

Harbour Launch 16' Electric

Local builders have developed a sturdy electric runabout that's friendly to the environment and the pocketbook.



Ursula Hardwick at the controls.

In his youth, Doug Hardwick spent his summers at the family cottage on Keats Island, putt-putting around the waters of Howe Sound in a variety of clinker-built launches. These sturdy and stable lapstrake vessels, powered by either oars or small air-cooled gas inboards, were built by the thousands in the early 1900s by companies like Davidson and Turner and others. They were B.C.'s basic work and recreational boats as well as lifeboats on ships. That era ended when they were displaced by the outboard motor and speedboat. However, Doug never lost his love for these classics and has now brought them back to life in a state-of-the-art electric-powered fibreglass replica.

THE PROJECT In 2001, Doug bought a 16-foot clinker with a 7 hp Briggs and Stratton that he planned to restore. The boat's designer and builder were unknown, but the lines were classic. Doug hauled the boat to his shop in Pender Harbour and with his son Daniel, started stripping her down. They soon

realized that it would take a lot more than replacing a few planks and ribs to bring her back to life. Instead, they decided to take a mold and make a fibreglass version. Doug and Dan were joined by friend Rob Hoehn who was also interested in the idea of building a retro version of this classic boat.

Doug, a construction coordinator who builds large movie sets for feature films, has a fair amount of experience making molds for trees, rocks and futuristic aircraft, so the project didn't daunt him. Along with Hoehn, Doug hired a local fibreglasser, Andrew Vickers, to glass and fair the original hull and pull a mold. Once Vickers had produced the first hull, Doug began experimenting with the interior layout, using plywood to fabricate different floor, seat and deck

arrangements until he knew he had exactly the right configuration.

It was Doug's wife Ursula, a kayaker with an aversion to noise and fumes, who first suggested driving the new boat with an electric motor. Despite some initial skepticism, her idea soon won out. Doug began investigating electric motors and controllers and decided to purchase a drive system from

Elco (The Electric Launch Company of New York)—a reputable company, which has been building electric boats on the eastern seaboard for over a century. The controller was installed and simple belt drive system modified to suit the new boat. The tricky part was then to determine the size of the drive and shaft sheaves to get the maximum drive power at the lowest electrical

RUNABOUT specs

LOA	16' 0"
Beam	5' 6"
Draft	7"
Freeboard	1" 2"
Weight	1,200 lbs

Contact

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Doug Hardwick with the Harbour Launch at Madeira Park.



consumption. Doug, Daniel and Hoehn spent a month sea-trialing different combinations, until the system was operating at peak efficiency.

Considering this huge amount of research, testing and mold making, it isn't surprising that Doug decided to turn his one-off project into a production boat. So early in 2003 he and Ursula bought Hoehn's share in the prototype and formed the Pender Harbour Electric Launch Company Ltd. Currently Doug and Ursula plan on completing four more boats for testing this July and will begin taking orders for production by August.

Doug is a perfectionist and his craftsmanship and attention to detail has resulted in a superbly finished and sturdy vessel that will cost very little to operate, last a very long time, be almost completely maintenance free and perhaps best of all, be affordable—in the \$12,000 (Cdn) range. This is far less than other electric launches, most of which start at about \$35,000.

CONSTRUCTION AND INTERIOR LAYOUT Built of isophthalic resin throughout and gelcoat, the Harbour Launch is far more durable and easier

to maintain than her wooden ancestor. A rubber rubrail covers her glued-and-screwed hull deck joint. The airtight cockpit sole and foam flotation make her virtually unsinkable. Steering is via a traditional tiller

and removable outboard rudder. Her deck, sole, and seats are of molded fibreglass and backed with plywood for added strength. The partial deck was designed to preserve the classic look of the original wood design

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and has a splash rail around the open cockpit. Doug's son Daniel suggested they redesign the interior seating similar to a hot tub. As a result, seats run completely around the cockpit in an oval. Five or more passen-

gers can very comfortably sit facing each other. In between is the motor/well/bilge pump/stuffing box cover, which can serve as a table or footrest.



The "engine" compartment showing the electric motor, motor mount, shaft and stuffing box.

PROPULSION The Harbour Launch is driven by a 24 V ³/₄ hp permanent magnet electric motor. The compact cylindrical motor can run at any speed up to 1750 rpm in both forward and reverse and measures 6" x 12". It is bolted to a simple but sturdy aluminum housing, which is secured using rubber mounts to reduce vibration. A belt from the motor turns a sheave on the end of the 1" diameter drive shaft, which turns a 9" three blade, 6 pitch propeller protected behind the keel. The ratio between engine rpm and shaft rpm is 1.6 to 1. The torque of the



3/4 hp motor is equivalent to that of a average 7 hp gas outboard.

The motor is governed by a high tech electronic controller, which is operated by a simple throttle lever. Doug is currently employing the expertise of a B.C. company, Canadian Electric Vehicles Ltd., to produce the electronic controller packages specifically for this craft. The control panel, mounted next to the throttle has a digital multimeter which reads out amperage, voltage and amp-hours remaining. There are also waterproof rocker switches for the navigation lights and the bilge pump. A rubber-capped 12 V outlet can be used for accessories. Should the motor ever fail, oars are provided for back up.

BATTERIES The boat is powered by two 12 volt, heavy duty deep-cycle 4D batteries connected in series and mounted forward and aft over the keel, and as low as possible to increase the boat's stability. Together these batteries provide enough power to propel the boat from four to 40 hours, depending on speed and draw. Although the batteries are rated at 220 amp-hours, the practical charge of the batteries is calculated at a maximum 50% depletion—a practice that greatly extends battery life, provides many more charge cycles and increases total amp-hours delivered. When the batteries near the 110 amp-hour level, a standard 15 amp power cord is plugged into the shore power receptacle and the built in smart charger fully charges the batteries about seven hours.

UNDERWAY On a cold and wet April day, Doug and Ursula trailered the boat to the

Madreia Park launching ramp. To get her going, it was a simple matter of sliding her off the trailer and engaging the single-lever throttle/shifter.

As we quietly slip away from the docks, Doug explains the philosophy behind what he is doing. "In my job as a construction coordinator in the film industry I have been responsible for the manufacture of some amazing sets and props." (Those include the Perceum Arch on Baz Luhrmann's *Romeo and Juliet*, the 95' Viking ships on John McTiernan's *The 13th Warrior*, and the spiralling Memory Warehouse in Lawrence Kasdan's *Dreamcatcher*.) He continues, "As a rule, all film projects exist for only a few short months and are then destroyed. Some-

Note the simple controls: throttle, key, bilge pump and navigation light switch, and multimeter.

Where it all started. Doug Hardwick and the wooden prototype.

how this impermanence, decadence and waste inherent in Hollywood filmmaking has motivated me to create something that will last a few generations: something that will not harm the environment and something that will provide hours of the kinder simpler entertainment where people actually go outdoors, sit face to face and enjoy quiet conversation."

While there was only a slight chop on the waters outside the mouth of Pender Harbour, Doug said he was recently out in 4' swells and the boat rode the seas beautifully and, like her classic wooden forbearers, was extremely seaworthy. The boat's tiller steering is about as simple as you can get and the 16-footer turns within a couple of boat lengths. She is very stable and you can move around



the boat in comfort. She is quite responsive to the throttle, though you can't expect the same performance as a powerful outboard in an electric-driven displacement hull.

Of course, with an electric boat, one major concern is monitoring energy consumption. The digital multimeter is essential here as it tells you exactly how much electricity you're drawing at any moment and how many amp hours are remaining. At full speed we were travelling 4.8 kts (5.5 mph) and the multimeter showed a draw of 30 amps. Doing a little math, this means the boat would be able to travel for 3.6 hours and cover a distance of 20 miles. However, at a cruising speed of 3.9 kts (4.5 mph) the multimeter showed a draw of 16 amps. This means the charge will last for 6.5 hours and the boat will travel 29 miles. At a trolling speed of just over 2 kts (2.5 mph), the motor was drawing 2.75 amps and that means a charge would last over 40 hours at that speed.

Although the day was cold, and the boat open, when you're cruising at a few knots, wind-chill isn't as much of a factor as in a speedboat. Doug is working on a design for a fibreglass "African Queen" type canopy

that will drop down to cover the opening in the deck.

The lay-up is heavy and the gelcoat finish is exquisite. Doug will be offering a variety of colour packages as well as a version with a wood and epoxy deck. The cockpit sole has a non-skid surface and the decks have an inlaid wood-plank pattern. Despite the top quality workmanship, Doug insists that he isn't building these boats as a novelty item for the rich, like many of the other electric boats available. "I want them to be accessible for average people. I want them to be a viable alternative to the air, water and noise polluting outboard runabout."

Electric boat technology has been around for a long time, at the turn of the century, there were more boats powered by electric motors on the eastern seaboard of the US than by internal combustion engines. Even today submarines and many other large military vessels are driven by electric motors, although they are often referred to as being "nuclear" because of their electrical generation system. In the pleasure boating industry however, electric boats are rarely considered as an alternative to internal combustion

systems even though they have obvious environmental advantages. Although they are viable and more efficient for many marine applications people just aren't thinking electric boats—yet. However, one company, False Creek Ferries in Vancouver, continues to operate (in summer) four electric boats that were built more than two decades ago in California.

There are also many obvious aesthetic advantages to electric power. Without the usual gas engine noise, there is no need to raise your voice to be heard. There are no exhaust fumes. Combine all this with the comfortable oval seating arrangement, this boat is ideal for socializing with a group of friends.

Of course, at 16' and largely open, and with a maximum speed of 4.8 kts, electric boats aren't for everybody. This isn't a boat you want if you're looking for a speedboat to race you some distance to your cabin or to water-ski behind. But for a comfortable, classic, cruiser for exploring, fishing or for the kids on lakes or the saltchuck, or for cruise around urban waterways, this boat is going to be pretty hard to beat. ☺

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