# The ANTIQUE OUTBOARDER

The Pioneering Authority


July 1972

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. Address membership requests to A.O.M.C., Inc., 20505 NW 3rd Av., Miami, Florida 33169.

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# THE ANTIQUE OUTBOARDER
# CONTENTS

July, 1972


| | Page |
|---|---|
| Club Briefs | 2 |
| Notes From The Curator | 4 |
| Of Historical Interest | 8 |
| "I Remember Elto" | |
| The Scrapbook of Antique Ads | 20 |
| The Collector's Gallery | 21 |
| The Debut of The Elto Quad | 23 |
| '72 Hartford Boat Show | 26 |
| Motor Test Tank | 28 |
| Letters to The Editor | 29 |
| Small Inboards Revisited | 36 |
| AOMCI Special Feature | 38 |
| Racing -- Racing Fuel | 40 |
| Your Fellow AOMCI Member | 43 |
| Motors Seen | 43 |


Front Cover:

The fun of outboarding can be seen from this 1932 picture of Allan Bucher and his Elto Speedster on Lake Ossippee, New Hampshire.

Back Cover:

Whoops! Here's Allan a few moments later-man and motor escaped with a dunking.

Photos by
Les Stevenson

This issue of The Antique Outboarder is dedicated to the people of the Elto Outboard Motor organization which began 50 years ago




*The Antique Outboarder* Volume 7 • No. 3 July, 1972

Published quarterly by the Antique Outboard Motor Club, Inc.
Publication offices — 2316 W. 110th St., Bloomington, Minnesota 55431

Single copies: $2.00 except as included with Club membership. Subscriptions: Nonmembers — $7.00 per year
*Change of address should be forwarded two weeks in advance and zip code numbers should be included.*

The Antique Outboard Motor Club Inc

# CLUB BRIEFS

THE ELTO OUTBOARD WAS FIRST PUT ON THE MARKET 50 YEARS AGO. TO COMMEMORATE THE OCCAISion, The Antique Outboarder is pleased to present "I Remember Elto", by Jim Webb. Jim doesn't mention himself much in the story, but we all know he played a mighty big part too. Our thanks also to the other contributors who helped furnish material for this special Elto issue of the magazine.

DAVE'S DONE IT AGAIN! DAVE REINHARTSEN HAS A NEW ADDRESS! 7417 WHISPERING PINES, DALlas, Texas, 75240.

EFFECTIVE JUNE 1, 1972, RICHARD M. JONES HAS RETIRED AS AOMCI MEMBERSHIP CHAIRMAN AFTER 4 years of dedicated service. Dick and his wife Jean have done a fine job for us. I talked with Jean the other day and she says they're both having trouble finding something to do with all the free time they now have.

Temporarily until a new Chairman is named, please send all dues payments, address change notices and other membership correspondence to Dave Reinhartsen at his new address as shown above. Dave might appreciate your offer to help with this most important job -- ASK HIM!

THE 4th ANNUAL ANTIQUE TRANSPORTATION MEET WILL BE HELD AUGUST 12-13, 1972, AT LA RUE, Wisconsin. Old outboards have been added to the program this year. Sounds like a lot of fun and a darned interesting time. Plan to attend if possible. More details and a registration blank are printed later in the magazine.

JOHN W. HUNT WILL HAVE LIMITED OPERATING HOURS THIS SUMMER FOR HIS OUTBOARD MOTOR MUSeum on Lake Winnipesaukee at Wolfeboro, New Hampshire. The Museum will be open from 1 to 4PM each Saturday and Sunday through August. John hopes to open up from 1 to 4PM on Wednesdays to, but can't be sure. He plans a special display of his motors for Johnson's 50th Anniversary -- he may even take a trip around the Lake with a Johnson "Waterbug" outboard.

MORE NEW DECALS ARE AVAILABLE! ERIC GUNDERSON REPORTS THAT JOHNSON SEA-HORSE 16 and 24 decals are now available from him at 57B Mount Hamilton Road, San Jose, Calif., 95114. Price of the "like original" decals is $7.00 each.

BILL SALISBURY WANTS ALL PO OWNERS TO KNOW THAT PO HEAD GASKETS AND PROP SHAFT SEALS are still listed in the parts catalogs as being available from the factory.

SUPPORT THE AOMCI NEWSLETTER WITH YOUR MOTORS AND PARTS ADS AND NEWS OF UPCOMING EVENTS as well as member stories or experiences. Write Bill Motley, Newsletter Editor, 20804 Hart Street, Canoga Park, California, 91306.

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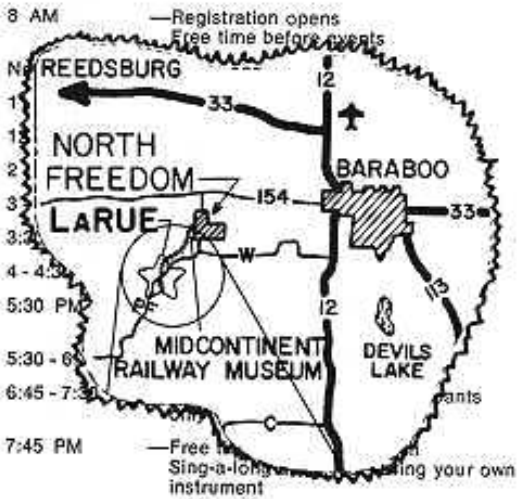
# PROGRAM

## SATURDAY — August 12




8 AM —Registration opens
Free time before events

5:30 PM

5:30 - 6

6:45 - 7:

7:45 PM —Free
Sing-a-long
instrument
ing your own

## SUNDAY — August 13

| | |
|---|---|
| 8 AM | —Registration and grounds open<br>Free time before events |
| 9:30 AM | —Gates open to public |
| 10 - 12:30 PM | —Muzzle-Loading Shoot |
| 9:30 - 1 PM | —Hill climb and car games |
| 10:30 - 1:30 | —Outboard Motor Events |
| 11 - 12 AM | —1900 Highway Obstacle Course (Pre 1925 Autos and Horse-drawn Vehicles) |
| 12:30 - 1 PM | —Starting Contest (Gas Stationary Engines) |
| 1:15 - 1:30 PM | —Vintage Bike Finals Race LaRue to Aerodrome |
| 1:30 - 3:30 PM | —Air Games |
| 3:30 - 4 PM | —Fashion Show |
| 4 - 4:30 PM | —Trophy presentations |
| 5 PM | —Meet closes |



# *The Fourth Annual Antique Transportation Meet*

# August 12 - 13, 1972

## LaRue, Wisconsin

**10 mi. West of Baraboo • 3 mi. South of North Freedom**
**Near Mid-Continent Railway Museum**

# ANTIQUES IN ACTION!

AOMCI Member Gale Urbainzick is on the big Transportation Show Research and Development Committee. Gale himself has arranged for outboard motors and boats to have a place in the Show.

ALL AOMCI MEMBERS ARE URGED TO ATTEND!

The outboards can be displayed at the Show grounds Saturday and Sunday except for the scheduled outboard motor events which will be held at nearby Seeley Lake. You can reach the Lake by traveling east from the town of LaRue on County Road F 1.6 miles. Make a sharp right (south) and go .3 mile over steel bridge. Turn right again, .3 mile to Lake. There is a paved parking area and paved boat launching ramp, plus rest rooms and picnic area.

## YOU ARE INVITED TO...

You are cordially invited to participate in the Fourth Annual Antique Transportation Meet on Saturday and Sunday, August 12 and 13, 1972. Come for a week-end of fun with games to test your skills with your machine. Have a good time with friends. There is something of interest for everyone. Make sure you make this meet — IT IS THE ONLY ONE OF ITS KIND.

# MEMBERSHIP APPLICATION

(Tear off and return with membership fee)

NAME: _____

ADDRESS: _____

CITY: _____ PHONE: _____

STATE: _____ ZIP: _____

PASSENGERS: _____

_____

_____

WILL YOU BE CAMPING? YES_____ NO_____

TYPE OF ANTIQUE TRANSPORTATION:

**BOAT** ☐

Name: _____ Yr.: _____

Style: _____

Engine: _____ H.P.: _____

**MISCELLANEOUS** ☐

_____

_____

_____

LICENSE NUMBER: _____

CLUB AFFILIATION: _____

INSURANCE CARRIER: _____

(All equipment must have public liability and property damage insurance to take part in the events)

**SEND YOUR** MEMBERSHIP FEE: $5.00 **TO:**

The Antique Transportation Committee
Box 395, Windsor, Wis. 53598
Phone: 846-5124 Area Code: 608

RICHARD A. HAWIE

# NOTES FROM THE CURATOR

One of the nicest things in life is being honored by one's associates. Thank you all.

I'd like to use the excellent foundation that Mark Wright has built regarding the various valving systems and look at them from a motor identification point of view.

Two-cycle engines must have some sort of valve between the crankcase and carburetor or the piston will pump the charge of air fuel out of the crankcase through the carburetor on the engine downstroke, the charge having been previously sucked into the crankcase on the upstroke of the piston.

Basically valving systems can be separated into two categories: pressure activated and mechanically activated.

The poppet valve carburetor and the reed valve are pressure activated. When the piston approaches top dead center a suction (or negative pressure) builds up in the crankcase; and when this pressure exceeds the force that the spring is holding the poppet valve with, then the valve lifts and air-fuel mixture enters the crankcase. When the crankcase suction drops as the piston reaches top dead center, the force of the spring closes the poppet valve. The pressure activated valving systems are excellent for service motors as the valve timing varies with engine speed. They idle well, are good at mid-range and high speed.

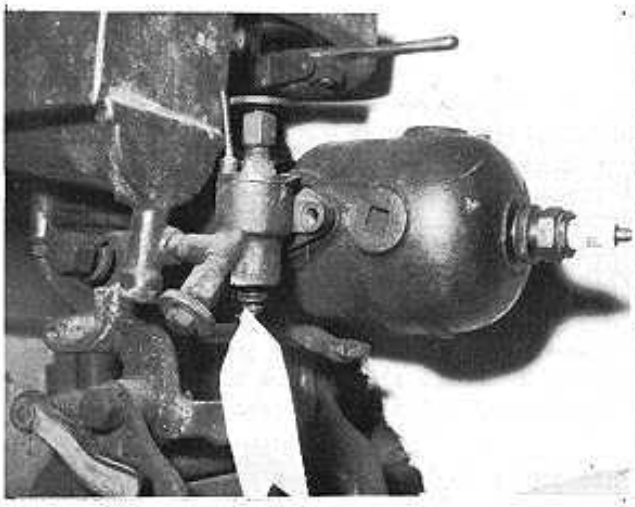
Theoretically at least they are not as efficient at racing speeds as the mechanically activated valve systems, but if you've looked at the racing records lately you'll realize that reed valve engines are mighty fast. Sometimes good engineering can close a theoretical gap.

The Elto motors from 1922-1929 were all of the poppet valve carburetor type. Look for these large screw-type caps on the carburetors. Some models made by Elto after the O. M. C. merger also used the poppet valve carburetor. The Senior Speedster and the Special Speedster are two that come to mind.

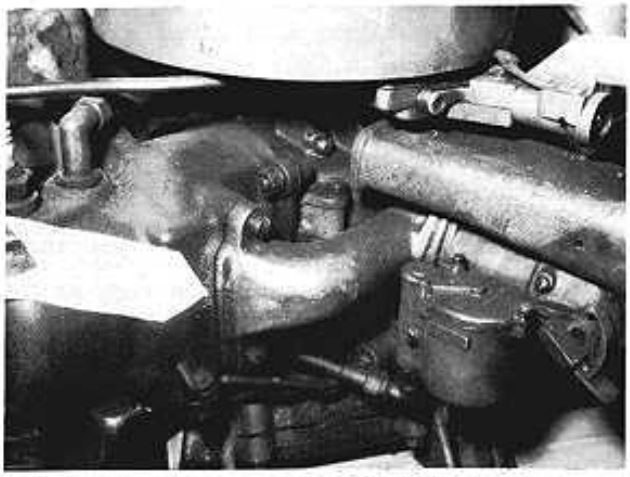
The Hi-Speed Speedsters and Hi-Speed Quads had an auxiliary air manifold on the rear of the cylinders and this was mechanically activated. The piston uncovered a port in the rear of the cylinder allowing air warmed by the exhaust muffler can to enter the crankcase. Our picture of the auxiliary manifold is taken with the gas tank off. You will need a strong flashlight if you want to see the manifold with the tank on. It's a good idea to make sure that it is there if you are buying a Hi-Speed Elto as the manifold can be taken off and the ports sealed with a plate.

Most of the early single cylinder motors used a poppet valve type carburetor. You will find a spring-loaded shaft on the carburetor somewhere. The Koban Twins used poppet valve carburetors too.

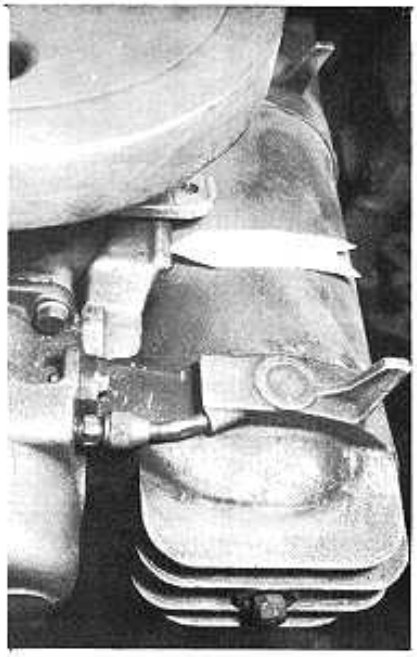
The reed valve was introduced in 1935 by Evinrude so any reed valve engine you have or find will be 1935 or newer. In my whole collection I think that I have only one reed valve engine because I have concentrated on pre-1936 motors. Not wishing to climb over a dozen other motors to get to the reed valve engine which is not apart anyway, I in-

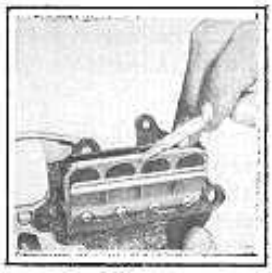


Above photo shows an early Evinrude single with poppet valve carburetor. The arrow notes the spring loaded valve shaft.



A 3 port twin, a 1928 Speeditwin with battery ignition plug and night light socket on magneto handle. Arrow notes manifold feeding into cylinder port.



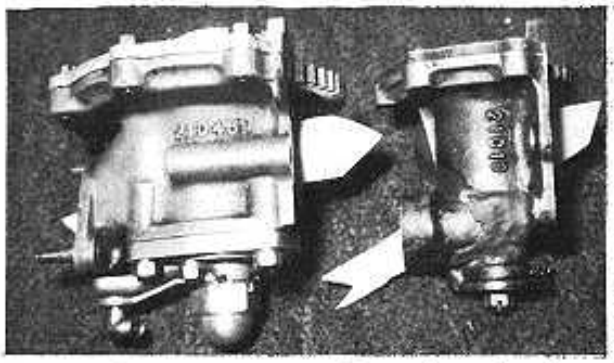


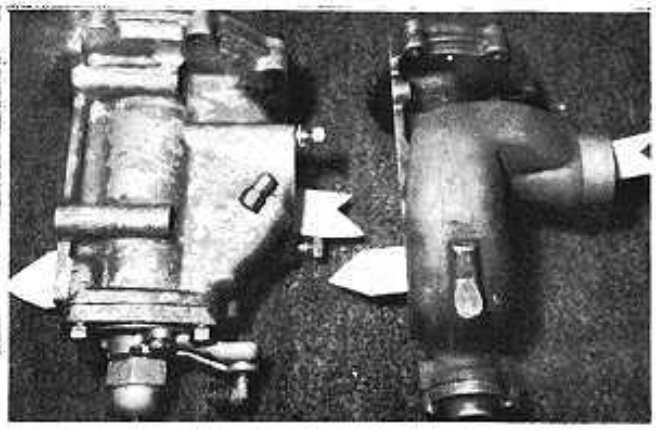
Above: A modern '71 50 HP Evinrude reed plate.

Left: Auxiliary air manifold on 1929 Hi Speed Speedster. Gas tank is removed for photo. Ever present arrow notes air intake.

Above: Elto 1929 Hi Speed Quad noting poppet valve carburetor.

Below left: Johnson rotary valves, half speed on left, full speed on right. Air/fuel flow noted by arrows.





Right: Johnson rotary valves from 4 cylinder models VR-50 & V-45 (right). Air/fuel arrows feeding bottom cylinders.

clude a picture of a modern reed valve plate. If you've never seen one, this is basically what they look like.

Mechanically activated valve systems include piston valved (or three-port) engines and rotary valve engines. The piston valved or three-port engine is the simplest of systems because there is nothing added to the engine to accomplish the valving. The cylinder has an exhaust port, intake port and by-pass port -- hence the term "three"-port engine. The carburetor on a three-port engine feeds directly into a port in the cylinder which is uncovered by the bottom of the piston skirt. This allows the air fuel to be sucked into the crankcase via the cylinder space under the piston.

Twin cylinder opposed engines such as the early Speeditwin models pre-1931 have a manifold which branches to each cylinder intake port. Most of the pre-1931 Twins were three-port engines. Included in this group would be all the Caille Twins, Johnson "Waterbugs", Standard Twins, Big Twins, Giant Twins, all the Lockwood Twins, Evinrude Fastwins and model N Sportwins.

During the 1930's three-port engines were not built in the numbers or horsepower range that they were in the 1920's. Though simple to build, three-port engines were not as flexible as reed valve or poppet valve carburetor engines nor as efficient as rotary valve engines.

Caille's last big three-port engine was the 1933 23 hp models 48 and 51. Muncie produced a 16 hp three-port Twin up to World War II. Their 16 hp Army Stormboat model 13A12 of 1942-43 was the last of the large horsepower three-port Twins. Imagine calling a 16 hp motor large in 1972! The bulk of the three-port engines produced during the 1930's were small fishing motors.

Rotary valves can be classified as external gear-driven and internal or crankshaft rotary valves. Rotary valves are very efficient for they can be timed to close much after the piston has reached top dead center hence taking advantage of the inertia of the air/fuel column racing through the carburetor to ram more air fuel into the crankcase. The only drawback is that the optimum timing of the rotary valve closing varies with engine speed, but of course the actual timing must be constant. At 4000 rpm the rotary valve should close about 52 degrees after top dead center, while at 2000 rpm it should close about 28 degrees after top dead center. If you set the rotary valve to close for 4000 rpm operation, you or the rear quarter of the boat get a bath of fuel, mostly oil at a pint per gallon mix, at any speed below 4000 rpm. For racing it's okay; racing drivers don't know any better. If they did, they wouldn't be racing drivers; but for a Sunday pleasure drive don't wear white ducks while running the old P-50.

The Johnson S-45 and V-45 of 1929 were the first rotary valve motors made. They were driven at crankshaft speed. The gear was small and the passage through the valve was circuitous. By turning the rotary valve at half crankshaft speed a nearly straight through passage was possible. The depression interfered with good engineering practice so we find the full crankshaft speed rotary valve on the models V-45 and S-45 through 1932. The 1930 racing models and the new 30 cubic inch P-50 had the half speed rotary valve as did the electric start models VE-50 and SE-50. The S-65 and V-65 of 1933 were made with half speed rotary valves. The last service models to have an external rotary valve were the 1934 S, V and P-70's. The racing models SR and PR continued to be made with external rotary valves until production was stopped by World War II. The only motors to be made with external rotary valves that weren't Johnson motors were the rare and weird Evinrude Speedibee and the Evinrude racing Speeditwin models 6038 and 6042-3.

Internal rotary valves can be placed in three categories: the crankshaft web type, barrel type and drilled hole type. In the crankshaft web type, a pie-shaped cut is made in the crankshaft web which allows the air fuel mixture to pass into the crankcase. Motors which used this type of rotary valve include all of the Evinrude-Elto four cylinder motors made from 1930 on, the Elto Super A and C, the Evinrude Speeditwins model 601 and up, and the Johnson P-75 and up. It's hard to tell whether a motor has an internal rotary valve or not from casual glance. If the carburetor feeds into the crankcase directly and has no reed or poppet valve behind it, then it must be a rotary valve engine or the wrong carburetor is on the motor. This can happen! We

have a couple of motors which have standard carburetors on them but should have poppet valve carburetors. I have gotten enough letters to indicate that it's possible to have a motor on which someone erroneously put two valving systems. A three-port Caille will not work with an Elto poppet valve carburetor on it, for instance.

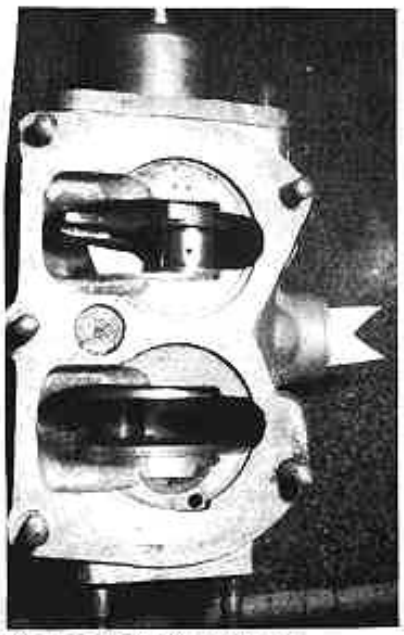
The barrel type rotary valve consists of a very thick disc of steel which has a hole machined through it to direct the air/fuel mixture from the carburetor to the crankcase. It was used on alternate firing Twins usually; I don't know of it being used on singles or opposed Twins. Johnson alternate firing Twins models A-50 and K-50 and succeeding A and K models used this type rotary valve as did the racing models KR-50 and up.

The drilled hole type of rotary valve is a small hole drilled in the center journal of the crankshaft. Because the journal is rarely more than one inch in diameter, the rotary valve hole is necessarily quite small; and this type rotary valve was used on the low speed circuit of the Johnson dual type carburetion systems such as the LT-10. This system, as you may recall, uses a three-port type for high speed operation and a fixed Venturi on the crankcase at the center main bearing for low speed operation. Though complicated, this results in fantastic idling. Other Johnson motors which used this system include the LT, T3, TD and H models of all years.

The Johnson models SD-10 and 15 (the SD-15 is a post-World War II motor) used the drilled hole rotary valve for low speed operation and the pie-cut crankshaft web for high speed operation -- an interesting combination. In fact, the SD is an interesting motor for several reasons. It was the transition motor between the depression era motors, when staying in business was the most important thing for the manufacturers, and the engineering marvels which were produced after World War II's long interruption. The SD-10 was the largest alternate firing Twin when it was introduced -- 22 cubic inches. It had a check valve type fuel pump, not gravity feed. It was streamlined and cowled well enough to pass as a "72" model if you could hide the automatic rewind starter handle.

Bendix used this type of drilled hole rotary valve, too, with the difference being that the crankshaft was hollow from the crankcase to the port in the crankshaft rather than being a small drilled hole.

Next time we'll delve into rare models and have some pictures of the Class A motors of the 1930's.



Upper left: Evinrude crankshaft rotary valve from a 16.2 HP Sportfour. Pie-shaped cut is chalked white to show shape.

Left: Johnson barrel type rotary valve. This is a KR crankcase. Air/fuel route is more direct than in S-45 type rotary valve.

Right: Crankshaft from KR, square port is rotary valve opening for top cylinder. Round hole is blind balancing hole. Port opening for bottom cylinder is 180° from top cylinder port. Barrel is about 1-3/4" thick. Crankshaft is made of 3 pieces, unusual in American engines.

-Dick Hawie-

# OF HISTORICAL INTEREST

.....W J Webb

Although the name of Elto did not come before the public before April of 1921, the Elto idea of a lighter, easier starting, twin cylinder outboard was certainly hatched in Ole Evinrude's mind by 1917.

Because of her failing health, Ole and Bess Evinrude had sold out their interest in the Evinrude Detachable Rowboat Motor Company to partner Chris Meyer in 1913. At that time Ole agreed not to have any connection whatever with any other outboard motor for a period of 5 years.

After the sale had been completed, the first objective was to get Bess rosy-cheeked and healthy again. To this end Ole bought and completely rebuilt a huge Packard touring car into something that had most of the features, if not the appearance, of today's campers.

So they climbed into the Packard and with son Ralph, then 8 years old, they headed westward to the Pacific Coast. Transcontinental motor travel was rugged in those days. Outside of occasional varicolored stripes on fence posts and telephone poles and the Lincoln Highway, highways were unmarked. (Any of you remember the old "Red, White and Blue" trail?) Hard surfaced highways were few and far between. Some roads were gravel topped - if there happened to be a quarry, mine tailing pile or gravel pit close by. Otherwise they were dirt - dusty when dry, axle deep when wet, unbelievably rough when frozen. There were motorists' guide books which told the driver how and where to go... "Turn left at red barn, continue about six miles and turn right on dirt road where new silo stands". Or..."The Missouri River can be forded at this point if gravel banks can be seen in midstream. If banks cannot be seen, it is advisable to wait for low water or proceed upstream until a shallower place can be found."

The Evinrudes were in no hurry and, eventually, they arrived at the World's Fair in San Francisco. Bess's health and strength had picked up week by week and by now she was vigorous and rosy-cheeked.

In the fall of 1915, they went to Florida where Ole bought a small cabin cruiser and they enjoyed a wonderful winter cruising Florida's lakes and rivers. It wasn't big enough for open water so Ole designed a 42 footer - the first of three "Bess Emilys". He designed the engine also, a powerful V-8, highly advanced for its day.

The Evinrudes returned to Milwaukee. Ole and Russ Cary, Bess's brother, like Ole a Master Pattern Maker, made the intricate patterns required for the V-8 themselves. Ole did a lot of the machining himself in the shop of J. C. Busch, a good and always remembered friend from the early days when Ole wasn't always sure of the whereabouts of his

next meal. Together, Busch, Ole and Russ Cary assembled and installed the new engine. It ran perfectly. With this able boat, the Evinrudes cruised the Great Lakes in the summer of 1917.

All the time he was designing and building the new V-8 engine, Ole was making sketches of a new twin cylinder outboard motor that would be lighter, faster and more powerful than the famous single which he had developed. Besides, there was this relatively unknown metal, aluminum, which was light, strong, easily cast and machined - maybe more costly then than bronze or iron - surely, this had a great future in Ole's eyes.

That fall, the Evinrudes headed the "Bess Emily I" south toward Florida via the Mississippi. Russ Cary went along as crew. Caught in the ice at Memphis, they laid up the boat and continued by train to New Orleans for the winter. Meanwhile, Russ Cary was drafted into the Army for World War I, and went back home from Memphis.

Ole was not a bit bored in New Orleans. Now he had time to do some real thinking about that new twin cylinder outboard. So he set up a drawing board in the hotel room and went to work - hard, long hours, just like always. The next spring when the family returned to Milwaukee, Ole had a big sheaf of drawings for a whole new kind of outboard.

Ole Evinrude, Master Machinist, Master Pattern Maker and Master Tools Maker, set to work. Patterns first, then castings, tooling and finally machining of the new pieces. Here it was that Ole learned how to handle aluminum. After his discharge from the Army, Russ joined Ole and the fur began to fly.

In 1919 they began to test this new outboard. In his spare time, Rob Cary, another of Bess's brothers, who later became Elto Service Manager, joined the group and helped with the assembly and testing of the experimental models.

Finally, Ole was satisfied. His new twin was lighter, faster, more powerful and started far more easily than anything else in the outboard field. This exceptionally easy starting was due in part to Ole's clever adaptation of the Atwater-Kent dry battery ignition and also to the best (up to that time) method of delivering a consistent, readily ignitable mixture of gasoline and air to the cylinder head and spark plug.

Naturally, Ole and Bess thought first of their old company, The Evinrude Motors Company, as the most likely marketing outlet. So Ole took his new motor to Chris Meyer, to whom he had sold out back in 1913. But Chris wasn't interested. His Evinrude Company was doing right well. Such competition as existed was far behind. Besides, Chris had little confidence in this new aluminum that Ole had used so extensively. Nothing could do better than the old reliable bronze and iron. Also, Ole had some old fashioned ideas about the necessity of accurate tooling which would have required an outlay for some new machinery and tools. Chris was firm in his "No".

While keenly disappointed at Meyer's refusal, Ole and Bess were far from down hearted. Their decision was couched in about these words, "All right, we'll make it ourselves - we have the patterns, many of the tools, we have learned about aluminum. We'll set up a shop and office. Ole will make it and Bess will sell it."

Capital was limited, so Ole designed and made nearly all of the special tooling required. Russ converted the experimental patterns for production. Rob Cary left his full-time job with Industrial Controller to help with assembly plans and testing. Herb Moering, who married Bess's sister Florence, came in after hours and handled the purchasing and helped with production planning. Later when Elto was ready for the market, Herb left a promising full-time job and came to Elto. Undoubtedly strong family loyalty played a large part in the successes that Ole and Bess enjoyed.

In 1920, factory and office space was rented in the Manufacturers' Home Building at 62 (now 104) East Mason Street, right on the Milwaukee River in the heart of downtown Milwaukee. (With the heart of Milwaukee's fine shopping district no more than five minutes from the Elto office, we never had a bit of trouble hiring female helpers.)

Bess, meanwhile, was just as busy as Ole. There was much careful planning to be done. Banking and financing had to be arranged - a sales and advertising campaign had to be primed and ready to go on signal - a dealer sales and service organization had to be planned and activated through personal contact and effective direct mail - top grade

# OLE and BESS EVINRUDE

descriptive literature laid out - an effective office organization prepared - order writing, shipping, billing, accounting service procedures to be worked out - details by the hundred to be tied down. And Bess guided all of it.

Early in the game, Bess decided that it was high time that this new child be given a name. It should be short, easy to say and remember and resemble nothing else. She came up with ELTO - the initial letters of the four words, EVINRUDE'S LIGHT TWIN OUTBOARD. A man with an international merchandising reputation told me that the selection of the name ELTO was an act of merchandising genius. Like KODAK, the name Elto meant nothing by itself, yet it had everything that a good brand name should have, and the excellent product back of the name gave it greater value.

Late in 1920, Bess's sister Dorothy Cary, now a super secretary, left a fine job with O. R. Pieper to come to help Ole and Bess. Dorothy eventually became office manager besides handling all sales correspondence; but at first everyone wore several hats. I was hired in January of 1926 to take the place of Dorothy, who was planning to be married in September. Her husband-to-be was Jake Stern, of whom, more later. Dorothy taught me plenty about sales correspondence and office procedures.

Meanwhile, economic storms were brewing. The post World War I recession was beginning in 1920. It didn't seem to be a good time to start a new business. The big downtown bankers were so unwilling that Ole and Bess had to go out to one of the smaller, outlying banks - The Park Savings. Later, the big boys came, hat in hand, soliciting Elto business. But, characteristically, Ole and Bess remembered who had stood by them in time of need, and Park Savings remained Elto's main banking connection for years.

A financial expert once said, "Every single day, some where in this great country, a small shoe string business with but small chance for success starts up and somehow, by courage and brains and hard work makes it big; and every single day sees some successful business lose its courage and its brains and its industrious habits and start its downward slide". Ole and Bess had courage, brains and industry. I could add another ingredient - integrity, or to put it another way, strict unadulterated honesty.

Finally, in January of 1921, Ole told Bess that by the time she could get the first ad in print, the first Elto would be ready to ship. Bess had it all ready, and the first Elto ad appeared in the April issues of the Boating magazines.

The response was instant and enthusiastic. From the first day orders came in faster than shipments could be made, and before summer, the small factory at 62 Mason was sold out. Excellent field performance of this new motor generated new business and brought dealer and distributor inquiries by the dozen.

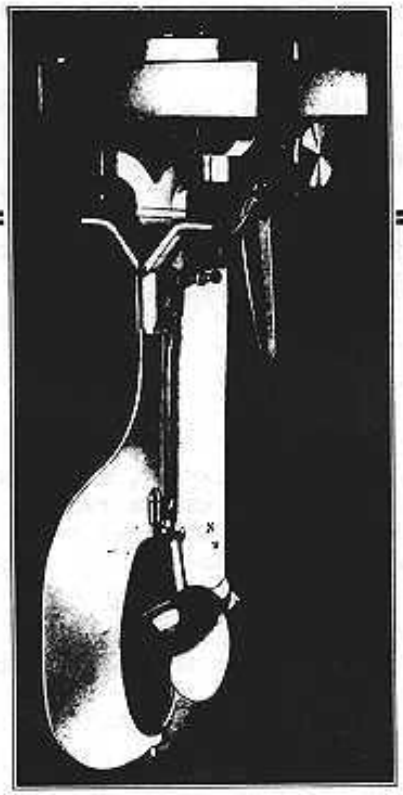
Late in that first year Bess came up with another of the many right moves that had brought success. She decided that Elto needed merchandising help, and hired young Jake Stern, then Export Manager for another successful Milwaukee firm, Briggs and Stratton. Jake proved to be immensely capable in many areas. As Elto Sales Manager, Jake built a strong dealer and distributor organization both at home and abroad. One of his export appointees, Jack Shillan of London, soon made Elto the top outboard name in Europe.

Jake became Assistant General Manager in 1926, and when Elto, Evinrude and Lockwood merged in 1929, he became Executive Vice President of merged group, but more of that later.

Ole rented more space, all he could in fact, bought more machines, hired and trained more men. Yet, even with increased facilities, Elto was sold out for the whole year early in 1922. And so it went. Ole was renting additional space as fast as the management of the Manufacturers' Home Building would turn it loose, but still Elto was sold out for the year by early summer in 1923, '24 and '25.

From 1921 through 1925, the Elto Light Twin developed three horsepower with a bore of 2¼" and a stroke of 2". In 1926 this was increased to 4 hp by increasing the bore to 2½" while leaving the stroke at 2". Improvements were made each year. In 1924 Elto became the first outboard to discard the plunger pump as a cooling mechanism. The plunger pump was fine in clear fresh water, but cut out quickly in muddy or silty water and usually froze up after use in salt water. In 1924, Elto brought out the Propello

# Here Is Ole Evinrude's New Motor



OLE EVINRUDE, the man who made possible the outboard or detachable row-boat motor, again is receiving enthusiastic expressions of appreciation from old friends and new everywhere as a result of the announcement of his new Light Twin Outboard Motor now being manufactured by the Elto Outboard Motor Co., of which he is President.

As a fellow sportsman and master engineer, it therefore pleases him much to present the **ELTO,** ideal motor for sportsmen and all outdoor people.

The **ELTO** motor in structure and finish is distinctly different from all of Mr. Evinrude's earlier models. Its highly polished aluminum and nickeled parts identify it in appearance as the "silvery motor."

Its clever design has made possible a twin-cylinder motor, which, weighing but 46 pounds, develops full 3 H.P. Its sturdy and substantial construction suggests dependability and years of service.

Free from vibration, because of its perfect mechanical balance—quiet and smooth with not a particle of back pressure, the result of its new underwater exhaust principle—the **ELTO** motor stands alone for comfortable operation.

Its well-thought-out ignition—an Atwater Kent combination—has produced an easy, quick and positive starting. Its bracket arrangement allows it to be raised instantly and easily above the water line in dangerous or unusually shallow waters, and motor will tilt automatically when striking an obstruction, protecting both itself and boat from possible harm.

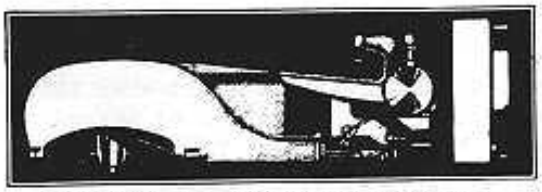
The propeller and housing design of the **ELTO** together with its splendid tilting arrangement, make it altogether weedless.

Its balanced method of steering gives freedom from the urgent necessity of holding constantly to the steering handle and after motor is shut off, control of the boat is still to be had by the use of the rudder.

Most noticeable are the clean-cut stream lines of its lower frame, free from unnecessary protrusions and forming the least resistance to the water; while its broad, smooth surface permits of easy cleaning. Its remarkable compactness for carrying is brought about by the rudder swinging back against main frame where it is securely caught. Its spark plugs, placed where they insure safety from shocks or breakage, is a point much to be appreciated.

Altogether, the **ELTO** motor is a strictly 1921 product and the best guarantee we can give of its excellence is the natural genius and big experience of its designer and builder, Ole Evinrude.

Truly, the **ELTO** Light Twin Outboard Motor is a skillful piece of mechanism of exceptional quality in every detail.



Weight 46 lbs. Dimensions 34" x 9½" x 13½" Folded "Comfortably Portable."

***Our Attractive Catalog Is Now Ready***

## ELTO OUTBOARD MOTOR CO.

**OLE EVINRUDE, President**

**MANUFACTURERS' HOME BLDG. Dept. F MILWAUKEE, WIS.**

Pump, a simple, absolutely wear and freeze free system which used the wash from the propeller to push cooling water through the cylinder water jackets.

Meanwhile, quality was improving inside the motor as well as out. Every motor powerhead was lapped for an hour in a mixture of jewelers rouge and oil, then disassembled, all rouge washed out, reassembled, and run on a break-in tank under load for two hours. After this, it underwent a final test, was finish polished and cleaned, wrapped in paper, carefully packed in a wooden box made of really good lumber throughout and shipped. Box lids and packing supports were screw fastened, not nailed. Many a dealer's shed and pier, some still standing, by the way, were made from Elto packing boxes.

Another high quality item was the tool kit. This was no jerry-packaged thing. Any man with mechanical savvy sufficient to change a spark plug, could assemble and disassemble any Elto with just the tools supplied in the tool kits. I remember that we received several letters complimenting Elto on the high quality evident throughout, from screw fastened box lid to Rolls Royce type tools. I think it paid.

Elto sales held up well in 1926, with a sellout by fall. In those days the active selling season didn't start before April in the South and the middle of May in the North, and it usually dropped through the floor by October 1. We didn't have year round production then as a rule, although, with our smaller capacity, Elto production was on a more even keel than that of most of the competitors. While some seasonal layoffs were necessary in the factory, Ole and Bess did everything they could to keep layoffs to a minimum. I have heard them discuss the problem many times. Both were well aware that the solution was even year round production.

Ole Evinrude was an even-tempered, calm individual. I knew him from January 1926 until his death in 1934 and in all that time I saw him angry only once. A Factory Superintendant at Elto had deliberately short cut production instructions. This resulted in lowered quality. The man tried to lie out of it. Ole believed him at first, but when the extent of the deception became evident, he really lost his temper. He gave the man a firing and a telling that had to match the best chewing out ever delivered by any top kick to a dumb recruit. Characteristically, Ole paid the man his regular salary until he found another job.

It was as a result of this that I got my first lesson in Evinrude integrity. Without hesitation Ole, Bess and Jake decided to write every dealer who had received motors in a certain series and offer an immediate, free prepaid replacement. This involved several hundred motors. We received many letters from dealers and owners who were amazed and pleased at our action. The fact that we came right out and told the whole truth and offered an honest remedy made us many friends. I never knew the Evinrudes to follow any other than a policy of the strictest honesty in all dealings.

A fine team themselves, Ole and Bess naturally inspired fine teamwork in their organization. On most summer weekends many of us in the Elto organization were at the Evinrude's summer home on Oconomowoc Lake with wives or husbands as the case may be, taking pictures for next year's advertising program. No


Another type early Elto advertisement probably mid-1921.

This picture was taken by Jake Stern at the close of two days of taking camping and hunting shots. Locale was the Evinrude's summer home at Oconomowoc Lake, about 25 miles west of Milwaukee. From left to right: Mrs. Bill Kiss; Bill Kiss, Elto Advertising Manager; Ole Evinrude; Mildred (Mrs. W.J.) Webb; Mrs. Evinrude; W.J. Webb; neighbor's dog, Kent; Bob Burns, President of Burns-Hall, Elto Advertising Counsel; Ralph Evinrude and N.L. Telander, Vice President of Burns-Hall and Elto Account Executive. With the exception of about three months in 1929-30, Telander was Principal Account Executive for Elto -and then Evinrude- for some 40 years. A real record in the advertising jungle. Ralph, Burns, Telander and I had not yet changed back into civvies, while the rest were ready to hit the Sunday traffic back to Milwaukee.

one expected, asked for, nor received any extra pay for this. I have fond memories of office mailing bees when all of us from office boys on up pitched in and worked for 2 or 3 hours in an evening to get out an announcement mailing. And always, there was Bess with a sheet of brown wrapping paper pinned over her dress folding and enclosing mail in the middle of a group of office girls. We always had a supper sent in, but that was all.

In 1927 Elto sales had noticeably slacked off. For the first time Elto had motors in stock in mid-June. At this time Elto still had only the rugged, fine performing 4 hp Service Twin and that was no longer what most of the public wanted.

The reason was that Elto did not have a motor that could go out and race. The public preference had turned to speed, that is, what passed for speed in 1927. In 1925, the Johnson Motor Company then of South Bend, Indiana, brought out its famous Big Twin, a 6 hp, 85 pound monster that made nearly 15 miles per hour on a stepless hydroplane, the Baby Buzz. Unbelievable. This was available in quantity and Johnson grabbed the sales lead with it. Johnson, followed by Lockwood-Ash of Jackson, Michigan, made speed the big issue. Outboard racing became immensely popular overnight.

Ole had not been asleep. In 1923 he had built two or three four cylinder motors by putting two of the 3 hp Light Twins together. This early quad ran well enough. It had been shown and demonstrated to a few of the more knowledgeable distributors and dealers and all were enthusiastic about it. But there just didn't seem to be any reason to go ahead with it. Besides, the production of the highly popular and profitable 3 hp Light Twin was requiring every available inch of factory space.

By September 1927, Elto had finished developing the now famous Service Speedster, now a collector's item. This was a 7 hp, 19.6 cubic inch displacement motor based on the 4 hp Service Twin powerhead. It was by long odds the easiest starting fast motor on the market and the best load puller in its class.

One individual's contribution to Elto's success in the fast motor field stands out and is to be especially commended. That person was Ralph Evinrude. From my years of close association with him, I know that Ralph inherited generously the abilities of both parents. He understood mechanical things just as well as his father. He had his mother's nose for the news - and salesworthy - and all of the whys and wherefores. He had tremendous drive and the physical strength to go with it. It was Ralph's tremendous drive that did much to bring the 1928 Quad to market readiness in time and brought the first Elto Speedster to the market in September of 1927 in time to give a much needed boost to the sagging morale of Elto dealers and distributors.

This same drive took Ralph and me up to the Milwaukee River Test Station at the North Avenue bridge to boat test the first Speedsters before shipment. Every one of the first thousand motors was given a searching boat test by either Ralph Evinrude or me. We used two boats of practically identical performance characteristics, either a Thompson or a Pen Yan step plane. After a warmup run, the motors were checked for starting, pickup, general handling and finally they had to make 22.5 miles per hour over a measured course or they were rejected. Ralph and I were just about the same weight so the tests were quite fair all around.

Meanwhile Ole, under son Ralph's continued day and night prodding, had brought the 1923 Quad up to date, using two Speedster powerheads as a base along with one of the best lower units ever devised for that power range - 18 claimed but more than that delivered in last analysis.

The new Quad was truly revolutionary. We wanted to keep it as secret as possible so we did all of the developmental running in out of the way places and at Oconomowoc Lake west of Milwaukee after all of the summer residents had closed their places for the winter, in October and November. Ralph, Bob Cary and I worked as far into December as ice conditions would permit. We frequently worked until it was too dark to see. Mrs. Evinrude ordered me to get Ralph off the water and back to the office before dark. Sometimes I was able to do it. Sometimes we all got scolded for coming home too late. We enjoyed the work but not the scolding. Mrs. Evinrude and Jake Stern did the scolding - neither of them ever "bawled out" anyone. I have a picture of Ole sitting back

during one of these sessions with a slight smile. He didn't say a word, but he knew quite well why Ralph just had to keep going.

Ralph is still very close to all testing and development. He still likes to run motors of every size. It wouldn't surprise me a bit to hear one day that he has joined the 100 Mile-An-Hour Club.

Ads announcing the 1928 Quad were not put in the hands of the magazines until the last possible hour of the last possible day so that our competitors might be taken as much by surprise as possible. Evidently our efforts at secrecy were successful as none of the competitors was aware of what was coming until just before the New York Motor Boat Show held in January. Traditionally, the New York Boat Show was the kickoff for the next boating year. In those days people came by the trainload from the 4 corners of the country to get the first glimpse of what was new at New York. The 1928 Quad was the outboard hit of the Show. The year's production was sold out before spring.

In 1928 Elto began to support racing for the first time. We sent a service crew to the Albany - New York Marathon, then the biggest marathon show of the year, but the Quad drivers did not have the right boats for the water conditions of that day, and, more importantly, did not know how to run the course. About the same thing happened in the Milwaukee - Chicago Marathon. An Elto Speedster took first place in its class, but the Quad showing was just "respectable".

June of 1928 saw Ole Evinrude step up the speed of the Quad by replacing the iron pistons and bronze rods of the early Quad with tempered Lynite pistons and connecting rods. Things took a turn for the better in June and Elto won its first big victory in the 205 mile Peoria - St. Louis Marathon on July 4th. Eldon Travis of Peoria won by quite a margin. Art Sauerberg of St. Louis actually finished second with another Quad, but through some weird timing procedures at the up river locks, was pushed back to third. Rob Cary, Charley Koller and I service-crewed that event. In fact from that time on, Elto had a service crew at all the big races. We adjusted ignition points, carburetors and gave away sets of spark plugs and that was all.

By the end of the 1928 racing season, the Quads were on top of racing everywhere and finished with a grand flourish, winning the Class D and Free For All at the Harmsworth in Detroit, the Midwest MVPBA Championships in Peoria and at the National Championships at Wilmington, North Carolina. It was at Peoria that Eldon Travis set a new Worlds Time Trial record of 41.748 mph with his Quad and Boyd Martin Bullet Boat.

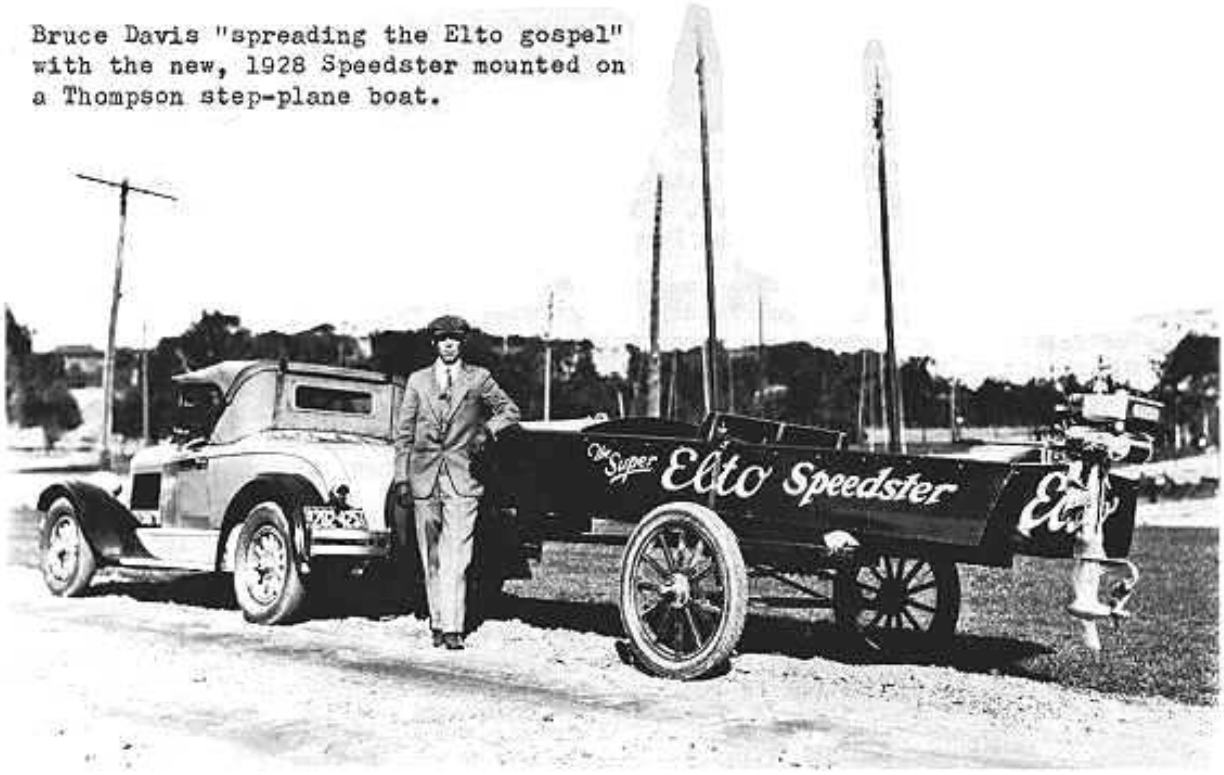
During the period, Elto scored a number of "Firsts" in effective outboard motor merchandising, ideas that were widely copied in the marine industry. One of these came in September of 1927 when Elto gave the just-announced Elto Speedster a mighty boost by equipping two good men with Thompson Step Planes driven by the new Speedster, mounted on sturdy trailers, and sent them southward to spread the gospel.

These men were Bruce Davis of Duluth, Minnesota, then the Elto distributor from Minnesota and Northern Wisconsin, and Herb Parker of Boston, Massachusetts, then the Elto distributor for New England.

The picture shows Bruce Davis with his Chrysler Roadster/Convertible. Herb had a similar outfit. That trailer was whacked together in the Elto shop. It consisted of a Model T Ford front axle and spring, with steering arms welded. Ole Evinrude designed it and supervised the construction. Outside of a couple of cases of tire trouble, both trailers travelled from Milwaukee to Southern Florida and Texas, and most points in between, and arrived back at the plant in perfect shape shortly before Christmas. Ole built trailers to last also.

Bruce covered the area mostly west of the Mississippi. Herb covered mostly east of the Mississippi. Dealers along the route were alerted and encouraged to get out as many customers as possible to watch and run the Speedsters. It was a long tough grind, with both Herb and Bruce averaging better than five demonstrations per week. As both of them reported, getting the boat in the water was a cinch, as there were many willing hands. But when it came time to quit and pull out for the day, the willing hands, for the most part, vanished.

Bruce Davis "spreading the Elto gospel" with the new, 1928 Speedster mounted on a Thompson step-plane boat.




The idea was a great success and was widely copied in following years. In the early thirties, Outboard Motors Corporation, which took over Elto, Evinrude and Lockwood in 1929, equipped all its salesmen with house trailers, each of which carried a full line of Evinrude and Elto motors, a travelling showroom, in fact.

Bruce Davis went to work for us in 1930 and travelled territories west of the Mississippi for the next 30 years. Bruce retired in 1960. He and his wife, Bee, plus the dog, Patrick, and the cat, Bootsie, are living most happily in Leesburg, Florida. Bruce still takes in all the dealer meetings in Florida.

Herb Parker continued as our distributor in Boston for a number of years until ill health forced him to retire. A heart attack finally claimed him.

The end of 1928 saw Elto at the top of the heap. It was, by quite a margin, the top profit maker in the industry. None of this was lost on Steve Briggs, Board Chairman of the highly successful Briggs and Stratton Corporation, also of Milwaukee.

Briggs and Stratton now owned Ole's old company, the Evinrude Motor Company, which had also had a very successful year in 1928. Another successful but smaller outboard maker was the Lockwood Company, formerly Lockwood-Ash of Jackson, Michigan.

Briggs saw great possibilities through the combination of these three. Evinrude had a good plant with plenty of room for expansion. Elto had strong engineering and production capabilities, and in Ole and Bess Evinrude and Jake Stern, excellent top management. The Lockwood Company had the superb engineering talent of a young Norwegian, Finn T. Irgens, who had gone to Lockwood from Johnson in 1925, plus a top marketing man in Pat Tanner.

Briggs approached Ole and Bess. They were at the top of the heap and had no thought of selling. But for Ole it was a chance to head up three of the top companies of 1928 and more importantly, to stop competing with his own name. Lockwood was ready to sell, and so on March 6, 1929 the merger of the three companies was announced. The new company was named Outboard Motors Corporation. Steve Briggs was Chairman of the Board, Ole Evinrude was President and Jake Stern was Executive Vice President.

With fine talent available for all the top jobs, Bess saw and took the opportunity to retire and enjoy some real leisure without having to shoulder any more business burdens. She was ready with fine advice at all times, but was content to let others take over.

For 1929, Ole had developed a larger Quad which gave the outboard world the very first motor with spark plugs fully protected by polished aluminum shields against rain, spray or breakage. This was the start of the complete shielding of the outboard powerhead, now standard throughout the industry. Ole lived to see his powerhead protection idea brought to full flower in the Hooded Power motors introduced to the industry in 1934.

Also for 1929, Ole had developed a real shocker for the small motor field - a motor that folded - the 4 hp, 38 pound Folding Lightweight. Before the northern lakes were clear of ice, Folding Lightweight production was sold out for the year.

On the first of November, 1929, the merger was completed when Elto and Lockwood personnel, supplies and equipment were moved into the Evinrude plant at 4143 North 27th Street in Milwaukee. After the merger was announced, the Evinrude facilities had been improved by the building of a new 2 story office building as well as a substantial addition to plant manufacturing space.

Rough times were immediately ahead. The stock market had crashed in October 1929. Few realized the magnitude or effects of the world-wide Depression then upon us. 1930 sales of all lines plummeted. By mid-summer of 1930, Ole and Jake had correctly assessed the storm signals and had started the belt tightening that was to see the new Outboard Motors Corporation safely through the Depression during which all competitors either dropped outboard motors or sold out or went into receivership.

Lockwood was dropped at the end of 1930. Evinrude and Elto continued to operate with two separate and competitive sales departments which supplied two separate and competitive dealer and distributor organizations. Elto stuck with battery ignition while Evinrude sold about the same models with the more popular magneto ignition. There was good reason for this popularity. The flywheel magneto which had not been too great in 1921 had been improved so that it was fully as reliable as the dry battery in producing an adequate starting spark. Elto had a good name and a loyal following of Elto users, but a new buyer faced with the choice between a motor with the good, completely satisfactory, built in magneto ignition and an identical motor of the same weight and performance that also required a dry battery, was likely to choose the magneto ignited Evinrude. In recognition of this, it was decided that in 1934 Evinrude and Elto sales organizations would be consolidated with both brand names being handled by the top dealers and distributors of both organizations.

This worked out very well, being helped along greatly by the introduction of the first outboard motors ever to have the powerhead completely protected with nicely styled good looking aluminum hoods. This new development, an extension of what Ole Evinrude had started in 1929, was called Hooded Power, and set a style and standard that the rest of

the outboard industry has come to copy. Only two models were so treated that first year, the 5.5 hp Alternate Firing Lightwin Imperial and the 4 cylinder 9.2 hp Lightfour Imperial. The Hooded Power idea had been ready since 1930, but the company lacked the capital to invest in the new tooling required for the two new motors and Imperial treatment until 1934. Hooded Power was eventually extended to all models over the years.

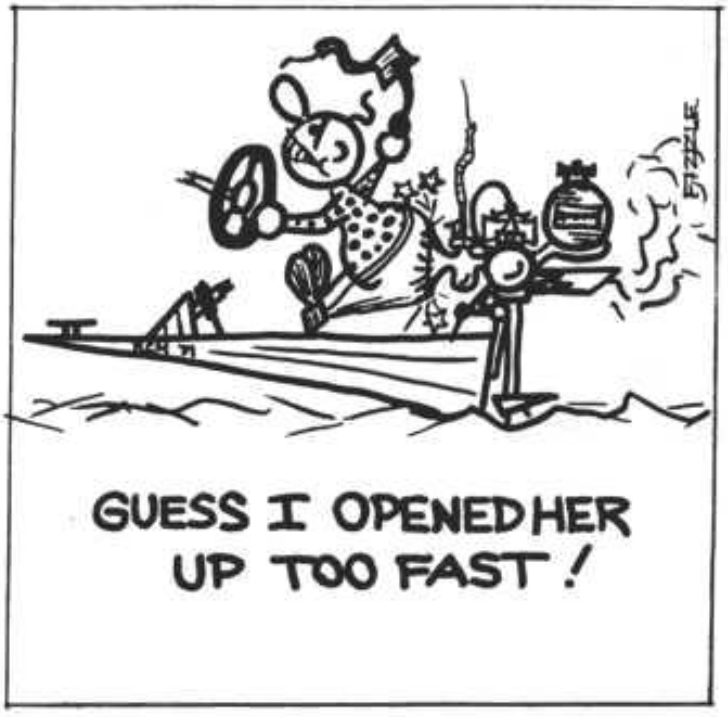
In 1935 all Elto models, except the new 1½ hp, 24½ pound Sportsman, which was the first outboard to employ the reed valve intake, had battery ignition. But battery was rapidly sinking. Elto had the same number of models as Evinrude - 9, plus 3 racing models.

In 1936, the Elto line was down to 4 models, the 1½ hp Ace, the 2.5 Handitwin, (both of these models now collector's items), the 4.3 hp Service Twin and the 22.5 hp Super CEE - a battery ignited Class C motor - all plain, without the Imperial treatment. Only the Service Twin and Super CEE were available with battery. The plain Elto line was a few dollars lower in price than the more elaborate Evinrude line.

In 1937, Elto had a six model line, without the Hooded Power treatment - the now famous Pal, Ace, Handitwin, Service Twin, Handifour, a plain version of the Lightfour Imperial and the Super CEE. Battery ignition was available but almost never called for on the Service Twin and Super CEE. Prices were lower than the comparable Evinrude.

In 1938, all Eltos were magneto ignited. The line was back to 4 models - Pal, Ace, Handitwin and Super CEE. Elto continued as a brand name for plain motors without trimmings until 1951, when the name was dropped, marking the end of 30 years' influence of the fine Elto tradition on the Outboard Motor Industry. I know Mr. and Mrs. Evinrude would want the Elto tradition of honesty, integrity and excellence to be remembered as well as the classic engines of the line and the personal achievement of those persons who made the Elto organization real.

Jim




EAST MEETS WEST..... Paul Strot, left and Sam Vance prepare to package-up a Senior Quad in Don Peterson's shop. Paul and Don live in Portland, Ore., while Sam comes from Unadilla, N.Y. Sam had just bought the Quad.

# The Scrapbook of Antique Ads

## FEDERAL

2 - Cylinder, 3 H. P.

### ROWBOAT MOTOR

can be attached with the greatest ease, either before you launch your boat, or while you are on board.

Extraordinarily powerful—3 H. P. guaranteed.

Absolutely vibrationless and almost noiseless.

Easiest of all motors to start. Controlled from any part of the boat. Reversed instantly.

Equipped with Bosch high tension magneto.

Propeller adjustible so that it is not necessary to remove engine before beaching boat or running in shoal water.

Write for your catalogue.

FEDERAL MOTOR & MFG. CO.

Office, 620-32 F St., Washington, D. C.

Factory, Newark, N. J.

A big opportunity for agents and dealers. Some territory still open. Write

-ALL 1915-

By Don Peterson

## Buy AMERICAN Motors Direct

We are one of the largest marine motor builders in America. We buy raw materials in quantities, we build in quantities, we sell in quantities. This cuts production costs to the core without sacrificing quality. In addition, we sell direct, enabling you to

### Save Dealers' Profits

$29.95

2 H.P.

The American Outboard Motor at $44.95 will give just as good service as others selling at $70. It embodies just as good materials and workmanship. Develops 2 H. P. Runs 6 to 9 miles an hour. Easily attached and adjusted. Weighs about 50 lbs. Reversible. Runs in salt or fresh water. Steers with propeller. Also rudder steered model. Magneto ignition at small cost. Send for catalog "B."

$44.95

**Larger Motors from 2 to 30 H. P.**

Every one of the highest grade at low net prices. Built in one to four cylinder designs, heavy and standard duty types. Simple, sturdy, easy to operate and install. Ask for special catalog "B."

AMERICAN ENGINE CO., 333 Boston St., Detroit, Mich.

## Campbell Marine Motors

*ABSOLUTELY GUARANTEED*

**Baby Campbell Row Boat Motor**

2½ to 125 Horse Power

IMMEDIATE SHIPMENTS

SPECIAL PRICES AGENTS WANTED

CAMPBELL MOTOR MFG. CO.

Main Office—102 South Third Street

MINNEAPOLIS, MINN.

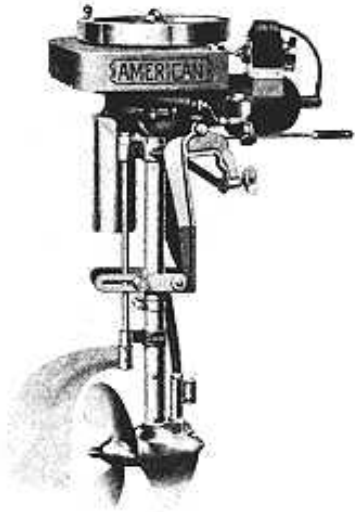
## BLAKELY

*Save Money*

**$39.50**

**While they last**

these motors while they last for the ridiculously low price of **$39.50**




The American

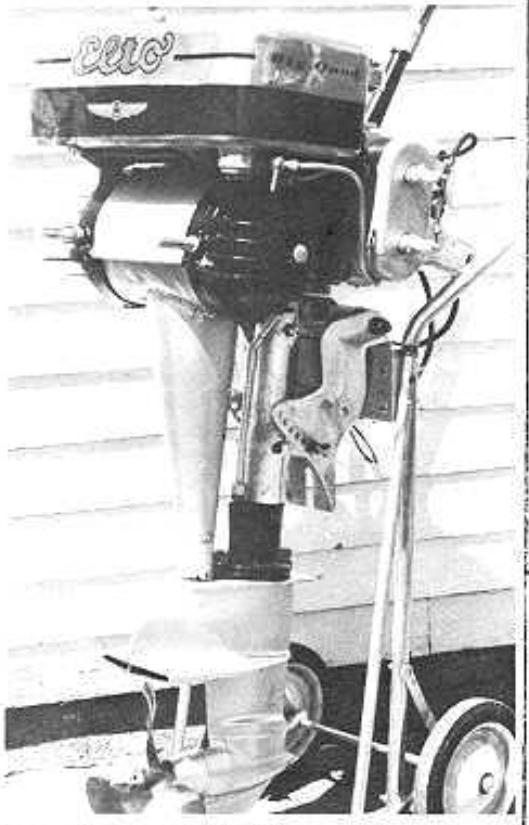
With magneto and rudder

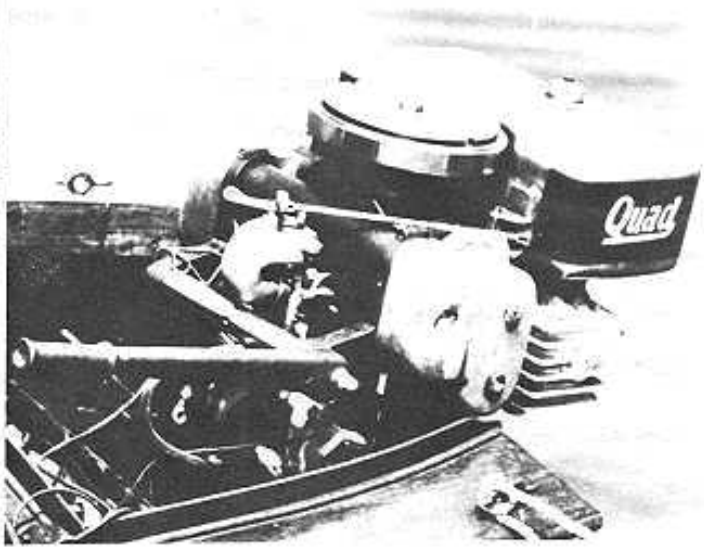
Presents

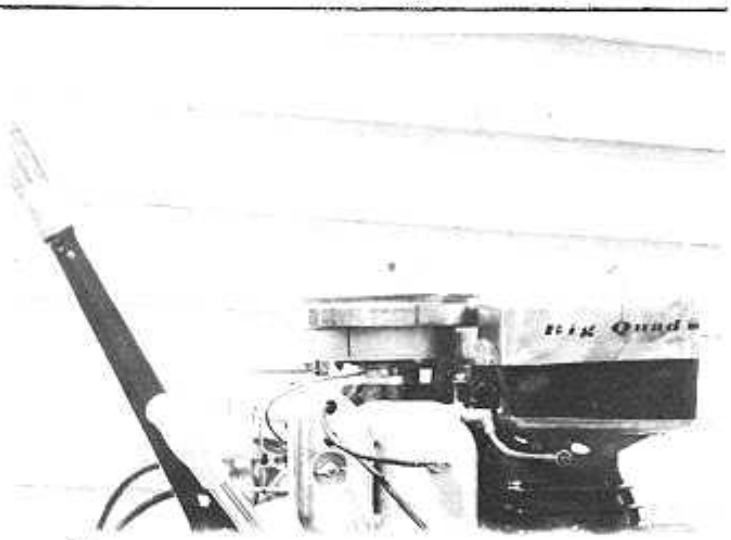
# The COLLECTOR'S GALLERY

By Don Peterson

## ELTO QUADS



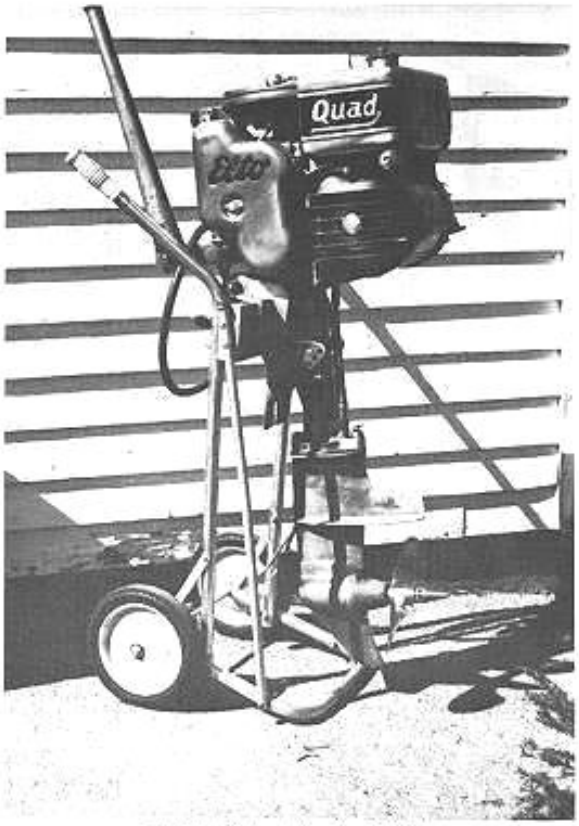




Above: 1931 Big Quad Model 800, 40 HP and 59.5 cubic inches. Rope start version sold for $375. $425 bought the electric version.

Upper right: Rope start 1930 Senior Quad, 33.4 HP, 49c.i., $325

Right: 1931 Big Quad powerhead -- rare manual start version photo.

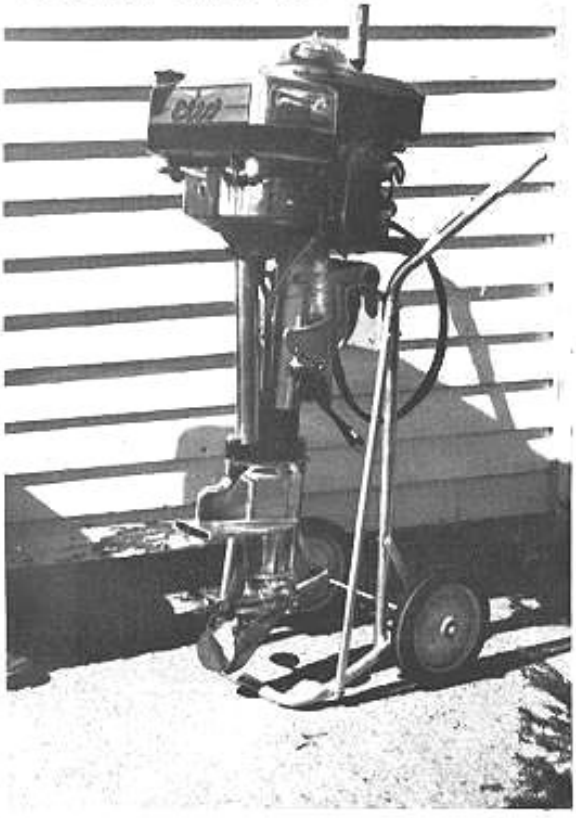

1928 Elto Quad 18HP




1929 Elto Quad 25HP

Photos by Sam Vance & Jim Webb

1933 Elto Junior Quad 18HP Electric




1931 Elto Junior Quad 18HP Manual

# Quad

The Debut of the Elto Quad — By Sam Vance

The Elto Quad was developed in 1923 by Ole Evinrude, as Jim Webb reflected in his April, 1968 article in the Antique Outboarder. I am quoting many of Jim's words in this story of the "Great Quad". Ole secretly built three 4-cylinder motors using the same cylinders, pistons and rods that worked so well in the 3 horse power rudder twin. The cubic inch displacement of this 4 cylinder version was 31.808. Due to ignition problems and the lack of suitable boats, Ole never gave the early Quad a real try, but always kept it in mind. The motor had a 2¼ inch bore and 2 inch stroke using iron pistons and bronze rods. The crank case was sand cast from a temporary pattern and the crank shaft was milled out of a solid billet. It was generously oversized, as all of Ole's designs were. Jim recalls that Ole and Rob Carey had carefully welded two crank shafts together for the first experimental Quad and then hogged two or three more crank shafts out of a solid billet of steel. They cut off the top of one crank case, added a big welded boss and used a split brass center bearing just like the later Quads. Welding two-cylinder crank shafts together to make a four cylinder crank has been tried many times but because of the stresses involved in a four cylinder opposed motor it has never worked successfully. The fly wheel had two knobs for starting rather than the usual one found on the rudder twins for 1923.

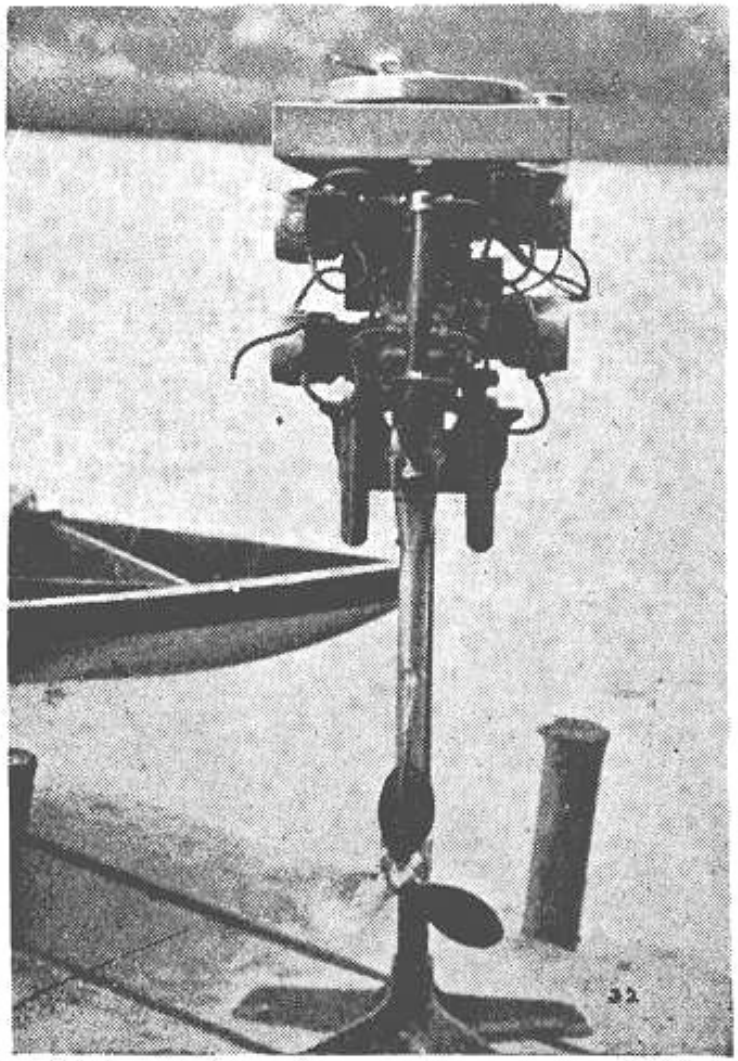
The ignition was a simple, battery, make and break, with a cam on the crank shaft controlling the point action. Atwater Kent had no part of this ignition. The make and break was not a very good ignition as it resulted in severe point burning. This was roughly the same ignition that Ole used on his first single cylinder Evinrudes. However, a different coil and condenser set was used to increase the rapidity of build-up needed for twice as many sparks per revolution.

About the time Ole was building the 1923 Quad he had also decided to use the propello pump on the Service Twin for 1924. This utilized water under propeller force for cooling. The first 1923 Quad used a plunger pump then a standard cooling mechanism for all outboards. However, Ole suggested later to S. V. B. Miller, Elto's Seattle distributor at the time, to use a tube pick up to augment the plunger pump which was prone to fall behind at high speeds due to the slowness of the pump plunger return spring action. The cam operated plunger water pumps usually failed for lack of lubrication. The 1923 gear housing was used on the first Quad and it was filled in and cut away here and there.

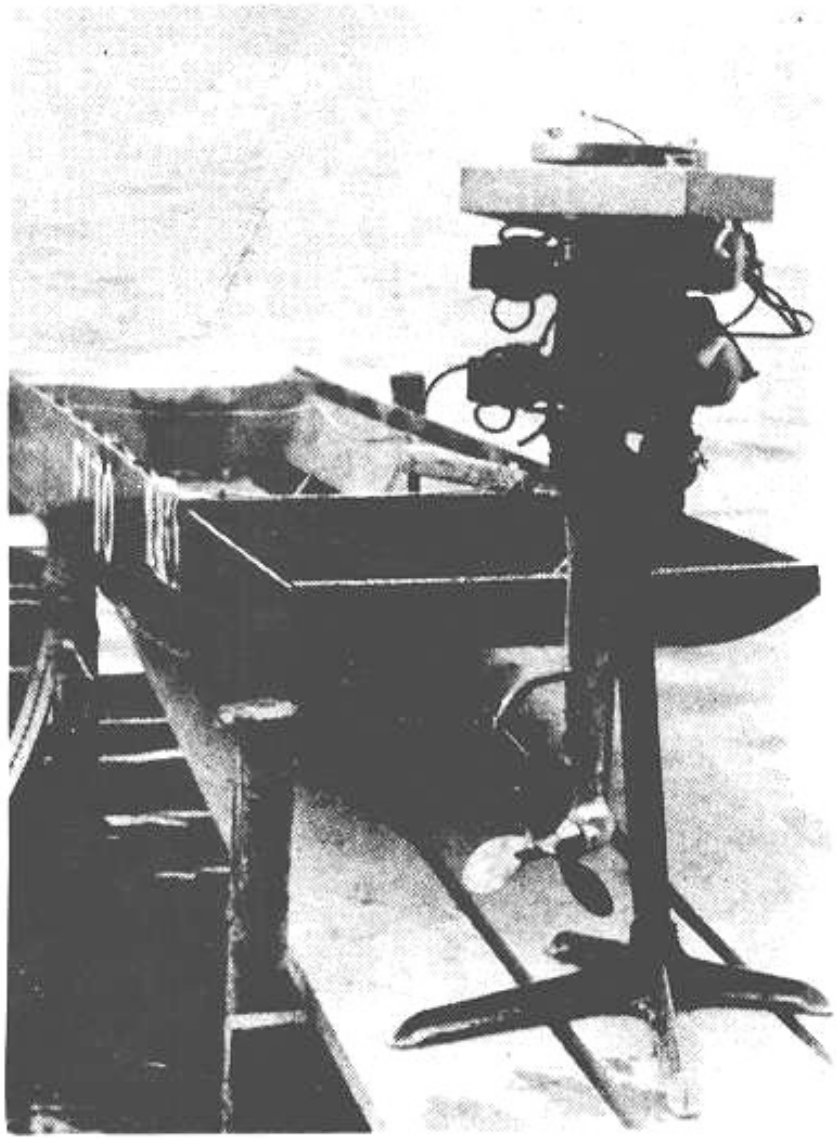
The rudder was standard at first. Then the bottom strut was cut away and the upper swivel fastener was strengthened. Steering was difficult with a rudder at the speeds of those days since speeds of 20 to 23 miles an hour were achieved. S. V. B. Miller put two rudders on the boat, separate from the motor. This helped a little. The steering was not good because of the fixed, non- pivoting housing. Pivot steering was never tried with this old Quad.

There was no muffler, just square shaped stacks. They tried cutting off the 3 horse power exhaust manifolds but never got as far as actually trying to muffle it, although Ole had a muffler of sorts designed.

The motor was strictly an experimental job which Ole whipped up. He never made any attempt to improve it. The total running time on all three motors came to about 10 hours. The project was put on the shelf in late 1923 and stayed there until Ole showed it to S. V. B. Miller in 1926. Miller was wild about the motor. When the Evinrudes agreed to loan one of the experimental 1923 Quads to Mr. Miller, it was done with the strict understanding that there would be no publicity and that Miller would only experiment with it on different types of boats. Instead Miller sought to force the Evinrudes' hand by racing the motor and getting all the "ink" he could. This is what happened in the first trial race which Miller tested the Quad. On July 25th, the annual sportsman show was held on Green Lake, Seattle, and brought out an interesting variety of outboard motors and boats. The feature of the outboard races was the performance of



The Miller Special Engine



a 12 foot, 125 pound, scow type racer, designed and built by S. V. B. Miller and powered by a 4 cylinder "Miller Special" outboard motor. Miller, piloting the boat himself, got a speed of 23.41 miles per hour racing against time and a speed of 20.23 miles per hour in competition. The free for all race brought 4 entries: Miller with his Elto, Leland Clark with a 6 horse power Johnson, Gail Roose with a 6 horse power Johnson and Jim Bleitz with a 4 horse power stock model Lockwood twin. Miller easily took the series with a total of 36 points, although Gail Roose came out ahead in two races and finished the series with 25 points. Five points were awarded to the boat finishing first, 3 for second and 1 for third. Miller also had an attractive display at his Elto booth including a cut away of a model showing the mechanism. Also shown were very special light weight design boats.

SPEEDS IN M.P.H. MADE IN OUTBOARD FREE-FOR-ALL RACES
Sportsmen's Show, Green Lake, Seattle, July 25th to Aug. 1st
Course 2,387 Feet, Surveyed

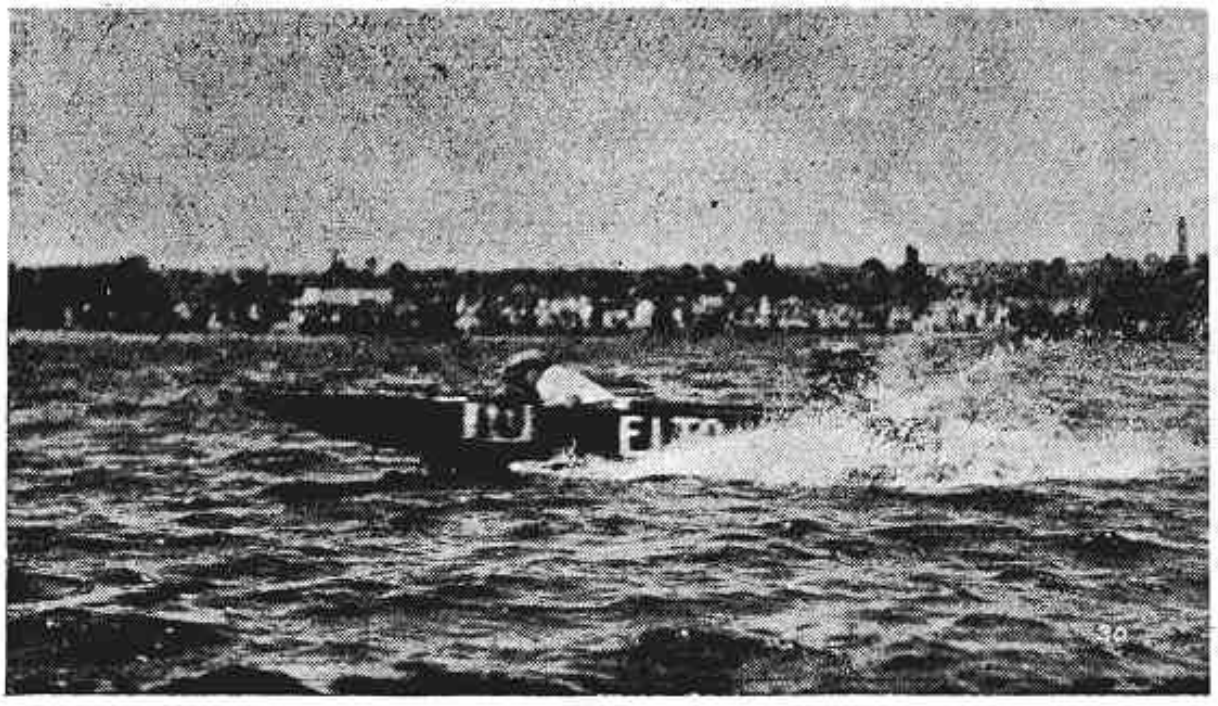
| Boat | Motor | July 25 | July 26 | July 27 | July 28 | July 29 | July 30 | July 31 | Aug. 1 | *Tot. Pts. |
|---|---|---|---|---|---|---|---|---|---|---|
| No. 10 | Miller Special | 19.44 | 18.22 | 16.55 | 16.55 | 16.46 | 18.43 | 20.23 | 18.64 | 36 |
| No. 11 | Johnson, 6 h.p. | 14.89 | 16.72 | 16.22 | 16.92 | 13.82 | 15.89 | 16.17 | ..... | 25 |
| No. 13 | Johnson, 6 h.p. | 14.03 | 12.32 | ..... | ..... | ..... | 12.03 | 11.08 | 12.72 | 8 |
| L. A. | Lockwood-Ash, 4 h.p. | ..... | ..... | ..... | ..... | 13.37 | ..... | 12.39 | 12.03 | 3 |

*Note: Five points awarded for first place, three for second and one for third in each day's race.

Thus this version of the Elto Quad was a success and no doubt convinced Ole Evinrude that he had something in this 4 cylinder design. S. V. B. Miller went back to Milwaukee and got Ralph Evinrude interested in promoting the up-dated Quad and the result was the 1928 Quad that is desired by most members of the Antique Outboard Club. Ole never did get really interested in further development until Ralph began to "bug" him early in 1927. Ralph got his mother in on the act too. The rest of us, as Jim indicates, did what we could and the result was the highly successful, 1928 Quad which Ralph, Rob Carey and Jim Webb experimented with all during the fall of 1927. These three did almost all of the experimental running which included actually dodging chunks of ice during the last of the runnings in December of 1927. Without the tremendous effort of Ralph and his crew, the four cylinder Elto Quad might not have been a reality today for those of us in the Antique Outboard Motor Club to enjoy.

Credits:

W. J. Webb, Antique Outboarder, April 1968.
Pacific Motor Boat, August 1926, Page 24-25.



# '72 HARTFORD BOAT SHOW

BY BOB ZIPPS

Above: National Miss Let's Go Boating Kathy Mullen was a real eye-catcher at the Hartford Show.

Last year the Hartford Boat Show had only one Antique Outboard on display, and the effect it had on showgoers was great.

This year four Club members each with a different exhibitor, had a total of 8 completely restored motors on display.

The effect the motors had was terrific!!! People would stop and examine the motors from flywheel to skeg. Most would asks many questions about the motors. Others would comment how the motors brought back memories of days long since past. Many people said they had old motors and this is how we got our long list of leads. To those who were interested, we handed out membership applications.

I'd like to see the day come when members all over the country would have a restored motor in their local show. If you like to talk about old motors, get leads, spread the word about the Club, and recruit new members; you can do it to your heart's content and you'll have a ball. Try it; you'll like it.

Above: Official Greeter Rosemary Guiliano shown with my completely restored dual carb, model 92-BR Lockwood Racing Chief


Above: Kathy with Brad Snow's super nice 1955, 18 HP, Mark 25 Mercury. Brad also had a mint Mark 20H class B stock racing motor on display.

Right: Dynamic Sue Marrs of the "Soundings" Newspaper is shown with a completely restored 1926 model NS Evinrude Sport Twin. This motor took the First Place Trophy at the Lake Hopatcong (New Jersey) Meet for Mint Condition. This was the motor that was used to power the escape boat in the movie "A Change In The Wind".

Below: Kathy is shown with my completely restored 1922 Model A Johnson. The decals that I had made really dress up the motor. This motor had a special place in the exhibit since Johnson is celebrating their 50th anniversary this year. Showgoers were extremely curious to see what their first model looked like.

Above: Miss Nancy Larson is shown with a 1923 Model A Elto that was restored by Bill Andrulitis. And when I say restored, I mean restored! He started with sorriest looking motor you could ever imagine and did a terriffic job restoring it to ultra-nice condition.

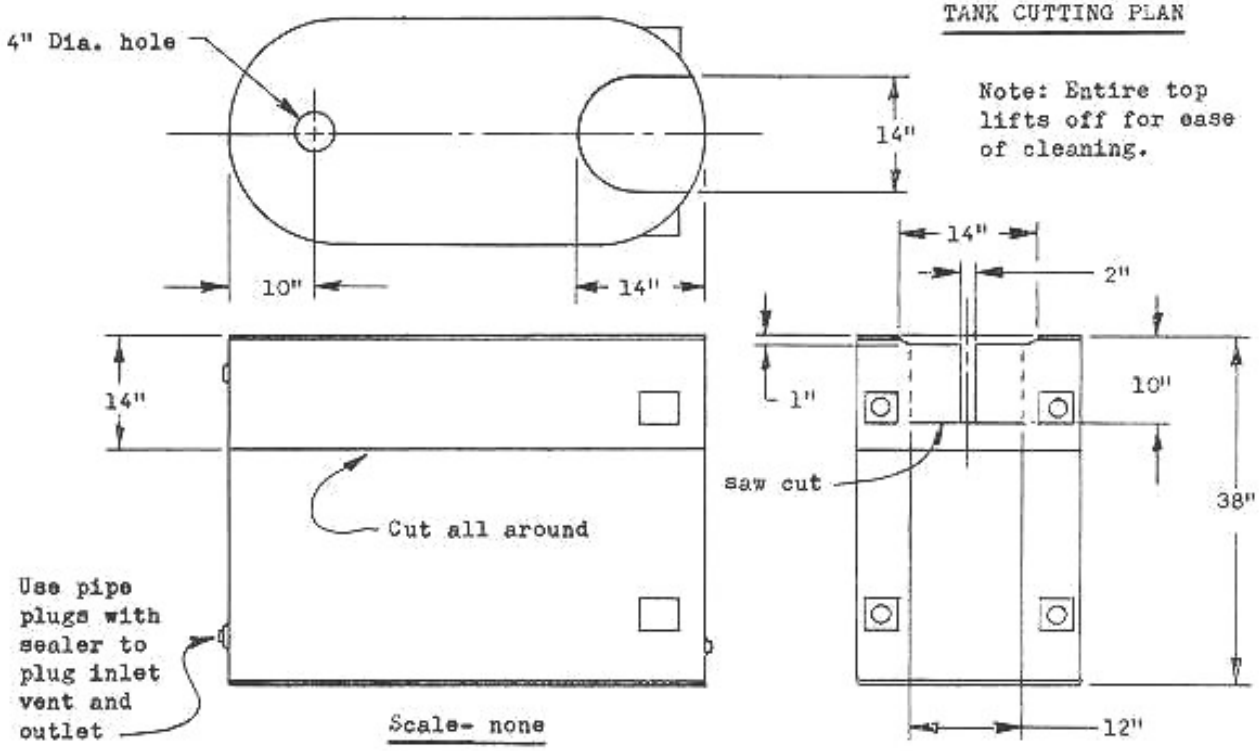
Left: Rosemary with a restored 1935 Model 4091 Evinrude Sportsman owned by Tommy Hines of New Haven, Conn. Tom finished his restoration at the Boat Show when I brought him a brand new steering arm for motor. In his teens, Tommy is living proof that even the younger generation can get the Antique Outboarding bug.

# MOTOR TEST TANK

by Fred Emerson, 627 Illinois Av. Elgin, Ill

MADE FROM A NEW OR USED 250 GALLON FUEL OIL STORAGE TANK, THIS TEST TANK MAKES A USEFUL ADDITION TO YOUR SHOP. THERE IS A BAFFLE INSIDE THE MOTOR OPENING TO KEEP WATER FROM SPLASHING ALL OVER THE FLOOR OR GROUND AS WHEN USING A PLAIN, 55 GALLON DRUM.

TANK CUTTING PLAN

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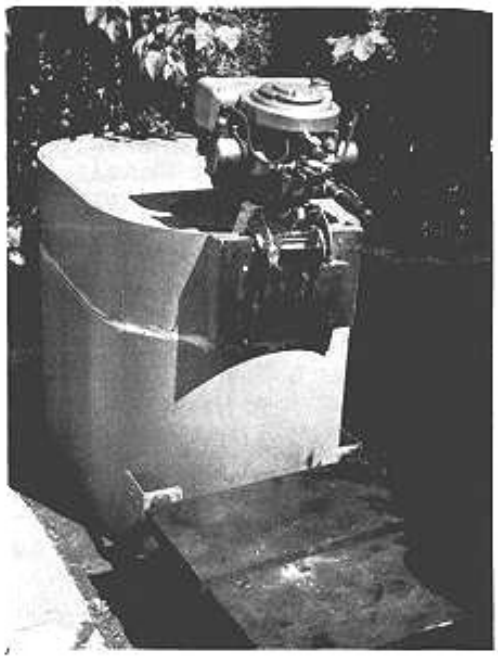


Tools needed include a cutting torch or a saw such as the Skil Recipro-saw.

Welding can be done by yourself or a local shop.

Materials List:

One 250 gallon oil tank
2 pieces 12"x10" 3/4" marine plywood for motor boards
4 carriage bolts- 3/8" x 2" for motor boards
1 piece 1/8" strap iron, 3" wide, about 11 feet long, for guide
1 piece 1/16" steel, 14" wide x 36" long for motor well baffle
1 piece 3/4" plywood, 16" x 16", for cover
Miscellaneous plugs to seal holes in tank

Continued on page 35.

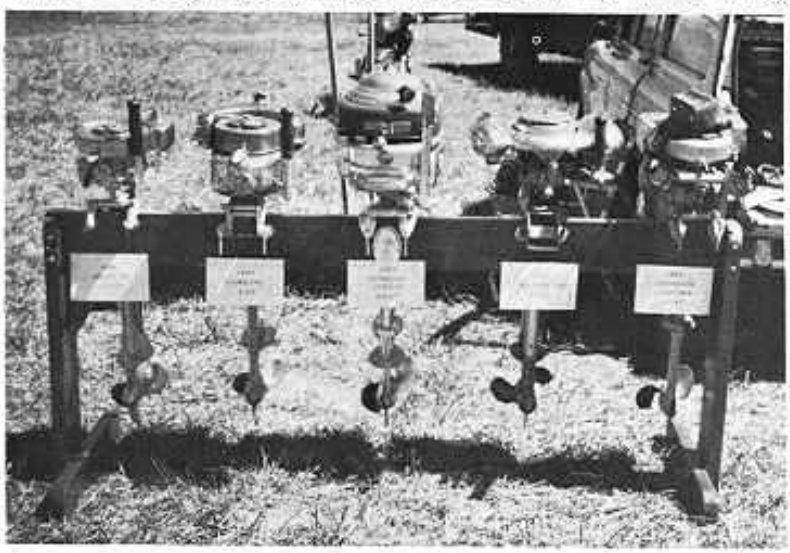
The picture shows the original tank with a different type motor board -- take your choice -- and showing how the optional foot platform looks. The tank cover (not shown) should be shaped to fit over the motor well and should be "child-proof".

# LETTERS TO THE EDITOR

ENGINE PEOPLE ARE ENGINE PEOPLE ....

The seven engines in these two photos were shown at the Missouri Valley Steam Engine Association show at Booneville, Missouri, in August, 1971. Bill Motley mentioned these engines in the November Newsletter.

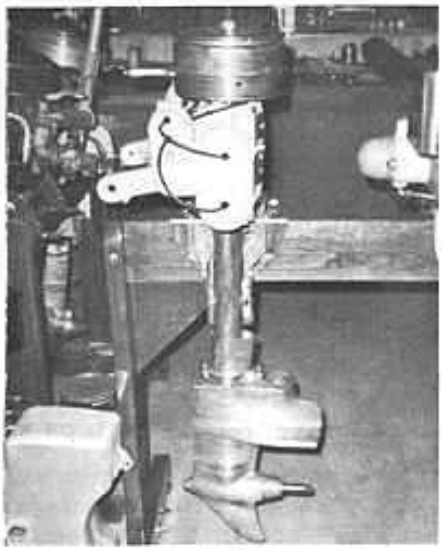
Clarence Sitton, our good member in St. Charles also showed a number of his engines at a steam engine show in his area and was deluged with questions, as I was at Booneville. "Engine people are engine people", be it steam, diesel, propane or gas!



Left to right: 1936 Model 100 Johnson, 1947 Hiawatha, 1940 Evinrude Zephyr, 1936 Waterwitch & 1933 Evinrude Lightwin. The neat signs and motor rack sharpen up the display.

My two unique models, a 1939 Clarke Troller and a newer, 1942 special production model (my wife, Lynda).

Here's the Clarke Troller again, a TP model with adjustable pitch prop. Elto is a 1926 model G.

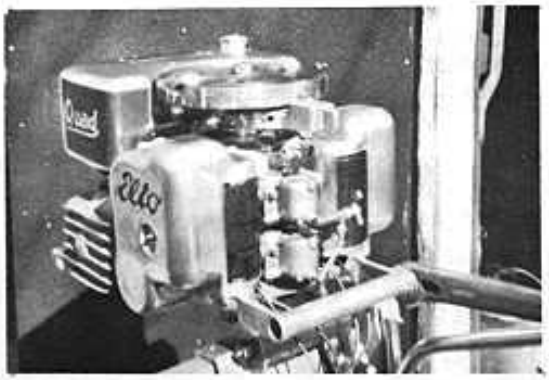


My mystery Big Four. Note the spark wire arrangement.

Don Peterson has suggested that he, Sam Vance and I get together and send you some photos of our "mystery engines". I believe Dick Hawie has identified mine as a "Big Four". Anyway I am sending you the only photo I have at present. I have the exhaust headers but I was working on them when the picture was taken. Ron Ellis, Missouri

BEAUTIFUL QUAD RESTORATION ....

Am enclosing pictures of my '29 Quad, finished, at last, but not yet run.



Would like to point out to everyone that had I not belonged to the club, this engine would still be nothing but a piece of junk.

Among all those who helped me were Mark Wright (advice), Don Miller, Jere Sairs, John Harrison, Bob Brautigam, and my local machine shop. If it weren't for all those above, I'm sure I'd still be looking. It took me 2 years as it was to get it "all together".

Gene E. Yonker, Illinois

OLD PICTURES STIR THE IMAGINATION ....

These two pictures were given to me by Mr. George Kuenzel of Friday Harbor, Washington. The driver of the racing hull is Mr. Kuenzel shown on Lake Crescent, the Olympic Peninsula, Washington. Power was a 1930 Hi Speed Elto Quad and, according to Mr. Kuenzel, was capable of about 42 mph. Picture was taken in 1931.

The other picture was taken before 1920 when Mr. Kuenzel was a boy, in Illinois. The outboard on the boat in the foreground looks like a Waterman, but I can't be sure.

Ron Duckworth, Washington

NEW MEMBER WANTS INFO ON CLUB ....

I'm a new member to the AOMCI and would like to get as much info on the Club as possible. I have just spent quite a while talking with Bob Zipps and he said to write to you.

I don't have any pictures as of yet, but I would like to send out a call to all those who need help. I am a Motorcycle Mechanic by trade and can get my hands on just about any kind of seal, bearing, bushing or fitting. I also do light machine work. I have made many of my own parts, so if somebody somewhere needs help on a sticky problem, have them get in touch with me. Larry Davenport, 4104 E. Young St. Tulsa, OK 74115.

A NEW IDEA ON MOTOR STANDS ....

I have looked and looked for motor stands that were good and yet not worth a small fortune. Used stands seem to be nearly non-existent and the new stands are about $25.00 for a good one. I designed and built myself about 5 or 6 of them, using conduit (3/4" and 1" and ½"). They came out real well and can be made to collapse by loosening 2 bolts and removing 2 others. The approximate cost was less than $6.00 and the only tools required are a ½" drill and bit, a punch, a borrowed tubing bender and a couple of wrenches. On two of the stands I left two ends of conduit longer for handles, put cheap wheels and an axle in and they are extra handy for moving motors around. (2 wheels & an axle were about $4.00)

If you think there would be enough interest, I could do an article. If so, let me lay out the drawings for the magazine.

Ron Duckworth
304 Rainbow Drive
Burlington, Washington 98233

O.K. men, let Ron, or the magazine know!

WHO CAN ANSWER THIS ONE?

While reading the January issue of the Antique Outboarder, I have come up with a question no doubt that many of our members have wondered about at some time. On page 39 is a picture of Bill Salisbury with one of his motors in his family room. After running your motor or motors in the summer time, many of us would like to show them off in the homes during the winter months too. Now, has any of our members any suggestions on how to get rid of the fumes and smell from the gas tanks, making it safe to have these motors indoors for the winter?

Perhaps an article in the Antique Outboarder requesting help in this matter could be published, and maybe some of our members have overcome this problem.

I have written a couple of articles for the Antique Outboarder in the past, and now I am on the asking end of the line. Well, that's what a club is all about. I believe this January issue of the magazine is the best yet, or maybe it's just because I used to be an Evinrude and Elto dealer.

George Harness
574 Clifton Street
Winnipeg, Manitoba
Canada

MR. BROWN, WE THANK YOU ....

The other day I wrote to Mr. Marcus Wright about acquiring some parts for my motor. In the same letter I mentioned that I was dropping my membership temporarily because I have been recalled to active duty in the Army for nine months. Mr. Wright suggested I write you as he said, "If I'm not mistaken, there may exist a moratorium on dues while a member is in the military".

If he is mistaken, this is fine also. I will start my membership again when I return from active duty.

I do want to say, that I have enjoyed the Antique Outboarder! I only have one engine that I've been trying to restore, but I certainly think you have been doing a mighty fine job with the magazine. I really enjoyed reading it over.

While I'm at it, I want to say that Mr. Marcus Wright is a very fine staff member and is very quick to render any help a member might need. I've had the opportunity to write to him on several occasions and he is superb. A staff member such as Mr. Wright is certainly an asset to the club.

Robert F. Brown, Pennsylvania

MR. GURNEY REALLY BELONGS TO THE "200" CLUB ....

In reply to your letter, I do have a collection of over 200 motors that I have picked up during the past 6 years. Most of them are in an overcrowded basement where I have a

small tank and as a winter hobby, I try to get some of them running again. I have 1 Koban, 4 Cailles, 2 Bendix, 10 Champions, 2 Lausons, 1 Lockwood, 1 Flambeau, 2 Chris Crafts, 2 Martins, 2 Thors, 3 Mercurys, and the rest a mixture of Johnson, Evinrudes and Neptunes. I doubt if any of these are very rare.

In horsepower they range from a 1.1 Evinrude Pal, to a 26 hp Johnson V-45. I believe that they all date from 1950 back to the Koban. Probably the best motor I have is a PR30 Johnson. However, this motor is too big to run in my tank and as yet I have no boat.

I started collecting by buying a Johnson A-50 from a local dealer. This motor is probably my favorite and that's where I should have stopped! I regret that I am not mechanically talented in any particular field that might help the club, but perhaps I can find some time to take some pictures later.

Charles Gurney, New York

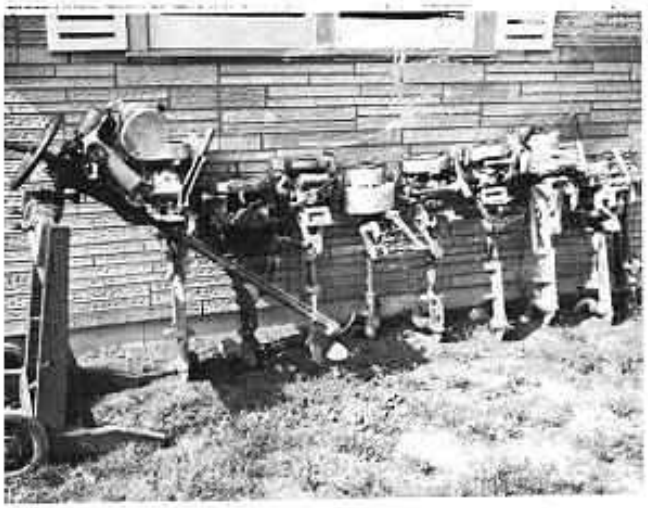
THIS ANTIQUE OUTBOARD BUSINESS IS BUSY AND EXCITING WORK ....

We had an old engine show here and I showed some of my outboards and my inboard. One of the outboards and the inboard I purchased just recently.

Had on display a 1915 Evinrude, 1917 Caille 5 speed, 1919 Caille Liberty single, 1924 Caille Liberty twin, a 1923 Johnson and a Nadler inboard - also a teenager. Sure were a lot of people asking questions.

One fellow gave me a running Waterwitch and another one gave me a tank and tank bracket for a Liberty single.

Picture #1 is a collection I recently bought. Had to buy whole collection to get the Liberty single. Bought 10 motors to get one. Have sold two already. Tank on the Caille was in a sad shape but with a couple hours cleaning the carb & mag, it took off and ran. Have a nice new copper tank on it now, with the cast iron painted grey except cylinder - this is Chinese red. Polished all the brass & aluminum. Only part missing was control cable from steering handle to mag.

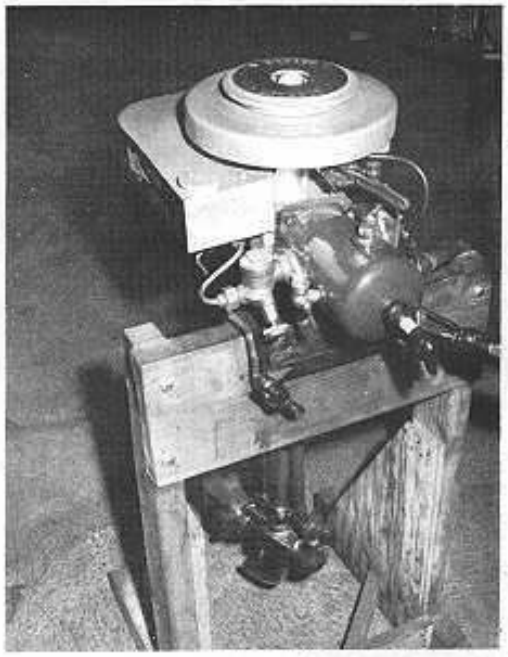


(1)

(2)

Picture #2 is of my Nadler inboard. Have a manual with it - believe it or not, I got the manual from an entirely different source about a year before I knew about the engine.

This is the 4 hp model. Has a home made timing device and a non-original carb on it but it starts and runs fine. Originally it had a 1 inch Schebler carb. Also had a piston water pump on the back and a gear driven timer at the top. Four inch bore and 4 inch stroke.



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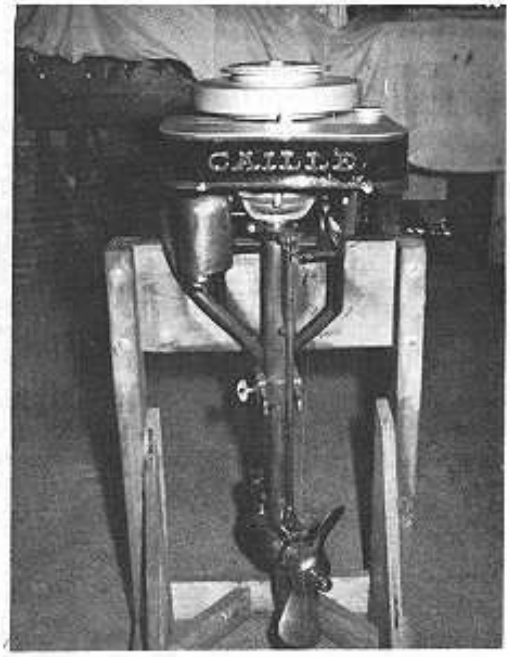


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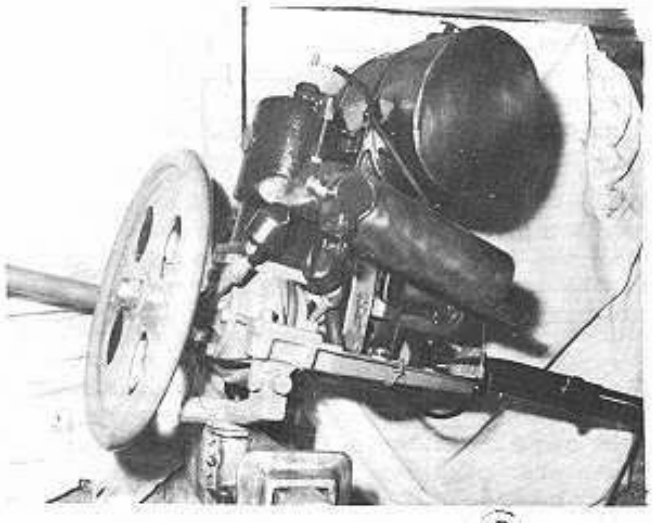
The Nadler Co. is in Plaquemine, La. They now manufacture sugar processing equipment. When in the motor business they built 4 models - 2½ and 4 hp singles, and 6 and 8 hp twins.

Now I have the motor staked down so I can test run it. I started it the first time without securing it in any way and it took both me and my wife to keep it from running around in the yard. Now that I know where to set the controls I can start it any time, without problems. The motor is now painted and mounted on wheels. My wife says every boy should have a wagon and I have mine under this old Nadler.

Pictures #3 and 4 are of my 1917 Caille, Five Speed single. This motor was one of the first models with a rewind starter but it was missing. Flywheel is stamped "Evinrude Magneto" under rope sheave but is not lettered outside of this. Have a feeling Caille bought some mags from Evinrude.



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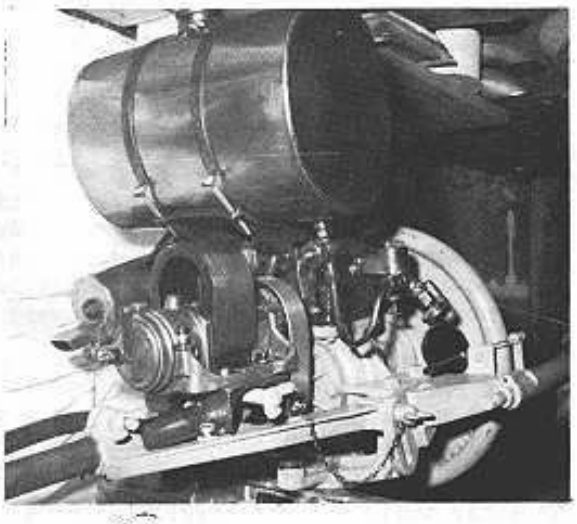

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Pictures #5 and 6 are of my Liberty single.

Only made it out on the water 3 times this past year. One time in the early spring with Ron Ellis. Later on, took my Giant Twin and my V-45 along. Had problems with the Giant but ran V-45 two days. Memorial weekend we took 4 days at the lake along with my daughter and her family. This time I had one of my PC Johnsons and my V-45. We ran them both a lot of hours every day. Had no problems with the PO but about 3 o'clock on the 4th day, the V-45 threw a rod. Put a rope on the boat with the PO on it and pulled it back to camp. Sure hated this because it was a good running motor. Started easily and ran well.

Clarence Sitton, Missouri

ON PAGE 26 OF THE OCTOBER, 1971 "OUTBOARDER" ....

A while back I think I remember that someone sent in a picture showing an Elto Service Twin with an extra long shaft mounted over the side of a Norwegian Viking ship. I looked it up and here is the word as copied from a write up which was clipped from the October 25, 1927 issue of Motor Boat:

> "An interesting example of the use of the outboard motor is the recent installation of a Super Elto on the Viking ship, LEIF ERIKSON. This replica of the old time "serpents" followed the Viking Trail from Bergen, Norway, and reached Boston Harbor after 80 days at sea. Later the vessel was taken to the Great Lakes and was bought by a Duluth firm and donated to that city. It was decided that before placing her in her permanent mooring, she should be taken on a cruise to Lake Superior and Lake Michigan ports, and through the Chicago Drainage Canal and on to Minneapolis and Saint Paul. To save towage in calm weather and on river passage, it was decided to install auxiliary power and a 4 hp Elto Service Twin with a 42 inch drive shaft was hung on a detachable bracket on the starboard side. According to the report of Captain Gerhard Folgero, the motor drives LEIF ERIKSON from 3½ to 4 mph. The boat is 42 feet long, 12 feet 9 inch beam and 4 foot draft."

The picture shown was taken in Milwaukee Yacht Club harbor in the summer of 1927. It was circulated quite widely to the press and got considerable coverage.

Jim Webb

THE OLD MOTOR SEARCH....

In April of 1952 I resigned as Night Editor of The St. Louis Post-Dispatch to become the first Public Relations Director of Johnson Motors, at Waukegan, Illinois. The outboard boating boom was in its infancy and the major development of that year was the introduction (in September) of a factory pre-engineered remote control system for the larger motors by Johnson and Evinrude.

I was informed that a major event was to be upcoming-- production of Johnson's millionth motor. 'Twas up to me to design a publicity campaign. As I became familiar with the outboard field, it dawned on me that there were a helluva lot of old Johnson motors still in use -- and this gave rise to the idea of the old motor search.

Briefly, we were looking for the oldest Johnson motors still in use -- offering prizes, as I recall, new 3's or 5's to owners of the 10 or 20 oldest reported; and a larger motor (10? 25?) in exchange for the oldest as established by serial numbers. We took gag photos of two shapely gals, one dressed in the antique swimming attire of 20 years previously and holding an A-model old motor; the other in a revealing modern suit (this was, however, before bikinis took over) either seated, or with one foot on a 25HP prone on the floor.

With a publicity release explaining the old motor search in the year of the upcoming Johnson millionth motor, we sent these to daily newspaper outdoor writers over the country, to the boating and other outdoor type magazines (including such as Popular Mechanics), and to weekly papers in strong outboard areas through news syndicate groups.

To enter their motors, owners had merely to take their outboard to a Johnson dealer, who would register the number, verify its "in use" serviceability and report same to us on pre-addressed mailing cards we had provided. Also, the dealer was provided with a

large picture-poster announcement on the search; and newspaper matrixes on same for his advertising. We really got the publicity, and we really got the entries! In fact, all of the prize winners came from among the first 50 Johnsons sold (and I don't recall the exact number of prize winners)!

One raw autumn day, I received an excited phone call from our Madison, Wisconsin dealer. He had registered what he understood was the first motor sold -- A-507. And it was! I phoned photographer Bud Toomey at Zion, picked him up, and sped to Madison; took the appropriate photographs (including the young owner and his wife).

At this point, a hitch developed. The owner's family persuaded him that he should be able to sell the motor to Johnson for a whopping big price... the exchange for the big motor wasn't sufficient. I told him I was in no position to bargain on that, and as I recall, we came up with a compromise whereby he'd receive a "10" and keep his old motor; but would lend it to us for a factory overhaul and "shiny finish" replating job, for display at boat shows (New York, January, would be the first).

The motor, as I recall, originally had been sold by Johnson's Chicago dealer who was still in business at the time of its discovery -- a large firm whose name escapes me. I believe I heard that this dealer subsequently bought old A-507 for display, but I cannot verify this.

The millionth motor came off the line in November of '52 and the event sure received publicity in a campaign which certainly emphasized the dependability and durability of Johnson outboards.

Don G. Cullimore Ed. note: Don is a past executive director of The Outdoor Writers Association of America and is currently engaged in free-lance outdoor and historical writing.

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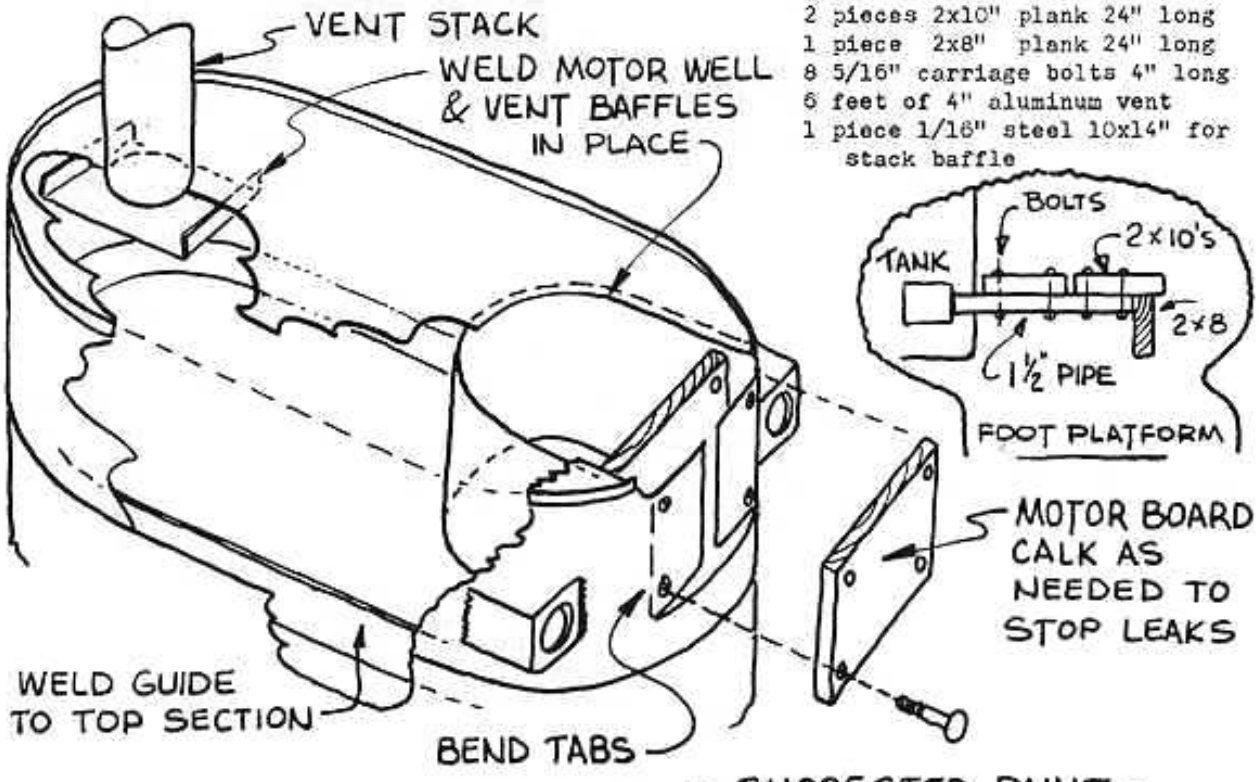
Continued from page 28.

MATERIALS LIST, CONT.
2 pieces 1-1/2" pipe 18" long
2 pieces 2x10" plank 24" long
1 piece 2x8" plank 24" long
8 5/16" carriage bolts 4" long
6 feet of 4" aluminum vent
1 piece 1/16" steel 10x14" for stack baffle




CONSTRUCTION DETAILS
MOTOR TEST TANK

— SUGGESTED PAINT —
INSIDE: GALVANIZING TYPE
OUTSIDE: 2 COATS GREEN

## SMALL INBOARDS REVISITED

By P. S. Brooke, Jr.

In the April issue of Motor Boat for 1909, the W. H. Mullins Company of Salem, Ohio, announced the "Mullins 1909 Special." The ad further stated that this was the "Greatest launch offer ever made"--price $110. What did the customer get for his $110? The "special" consisted of a 16-foot steel launch with a beam of 4 feet 2 inches pushed to the startling speed of nine miles an hour by an "improved" 3 h.p. two-cycle reversible engine. The prospective buyer was further advised that the Mullins new line of 1909 models was designed by Whittelsey and Whitaker of New York, "the most successful naval architects in America."

If a 16-foot steel launch did not appeal to you, perhaps something in the way of small engines suitable for a canoe or rowboat would be of interest. The Northwestern Machine Co. of East Detroit, Michigan was looking for "live agents" for "The Little Tiger." This was a 2-cylinder 2-cycle engine of 2½ h.p. weighing 65 lbs. Its makers claimed that it would swing a 10-inch 17-pitch propeller from 200 to 900 revolutions per minute. Nearby the Detroit River Canoe Works of Detroit, Michigan, was busy building power canoes equipped with 2-cylinder engines giving a speed of ten to twelve miles per hour.

An interesting motor advertised at this time which appeared to be archaic in appearance but which was touted to be the design of the future was the Moore made by the Palmer-Moore Company of Syracuse, New York. This 2-cycle single cylinder engine featured an open base as found in steam engines. The advantages claimed were "getatability, no leakage, and four cycle reliability with two cycle simplicity." Apparently the makers mistook the past for the future as the open crankcase was soon a curiosity on small gas engines for marine use.

A novel approach to the business of furnishing marine engines to the boat minded was that of the firm of Maxwell and Fitch of Rome, New York. Their 1½-2 h.p. engine called "Paradox" was offered for the sum of $41.75 complete with certain boat fittings. The bare engine was offered at $21.75. But if the customer wished to build his own engine, the company would furnish castings and blue prints for only $11.00!

The Pennsylvania Iron Works of Eddystone, Pennsylvania, ran a half page ad in the April 1909 issue of Motor Boat stating that over 4,000 of their engines were in use. This concern was turning out both two and four cycle engines in horsepower from three to one hundred and in one to six cylinder configuration.

The Fox Reversible Gasoline Engine Company of Newport, Kentucky, offered an unusual proposition. This firm would ship one of their engines, freight prepaid, for a 30-day free trial. The Fox was made in 18 sizes from 2½ to 50 h.p. This must have been the forerunner of the current modus operandi--play now and pay later.

Walter E. Dunn of Ogdensburg, New York claimed in his advertising that he had seven years experience in building four cycle engines, which fact should be of interest to the purchaser. He claimed that the crankshafts on his engines were sawed from bar steel and could be relied upon to furnish "lots of power on little dead weight." A one-cylinder engine having a bore of 3-3/4 inches and stroke of 4 inches put out 1-3/4 h.p. and weighed 80 lbs. The price was $42.50 f.o.b. Ogdensburg.

An ad that was about sixty years ahead in point of time was that of The Continental Natural Gas Alcohol Co. of Wheeling, West Virginia, proclaiming the merits of denatured alcohol as a motorboat fuel. The ad stated that the "navies of the world have adopted Tax Free, Denatured Alcohol for Smokeless Motive Power." Enormous saving is perfected by utilizing vegetable waste and natural gas, sawdust, wood syrup and lime." This concern was hep to smog control and recycling back in 1909! The purpose was to attract a "progressive fellow who would go into the business of distillation and produce this fuel at a cost of only eight cents per gallon.

In the January issue of Country Life in America for the year 1910, the Boating Editor made some observations in a short piece entitled "The Passing

of the Auto-Boat." In view of what has transpired in the boating scene in the past sixty years, it would appear that the trend contemplated in 1910 did not quite continue. The writer stated in part, "One of the most promising signs of the times in the smaller classes of launches is the demand on the part of users for those essentials which make a safe, able and seaworthy boat, however small, and the selection for power installation of certain old types of established reputation. Barely five years ago the popular demand was for the so-called 'auto-boat,' a racing hull of limited freeboard and stability, lightly built of two thicknesses of veneer, equipped with a costly and delicate automobile engine unfit for marine use, the whole outfit being unseaworthy, unreliable, lacking in durability and extravagant in cost. Such boats were advertised, built and sold in quantities to beginners, who were taught to believe that speed was the end and aim of pleasure afloat." Quite an indictment! Apparently we still have a lot of "beginners" with us as the horsepower of marine engines, particularly outboards, and the speed produced keeps soaring.

Other issues of Country Life in America for the year 1910 carried articles on how to carry out certain boating projects. One gave the details on the construction of an engine bed of teak to accomodate a one-cylinder inboard engine stating that the bed should be about 1/3 the length of the hull and that the ends should be tapered for best results. Another article set out the procedures necessary to install a small inboard engine in a rowboat and other hulls not originally intended to be power driven.

Fairbanks-Morse and Syracuse both were advertisers in this publication. Syracuse stated that they were "the Great Middle Price-High Grade Engine" in horsepowers from 4 to 120 suitable for light, heavy duty and speed boats.

Hard-cover books began to appear on the market written by various and diverse persons, some of whom claimed to have engineering degrees, full of advice to the landsman bent on taking to the water in an "auto-boat" or gasoline launch. Some contained a long list of admonitions directed toward the boat engine operator, such as, "Don't try to run engine without gasoline in tank," "Don't use lighted match to examine contents of gasoline tank," "Don't cast off until engine is started," "Don't blame the manufacturer or the motor for every little thing that happens," "Don't run at too high speed just to show off, as you might burn out bearings," "Don't wear yourself out cranking an engine; if it does not start after three or four turns after priming, something is wrong," and on, ad infinitum.

A description of the steel boats built by the Michigan Steel Boat Company of Detroit, Michigan, equipped with small inboard engines is interesting. These boats were built clinker fashion of heavily galvanized steel, cut in pattern strips, lock seamed and welded together by pneumatic hammers. The seams running from stem to stern would thus have four thicknesses of steel. The strength of the hull was obtained by the lapping and seaming of the metal strips. A 16-foot steel launch built in this fashion would be equipped with a 2 h.p. 2-cycle Detroit engine with a speed-controlling lever. This engine would be capable of running the launch up to a maximum of seven miles per hour. An 18-foot automobile boat made by the same concern could be equipped with engines ranging in size from 2 to 6 h.p.

An eye-catching ad in a boating publication for 1909 headed "For Worn-Out Bores" proved to promise a solution to the hapless boater with a scored or gouged cylinder or cylinders. The Wille Piston Works of Brooklyn, New York, claimed to have developed a piston that would fit any worn-out cylinder, restore compression and save the cost and trouble of a rebore job. And all for the small price of $10.00 and upwards!

# AOMCI SPECIAL Feature

## ONE MAN'S QUAD- THE ELTO MODEL 307

AOMCI Special Features Editor
James L. Smith

In this issue, Sam Vance and others are presenting particulars about the early Quads; and as in other earlier issues, many interesting facts have been written about these fascinating motors. At the risk of repetition, some comments will be made about this unique motor, the model 307, its acquisition and features.

By 1952 my interest in vintage outboards had been awakened. I knew of Johnson, Evinrude and Mercury, but beyond this my knowledge of other makes was indeed scanty. In the case of Johnson my personal experience in actual running was confined to the Light Twin model OA-55, the Sea Horse 12 model K-50 and the four cylinder V-45. Before this period, odd or unusual motors were seen or heard of with only passing interest - or even suspicion; the thought at the back of my mind being that I was glad not to be the one stuck with them.

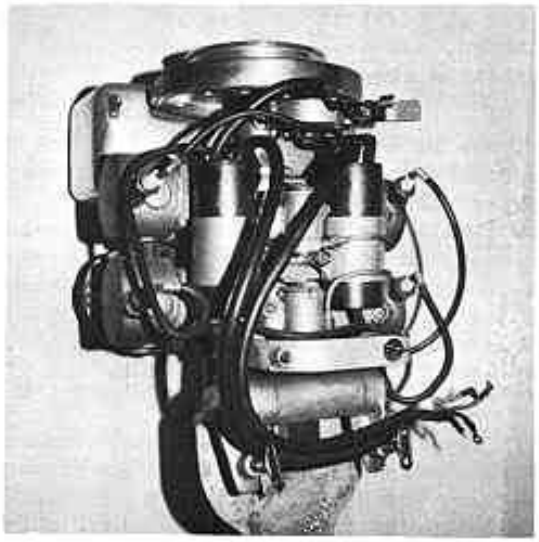
During the three year period subsequent other types began to be of more than casual interest to me. Possibly the one motor most responsible for this was a 1921 Elto rudder twin acquired from the elderly owner of a boat livery, who was retiring. By the time I had acquired two more rudder twins of somewhat later vintage, knowledgeable individuals had hinted at the existence of larger, four cylinder Eltos known as Quads and having two carburettors.

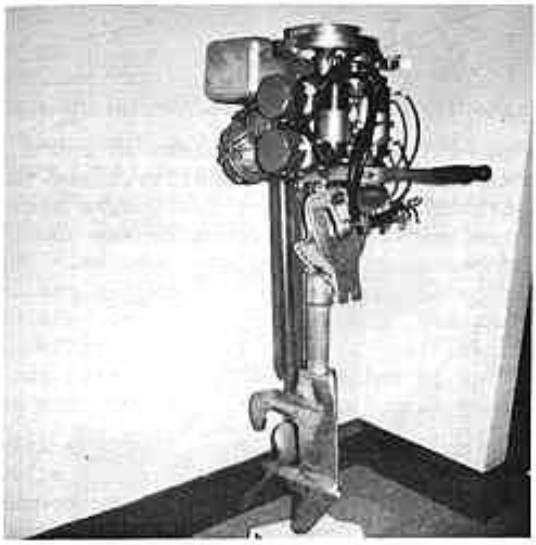
From that time I was determined to have or at least see an Elto Quad. The search consisted mainly of inquiries by word of mouth to both individuals and shops. This went on intermittently for a period of two years to no avail. Most did not even know of such a motor and showed even less interest. Meagre clues eventually ended either in a lost trail or some entirely different machine. Then one day, in June, 1956, a contact whose name has been lost in the mists of time told me that he had a friend at work who had a friend that had an old motor that "had to be started with a battery" and was pretty sure it was called Elto. He said he would try to get the man's name and phone number.

Sure enough in a couple of days he had the info, a Ted Bailley along with the number. That very evening a phone call found Mr. Bailley home. Yes, his motor was a battery ignition Elto... a moment's hesitation, then the all important question. Has it one or two carburettors? Now it was his turn for hesitation. The answer was subdued and rather apologetic and was only one word... two. Eureka! I tried to hide my excitement as I told him I would be interested in a purchase and would pay $50.00 Soon expectation turned to dismay when he announced that he was going to "fix it up" to use himself. However he would consider the offer and let me know. An agonizing week followed with no word from Mr. Bailley. Finally, unable to stand the suspense longer, I called him once more.

He said I could go up that evening and give the money to his wife since he would not be there. I had bought an Elto Quad sight unseen.

Needless to say, promptly after work, I was at the address in suburban Toronto and Mrs. Bailley showed me to the garage where I saw the dirtiest, greasiest and longest motor I'd ever set eyes on. It was standing upright in one corner with its divided banks of cylinders and massive vertically mounted coils. The wiring, while complete, was in a shambles and the knuckle busting starting knobs had been replaced with a drum for rope starting. With a bit of Kleenex I wiped clean the inscription on the cast aluminum gas tank.."The Super Elto" No. 70,988. My spec sheet revealed it to be the model 307, year 1928, H.P. 16 at 3600 R.P.M. Mrs. Bailley received her money, I received a pair of dirty hands manhandling the iron (92 pounds) into the car and happily started my trip back home.





After noting the unusual height of this motor, 4' 1", the most striking feature is the electrical system. The front of the powerhead appears to be draped with high tension leads, coils and spark plugs. These together with the Atwater-Kent timer and the six volt battery provide excellent spark for starting. The same hot spark is produced at all engine speeds. There is no throttle but the timing mechanism acts as a governor to maintain the speed the operator sets.

The powerhead appears to be made up of two Service Speedsters one above the other complete with their Elto made carburettors. Cylinders are all separate but bolted to a one piece aluminum alloy case. Each cylinder has a bore of 2 1/2" and pistons have a stroke of 2". The gearcase is finely streamlined and supports the water scoop for water cooling of cylinders and muffler end plates. The muffler itself and exhaust pipe is of sheet metal. It would be hard to imagine very silent operation as the muffler has many vent holes. Perhaps this contributes to the unmistakeable sound of the Elto Quad when in operation. The two blade bronze Columbia propeller has an 11" diameter and 14" pitch. The engine had a selling price of $275. in the pre-depression heyday.

To the pioneering genius, Ole Evinrude, this Henry Ford of the outboarding industry, is owed an immeasurable debt of gratitude. The many new ideas which he brought on returning to motor production in 1921 were in a sense revolutionary and resulted in giant steps forward. The development of the Quad marked a high point in his career and later made possible the thrilling racing "460". Probably the finest way in which we can honour the memory of this great man is in the preservation and restoration of these early examples of his engineering and inventive skill.

J.L. Smith

# RACING

Probably the most exciting facet of owning and operating Antique Outboards is running the antique racers. All of the racers have unique sounds and very exciting performance. With its hornet-like sound, the Class "M" Midget racer has gone nearly 50 mph and the thundering 460 is capable of close to 90 mph. Running a hydroplane at 65 mph with the engine screaming like a super chain saw, the hydro airborne, and no one else on the lake will have you saying, "wow", to yourself for at least three days after a good run. A strong, Alky 460 will out accelerate any outboard, and on short courses where acceleration matters most, they are still very competitive even though they haven't been made for 30 years.

One of the biggest problems in running a racer once it is correctly set up is the fuel that is used and the modifications that are necessary to make the engine run correctly with that fuel. Many fuels have been tried in the past, some extremely toxic or explosive. Hydrogen peroxide was used, but it is highly explosive and extremely corrosive to cast iron cylinder blocks. Ethyl ether was used as a starting additive, but its low latent heat offsets the cooling effect of alcohol, when they are used in combination, and acetone works as well. Nitromethane is still often used in racing engines, but its use should be limited to extremely competent racers, and it has no place in antique outboards. With too much compression it causes detonation, and if it comes into contact with copper, the salts produced are highly explosive.

Gas and oil was the fuel that the antique racers were made to use. If such a thing as a factory stock racer exists, it will probably run perfectly well on gas and oil as long as the rpm is held to the recommended maximum. The big problem with gas/oil fuel is that when they are mixed together the octane rating is lowered to the point the engine will ping. This ping will erode the deflector of the piston in a very short time and if it continues, may burn all the way through the crown of the piston. Detonation can be detected by aluminum deposits on the spark plug, since the ping can't be heard because of the loud exhaust. Another problem with gas and oil is that the engine runs so fast that instead of dropping out of suspension as it does at lower rpm's, the oil is carried with the fuel mixture and out the exhaust, without lubricating correctly. The pistons should have a coat of oil on the skirt as looked at through the exhaust ports, after a flat out run. If they don't have much oil, or look dry, more oil is needed. The factory recommended 1 quart of oil per gallon of gas and often this may not be enough. Another minimum must for running on gas is at least .006 inch piston to cylinder clearance - and more is better. Any less will stick the pistons as soon as 5000 rpm is reached. The combustion chambers on a gas engine should have no less than 40 cc's of volume. This is checked with a 50 cc burette available at any biological supply wholesaler. Rotate engine to top dead center with the cylinder being checked pointing up. Fill the chamber to the top of the plug hole and read the remaining cc's on the burette.

Be sure all cylinders are equal, and if they are not equal, machine .006 in off for each cc needed to equalize. Spark advance should be at a maximum of 3/8 inch before top dead center. This is set by connecting a timing light to the magneto leads with all plugs removed. Bring the engine to tdc and rotate backwards until ruler through the plug hole goes down 3/8 inch. Set up a pointer (see photo 1) to any mark on the flywheel without moving it. As you rotate the flywheel the light will flash and by advancing or retarding the magneto the pointer and mark can be aligned. A stop should be made that will prevent the magneto plate from being advanced beyond that point (see photo 2). This method gives an exact maximum timing and prevents accidental overadvance. The final point to check is the carburetor. Through the years most carbs have been converted to alcohol use and are not satisfactory to use on a gas engine. The problem is that the passages must be enlarged for alcohol and this makes proper adjust-

# Racing Fuel

by Eric Gunderson

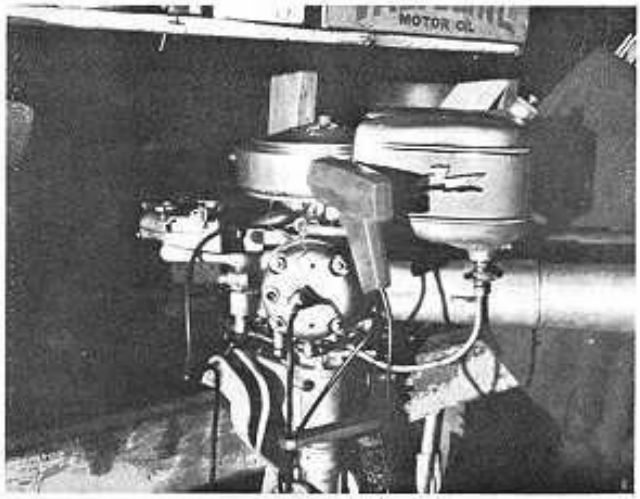



Photo 1. PO Hotrod with timing light and pointer set to determine maximum spark advance.

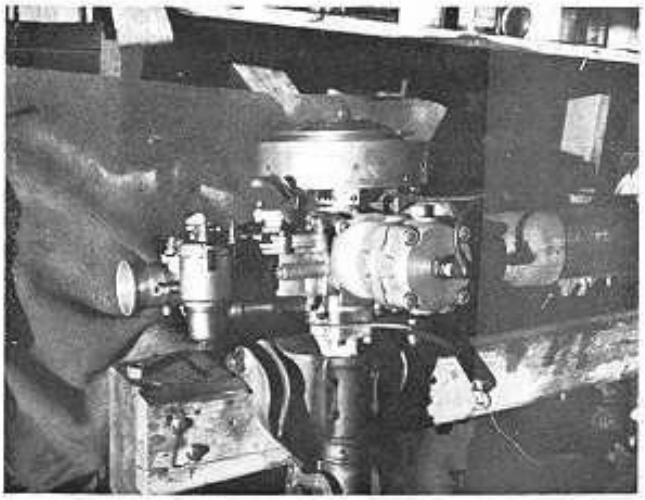


Photo 2. Above- Super Alky PR-65. Note the spark advance stop. Photo 4 Below- PR-65 showing extra fuel tube to Venturi chamber.

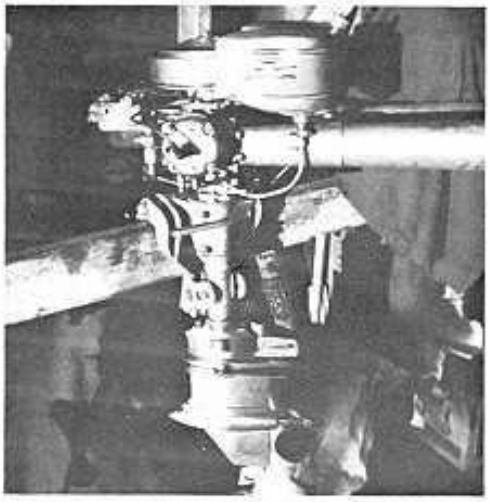
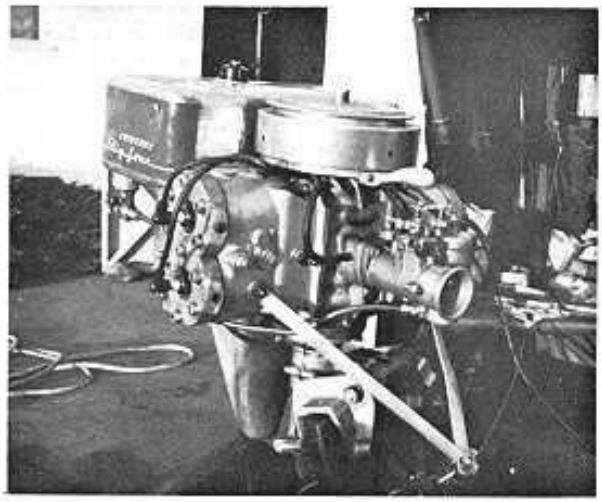
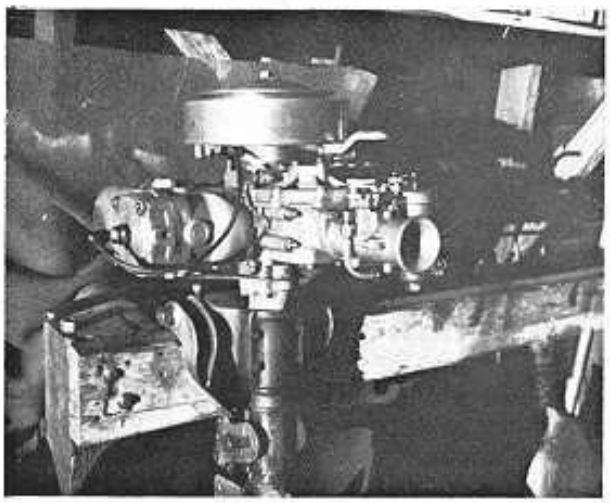


Photo 3. Above- PO-10 Hotrod, set up to run on gas. Photo 5. Below- Big Four set up to run on gas.





ment of the high speed metering jet impossible. One notch is too rich and the next is too lean, when an alky carb is used with gas. If the engine is run on the lean side it will burn pistons; and on the rich side, the plugs foul easily. Photo 3 is of my PO-10 Hotrod, a gas engine set up for high speed. Photo 4 shows a Big Four set up for gas.

The solution to the problem of fuel for racers is Methanol, more commonly known as alky. The reason that methanol makes such a good racing fuel is that it contains a latent heat of evaporation of about three times that of gasoline. When the liquid is changed to a gas, or evaporated, a lowering in temperature is involved. This is called the latent heat of evaporation and results in the temperature of the incoming fuel charge to be heavier and denser producing a much cooler burning fuel with an increased volumetric efficiency. This increased volumetric efficiency usually produces about 5% more horsepower with no other changes. When adaptions are made to take full advantage of alcohol a 5 mph increase in speed is usually the result. This is a lot at 65 mph.

The biggest advantage to the use of alcohol is the absence of detonation problems and excessive heat that gasoline produces. This allows the use of much higher compression ratios (30 cc for 30 and 60 cu. in. engines, 18 cc for 20 cu. in. engines, and 12 cc for 14 cu. in. engines). Twelve-to-one ratios are common and the new looper PR setup that Mr. Hubbell is experimenting with, uses a 16:1 ratio that puts out 67 hp from 30 cubic inches. That's volumetric efficiency. The usual horsepower of an alky PR in good shape is from 40 to 50 hp.

There are a few disadvantages to alky too. The fuel system must be enlarged to accommodate the higher viscosity of alcohol. The fuel line should be at least 3/8 inch, the main metering jet in the carb must be enlarged and a larger needle installed. In addition, an extra line should be run from the metered chamber at the bottom of the carb to the venturi tube chamber at the top (see photo 5). The castor oil gets gummy if left on the engine and can be removed with lacquer thinner or acetone, but engines that have been allowed to stand for a long time with castor in them should be completely disassembled to be sure that none of the rollers are stuck. One stuck roller can ruin a fine engine very quickly.

Fuel consumption is about twice that of gasoline, but usually 2 gallons is plenty to run a race for 5 minutes. The expense per gallon is less than gas with one quart of oil per gallon but the engine uses twice as much. Chemical supply wholesalers can provide bulk quantities of alcohol or it can be purchased at motorcycle shops in small quantities.

The standard formula for alcohol fuel is:

4 gallons Methanol
½ gallon benzol
¼ gallon castor oil (Bakers)

There are a few additional points on running a racing engine. Keep the rpm below 6000. According to Mr. Hubbell, these engines will run forever at 6000 rpm and are on borrowed time above that. Magneto flywheels may explode from centrifugal force if revved above 6500 rpm. Higher rpm requires a steel flywheel and battery ignition, and there is a substantial decrease in engine life as rpm is increased. Pistons for alky engines are usually fit at .004 in and are OK to .008 inch. Connecting rod retainers should be checked often for cracks. Broken retainers have demolished many a fine engine. Plug insulators should be dry and a light brown color to indicate proper heat range and fuel mixture. Fouled plugs can be cleaned with carbon tetrachloride or benzol.

Running a racer is often a great deal of work, but when that engine finally roars to life and there is the aroma of burned alky wafting across the lake, then all of the checking, fitting, spending, and just plain work becomes worth it. Even the racers of the new Konigs and Anzanis when asked about the old PR's will say, "That was quite an engine", and usually if they have raced one they still have it around somewhere. "There ain't nothin' like a PR."

Eric

# YOUR FELLOW AOMCI MEMBER.....

## *Garage? Cars Evicted So He Can Handle His Hobby*

Eric Gunderson has evicted his automobiles from his garage. It's been taken over by his hobby — collecting antique outboard motors. The Northern California chapter of the Antique Outboard Motor Club, to which he belongs, will hold its spring meet Sunday at Anderson Reservoir.

The above picture and the article on the following page appeared in a San Jose, Calif. morning paper. Eric has shared it with us and so our thanks go to him, and to the news-paper. Eric writes: " One of my customers is in charge of the local morning paper, and in talking to him I mentioned the Club, and that we were going to have a meet in the near future. He had a reporter out to see me the next day, and the article you see was the result. The public response was quite good and I had a pile of calls from folks requesting information. As far as I know, the Club has five new members now, which ain't bad.

The meet turned out well, despite a strong wind all day and a huge crowd at the only useable lake for over a million people."

continued on next page--

# MOTORS SEEN...

Early Wisconsin - Willard Krsiean North Highway 15, Hutchinson, Minnesota

1930 Speeditwin - Dennis Golden, 819 North Minnesota Street, New Ulm, Minnesota

1939 Model 7031 Speedifour - Excellent tank and prop. Good shape. Asking $75. Don Lemmerman 36 So. 6th Street, Sauk Rapids, Minnesota 56379

Small Waterwitch single $10 - Walter Anderson 3500 West 90th St. Bloomington, Minnesota, 55431

Early Neptune, 3 or 4HP - Mr Erling Olberg 6532 Standish Av. Minneapolis, Mn 55423

Neptune OB-12A - Robert Thompson 5649 Oliver Av So. Minneapolis, Minn.

1936 Evinrude fishing motor, about 3HP - $20. Runs, needs prop. Frank Froelke's Marine, Rush City, Minnesota

# Overboard For Outboards

By FRANK SWEENEY
Staff Writer

Eric Gunderson doesn't exactly fit in with today's outboard motor boat crowd.

That's because today's average runabout is a sleek, fiberglass creation pushed along by a neat, chrome-trimmed motor with a fancy paint job.

**Gunderson more or less fits in with yesterday's crowd. His boats are wood; his motors are neither trim, nor painted.**

Their lines are cluttered with angular gas tanks, exposed flywheels, cylinder heads and spark plugs. Bulky above-water mufflers hang astern.

To Gunderson, they're a thing of beauty — all 23 of his antique outboard motors.

They're not the run of the mill antiques destined to sit in the corner of a garage, or on a dusty museum shelf.

Nineteen of Gunderson's polished aluminum motors are in running condition. And he uses them.

"They sound like they mean business, and when you open that throttle, they mean business," he said.

**Gunderson, an entomologist who operates his own pest control business in San Jose, caught the outboard motor bug from one of his customers three years ago.**

His first motor was a four-horsepower 1937 Neptune. He bought it complete. Some of the others didn't come along that easy.

"Usually they come from people who are trying to get rid of them," Gunderson said. He finds motors and parts at boat shops, flea markets and through the Antique Outboard Motor Club's newsletter.

One of his prize possessions — a 25-horsepower 1928 Johnson — was assembled from parts gathered from a variety of sources.

The project began when he found a gas tank and carburetor at a Lodi boat shop. Gunderson finally tracked down enough parts to put it in running order.

Not exactly an easy task, either. Only nine of these motors are still known to exist, said Gunderson.

**"It was more or less a mistake by Johnson," Gunderson explained. Advanced designs hit the market shortly after this model, rendering it obsolete.**

Gunderson's oldest motor is a 1927 Johnson with all of 2½ horsepower; his newest a 50-horsepower 1943 Evinrude.

The start of World War II is the usual cutoff date for antiques, he explained. Prewar outboards were either two-cylinder or four-cylinder opposed designs, while those produced after the war were inline-cyclinder engines.

"There's nothing really exotic about them ... simplicity is the whole thing," said Gunderson.

"They have so few moving parts," he explained. Most were "handcrafted" in the factory.

"To someone who is familiar with their operation and knows how to run them, they're more reliable than today's motors," Gunderson observed.

He pointed out a 1929 Johnson on a stand in his garage. It has never been overhauled in 43 years, yet still runs prefectly.

"I'm sure you could run one of these things all your life and never wear it out," he said.

**For someone used to today's key-started outboards, the oldtimers could be a little frustrating. It takes a hard yank on a starter cord to get things turning.**

"I remember cranking myself across the lake the first time," Gunderson recalled.

They're not lacking in power, however. One of Gunderson's engines, a special racing job, has propelled his boat across the water at 57 miles an hour.

Outboard propulsion devices have been around a long time. The first one was patented in 1866. In 1902, a French inventor adapted the internal combustion engine to an outboard device.

Collecting is a relatively new thing, however. The Antique Outboard Motor Club was formed in 1965, and now has more than 200 members in the United States, Canada, Mexico, England and New Zealand.

Gunderson, of 57-B Mt. Hamilton Road, is a leader in the Northern California chapter. Part of the club's purpose, he explained, it is to keep the prices down for collectors.

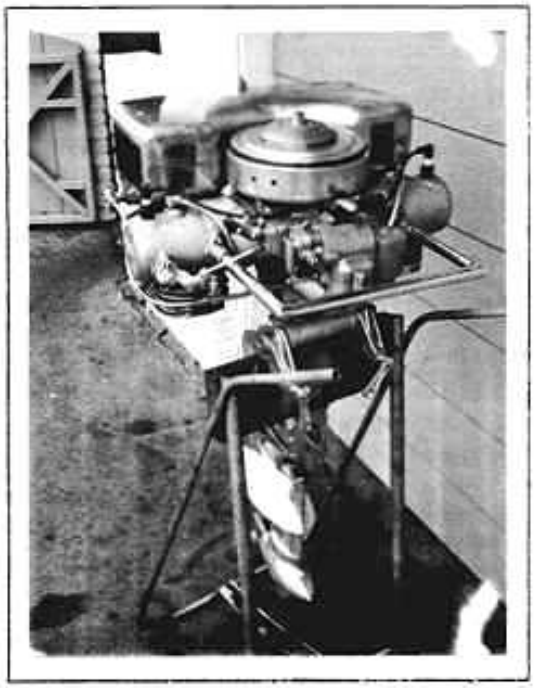
The average old outboard will sell for about $35, he said. If its flywheel turns freely and the cylinder heads aren't rusted or cracked, it's probably in good condition, Gunderson explained.

However, he advised beginning collectors to seek advice from someone who knows the subject. "There's an awful lot of junk floating around that isn't worth working on," he said.

A good time and place to find out more about the hobby will be Sunday at Anderson Reservoir.

The club is holding its spring meet at the Holiday Lake Estates Marina from 10 a.m. to 3 p.m. that day. Take Dunne Road east from Morgan Hill to get there.

It's open to the public, but no coffee-grinder jokes, please.



At the right is one of Eric's nicely restored engines, a Johnson T Giant Twin.

It's all ready for the water! Don Peterson, take special note.

# AOMCI NEW MEMBERS

Michael K. Cope
1778 Findley Drive
Milpitas, California 95035

Matthew W. Kowalski Jr.
1935 Poquonolk Ave.
Windsor, Connecticut 06095

Raymond Hatton
P.O. Box 78
Lake Villa, Illinois 60046

Daniel R. Houfek
5 Sunset Street
Keansburg, New Jersey 07734

William J. Kline
15 Wyndale Avenue
Maple Shade, N.J. 08052

Philip Titone
Rt 13 Box 72
Tulsa, Oklahoma 74107

Donald L. Brown Jr.
16518 1st Ave. SE
Bothell, Washington 98011

Dudley Davidson
4117 NE 107th
Seattle, Washington 98125

Bradford Snow
Middle St.
Middletown, Conn 06457

John Vechione
127 Madison Street
Waterbury, Conn 06706

Ray E. Ekblad
290 No. Commonwealth Av
Elgin, Illinois 60120

Arthur Spindler
468 Touraine
Grosse Point, Mich. 48236

Larry N. Davenport
4104 E. Young St.
Tulsa, Oklahoma 74115

A cordial welcome is extended to all newcomers. Other members are asked to make contact either by writing or visiting. Maybe one of these new men will have a rare engine to show you, or is anxious to join a Chapter!

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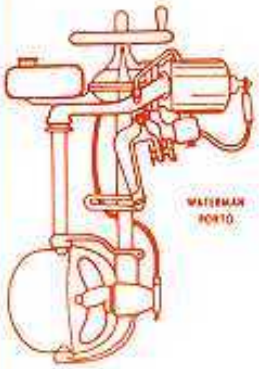
# The Antique Outboard Motor Club Inc.


Publishing Office: 2316 West 110th St., Bloomington, Minnesota 55431

# AOMCI 7TH YEAR