

Bruce Hinds

From: "Bruce Hinds" <brucehinds@earthlink.net>
Date: Monday, August 8, 2005 4:42 PM
To: "bruce hinds" <brucehinds@earthlink.net>
Attach: 2005 Upcoming Events.doc
Subject: Aug '05 Seabee Newsletter

The Northwest Seabee Club



Hello Everyone,

Sorry this is late... not really. We were in the picture above and really had no desire to leave Priest Lake, Idaho. I'd heard about the place for years and when the article came out in this last issue of *Pilot Getaways*, we decided last minute, we had to go. Last minute reservations there are usually not possible we were told, and that's exactly what we found. We called several places, but no luck. The magazine article mentioned airport camping. This is "camping" at it's finest! The airstrip ends at a resort marina with a full service restaurant and bar right on the beach. Yes, it's a sandy beach too! In fact, the lake is one big sandy beach with several campgrounds and resorts right on the water. There's lots to see and do, and the marina rents all kinds of water craft if you run out of places to explore in your seaplane.

Our campsite was nearly under the wing on the airport, why there and not on the beach you ask? The campground has real toilets, a real shower, and the airport manager has a fresh pot of coffee going every morning by daybreak! We had packed a cooler, not knowing where we would stop along the way, as it turned out, we only cooked one meal just to keep some chops from spoiling!

Our first stop was at Lake Chelan just a few days before the fires started. We finally got a chance to meet up with Mike Stevens who used to keep his Bee right on the lake on a special lift he had custom made. What a unit too, it has a key fob with a remote control. You can drive on the bunks and raise or lower it as needed to get your proper position. Then when you're done, raise it up to deck level. Mike says it works great for leaving too. You can warm up on the lift and not worry about drifting around and when ready just back off, reverse pitch and just lower it the rest of the way in the water. I wish I'd had a chance to try it out, sounds like fun.

Mike and I have been emailing since I started the Seabee Club 5 years ago and this is the first time we've been able to meet in person. He is now partners in Lake Aero there at the Chelan airport. They're doing a jam up business, he's there most days and I'm sure he'd love to talk Seabee if you decide to drop in. Unfortunately is was just too hot for us to stay. Mike said we missed all the green by a few weeks, so we only stayed the one night. Thanks Mike for your hospitality.

Lake camping was to be the theme, there seemed to be many spots along the way that would make for great beach camping. A friend had suggested several places along Lake Roosevelt, some on the Indian side, but the temperatures were too hot for our comfort level and we were just anxious to get to Idaho. With a possible stop at Roosevelt we had called ahead to see what the restrictions were. The SPA guide mentions at the Indian side is restricted from Seaplane operations. My question was, "can we land on the south side, terminating the seaplane operation, and proceed as a boat to the Indian side?" We called the # on the web site and then were told to call the Reservation. The official I spoke with couldn't answer the question, but said he'd try to get back to me. That hasn't happened, so I don't have an answer. I'll keep trying, but if anyone has some experience up there, I'd love to spread the word. It would also make a great spot for a splash-in. East meets west!

Scott Henderson from Simuflight reports....

"We now have a Seabee experienced A&P/AI that travels for Seabee work. Tim Sutter joined our team a couple of months ago and the plan is for him to travel to people that need work on their Seabee's but can't get them to Fallon. Tim is a long time Seabee pilot and mechanic and he has passed muster with Ken Thompson at Kenair which is not an easy thing."

Give Ken a call, 707-939-0401 or contact Scott at Finite Technologies Incorporated, 3763 Image Drive, Anchorage, Alaska 99504 Phone: 907.339.8085 ext 6101, Fax: 907.333.4482 <http://www.finite-tech.com>

History

A few months ago when I was given the privilege of reviewing Bryan Mahon's archives I came upon a "Design Analysis of the Republic Seabee." The article appeared in Aviation(a magazine?), May 1946 and was written by Irving Stone, the assistant Editor. We've all been told what a remarkably simple design it is, Mr. Stone's report is an in-depth study of the design and manufacturing technique. While it's much too long to reproduce here, I thought I'd go on for a while with some interesting discussion on the construction and surprising results.

"The engineering of Republic Aviation Corp.'s Seabee amphibian marks a turning point in the aviation industry. Structurally, the craft represents such a reasonable and necessary departure from intricate conventional design, that it's radical makeup simplicity alone, embodying more than adequate strength characteristics, recommends it as a basic pattern for future engineering of aircraft, military, transport and personal.... And stemming from such highly simplified design is the all important factor of simplified productions... the design must be carefully studied to permit large individual sections to be drawn in dies, replacing a large number of small part assemblies.

In sharp contrast to the conventional aircraft structure, containing many small and interlocking component assemblies laboriously put together by hand, the simplified structure of the Seabee lends itself readily to rapid fabrication with equipment of the type generally used in the automobile industry; units such as mechanical presses, press brakes, and automatic screw machines. And, additionally, large sections of the structure are assembled on automatic gang riveting machines."

He mentions that a study was done and determined that through out this process that the cost of the tooling could pay for itself in less than 200 aircraft.

"Another major consideration likes in the procurement cost of items such as instruments, electrical switches, interior trim and hardware, and other equipment. In many instances it has been found that good, comparatively inexpensive, automotive type units can be used.

The prototype plane, which was completed in Nov. 1944, was built only to prove the general design. The craft was a three place 175 HP. all metal amphibian monoplane using good but conventional structure throughout, and was an outgrowth of an original design by P.H.Spencer,...

Manufacturing cost considerations, price would have had to be almost twice the price... prompted Alfred Marchev, Republic's president to direct and investigation to determine how airframe structures could be simplified to reduce manufacturing cost sharply. He believed that extensive simplification could be achieved, with consequent great reduction in number of assembly components, while yet maintaining the high standards required in aircraft construction.

Alfred Z. Boyajian, structures project engineer at Republic, was assigned the task to redesign the seabee airframe to meet reduce cost requirements..." One of the tasks was "stress analysis procedures, to determine what conceptions existed which might be altered to justify a vastly simplified structure. When Boyajian's simplified-comparatively ribless- structural design was first proposed on paper it was subjected to much discussion in large conferences of engineering personnel. The absence of conventional ribs in the design created much doubt as to the structural airworthiness-doubt voiced because it was believed that in accordance with customary methods of stress analysis, the proposed simplified structure was considered to be probably deficient in strength requirements. It was considered that other than a rib there was no structural member deemed capable of transferring airload shears in a chordwise direction to the bending-resistant spars."

We all know now about stressed skin, but he explains... "a torque box... comprising the stressed skin leading edge would offer appreciable restraint to such torsional displacement. Further, Boyajian believed that the leading edge cell and the aft cells would serve, in some degree, as beams in bending between end ribs and that the secondary spars would also act so. He also reasoned that individual beads on leading edge skin would serve partially as truss members pinned at the leading edge.

In effect, Boyajian's proposal was a new application of the theory of stress analysis, a radical departure from conventional practice, which had to be substantiated by static tests and the design proceeded, since the stress in the simplified structure could not be adequately calculated.

In the face of doubt and disagreement, but encouraged by Mr. Marchev, the simplified design took shape, unit by unit as had built specimens, for test purposes. As an initial step in the development program, the conventions prototype stabilizer, a fair example of a costly all metal structure consisting of spars, ribs, and stringers was selected for experimental simplification."

There was only .005 difference in thickness of the skin between the conventional structure and the simplified structure having the beaded or corrugated surface. Drag was a consideration and it was found that there was a 3 mph loss at high speed, but this was offset by a 2 mph reduction in stalling speed. The new simplified process also allowed for automatic riveting. The process sounds so simple.

"Static tests of the simplified structure showed about 10% higher strength over the conventional prototype unit and it also disclosed very satisfactory rigidity. And most important, since it made possible such fast and cost saving production methods possible was the justification of a new approach in stress analysis.(replacement price of stabilizer panel complete assembly, including attachment parts, is expected to be under \$35)" **Remember this was written in 1946!**

"Following is a comparison of design and production factors of the simplified and conventional stabilizers:

	Conventional	Simplified
Parts	42	9
Man-hours	14.2	2.7
Rivets	521	160
Weight	13	13

Now that the application of the simplified design had proved satisfactory for the stabilizer it was decided to test the construction principles on a much larger unit, the wing panel... Notable lightness is achieved. Complete with Flaps, ailerons, brace struts, and miscellaneous fitting, it weighs but 1.45 lbs per sq.ft. Unusual, considering that the average wing loading is 16 lb per sq.ft.

	Conventional	Simplified
Parts	114	30
Man-hours	280	10
Rivets	2,627	882
Weight	150	110

In static test, the wing sustained a load of 115%, and in torsional rigidity was four times greater than CAA requirements. Another unusual characteristic of the wing structure was that no skin ripples or buckles appeared up to 100% of design load, a condition rarely achieved in a conventional metal wing structure.

These very satisfactory results obtained with the large wing structure justified the application of this theory of simplified and cost lowering design. And, as a result of the attendant production advantages, cost of replacement for a wing panel complete assembly, including attachment mechanism, is expected to be under \$250."

Wow, the design study is really in depth and I've only included some of general information, he goes on about the fuselage, gear, dies, materials used and the manufacturing process.

The Last Saturday ? I never heard back from anyone on the deal for Dick White, so, I never had anything to send... when we didn't hear anything more, we just left for Idaho. I'm supposed to be working the last Saturday this month, but if anyone wants to meet somewhere,

I'd be happy to provide the information for all, I might even play hooky, just let me know. Next month will be the Clear Lake Splash-In Sept. 23 - 26, we definitely want to make that happen. It's a long trip, but we want to go to Reno, then to the splash in. Here's the info... www.ClearLakeSplashIn.com Actually we could make it a full month, Bremerton, Cushman, Reno, and then Clear lake!!

Upcoming Events for this year, please see the attachment...

Maintenance & Safety Please feel free to offer any tips or experiences that you feel could help others. I'll keep all confidential if you like.

Planes and Parts (new listings) Normally... New listings will only be new for 2 months, then I'll run them in "old listings" for another 4 months unless I hear from you. After that, they will be gone...renew as long as you like! See other Bees and parts for sale on the IRSOC's website, here's the link <http://www.republicseabee.com/Buyseabee.html>

GO 480 and Prop

If the prop is serviceable and it probably is, at \$1500, it is a bargain. No logs, and the engine probably needs a complete rebuild, but who knows. I just have to clean house a bit and it has to go. I still am running my Franklin and I am completely satisfied. In the Midwest, there are no big rocks to climb over.

Grant Leonard IDREV88@aol.com Phone: 952-447-3625 Mobile: 952-210-2096 1

Sherry Grout, daughter of Tony Grout who passed away a few years ago has his aircraft remaining parts for sale. Seabee, serial #63 has had some of the parts sold, but she is interested in selling the remaining parts of the aircraft. The fuselage, wings, horizontal & vertical stabilizer are in excellent condition. She had spoken with Don Wallace who thought the value would be in the neighborhood of \$20,000.00. Contact Lee Branch at 253-863-0422 ext 164 or David Radcliffe who is very informed about the aircraft. He can be reached at 253-381-1368. 2

Ed Porter from Santa Cruz needs help and writes...

I have been grounded by that pesky Airworthiness directive on the propeller. The blades are good but one clamp has a bit of corrosion and I need at least a new clamp if not a replacement propeller. I know many operating Seabees have had engine conversions to newer Lycoming and other engines. I'm looking for those propellers and clamps that were taken out of service when those new engines were installed.

I have a Franklin 215-B9F (215 HP) engine (standard stock engine) in good running condition. The Seabee and engine are completely operational. The prop blades are good as well. However, the required AD procedure on the prop reveals a very minor amount of corrosion on one of the propeller CLAMPS. If I could get a single clamp, that would be perfect. However, I haven't found any source for those clamps. Hartzell wants a staggering sum to produce an entire propeller assembly and they seem to have no interest in selling me a single clamp. It appears it would be a custom made propeller at this point and I simply can't afford it.

I'm open to a used propeller or even a set of clamps that could be used with my propeller blades. I know there are many of the original props that were removed as part of engine upgrades and they must be out there somewhere, hopefully persevered. The Hartzell 2 blade prop parts I need is a C3-1L clamp.

Hartzell says they may have D-6831-1AL and D-6831-1CL clamps and don't recognize my C3-1L part number. That's probably because its so old and they re-numbered more than once. But, that's not a certainty either. My clamps and prop blades are off in a prop shop so I can't go and get all their numbers.

I'm also considering having a clamp made from scratch. I did that with my valve guides and, while I understand that a propeller clamp is much more complex and subject to tremendous stresses, it still might be a possibility. Maybe I can find someone who has done this "owner manufactured part" process....

I'd certainly appreciate any leads or suggestions you might have or, if you have a serviceable prop clamp that fits my prop, or, if you can locate one, we definitely can do business! Thanks for anything you can do! Ed Porter (831) 427-0836 2

I acquired a lot of Seabee stuff from a friend, John Joyce who demolished his Seabee in 1986. He did have both engines from a Royal Gull, and after his accident, he sold me the wreckage and all the Seabee parts that he had. Also the GO480, along with the 3 blade prop. I believe it is a D, and it is missing the starter or Generator. He claims it was pickled with oil after the gear down landing, and I am not sure of its condition. It has no logs. Any reasonable offer will get it. Call me for more info if you like. My # 952 447 3625 and my cell# 952 210 2096. I am trying to make room for a lot of stuff that I have in my Minneapolis building that I recently sold. Grant Leonard 2

Tod asked to renew this... I can't believe someone hasn't scarfed this project up. It seems like a lot of stuff 4the\$.



The Seabee project for sale was started by Don Wallace at WE Aerotech and intended to be a new (totally reconditioned) airframe to be fitted with a 375 HP Continental GTSIO-520M engine and a new 93" Hartzell 3 bladed reversing prop. Many of the structural parts are new since Don had an agreement for the PMA rights. The fuselage and tail surfaces were disassembled stripped and inspected before repriming and reassembly. The wings disassembled inspected and primed but not reassembled. The project appealed to me because I could not see putting a new, higher horsepower engine on a 60 year old airframe without totally going through it first. The project was halted when WE Aerotech went bankrupt in 2001. I recently sold the engine because it was going on 5 yrs without having been run. I retained the prop and custom engine mounts so that they could used in the same application if anyone was interested. Don Wallace is still around and has done some engineering work on the project with the FAA. I have about \$ 60,000 into the project and will sell it for \$25,000.

For more information contact TodDickey@aol.com 2.

Planes and Parts (old listings)

Byron Miller is looking for a pilot side door. miller.bj@verizon.net Phone: shop 503-873-1113 home 503-873-2857 1

Tom Danaher has a Franklin Bee and needs a oil control valve for the prop.. Can anyone help out??? Contact "West Sanders" <westsanders@sbcglobal.net> Subject: Re: 'Bee Prop 2

1972 Twin Seabee N123BR



180 HP Lycomings, MX 20 MFD Garmin, Garmin GNS 430, 330 Garmin mode S transponder, Goodyear 500 blind storm scope, EDM 760 twin engine monitor (fuel flow). Many other options, 9/9 in and out \$190,000. or offer contact Roger Glazer twineseabee1@aol.com (949) 300-2575 3

Royal Gull for sale at the Van Nuys airport...Roger Duke's brother-in-law says he knows someone who has one. If anyone is interested call Dan at 310-980-0307.3

Attention Float Pilots.... how about strapping a Porta-Boat to your float struts? It folds to just 4 inches flat !



Carry it under your arm like a surf board and you can attach it to the struts, almost no drag. See their website <http://porta-bote.com/> they even have a picture of a Helio on floats with one tied on! This is the smaller one, the two seat model, it's actually 9'3". It only fits in our Seabee because we've removed the bulkhead, but even then we have to take out all but the pilot seat. Janie wasn't too keen on the idea of making her sit on the cooler, even though her seat belt was tied to the floor. This boat is NEW, never in the water. It's a \$1200 value, How about \$950 ?? Call Bruce 360-710-5793 or brucehinds@earthlink.net Northern Pilot had a write up in their June/July 2002 Seaplane Special issue. I've only unfolded it twice. The second time I put the seats and transom in it only took me 4 minutes to have it ready for the water. And it weighs less than an inflatable canoe. **Please make it my last!**

Seabee Products

Bubble Windows Aircraft Windshields in Los Angeles is run by a lady named Judy. They do a great job according to Steve Lantz. The bubble molds are there and all she needs is your old windows as pattern for size. Call 562-430 8108

Wing Walks, those things you put on the wings when you want to get up and clean up the oil mess...



Jim Dixon's dad is a retired carpenter and will make these for \$100 each. He does a great job from the original plans, they just aren't quite as wide. Which is nice, they are a lot easier to handle. I have two one for each side. He also puts felt on the bottom edges so they don't scratch the wing and carpet on top. Contact Jim jdickson@intd.com 360-701-1119 or 253 851-6315.

Walk Around Inspection <http://www.aircraftwalkaround.com/seabee/seabee.htm> is an interesting series of pictures of a walk around. Note the high polish job and a very interesting water rudder.

Leading Edge Wing Tanks (I want some of these...)



Second generation Seabee Guru, Henry Ruzakowski, has developed tanks that will hold at least 15 useable gallons per side. They are made of carbon fiber and Kevlar and will gravity feed to the main tank with the operation of one lever. They will be done on a field approval, so you'll have to take your airplane to him in Florida. **So, let's plan a trip to Sun and Fun!!!** Call or email Henry for more information. 561-436-0821 amphibs1@aol.com

The Seabee CD and the new Newsletter CD! The Seabee CD contains all the Bulletins, Flight Manual, Parts Manuals, etc.. He states ..."Everyone I have sold this CD to has found it most useful. I have re-typed all of the Service Bulletins and reformatted the parts manuals for easier reading. The **Newsletter** CD contains most of the old Seabee news letters by George Majonnier, and Richard Sanders. No special software is required. All files are in Adobe Acrobat format and I include a reader with the CD. Once the Acrobat Reader is installed, just put the CD in the computer and it starts automatically! Contact Steve at smestler@bellsouth.net **I have them both, they're a great reference!**

The Experts

Simuflight's coming Back Joe McHugh's family has joined forces with Ken Thompson of Kenair in northern California to recreate Simuflight. The long term goal for Simuflight is to be a complete resource for Seabee's regardless of what conversions or kits you want or already have on a Seabee. They are also interested in Seabee parts that may still be out there that don't have a home. They will be setting up shop in Fallon, NV and are accepting work as of October, 2004. All inquiries should be forwarded to the following contact information. Scott Henderson, McHugh Aviation Inc., dba Simuflight, 3763 Image Drive, Anchorage, Alaska 99504 Phone: 907.337.2860, Fax: 907.333.4482 scott@finite-tech.com

IRSOC (International Republic Seabee Owners Club) Now at www.republicseabee.com It's still the best source of information and experts on the old beast that you will find. If you haven't checked out the IRSOC and Joined? Go ahead, it's free, with free classifieds for members. The 337 database and clearing house for 337 forms and field approvals is also a free service to IRSOC members. For the time being all forms would have to be faxed to Jim: May to November (315) 531-9168; November to May (386) 767-0706.

"Frankenstein Guru" Rich Brumm in Northport, N.Y. is also one of the experts. If you ever heard of a problem with the Franklin, he has the fix for it! He's also done some interesting things to fix other plagues that continue to give Bee owners headaches. Tired of changing wheel bearings? Ask him about the "Double Lip Seal!" brummrichkaren@aol.com Phone: 631-757-2216 Office: 516-885-5879

Seabee Discussion Group This is a great Discussion group that gets lots of activity. If you post a question, you'll be sure to get a quick response with good experience behind it. <http://groups.yahoo.com/group/Seabee> If you don't want to join the group right away, you can log in as "seabee guest" with a password of "Seabee". Enjoy, it's a great site with lots of great pictures and links.

www.seabee.info/seabee.htm The author of the discussion group has created this fabulous website that is fast becoming the place to go for knowledge and history on the old Beast. Steinar has done a great job and you can spend hours looking at all his information.

Other Interesting Web Sites

www.hu-16.com

www.aerocheck.com

www.americanwarbirds.com

www.flightcontractservices.com

www.norcalaahs.org/ interesting pictures

www.rcairplane.net Easy to build Seabee with a 72" wing span, other great models too. Contact Bill Price bprice@puc.edu

Canadian Information

<http://www.bcfloatplaneassociation.com/>

<http://www.floatplanepilots.com/>

<http://www.floatplane-flyin.com/index.html>

www.alertbay.com/eagleair/ Looks like a great place to go, **let's plan a trip!**

www.canadianseaplane.com/index.htm

I hope you've enjoyed this. Feel free to pass it along to anyone who may be interested. Please call if you get to the Seattle Area, or want to go out and play!

Bee Sea n'ya,

Bruce and Janie Hinds

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