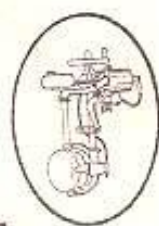


# *The* **ANTIQUÉ OUTBOARDER**



The Pioneering Authority



**July**

**1973**

The Antique Outboard Motor Club Inc. is incorporated in the State of Texas as an Educational Institution. The Club is devoted to people all over the world who are interested in the search for, restoration and preservation of old time outboard motors. Regular membership dues are \$9.00 per year. Other membership information available on request % John D. Gould, Jr., 4707 Massachusetts Avenue Indianapolis, Indiana 46218, USA

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*The Antique Outboarder*

Volume 8 • No. 3

July, 1973

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*Change of address should be forwarded two weeks in advance and zip code numbers should be included.*

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# The Antique Outboard Motor Club Inc



## CLUB BRIEFS

HEY! STICK THIS ON YOUR MOTOR. AT LAST, THE REGISTERED ANTIQUE DECALS ARE AVAILABLE.... Pictured at the right, the decals measure 1 X 3", background is gold, lettering is black and trim is red. Write Don Peterson, 2884 S.E. Francis, Portland, Oregon 97202. Price per order is \$1.00 for the first and 25¢ for each additional decal. Decals permitted to be displayed on motors registered in the Club files only.

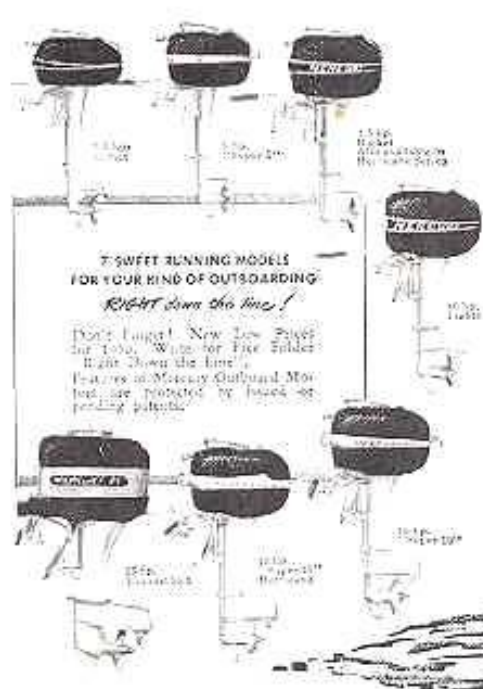


DON'T FORGET, THE NEW CLUB SELF-STICK EMBLEM IS AVAILABLE FROM JOHN GOULD, MEMBERSHIP Chairman. Price is 25¢ each, not counting the one you get free when you renew your membership. The new emblem reflects the dates 1866 to 1950 - 84 Years of Outboarding. This means that any motor built through the year 1950 is an official antique qualifying for participation in Club events

48 YEARS AGO ON JUNE 12, BOSS LADY WEBB AND JIM WERE HITCHED - IN MADISON, WISCONSIN, before, during and after some thunderstorms. Might just as well says Jim, couldn't test any Eltos in the bad weather anyway!

RON ELLIS DESERVES THE THANKS OF EVERY MEMBER FOR THE FINE JOB HE'S DOING ON THE NEWS-letter. Ron has added some real depth to the Club.

PHIL BROOKE'S BOYS GOT A LITTLE PUBLICITY THIS PAST SPRING. THE BOYS, DOUG AND DICK, exhibited a 1916 Lockwood-Ash, a 1938 Neptune and a 1936 Johnson at the 26th annual Spokane Chronicle Craft and Hobby Show. 'Twas said, the antique motors were one of the most popular and fascinating displays. Phil said later that the boys got a couple of good leads from spectators and managed to pick up a good old Johnson single.



THOR, SEA KING, WIZARD, MERCURY  
1935 to present. Almost 40 years  
of outboard manufacture ■ ■ ■ ■

**THIS YEAR'S  
MERC'S SET NEXT  
YEAR'S STANDARDS.**

MERCURY MARINE has again expressed its real interest in The Antique Outboard Motor Club by purchasing a Sponsoring Membership with a substantial contribution. Dick Klawitter of Mercury and Dave Reinhartsen worked together on the details. We are indeed grateful to the Company and to both Gentlemen.

SPAKING OF FUN -  
*tried water skiing?*

Yes, it's laughs, thrills and waves and it's all wrapped in one exciting package. It's Mercury's fastest, smoothest water sport all season and fall. And here's the best part - everyone can enjoy it now!

# LETTERS TO THE EDITOR

---

O.K. THIS TIME MR. HAWIE - BUT KEEP THOSE ARTICLES COMING IN...

Once again I have come up empty handed. Beside my own inefficiency as a writer, it is probably a sign that the club has advanced enough in publishing material that I can't whip off an article without hours of research. I have not been completely negligent though, as I've done some research for some of the other members who have published articles.

Just a few thoughts. We have found that "Wynn's carburetor cleaner" is a good engine degreaser. It comes in a spray can and seems more efficient than "gunk". It doesn't have much of an odor either, "Gunk" which is also good, has a disagreeable and long-lasting odor which has caused "Momma" to rule it out.

I'll try to get a decent article for next issue and close by pointing out that the Johnson on P17 of the April issue can't be a 1929 V-45, as it has a  $\frac{1}{2}$  speed rotary valve, 1930 or newer, flywheel, gas gage and automatic relief valve - none of which were on the V-45. I think it is a V-65 or V-70 of 1933 or 1934. Sincerely, Dick Hawie.

CANADIAN JOHNSON MOTORS HAVE MIXED-UP SERIAL & MODEL NUMBERS, WHO CAN HELP?...

Thank you for your letter concerning my old outboard motor. I am writing again enclosing evidence of the serial and model numbers. The 24229 is very clear, as is the B70 so where do we go from here?

The engine weighs in the 40-45 lbs. range and if its any help, the piston size is 50 mm x 50mm + 12mm for its crown height.

Why is there such a high petrol/oil ratio? 1 pint of oil per gallon is unheard of in this country for outboards.

Your prices are much the same as ours, although, being a rare item it is difficult to judge prices accurately. To a collector it must be worth several times more your new price. Yours faithfully, Alan G. Landon, 39 Dales Drive, Lawns Estate, Wimborne, Dorset, England.

MR. MILES HAS POST-OFFICE TROUBLE - BUT NO MOTOR TROUBLE....

Dear Sirs:

I have not received my Antique Outboard Quarterly publication since the January issue. Mine must have been lost in the mail, please send me a copy as I feel out of touch. I have been running my restored motors each weekend when the weather and time permits. I create quite a sensation at the yacht club at times when I fire up my K65 Johnson or my Light Four Evinrude and go visiting my friends that live along the waterfront. I now have 7 motors, all are restored but one at present. Thanking you in advance  
J. Allen Miles

ANOTHER CASE FOR THE IMPORTANCE OF CONTINUING THE SMOOTH FLOW OF CORRESPONDENCE AND PUBLICATIONS....

In response to your letter and the two copies of the Outboarder, I want to thank you for them. As for the Newsletters I have to date not received anything. Where I am disabled, I spend a lot of time on my old ones and any info I can obtain is most welcomed. The area where I live, there isn't anyone beside myself that really goes in for the old ones. I have around 30 pre-war and back to 1911 in my collection, and am

still trading and buying. My favorite is my 1929 V-45 Johnson - running.

Again, thank you for the two issues you sent but what I said about past members not receiving some of their copies is true. Now they don't even have any interest in old motors. Sincerely, John Owens, St. Cloud, Florida.

SOMETIMES A STORY REALLY BRINGS BACK SOME GOOD MEMORIES....

Will you please forward the enclosed letter to Tom Clarke as I am unable to find his address. I believe I remember him in the racing circuit. I think this is a very good article of him. I remember Jack Maypole, I learned he died of a heart attack; Homer Kincaid, Bill Tenney and many others. I see Bud Wiget once in awhile when I go to Lakeland. He is the Johnson Dealer there. Best regards, Charles W. Hansen. P.S. If he is the same Tom Clarke I remember, he is one of the finest sportsman I have ever seen.

LET'S HAVE MORE THOUGHTS ON THIS IDEA. AFTER ALL, THIS CLUB SHOULD BE ABLE TO OFFER FUN FOR EVERYONE....

Jean and I have decided to let her membership lapse. A few years back many of our meets had events for the ladies and Jean had enjoyed participating in these. Lately, however, the special women's events seem to have fallen by the wayside. Sometime ago, I had suggested to Dave Reinhartsen a family membership program to encourage family participation, and I still feel this would be a good thing. I wonder if it would be worthwhile. Regards, Tom Luce

MR. ELTO S. VANCE, SAVE YOUR EDITOR; STRAIGHTEN OUT THIS SITUATION....

Dear Mr. Brautigam, This is in reply to your letter of May 17th. You said that the earlier Eltos had metal plates on the tank. We have a Super G with plates, and a model C with decals. There is only one difficulty - the plates and the decals are different! The size of the decal is the same as the plates, but the lettering is different as well as the words.

I finally got a tip on a motor!! It's free for shipping cost. Also, our neighbor has two engines, a Mercury and a Johnson. They are both missing the lower units, (they are also missing a price tag.) My Dad recently picked up a 1915 Evinrude single for a song - that's what he said, anyway. I'm trying to get him to organize a meet some week end, but he has a positively NEGATIVE attitude towards that! Remember to tape those knuckles up!! Hank Techentin. P.S. Dad wants to know if you ever got the check for the magazines. Ed. Note: Yes Sir, Hank, thank you.

ALL RIGHT YOU THREE "VOLUNTEERS", LET'S HEAR YOUR OK ON THIS RECOMMENDATION....

I have a suggestion; that Gary Smith in Bremerton, Washington head up a Evinrude Row-boat Motors Association, as Gary has quite a few of them and is in the process of making up Serial number plates, flywheel knobs, and other interesting items. Gary is very knowledgeable in this area. Also, Jim Murphy - to take over the Giant Twin Owners Ass'n. - as Jim is as nutty as the rest of you fellas on the Giant, and is a real enthusiast. His energy could be well used in several areas. Also, - maybe if we found a knowledgeable fella to head up a Speeditwin Owners Assn. - maybe an advertisement to entice a fella to get up a group, in the spirit of challenging the P.O. Owners Assn., to get a few races etc. I was thinking of starting one up, however, I would rather see someone else that is really a "Speeditwin Nut" that is not currently involved in anything yet, and my time is limited, Don Peterson, Oregon.

---

**ENGINES FOR SALE ?**

Parts Too? Use the Classified Ads Section of the AOMCI Newsletter.



## OUTBOARD MARINE

*Corporation*

REPLY TO  
JENSEN BEACH • P. O. BOX 96 • FLORIDA 33457

RALPH EVINRUDE  
CHAIRMAN OF THE BOARD

May 4, 1973

Dear Bob,

Sorry I am a little late in answering your nice letter of January 6. I have been cruising in the Bahamas in my boat, the CHANTICLEER, and have just recently returned to Florida.

I very much appreciate receiving reprints and photographs of the First National Meet held last July. These photographs are especially interesting as I am well acquainted with practically all of these engines, especially those subsequent to 1920. In my own collection I happen to have a 1909 Evinrude from the first year of production, a 1921 Elto, a 1922 Johnson and 1928 Elto Quad, also from the first year of production. They are all in running condition and are about as old as you can get outboards of our makes.

I read your publication with great interest whenever it comes out as I have been extremely close to the industry throughout my life.

Best regards,

Ralph Evinrude  
rmp

Mr. Robert Brautigam, President  
The Antique Outboard Motor Club  
2316 West 110th Street  
Minneapolis, Minnesota 55431

### PLEASE REMEMBER . . . .



Check your date of membership renewal and forward your dues before a notice has to be sent; you'll save the Club time & money

Send to..

Mr. John D. Gould  
4707 Massachusetts Av.  
Indianapolis, Ind 46218

Fourth Annual Connecticut Regional Regatta - September 8, 1973, Held at the East Hartford Launching Ramp, East Hartford, Connecticut. This year the emphasis is on restoration and mint condition. Awards will be made on motors in several categories - brass motors; antique, non-shrouded motors; antique, shrouded motors; and special interest motors, 1951-55.

There will be an oldest running motor contest and a first-quarter-Century race. If a member wants to compete in the special interest motor class for mint condition, he must let me know by August 18th, otherwise trophies for this class will not be purchased.

#### Jim Cason's Silver Lake Meet -

This is your chance to strut your stuff; before an audience of over 2,000 people. This is a personal invitation to a Meet to be held in conjunction with the annual Silver Lake Street Dance, July 28 & 29. Not only will you have an opportunity to get together with other AOMCI members, but there will be plenty of activities for the whole family. Saturdays line up of events includes a Sailboat Regatta, Water-fights, the Street Dance, and of course our display. Sunday the lake is ours to run to our hearts content. Races will be conducted in various classes - EVERYONE will have a chance - trophies will be awarded, and Sunday's festivities will be capped by a giant fireworks display.

There will be free boat launching, games, a camping area, a chance to win a trip to Las Vegas, and much more. This is one you won't want to miss.

If you are interested in attending, please take time to drop us a postcard addressed to: Cason's Boats and Baits, c/o Jim Cason, P.O. Box 502, Silver Lake, Wisconsin, 53170 - and we will send along more information. There will be a fee of \$3.00 per entry for registration which includes the Street dance tickets.

#### YOU'RE INVITED TO A MEET!

What? - The Eastern Pennsylvania Antique Outboard Meet.

Where? - The Schuylkill River and Pa. Rt. 113 near Phoenixville, Pa.

When? - Saturday, August 4, 1973 - 10:00 A.M.

What do I need? - Bring your family, bring your motor(s), bring motor stands, bring your boat(s), bring a picnic lunch, bring gas & oil, and bring life preservers. All boats must have valid registrations from your state.

What do you have? - We will have 2 or 3 spare boats (no boat rentals, no gas, and no food available at the water), fresh water, picnic tables, outhouse facilities, launching ramp, and plenty of dock space. Overnight camping will be permitted on the premises. Holiday Inns are located at King of Prussia, Kulpsville, Pottstown, and Lionville. Two small motels are located closer.

What will I get? - You'll get to meet new and old friends, swap motors, parts, and stories, run motors, see motors, display motors, and win trophies (hopefully).

What are the trophies for? - Oldest running motor, Mint condition motor, Most unusual motor, and Predicted Log races for small, medium and large motors.

What does all this cost? \$2.00 Cheap (our price).

Advance registrations appreciated.

For additional information contact: Bob Grubb Phone: 215-326-8437  
1368 Meadowbrook Road Or -215-948-8855  
Pottstown, Pa. 19464

# COMING EVENTS





# OF HISTORICAL INTEREST

..... *W J Webb*

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## --The **BIG IRON**

PART TWO - CONCLUSION

W. J. Webb - Historian

The 1931 Service version of the 4-60 appeared as the Evinrude Big Four and the Elto Big Quad. These were offered with Electric Starting at \$445.00 and with rope start at \$375.00. Evinrude had magneto and Elto battery ignition, 40 horsepower was claimed for both.

In 1931 also the Senior Quad was put in the Evinrude line with magneto ignition as the Speedifour with electric and rope starting.

In 1931 we were well into the Depression. Sales fell off rapidly because people did not have money for outboards. At the end of 1931 the Evinrude Big Four and Elto Big Quad were discontinued because it was necessary to concentrate on what was selling and the big motors were not, mostly because of price, but also because they were too hard for most people to handle. It was a matter of belt tightening and doing what had to be done to stay in business.

Johnson had added electric starting to its V Model in 1930 and was plagued with exactly the troubles as were Evinrude and Elto. While the V was somewhat easier to pull over compression than the larger Quads and Speedifours, it was still difficult for the average person. Likewise, the Depression hit would-be Johnson buyers just as hard as it did the Evinrude-Elto boys.

So the sales of the larger motors plummeted, Johnson produced the last of its 4 cylinder motors in 1934, sold the last of them in 1935 and did not return to the 4 cylinder field until the advent of the Vee Four in 1958.

Even though the volume hardly warranted continuation of the production and sale of the large motors. Evinrude and Elto decided to keep on, partly because they had an inventory, and partly because their engineering planning had encompassed the development of a whole line of 4 cylinder motors. The 16.4 hp Junior Quad and Sportfour were introduced in 1931, the 9.2 hp Lightfour came in 1934, and the 4 cylinder 5.4 hp Zephyr in 1940.

As with Johnson, most of Evinrude's engineering and sales efforts were concentrated on the smaller motors and this produced some mighty fine engines for what was then the largest field of demand.



ELTO Rope Starting Senior Quad on The Chicago World's Fair Lagoon, 1933.

Other manufacturers had also entered the large motor field. The Cross Radial, a beautifully built 4 cycle, 5 cylinder motor, was put out by the Cross Gear and Machine Company of Detroit in 1928. This was a good load puller but it never cut much of a figure in racing as it could not stand the high engine speeds demanded for racing. It was quite heavy for the power delivered, although it was quite easy to start. It went off the market in 1932.

About 1930, the late Harry Masoner, then Sales Manager for Caille of Detroit, told me that Caille was developing an opposed 4 cylinder three port, 60 cubic inch, 2 cycle motor which he thought would be very fast. However, it never did come to market, a victim, no doubt, of the Depression.

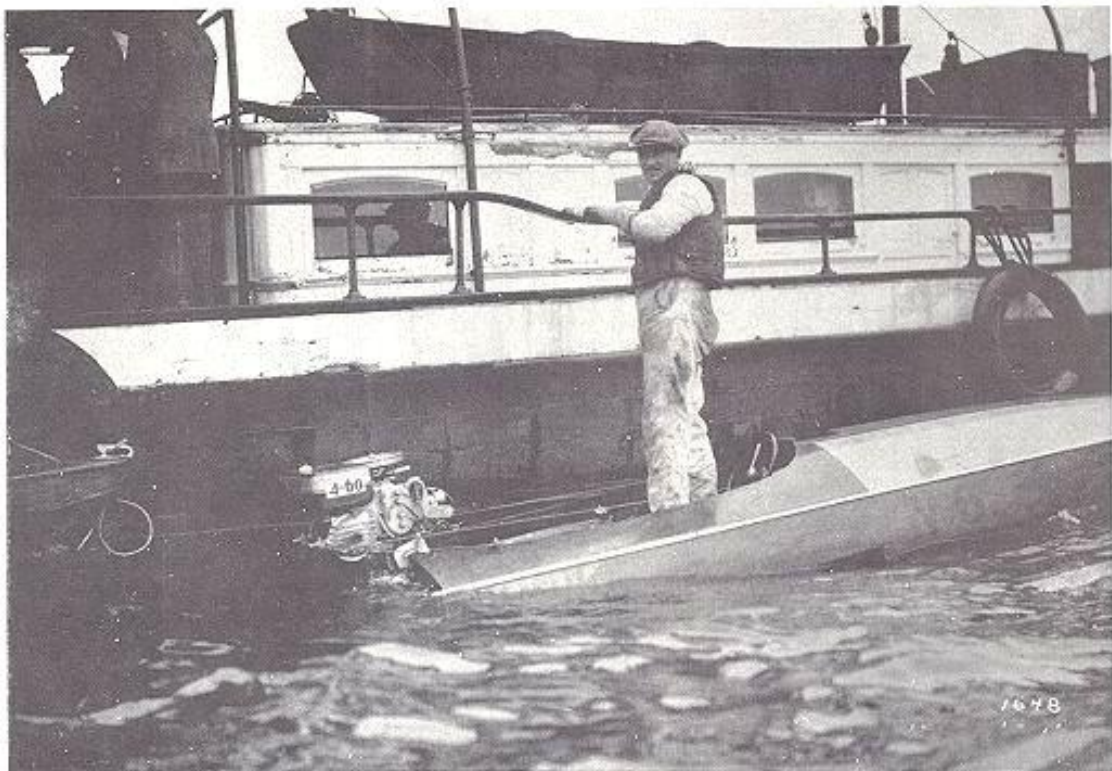
Mercury did not get into the production of it's 4 and 6 cylinder motors until after WW II, although a three cylinder, in-line engine, called the Pyramid Three was announced shortly after Mr. E. C. Kickhafer purchased the Thor and changed it's name to Mercury. Due to the onset of WW II, very few of these motors were built.

Let us step back to 1928 for a moment. That year was important to outboard makers and users for a reason well removed from the building and racing of large motors. In 1928 the five principal manufacturers - Caille, Elto, Evinrude, Johnson and Lockwood formed the National Outboard Association (NOA). The first objective of NOA was to bring some order out of the chaos surrounding outboarding. There was wide disagreement over racing rules, official records, who was champion and who was not. Since racing was the leading advertising feature, this led to all kinds of conflicting and confusing claims. As races and records were held and made under widely differing rules. Besides, there was no standard of any sort for what was ethical and unethical for advertising. One of the bad things was the inflation of horsepower claims: One manufacturer might advertise 8 horsepower for, say a Class A motor. Next month a competitor might claim 10 horsepower for his Class A entry. Next month someone else would jump his horsepower claim. Advertising claims were extreme to the point of being unethical. Public confidence was in a fair way to be undermined. Everyone in the outboard business recognized the dangers of the situation, and when this state was reached, NOA members were ready to listen to voices of reason. The late Jim Mulroy, then executive secretary of NOA, deserves tremendous credit for administering a program in which all eventually cooperated.

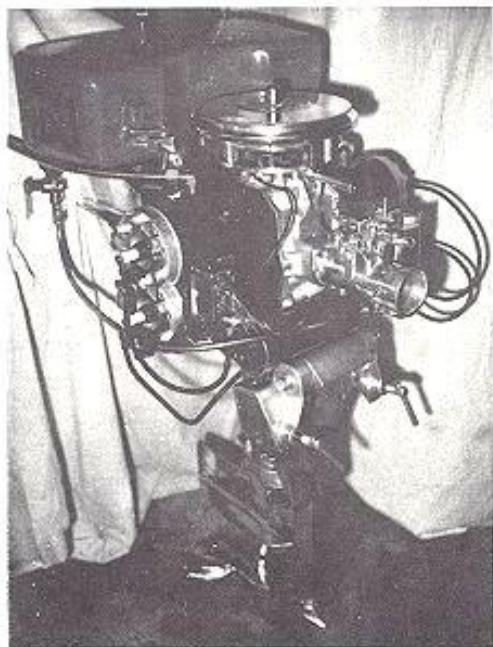
The NOA accomplished many good things, but one of the most significant acts was the NOA Horsepower Agreement, whereby all members agreed to advertise and claim only the horsepower developed in accurate, electric dynamometer tests under the supervision of a neutral reputable agency - the well known Pittsburg Testing Laboratories. This guaranteed accurate advertising, and most importantly, full protection to the buyer. Horsepowers developed in such tests were certified by the Pittsburg Testing Laboratories and were advertised as NOA Certified Brake Horsepower.

Under the Horsepower Agreement the manufacturers did not advertise the horsepower of racing motors, nor were any racing motors ever offered to Pittsburg Testing Laboratories for horsepower certification. This was because few, if any, racing motors were raced just as they came from the factory and very few racing motors were bought on any basis other than their racing achievements.

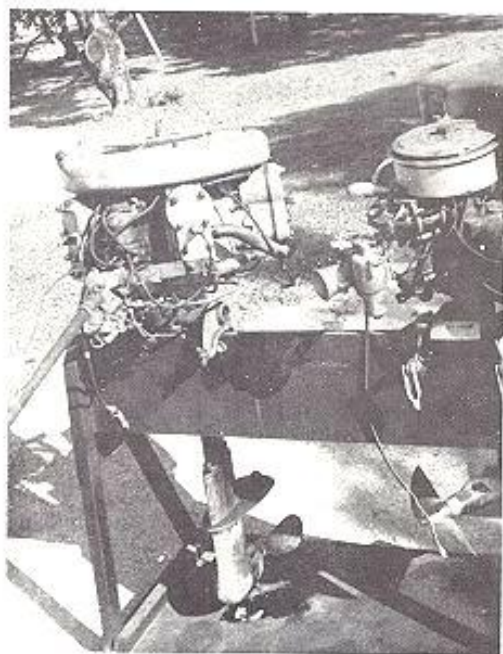
Meanwhile boat and motor performance (speed) was increasing steadily. There were two reasons for this. On one hand manufacturers, spurred by the successes of their competitors in the field, were making all kinds of changes, big and little, in intake and exhaust porting, by-passes, piston and cylinder head shapes, carburetion, lower units, gears, propellers, compression ratios - you name it. Many of these changes were inspired or suggested by the good work done by the "soupers" in the field.



Ray Pregonzer with Dual Ignition 4-60



Member Jim Murphy's highly polished, late model 4-60



1928 Cross Outboard - 5 cylinder radial, 4 cycle. Owned by John Harrison.

Manufacturers might carefully balance parts to a gnat's eyebrow, but the top soupers would redo the job to half-a-gnat's eyebrow. The manufacturers could not afford to spend the time used by the soupers in smoothing, polishing and grinding to the very limit of specifications. Any owner who could afford it had his motor dynamically balanced for the rpm range in which he was most likely to run. Now there are plenty of arguments about static and dynamic balance which I won't enter. Balancing meant balance everything - parts weights, compression, exact port/and spark timing, upper and lower intake, etc.

Many a motor was taken right from the factory box to the work bench, disassembled, completely worked over, tank tested, reworked again and maybe again, before it ever saw the transom of a boat. Jack leg mechanics did ruin some motors of course. I well remember that fellow who came to a July Regatta in Madison, Wisconsin with a 1928 Quad that knocked like mad and just wouldn't run. Charley Keller, one of our engineers, spotted the trouble at once. On taking off a cylinder he found that some mechanic had planed off both crank case and cylinder flange to the extent that a piston was actually hitting the cylinder head.

Some of the race drivers who were good mechanics did their own work with good results. Those who could afford to pay highly skilled mechanics did so. Some drivers acquired two or three motors of the same class. One fellow that I know went to every race with two or three powerheads for each class that he intended to enter and several different lower units and propellers, all within specifications, but set up to do best under whatever wind, weather, water and weather conditions might obtain at race time. Power head, lower unit and boat would be selected accordingly. Others did the same if they could afford it.

To attempt to mention all of the changes made by manufacturers would be impossible. However, to answer a question frequently asked, Evinrude offered dual ignition as an option for the 4-60 in 1931. This provided for two spark plugs in the end of each cylinder. This was an outgrowth of the two spark plugs locations in the 1930 Quad cylinder, one in the end, the other in the conventional side position. This was originally added to insure easier starting and to prevent plug fouling while running slow before the start of a race. Some of the boys felt it increased speed slightly, officially it did not. But in those days when plug failure in a race happened occasionally, dual ignition could save the day. I remember one time at Fox Lake, Illinois, after Ray Pregonzer won a Class F Free For All, we found that one plug in the standard position had cracked a porcelain and gone dead, during the race. With single ignition, Ray would have been out of the race.

Dual ignition was abandoned about 1936 when Evinrude made an important change by going to removable aluminum cylinder heads, in place of the solid iron cylinders previously used. This change had been in the works quite a while but cost considerations prevented it's adoption until 1936. This helped spark plug life considerably. Also it made souping of intake and exhaust passages much easier. The first thing that many of the boys did was to increase compression by planing a few thousandths off the heads. Thinner head gaskets were also used. An occasional side effect was burned pistons.

In the matter of increased speed performance in both service and racing motors, the boat builders must be given great credit. In the years between 1928 and our entry into WW II, the boat builders fully met the challenge presented by the outboard improvements made by the manufacturers. Better materials, tremendous advances in aero and hydrodynamic design gave every segment of the boat-using-public far more boat for the dollar than ever seen before. Without Jacoby boats, for example, I think the Class F and X records (see Table below) would have been definitely lower.

Then there is the matter of fuels. At first the regular mixture of oil and gas recommended by the manufacturers was good enough, but not for long. Not later than 1928 the boys began monkeying with fuels. In this they were following the big inboard



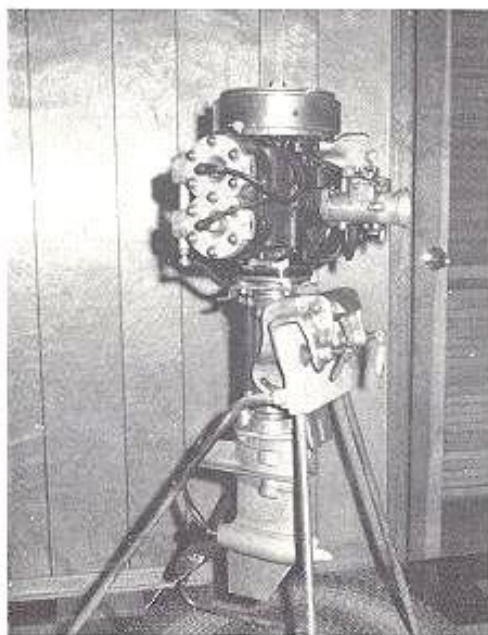
Left: James Mullen, National Champion, Class F-1. 4-60 on a Jacoby F hull.

Right: Harry Birdsall, holder American Marathon record of 52.53 MPH. 4-60 on a Jacoby F hull.



Below Photos:

A recent Hubbell type 4-60, built and owned by member Bob Zipp. The motor does not have a gas tank but instead has a fuel pump that is mounted on the front side of the port cylinder. The cylinder heads are high compression, made by Hubbell, and the gear case is exceptionally sleek without a water pump. It swings an Oakland-Johnson prop of 8-3/4 by 16. Everything about this motor says, GO!



drivers whose engines used to spout some pretty bad smelling fumes.

Ralph Harrington, who later became Chief Engineer of Champion Motors, thought casing-head gas couldn't be topped. Ralph won some big races with casing head gas and an oil mixture that he kept secret, one of them being the Free For All at the National Championships at Wilmington, North Carolina in 1928. Jack Brockley, an amateur driver from Stroudsburg, Pennsylvania figured out a way to dissolve TNT and combine it with gasoline. Jack did pretty well too. Various combinations of benzol, castor oil, gasoline and alcohol were tried. Ether was one of the first speed additives used, and many a rod was bent, many a cylinder lifted off the crankcase and many a piston cracked or burned and many a spark plug cracked before the boys learned how to get along with ether. Other fuel additives used were Peroxide, Acetone, thinners of various kinds, nitromethane. And there had to be others -- I just didn't happen to hear of them. The results obtained varied as the skill of the compounder, what he was able to do about changed carburetor settings that might be necessary, best spark settings, best spark plugs for the fuel, venturi openings, oil mixes, jet sizes, etc. Many of the fuels, alky especially, required larger gas lines, jet openings, venturi changes, etc. Some of the combinations were quite corrosive to some of the motor metals. I have seen motors in which every aluminum part from gas tank to crankcase and piston was covered with a green gook that came from fuel; rollers and shafts etched as though from acid; one motor that I know had never been closer to salt water than Chicago came in looking on the inside as though it had been dunked in salt water. So if I may, let me say a word of advice which may be unnecessary - don't monkey with special fuel mixes unless you know exactly what you are doing and unless you are willing to pay for mistakes,

To illustrate the old adage that a little learning is a dangerous thing, quite a few of the less knowledgeable boys, hearing that ether and castor oil were great, bought these items from the corner drug stores with uniformly poor results. Ever seen a motor burned up because the owner didn't know that castor and gas won't stay mixed? Also, that drug store castor oil really gets gummy in jets, lines, etc. Some of the boys made some pretty weird mixtures, the results of which were costly to repair.

Early in the 30's, the DuPont Company began to develop Dynax, that combination of alcohols, benzol, castor oil and a couple of secret ingredients that finally became the standard racing fuel in the pre WW II racing days. Some of the boys added a little of this or that to Dynax, but as far as dynamometer tests went, we could find nothing better than Dynax as a power producer in the motors of that time.

The DuPont engineers did a lot of work at the Evinrude plant. We were glad to see them come as they always brought along some alcohol that, besides having a legitimate place in the fuel they were building, was quite drinkable. Those were prohibition days and they were thoughtful enough to leave behind such drinkable alcohol that wasn't used up. To you youngsters who smirk when we oldsters begin bawling our gums about the hardships of Prohibition, I tell you that the left-behind-alky made marvelous bath tub gin. Regardless of all that, improved fuels helped increase outboard speeds.

I wish I could name all of the top soupers or tuners as they preferred to be called. Dean Draper, Marshall Eldredge, Walt Everett, Paul and Joe Wearly, Fred Nichols, the Plungis brothers, Frank Vincent, Dick Neal, Ed Hauptner, Fred Chase, Red Collins, Paul Baurle are some of the names that come to mind. Randolph "Pep" Hubbell, Herschel Starnes and Walker Bowman did some tremendous work on shafts of all kinds, lower units etc. All of them were equal in ability. While each had his own "secrets", they couldn't have differed greatly. Any motor tuned by one of these men would be within a few RPM of the same tuned by any one else. The difference in results would lie in the ability of the driver and his boat.

The mile a minute "barrier" was cracked in 1933. The records don't show who was first to cross the 60 mph mark, I think it might have been Ray Pregoner with an Elto 4-60. The top outboard mile trial record for 1933 was set by George Coleman, Jr. at Cedar Lake, Indiana - 61.75 mph with a Walt Everett tuned Elto 4-60. This was gradually raised year by year until James Mullen II, hit 66.234 mph at Port Mercer, N.J. on 6/8/40 with an Evinrude 4-60 on a Jacoby boat.

As a matter of general information, the Johnson VR 45 developed about 32 horsepower in its first year and this came up past about 36 hp in the VR 55. The Johnson XR must have developed in excess of 50 hp. The 4-60 started out at about 54 hp and by WW II was pulling in excess of 60.

As a group, the women, boys and men who participated in outboard racing were the greatest. Incidentally, while none of the girls appeared in the top record listings, they were real competitors. Helen Hentschel, Loretta Turnbull, Marion Russell, and little Mrs. Red Atwood to name a few - grandmothers now - crowded the boys at the buoys and neither asked nor gave quarter. They won their share of races too.

But in any large group, a small percentage of skunks, and I really shouldn't demean this very clean animal by this association, will show up, and will do some pretty lousy things in trying to win.

At the Harmsworth Trophy races in Detroit in 1928, one of the fast Johnson drivers who was mixing his fuel thought that the oil looked and acted funny. It turned out that someone had filled his oil can with syrup.

At the 1928 Championships in Wilmington, North Carolina, all of the motors which participated in the first days racing were put in a warehouse under guard, lock and key, "to prevent tampering". But someone who was shaken up by the fine performance of the Elto Quads on the first day, managed to get in the 'locked' room and filled the gas tanks of all the Quads which had showed superior performance with pyrene. Ralph Harrington, later Chief Engineer for Champion, discovered it, and by dint of loud shouting, I got the motors released. The Quad drivers got their tanks cleaned out and the Quads went on to win handily.

Other favorites were inserting corks in cylinders through spark plug holes, driving pins into coils and ignition wires, putting sugar in gas tanks, loosening or cutting nearly through steering ropes. The cure for this last group of tricks was never to leave an outfit unattended. By the early 30's the skunk clan had evidently departed as I don't remember hearing of any sabotage after that time.

1935 saw the establishment of Class "X", which was limited to outboards having no more than one liter piston displacement. A liter is 1000 cubic centimeters, or just a hair over 61 cubic inches. The Class "X" is unlimited as to number of cylinders, supercharging or any other aspects of powerhead or lower unit design. The Class "X" permitted the highly developed European, metric measured motors such as Soriano and Lesco to compete in American regattas and also gave the Americans opportunity to make changes which were not possible under American Class Racing Rules.

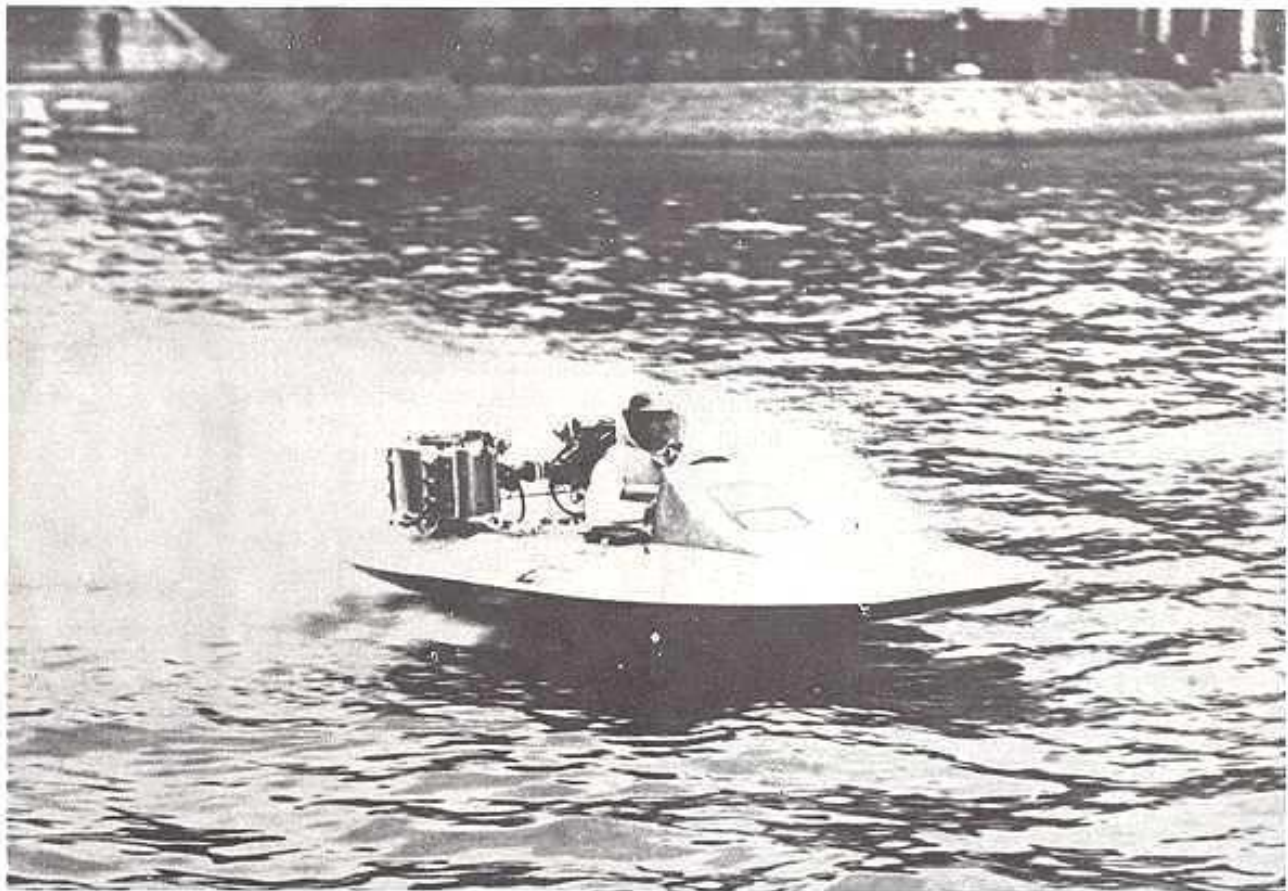
Because the Class X permitted the full engineering ability of the top outboard mechanics and soupers to come into flower, I will spend more time on it than on any other class. Previously, under American Class Racing rules, a class could not be recognized until a certain certified minimum number of motors had been produced for public sale, usually 25 or more. The formation of Class X changed all that. Now a good mechanic could build just one motor and it became a perfectly sound entry into Class X.



Dean Draper, Marshall Eldredge, the Wearlys, Frank Vincent and undoubtedly others, whose names I do not have, produced fine racing machines out of a combination of Evinrudes, Johnson and home made parts that did mighty well against the high priced, super charged Europeans of that day.

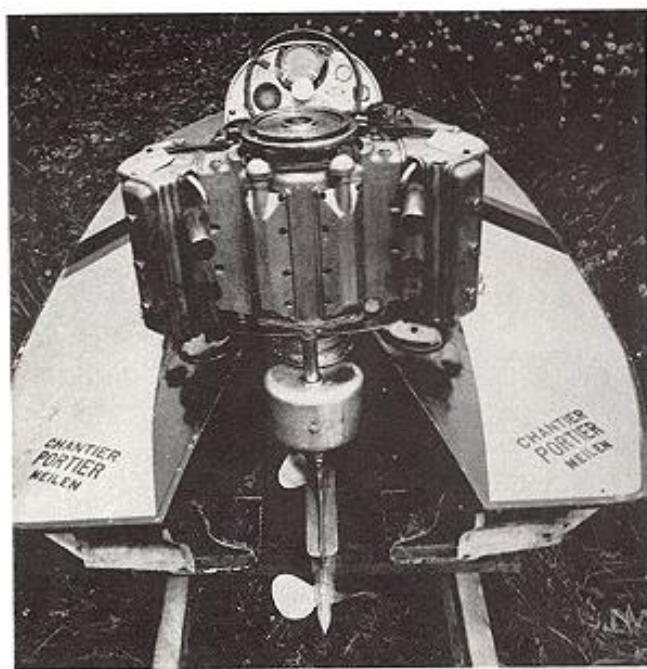
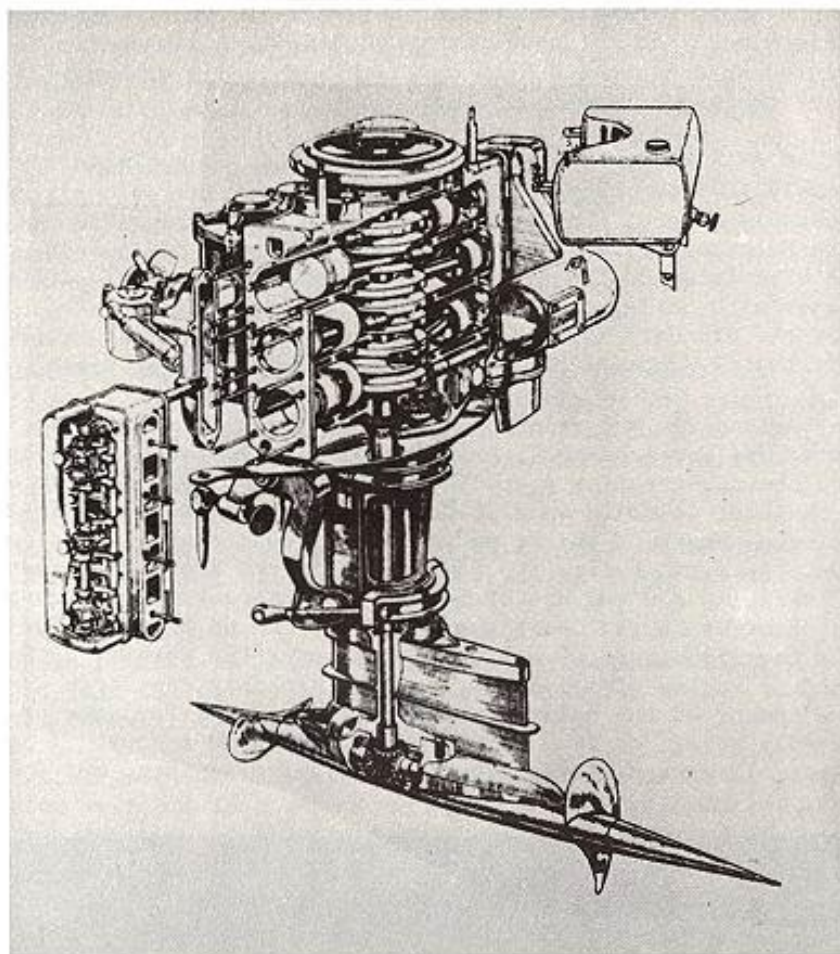
As far as I know, the American "X"s were all 2 cycle, not supercharged and presumably limited to one liter, 1000 cubic centimeters, piston displacement. Undoubtedly some of them were bored out a little and a few might have used the Elto-Evinrude X crankshaft. For the most part the American "X" builders, outside the Elto-Evinrude factory used standard Johnson or Elto-Evinrude parts and didn't monkey with boring out. The bore out limit wouldn't have been more than .04" over the standard 2.75" bore of the Johnson PR or the Evinrude "Cee" as a trifle more than 2.79 would have taken them over the liter limit.

The Soriano was a 6 cylinder (opposed, three on a side) 4 cycle outboard, with a Roots type supercharger. As originally built the Soriano had a long gear housing, with counter-rotating propellers, the forward one of which was well under the bottom of the boat in solid water. Counter rotating props eliminate the torque reaction of a single propeller which, under certain conditions, will tend to roll the boat sideways. As first built, the Soriano delivered about 80 horsepower, but through continued refining and the use of better superchargers, power development eventually exceeded 115 HP after WW II. Bore was 58 MM, stroke 66 MM. The Soriano was said to have taken it's name from that of a Spanish nobleman, the Marquis de Soriano, who was much interested in racing of all types, and who probably sponsored and put up the money for the development of the motor bearing his name. The Sorianos of pre WW II days were reportedly going for from \$4,000.00 to \$6,000.00 a copy. I have no idea what our American X makers charged for their special engines, but I doubt that they went that high.

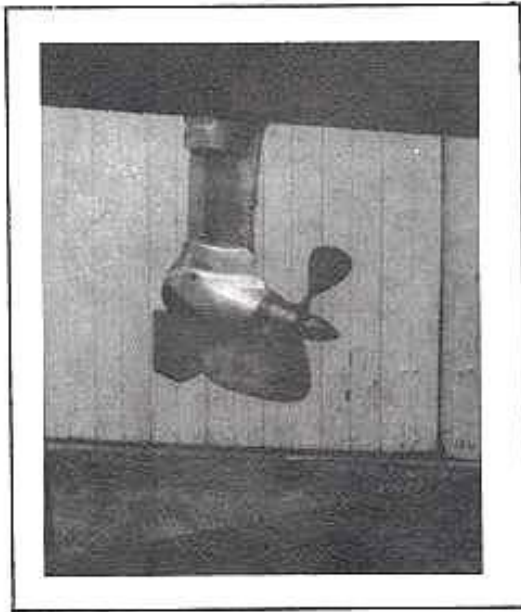


Jean Dupuy with twin Soriano powered hull

Cutaway view, Soriano. Note long gear housing with its counter-rotating propellers. The rear propeller is slightly larger in diameter than the forward propeller.



Rear view of Dupuy-Soriano on a French built hull. The long gear box and props are visible.



Tractor lower unit developed by Walker Bowman for special X motors built by Dean Draper, Marshall Eldridge, Joe Wearly and others.

The Evinrude Elto Class X was basically a 4-60, with the regular intake at the center of the crankcase feeding both banks of cylinders, plus additional intakes at the top of the upper crankcase and at the bottom of the lower crankcase. This necessitated a crankshaft with the V intake opening in the upper and lower crank cheeks as well as in the center cheeks. Actually, the Evinrude-Elto X was two Racing Cee powerheads mounted one atop the other. Additional piston displacement was provided by increasing the stroke from 2.50" of the 4-60 to 2.563". This gave a cubic displacement of 60.893 cu. in. A vacturi carburetor was supplied as it seemed as well adapted to Dynax and other hopped up fuels as any. However, some of the fast boys swore by Schebler or Tillotson, altered to suit themselves. The Evinrude-Elto X, while never certified officially, developed about 70 horsepower. As it came from the factory, the X had a 13:19 gear ratio, and a 10 $\frac{1}{2}$ "x18" propeller. Some of the boys used tractor lower units, many changed gear ratios, mounted the motors high on the transoms, used a variety of props. Because of the high cost, the factory made little attempt to push X sales. Selling price was a modest \$595.00, hard to come by in those days.

On September 23, 1935, at Spavinaw Lake in Oklahoma, George Coleman, Jr. using an Everett tuned Elto X, set a new mile trial record of 69.383 MPH. Walt showed me the motor and it was beautifully slicked up.

On October 18, 1934, prior to the establishment of an American Racing Class X, Jean Dupuy set a mile trial record of 65.21 on the Seine river in Paris. This beat the best American time to that date. But things got better for American prestige with the establishment of a Class X here.

On October 24, 1936, at Greenwood Lake, N.Y., Bedford Davie, then a student at Yale, raised the Class X mile trial record to 72.050 MPH using a X motor specially built for him by Dean Draper on a Jacoby boat. A year later the irrepressible Davie raised the X record to 78.21 MPH, again with a Draper motor and a Jacoby boat. But before he scored these triumphs, Davie had hoed some rough rows. Lou Eppel, now Director of Service for Outboard Marine Corporation, and since 1961 a member of the APBA Honor Squadron, writes as follows regarding Davie's Class X motor: "Regarding Bedford "Bud" Davie, I was quite close to this engine. In 1936 Dean Draper built 3-X engines for Bud to be raced in Paris for the Spreckels Trophy on the Seine River. This is now the Six Hours of Paris race. Bud and Fred Jacoby, Jr. went over with two specially built Jacoby Hydros and three engines.

The Draper X engine used a 4-60 transom bracket and drive shaft housing, also the basic 4-60 cylinders with special copper cylinder heads (resembling the ones used on the Class A Johnson KR engine). It had an external Johnson XR rotary valve with a single Vacturi carburetor with primer instead of a choke. No stacks were used, straight open exhaust. Battery ignition, Ever Ready Hot Shot 8v, triggered by a 4-60 breaker plate and a modified 4-60 flywheel. A Johnson VR gas tank was mounted on the engine, with a sight gas gauge. The gear case was a tractor unit built by, I believe, Walker Bowman in Texas. Gear ratio was 15-16. Getting the right propellers was a problem; however, Stannus did come up with a couple of fairly good ones. I worked with Freddy and Bud in the original testing in 1936 before the Paris race at the Jacoby boat house on the Hackensack river at Carlstadt, New Jersey, and had one of the first rides after we got the engines to fire up. Saw 70 plus MPH on a custom Keller speedometer and you can believe those tractor units on a conventional Jacoby hydro really turned. Only trouble was that we only had a week to work on those new motors and get the bugs out before having to ship them to Paris in time for the race. Some of the problems, particularly with the carburetors, weren't worked out by the time the boys had to leave."

Fred Jacoby, Jr. had this to say about the Draper motors:

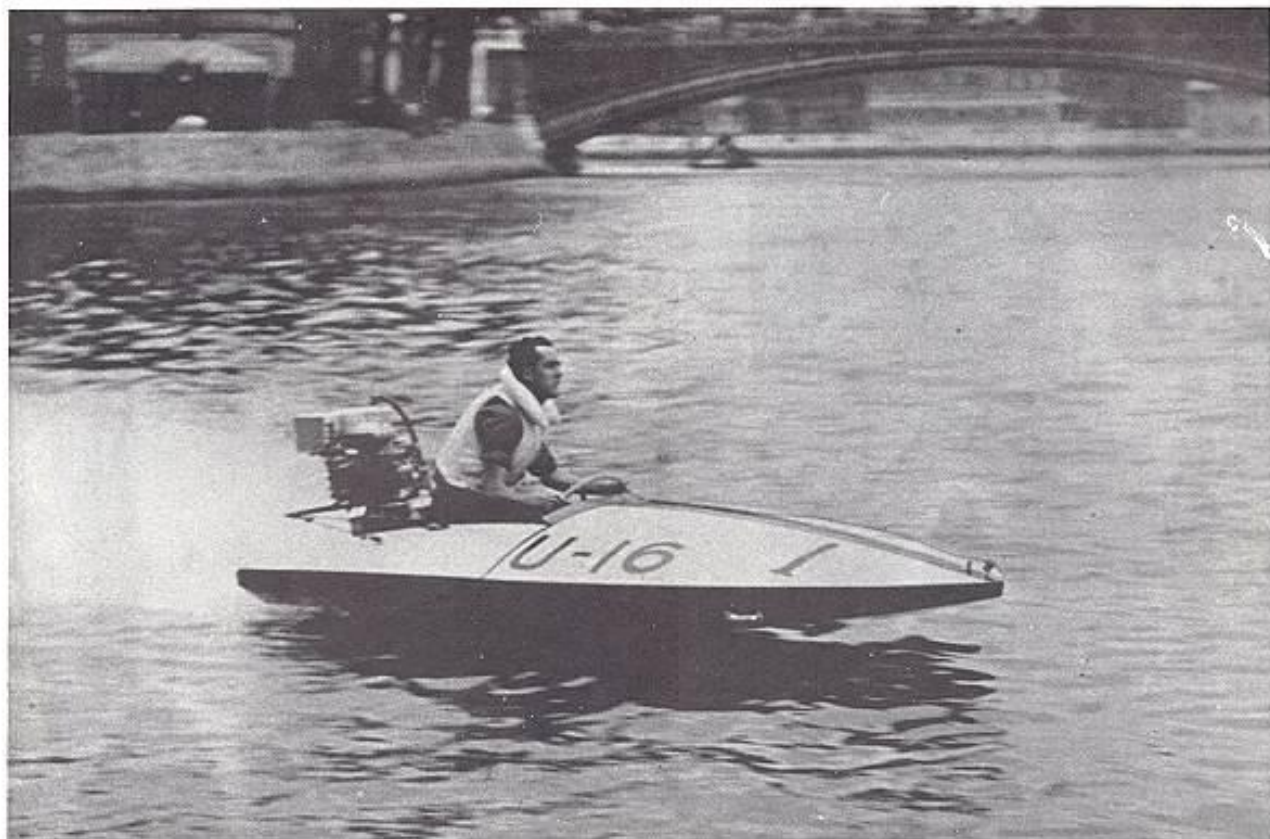
"Dean built 3 X motors. I suggested that he use the Johnson XR rotor with the Evinrude carburetor (Vacturi) with the self primer instead of a choke. One week before Bud Davie and I were to sail on the Normandy, Dean delivered two motors to us. Can you imagine trying to get the bugs out of two new motors in just one week? Lou Eppel worked with us every day, and I'll never forget the help he gave us. We couldn't have made it without him.

I used the same marathon boat I ran in the Albany - New York race in 1935 when I won with a PR-65 motor. Pop (Fred's father) built Bud Davie a new Marathon X hull. The Evinrude Vacturi carburetor didn't work out too well. The carburetor was opened so much, it was impossible to adjust the needle valve. I had to keep my finger on the jet during the last hour of the race. Bud cut off a sliver of wood and put it in the jet. We always carried a Scout knife when we raced in marathons." (Webb note - I bet the trouble was in a leaky primer. That could really screw up an adjustment.)

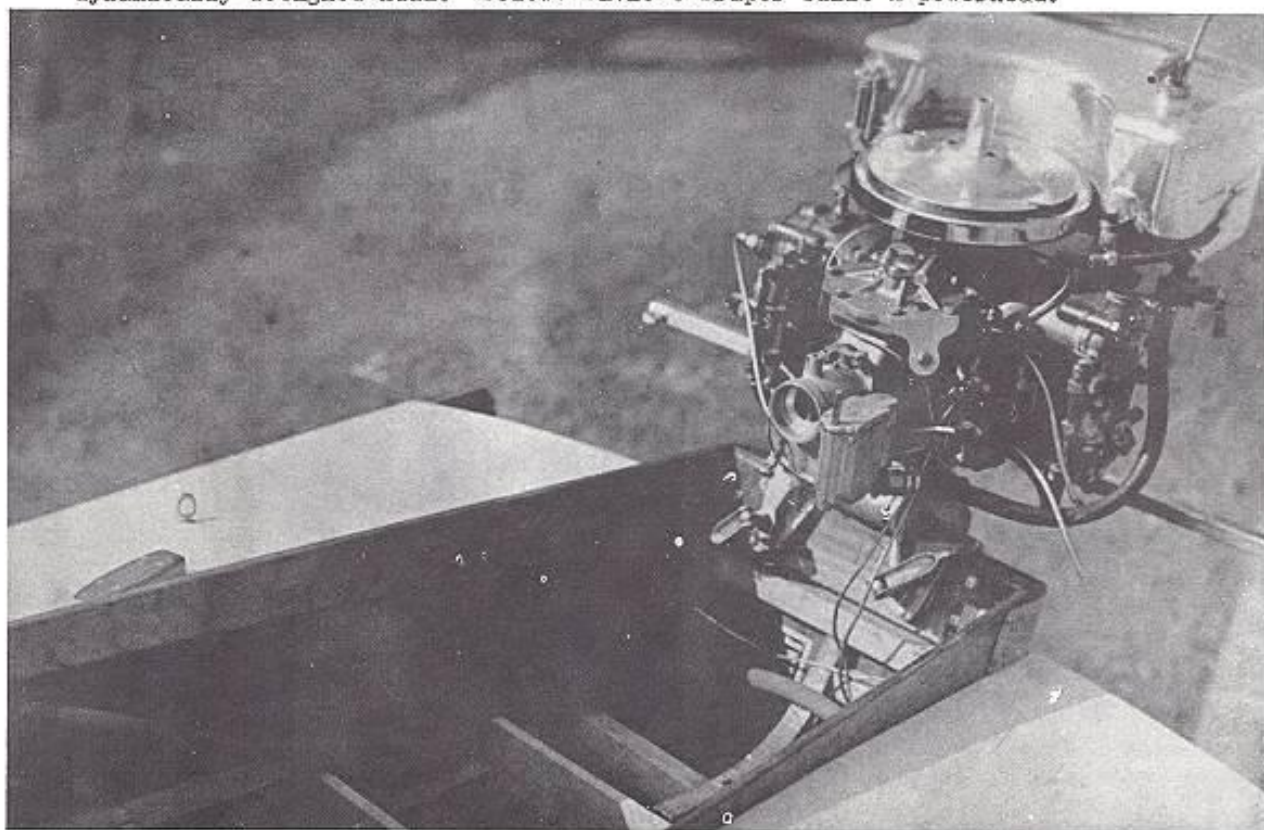
Later in the letter, Fred said that he finally cured the trouble by going to his Johnson B carburetor, which had a 1 7/16" venturi, but this was at home later in the year.

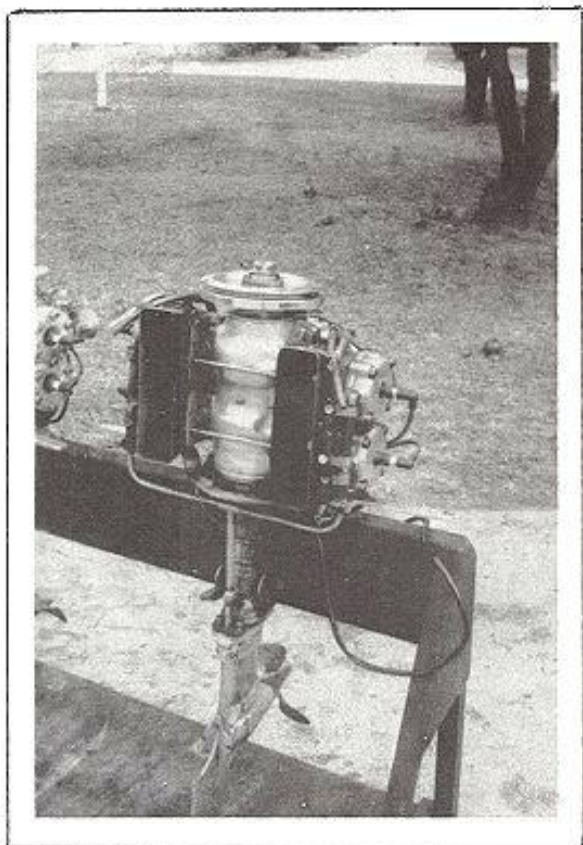
Writing in the August 1936 issue of the American magazine "Yachting", a British writer who used the nom de plume "Vitesse", which is French for speed, has this to say in part: "This year's Spreckels Trophy Race in Paris, on Independence Day, was nothing like the runaway affair of 1935. True, France won again, but only after a hard fight and aided by better "luck" than was meted out to her rivals. The French defense consisted of Jean Dupuy with his new twin engined boat, (both Sorianos with Dupuy alterations), Baron Rothschild, and Monneret. With Sweden and the Argentine out of it, the opposition was made up of the two Americans, Freddie Jacoby and Bedford Davie, both driving 12 foot Jacoby hulls with new Class X motors, and Lord Forbes with the Cooper-Soriano used last year.

The American boats were beautifully fitted up, and their new motors with tractor wheels attracted much favorable comment. Those of us who were over for the race were very glad to meet the American boys, particularly the outboard champion and Albany veteran, Fred Jacoby, whom we found to be a fine fellow and as good a sportsman and race driver as America could find to represent her anywhere. It is a great pity that those "X" motors were so "new"; had they been raced for six months or so and the "bugs" removed, that massive and ornate trophy would undoubtedly have returned with Jacoby on the Normandie.

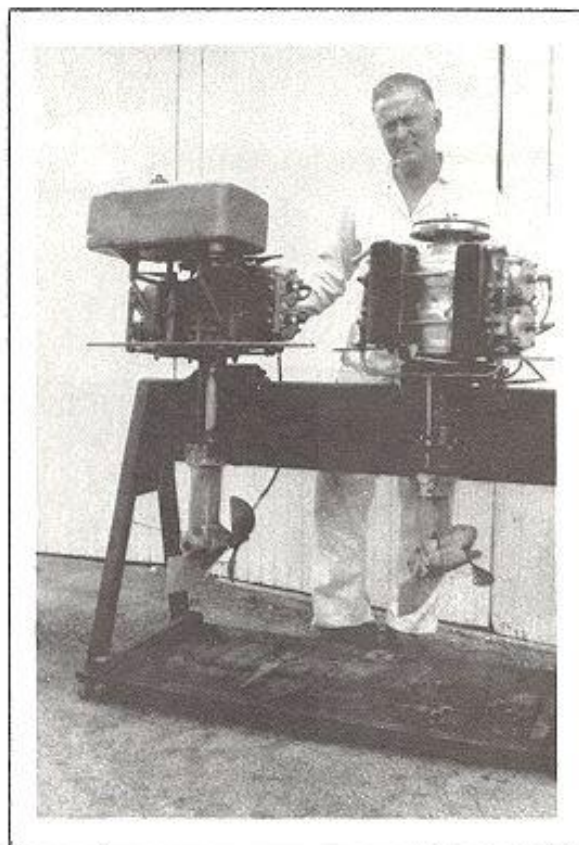


Above: Bedford Davie and his Draper X powered, big (big for those days) Jacoby Marathoner tuning up on the Seine in Paris. It is interesting to speculate on how much faster Davie and other X drivers might have gone with a modern, aerodynamically designed hull. Below: Davie's Draper built X powerhead.

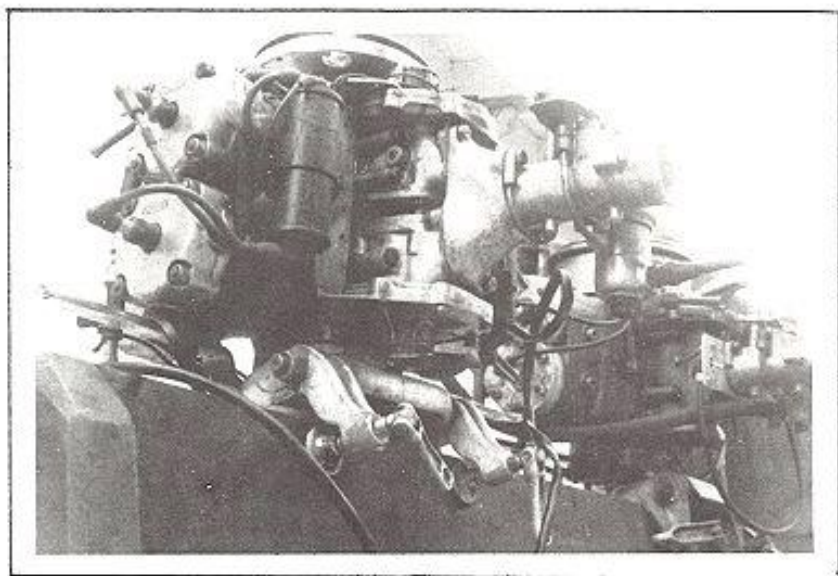




Exhaust side of Eldridge X motor.  
Note Bowman tractor lower unit.



John Harrison with his Wearly and  
Eldridge X motors. The Wearly unit  
is the one with the gas tank.



The Eldridge X powerhead. The  
unit is essentially two PR-65s.

This time the race was no procession with Dupuy in the van. It was a darn hard scrap with everyone in trouble in turn, so that four of the six runners were in the lead at one time or another. Interest never lagged for a moment; at times it became an agony to watch a fellow pulling feverishly on the cord while a rival crept up lap by lap to grab the lead. Then he, too, would stop, hopes would run high as one's particular fancy got ahead, only to die again when he failed to come 'round in time."

"Jacoby and Davie made by far the best start, with Rothschild and Forbes in their wake. Imagine the feelings of thousands of Parisiennes lining the river when it was seen that neither Dupuy, their idol, nor Monneret could get started. Imagine, too, our excitement when it became obvious that Jacoby could not only hold but run right away from Rothschild, Davie, too was fast, but stopped twice in six laps with carburetor trouble. These carburetors were dreadfully sensitive, especially on the turns, and they eventually robbed the Americans of certain victory."

Vitesse went on to describe the difficulties met by the various contestants, noting particularly the several carburetor induced stops which befell the Americans, as well as the fact that when running the Americans were faster than the others. Eventually the two hour race was won by Monneret who completed 43 laps (129 kilometers), Jacoby was second with 37 laps, (11 km), Forbes third with 33 laps (99 km), Rothschild right behind with 33 laps, Davie fifth with 29 laps (87), Dupuy last with only 6 laps. Dupuy had to withdraw because his boat handled very badly. He ended by prophesying that the Americans could easily win next year. However, the Americans did not compete again. They stayed home, got the bugs ironed out of the X's with the mile trial results noted above.

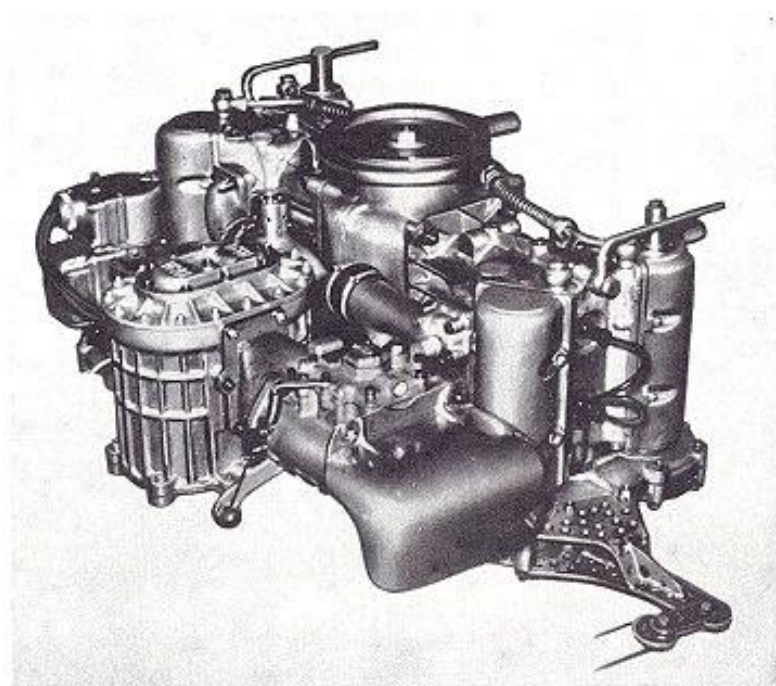
All who saw the Spreckels race were impressed with the superiority of the Jacoby boats. Jean Dupuy ordered a Marathon X hull from Pop Jacoby and used it when he established his world's Mile Trial record of 79.04 MPH on May 20, 1939. He used a Soriano motor which he called a Dupuy as he changed it by installing new cylinder heads using twin overhead cam shafts instead of the regular single cam. Dupuy also replaced the regular Soriano lower unit with a step up gear box above the water line which was hooked up to a long propeller shaft inside a finned housing that extended down into the water at a slight angle. This long housing looked awkward, but actually presented less resistance surface to the water than the conventional type gear housing. It swung a three blade steel wheel about 8000 RPM. Fred Jacoby guessed the housing was about 4 feet long.

Fred Jacoby stated that the record making Dupuy-Soriano put out about 102 horsepower and weighed 240 pounds. The Draper X's used by Davie and Jacoby developed about 90 HP and weighed 150 pounds. Fred felt that if Dupuy had used the Jacoby Class F hull, he could have gone over 80 MPH. As it was the 79.04 record stood until well after WW II. The Jacoby hulls were deep V'd and had longitudinal steps with a shallow cross step.

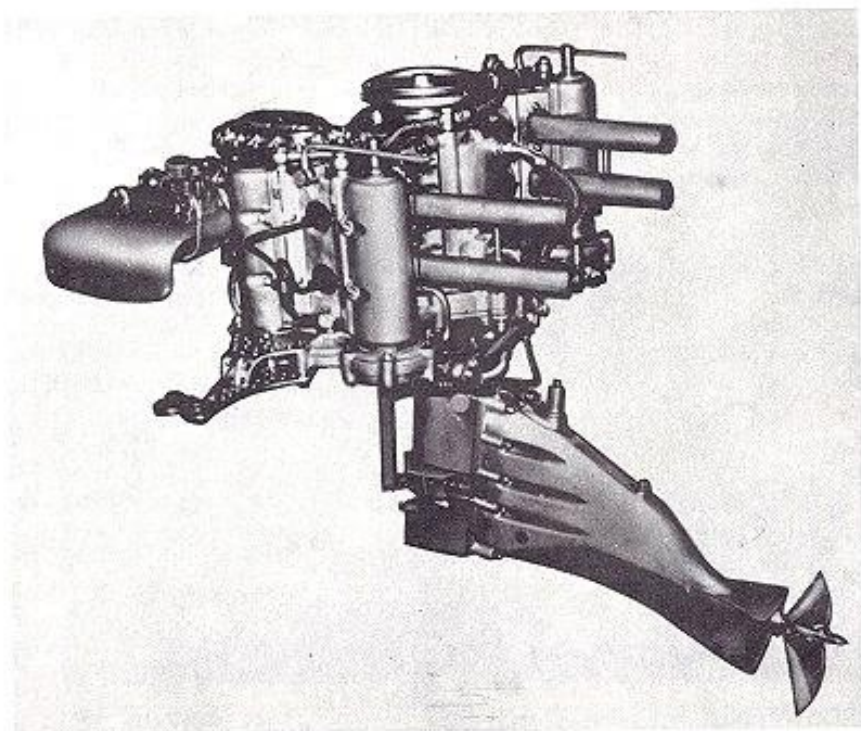
Incidentally, Fred Jacoby, Jr., his brother, Emile, and his father Fred "Pop" Jacoby, Sr., who, during his active life built the world's fastest outboard hydros, are all members of the A.P.B.A. Honor Squadron.

When WW II put an end to the production of the Spanish built Soriano, Mr. Lete di Priole of Milan, Italy, who had considerable success with the Soriano before the war, decided to build a racing outboard modeled after the Soriano. This was the one liter Lesco which Mr. di Priole began to produce in small quantity in 1952.

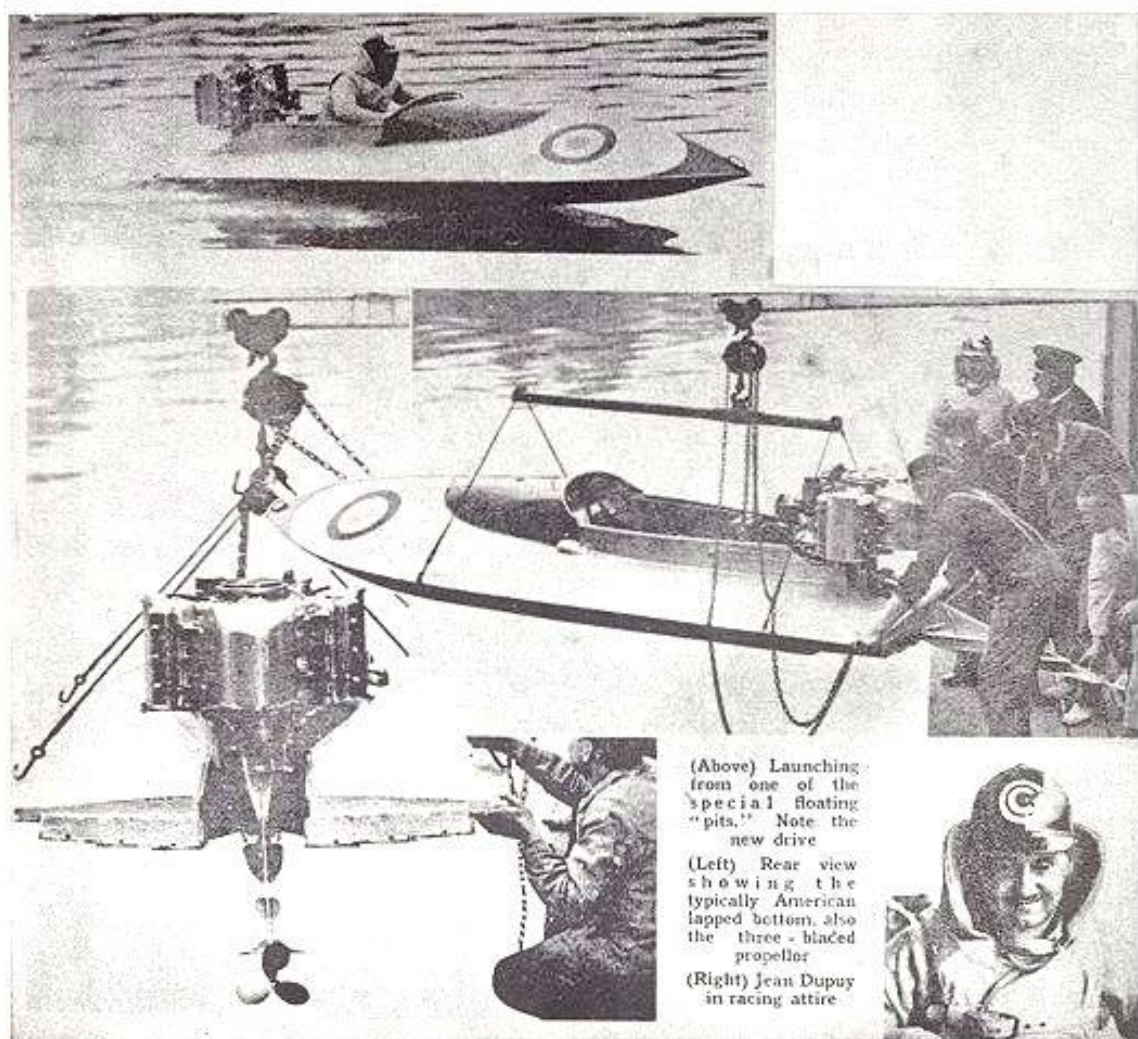
On December 15, 1954 a Lesco set a world speed record over a 1 kilometer course of 161.515 kmph - about 101.14 mph. On January 22, 1961, the Lesco reached 183 kmph about 114.5 mph.



The LESCO outboard motor. 175 Pounds,  
162 HP at 7000 RPM; 114.5 MPH in 1961







Jean Dupuy of France with the outfit that set the World's Record - 79.04 MPH. The motor is a Dupuy/Soriano, hull by Jacoby.

Like the Soriano, the Lesco was a 4 cylinder, opposed, 4 cycle Roots blower, super-charged engine. Bore and stroke were 68 centimeters, total displacement 988 cubic centimeters. Calculated maximum power was 162 at 7000 rpm, Ignition was by Vertex magneto.

The pictures show the Lesco to be a highly sophisticated, well finished motor. Note especially the lower unit with surface prop. Over drive gearing, ratio not known. Weight about 175 pounds. (80 kg).

Another fine "X" was built by Paul and Joe Wearly of Muncie, Indiana. Paul, also a member of the A.P.B.A. Honor Squadron, was a dominant figure in outboard racing for nearly 20 years from the '30's to the mid '50's.

Paul writes as follows regarding his "X";

"My X was essentially a 4-60 with a modified Johnson 32 rotary valve. I made special gears to fit the small space available and to get the proper timing. The tank and bracket were 4-60 parts. My good friend, Ralph Evinrude, gave me the cylinders, pistons, heads, flywheel and magneto plate. The cylinders and heads were regular 4-60 parts and were not bored out. The ignition was taken from the Evinrude Storm Boat Motor.

This was a very fast engine. I set an official N.O.A. record of 85.106 with it at Meyer, Illinois on the Mississippi River in 1955. After that I sold the engine to my good friend, J. B. Broadus, in Lake Wales, Florida. (Webb note: This motor is now owned by Antiquer, John Harrison, of Miami, Florida. Unfortunately, Mr. Broadus succumbed to a heart attack some three years ago).

I did not use the Walker Bowman Tractor lower unit in my record run. At 75 MPH the torque was so great that the boat would start to walk on the sponsons and I would have to shut off to prevent a barrel-roll spill. I used a conventional type lower unit built especially for me by Herschel Starnes of Hickory, North Carolina. I don't recall the exact gear ratio, but it was overdrive. I estimated the engine to be turning 6000 RPM and the prop at 9000 RPM. The propeller I used was a very small stainless steel type with cupped blades, so that I could surface the prop. I ran the engine so high on the transom that half the blade was above the water line. This reduced the torque to the point that I could handle the boat.

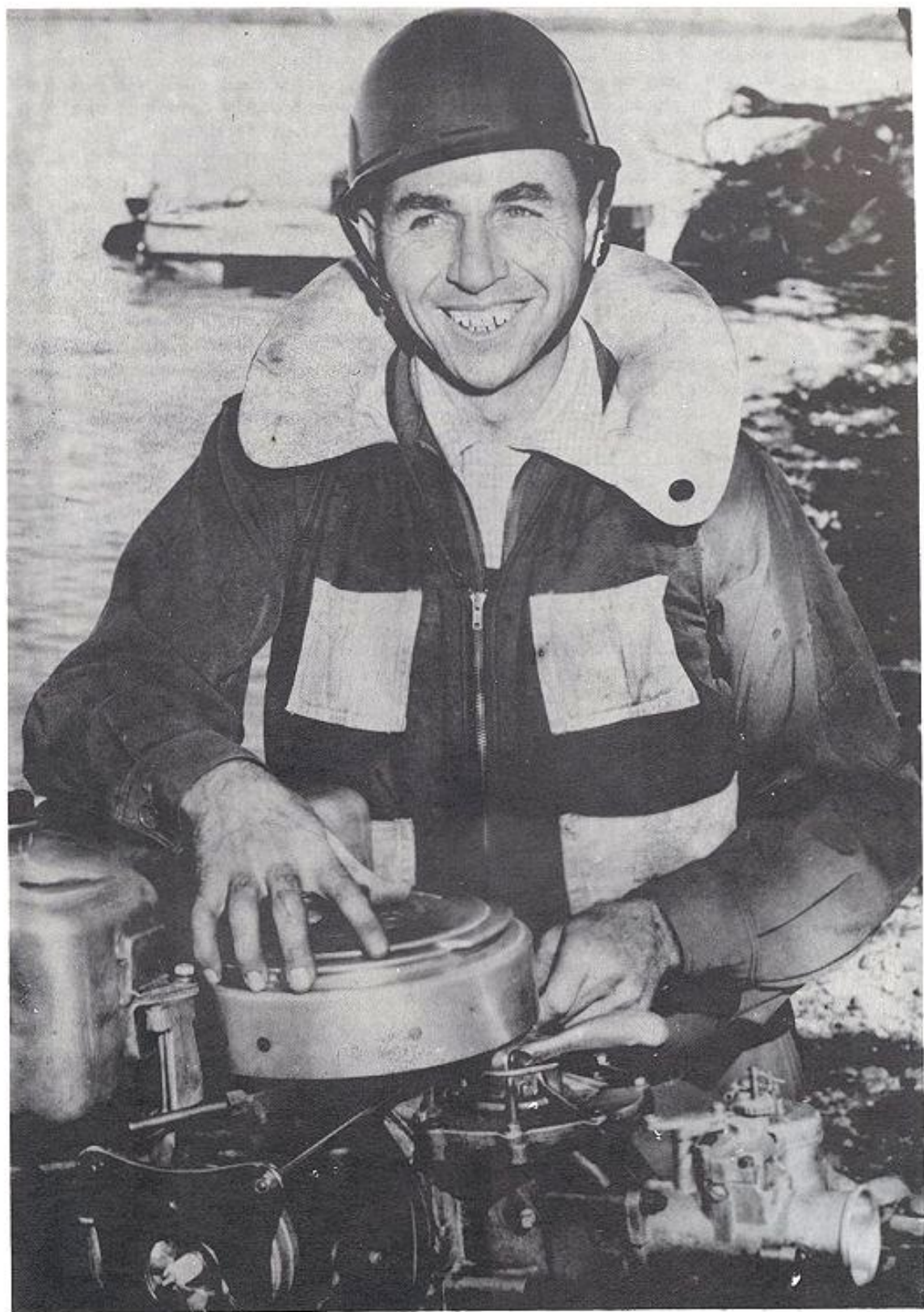
The carburetor was a regular 4-60 Vacturi with a special needle valve arrangement to prevent fouling of spark plugs when running on alcohol and castor oil fuel. This was developed by my brother, Joe Wearly, when he was running the 4-60 engines in his midget race cars. It worked extremely well and caused no problems. I used almost twice as much castor oil as the usual mixture and then added 9% Nitro-Methane. This really put the fire in the engine.

The boat I used was a special large "F" hydro built by Dick Neal, Kansas City, for Judson Davis of St. Louis, Missouri. It was a 3 point hydroplane design similar to the regular Neal boats. It was 12 feet long and weighed 95 pounds. I don't recall the beam, but the boat seemed rather small to be travelling over 85 MPH with all that "Big Iron" behind me.

In order to give credit where credit is due, I must say that my success in racing was really the result of all the help I received from my fine family - especially my brother, Joe. He did a lot of the motor work and developed many of the new ideas that gave us a little extra. He was an expert 4-60 man and I used some of his good parts in my "X" motor."

Since Paul mentioned midget race cars, let me add this:

Back in the 30's Midget Car Racing really took hold. It had started back in the



Paul Wearly and his X motor - a record breaking pair.  
Note the head braces which Paul installed to hold the  
cylinders to the crankcase because of the "hot" fuel.



Here is a compendium of basic prices on some of the Big Iron Motors, with standard length drive shafts.

1928 Elto Quad	Service	\$275.00	Hi Speed	\$295.00	
1929 Elto Quad	Service	\$275.00	Hi Speed	\$295.00	
1930 Elto Quad 49.2 cu. in.	Service	\$325.00	Hi Speed	\$350.00	Elec. St. \$395.00
1930 - 41 Evinrude - Elto 4-60		\$495.00			
1931 Evinrude Speedifour - Elto Sr. Quad	Rope Start	\$325.00			Elec. St. \$395.00
1931 Evinrude Big Four 59.4 cu. in. Elto Big Quad	Service Rope Start	\$375.00			Elec. St. \$445.00
1932 Evinrude Speedifour - Elto Sr. Quad	Rope Start	\$310.00			Elec. St. \$375.00
1933 Evinrude Speedifour - Elto Sr. Quad	Rope Start	\$295.00			Elec. St. \$355.00
1934 Evinrude Speedifour - Elto Sr. Quad	Rope Start	\$325.00			Elec. St. \$375.00
1935 Evinrude - Elto Class X		\$595.00			
1935 Evinrude - Elto Speediquad	Rope Start	\$325.00			\$375.00
1936 Evinrude Speedifour	Rope Start	\$325.00			\$375.00
1937 - 38 Evinrude Speedifour	Rope Start	\$335.00			\$385.00
1939-40-41 Evinrude Speedifour	Rope Start	\$485.00			\$525.00
1946 - 50 Evinrude Speedifour	Rope start only	\$485.00			
1946 - 48 Evinrude Big Four	Rope start only	\$575.00			
1949 Evinrude Big Four	Rope start only	\$645.00			
1929 - 30 - 31 Johnson V 45-50-55	Rope start	\$325.00			Elec. St. \$395.00
1930 - 31 Johnson V 50-55		\$395.00			
1929 - 30 - 31 - 32 Johnson VR 45-50-55-60		\$375.00			
1932 Johnson V 60-65	Rope Start	\$280.00			Elec. St. \$330.00
1933 Johnson V 65	Rope Start	\$278.50			Elec. St. \$330.00
1934 - 35 Johnson V 70	Rope Start	\$290.00			

THE BIG IRON  
Credits

I want to extend special thanks to the following people who helped very greatly with pictures and information - Antique Outboarder John Harrison of Miami; Bedford Davie of Palm Beach, Florida; Fred Jacoby Jr. of Fort Lee, New Jersey; Lou Eppel, Director of Service, Outboard Marine Corporation, Waukegan, Illinois; W. C. Conover, Vice President and Division Manager, Johnson Motors, Waukegan, Illinois; Jim Jost, Public Relations Manager, Evinrude Motors, Milwaukee, Wisconsin; Paul Wearly of Muncie, Indiana; and Dr. Ettore Ceruti, Jr., Milan, Italy.

*W. J. Webb*

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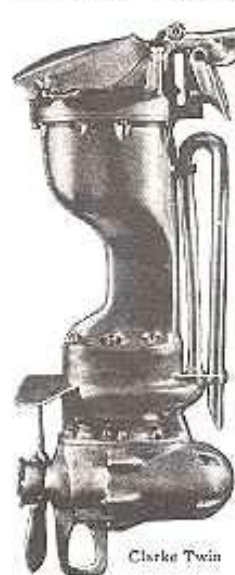
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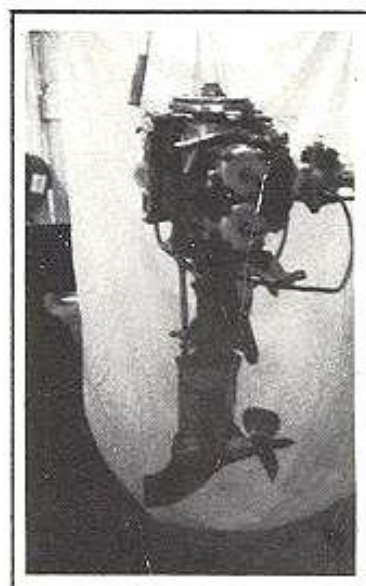
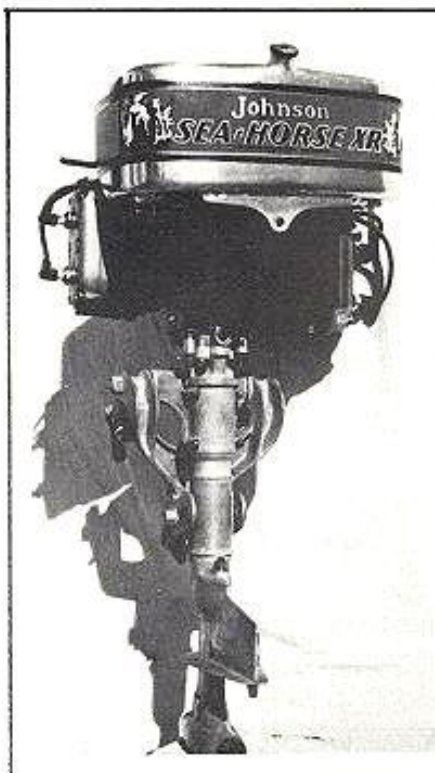
Free Bottom Craft are air-propelled, air-steered—and literally go anywhere. They launch at saw-wood, driftwood and shallow water. Standardized in 23 ft.—30 mile open cockpit model, at \$4,350. Known as the WHISTLER. The illustration shows a closed cabin model, 35 ft.—45 m.p.h., powered with Weight Whirlwind Motor. The ideal summerizer in refuse-infested waters. Address—

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# BIG IRON

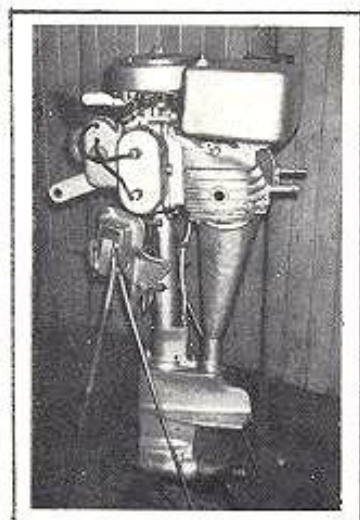
# COLLECTOR'S GALLERY

By Don Peterson

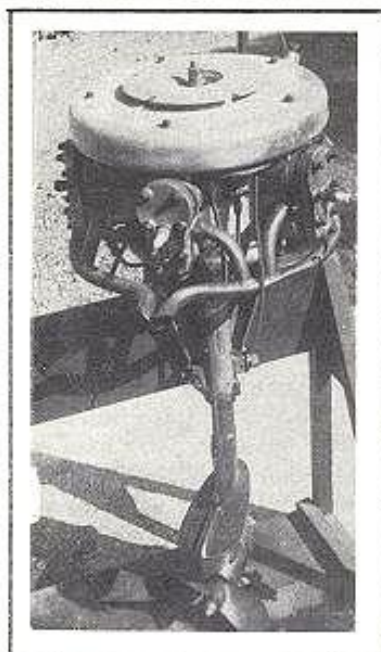


The legendary Eldridge "X" owned by Mr. John Harrison.

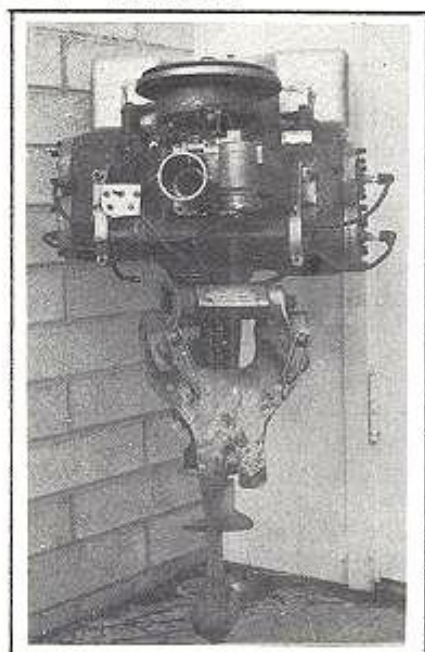
Above: John Toprahanian's beautiful Johnson XR.



1931 Evinrude Big Four  
owned by Don Peterson



1928 Cross Radial  
owned by John Harrison

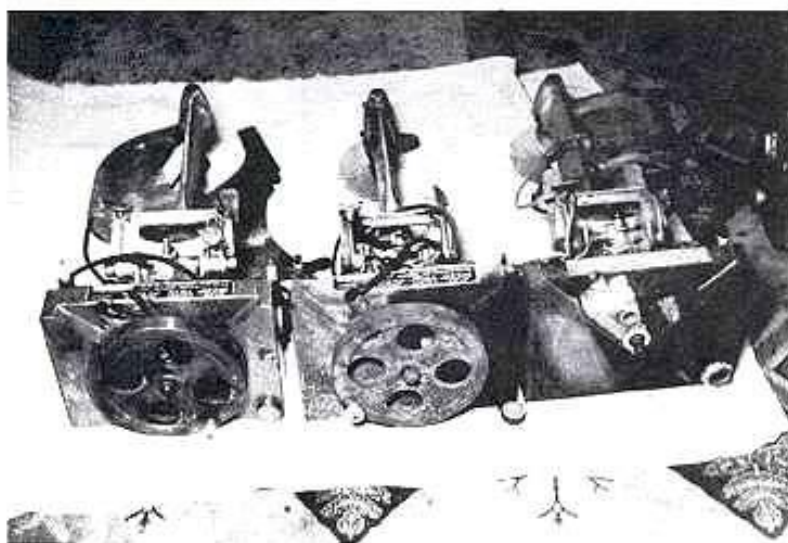


1937 4-60  
owned by John Toprahanian

# Debut of a Quad

- Continued - (from the article of July 72) By Sam Vance

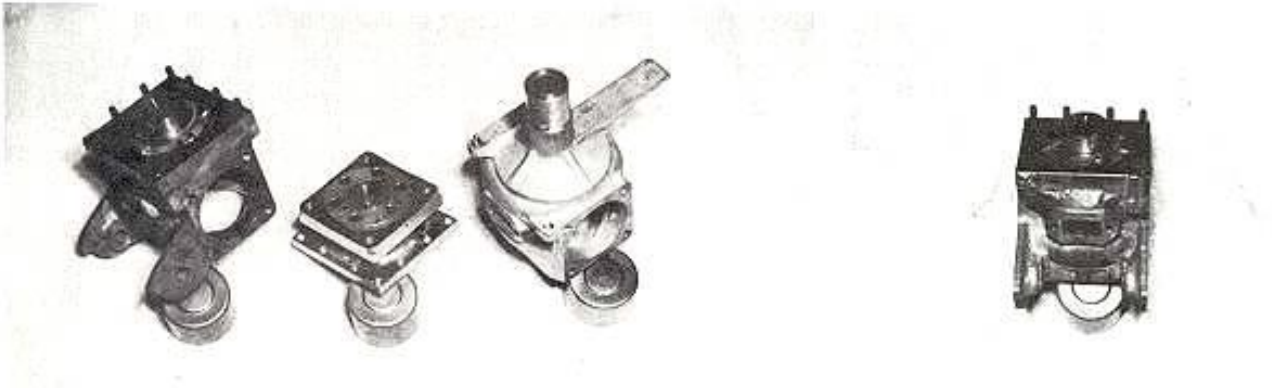
After gathering the information and putting together the article for the July '72 issue, it became ever more pressing that we should try to build the 1923 Elto Quad 4. Remember that Ole and Jake had made 3 experimental Quads, one of which, their Seattle distributor, S. V. B. Miller raced in 1926 and left "all comers" in his wake. The idea of building this engine hit me just about one year ago (today 3/1/73). I wrote many letters to Jim Webb for his great assistance in the engineering and development of the crankshaft. As Jim said, "there were no plans or drawing to go by as Ole would tell Jake and they would make a sketch on a lunch bag and then make the parts". As you can imagine the joint between the two crankshafts was the largest area of concern. And rightfully so - it was to become the biggest hurdle to machine.



Here are the three 1922 Elto ruddertwins that were used as the basis for the Quad. The one on the right was the worst. The light colored spot on the left side of the gas tank is where I tried to sand the rust on the surface. The one in the middle was a little better. The left engine was in the best condition. The first step was to tear down all three and inspect the parts and choose the best parts to make the Quad. The crankcase and crankshaft were the first things tackled. It first had to be determined what dimensions would be used. At this point I think it's safe to say the only pictorial assists I had were the two pictures in the July issue last year. These pictures were scaled up and some drawings made of the various parts. We started with the upper crankcase and sawed the tilting ears off and filed the area smooth. Next the lower crankcase needed much more work.  $\frac{1}{2}$  to 1 inch aluminum bar stock was used to fill in the flange area. The top portion of the core was filed until the bars would rest in position forming a square. The bars were then welded into the top of the lower crankcase. The case was set up in a vertical milling machine and indicated on the upper main bearing. The flange was machined flat and twelve  $\frac{1}{2}$ x20 holes were drilled and tapped. Then the case was put in a lathe and set up on the upper main bearing and also on the flat of the flange. The OD and the length of the upper main bearing were then machined. This finished the lower crankcase for a while. Then we tore into the spacer that would fill the gap between the two crankcases. From the scaled up drawings determined by the original photographs, the length of the spacer was measured to be  $2\text{-}\frac{3}{32}$ ". First we sawed the lower main bearing from the poorest lower unit assembly. A piece of aluminum  $\frac{1}{2}$ " thick and  $4\text{''}\times 3\text{-}\frac{3}{4}$ " was used as the lower flange with 12 holes to meet the lower crankcase. Welded to that, was a 3" OD



piece of bar stock. A smaller flange of 3/8" aluminum was welded to the flange of the previously cut lower main bearing. It was felt that added strength was needed to support the upper engine assembly. The distance between the two flanges was too close for welding the two together. Notice in the center of the picture the ring of 6 bolts. We used Allen head cap screws to hold the two halves of the center spacer together. The whole spacer assembly was set up and machined to fit the respective surfaces of the two crankcases together. Not only the crankcase flange area was used but also the cylinder flange surfaces were used to "indicate" on. The three pieces fit beautifully when the machining was finished.

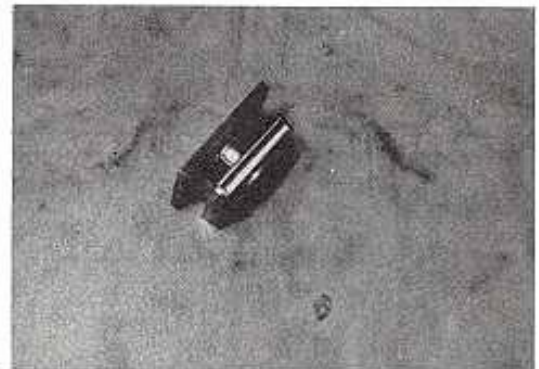


The three major crankcase pieces.....

The lower crankcase with flange machining complete



Bottom side of the center spacer

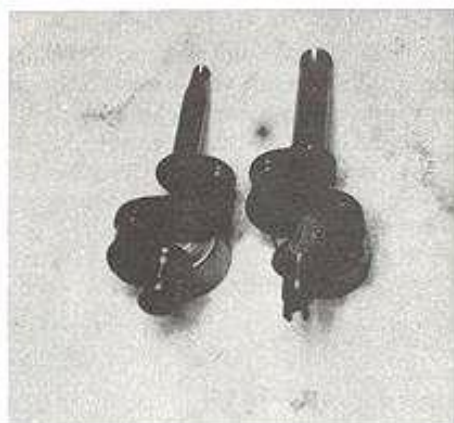


Side view of the center spacer

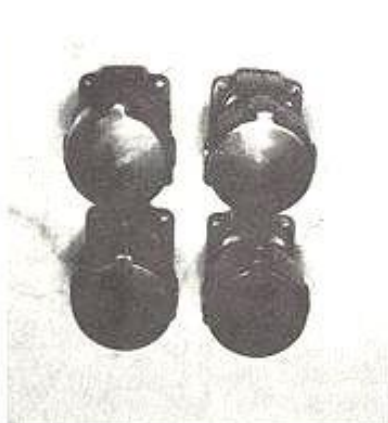
The next major task was the joint between the two crankshafts. The picture shows pretty well the method used to complete the four-throw crank. With the length dimension known from the spacer, the machining of the two crankshafts was made easier. The top of the bottom shaft was turned down a small amount and a slot milled in the end. The lower end of the upper shaft was drilled so the two shafts went together with a press fit. A pin was positioned in the upper shaft to match the slot in the lower shaft. The two shafts were set up on a surface table to determine the alignment before the pin hole was drilled. The two shafts had to be separate to facilitate the assembly of the engine. A spline joint probably would have been stronger but would have meant considerable welding on the crankshafts which I wanted to avoid.

The 4 cylinders needed only to have the water jackets welded. The ends were filed and polished and now shine just like they were plated,

The stacks we made from 1/16 sheet aluminum and welded to the sawed off flanges from the exhaust manifolds,



The two crankshafts with the slot and pin joint.



The four cylinders



The four exhaust stacks

According to the original pictures, there are two knobs on the flywheel. Jim Webb confirms this. The second knob was removed from one of the other flywheels. A hole was drilled and the knob was pressed in. The amount of steel removed by drilling was equal in weight to the knob thus not upsetting the balance of the flywheel.

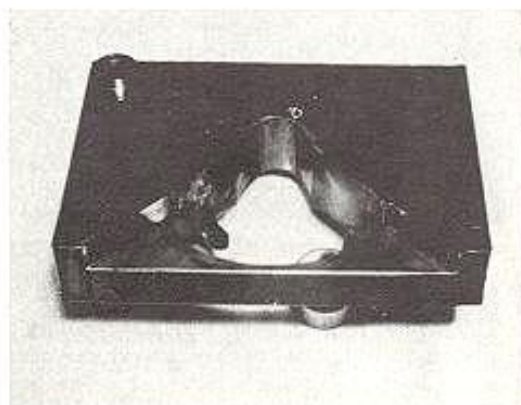
The timer was the one place where we really deviated from what was originally used. Remember the article said the ignition was a set of auto breaker points. Jim Webb confirms this but we had all kinds of trouble trying to figure out how to make and break the points. Keep in mind the flywheel has an eccentric and not a cam on the bottom side. The next best ignition system for this engine was the Atwater Kent timer from a 1928 Quad. However, modifications had to be made here also. The shaft and housing had to be cut off  $\frac{1}{2}$ ". The head of the front hex bolt had to be cut down. The use of the 28 Quad timer was one of a few trade-offs that were needed to make this 1923 Quad.



The flywheel with 2 knobs



The '28 Quad timer, modified



The modified gas tank

Then, of course, the gas tank had to be opened up to accept the '28 Quad timer. The picture shows the cut out made in the center of the tank and also the half moon cut made to accept the swing of the timer.

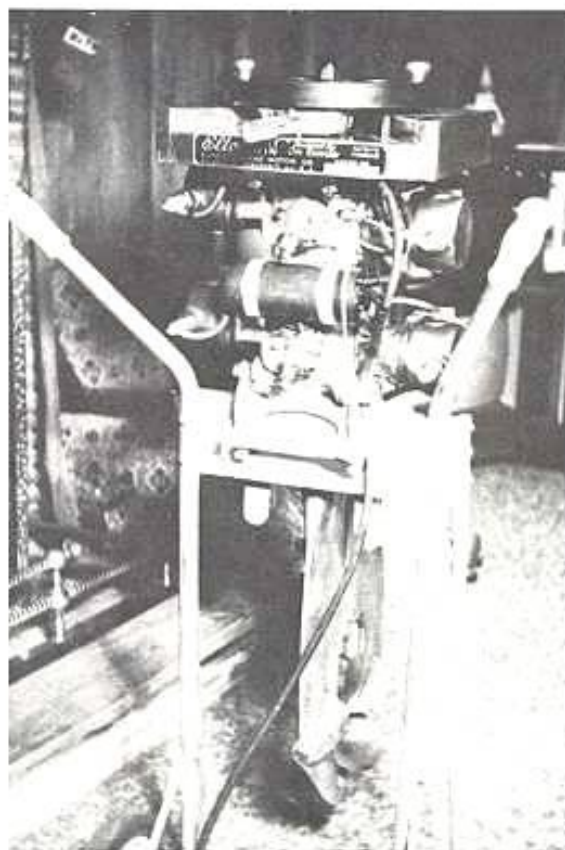
The water intake manifold was made from a piece of  $\frac{1}{2}$ " water pipe welded to a plate that mounts on the exhaust inlet of the lower unit. Standard brass pipe caps were used on each end of the manifold and  $\frac{1}{8}$ " copper tube fittings were added to attach the tubing to the cylinders and to the lead-in line. The picture shows the lower unit. The pick up tube was added and the plunger pump bypassed as shown in the

pictures of the original engine. The rudder, which was used on the first of Ole's three models, was modified also. A cut out was made to clear the pick up tube and two inches were added to the rear of the blade. The original lower unit was filed and streamlined to really cut through the water. We chose to leave the lower unit alone and concentrated on the modification of the engine.

Well, there she is! The completed 1923 Quad. There was a lot of fitting and assembly to get it to it's complete condition. When the crankshafts were put into the crankcases and the flywheel attached to the top, we were very pleased with the freedom of the crankshaft. We hooked it up to an electric motor to run in a small high



The lower unit showing the curved inlet tube and the pump by-pass leading to the manifold.



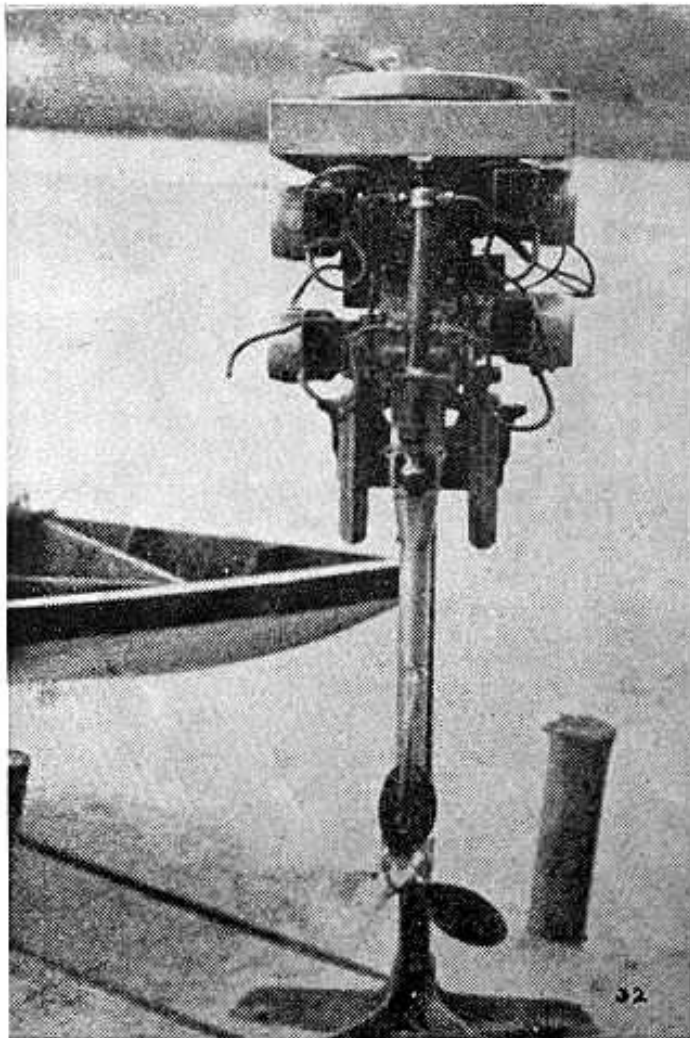
Front view of the completed engine.

spot on the upper shaft. One by one the rods, pistons, and cylinders were added and run in by the electric motor. After approximately 3 hours of run in time with only oil, we turned the flywheel by hand and were amazed and pleased at the smoothness. From then on to completion it was very similar to a restorative project of a standard ruddertwin. The coils had to be 'seriesed' and hooked to the timer. The gas tank outlet had to be changed to a double line configuration to feed both carburetors. The water tubes were formed and installed as can be seen by the picture from the July '72 article. The last picture shows the 1923 Quad and it's big brother the 1928 Quad. Matt, Vance, bare feet and all, held the motors for the camera man so we could get a clear shot.

I am not sure what the HP rating should be for the 1923 Quad. The bore is  $2\frac{1}{4}$ " and the stroke is 2" making the ruddertwin of 1922 3 horsepower. When you put two together as the 1923 Quad, you might expect a HP of 6. However, the 1928 Quad is rated at 18 HP and it essentially is two Speedsters put together. They are rated at 7 HP so you might think the 28 Quad should be 14 HP. If we were to use this analogy, the 1923 Quad could be 10 HP.

What ever the ratings are, we are as of this writing, awaiting the first breath of Spring. The real test will be on the back of our boat and running.

Starting the '23 Quad will be different than the conventional Elto with the Atwater-Kent ignition. Rather than bumping against the back stroke, we feel it would be better to turn the flywheel in the direction of running. This would reduce the 'chucking' action that may take place between the two crankshafts if the stresses are excessive.



Above: One of the Miller Special pictures that appeared in the July, 1972 issue. At top, rt., the water inlet manifold. At right, a comparison of the '23 and '28 Quads.

The finishing touches were added. The decals from Bob Brautigam really put the color into this "ole gal". The "1923 Quad" that is on each end of the tank is made from rub-on-letters. The Elto name plate on the front of the tank was obtained from George Loeb of Norfolk, Va. and reads "1923 Quad Experimental".

Many, many thanks must go to Jim Webb and Ralph Evinrude who were a great help in determining what methods could be used. This project could never have even been considered if it hadn't been for the great knowledge of these two gentlemen of the outboarding world.

*Sam*

# THE FAMILY CRUISE



by Bill Salisbury

The June 2nd Family Cruise Meet at Lake Hopatcong had to be one of the most fun meets ever held. The membership began to assemble at the Woodport Boat Basin at about 10 a.m. and set out getting their boats and motors launched and tuned for the cruise that was to begin at 1:30 p.m. The weather was absolutely perfect and in fact got quite hot before the day was over. When the final count was taken, there were 44 people there counting only the members and their families, plus many onlookers, some of whom had owned motors like our antiques that were running.

We had divided the cruise into two classes, planing and non-planing boats. The non-planing element departed on time and cruised over to the home of Mr. & Mrs. H. Drayton Mook, led by Doc Craver in his beautiful disappearing propeller boat "Pop-Pop". The planing boats left about one half hour later due to the greater speed and were led by Mr. Mook in his beautifully restored Fay & Bowen speedboat, "Muz". The entire act attracted lots of attention. Coffee and pastry was enjoyed by everyone at the Mook's dock.

We reluctantly left the Mook's dock and cruised back to Woodport and spent the rest of the day taking pictures and going for rides in other member's boats.

Sam Vance really made the day with his "Vance Quad" which is an exact replica of the experimental quads that Ole Evinrude put together using two Rudder Twins. (The Miller Special pictured on pages 24 and 25 of the July 1972 issue of The Antique Outboarder) Sam's engine ran and sounded very healthy. It had that typical Elto four cylinder sound.

Bill Adrulis was seen most of the day speeding around the area with his beautifully restored Hartford Sturdivin, mounted on a racing runabout. Watching Bill couldn't help reminding one of Cuty Clam, Argle Gargle III, or Barnacle in the cartoon, "The Outboard Race."

New member, Bob Davis, otherwise known as Outboard Bob, would have won the hard luck trophy had there been one. Bob had a particularly bad time getting any engine to run. First he put his trusty Johnson F-75 on his boat and ran it from one dock to another and then it decided never to run again that day. Next he tried another, an Evinrude this time. The Evinrude Sportsman ran but the water pump failed after about twenty revolutions. Poor Outboard Bob finally had to buy a Johnson Model 300 from Tom Luce in order to go on the cruise! Better luck next time, Bob!

John Gustaffsen had every right to be proud of his restored Penn Yan Swift. It was truly a lovely boat as was the smooth running Evinrude Sportfour. Nice job, John!

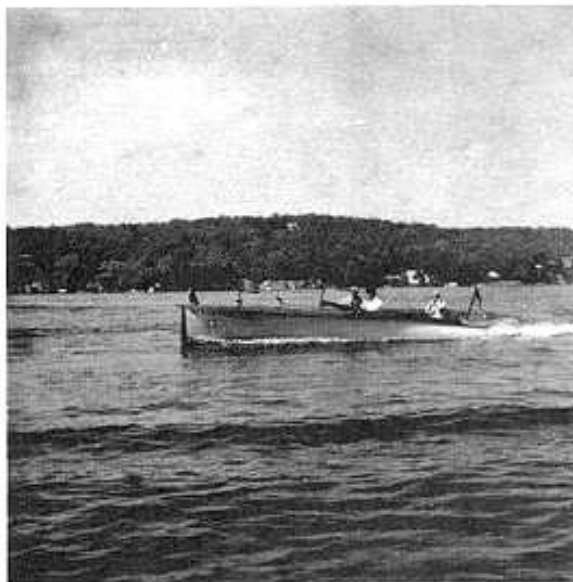
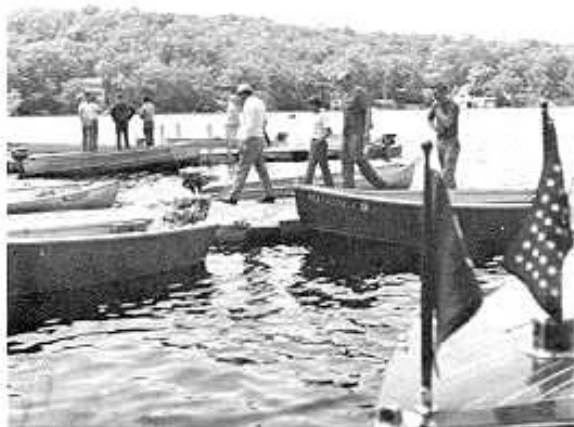
Would you believe that Bob Tate went on the non-planing cruise with a 1929 Johnson SR-45? He did, but only because the barge that he had it mounted on wouldn't plane! It surely had a very healthy sound, Bob.



The Vance Quad, warming up on land prior to launching.

38

The Mook's dock scene. Lots of big engines there!



The Mook's Fay and Bowen  
"MJZ"

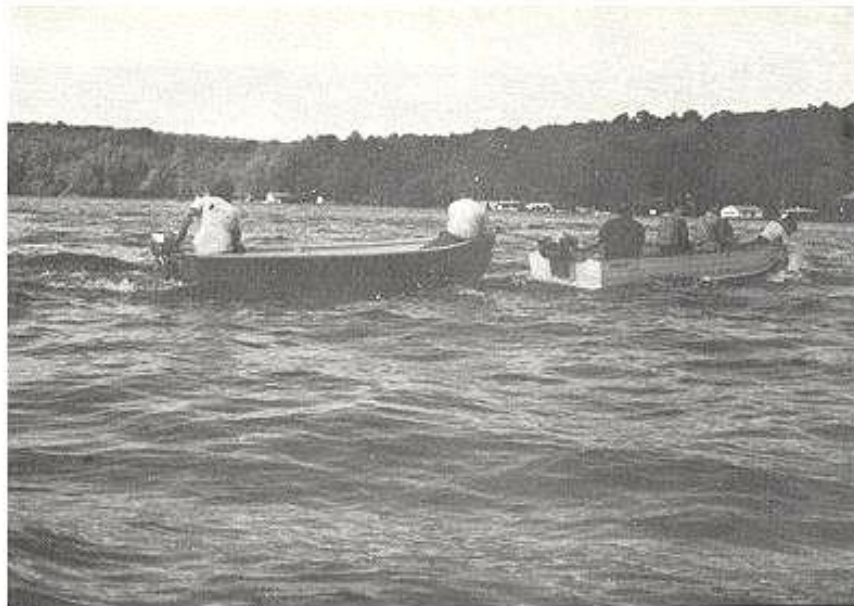
Bob Zipps tending his boat at  
the Mook's dock.



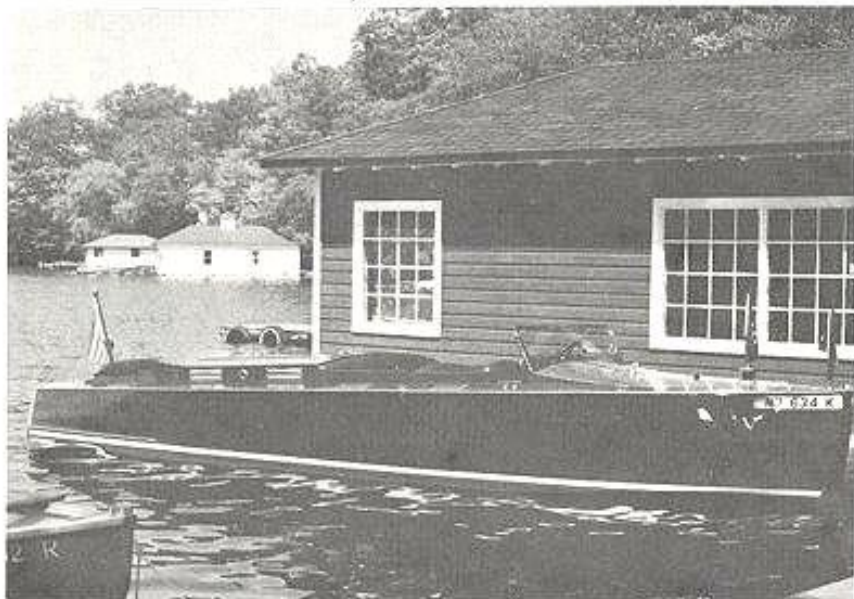
....Outboard Bob filling the tank  
of the Johnson 300 while Inboard  
Bill looks on.

A typical scene at Woodport Basin,  
early in the morning.

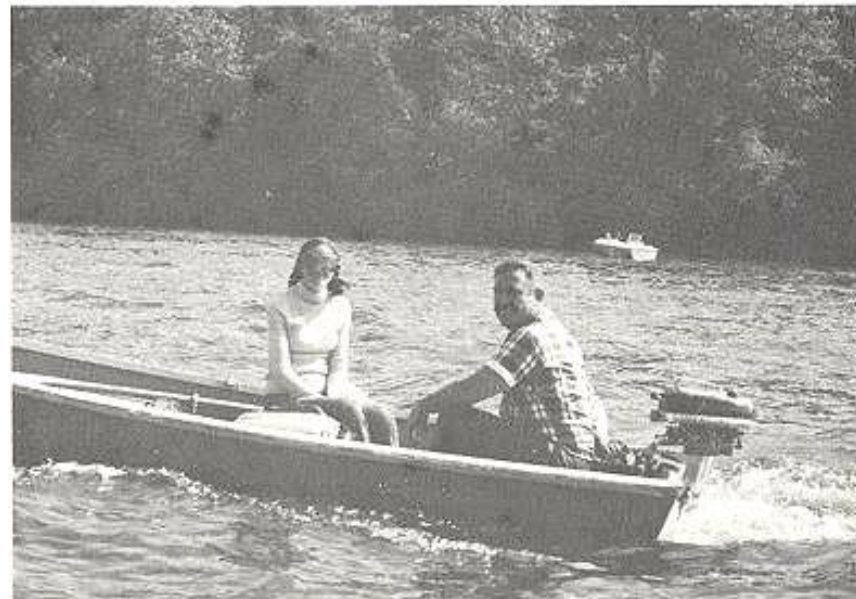




Ⓢ Up, Outboard Bob being towed by Sam Vance- temporarily!  
Below: The Mook's 1920, 26' Chris Craft "Mady M".



Up, Bill Andrulitus' Hartford Sturdivant in action.  
Below: Stan and Vera DuBois in his Merc J Class rowboat.



Marcus Wright was seen roaring around the lake with his trusty old '28 Speedster. This was the only time that I ever saw it experience any trouble, The points burned together and it quit. About five minutes was all that was required to have it running again.

Bob Zipps found out that his S-70 really does run better with the exhaust plate removed. It sounded good too.

Tom Luce's boat nearly swamped itself from the tremendous surge of power during his start at the Mook's dock. The P-35 Johnson sure has a lot of torque.

The entire day had to be one of the most enjoyable ever spent on the water. All of this was made possible by hard work and the generosity of Tom Luce, Dr. and Mrs. Craver, Mr. and Mrs. H. Drayton Mook, Ray and Audrey Sabia, friends of the Knuckle Busters who through Ray's vocational school class baked all the delicious pastries served, and Pete and Paul Sundheim of Woodport Boat Basin. Thanks to all of you. Without your efforts this day would not have been possible. If this paper looks a bit wet, it is due to the fact that the writer is still drooling over Mr. Mook's gorgeous 1929 Chris Craft 26' speed boat, "Mady M" that so majestically adorned the lake.

#### IMPORTANT VANCE-O-GRAM!!!

I hope this is not too late to make the July issue!

The morning of June 2nd went something like this. I put the '23 Quad on the transom while the boat was still on the trailer. A crowd gathered while I filled the tank with gas. I then hooked up the battery. 5 bumps on each set of cylinders to charge them and I gave it a flip and she fired a couple of times. A 2nd pull through and she lit right off and ran for a few minutes. When she stopped, the crowd clapped in approval. We put the boat in the water and started her again. I adjusted the needles and picked up the camera just as she quit. I handed the camera to Bill Salisbury and he took a few shots while I was trying to re-start her. It was when I sat down in need of some "racing fuel" that I noticed that the poppet valve stem on the lower carb was hanging down, way too low. One touch of it and I knew it was broken. Also in trying to follow the 1926 photos I positioned the water pick up tube too close to the center of the prop in a "dead" area. The bottom cylinders were the only ones cooling. I tried to put the pump back in and discovered that there must be approximately 1" difference in length of a 1922 and 1923 crankshafts. Apparently somewhere along the line, one of the ruddertwins I used was a "rebuild" and I didn't notice it. Anyway, what all this means is that I removed the pump as Jim Webb had suggested. Now I have only the water scoop to provide cooling. I have modified the first scoop I made to make it pick up on the outside of the blade diameter. I sure hope it works!

Oh, yes, the poppet valve has been replaced and we are waiting for the time to give her another try.

For Tom's cruise we replaced the 23 Quad with a 1931 Elto Super "C" Electric start. What a difference to push levers rather than twist knobs or pull ropes. The 'ole gal really performed. It's rated at 25 HP but I would guess the electric motor is taking somewhere around 5-6 HP. I have run my rope start Super C and it performs much better and faster. It gets my 16' Starcraft up on the plane much faster.



Oh Henry, a fast little Boyd Martin Boat which competed at St. Louis

1928



The new Airships Aqua Aero is capable of high speeds



# THE Yankee Chapter NEWS

By Bob Zipps

As I am typing this article in my rec room, the date is June 5th and outside the heat is scorching. It has been in the 90's for the past two days with no let up in sight.

However, just a few short months ago, this rec room was alive with Club members coming in to get warm after going from trunk to trunk at the Sixth Annual Connecticut Indoor Meet. The date was April 6th and the sky was overcast with bonechilling temperatures. In spite of the weather, the meet had an excellent turnout.

Everyone who attended brought something to either show or sell and many, many motors changed hands during the course of the afternoon. The air was heavy with outboard talk with the many conversations going on. I tried to get in on as many as possible, because no matter how long you belong to the Club, you learn something at every meet. And this includes learning something new about your own equipment, from experiences that other people have with theirs.

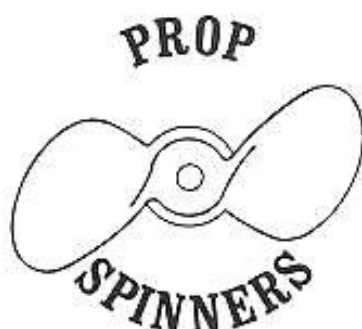
My wife Pat served pizza and coffee during the afternoon which proved to be a real hit. The afternoon went by much too quickly and members left looking forward to spring when they would be able to use their motors.

Those who attended the meet were: Bill Andrulitus, West Hartford, Conn.; Bob Davis, Waretown, N.J.; Doug Evans, Ridgefield, Conn.; Tom Hines, New Haven, Conn.; Bill Hodges, Cohoes, New York; Howard Ivins, New Haven, Conn.; Phil Kranz, Slingerlands, New York; Len Norman, Auburn, Mass.; Bill Salisbury, Toms River, N.J.; Herman Schaber, Newington, Conn.; Brad Snow, Middletown, Conn.; P.A. Stanley, Wallingford, Conn.; Bob Zipps, East Hartford, Conn.



Above: The Yankee Chapter bunch. At left, Bob Zipps with his recently restored 4-60.

**MID-  
AMERICA**



Ron Ellis

The MAPS Chapter meet of May 19 & 20 was a water rousing and eventful two days. The good old changeable Missouri weather gave us a lot of sun, a few clouds and just the right amount of rain drops to keep the blue smoke down.

As usual Clarence Sitton was the first in the water with a Model 100 Johnson. Gene Yonker was not far behind with a nicely restored Sportfour. Walt Ellis and grandson were seen adding to the blue haze with a Speeditwin and a Lightfour. Casey West was next on the scene with his mighty little Evinrude single. I was busy mixing gas and trying to figure out how to get on the water through all the smoke and old iron. Just to keep the facts straight, Walt Ellis was on the water the day before we all arrived with one of those new fangled, fiberglass shrouded, push button Evinrudes. You might say that he jumped the gun, but since he and chief mate, Phyllis organized the meet we will let the 50:1 mixture rig slip by this time.

The Sittons; Clarence and Delores are the official "waker-uppers" of the MAPS Chapter. Have you ever heard a PO with open muffler on still water early in the morning?!

Casey and Catherine West took an early morning cruise and Casey being the old military strategist that he is, decided to conserve on gas. Only because of Catherine's hitchhiking ability were they able to return to the dock.

Gene Yonker and family brought a trailer load of engines and had the only running Eltos at the meet. Gene is a master at making the old timers go.

The Ellis' Neal hydro and Super C went into the water for the first time since restoration. My charming wife made the following comment, "Hey, it floats!" Everyone had a chance to pull the Super C through, and we had her going several times, but could not fuel her fast enough. Back to the drawing board.

Clarence Sitton received a trophy for being one of the earliest, helpful and enthusiastic AOMC and MAPS Chapter members, (a general all around good sailor!)

Our thanks to Walt and Phyllis Ellis for hosting a great meet.

The following iron was at the meet.

1929 Elto Quad	1933 Evinrude	1933 Caille
1927 Elto J	1947 Lightfour	1926 A-35 Johnson
1934 Sportfour	1948 Speeditwin	1931 Super C
1933 Senior Speedster	1931 Super C	1939 Wards - single
1940 PO		1946 Evinrude - single
1936 100 Johnson		

**SPEAK UP!** *you chapters*

# TWIN CITIES SCENE

Ron Johnson

March 9th we met at Bob Peterson's home for some dryland outboarding. Bob has a recreation room in his basement, nicely decorated with about twenty motors. A 1924 Big Twin Evinrude, a Gray Gearless, Martin 200, and three Lockwood Chiefs to name a few. Bob showed us about 700 feet of filmed highlights of past Antique Outboard events. That was a real treat.

April 24th the T.C. Chapter held its first banquet, every member turned out with his wife or gal friend. This was to butter up the girls and to kick off the boating season. Well, this was also a cover to get the right setting for presenting a beautiful plaque from the Antique Outboard Club to Robert Brautigam in appreciation of service for 1970, 1971 and 1972.

Thanks to John C. Harrison for providing the Plaque and to Dock Jones who mailed it to me. With the help of our TC members, the plaque was presented to a very surprised Robert Brautigam.

Lake Minnetonka, Stubb's Bay, May 5 was our first outdoor meeting and the weather was inclement - as usual. Bundled up in winter coats were members, Don Carlson, with a very nice 1935 Champion, Bob Peterson with his Elto Ruddertwin, Robert Brautigam with a K-50, KD Johnson and a Evinrude row boat motor (that ran faster than mine) and myself with a Evinrude Rowboat motor and a 1927 Lockwood model 72T. We were very happy to have with us, a Mr. Larry West visiting from the San Francisco area. Larry was a good sport and helped brighten up the day.

The 8th of June we were back at Stubb's Bay for our second outing. The weather was so hot you could have fried eggs on the dock. Braving the elements was Glenn Ollila, and family, Robert Brautigam and me. Glenn ran a Martin 20 and a 1938 Handitwin Evinrude, like new, with only about 6 hours of total running time,

Robert ran a 1914 Evinrude and a 1946 Speedifour on his Wolverine. This was the maiden voyage for my newly restored 14' Morphew runabout which was built in Greenville, Texas. The Morphew is a plywood, V-bottom type boat which I powered with my PO-15 Johnson. The rig was just about as fast as Robert's Wolverine powered with 11.4 more h.p. (How about that, Robert).

If anyone knows where Morphew Boats were built I would like to know.

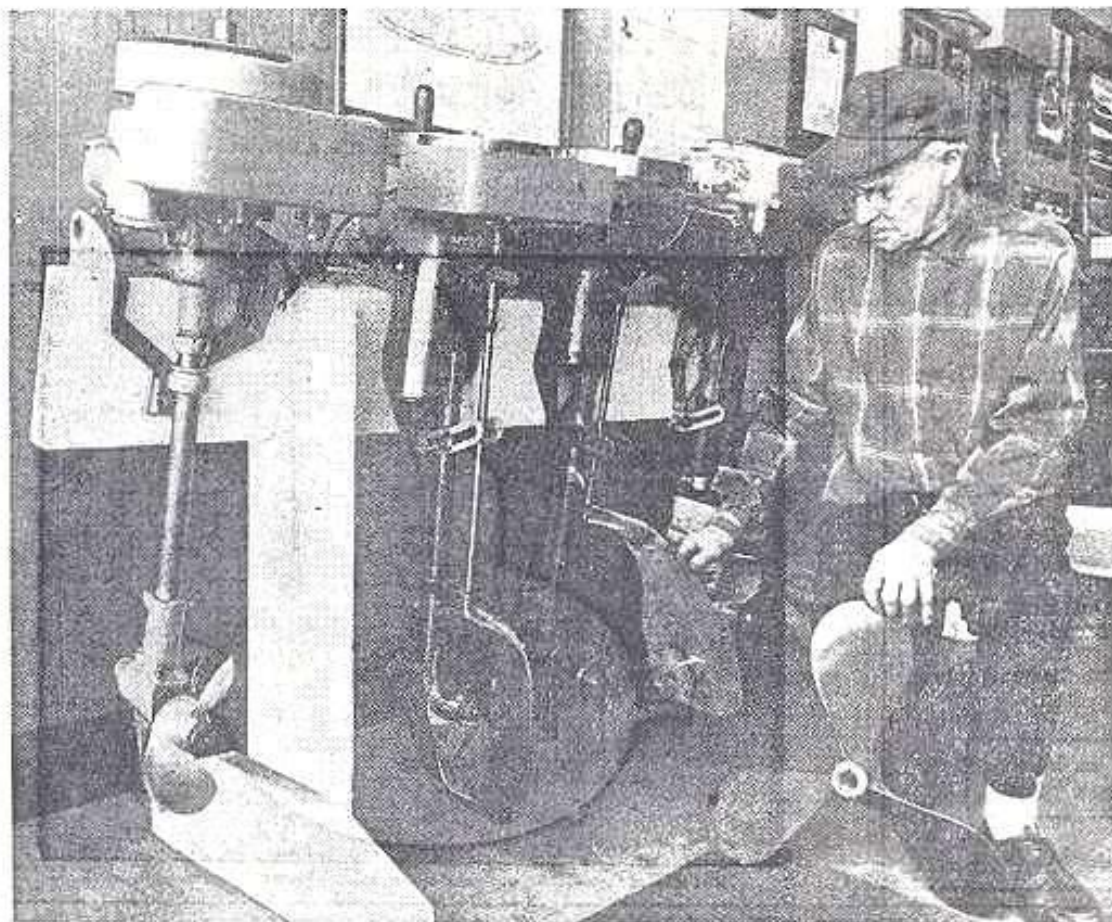
Happy motor starting to you, Ron Johnson

Ies Stevenson took the photo of a smiling Bob holding his award, just received from Ron Johnson. Bob's wife, Janet, approves. During the dinner, the band played "Red Sails in The Sunset", "Row, Row, Row Your Boat" and "Cruising Down The River". I guess there are no known songs about outboard motors.



# Old Engines Never Die

TACOMA NEWS TRIBUNE  
TUES., APRIL 3, 1973



—News Tribune staff photo by Bruce Kellman

## Barney Wright — Tacoma's Marine Museum Man *Displays Old Outboards Along with Other Gas Marine Engines*

By BRUCE JOHNSON

Why can't a century-old waterfront city like Tacoma have a top-notch marine museum? That probably has been the most frequently asked question in recent years on the local marine scene.

Barney Wright is one of the many persons who has posed that question. But unlike most of the others, he has decided to act rather than just talk. The 81-year-old, Tacoma-born machine shop owner has put together a permanent display of old gasoline marine engines.

His little museum tucked inside a one-window shop at Jefferson and Pacific Avenues is hardly a Smithsonian. But there's no better place in these parts for a person to see the earliest gasoline engines developed for marine use. Not only does Wright have an interesting array of inboards. His collection also includes a long layout of outboard motors, the oldest one dating back to 1910.

"My original intention was to donate all of this to the state for a nice marine museum here," said the president of Western Wright Marine, the machine shop which has its entrance on Commerce Street — topside from the fledgling museum. "I'd really like to see Tacoma get a good marine museum," he said. "But the state moves too doggone slow, so I decided to do it myself.

"I want to continue developing this display myself," Wright said. "But, eventually, I would like to see a civic organization put together something that would be a real credit to the town. What I have here would be a good start."

Understandably, the veteran Tacoma marine figure doesn't want just anybody to take over some antique goodies which have taken him most of a lifetime to collect. "If a good, reliable, well-backed group came along, I would be interested. But it would have to be something for the civic benefit. I'm not going to tie up with any fly-by-night operator."

Wright is the first person to recognize the shortcomings of his small museum which he plans to call the Tacoma Marine Museum if he finds enough time to put up the sign. For one thing, the place is open only when Wright is around to have it open.

"I'm supposed to be retired," he said. "But I help out a bit in the machine shop when we get swamped. There's still some things that the old man can do better than anybody else."

Then there's the problem of space itself. Wright said his display needs a bigger setting so that it can be better appreciated by the public. But the space is too limited in the two-street-level building he owns.

Holding down regular hours and having more room for

display are the two main reasons why Wright would like to see his collection eventually included in a bona-fide marine museum. But the marine engine specialist has such an enjoyable time showing off his collection that it's no wonder he plans to keep it at its present location for some time yet.

"This is something I enjoy doing," he said. "I've got to keep myself interested in something. If I didn't, there wouldn't be anything really to keep me going."

Accessibility to Wright's display isn't all that difficult, its owner said. If the place isn't open, somebody in the machine shop topside will open up the lower level of the building for an interested visitor, he said. Wright's son, Edward, is now at the helm of the machine shop.

Western Wright Marine specializes in propeller and shaft work. It also is an authorized distribution and repair facility for a major manufacturer of props. The shop does a lot of work for Tacoma area boat yards and its customers include a number of individuals as far away as Alaska.

It was Barney Wright's many years of marine engine experience, however, that led to his present, unusual collection. He got started in that line of work in 1910 and organized his own shop three years later. From 1928 to 1949, he ran the machine shop at Martinac Shipbuilding. It was in 1949 that he moved his base of operations to the present, Commerce Street location. Wright figures he built 150 gasoline engines between 1916 and 1935.

Most of the gasoline engines in Wright's collection came out of fishing or small pleasure boats. The engines date back to the early 1900s and they're all gasoline except one — a kerosene-fired job of 1903 vintage. Wright also has a few stationary engines but he prefers the waterborne machines. A number of the marine engines have been donated over the years by persons who admired Wright's interest in the old machines.

The era represented in most of his collection only lasted from the turn of the century to about 1920. But if Wright has his way about it, it will be an era that never dies.

## Need Old Outboard Parts?

By Pat Dunn

Journal Times Staff

Trading newer models for older can sometimes be a shortcut to going broke. For Jim Cason of Silver Lake it started an exciting plunge into the world of antique outboard motors, making him, in a short span of months, one of the country's largest suppliers of old outboard motor parts.

It began when Jim was enticed into parting with his 1948 Evinrude motor for a 1935 Evinrude mill which was lacking a few parts. But it was a rare one, one of the first of the firm's line to sport a shroud, a shroud being the metal shell encasing the sparkplugs and other external parts of the engine block. Many an oldtime fisherman has had his hair curled by touching the exposed spark plug while under way with the old motors.

Jim inquired around, got addresses of a supplier in Boston and another in the Midwest. One missing part was available from the Midwest firm. It took months to hear from the land of the Bean and the Cod and they had none. But the prices quoted by the firms made Jim blink.

Then Cason went fishing on

the Mississippi. And there, behind the Falling Rock Bar near Lynxville, was a near-companion to his 1935 mill. Boat and battered, it had a shroud, and when Cason left the river the shroud was his.

He heard about the Antique Outboarder Club headquartered in Bloomington, Minn., joined it and became aware of the scope of the antique outboard picture. Then the possessor of a few middling-old engines, Jim was getting parts from a dealer in Indiana. The dealer died and Jim bought out his stock of new parts and old motors, brought the works to Silver Lake.

He since has bought out the inventory of one Harry Stern of Antioch, Ill. Shelves were added to his parts bins, some 300,000 parts are now included in his inventory. By now he has some 60 motors. Some he cannibalizes for parts. Others he is restoring from his motherlode of ancient parts. A pair of Caille outboards, made in Detroit in the mid to late '20s he is restoring. Two other Caille's will supply parts for other buffs of the old-time outboard.

And there are Elgins, Mercurys, one a restored model of Mercury's first racing engines, a 1949. And 1928-29 Johnsons, Evinrudes, an Elto from the late 1920s.

Daily, into the Cason mailbox come orders, request for parts, trade and swap offers from all

over the country, from Hawaii, California, Florida, New England.

Cason will set no price on his 9.5 HP 1935 Evinrude. Or its companion, a 1925 Johnson 1.5 horsepower engine, a cute little thing that has one attribute many of today's outboard mills lack . . . it starts invariably on the first tug of its starter cord. Neither are for sale.

If they were? Only another antique collector would come up with that kind of money. Cason points to a picture in the club's monthly magazine. It is of a 1928 Johnson Giant Twin, a TR-40. There are known to be only 11 of them in the country. It is a huge brute with four pistons, some four inches long and massive (for the outboard engine field) connecting rods. One thousand dollars would not buy it.

Another photo in the magazine is the boat and motor which, in the late '20s, set a world speed record for outboards. The record was set, of all places, in the Grass Lake-Channel Lake area in northern Illinois, not too many miles south of Silver Lake. Unhappily, Cason says, the motor has long since vanished. The boat itself is still perched up on the rafters of a barn near Grass Lake.

Antiqueers and the public will be able to see some of these old mills and boats in operation on Silver Lake next month. The Antique Outboarders' Club is

holding a rally (or whatever they call a gathering of boats and motors) in connection with Silver Lake village's Summerfest, July 28-29, July 29 is the day for the boat and motor antiques to do their stuff.

With the duties around the Cason boat livery added to his antique business, Jim is busy. "We advertise and do give 24 hour service on mail orders," he says. If the part is not in stock a form postcard goes out immediately.

Prices? Cason's base price is a 1957 one, nothing added. He has done business with a California firm that tacks a 50 per cent hike on the 1957 catalogue price. Some add even more. Jim does not aim to become the Ote Evinrude of the antique motor business, just to make a little himself and make available all the motors and parts he can to his fellow antique collectors.

He has some observations about quality and craftsmanship. The old motors had so many parts handmade. Fuel tanks, for example, were hand-welded. It looks as if, in those days, the motors were made to last. And Jim Cason is glad they have

## Silver Lake Man Has Them



Journal Times photos by Pat Dunn  
 Antique motors and parts fill most of Jim Cason's basement  
 and a couple of garages in Silver Lake.

the Journal Times, Sunday, June 3, 1973



**UNDER WATER EXHAUST**  
 MORE SPEED WITH IMPROVED QUIETNESS

Now, the high straccino tone of last year's quiet Evinrude Speedwin and Fastwin is transformed into a low, pleasing drone. Burned gases are not only water-muffled, but also atomized, completely eliminating exhaust fumes.

The turning propeller and the water friction at the underwater outlet literally suck gases out of the motor, giving as much speed as if no muffling were used.

Four twin-cylinder models, 7½ to 20 H.P., from canoe to cruiser sizes. Easy time payments, as low as \$37.50 down.

Write for new free Evinrude Year Book.

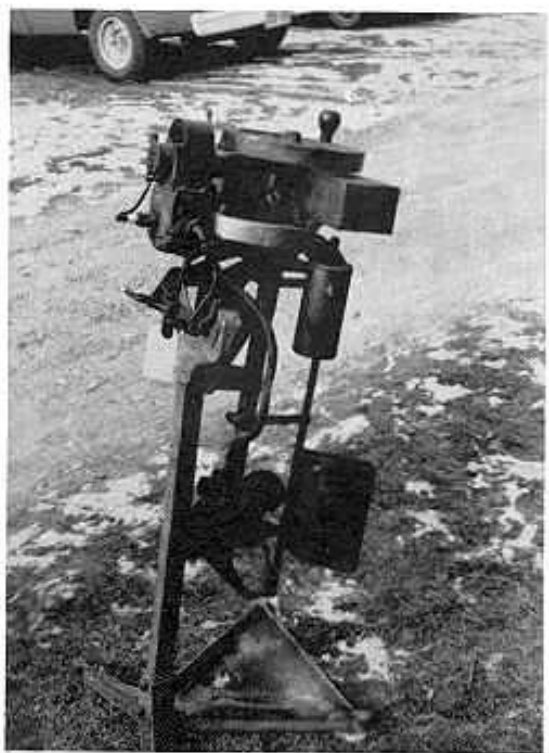
EVINRUDE DIVISION, Outboard Motors Corp.

4305 27th Street Milwaukee, Wis.



The Evinrude advertisement appeared in the National Geographic, June, 1929.

The Wisconsin motor is a 1914-16 model owned by R.W. Keegan, Shrewsbury, Massachusetts.



AOMCI

SPECIAL

# Feature

## Caille 5 - Speed

In 1924 the Caille Perfection Motor Co. of Detroit, Michigan, introduced its Liberty Twin. Noting the popularity of Johnson's Light Twin, the Company marketed, in 1925 and 1926, the Pennant 5 Speed Twin at 1600 RPM. The Master 5 Speed Twin followed in 1927. Our sample engine pictured bears serial number 49532 and weighs 52 pounds developing 4.5 HP at 2600 RPM. With it, the manufacturer hoped to offer serious competition to Johnson's Model A-35 Light Twin.

Featured prominently was the 5 place adjustment of the propeller pitch accomplished manually by means of a mechanical ratchet device on the tiller. By depressing a knob at the end of the tiller bar the operator could move the handle up and down for a selection of five possible pitch settings in the forward, neutral and reverse range. In this way a finer pitch could be used for load conditions and coarser pitch for a free running set up. The two blades of the propeller were cleverly machined to move on the propeller hub under the guidance of a system of rods and linkages to the desired position. After many seasons of use this linkage system was prone to wear with resulting difficult or only partial movement of the propeller blades. In the sample motor coarse pitch of the blades is obtained with the tiller bar in uppermost slot of the ratchet. In the second slot, blades are in finer pitch and the middle slot produces a near neutral setting. The bottom two settings appear to be different pitches for reverse although there is no apparent anti-tilt mechanism.

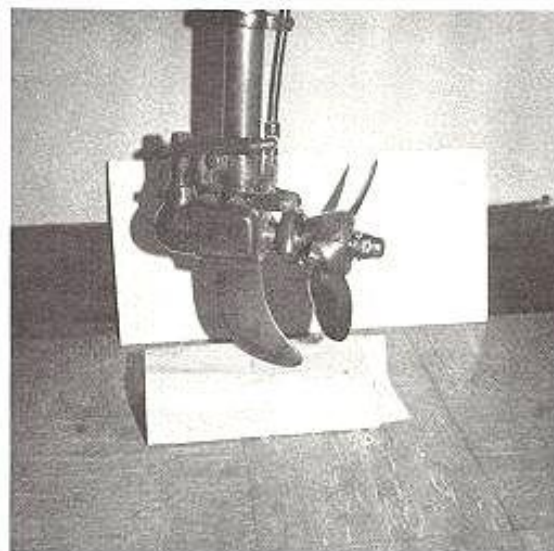
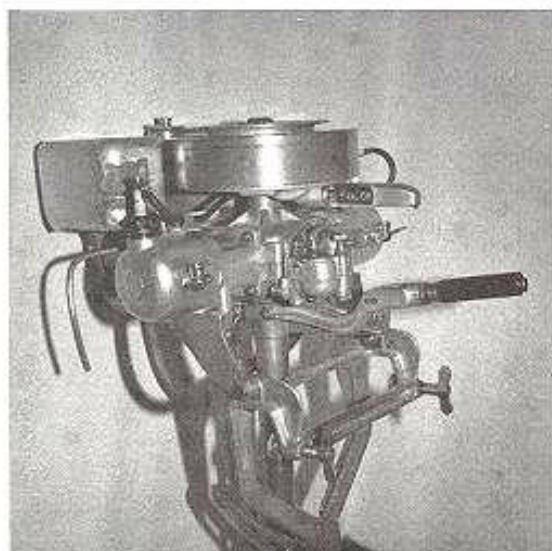
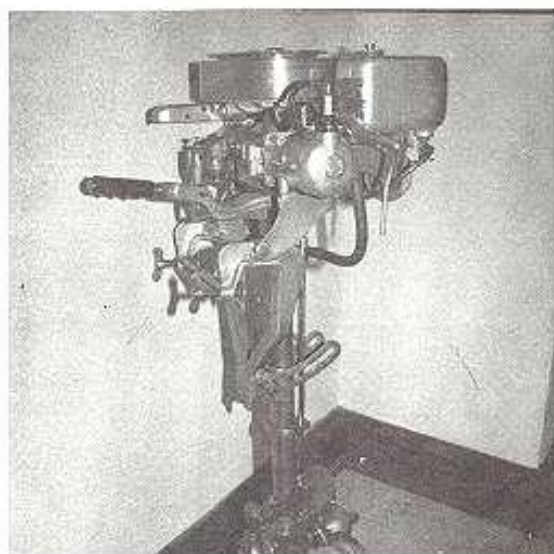
A spring installed from top rear of driveshaft housing to stern mounting bracket serves as an anti-torque device. The motor is tilted in the usual manner but in steering, only the driveshaft housing and lower unit rotate, the powerhead remaining stationary. Adjustments of the motor tilt are possible according to the rake of the boat transom. The stationary power head feature together with the very wide transom mounting bracket (nine inches) were later to be copied by Muncie in 1930.

This Caille motor made considerable use of aluminum for the tiller, mounting bracket, crankcase and gas tank but continued the use of solid bronze for underwater parts as was common in earlier models. Cast iron opposed cylinders have a bore of two inches and a stroke of two inches and are provided with priming cups. The upper main bearing has an oil lubrication cup of generous size fitted with a spring loaded lid. This differed from some engines of the period which used grease cups.

In 1927, Johnson had abandoned its plunger pump for the Light Twin and utilized a



AOMCI Special Features editor  
James L. Smith



pressure vacuum system but Caille continued the use of the plunger pump. The vertical propeller control linkage being hollow doubled as a water inlet for cooling. At the upper limits a Tee led off the water by means of rubber tubes to the base of the cylinders. Short metal exit tubes at the tops of the cylinders provided a good check for cooling and one could note if water was being pumped.

The carburetor, attached directly to the front of the crankcase has the stamp Zenith and is of the check valve type. It has a float chamber and metering needle. The magneto, containing the usual components, coil, condenser, magnet and breaker points, is marked American Bosch Magneto Company. No throttle is provided and speed control is entirely from magneto advance and retard as in the Elto Ruddertwin.

The 5 speed feature was continued in 1928 and 1929 but somehow never reached a degree of widespread popularity. The actual value of such a complicated mechanism particularly when it was so subject to wear and tear was in serious question. Moreover, it added to the weight factor and this could be a critical point in the area of market-



ability. Certainly the Caille outboard was never noted as a lightweight. Some models ranged well over 100 pounds. All outboard manufacturing companies were hard put to survive the depression of the thirties. With its 1935 models the Caille Perfection Motor Company ceased production. Having commenced in 1913 with its 5 speed single, the Company could be hailed as one of the true veterans of the industry.

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# RACING

A NEW EXPERIENCE

By Eric Gunderson

This issue, I would like to share with you a thought expressed by Tim Chance, Editor and Publisher of Hydroplane Quarterly in the Spring '73 magazine. I quote: "Quit reading right now and go get your newspaper, OK. Look in the sports section. See anything about boat racing? Nothing, huh? Oh, I'm sure there's a lot about different sports, but no boat racing. You can read about some obscure minor league baseball player who is traded from some equally obscure team to another. But try and read about a Boat Racing National Champion. Nothing."

Not many people know that our sport exists, or care, for that matter. Whose responsibility is it to see that boat racing is recognized as a major attraction. If, in fact, it is a major attraction. Whose responsibility is it to see there are newcomers brought into the driving ranks. It's our responsibility - we the drivers.

But where do new drivers come from? If we raced in marine stadiums we might find some spectators trading their seat in the bleachers for a seat in the cockpit. But, we don't have marine stadiums, and the way superspeedways are going bankrupt in big-time car racing it would seem to be an impossibility for boat racing to support permanent fixtures. Except possibly on a very small abbreviated scale.

When you race in different towns and cities each week-end it is difficult to draw new drivers from the local race fans. And the news media is no help."

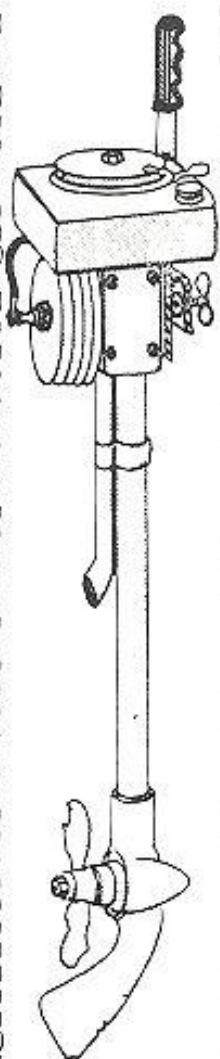
Maybe there's no real direct correlation between bonafide racing and antique outboarding, but certainly publicity is a mutual problem, as well as the trouble getting real participants. One thing though, there's a thrill driving the old timers, akin to that of modern racing. You can be a "driver" if you wish, just start restoring a P or V Johnson, Speeditwin or Big Four Evinrude - or what have you. The rest comes easy and with a little common sense, you can safely become a fast driving antiquer.

Bill Salisbury was here in March and we had a chance to run my Alky 460 again. My god what a machine. I just can't believe how fast that engine is. Ray Rydell came up to give it a try, but the engine backfired the first time I pulled and threw my shoulder out and we never got it going. The shoulder is well now and the 460 is again ready to run.

My gas Big Four Hotrod is next on the restoration list. I just got a set of 460 stacks to make it sound "right", and I'm going to have the cylinders ground and a set of new pistons fitted, 36cc chamber volume is the secret as long as the RPM is less than 5500.

I just found a "new" KG-9H! I'm working on it as though it were an XR. It's really beautiful. I'm sure it will cost me a fortune, but the cost will be much less than a new Merc of any variety. Wow, a KG-9H!

Is the  
old  
outboard  
slowing  
down?



write  
to  
Eric



Enclosed are some photos that Bill took when we ran the 460. Actually, I don't get white knuckles when I run it; I just can't stop saying "God-Damn" to myself for about three days. My heart pounds to think about it. What an incredible experience. The other photos are of the P-70 that I built from scratch. That ain't no slouch either. My present "scratch" project is a V-50 with help from John Harrison and Dave Reinhardt.

There are a good many fast motors still lying about, waiting for you. On the right boat a 7 HP Lockwood Ace goes like the dickens - and the right boat isn't hard to come by either. A light, well designed, 12 foot aluminum runabout can be your own "race boat", capable of handling anything from 6 to 33 HP.

So get with a hot motor, you guys, and send me photos and info about your own experiences and achievements with the old timers.

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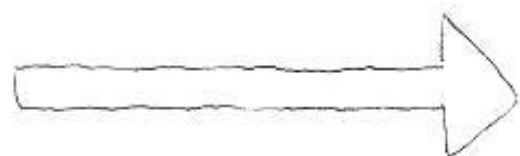
# (PARDON ME, BUT YOUR BOAT IS SHOWING)

by Bob Zipps

A common denominator for all club members is that we were all interested in boating before joining the Club. Where do large numbers of boatmen congregate? The answer is obvious, AT BOAT SHOWS!!!! At the shows members have an excellent opportunity to spread the word about Antique Outboards, get excellent leads for motors and parts, and most important of all recruit new members.

This year three boat shows were covered by members of the Yankee Chapter. Bill Andrulitus had an absolutely beautiful 1921 Alto Rudder Twin at the New London Boat Show; Tom Hines had a 1932 thirty six horsepower Evinrude at the New Haven Boat Show; and at the Hartford Boat Show, Bill Andrulitus had an exceptionally fine Hartford Sturay Twin, and Bob Zipps had a faulea Twin carb Johnson VR-50. All these motors drew people to them like a hair pin to a magnet. If you want to do the club a great service, contact a dealer and ask him to put a restored motor in his display.

# PHOTOS





Above: Sheryl Lillyman poses with a Hartford outboard at the Hartford Show.



Upper Right: Miss Dreamboat with a 1932 Evinrude. New Haven Show.



Center: Different model girl, same model Evinrude.

Lower Right: Another most important view of the New Haven Show.

Below: Laurie Sheehan with a Johnson VR-50, at The Hartford Show





# THE FACTS ARE

■ ■ ■ ■ A collection of significant truths about the subjects of outboards, outboarding & motor-minded people. If you have information that you think would be of interest to our readers, send it in!



This might have been the first outboard shipped by air - and maybe it wasn't, but it had to pretty well up in the front line.

It started one day in the Spring of 1928 when Bruce Davis, later an Evinrude employee for many years, but then the Manager of the Marine Department of the Kelley-Duluth Company in Duluth, Minnesota, called me on the phone. (Bruther - a long distance call from as far away as Duluth didn't happen too often in 1928).

"Jim" said Bruce - "I've got to have a Quad up here tonight or I lose one of the best customers I have ever had. That shipment you promised me last week isn't in yet, and I am clean out of everything." (The shipment promised for last week hadn't been made along with a lot of other shipments because we were way behind. We hated to break promises, but once in a while castings wouldn't arrive on time and there was hell to pay.)

With red and flapping ears, I had to admit that we hadn't shipped as promised. "I know that", said Bruce, "And you are going to pay for this call too." (Boy, how will I ever explain that to Jake?) "How can we possibly get the Quad up there tonight?"

Says Bruce - "There's an outfit in Milwaukee, the Kohler Aviation Corporation that flies up here two or three times a week. If you can get a motor out to Curtiss-Wright airport in a half hour, I will have it here by four o'clock. I ought to make you pay the freight, but my customer agreed to stand half of it if I would get him the motor which he must have as he is starting up to Canada tonite."

To make a long story short, I had a motor on our Model T truck in five minutes and our driver was on the way to Curtiss-Wright airport, now Timmerman Field on the Northwest side of Milwaukee. Meanwhile, Mrs. Evinrude had been standing behind me, and I got one of many lessons in taking advantage of a situation. Said she - "Why don't you get a photographer out there and take a picture of that motor being loaded in the plane. We can get a good news story on that. 'First motor shipped out of Milwaukee by air -' Maybe you could get a reporter out there too."

Well, I jumped fast and got a photographer out in time to catch the Quad being loaded in the plane. The reporter didn't make it, but we got a story to the papers with pictures the next day and got quite a lot of ink both locally and in some of the national magazines. What won't people think of next? Shipping a motor by air!

And the Kohler plane got to Duluth with the Quad and other freight items delivered and picked up en route there and back. Bruce saved his customer's good will. I can't remember exactly, but knowing Davis as I do, I can imagine that there was quite a lot of argument about the freight on that air shipment. ...Jim Webb

## AOMCI New Members (CONTINUED FROM BACK COVER)

Today's  
Membership  
Count

A cordial welcome is extended to all newcomers. Other members are encouraged to make contact either by writing or visiting. Show these new members how to join chapters and special interest groups. Make them feel like they really belong!

**400**

Charles W. Finkl  
2652 Sheridan Road  
Evanston, IL 60201

David A. Jones  
1811 14th St Box 367  
Boone, IA 50036

Warner Turner  
5102 Wickert Dr  
West Bend WI

Henry C. Lyczak  
220 Linden Road  
Northbrook, IL 60062

## OILING FOR HIGH SPEED SERVICE IN RACING TRIM

Mobiloil "B" S. A. E. 50

Sea Horse "12" KR-55, KR-65	1½ pint Mobiloil "B" to 1 gallon gas.
Standard Twin Model KR-40	1½ pint Mobiloil "B" to 1 gallon gas.
Big Twin Model PR-40	1 quart Mobiloil "B" to 1 gallon gas.
Giant Twin Model TR-40	1 quart Mobiloil "B" to 1 gallon gas.
Sea Horse "24" Model PR-50	1½ pint Mobiloil "B" to 1 gallon gas.
Sea Horse "16" Model SR-45	1½ pint Mobiloil "B" to 1 gallon gas.
Sea Horse "16" Model SR-55, 60, 65	1½ pint Mobiloil "B" to 1 gallon gas.
Sea Horse "16" Model SR-50	1½ pint Mobiloil "B" to 1 gallon gas.
Sea Horse "25" Model TR-40	1 quart Mobiloil "B" to 1 gallon gas.
Sea Horse "32" Model VR-45	1½ pint Mobiloil "B" to 1 gallon gas.
Sea Horse "24" Model PR-55, 60, 65	1½ pint Mobiloil "B" to 1 gallon gas.
Sea Horse "32" Model VR-55	1½ pints Mobiloil "B" to 1 gallon gas.
Sea Horse "32" Model VR-50	1½ pints Mobiloil "B" to 1 gallon gas.

Note: Mobiloil "A" or Marine Medium Heavy S.A.E. No. 30.

Mobiloil "B" or Marine Heavy S.A.E. No. 50.

Mobiloil "A" in proportions specified, should be used for average service—Mobiloil "B" for racing only.

The use of heavy oils, with increased proportions for service, will result in continual fouling of the spark plugs, excessive carbon—clogging the ring grooves, exhaust ports, muffler and the driveshaft housing (A & K 50-65).

Yes, they had legislative HEADACHES seventy years ago - - Page 55 of the January, 1901 issue of THE RUDDER, one of the great boating magazines of all time, carries this warning to American boatmen, penned by the immortal Thomas Flemming Day - then Editor:



## Motor Boatmen, Attention

**A**N attempt is being made at Washington to pass a bill obliging the carrying of licensed pilots and engineers on small motor launches. The men behind this movement are, I regret to say, the members of a society of professional yachtsmen, who, in a selfish desire to benefit their order, are willing to injure the sport out of which they make a living.

The government very properly decrees that the person to whom the life and property of the public is intrusted shall be a skilled and experienced man. This is especially so when placed at the hazard of water traffic. But while the government has an undoubted constitutional right to regulate public traffic, and to impose conditions upon those employed in carrying it on, it has not a constitutional right to interfere with the pleasures of the individual so long as these pleasures do not put in jeopardy the public safety.

Acting in accordance with this right, the government inspects steam vessels used as yachts, and obliges their masters and engineers to possess a certificate of competency. This is not done to protect the owner of the vessel, but to protect the public whose lives might be endangered were the vessel navigated in an incompetent manner.

It is no business of the government what a man does with his private property so long as he is using it for private purposes. He may take his yacht out to sea, and sink it, or blow it up, or do anything else he likes with it so long as he does not endanger the lives and property of others. Therefore the only legal or sensible motive in the government obliging the use of licensed men on yachts is to protect the lives and property of the public. It is not to protect the yacht or the life of the owner.

Now comes the question, "Do small boats like gasoline launches endanger the lives or property of the public?" Decidedly they do not, to such an extent as to make necessary government supervision. Can any one name an occasion when one of these boats has destroyed the lives or property of the public? Are they dangerous to other vessels employed in navigation? Has a naphtha or gasoline launch ever run down and sunk a vessel engaged in commerce?

Take a similar condition on shore. Do the authorities license the drivers of private carriages? Do they require bicycle riders to possess a certificate of competency? Yet these vehicles constantly endanger the lives of the public.

If these men who are trying to put this measure through were actuated by unselfish motives, if they had only the public welfare at heart, I would be among the last to oppose their efforts. But they have not. It is simply a strike to make jobs. The average professional openly resents the presence on the water of the man who seeks it for pleasure, unless he consents to employ one of their number to operate his boat.

Of course, where you have a large number of men knocking round in boats, there is sure to be a percentage of careless, foolish and ignorant. Many yachtsmen are no more fit to be trusted with a launch than is a child with a gun; but the most reckless and incompetent men I have met in charge of this type of boat were professionals, not amateurs. I do not think the government has any cause or right to concern itself with small motor launches or yachts that are used for private pleasure.

The curse of our modern civilization is the constant official meddling in private affairs. There are altogether too many laws curtailing and defining personal rights. This is especially so in this country, where legislators seem to delight in framing these acts of petty tyranny. No government has the privilege to make laws for the benefit of a class or society, or to infringe upon the rights of a body of its citizens in order to give employment to another body. It is a heresy peculiar to the citizen of republics that his government owes him a living, and that if it cannot give it to him directly out of the treasury it must pass some act to permit of his getting it out of somebody's pocket.

I advise all who are interested in small motor boats to take act on against the passage of any bill of this kind. Write to the Congressman of your district and ask him to vote against its passage. You must act quickly to prevent this blow to the sport, as I understand that the promoters of the measure have been at work for some time.

As a dirty, capitalistic, conservative member of the Establishment, I was greatly taken by that ninth paragraph - the one commenting so feelingly on "the constant official meddling in private affairs". Goah! things haven't changed much, have they? Jim Webb

# The Antique Outboarder can use more stories and news!

## ***YOUR FELLOW AOMCI MEMBER.....***

Here is a letter written by Mr. George Winter, of Spooner, Wisconsin, to P. S. Brooke, Jr. In it, Mr. Winter tells something of himself and his collection. George is truly a remarkable and capable man, being at home in the subjects of electronics, refrigeration, steam, outboards, boating, autos and you name it. I don't think he would mind if his letter is published, since it will allow other members to know him better.

Dear Mr. Brook, Jr.,

I am indeed sorry there was such a delay in replying to your letter. I took off on a vacation to the East Coast just before your letter got here and I just now got back.

The Red Wing motor is Serial No. 420 and the party I got it from a number of years back told me he thought it was made in 1907. All pictures and data on engines I have seen puts it very close to that. I never did get around to writing the Library or Historical Society in the Red Wing area to get more information. The engine had been stored in a boat house at Chetek, Wisconsin, and so is rust free. I would say it weighs about 200 pounds. There is a big, all brass Schebler carburetor; two large, piston type grease cups - all brass  $1\frac{1}{2}$ " x  $2\frac{1}{2}$ "; brass drip oiler; priming cup and a brass crank case oiler. The water pump has a brass eccentric and packing nut and rod.

The engine is refinished in a Forest Green and red flywheel center. Natural steel finished fly wheel rims and head bolts. You see, I had it at a gas engine show last fall so it is in fine shape to display. The engine also has the following extras: namely, a sound water cooled muffler with fittings, a trembler high tension spark coil and a double flange crank-shaft-to-propeller shaft coupling, refinished in natural steel bolts and set screws.

My Flambeau outboard is in very fine condition and complete except for original decals which were worn off; magneto and wires are like new. I have many other engines such as Champion, Koban-buzz coil type with open spoked fly wheel, Koban brass fly wheel magneto type, or O.M.C. Fold-Light model, Lauson air cooled, two old Lockwoods, a Caille Twin, several Johnson A and later 50 1939 models, an Elto Cub, which I use out at the lake, A Big Four, O.M.C. and an Evinrude Imperial 4. Not all are refinished, so far. I am 70 and retired now. Back in the 30's I had an outboard shop here. So have propellers and parts.

I am enclosing a copy of a patent on a Sieverkropp, 2 cycle engine made in Racine, Wi. They made odd ball engines and I saw one of the small singles at a show. It was on the order of a Maytag washer motor. This one is about 2 feet high and 18 inches long with water hopper and heavy flywheel. Also, I have three little  $\frac{1}{2}$  hp Maytag washer motors - 1912 models - with trembler spark coil ignition and very primitive build. They were used on the old Maytag wooden washers. I am sending a picture of the Sieverkropp engine and a Waterman 1909 Inboard with copper jacket, brass carburetor by Lunkenheimer.

Bob Brautigam stops in to see me every now and then and I fixed him up with a rare gas tank for his old Koban OB. I have a lot of stuff: Owen Dyneto for Lockwood Chief or Evinrude Speeditwins - several Evinrude Speeditwins - Power head for 1923 Evinrude Light twin - Model N-A Hiawatha made in Eau Claire, about 1937 - Hot air engine model - Model steam engines - old model air plane engines - a Creator Popcorn Wagon steam engine - an old Whizzer Bike engine - 4 Crosley cars in various state of repairs - a dirt track Midget Racer with Model T parts and Crosley engine and a 1935 racing shell.



I am working on a steam launch 17 feet long - an old time, strip, wooden fan tail hull and a 2 hp steam engine, boiler and all the parts, bell, whistle, lights, etc. I guess it will be my last big project. I have a small machine shop, lathe, mill, etc. so I can handle the projects pretty well. We have a cottage out about 10 miles on a Bass lake and I plan to berth the steam boat there - which will be a problem as I do not have a boat house and the brass fittings will be a temptation for vandals. Thanking you for your interest, I am, Very truly yours, George A. Winter, 1121 Summit, Spooner, Wisconsin 54801

WATERWITCH OUTBOARD MOTOR  
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MODEL YEAR GUIDE 1936 to 1942  
Furnished by Gary Blendheim

	Year	Model	H.P.	Spark Plug Gap	Fuel Mixture Pints	Spark Plug (Champion) (As - Allstate)
Air cooled Singles	1942	571.36	1	.025	1	CH-H-10
	1941	571.35	1	.025	1	CH-H-10
	1940	571.33	.75	.030	3/4	CH-J-8
	1940	571.34	.75	.030	3/4	CH-J-8
	1940	571.34A	.75	.030	3/4	CH-J-8
	1939	571.31	.75	.030	3/4	AS-C-13
	1939	571.32	.75	.030	3/4	AS-C-13
Water cooled Singles	1945	571.44	3	Mag. .020 Spark .025 S. .025/M. .015	3/4	CH-J-8
	1945	571.44W	3		3/4	CH-J-8
	1942	571.44	3		3/4	CH-J-8
	1942	571.15	3.5		3/4	AS-43B or CH-8
	1941	571.41-42-43	3		3/4	CH-J-8
	1941	571.13-14	3.5		3/4	AS-43B or CH-8
	1940	571.40	2.75		3/4	ASC-13 or CH-J-8
	1940	571.12	3.5		3/4	AS-43B or CH-8
	1939	571.11	2.5		3/4	AS-43B
	1938	571.30	.75		3/4	ASC-13
	1938	571.10	2.5		3/4	AS-43B
	1936-7	MB-10	2.5	3/4	AS-43B	
Opposed Twins	1942	571.26	5.75	Spark .025	1	CH-8
	1941	571.24	5.75	Mag .020	1	CH-8
	1941	571.50	10		1	CH-H-10
	1940	571.23	5.75	Spark .025	1	CH-J-8
	1939	571.22	4.75	Mag .015	3/4	AS-43B
	1938	571.21	4		1	AS-43B
	1937	571.20	4	Spark .025	1	AS-43B
	1936	MB-20	4	Mag .020	1	AS-43B



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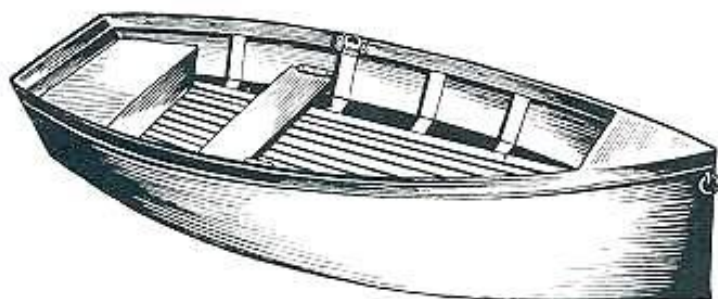
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## DECALS

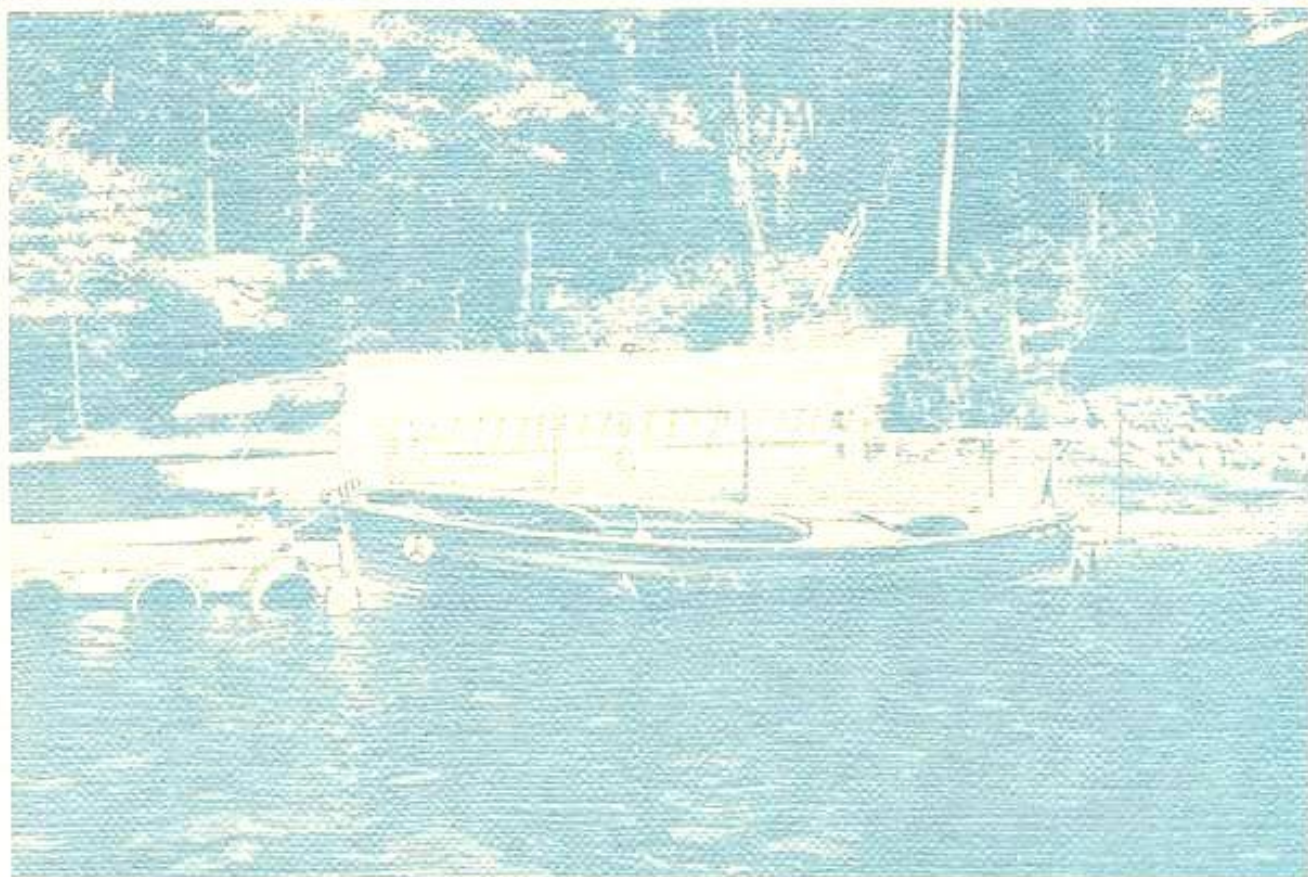
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For Johnson "K" models, patterned after P/N 27-227. Water applied; complete with starting and oiling instructions. \$5.00 each	Order from: Charles W. Hansen 2108 Broward Road Jacksonville, FL 32218

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# AOMCI 8<sup>TH</sup> YEAR