Cessna 206 Amphibian

Four-wheel water wagon

Forget the Hummer, this is your go-anywhere vehicle

BY PETER A. BEDELL

PHOTOGRAPHY BY MIKE FIZER

Cessna's 206 has long been known as one of the workhorses of general aviation. The airplane can squeeze itself in and out of tight strips with ease, swallow and carry a big load, is easy to maintain and operate, and—perhaps most important—has many modifications available in the aftermarket to increase its already impressive list of capabilities.

One of the many modifiers of the 206 is Wipaire Inc., of South St. Paul, Minnesota. Known mostly as a float manufacturer for everything from short-wing Pipers to regional airliners, Wipaire has expanded its business to become a one-stop shop of sorts for those looking to perform a major overhaul of various popular airframes. For the 206, Wipaire holds a number of supplemental type certificates (STCs) that further enhance flexibility and performance.

Bo Hixon's 1981 Turbo U206 has undergone the full Wipaire treatment. Besides a new pair of Wipline 3450 amphibious floats and other handy seaplane add-ons, Hixon had the instrument panel upgraded with new avionics, a new interior, and topped it off with a splashy paint job. When looking for an airplane, Hixon thought about a new 206H from Cessna but figured he'd spend approximately $600,000 by the time he was done with his wish list. Going the used route, Hixon got the airplane of his dreams and saved a few hundred thousand dollars.

Hixon has owned a number of airplanes ranging from a Cessna 182RG to a Cessna 421C. "I loved all of those planes, but they had specific purpose," said Hixon. "I wanted something a lot more versatile. The 206 is great because you can carry anything you can fit through the

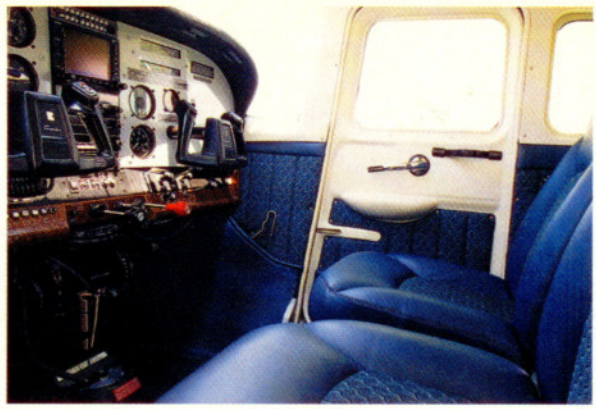
doors (at least when it's not on floats), it's very stable, and it's your standard Cessna—everyone knows it and can work on it. With the 206 or many other floatplanes in general, you can have the best of both worlds—floatplane in the summer, landplane in the winter."

For now, Hixon uses the airplane strictly for pleasure. "I've toyed around with the idea of using it for something more, but it seems to add a lot of work (and expense) to the ownership experience," he said. For the money, Hixon could own a high-speed complex single or twin, but he wanted something less common. "There is nothing like landing on a lake and fishing or jumping into the water off your float, or going on a picnic to somewhere that could take two hours to hike to," he said.

N820AH emerged from Cessna with the coveted factory float kit, which includes corrosion proofing throughout the airframe, windshield bracing, and lift rings for hoisting the airplane from wheels to floats—the best foundation for creating a good seaplane. It was purchased by Hixon with a set of 20-year-old Wipline 3730 floats. The new Wipline 3450 floats installed on N820AH are a third-generation design that's lighter, uses a flush-riveted nose section, has a removable wear strip on the main keel, and has larger storage lockers. The new design also has a single main wheel using a rubber-donut shock-absorbing system similar to the Mooney's. The previous generation used oleo struts and dual main gear. While the dual mains are nice in the event of a tire blowout, the new main gear design is lighter and easier to maintain in the harsh environment of water operations.

Wipaire also says the new single-main gear design is better for grass operations than the duals. That may be true, but the real limiting factor for grass strips is the small nosewheels. Smooth turf with closely mowed grass is best as the 4.1-by-4 nose tires are far more reluctant to roll over imperfections and long grass than larger wheels. The nose gear design has been around for decades and is unique in that it uses a composite spring that retracts into the nose of the float, doubling as a dock bumper when retracted for water operations.

Taxiing the amphibian 206 on land requires differential braking to start the turn while castering nosewheels lead

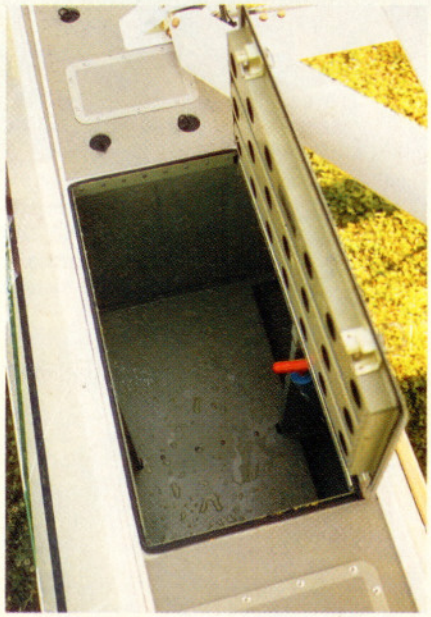


Clockwise from top left: Wipaire's copilot door is a huge convenience for the seaplane pilot and doubles as an emergency exit. The Landing Gear Advisory System is included with a new set of Wipaire floats. The emergency gear extension lever and the water control lever are installed between the front seats. The instrument panel is outfitted with a Garmin GNS 530, Sandel electronic horizontal situation indicator (EHSI), and an S-Tec System 60-2 autopilot with GPSS.

the way. The system works well, except on slanted surfaces where no amount of power, rudder, or uphill brake will keep the nose from pointing downhill. We ran into this problem trying to taxi N820AH to the fuel pump located on a slanted turf taxiway. While the two landplanes based at the airport have never had a problem getting to the pumps, the amphib had to rely on an extra-long hose to pick up where its maneuverability dropped off.

Performance of the amphibian 206 is about what you'd expect from a strut-wing Cessna dragging around all that extra mass. The amphib floats and their associated modifications add nearly 500 pounds to the airframe. Of course, they also substantially add to the drag. At lower altitudes, Hixon, who likes to baby his big Continental engine, gets about 110 knots on 19 gph. Up high, where the turbocharged engine still makes high power and the thinner air means the floats are less of a drag penalty, cruise speed picks up to a more satisfying 129 knots true at 17,000 feet.

Climb rates are a leisurely 600 to 800 feet per minute at about 75 knots. At that rate, it takes a long time to reach the amphib's 17,000-foot altitude limitation. It also takes some preflight brain power to figure whether the trip is long enough to justify the fuel burn and slow climb to reach the thin air where the airplane can really cruise fast(er).



Each float has a locker with nearly 10 cubic feet of storage space.

Seaplane pilots are always quick to point out, however, that speed is not the point—versatility is. Up North, there are far more lakes than there are runways, opening up countless potential landing sites. Of course, if you have to drop Mom off at the international airport, the amphib can deliver in that department as well. In fact, you sit cockpit to cockpit with most regional airliners at the big airports. And I'll bet those pilots would rather be in your seat.

As part of its amphibian conversion, Wipaire adds a lot of practical modifications to the airframe to make life easier for the seaplane pilot. While the U206s from Cessna came with huge double doors in the aft, there was no door up front on the right side of the airplane for the quick ingress and egress required of the seaplane pilot. With only a pilot's side door, docking procedures typically needed to be conducted on the port side of the airplane, allowing the pilot to hop out and fend the airplane from the dock when there are no shore personnel to help.

In certain wind conditions on certain piers, port-side docking is not always possible, which requires the solo pilot to exit his door, dash to the nose of the port float, make a tightrope walk across a wire strung between the noses of the two pontoons in front of the propeller to the starboard float, and then fend off the approaching dock. The other option is to clamber across the front and middle seats to exit out the cargo doors, but that would be impossible with passengers. The easiest solution to these gymnastic maneuvers is to install the copilot door. Needless to

say, the door also makes an excellent emergency exit, an important thing to have when operating on water. Weight of the mod is 10 pounds, which includes the addition of a small window just aft of the new door. Installed price of the copilot door is $15,200.

Seaplanes, especially the heavier amphibians, need all the performance they can get. Wipaire's Wip Tips wingtip extensions add three feet to the wingspan and 12.4 square feet of wing area to the amphib 206, allowing for more lift and resulting in shorter takeoffs, lower stall speed, higher service ceiling, and better climb. Wip Tips list for $6,400 installed.

Hixon's TU206 goes one step further when it comes to slow-speed handling; it has the Robertson short takeoff and landing (STOL) kit. The Robertson STOL kit droops the ailerons when flaps are lowered, greatly increasing lift and lowering stall speed by creating full-span flaps. The STOL kit also adds stall fences on the top of each wing to restrict the outward flow of air as the wing begins a stall at the root. The fences also keep air flowing over the ailerons to keep them effective well into the stall.

All of these mods were put to the test on a brief trip to Southeast Creek on Maryland's Eastern Shore near Church Hill. With the new-style floats, Hixon reports that the amphib gets on the step much more quickly than with the old floats. Lightly loaded with two people, standard seaplane gear, and about 60 gallons of fuel, N820AH used approximately 1,200 feet of water run to get airborne using 20 degrees of flaps. With that much flap (ailerons, too) hanging in the breeze the climb is initially quite paltry, but we just followed the creek while accelerating and retracting the flaps.

Bo Hixon needs a long hose to fuel his amphib, which stands nearly 14 feet tall.

In flight, the amphib behaves like a typical 206—it's a truck. Throw two huge pontoons on, and it's even more of a truck. On the positive side of trucklike handling is stability—this airplane is hard to break from its path, which is handy when flying in bumpy clouds. If your arms get tired, engage the autopilot. N820AH is equipped with a two-axis S-Tec 60-2 featuring GPSS roll steering. Landplane pilots will notice in turbulence the pendulum effect the floats have on the airframe, but the 206's stability holds everything on track.

With 88 gallons of usable fuel, the amphib's comfortable range is about 450 nm with IFR reserves. Useful load of Hixon's TU206 is 973 pounds, which is good for four adults and 50 gallons of fuel. The ground-bound TU206 can haul nearly 500 pounds more.

Since water landings with the landing gear down will likely result in a serious accident, Wipaire includes with all amphibious floats its Landing Gear Advisory System consisting of a compact gear handle and eight advisory lights—four green for land operations and four blue for water landings. At a predetermined airspeed, a voice reminder reports the position of the gear as a last-chance opportunity for the pilot to check gear position for the type of surface the airplane is approaching.

Landings are the best part of seaplane flying. The moment you transition from airplane to boat is something that has to be experienced at some time in a pilot's career. Landings are usually quite short in a seaplane—all that drag finally is an advantage. In addition, most bodies of water are large enough and shaped such that you can land directly into the wind, shortening the run and eliminating crosswinds.

The 206 is likely the best airplane to get as the base airframe for a family-hauling amphibian. Unlike the hull-fuselage amphibians, the 206's floats can be removed in 10 labor hours, returning the 206 to landplane status with its good all-around utility and performance. As Hixon likes to say, he has the best of both worlds with his amphib TU206. AOPA

Peter A. Bedell is a regional airline captain and former technical editor of AOPA Pilot.

i Links to additional information about the Cessna 206 may be found on AOPA Online (www.aopa.org/pilot/links.shtml). Keyword search: Cessna.

SPECSHEET

1981 Cessna TU206G Amphibian

Average retail value: $200,000

Specifications

Powerplant	310-hp Continental TSIO-520-M
Recommended TBO	1,400 hr
Propeller	McCauley 3-blade, constant speed, 79-in dia
Length	32 ft
Height	13 ft 5 in
Wingspan	39 ft
Wing area	186.4 sq ft
Wing loading	20.3 lb/sq ft
Power loading	12.2 lb/hp
Seats	4-6
Cabin length	12 ft 1 in
Cabin width	3 ft 8 in
Cabin height	4 ft 2 in
Empty weight, as tested	2,827 lb
Max ramp weight	3,800 lb
Max takeoff weight	3,792 lb
Useful load, as tested	973 lb
Payload w/full fuel, as tested	445 lb
Max landing weight	3,792 lb
Fuel capacity, std	92 gal (88 gal usable) 552 lb (528 lb usable)
Oil capacity	12 qt
Baggage capacity	180 lb

Performance

Takeoff distance, ground roll	945 ft
Takeoff distance over 50-foot obstacle	1,810 ft
Takeoff distance, water run	1,840 ft
Takeoff distance, over 50-foot obstacle (water)	2,790 ft
Max demo crosswind component	12 kt
Rate of climb, sea level	950 fpm
Max level speed, 17,000 ft	150 kt
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption), 10,000 ft	
@ 75% power, best power	125 kt/4.7 hr (96 pph/16 gph)
@ 55% power, best economy, 16,000 ft	110 kt/6.3 hr (75 pph/12.5 gph)
Max operating altitude	17,000 ft
Landing distance, over 50-ft obstacle	1,410 ft
Landing distance, ground roll	750 ft
Landing distance over 50-ft obstacle (water)	1,750 ft
Landing distance, water run	845 ft

Limiting and Recommended Airspeeds

V_X (best angle of climb)	65 KIAS
V_Y (best rate of climb)	90 KIAS
V_A (design maneuvering)	121 KIAS
V_{FE} (max flap extended)	100 KIAS
V_{LE} (max gear extended)	125 KIAS
V_{NO} (max structural cruising)	142 KIAS
V_{NE} (never exceed)	158 KIAS
V_{S1} (stall, clean)	56 KIAS
V_{SO} (stall, in landing configuration)	52 KIAS

For more information, contact Wipaire Inc., 8520 River Road, Inver Grove Heights, Minnesota 55076; 612/451-1205; www.wipaire.com

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.