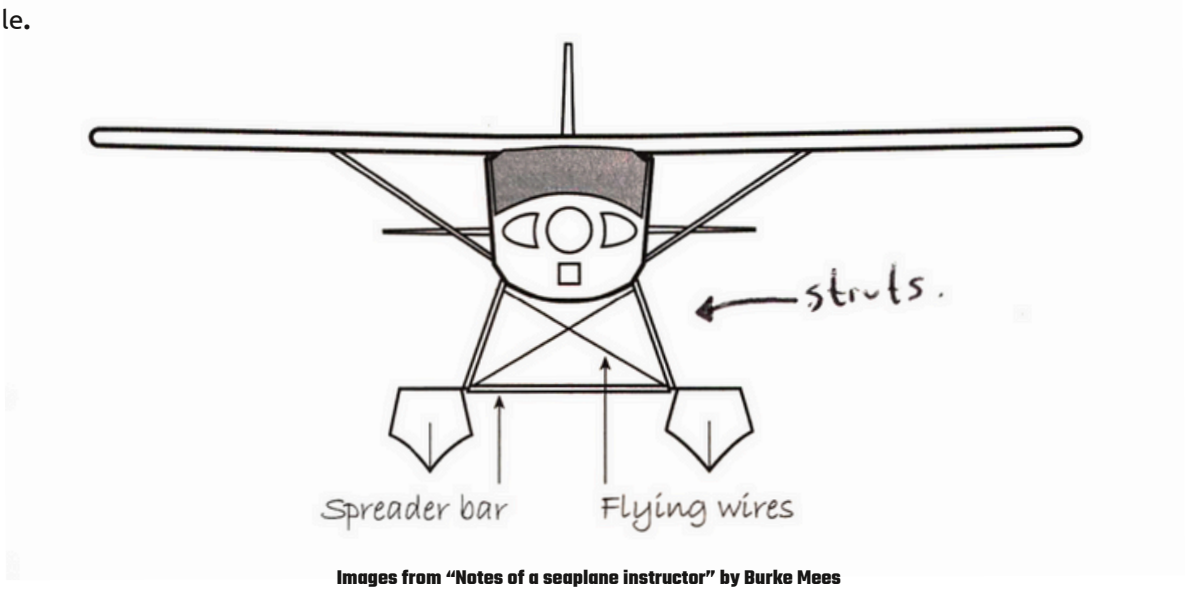
You will be flying into situations where there is no air traffic controller to tell you the wind direction, speed, runway condition, or when to land. This is up to the pilot, and there is nothing wrong with flying over an unfamiliar area several times until you're sure you can land safely. There are many factors to consider, especially if you're flying into an area for the first time.

RULE THREE: PLAN YOUR STRATEGY

This is the most important rule to follow in a floatplane. What is going to happen next? When you untie a floatplane from the dock and let go of the ropes—what is going to happen next? When you land and have no brakes, no reverse, vague steering, gusty winds, and a dock with eight-foot piles—what is going to happen next?
Landing downstream in a fast-moving river—what will happen when you are off the step and taxiing in the current? Always think through each situation thoroughly before reacting to it!

RULE FOUR: KNOW YOUR LIMITS

It is crucial to be aware of your limitations. Put your pilot ego aside and fly only where you know you can. A small glassy mountain lake requires a lot of experience. Docking in a swift-moving river also requires experience. Do not get caught up in the NO PROBLEM syndrome and find yourself in a situation you can't handle.



Images from "Notes of a seaplane instructor" by Burke Mees

THE FLOAT PLANE

FLOATS VS. WHEELS

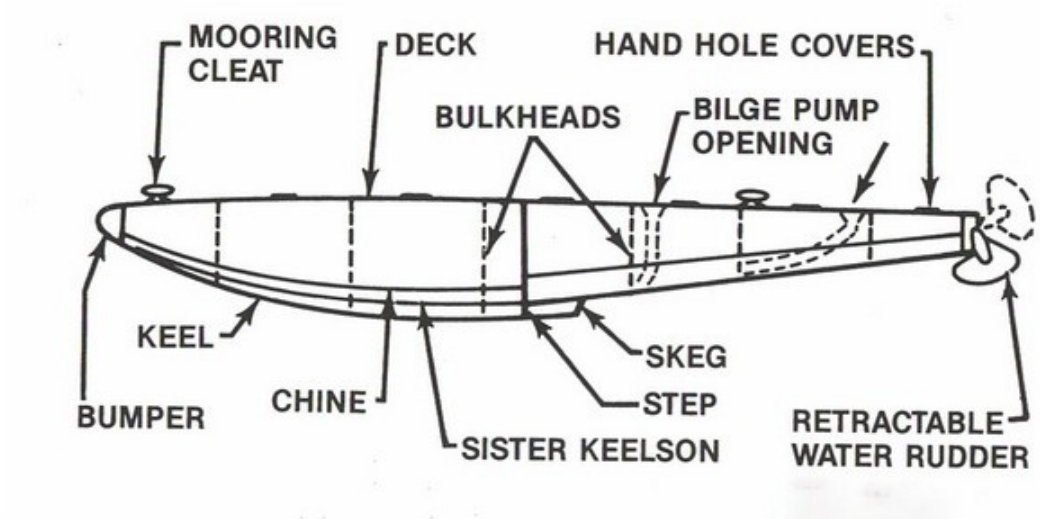
The floatplane is very similar to the landplane **except for the following modifications**:

1. Floats, incorporating a **water rudder steering system**, replace the landing gear wheels, struts, and springs. A water retraction lever, connected to the water rudders by cables and springs, is located on the cabin floor.
2. A **ventral fin** is installed at the rear of the tailcone for additional directional stability.
3. An additional structural **V-brace** is installed between the top of the front doorposts and the cowl deck.
4. Additional fuselage structure is added to support the float installation.
5. Interconnect springs and cables are added between the rudder and aileron control systems, and centering springs and cables are added to the rudder control system to improve stability in flight.*
6. The airplane has additional **corrosion-proofing** and stainless steel cables.
7. Hoisting provisions are added to the top of the fuselage.
8. The **left-hand cabin door** is equipped with removable hinge pins for easier door removal when loading large cargo.
9. **Fueling steps** and **assist handles** are mounted on the forward fuselage, and steps are mounted on the wing struts to aid in refuelling the airplane. Inboard fuel fillers are added when long-range fuel tanks are installed.**
10. The standard propeller is replaced with a **larger-diameter propeller** (88 inches).
11. A reinforced engine mount replaces the standard engine mount.
12. Cowl flap linkage is extended to increase the opening of the cowl flaps for improved engine cooling.
13. Floatplane placards are added.

NOTES:

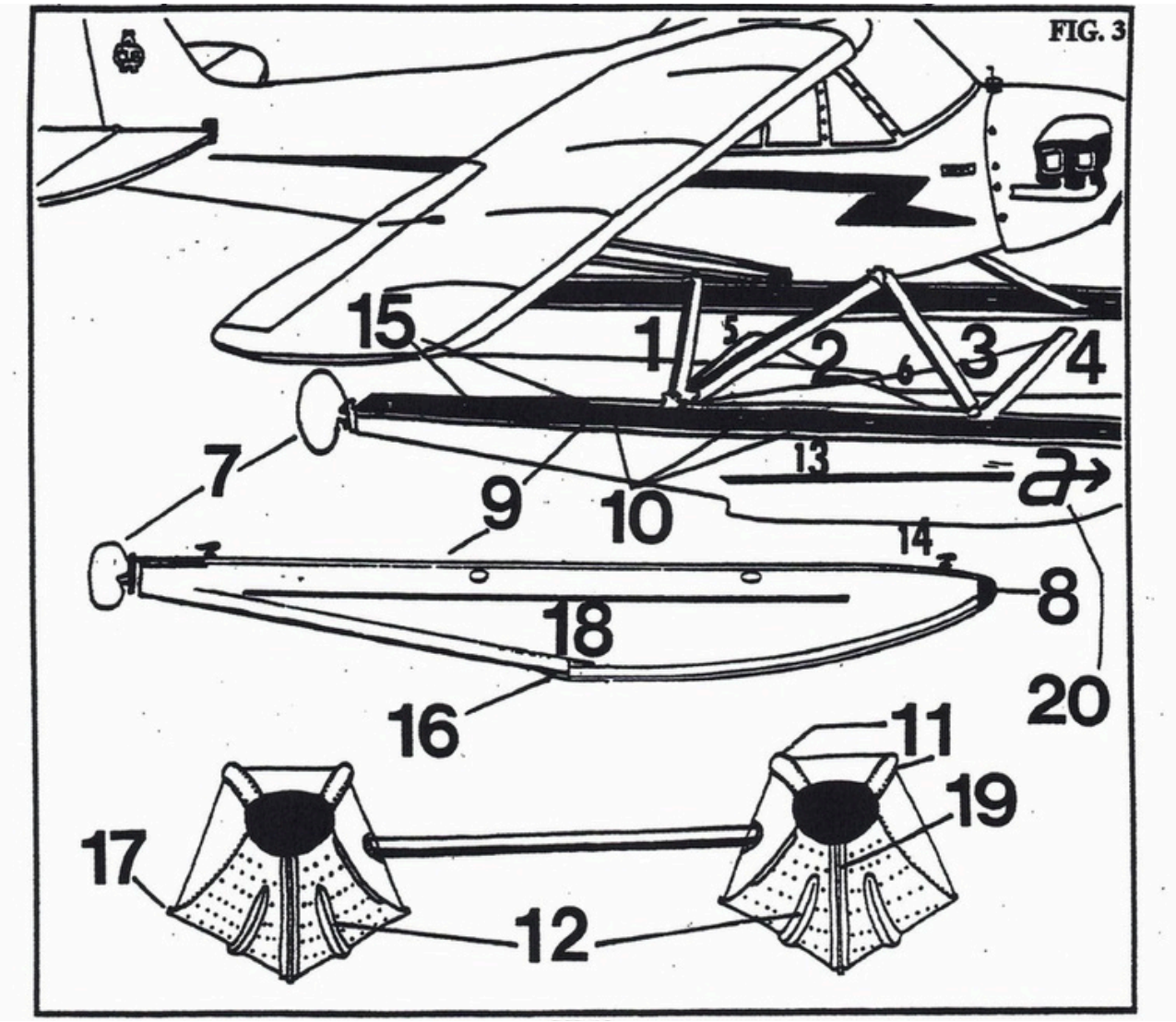
***If the airplane is returned to a landplane configuration, these modifications must be removed.

A reduction of approximately **five gallons of usable fuel per tank will occur when inboard fillers are used for long-range fuel tanks.



Images from "Notes of a seaplane instructor" by Burke Mees

FLOATS



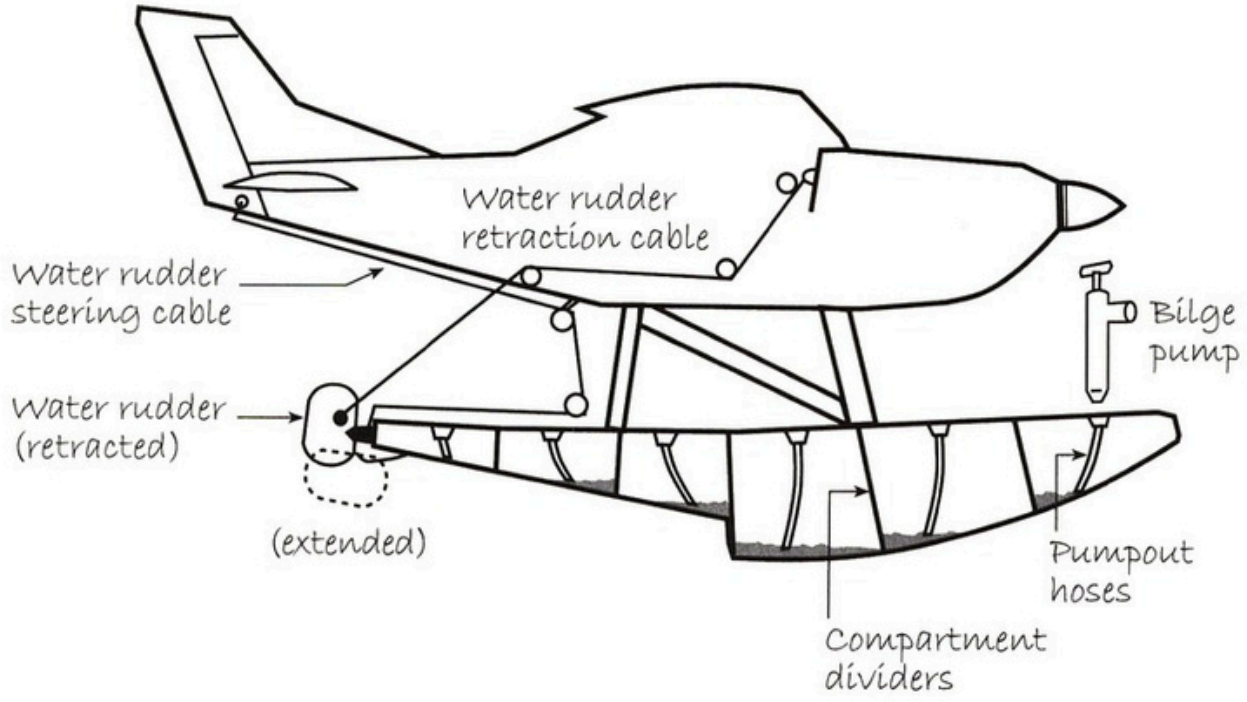
1. Aft Strut
2. Diagonal Strut
3. Forward Strut
4. Forward Spreader Bar
5. Aft Spreader Bar
6. Bracing Wires
7. Water Rudders (Retractable)
8. Rudder Nose Bumpers
9. Flat Deck
10. Seven watertight compartments in each float
11. Slip-resistant edge rails
12. Hydrodynamic Lift Boosters (or Sister Keelsons)
13. Hinged Access Compartments & Cleat
14. Forward and Aft Moorin
15. Seven bilge pump holes (one for each compartment)
16. Skeg
17. Chine
18. Step
19. Keel
20. Logo

WATER RUDDER STEERING SYSTEM

Retractable water rudders, mounted at the aft end of each float, are connected by a system of cables and springs to the airplane rudder pedals. Normal rudder pedal operation moves the water rudders, providing steering control for taxiing.

A **water rudder retraction lever,** located on the cabin floor tunnel, is used to manually raise and lower the water rudders. During take-off, landing, and in flight, the retraction lever is normally positioned full aft in the **"RETRACT"** position, keeping the water rudders up. Moving the lever full forward to the **"EXTEND"** position lowers the water rudders for taxiing.

The retraction lever incorporates a **spring-loaded catch device** located near its midpoint. This catch is designed to latch over a locking pin when the retraction lever is pulled aft to "RETRACT," securing the lever in place. To release the lever from the retraction locking pin, pull the exposed end of the retraction lever catch aft while pushing downward slightly on the retraction lever with your right hand. The lever can then be rotated forward to extend the water rudders for water taxiing.



Images from "Notes of a seaplane instructor" by Burke Mees

CONSTANT SPEED PROCEDURES

Power Quadrant

The throttle is a push/pull-type control, while the propeller (prop) and mixture (mix) controls are Vernier-type.

- **To increase RPM:** Dial the prop control clockwise.
- **To decrease RPM:** Dial the prop control counterclockwise.
- **For full fine pitch/max RPM:** Push the button to the top of the control.

Do not overtighten Vernier-type controls by dialling past the stop. The mixture control operates the same way.

Constant-Speed Propeller Operation

The engine is started with the propeller control in the **Full Fine Pitch/Max RPM position.** This reduces the load or drag of the propeller, making it easier to start and warm up the engine.

During run-up, the propeller blade-changing mechanism should be operated **slowly and smoothly** through a full cycle.

Run-Up Procedure:

1. Set the **prop lever to full Max RPM.**
2. Increase throttle to approximately **1700-1800 RPM.**
3. At low engine speed, with the prop lever pushed in, **RPM is controlled by the throttle**.
4. Pull out the prop lever to lower/coarse pitch, reducing RPM by **300-400 RPM.**
5. Push the **prop lever back to full fine pitch/Max RPM** and **watch for RPM recovery.**
6. Repeat this cycle:
    - 3 times if the engine is cold.
    - 2 times if the engine is warm.

Why This Procedure is Important:

- Ensures the **propeller governor system** is functioning correctly (check for **RPM recovery**).
- Circulates fresh, warm oil through the governor system. Oil trapped in the propeller cylinder can **congeal in cold weather**, potentially leading to engine **overspeed during take-off**.

Constant-Speed Propeller Benefits:

An airplane with a constant-speed propeller has **better take-off performance** than one with a fixed-pitch propeller.

- A constant-speed propeller immediately reaches maximum rated horsepower (redline on the tachometer) when full power is applied.
- A fixed-pitch propeller must accelerate down the runway first to aerodynamically unload the propeller and build RPM and horsepower gradually.

With a constant-speed propeller, the tachometer reading should **reach within 40 RPM of the redline as soon as full power is applied** and remain there for the entire take-off.

CONSTANT SPEED PROCEDURES Cont.

Excessive manifold pressure raises cylinder compression pressure, **increasing engine stress and temperature.**

A **combination of high manifold pressure and low RPM** can cause **damaging detonation**. To avoid these situations, the following sequence should be followed;

When reducing power:

1. First, decrease the manifold pressure.
2. Then, decrease the RPM.

When increasing power:

1. First, increase the RPM.
2. Then, increase the manifold pressure.

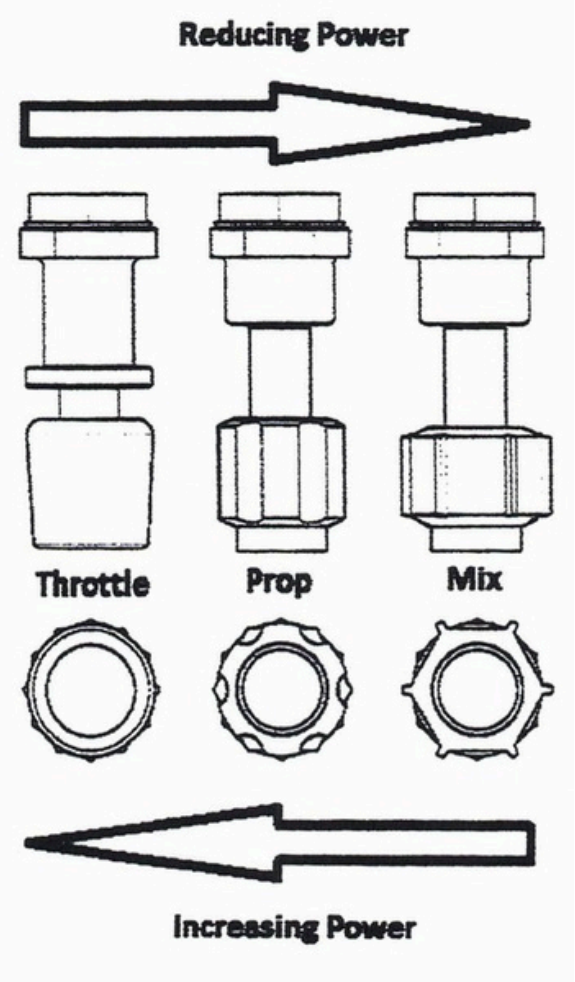
Always make power changes **smoothly and slowly** to prevent over-boosting or overspeeding. Always **twist** Vernier controls slowly to the desired RPM or MP. **Button is for full rich or full fine pitch/Max RPM**.

Overshoot Preparation

Preparing for the Overshoot will be done with the prop unloaded, or with a relatively low manifold pressure, to minimise stress on the governor - less work, less maintenance. When turning onto final approach, power is usually lower.

Prepare for an overshoot by:

- Ensuring the mixture is rich.
- Pushing the props to full fine pitch/Max RPM using the Vernier control buttons.



FLOATPLANE POWER SETTINGS

GYVB - Cessna R172K Hawk XP

Take-Off Power:

- Full MP - Max RPM (2600) - Full Rich

Climb Power:

- 25" MP - 2500 RPM - Full Rich

Cruise Speed:

- 23" MP - 2300 RPM - 9.5 GAL/HOUR

Landing Power:

- 19" MP - 2300 RPM - Full Rich
- 17" MP - 2300 RPM - Full Rich
- 15" MP - Max RPM - Full Rich

FWJC - Cessna 180K Skywagon

Take-Off Power:

- Full MP - Max RPM (2400) - Full Rich

Climb Power:

- 23" MP - 2400 RPM - Full Rich

Cruise Speed:

- 22" MP - 2200 RPM - 11.3 GAL/HOUR

Landing Power:

- 16" MP - 2200 RPM - Full Rich
- 14" MP - 2200 RPM - Full Rich
- 12" MP - Max RPM - Full Rich

? WHAT IS THE STARTING PROCEDURE OF THE AIRPLANE?

DEPARTING THE DOCK

Boats and floatplanes share a common steering trait: they steer from the rear. When turning left, the bow is not pulled to the left; instead, the stern is pushed to the right.

If you are up against a dock and apply left rudder to turn away, the front of the plane will not turn out. Instead, the rear of the plane will move toward the dock, potentially causing a collision. Rather than pulling away, you will slide along the dock.

! Be aware of boats ahead or obstructions on the dock (e.g., large piles), as you could run into them.

Departure Methods:

1. 90-Degree Departure
2. Ramp Start
3. Push Out

REMEMBER:

Prepare your airplane before departure (pre-flight inspection complete, passengers and cargo loaded, engine ready to start).
Once you push away from the dock, the airplane will drift with the wind or current.
Minimise the time it takes to get into the airplane, start the engine, and depart.
Plan your path to open water, check for other traffic, and ensure clearance from docks or obstacles.
Once you are satisfied with your plan, proceed with departure.

Taxiing

Displacement Taxi

Slowest taxi speed (not exceeding 1000 RPM) with the engine typically turning over slightly above idle RPM.

Steering Considerations:

Keep float tips up.
Use ailerons properly.
Be aware of weathercocking (weathervaning) tendencies.
Caution when taxiing downwind.

Plow Taxi

A slightly higher-speed taxi where the floatplane transitions from idle to a nose-high plowing attitude.

Step Taxi

The fastest form of taxiing, occurring on the step during the takeoff roll.

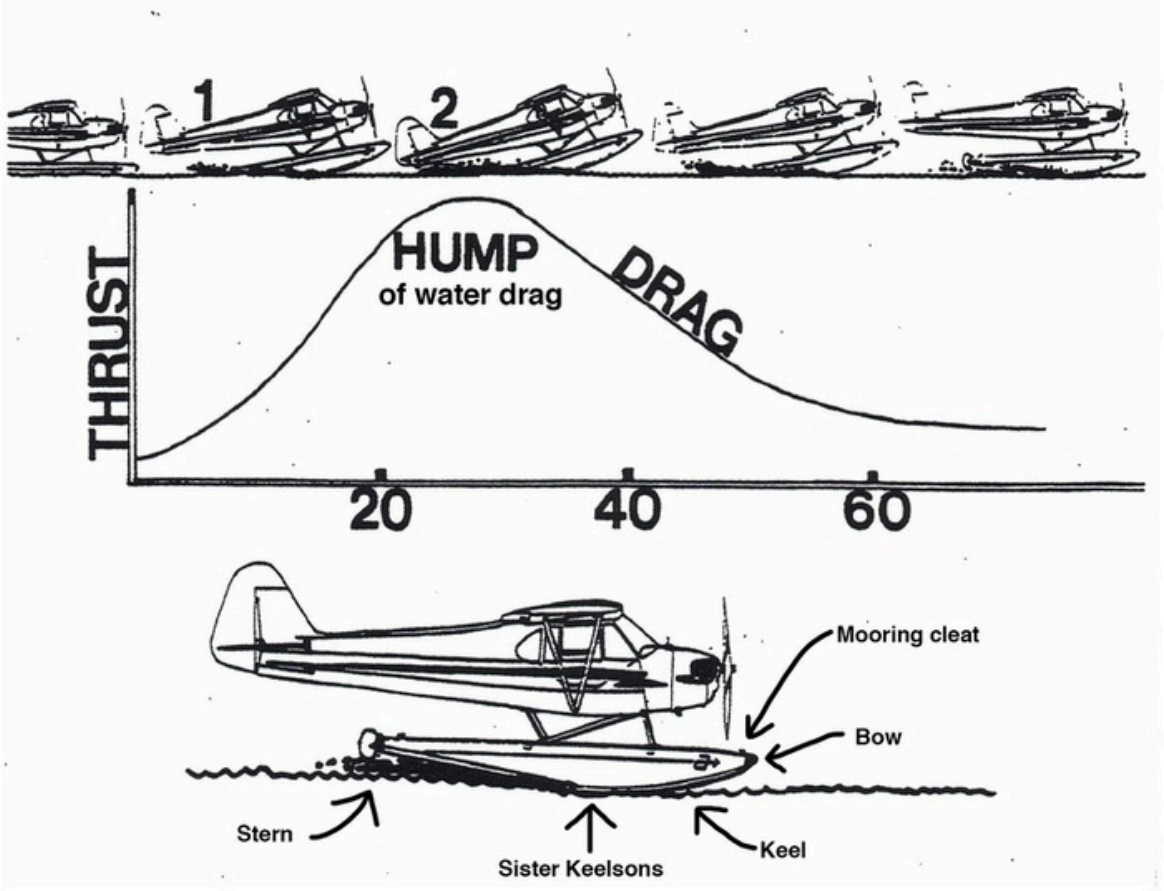
THE STEP

Water drag, or hydrodynamic drag, is significant. The drag is greatest at approximately 28 knots—this is known as the “hump of water drag.”

Once a floatplane overcomes this hump, it begins to aquaplane on the step. At this stage, water drag gradually decreases.

How Hydrodynamic Lift Boosters Help:

- The Sister Keelsons (also called Hydrodynamic Lift Boosters) reduce the time the float is exposed to the hump stage, helping the floatplane transition onto the step more efficiently.

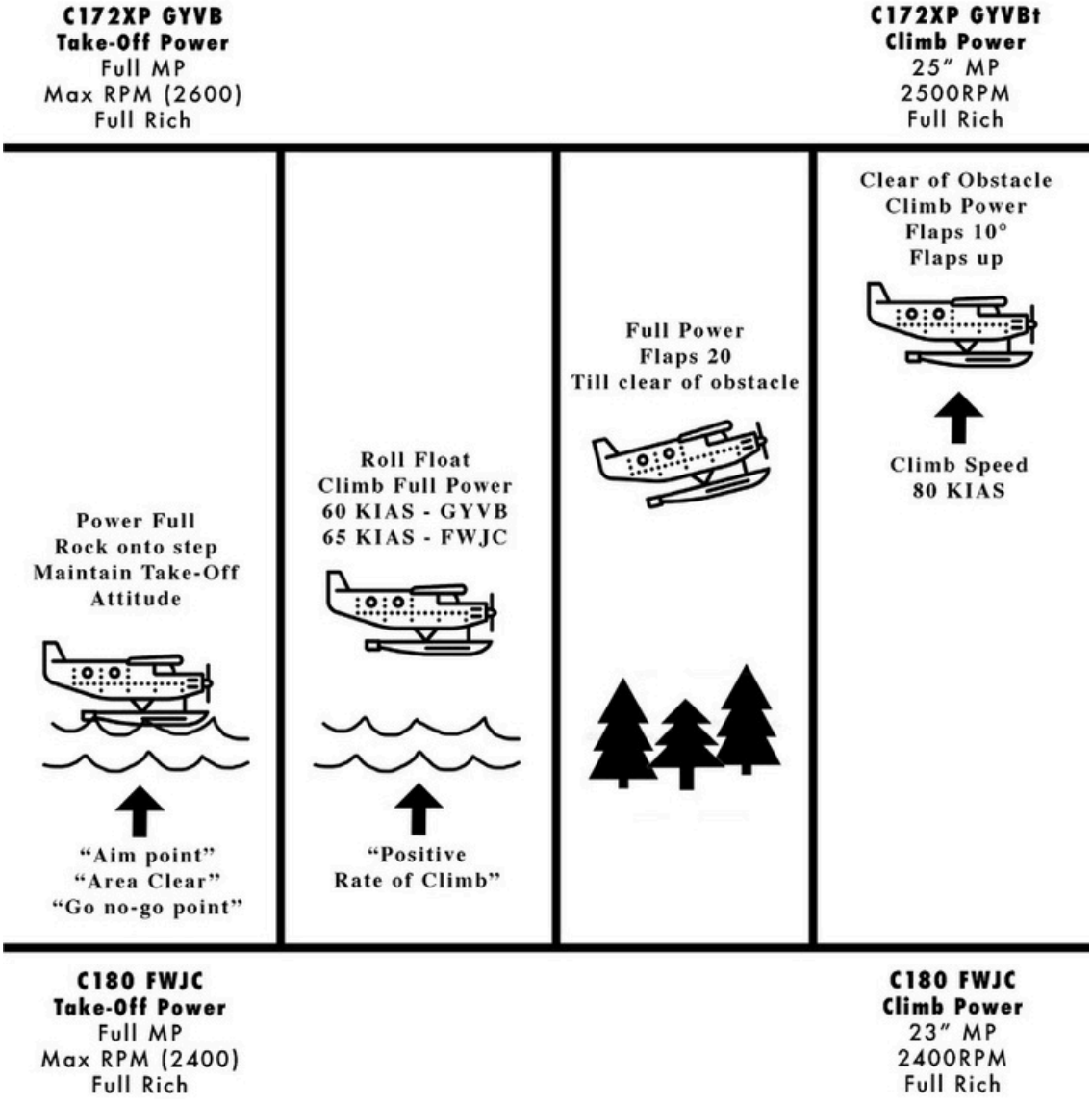


TAKE OFF

Memorise This Technique!

GUMPFS – Pre-Takeoff/Landing Checklist

G – **Gas:** On both, quantity sufficient
U – **Undercarriage**: Water rudders UP
M – **Mixture:** Full rich, carb heat OFF
P – **Props:** Full fine
F – **Flaps:** 20° for take-off, cowls open
S – **Switches:** Circuit breakers checked, mags both, master both, primer in/locked, lights on
Aim Point: Area clear, go/no-go point identified

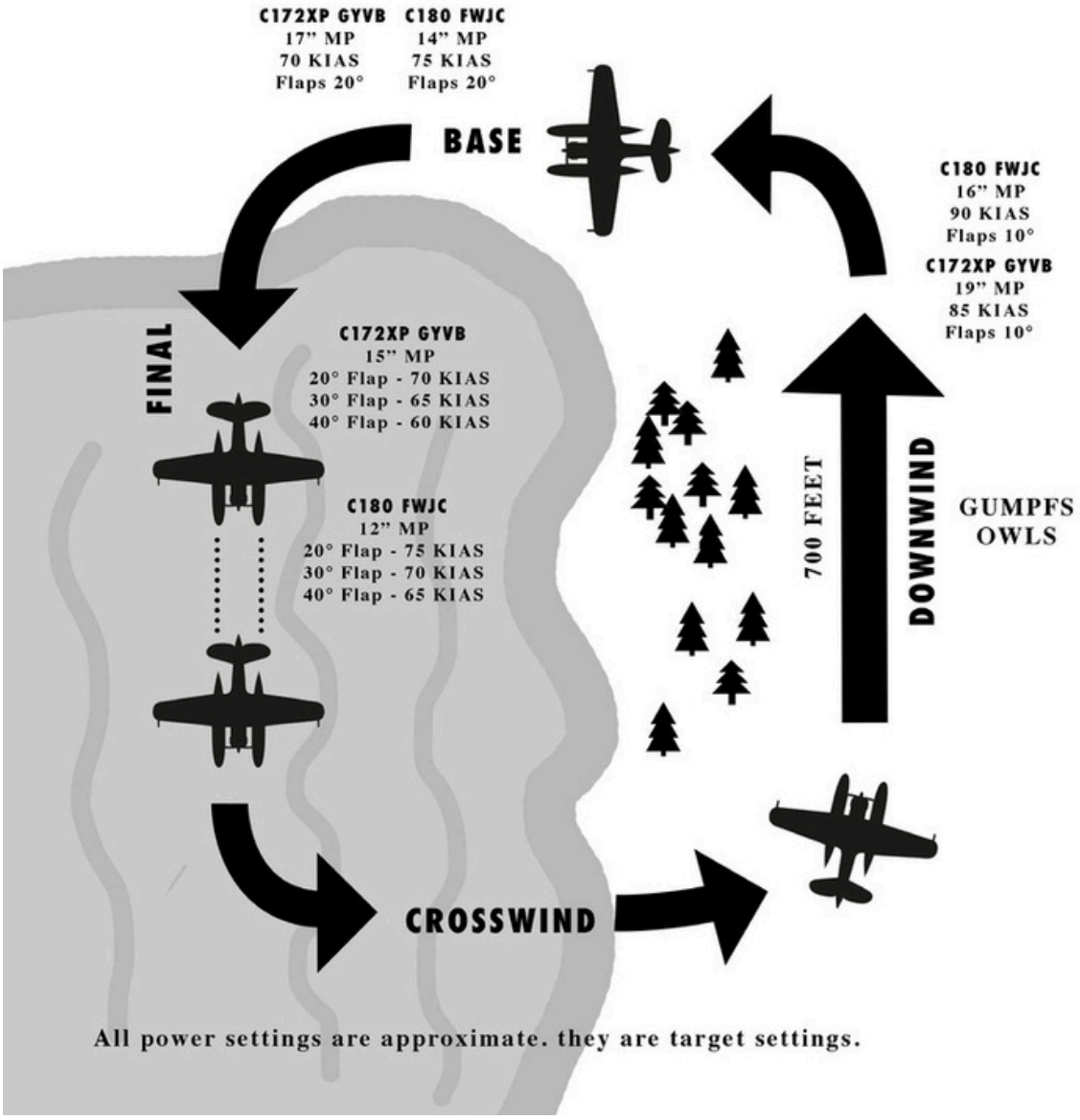


CIRCUIT CHECKS

CESSNA 180 FWJC + CESSNA 172XP GYVB

G - Gas on both - Quantity Sufficient
U - Undercarriage: Water Rudders UP
M - Mixture Full Rich, Carb heat check
P - Props - (To come) Full Fine on Final
F - Flaps - As required for landing
S - Switches - Circuit breakers, Mags Both, Master Both, Primer in/locked, Lights

O - Obstacles: checked clear of
W - Wind: direction
L - Length: runway/waterway length sufficient
S - Surface: Conditions & hazards



CIRCUIT CHECKS

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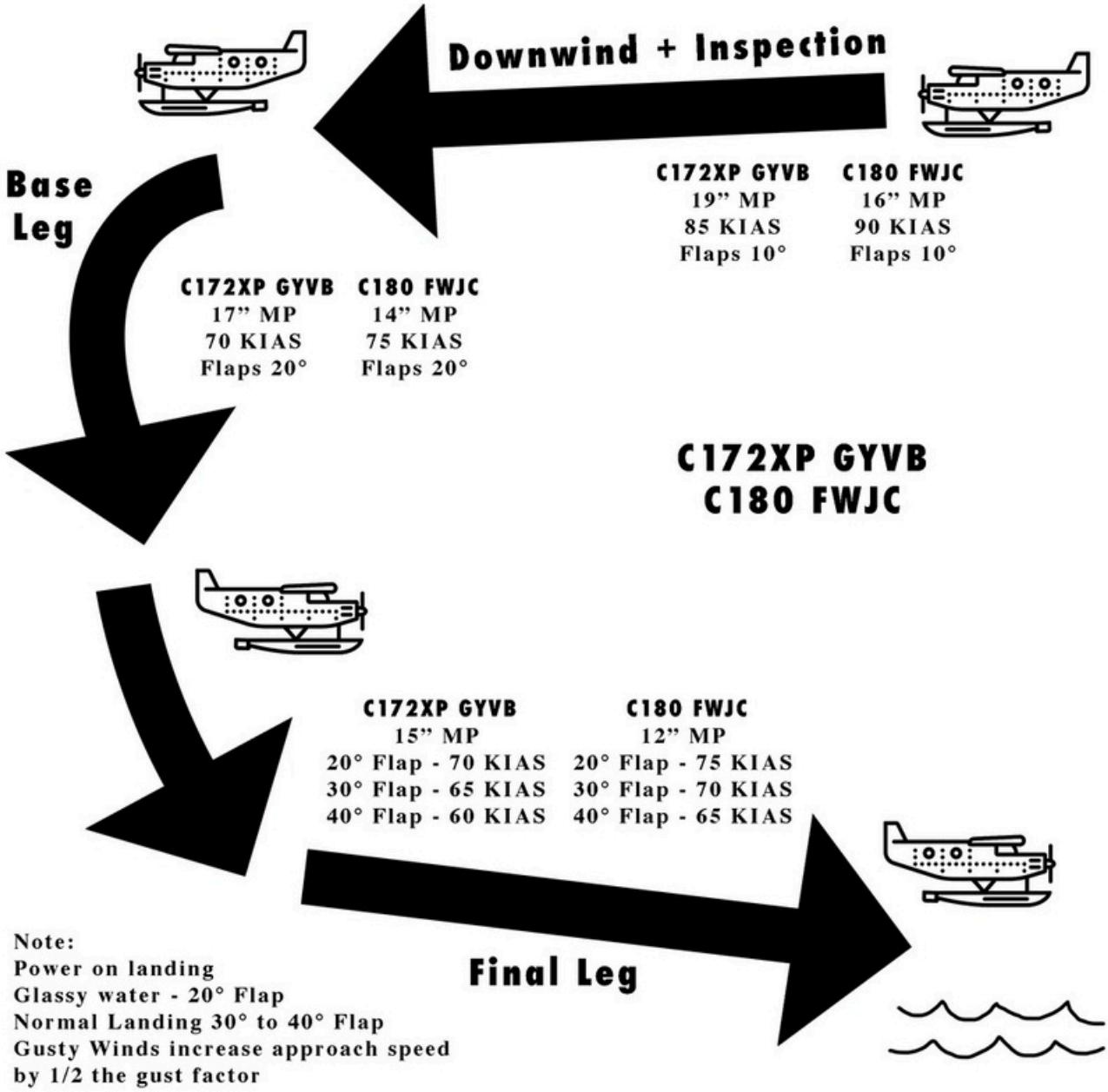


LANDING

Memorise This Technique!

GUMPFS – Landing Checklist

G - Gas on both - Quantity Sufficient
U - Undercarriage: Water Rudders UP
M - Mixture Full Rich, Carb heat ON
P - Props - (To come) Full Fine on Final
F - Flaps - As required for landing
S - Switches - Circuit breakers, Mags Both, Master Both, Primer in/locked, Lights
Aim Point; Area Clear

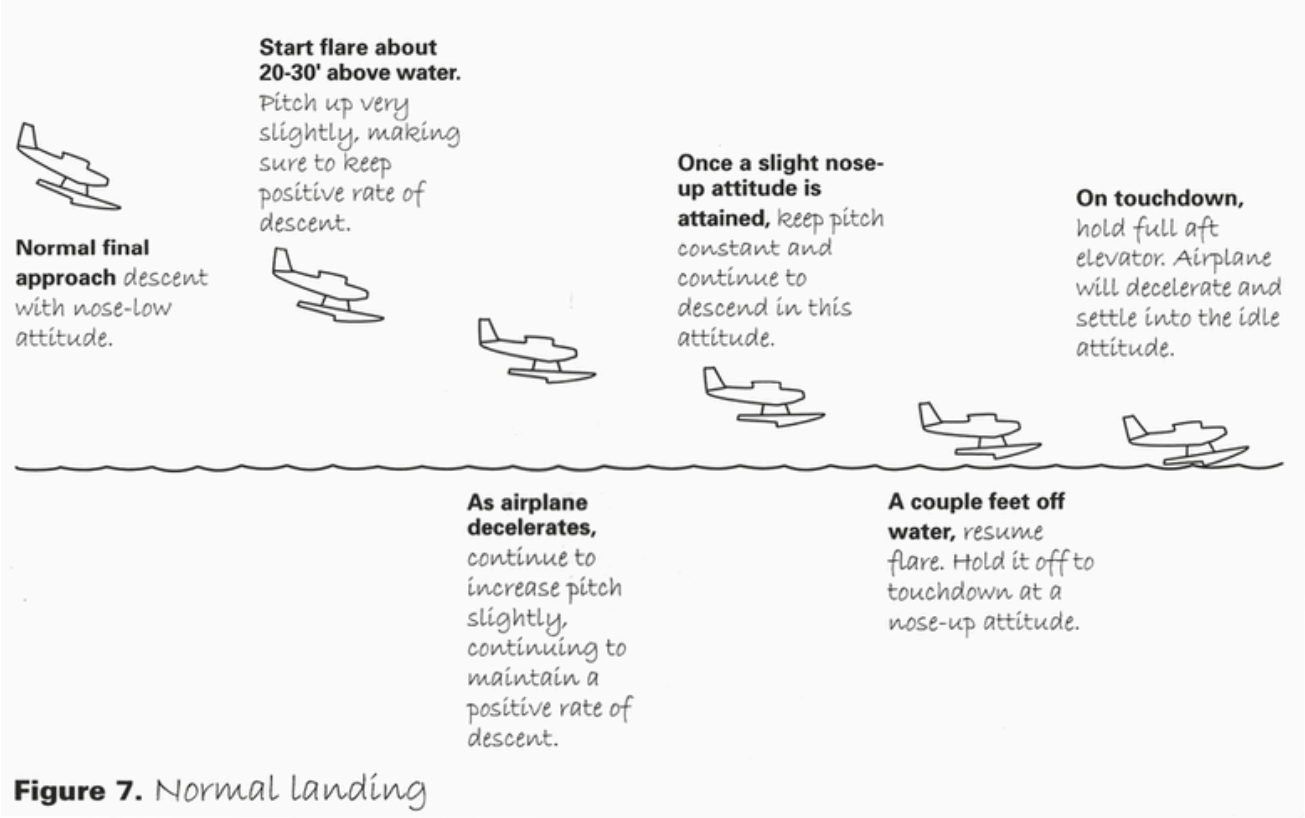


Figure 7. Normal landing

Images from "Notes of a seaplane instructor" by Burke Mees

WIND

A seaplane pilot's best tool for assessing wind direction is observing the water's surface. A thorough understanding of wind behaviour is essential. There are four basic ways in which to judge wind direction.

1. Glassy band of slick water

- This forms along the shoreline from where the wind is coming from.
- As wind blows over the trees, it pushes them downward and strikes the water's surface, forming wavelets.
- A narrow band of slick water will appear on the leeward side of the lake when wind speeds exceed 5 knots.


FIG. 21

2. Rough Side of the Lake

- As wind moves across the lake, it causes waves to build in height and intensity on the downwind side.
- The windward side of the lake will be the roughest part.

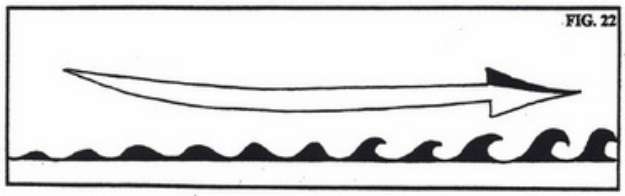


FIG. 22

3. Wind Streaks Parallel to Wind Direction

- Wind streaks can be observed at speeds as low as **5 knots.**
- When waves begin to **whitecap** (8–12 knots), wind streaks become more visible.
- These streaks occur when the wind blows the **foam off whitecaps**, which then settles in the wave troughs.
- If streaks appear **smudged**, this indicates a shift in wind direction.

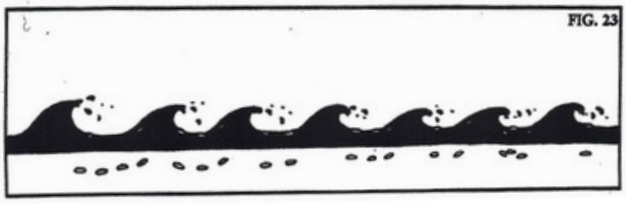


FIG. 23

4. Waves

- Waves are directly caused by the wind.
- As wind moves across the water, it pushes waves downwind, causing them to swell.
- At 8+ knots, whitecaps will form on the downwind side of the waves.
- Wave crests will always be perpendicular (90°) to the wind direction.

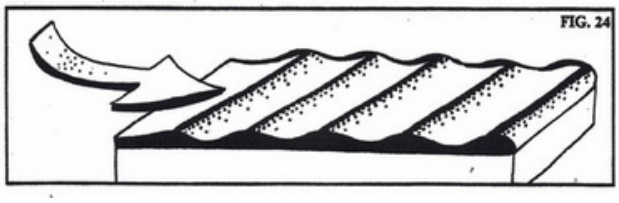


FIG. 24

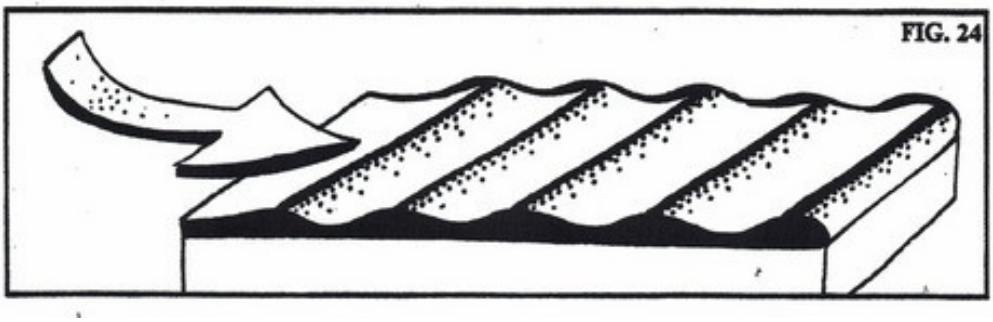
Wave Formation

A wave begins its life as a **ripple**, formed by winds of **1 to 3 knots (KTS).**

- At **4 to 7 KTS**, small **wavelets** appear.
- At **8 to 12 KTS**, wavelets grow larger, and the **downwind side of the wave begins to break**, forming **whitecaps.**
- At 1**2 to 17 KTS**, waves become **longer and higher**, and whitecaps appear more frequently.
- At **20+ KTS**, waves **roll downwind**.
- At **25+ KTS**, waves **heave and spray consistently**—seaplane pilots must look for a **safe haven**.
- At **31+ KTS,** waves are only pretty from the dock—conditions are **too rough for safe operations.**

Wind Strength vs. Wave Behaviour:
Even in strong winds, waves may not always behave as expected. For example:

- In a s**mall lake surrounded by trees**, waves may not fully develop due to limited fetch (distance wind travels over water).
- However, on the **windward side of a lake**, waves tend to develop more characteristically.



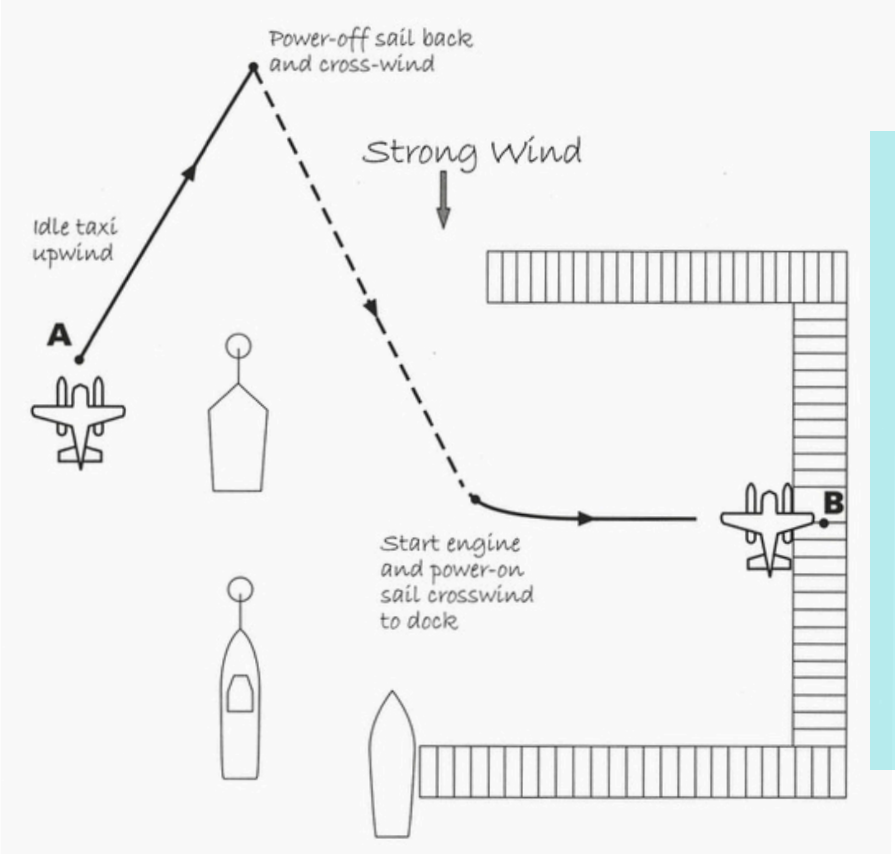
SAILING

Sailing is a technique used to **manoeuvre a floatplane in strong winds.** In strong winds, weathercocking (weathervaning) can make steering difficult. Using the wind to your advantage allows controlled movement with minimal power. There are two primary sailing methods; Power-Off (drifting downwind) and Power-On (manoeuvring crosswind)

Power-Off Sailing
Used to drift downwind with limited manoeuvrability. Weathercocking restricts range of motion—trial and error is required.

How to Power-Off Sail:

1. Shut down the engine.
2. Raise water rudders (they counteract the aircraft's direction of travel).
3. Use rudder pedals to point the tail of the aircraft toward the desired direction.
4. Apply crosswind (X-wind) inputs to turn into the wind:
    - The down-going aileron creates drag, assisting in directional control.
5. In strong winds, push the control column (CC) forward to keep the heels of the floats from digging in.



Images from "Notes of a seaplane instructor" by Burke Mees

Example
Approaching or departing a dock.

Navigating between two points in strong wind conditions can involve a creative combination of;

- Idle taxiing upwind
- Power-off sailing downwind & crosswind
- Power-on sailing crosswind

SAILING CONT.

Power-On Sailing

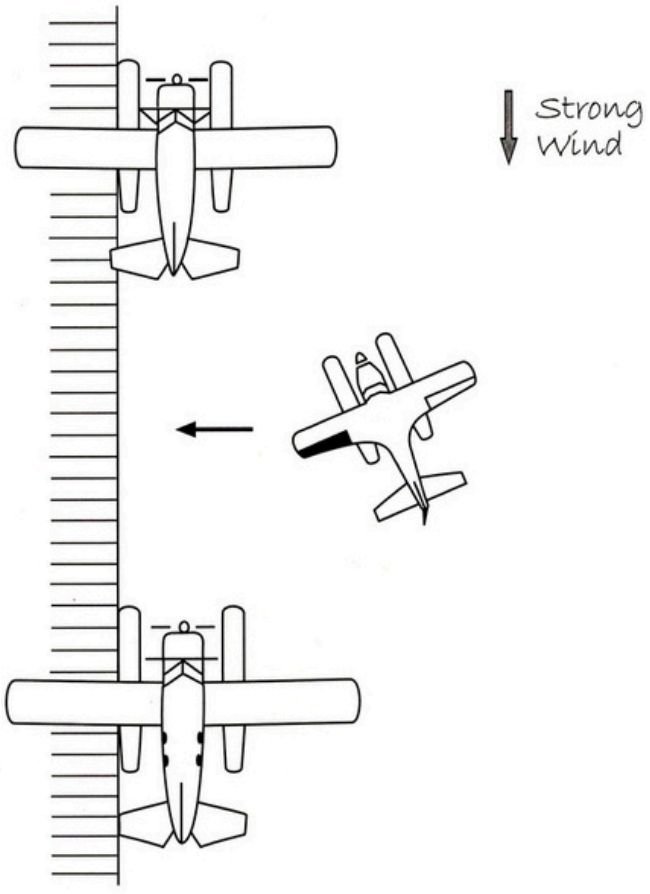
Used to manoeuvre crosswind by balancing wind speed with engine thrust. Requires strong winds to prevent forward motion.

How to Power-On Sail:

1. **Keep the engine running**.
    - Adjust throttle to match wind speed.
    - Reduce engine power below idle.
    - Use one magneto and carb heat ON (as needed).
2. **Lower water rudders** (improves manoeuvrability).
3. "**Walk the nose**" of the aircraft using rudder pedals, turning it toward the intended direction of travel.
4. **Apply opposite crosswind (X-wind) inputs** with ailerons.
5. Pull the control column (CC) full back to **keep float tips up.**

Example of Power-On Sailing:

- Manoeuvring into tight spaces in strong wind conditions.



Images from "Notes of a seaplane instructor" by Burke Mees

Emergency Procedures

Rough Running Engine

Mix	Rich
Fuel	Re-select both + sufficient
Engine Guages	Ts/Ps in the Green
Primer	In and Locked
Mags	Cycle then Both

Communication Failure

Radio	Check Frequency, Volume, Squelch
Master	Both Off
Electrical Equip	Off
Circuit Breakers	Check
Master/Electrical Equip	On
Transponder	7600 Light
Signals	Green-Clr land, Red-Cont Circling
Contact Tower Emergency Line	250-765-3426

Or Divert to Alternate Airport

Engine Fire in Flight

Mix	Idle Cut Off
Fuel Selector	Off
Master	Off
Cabin ht + air vents	Closed
Airspeed	105 knots or higher
Forced Landing	Land Safely!

Electrical Fire in Flight

Master	Both Off
Cabin ht + air vents	Closed
Fire Extinguisher	Activate
Ventilate	Cabin
Check circuit breakers	Don't reset!!!
Switches, except ignition	Off
Master	On
Switches	Turn on one at a time slowly
Terminate Flight	ASAP

Forced Landing

Pitch best glide	70 kts
Initial cause check	Mix, fuel reselect both
Aux fuel pump	Low 3-5 sec then off
Pick field	Plan approach
Full	Cause check

1. Fuel Sufficient
2. Oil temp + Pressure green
3. Fuel shutoff in
4. Primer in + locked
5. Master - both
6. Mags - cycle, then both
7. Throttle Vary
8. Mix vary
9. Props full fine
10. Fuel reselect both

Attempt	Restart
Mayday Call	On current Freq or 121.5
Transponder	7700
Passenger	Brief
Secure engine	Shutdown

MAKE THE FIELD

Secure Aircraft/Shut Down

Avionics Master	Off
Switches	Off
Live Mag Check	Off/Both
Mixture	Idle Cut Off
Mags	Off
Master	Off
Keys	Out!

Control Lock	Install
Secure Aircraft	4 ropes securely tied
Radios/Equip	Off

Airhart aviation

1977 C172xp GYVB

Checklist

Empty Wt. 1895 lbs
Gross Wt. 2550 lbs
Teledyne Continental fuel injection IO-360-K
Power 195 BHP @ 2600 rpm
Oil W100 - 6-8 qts

Take-Off

	KIAS
Normal Climb	60-70 50'
Max Performance -20° Flap	56
Vx -	SL56/10K60
Vy -	SL72/10K66
Best Glide	70

Enroute

Cruise @ 75%	23"/2300 RPM
Va - Maneuvering Speed	2550 lbs -105
	2300 lbs - 99
	2050 lbs - 93
Vs - Stall	48
Vso - Stall/Flaps	42
Vne - Never Exceed Speed	163
Vno - CAUTION - Yellow arc	129

Land

Vfe - Flaps Extended 10° - 40°	85

Preflight Check

Weather / NOTAM
AIRWOLLE - CCC
Defects / Airtime

Preflight

Walk Around	Complete (rudders/prop/etc)
Flaps	Extend
Fuel 52 gal total	Check quantity- Secure Caps
24.5 gal/side Usable (49)	10 gal/hr
Sump fuel	Grade/Water/Sediment
Oil- 6-8QTS	6min/8max
Floats	Pump
Control Lock	Remove
Master	On
Lights	On/Check/Off
Master	Off
Passenger Brief	Complete

Before Start

Preflight	Complete
Water Rudders	Down Fuel
Selector Valve	Both
Cowl Flaps	Open
Mix	Rich
Props	Fine
Radios/Transponder	Off
Circuit Breakers	In
Avionics Master	Off
Throttle	Full
Master	On
Boost Pump	High 14 psi
Master	Off
Throttle	In 1/8"
Primer	In + locked
Fuel shutoff	In

Start

Master	On
Prop Area	CLEAR!
Ignition Switch	Start
Oil Pressure	Check Rise into green
Taxi	900RPM
Radio/Electronics	On
Transponder	ALT

Run Up/Before Take Off

Control column	Full aft
Nav/Strobe Lights	On
Runup area clear	No obstructions - Into wind
Doors/belts/windows	Secure
Flight Controls	Free/Correct
Instrument check	T.C. / A.I. / M.C.
Elevator Trim	Take-Off
Instruments Set	D.G. / A.I. / Alt
Engine Temperatures	Start to rise
Throttle	1800 RPM
Engine Instruments	Ts/Ps in the Green
Mixture	Lean Check
Prop	Cycle twice
Magnetos	150 RPM Max Drop
Left/Both/Right/Both	50 RPM Difference
Suction	in the green
Alternator	Load Check
Throttle	Idle
Throttle	800 RPM
Radios	Set
Throttle Friction Lock	Adjust
Review	Departure/Emergency Procedures

TAKE-OFF AS REQUIRED

Take-Off GUMPFS

	Record the Time
Gas	Both + Sufficient
Under Carriage	Water Rudders up
Mix	Full Rich
Props	Full Fine
Flaps/cowl flaps open	20°
Switches	Circuits in, mags both, master on
Primer	In + locked
Throttle	Advance slowly to full power
Fuel shut off	In
Confirm	Static RPM
Ts/Ps	in the Green
Climb power	25", 2500 rpm
Confirm	60 kts/ Positive rate of climb
Flaps	Retract in stages

Cruise Checks

Throttle	22" MP
Props	2300 RPM
Confirm throttle	23" MP
Trim	Adjust
Mixture	Lean 50° rich of peak
Radio Call	As Required

Pre-Landing OWLS GUMPFS

Gas	Both and sufficient
Under Carriage	water rudders up
Mix	Full Rich
Props/flaps	To come
Switches	Circuits in, mags both, master on
Primer	In + locked
Fuel Shut off	In
Engine Instruments	Ts/Ps in the Green
Passenger Brief	Belts/Doors/Windows Radio
Call	As Required
Throttle	Reduce in stages
Flaps	as required

Balked Landing

Power	Full Throttle
Flaps	Retract to 20°
Build Airspeed	60 kts
Confirm	2500 rpm/Ts+Ps in the Green
Climb Power	25'mp/2500rpm
Confirm	60 kts/Postitive rate of climb
Retract Flaps	Slowly/maintain pitch

After Landing

	Record the Time
Touch Down	Slightly tail low
Throttle	Idle
Flaps	Retract Control
Wheel	full AFT as plane decelerates
Throttle	<1000 RPM Water
Rudders	Down gently

Emergency Procedures

Rough Running Engine

Carb Heat ..... On
Mix ..... Rich
Fuel ..... Re-select both + sufficient
Engine Gauges ..... Ts/Ps in the Green
Primer ..... In and Locked
Mags ..... Cycle then Both

Communication Failure

Radio ..... Check Frequency, Volume, Squelch
Master ..... Both Off
Electrical Equip ..... Off
Circuit Breakers ..... Check
Master/Electrical Equip ..... On
Transponder ..... 7600 Light
Signals ..... Green-Clr land, Red-Cont Circling Contact
Tower Emergency Line 250-765-3426
Or Divert to Alternate Airport

Engine Fire in Flight

Mix ..... Idle Cut Off
FuelSelector ..... Off
Master ..... Off
Cabin ht + air vents ..... Closed
Airspeed ..... 105 knots or higher
Forced Landing ..... Land Safely!

Electrical Fire in Flight

Master ..... Both Off
Cabin ht + air vents ..... Closed
Fire Extinguisher ..... Activate
Ventilate ..... Cabin
Check circuit breakers ..... Dont reset!!!
Switches except ignition ..... Off
Master ..... On
Switches ..... Turn on one at a time slowly
Terminate Flight ..... ASAP

Forced Landing

Pitch best glide ..... 75 Kts
Initial cause check ..... Mix rich, fuel re-select both
Carb heat ..... On
Pick field ..... Plan approach
Cause check

1. Fuel Sufficient
2. Oil temp + Pressure green
3. Primer in + locked
4. Master - both
5. Mags cycle, then both
6. Throttle Vary
7. Mix vary
8. Props full fine
9. Fuel reselect both

Attempt ..... Restart
Mayday Call ..... On current Freq or 121.5
Transponder 7700
Passenger ..... Quick brief
Secure engine ..... .Shutdown

MAKE THE FIELD

Secure Aircraft/Shut Down

Avionics Master ..... Off
Switches ..... Off
Live Mag Check ..... Off/Both
Mixture ..... Idle Cut Off
Mags ..... Off
Master ..... Off
Keys ..... Out!

Control Lock ..... Install
Secure Aircraft ..... 4 ropes securely tied
Radios/Equip ..... Off

Airhart aviation

1979 C180M FWJC

Checklist

Empty Wt. 2198 lbs
Gross Wt. 3190 lbs
Teledyne Continental O-470-U Power
230 HP @ 2400 rpm
Oil W100 - 8-10 qts

Take-Off KIAS

Normal Climb ..... 70 50' Max
Performance -20° Flap 60
Vx - SL63/10K66
Vy - SL79/10K72
Best Glide 75

Enroute

Cruise @ 75% ..... 22"/2200 RPM
Va - Maneuvering Speed ..... 3190 lbs - 108

Vs - Stall 58
Vso - Stall/Flaps 54
Vne - Never Exceed Speed 167
Vno - CAUTION - Yellow arc 139

Land

Vfe - Flaps Extended 10° 120
20° - 40° Flap 90

Preflight Check

Weather / NOTAM
AIRWOLLE - CCC
Defects / Airtime

Preflight

Walk Around ..... Complete(rudders/prop/etc)
Flaps ..... Extend
Fuel 80gal total ..... Check quantity- Secure Caps
37.5 gal/side Usable(75) ..... 13 gal/hr
Sump fuel ..... Grade/Water/Sediment
Oil- 8-10QTS 8min/10max
Floats ..... Pump
Control Lock ..... Remove
Master ..... On
Lights ..... On/Check/Off
Master ..... Off
Passenger Brief ..... Complete

Before Start

Preflight ..... Complete
Water Rudders ..... Down
Fuel Selector Valve ..... Both
Cowl Flaps ..... Open
Mix ..... Rich
Props ..... Fine
Radios/Transponder ..... Off
Circuit Breakers ..... In
Avionics Master ..... Off
Throttle ..... In 1/8"
Carb Heat ..... Cold
Primer 4-6 Strokes ..... In and Locked

Start

Master ..... On
Prop Area ..... CLEAR!
Ignition Switch ..... Start
Oil Pressure ..... Check Rise into green
Taxi 900RPM
Radio/Electronics ..... On
Transponder ..... ALT

Run Up/Before Take Off

Control column ..... Full aft
Nav Lights ..... On
Runup area clear ..... No obstructions - Into wind
Doors/belts/windows ..... Secure
Flight Controls ..... Free/Correct
Instrument check ..... T.C. / A.I. / M.C.
Elevator Trim ..... Take-Off
Instruments Set ..... D.G. / A.I. / Alt
Engine Temperatures ..... Starting to Rise
Throttle ..... 1800 RPM
Engine Instruments ..... Ts/Ps in the Green
Mixture ..... Lean Check
Prop ..... Cycle twice
Magnetos ..... 150 RPM Max Drop
Left/Both/Right/Both ..... 50 RPM Difference
Suction ..... in the green
Alternator ..... Load Check
Carb Heat ..... Hot - 100 RPM drop
Throttle ..... Idle
Carb heat ..... Cold
Throttle ..... 800 RPM
Radios ..... Set
Throttle Friction Lock ..... Adjust
Review ..... Departure/Emergency Procedures

TAKE OFF AS REQUIRED

Take-Off GUMPFS

Record the Time

Gas ..... Both + sufficient
Under Carriage ..... Water Rudders up
Mix ..... Full Rich
Props ..... Full Fine
Flaps/cowl flaps open ..... 20°
Switches ..... Circuits in, mags both, master on
Primer ..... In + locked
Carb Heat ..... Cold
Throttle ..... Advance slowly to full power
Confirm ..... Static RPM (over 2400)
Ts/Ps ..... in the Green
Climb power ..... 23", 2400 rpm
Confirm ..... 70 kts/ Positive rate of climb
Flaps ..... Retract in stages

Cruise Checks

Throttle ..... 21" MP
Props ..... 2200 RPM
Confirm throttle ..... 22"MP
Trim ..... Adjust
Mixture ..... Lean 50° rich of peak Carb
Heat ..... Check
Radio Call ..... As Required

Pre-Landing OWLS GUMPFS

Gas ..... Both and sufficient
Under Carriage ..... water rudders up
Mix ..... Full Rich
Props/flaps ..... To come
Switches ..... Circuits in, mags both, master on
Primer ..... In + locked Engine
Instruments ..... Ts/Ps in the Green Passenger
Brief ..... Belts/Doors/Windows
Radio Call ..... As Required
Carb Heat ..... On
Throttle ..... Reduce in stages
Flaps ..... as required

Balked Landing

Power ..... Full Throttle
Carb Heat ..... Off
Flaps ..... Retract to 20°
Build Airspeed ..... 70 kts
Confirm ..... 2400 rpm/Ts+Ps in the Green
Climb Power ..... 23"mp/2400rpm
Confirm ..... 70 kts/Postitive rate of climb
Retract Flaps ..... Slowly/maintain pitch

After Landing

Record the Time

Touch Down ..... Slightly tail low
Throttle ..... Idle
Carb Heat ..... Cold
Flaps ..... Retract
Control Wheel ..... full AFT as plane decelerates
Throttle ..... <1000 RPM
Water Rudders ..... Down gently

50 HOUR FLOAT RATING CHECKLIST

Ground Brief			
Constant Speed Propellers		Docking	
Power Management		Floatplane terminology	
Water Handling		Seaplane vs. landplane performance	
Takeoffs		Water Aerodrome Supplement	
Approach & Landings			

Planning & Preparation	
Aircraft specifications/performance	
Pre-flight inspection	
Passenger safety briefing	
Engine starting procedure	
Departing the dock	

Pre-Solo (Float Rating)	
Water Handling	
Rules for watercraft	
Weathercocking	
Yoke position	
Aileron inputs	
Rudder control	
Displacement taxi	
Plow taxi - Run-up	
Take-Off	
Normal	
Glassy water	
Approach & Landing	
Inspection	
20 Flap	
30 Flap	
40 Flap	
Glassy Water	
Hover Drill	
Docking	
Securing the floatplane	
Pilot side	
Passenger side	

Water Handling	
Intermediate	
Step taxi	
Step taxi turns	
Advanced	
Plow taxi - High wind turn	
Sailing - Power on	
Sailing - Power off	
Abnormal Situations	
Submerged floats	
Step taxi - Quick avoidance	

Takeoff	
Intermediate	
Float rolling	
Short field	
Over an obstacle	
Advanced	
Rocking onto the step	
Step turn approach	
Crosswind	
Downwind	
Rough water	
Low - level turns	
Abnormal Situations	
Porpoising	
Quick avoidance	
Aborted take-off	
Engine failure after take-off	
Gusty wind conditions	

Approach & Landing	
Intermediate	
Touch and go	
Short field - No obstacle	
Short field - With obstacle	
Advanced	
Crosswind	
Downwind	
Rough water	
Low-level circuit	
Abnormal Situations	
Overshooting	
Emergency Landings	
Gusty wind conditions	

Docking	
Intermediate	
Nose in	
Beaching	
Paddling	
Advanced	
Crosswind	
Downwind	
High Wind	
Mooring	

Special Operations	
Low Level Navigation	
Small Lakes	
Rivers	
Cold Weather Operations	
Mountain Operations	
External Loads	
Emergency Egress	

STUDENT NAME : _____