

Buy, Sell, or Restore a Russian Volga, Grumman 14-Foot Runabout, or Other Personal Sport Hydrofoil Motorboat

Descriptions, Advice, Sources of Information, and Requests For Help

[Russian Volga](#) -- [Grumman 14-Foot Runabout](#) -- [Water Spyder](#) -- [Other Correspondence](#)

(Last Update: 11 Nov 03)

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- (For notice of hydrofoils "For Sale" and "Wanted to Buy," see the [Announcements](#))
 - The messages on this page generally predate the automated BBS that IHS has established
 - [Click Here to Go to the Posted Messages Bulletin Board \(BBS\)](#)

Russian Volga 70 and Volga 275

For info about and photos of [Al Spani's](#) Volga 70 Restoration, [Click Here](#)

To view the website of Yury Garanov, the Volga 70 and 275 Lead Designer, [Click Here](#)

Volga 70 Photos

[15 Mar 02] Here are a few more photos that may be of interest for the IHS website. I always make an effort to get photos of foil configurations, as they are not that easy to obtain while boats are afloat! All photos are of what I believe is a Volga 70 type hydrofoil (i.e. powered by a Volvo Penta stern drive) that was available for sale in Nicholson, Australia in 1994. I had a look at it on 22 October 1994, the date the photos were taken. The whereabouts of that hydrofoil these days is unknown to me. -- Martin Grimm (seaflyte@alphalink.com.au)



Volga 70 Profile



Volga 70 Bow Foil



Volga 70 Bow Foil



Volga 70 Stern Foil



Volga 70 Stern Foil

Response...

[6 Jan 03] The hydrofoil seen here I think is the one I have bought in Hobart, Australia. I have shipped it up to Brisbane and am currently using up and down the Brisbane river, It gets some strange looks, anyway if you would like to know anything else please do not hesitate to contact me. -- Joe D'Ercole (jdercole@pacific.net.au)

[10 Aug 03] I own a Volga 70 which I operate around Fire Island New York. I have read that one was given to President Nixon. does anyone know where it is? -- C. Doersam" (c.doersam@verizon.net)

What's in a Name?

[10 Mar 02] I have been reading the messages concerning Volga re-engineing. The names given to the various forms of the Volga has me intrigued. From what is written in Jane's Surface Skimmers 1974-75, the following information is provided for your information:

- Molnia: This was the original six-seat hydrofoil sports runabout developed by the Russians and formed the basis of the later Volga. It was powered by a 77 bhp CAZ652 Volga car engine. I suspect it had a V drive gearbox and inclined propeller shaft.
- Volga: This was the export version of the Molnia with various design refinements including a completely re-designed bow foil. It was powered by a 77 hp M652-Y 6 cylinder automotive engine driving a 3 blade stainless steel propeller through a V drive.
- Volga 70: Newer model of Volga powered by a 90 hp Volvo Penta diesel engine introduced at the end of 1972. This model probably replaced the V drive with a Z stern-drive (see attached scans of what I believe is a Volga 70 type seen in Australia in late 1994). Despite its greater power, it was 4 km/h slower (56 km/h) than the earlier model (60 km/h), presumably because of the additional weight of the diesel engine and the increased drag of the stern drive.

A final note: Jane's indicates that the name 'Strela' (they also indicates this means Arrow) was given to a far larger 82-94 seat surface piercing hydrofoil similar in layout to the Supramar PT 50. That in turn was a development of the earlier 'Mir' hydrofoil (Peace). Of course, the name 'Strela' may have been used for more than one hydrofoil type. -- Martin Grimm (seaflyte@alphalink.com.au)

VOLGA Owner in Maryland

[2 Feb 02] I have a Volga here in Cockeysville Maryland. It is in need of restoration, and I am trying to make the time to work on it. The original motor is now out and I am planning on installing a V-8. There is also another Volga on the eastern shore of MD, that turns up in a boat yard in Crisfield occasionally. It has a V-drive coupled to a Chrysler 318. It rises up to the point where the rudder is ineffective, and runs 60-70 mph. Are there others on the Chesapeake? I have attached photos of my boat and a shot of me skiing behind the boat in Crisfield, enjoy. -- Dana Fiege (thatrhinoguy@hotmail.com)



Response...

[27 Jun 02] I just purchased a Volga. I was told it was used as a patrol boat in Russia... complete with bullet holes. I'm just starting to rebuild and I'm clueless about the power plant complete with disconnected hoses, pumps etc. that I don't understand. The wildest thing about this whole scenario is that there are now 2 Volgas within 12 miles of each other. I'm off exit 32a Belair road on Interstate 695. Love to see what you've done. I've built a couple British hybrid luxury "stock looking hot rods" and can't wait to get rolling on this. I haven't seen any of the longer ones like mine yet and don't know what to expect as far as performance. -- Alexander Karas <alex@alexanderltd.com>

VOLGA Project

[2 Feb 02] I have a Volga 70 boat, hull only, that is in very good shape that I would like to put into service as a lake pleasure boat. It was shipped to me from Samara, Russia by the owners of a company there that I do business with (it came right out of the Volga River). Do you have an engine-drive line recommendation? Ford and Chevrolet V-8s are readily available here. If I use one of these engines it will have more horsepower than the original Russian engine. I am sure that the engine, V-drive ratio, and prop setup is critical. However, I have to admit that I really

don't know much about what I am getting into. -- Bill Shepherd, Houston TX
(WLS@wlsdp.com)

Responses...

[2 Feb 02] My Volga 70 has a complete Volvo stern drive system, with a factory-made 8" extension. From my point of view, it's just a matter of your spending the money and buying a new, complete unit, engine to prop. You mention a V-drive. I'm guessing you have a completely different system than me. What can you tell me about your boat? -- Rick Jackson
(jaczeau@shaw.ca)

[11 Feb 02] Nice Volga you got! I like the black matte finish - looks powerful. I'd like to have some more photo of your Volga's interior. I am restoring my old Volga 70 "Elicia" from Estonia to an GM V6 engine on the old Russian drive line with V-gear. I enclose [a photo and descriptive text](#). Built 1984 in Gomel in White Russia, Belarus. Used to have a "GAZ-53" V8 petrol 260cu (4.25 liters) with reduction gearbox 1:1,55 and the V-gearbox, shaft etc. Power was 100 hps at maximum 2900 rpm, top speed 32 knots. 29 kpm at 2000-2500 rpm. Engine weight approx. 425 Kgs. In Estonia summer 2000 we did 3200 rpm - I think because of good petrol and not the old 60 octane it was built for. Boat rose up nicely with 3 people and did "good" speed - I estimate 35 knots. Back at home engine turned out to show leakage, and the pros advised me to lift it out. Now I am looking for a new one and have done some asking around.

1. It is advised against less power than 130 hps. Lifting on wings with full load and some seaweed on the body will be unsure or very prolonged.
2. You should not drive faster than approx 40 knots. It could be risky, especially if not quite calm sea. Bottom front wing should not approach the surface, it's supposed to be at some depth, and be a stabilator. The construction is not meant to go faster than then approx 35 knots. There are 12 Volgas here in Stockholm. 6-7 of them are since many years in full duty as working boats/transport. They all have since long changed from the old Volvo Penta diesel MD32 105hps (93) to larger Volvo diesel 6cyl turbo 130-160hps. Some have exceeded 45 knots and have all advised against such adventure.

This engine is rather heavy and expensive. In my opinion it is too heavy. Such weight (nor the power) was not intended. Some have also experienced cracks in the hull both aft around the outboard shield and in the bottom plates forward in the engine room, (some stringers there are shorter than they should be and the alu-plates can start vibrating at higher speeds - and eventually cracking when jumping in high waves. I think best engine would be a light one with power approx 140-150 hps. A GM V6 would be perfect - or even a 4-cyl of similar power. I think top speed (35) is no problem if you have that power. A V8 300 cu is of course a very tasteful machine and you will always have plus-power for sure foil-lift with full load onboard and a bottom full of weeds. But the available top speed - that you do not need. Polishing of bottom and wings are very essential to have a nice performance. Here some do it also mid-season. Initially Volga had a ZIM-engine of 77hps (!) No others available then. Had the gearbox attached to the V-gearbox I think - and the shiftshaft on the floor as a car. It was tested in a boat magazine in Stockholm 1967 and was said to perform calm and stable and doing speed 30knots+. But of

course - this power was really insufficient. It has been experienced here that quick starts with a powerful engine can twist shafts and cause other damage. Boat should be allowed some time to accelerate and slowly climb on foils. You may want to contact Al Spani in Vancouver (via the IHS website). He put in a Ford 302 on his outboard drive. I might as well mention the corrosion theme while I am at it. The 8 anodes should be well cared for and changed when corroded. They are as you know not common zinc, but a magnesium mix. Check it out with some aluminium-guru! As I have heard, the brackish water in the Baltic (Stockholm) is more corrosive to the Volga hull than real salty sea. So, here they change them also mid-season when called for. Some made the attachment of them special and quick-handled. Leakage in the engine compartment is frequently heard of. Some say hull was not correctly bolted (?) to endure many years vibrations and stress - especially from large diesels - some have repaired with glassfiber/polystyrene on the outside - and that has sometimes lasted for 15 years before re-do. -- Jan Wennerström (jan@wenco.se)

[16 Feb 02] I have heard of the Volga that you describe as being a V drive being referred to as a "Strela" It is my understanding that it means "Arrow" in Russian. I was told that the Strelas were the V drive and the Volgas were the Volvo leg especially put together for export. As to the re-powering of the boat: One option is to consider a Mazda Rotary engine that is produced and marinized by a company out of the US (who's name escapes me right now). They can put an engine in that is 175 hp and they sell a package that bolts straight on to the Volvo legs. I am sure that they can supply the engine to bolt on to your existing V drive as well. There is a Volga on Lake Washington that has this engine in it and it runs very strong, due to the light weight of the rotary engine and the horse power. I am considering re-powering my two Volgas with these same engines when the time comes to throw away my two diesels. Fortunately (and unfortunately) they are running very well here for me in Mexico. -- Robin Beasse (robint777@hotmail.com)

Volga Hydrofoils in Sweden...

[6 Sep 01] In the Stockholm area there are approx 12 Volgas, and 7 of them are in operation. I am restoring one I bought last year. It once belonged to the Soviet diary factory in Pärnu, Estonia, built 1984. The interest in Volgas is rising in Sweden. -- Jan Wennerström (jan@wenco.se)



Response...

[22 Nov 02] Hej jag såg på nätet att du hadde en Volga och jag undrar om du vet hur man får tag på en sådan. Även vad dessa kostar, jag har inte hittat någon info om dem i Sverige. Även info om olika modeller vore intresant. Jag vet vart det finns en Volga vrak och på den satt propelern direkt på en axel. Altså utan drev kan detta vara en äldre model? -- Roberto Cofre' (robban@univentor.se)

Volga 70 - Haul Out For Hull Preservation...

[30 Jul 01] I have a Volga 70 here in Australia. The craft was imported in 1985 and was built in the Keppel shipyards in Singapore. The craft has been in storage since arriving new in 1985, and we launched her this week for the first time. We have named her 'Beluga' (Russian and rare). The craft performs extremely well and is raising a few eyebrows when she is out on the Derwent River, which Hobart is built around. I would like to know if the craft can be rested on the foils without any other support ... this would make it easy when slipping to anti-foul. On the dashboard there is a plaque which reads as follows: 3 A B O N C K O N No 38; r o n n o c t p o n k n; 1973; CAENAHOBCCCP. Could you translate this for me as the 1973 has me confused. Any information on Keppel shipyards would be appreciated. -- David Powell (powellds@optusnet.com.au)

Responses...

[30 Jul 01] I rest mine on the foils. Another person I know built a trailer that rested the boat on the foils. I figure that the foils carry the weight of the boat and cargo at 28 knots, so it should not be a problem at rest on the hard ground. -- Rick Jackson (jaczeau@shaw.ca)

[21 Nov 01] Still need a translation? Here it goes...

- 3ABONCKON No 38; (zavodskoi nomer) manufacturer's identification number
- ron noctponkn; 1973; (god postroiki) produced in 1973
- CAENAHOBCCCP (sdelano v sssr) made in USSR

Jyri Tirmaste (jyri.tirmaste@kpmg.ee)

VOLGA Lead Designer Contacts IHS...

[4 Jul 01, updated 19 Nov 01] Volga Lead Designer Yury Garanov has a website at <http://webcenter.ru/~garanov/about.htm>. He is also involved in design of the CYCLONE and OLYMPIA hydrofoil ferries. Recently all mention of Volga was eliminated from the site; I am not sure why... perhaps he received too many inquiries for Voga hobbyists. According to text previously on the site, the "Russian Hydrofoil VOLGA had been developed by the Alekseev Central Hydrofoil Design Bureau. Several variants of VOLGA were built at two shipyards between 1958 and 1986. They built more 6,000 boats. Length: 8.55 m, Beam: 2.1 m, Displacement full load of VOLGA 70: 1.95 t, Displacement of VOLGA 275: 2.15 t, Power: 106

or 120 hp, Top speed: 32 kn. Mr. Garanov's email address is garanov@online.ru. -- Barney C. Black (Please reply via the [BBS](#))

Afghan Runabout...

[9 Feb 01] It is sometimes surprising to see hydrofoils suddenly appearing when watching movies, documentaries or news items on the television. For example, in the movie *The Russia House* a couple of Meteor hydrofoils pass by in the background on a river in Moscow(?) during one scene. Imagine my surprise when last night, while watching the world news, I realized I was viewing a Volga or Molnia hydrofoil runabout shown as part of an item on US humanitarian aid being provided to a drought stricken region of Afghanistan. But the little hydrofoil was far from running foilborne, rather it was shown resting in a forlorn state in the dried out lake bed of what was stated to be Lake Kaga (I am uncertain of the spelling). The Molnia was a Soviet six-seat hydrofoil sports runabout, while the Volga was the export version with various design refinements including a redesigned bow foil. It wasn't possible to say which of the two types the one in the Afghan footage was. -- Martin Grimm (seaflyte@alphalink.com.au)

Volga Engine Info Needed Fast...

[8 Dec 00] We have just acquired a Volga 28 foot hydrofoil and urgently need technical information on the engine. I believe it is a Yak engine and the number is GAZ-53,90 the. Have you any information or can you suggest anywhere where I might find it. This is a very urgent request as the boat is being used in a major motion picture we are currently shooting here in Casablanca. Please please let me have anything you can as soon as possible. My email address is jonathanfrost@yahoo.com, fax no +212 22 30 15 45 mobile +44 7831 643 172. HELP! -- Jonathan Frost

Response...

[1 Apr 01, updated 6 Jun 02] The former lead designer of the Volga 70 and 270 hydrofoils now has a website [Click Here](#). According to the site, the "Russian Hydrofoil VOLGA had been developed by the Alekseev Central Hydrofoil Design Bureau. Several variants of the VOLGA were built at two shipyards between 1958 and 1986. They built more 6,000 boats. Length: 8.55 m, Beam: 2.1 m, Displacement full load of VOLGA 70: 1.95 t, Displacement of VOLGA 275: 2.15 t, Power: 106 or 120 hp, Top speed: 32 kn." [Note that the Volga page has been taken off the website, but there is info on other, more recent hydrofoils] -- Barney C. Black (Please use the [BBS](#) to reply)

Other Volga Postings...

[8 Jun 98] I am restoring an old Russian hydrofoil Volga, which was built in 1970. I would like to ask you to share with me your experience on that matter. Could you be so kind to send to me any kind of information, that you are in dispose on this matter (for example, how to repair aluminum hull, how to change the drive unit, how to install seats, lights, etc.). -- Edvardas Leskevicius (hidrostatyba@gargzdai.omnitel.net)

[21 Jan 98] We have for sale a 6-seater hydrofoil, and your advice would be appreciated on a possible method of distributing this information: Classic 1965 Russian-built Volga 275 AquaFlight 9 Meter hydrofoil - Volvo Penta Diesel 115HP - 20 liter fuel per hour, 30 knots - Aluminum hull, stainless steel foils - three point lifting flanges - ideal big yacht tender or light ferry - completely restored in original boat show livery. Price - 27.500 pounds o.n.o. Currently lying in southern Spain. For full information telephone John Taylor in the U.K.: 1736 33 10 18 or email: john.taylor20@virgin.net. Or... Contact the restorer -- Charles Reynolds (bob@mercuryin.es) Tel: INT 34 08 953392, Apt. 2.2.12 Puerto de la Duquesa Manilva 29692, Province Malaga, SPAIN.

[30 Dec 97] Thank you for your useful comments on Volga Shipyard page launch. I have visited Web site edited by you and find it very interesting and promising. I have just received a copy of your Newsletter from one of our employees in London and still examining it with interest. Unfortunately it is not the best time for the Russian shipbuilding industry. I hope this time will pass soon. Thank you once again for your help in promoting our Web site with your link and advice. I will be pleased to contribute to your page with any comments on accuracy of information. -- Timur V. Beteev (timur@pol.ru) Moscow Representative Office, Volga Shipyard

[1 Mar 97] As an owner of a Russian built 1974 Volga 70 hydrofoil, I'm looking for info on this boat if anyone can help. -- Rick Jackson (gabfire@home.net)

Response...

[15 Mar 97] The Volga 70 was one of the Russian designed runabouts. It was a successor to the Volga 275 which was introduced during the 1970s. The 275 was a smaller version carrying about six people as I remember. One of these was given to President Nixon by the Russians during his term in office. Nixon used it at his winter retreat on Key Biscayn in Miami. He kept it at the Coast Guard Station on Miami Beach. The secret service personnel were always concerned about its rough water stability when Nixon used it. The 70 was developed during the 1980s and was exported. The Russians claimed to have built about 250 of them. It had a typical Russian hydrofoil system with both bow and stern foils. The foils design was similar to the commercial *RAKETA* noted by the dual bow foils. The Russians called the upper foil a self-stabilizing foil, and it did improve rough water performance. The advertised particulars of the Volga 70 were as follows: overall length, 8.55 meters; beam 2.1 meters; Displacement, full load 1,930 kg; Displacement Light 1,350 kg; Payload 580 kg; Max speed 30 knots; Cruise speed 28 knots; Range 240 kilometers. This performance was when using a Volvo Penta Diesel rated at 106 HP at 4000 RPM. --[Bob Johnston](#)

[11 Jul 97] Look for a photo of Rick Jackson's Volga 70 hydrofoil in the letters to the editor section of the Spring 1997 IHS Newsletter. Additional info on this craft is needed... would especially like to hear from other owners. -- Barney C. Black (Please use the [BBS](#) to reply)

[15 Jul 97] There may be many of these Volga craft left, though only one is known to exist in Australia. Seen in late 1994 in run down state at Nicholson Victoria and available [for sale] at AUS\$7000. Current location unknown. --Martin Grimm

[30 May 97] You might want to seek information through the [Russian Friends and Partners Bulletin Board](#). --Barney C. Black (Please use the [BBS](#) to reply)

[15 Mar 97] Re: my plans for potential restoration [of Richard Nixon's old Volga 275 hydrofoil] and possibilities of retro-fitting with modern outboard: are hydrofoil boats very sensitive to CG location, thrust vector and relative height? Can you recommend any texts which I should reference which will educate me on hydrofoil theory and design? -- Frank Eichstadt (eichstad@spacehab.com)

Response...

[3 May 97] I would recommend not changing the power configuration, more from a purist point of view than for how it might perform. What needs restoring on it ? My experience with my Volga 70 is that it's amazingly stable, much like an motorcycle. I have gone at top speed off of a large bow wave of an approaching freighter and it just skipped over the whole wave so fast I could scarcely believe it happened. Amazingly stable and well balanced. They are susceptible to burying themselves into a wave if the height and frequency of the sea is such that the bow can't clear the next peak before the foils ride up out of the trough. I did this in February off Nanaimo B.C., in the Georgia Strait and choked on a lot of cold sea water. This front foil-to-bow distance vs. wave crest-to-trough height and frequency seems to be the only shortcoming that I am aware of with this boat. If a person slows down and comes off of the foil she can handle just about anything I have seen in relatively sheltered water, as the foils act like keels at slow speed and create incredible stability. She is, after all, a river or lake boat primarily. If you were to swamp, the front and rear (engine) compartments are water tight and would keep you afloat until she pumped out. That's all for now. Tell me more about your boat, condition, etc. Also, what serial no. is yours? Mine is #162 if I recall correctly. -- Rick Jackson (gabfire@home.net)

Grumman 14-Foot Runabout

[6 Jan 98] I own a Grumman hydrofoil. It is a little over 14 ft. long. Its beam is about 5 ft. It is of aluminum construction. The ribs and gussets show a definite aircraft influence. It flies on three foils, two forward and one full width astern. It is propelled by a 40 hp outboard with an extended shaft and lower housing (factory). Although I last rode in and saw this boat running in the late 60s it is in some disrepair at present. I believe that I have most of the "original" parts to put it back into running order. I am looking for any and all information about this or sister craft. The Manufacturer Tag gives the following data: Metal Boat Co. Div. of Grumman Aircraft Eng. Corp. Ser # 4-G-14-RW. -- Stew Fischer (Stewardjan@aol.com)

Response...

[15 Jan 98] The foil system was developed by William (Bill) P. Carl who was the President and major stockholder of Dynamics Development Inc. Dynamics Development was acquired by the Grumman Corporation when they made the decision to establish a hydrofoil division. For some time Dynamics Development manufactured the foils that were designed to be used with the

Grumman 14 foot aluminum runabout. The demand for this hydrofoil was steady but not extensive enough to become a major product of Grumman. During the time I was head of Grumman's marine division we continued to stock spare parts and kits for customers. As you may be aware Grumman and Northrop became a new corporation named Northrop Grumman. It is my understanding that even before this new conglomerate the Grumman hydrofoil effort has ceased. I had left Grumman before this time. I suspect that any spare parts for the hydrofoils were out of inventory before the merger. Perhaps Bill Carl may have more information on this subject than I have. If you are interested in design information he is the one to contact. Also he may know what happened to any spares. Bill's address is as follows: Mr. William P. Carl, Post Office Box 767, Kilmarnock, Virginia, 22482. -- [Bob Johnston](#)

Water Spyder

Water Spyder For Sale

[15 Mar 02] I have a hydrofoil made by Waterspyder Marine of Ontario around 1967. I would like help restoring it, or it is for sale. It is a small, 2-Seater Model 2-B. -- Matt Burns (matthew_burns06035@yahoo.com)

Responses...

[15 Mar 02] Some more details could be helpful, such as condition of the fiberglass hull and of the outboard motor. According to *Jane's Surface Skimmer Systems* of 1968-69, the Water Spyder 2-B is a two seat sports hydrofoil powered by a long-shaft outboard of 20-35 hp. Overall length is 12 ft; beam is 5 ft- 4 in, or with foils extended 7 ft.-4 in. Max speed is 40 mph. Max wave height is 1 ft - 6 in. -- Barney C. Black (Please use the [BBS](#) to reply)

[7 Jun 02] I am an engineer in Miami, Florida. I have much interest in small hydrofoil boats (I bought the two Dynafoils you may have seen listed), and I am planning to make a couple of designs of my own. I have access to computerized machine shop tools (CNC lathes, mills, etc.), and would be interested in purchasing your boat or helping you to restore it. I am not familiar with the Water Spider and don't know what part of the country you are in, but I would certainly like to know about your boat, and if I can help you with the parts it would only be at my cost, I'm not trying to turn this into a business opportunity. Scott Smith (ssmith@syntheon.com)

Other Correspondence

1954 German Sport Hydrofoil WING

[1 Jun 00] I found a German-built "Wing" sport hydrofoil built in 1954, abandoned and rotting in the bush in Northwestern, Ontario, Canada. The only information that I have been able to find is from the September 1954 Life Magazine article featured in the Hydrofoil Bibliography on this site. We would like to attempt a restoration but need more information, ANYTHING PLEASE!!
-- Greg Wilkinson (gwilkins@hofferwilkinson.mb.ca)

1947 Hydrofoil Project Revived; Needs Better Propeller

[11 Jun 00, updated 25 Sep 02] I'm in the process of completing a hydrofoil project started in 1947. The design is Swedish, called Trixie de Luxe, and was designed by an engineer named Ivar Troeng. The boat is built in Oregon pine and mahogany, and everything is made at a immaculate standard. The builder is now 85 years old, and he never had the boat on water. But I did. 1 week ago, the boat was launched, at it hardly took in any water, after 53 years on land. The problem is, the engine is not strong enough to get the boat flying. It is an appr. 90 hp Volvo engine, with 1:1 gearing to a straight shaft propeller, max rpm is 5000. The current propeller on is a 12" x approx 22" (dia x pitch). After a phone call to the propeller expert at the Norwegian university in Trondheim (SINTEF), I was told that I should have a 12" x 13" size propeller. But they were not sure. I have also been told that I ideally should have a reduction gearbox say 2:1. The boat is 17' long. I do not know the weight. I would be very grateful for any information on how to choose a propeller, or information on manufacturers of variable pitch propeller for rigid shaft system. Pictures of the boat can be found on www.inocean.no/trixi/. -- Thomas Eckey, Norway (te@inocean.no) and Svenn Erik Kristoffersen (svennek@online.no) [*Note: the photos are no longer at the URLs cited. I have sent an email asking for an update and the new URLs - webmaster*]

Responses...

[23 Jun 00] Veteran hydrofoil designer and IHS member [Neil Lien](#) suggests that you obtain a drag profile for this craft by towing it at various speeds and measuring the drag. Then get an engine horsepower profile and send these to a propeller manufacturer for a recommendation.

[12 Jun 00, updated 19 Jun 00] For any particular speed and power, there is a propeller *diameter* for best efficiency. There are power losses from the speed of the wash (the water pushed backwards by the propeller) which is larger for smaller propellers. There is also power lost from the drag of the blades which is larger for larger propellers, so there is a size with least total losses. However, efficiency does not decrease much if the size is near to the best, and the best size is often too big to fit on small power boats. There is also a propeller *pitch* for best efficiency. If the pitch is very small the blades have to rotate very fast so there is a lot of drag, as there is with large diameters. If the pitch is very large, the propeller turns very slowly with a large pressure on the surface, so there are large losses from the propeller tip vortices. The most important aspect is getting the pitch to match the engine and boat speed. A problem with hydrofoils is that there is a lot of thrust needed at low speeds while the maximum speed is a lot higher, and some thrust is needed at maximum speed. I haven't yet looked at your boat, but I'll guess that you are looking for about 15 m/s (54 km/h) maximum speed. The pitch is the distance that the propeller tries to advance each turn. 5000 rpm is 83.3 turns per second, so the pitch should be $15/83.3 = 0.18\text{m}$ pitch, or 7 inches, or about 8 to 9 inches to allow for slip. 13 inches is

too much and the engine will not get to full speed, so it will not produce full power (unless the top speed of the boat is a lot more than what I estimated). A 17 foot boat will start to hydroplane at about 6 m/s. With a 22 inch pitch the engine will only turn at about 1500 rpm or less and produce about 30 hp just when you need the most thrust. You must get the pitch about right to get anywhere near the full power of the engine. There will be a small loss of efficiency from using an 8 inch pitch propeller at 5000 rpm, compared to using a 16 inch pitch propeller at 2500 rpm with a gearbox, but I do not think that it will be a big problem, unless you cannot buy a propeller of the correct pitch. *Follow-up to the original response:* I've found my book about propeller sizing, and the expected boat speed is one of the most important factors in deciding the best propeller. I'll estimate some speeds and try to work out what will be needed. I can't give you the equations because there is a chart and I don't have that in electronic form. For 15 m/s and 90 hp at 5000 rpm, the best propeller efficiency will be about 66%. This will use a 10 inch diameter propeller. For lower speeds a larger diameter is better, but I can't accurately estimate the efficiency. Also a larger diameter makes the efficiency less at 15 m/s. I think that the efficiency at 15 m/s with a 12 inch diameter propeller is about 50%, but the chart give a pitch of about 6 inches for those conditions, which is too low. It seems that making the propeller larger than optimum by 20% makes the efficiency worse than making the propeller smaller than optimum by 20%. However, you might need the best efficiency when there is most drag, which is while the hull is still in the water. -- Malin Dixon (gallery@foils.org)

Response #2...

[12 Jun 00] The advice your received from the university seems about right. [TALARIA III](#), weighing 4000# , with 200 hp, and a 1 to 1.7 gear reduction, has a 15/17 dia./pitch prop. A 12/12 prop. would be roughly equivalent to *TALARIA's* for 90 hp, 1 to 1. If your power to weight ratio is higher than *TALARIA's* then a higher pitch propeller (12/13) would be better. -- Harry Larsen (talaria@foils.org)

Hydrofoil Archeology

[26 Oct 99] I have found a gutted hydrofoil speed boat that looks as if it is from the 1940s. I am trying to find out more information on it too see if it is possible to restore it. And if so how to go about finding out more information about it. It is about 30ft long and I have been told that it originally came from Russia, but I do not know if that is reliable or not. Also the current owner (a goat herder) is asking quite a lot of money for it \$1500, so I need to know if it is going to be worth it in the long run. I have seen a photo of [Al Spani's Volga 70](#) and must say it looks similar, yet different in some ways? If there is any way you could help me or steer me in the right direction I would deeply appreciate it. Frank Boering, United Arab Emirates (franky@emirates.net.ae)

Response...

[26 Oct 99] There is not much description to go on other than length and current location. I will send a copy of this reply to several IHS members, some of whom which may have an idea. Also, here are some suggestions: There is some correspondence on Volga hydrofoils on our [Posted Messages web page](#). You should feel free to contact any of the people who wrote on this subject

to ask for help identifying the craft, tips on restoration, etc. You might also take a look at the [Helmut Kock biography](#); it is possible that one of his vessels ended up in the Emirates. Finally, the reference book *Jane's Surface Skimmers, Hydrofoils, and Hovercraft* is a good source of photos and technical description that could help you identify that vessel. You would need to find an old edition in a library or used bookstore. I have the seventh edition (1973-74), so I looked under USSR for hydrofoils of about 30 ft in length. One candidate vessel mentioned is the Molnia, a popular six-seat hydrofoil derived from Alexeyev's original test craft. The Volga 70 is the improved, export version of that vessel. At that time many hundreds were available for hire on Russian lakes. The overall length is 27 ft 121 in (8.5 m), beam 6 ft 5 in (1.95m), max speed 32 knots (60 km/hr). Another craft was the Nevka, 35 ft 11 in long, only a prototype at that time. It is not likely that the vessel you found dates back to as early as the 1940s, but if it does, then that then it is news! As to what it is worth, I don't have a clue. One thing is certain though, you will pay much more for the restoration than you paid for the vessel itself. As a possible alternative, it is very possible I believe to get a Volga that is still in working condition to start with. There are also new craft of this size being marketed. There are links to them on our [links page](#). -- Barney C. Black (Please use the [BBS](#) to reply)

2nd Response...

[26 Oct 99] I have [sketches of the first hydrofoils of Rostislav Evgenievich Alekseev](#) dating back to the 1940s. Perhaps it is one of them?! -- Konstantine Matveev (matveev@its.caltech.edu)
website: www.hydrofoils.org

Who Builds Boats and Yachts in Russia?

[12 Sep 99] I am looking for Yacht- and Boatbuilders in Ukrania and Russia. Can you help or do you know anybody who can help? Jens Paulsen (paulsen_jens@hotmail.com)

Response...

[12 Sep 99] Jens, IHS does not have a list of Russian yacht and boat builders, but here are a few suggestions:

- IHS has links to a few Russian designers/builders/brokers [on our links page](#). Of course all these are for hydrofoils specifically, but some of the links may build other types of vessels as well.
- I will forward a copy of your inquiry to a couple of our Russian members in the hope they can direct you to a source.
- There is a "[Russian Friends](#)" [bulletin board](#) that publishes questions and answers about anything to do with Russia and this is a vehicle for pursuing your inquiry.
- You could contact Athol Yates, an Australian who travels extensively in Russia and writes guidebooks. Last email address I have for him, and this dates back to 1997, is: russia-rail@netinfo.com.au
- The IHS website has several [posted messages](#) from Russian builders and their agents. You could go through these and contact the people who sent them (email

addresses are provided in each case). Be sure to look through the New/Uncharacterized section as well at the Where To Buy sections.

- Finally, you might want to contact the nearest large Russian embassy and embassies of the former Soviet republics. They should have a trade section or trade representative that could help you.

Hydrofoil For Sale...

[11 Sep 99] 25' hydrofoil powered by a 454 marine power. Hull is home built. Used as test bed for new foil designs. Hull and engine has approx. 300hr. Information and pictures on request. -- David Thomas; 405 Dominion Rd.; Chester, Md 21619 USA; phone: 410-643-5180; fax 410-604-3317; email: dthomas@skipjack.bluecrab.org

Russian Hydrofoil For Sale...

[8 Apr 99] Volga 275 Russian Hydrofoil Aquaflite -- Previously in Spain, this vessel is now located on the Hamble at Ancasta Marine Port, Hamble. Seriously for sale please contact the owner c/o Henthorn@cwcom.net. Guide price - in region of £20000.

Hydrofoil USA Representatives...

- [16 Sep 98] Are you still interested in Russian hydrofoils? We represent the largest one here. -- Gregory J. Grushko, President & CEO; Interfinance CIS; 6/1 Sechenovsky Per.; 119034 Moscow, Russia (ggrushko_intercis@co.ru)
- [16 Sep 98] Please be aware that Titan Marine International of Fort Lauderdale FL and Newport RI has received the North, Central and South American marketing rights for the Russian "Alexeev" Design Bureau's foil and air cavern vessels. They are pursuing both commercial and yacht business. Also, they have used vessels in North America for sale and for charter. Their principals are Bob Bolderson and Carl Meyer and can be reached at 984-917-2370 or 781-397-1389 or through us (InterMar) at 812-537-0609 or by email to us. -- Tom Schneider (img@one.net).

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