Antique Outboard Club News
Southern California Chapter
July 2020

Constantine Meet

<u>Imagine That!</u> Some guy at Constantine wearing an "Amber Marine" shirt! That you; Brad?

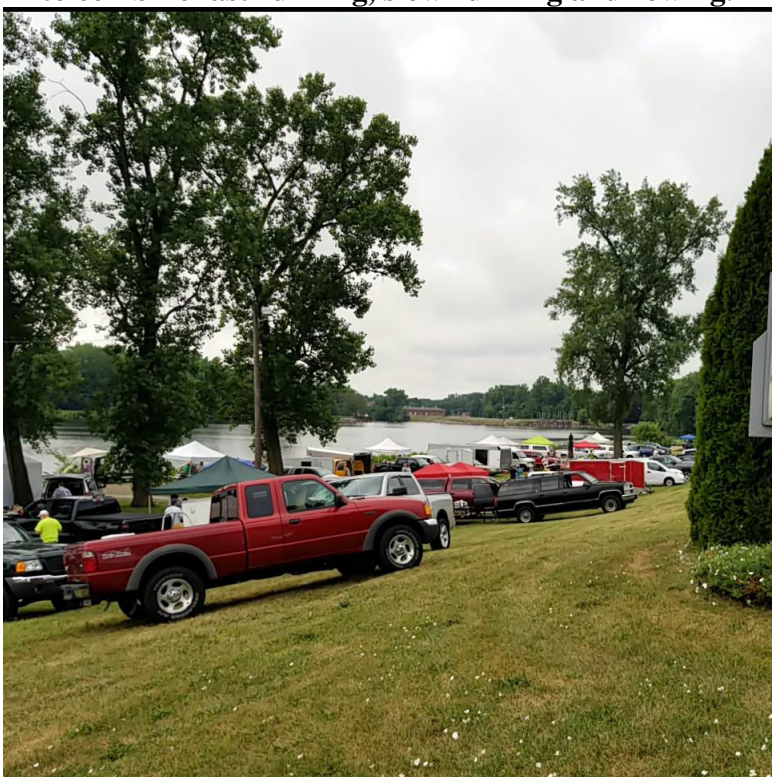
With one AOMCI meet after another getting cancelled all over the country; it was a joy to see that the **Constantine Super Meet** actually was a "GO". Organized by the MOB Chapter, it was held on American Legion property on the banks of the Saint Joe River **in Constantine Michigan**. The meet attracts members and the public from far and wide. A three day meet.....there is a huge buy/sell/swap area , boat launch, the works.

There are two large "National/International AOMCI meets every year; this one at **Constantine** and the other at **Tomahawk Wisconsin**. **Tomahawk** was cancelled. The effect was that **Constantine** saw a great turn-out....masks and social distancing in place.....and the feeling is that it will give **Constantine** a boost in the future. People seemed to have a great time....and will be back! If you ever get the chance to go.....Take It!

2020 AOMCI Super-Meet, Constantine Michigan

The Constantine Cup Event.
A Michigan Member is running a Martin 20; the idea is to combine fast running, slow running and rowing.

The Constantine Cup Trophy!
SoCal Member Chuck Kober along with a partner with a boat won this last year. Not so lucky this time.



This shows the Buy/Sell/Trade area.....right on the Saint Joe River bank.

Lunch BBQ! The MOB Chapter works with the American Legion to provide a fantastic meal on-site.

A few pictures give a feel for the event at Constantine

Repairs and Instruction right outside your Motel Door! Here an OHIO Member demonstrates adjusting WOT timing on a Kiekhaefer Wizard.

AOMCI President Jay Walls At the "Auction Tree". The finale to the show....motors and parts can be had for a few dollars; Great Fun!

WOW! Serial Number ONE???? Nope....there's a 4 under the Rivet. Still.....a LOW Number Motor owned by a New York Member.

A Pennsylvania Member works on getting a stubborn ELTO running to compete in the "How Slow Can You Go" Competition. The ELTO wasn't having it.....

Mystery Motor! What is it?

Some Hints Below

Can You Identify it? The Answer is on Page 9 with a follow-up article on "BONUS PAGE" 10

This Newsletter Needs Your Help

Would you like to contribute an article?

Our members are a talented group; involved in all sorts of projects! Is there a project of yours, either current or from recent years ....that you would like to share? Would you consider writing a short article (with pictures!) that can be incorporated into this Newsletter? In addition.....you can consider submitting an article for publication in the National AOMCI magazine...."The Antique Outboarder". Many local chapters are represented in every issue of the National Publication; it has been a while since the Southern California Chapter has had a "voice" in that fine publication. The Editor of the National magazine is Scott Bogue; AOMCI Member out of North Carolina. He can be contacted at editor@aomci.org.

Re-building a Mercury KB-4 Outboard (Navy Model)

First part in a series....by Steve Johnson

A few months ago I found a 1941 Mercury KB-4 (Navy Model) outboard motor. It looked in good shape when I saw it and the price was right, so I picked it up. After researching this motor, I learned that the red and green paint was probably done after original purchase from Mercury (the original color was grey). I also learned the transom bracket was custom made (probably the original bracket broke which was common on these motors).


KB-4 in Red & Green


KB-4 Front View


KB-4 Back View

I bought the KB-4 with the intention of rebuilding and restoring it to as close to original as possible.

Chuck and I showed up to our April's AOMC event at Amber Marine in Costa Mesa. Ironically, Chuck brought his new KB-4 (non-Navy) motor, and I brought mine. It was good to compare the two, but not until I began to look for parts lists, research differences, and talk to a few experts, did I realize there were still some oddities to my motor to be found as I began to dismantle it.

Chuck and I spoke a few times on the phone as he was able to start his KB-4 version. Of course, I hadn't begun to work on mine; however, he motivated me to get started and asked if I would/could chronicle the rebuilding of my motor—and I agreed to do so.

This is the first submission of my foray into rebuilding this KB-4. Future issues of our AOMC Newsletter will contain the next steps I'll be taking in this restoration project.

Please forgive my lack of publishing experience, my naïveté as a mechanic, and my photography. I hope this series will be informative, thought provoking, and create conversations.

Though I began the project with removing the fuel tank, and the powerhead, I'll begin this series with dismantling the drive shaft housing and lower unit.

I was able to remove the old transom bracket easily enough. (You can see in the photos above it is not the original transom bracket.) That step was to be followed by removing the Swivel Pin on which the motor turns. This WAS an eye-opener for a rookie. But I am a patient retiree with time on my hands.

How I extracted the pivot tube from my 1941 Mercury KB-4 outboard motor

After disassembly of the KB 4's fuel tank, carb, head, prop, ignition, and transom clamps all that was left for me to do was remove the Swivel Pin/Pivot Tube to free the transom clamp bracket in preparation of soda blasting. The Swivel Pin allows the motor to turn on the transom bracket.

This restoration job had become a major undertaking for a rookie like me. With my Mercury Mark 20 restoration, I was able to extract the pivot tube easily enough, improvising a tool that screwed into its pivot tube; however, the KB 4's Swivel Pin is not threaded. I tried using a punch, small chisel, screwdriver, and a small diameter bar to "punch" out the tube from the underside of the lower bracket molded on the drive shaft housing. Since the lower bracket has a "stop" molded into the

housing bracket, none of my efforts were accomplishing much but pounding the tube's sides back into the hollow tube. Then I thought perhaps it was probably frozen in the transom bracket since it was the original Swivel Pin. So I used Liquid Wrench, Blaster, and a concoction of 50% automatic transmission fluid and 50% Acetone resorting to a syringe to squeeze liquid into the bracket housing. That failed too. And frustration was building quickly.

Finally, I brought out my tap and die set and used a 3/8" tap to thread the inside of the Swivel Pin. That didn't work…the inside diameter of the Swivel Pin was too wide and the threads were too shallow to firmly hold a 3/8" bolt.

Well, off to the hardware store to buy a 10mm x 1.25 tap, a matching die, a 3/4'" ID steel tube, a 10mm threaded rod and an assortment of washers and nuts. I bought what I could find, trying to fashion the same tool I used to remove the Mark 20's PT. IT WORKED!!!

I tapped the Swivel Pin as deep as the tap would allow, placed a wide ID washer on the top of the gear housing where the Pin is inserted. I threaded the rod about 1 1/2" into the Pin, slid the hollow steel tube over the threaded rod centering the tube over the top of the Pin. Then, on the top of the steel tube, I placed two washers and tightened a 10mm nut down to the washers. Making sure the steel tube was centered over the Swivel Pin, I tightened the nut down using a closed-end ratchet wrench (so I wouldn't need to continually re-adjust the normal closed-end wrench). The more I tightened the nut, the more the threaded rod pulled the Pin out of the bracket.
YAHOO!!! It worked.

Pics of tool:

Full Tool

Top end of tool

Bottom (screws into SP)

Just note…as I screwed the nut down, the Swivel Pin came up through the bottom washer's inside hole and through the steel tube's inner void.

Top of tool

Bottom of tool inserted into SP
(I lifted the hollow tube so you can see SP being extracted)

Drive Shaft Housing, Transom Swivel Bracket, Swivel Pin/Pivot Tube, Co-pilot w/Springs

An after-thought: I bought a three foot length of rod and a 24" piece of steel tube. I will cut the threaded rod and steel tube to a more manageable size, now that I found it is the way to extract the Swivel Pin.

I'm rather proud of thinking of this method, although I am sure others have fashioned something similar. Total cost was about $50 dollars which included tap, matching die, threaded rod and steel tube. The rod and tube could be cut down to make a second tool, but I didn't as I wanted to be able to return the pieces if this hadn't worked.

Rebuilding KB-4 Lower Unit

Now that the Drive Shaft Housing is free of the transom bracket and swivel pin, I am working on the Lower Unit.

After removing the propeller I was amazed at all the grit and sand left on the Lower Unit.

Grit on Prop Clutch

It took a short time to clean it up to the point where I could begin working on removing the remaining parts to get at the water pump/impeller. While I was cleaning off the gunk from the propeller's rubber clutch, I noticed the retaining clip (which holds the brass water pump cover plate) was broken. So I added that to my Parts Needed list.

Trying to remove the brass cover plate began with removing a brass sheer pin from the prop shaft and the impeller's oscillator. This was no easy task as the pin was tightly stuck. Fortunately, the pin was long enough for me to punch out with a long, narrow punch after I made a groove in the L.U. housing to accommodate the punch's business end. A few good whacks with a small hammer, and it moved! Now I could get back to business—or so I thought.

For the life of me, I couldn't budge the brass water pump cover. I tried the usual methods…heat, Liquid Wrench, WD 40, etc., and even dropped a piece of dry ice on the cover hoping it would contract the brass cover. But, none of those options worked. I brought out my Dremel tool with a metal cutting wheel. I was able to cut out a slot in the cover plate large enough to fit a slotted screw driver. After a while I was able to pry the cover off, but the cover plate would have to be replaced. My Parts Needed list was still within reach, so another item was added to it.

I removed the brass oscillator and removed the impeller, I inspected the impeller which was cracked—intact still, but badly cracked, so I added that to my Parts Needed list which I sent to **Tom Thuerwachter** in Fond du Lac, Wisconsin (a great resource for early Mercury motor history, by the way). As I waited for the L.U. parts, I cleaned most of the remaining parts from grease and grime accumulated throughout the years.

Once the parts arrived, I dry fitted the L.U. parts together just to make certain all parts fit properly--which they did.

Lower Unit parts

Oscillating Impeller

Dry-fitted Lower Unit

Prop's Rubber Clutch

My next installment in the KB-4 rebuild will address some of the issues above the Drive Shaft Housing.

Buy/Sell/Trade Section

WANTED TO SELL/TRADE

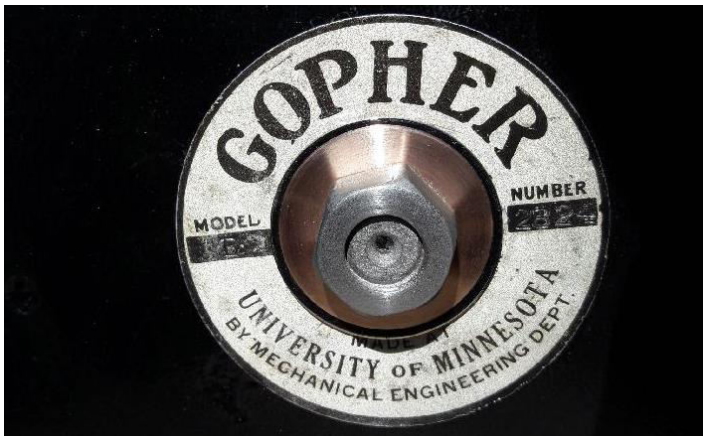
	**1961 Mercury 800 6 Cyl** One Year Model Full Gearshift **(NOT DR)** 80 HP Brass Prop Controls and Cables Inc. S/N 1402812A	$400.00 Contact Paul Brinkman Or Tom Lockwood For More Information
	**Mercury Hurricane KG-4** outboard. Stock. Excellent condition with exception of dime sized "ding" on top cowling. All original. Never in salt water.	$300.00 Steve Johnson Newport Beach 949-642-5619 Esso76@att.net
	**Mercury KG-4 "Q" Racing** outboard motor. Yes, it has the "Q" stamped. It is clean!!!! Racing lower unit. No lower cowling.	$600.00 or Best Reasonable Offer Steve Johnson Newport Beach 949-642-5619 Esso76@att.net
	**Merc Mark 30 Turbo Four**. It has an electric start, but it's not the "E" model. I haven't run it, but PO had used it within last year.	$500.00 Steve Johnson Newport Beach 949-642-5619 Esso76@att.net
	**Chris-Craft Challenger Turns Over Has Front Panel w/Control Knobs**	Club Motor Make Offer Contact Paul Brinkman

SUBMIT NOW FOR ENTRY INTO THE NEXT ISSUE!

	**Johnson A-60**	Club Motor Make Offer Contact Paul Brinkman

WANTED TO BUY/TRADE

	**14' Aluminum Boat Gregor H-42 or Equivalent On Trailer Motor or No Motor**.	Cash Paid. Tell me what you have. Contact Chuck Kober cwwk@cox.net



Next Meet Info

Chapter President Paul Brinkman wants to have a meet in August or September at Puddingstone or another location yet to be determined. Lets all hope that it happens and we can all have a great time!

WATCH YOUR E-MAIL FOR MORE INFO

Answer to the Mystery Motor Quiz from Page 4:

1929 "Gopher"

The Antique Outboard Motor Club Inc.
Membership Application

It's up to you to pull that first starter rope, fill out and mail this application or visit www.aomci.org to join today!

Please Join the National Club!
See Tom Lockwood

Date:_____

Subscriber's Name:_____

Spouse & Children:_____

Address:_____

City:_____ State or Province:_____

Zip+4:_____ Telephone:_____

Email:_____

Website:_____

American Postal Addresses

1 year membership (new and renewals): $40.00

2 year biannual dues (new and renewals): $70.00

Canadian Postal Addresses (US Dollars)

1 year membership (new and renewals): $49.00

2 year membership ((new and renewals): $85.00

Other International Postal Addresses (US Dollars)

1 year introductory membership: $52.00

2 year membership (new and renewals) - $90.00

THE ANTIQUE OUTBOARD MOTOR CLUB INC
DEDICATED TO RESTORATION PRESERVATION

Mail this application and payment to:

AOMCI Membership Services
PO Box 909
Barberton, OH 44203

The AOMCI is a registered non-profit hobby organization dedicated to the preservation and restoration of old outboards. Please allow 4-6 weeks for our volunteers to process your request.

This form can be downloaded at
https://aomci.org/wp-content/uploads/2019/09/New-Membership-Application-AOMCI-19.pdf

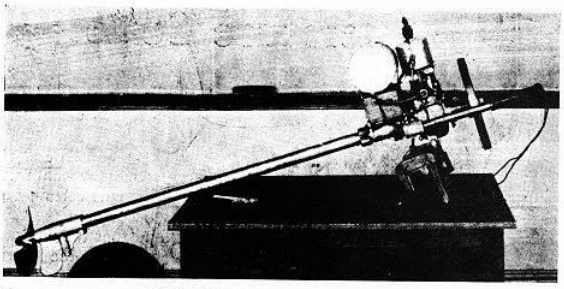
Have a look at BONUS PAGE 10 and you will get a good idea of the story behind the GOPHER's significance at the University of Minnesota back in 1925-29. There were two versions of the GOPHER; a Model A and Model "B". The motors pictured here are the Model "B".

Model "A" (1925) looked more generic; a forward pointing single cylinder row-boat motor. It included crank steering (similar to the WRIGHT).

Model "B"s were a simpler direct-drive similar to the Palmer, Gierholtt or Caille Liberty. A relatively small number of these motors were produced by the Mechanical Engineering Students at the University of Minnesota as a "class project". Students could purchase "their" motor for $20.00 (the value of the materials furnished by the University). Otherwise the motors were offered to the public in the $75-80 range. Imagine having the skill and resources all in one place to actually "Make" an entire engine....from forging the crankshaft all the way to seeing "Your" engine run on a boat.

Much more information can be accessed here: http://www.cailleoutboards.com/rowboat/Gopher/index.html

Information and pictures courtesy Phil Gatzow and Peter Hunn



THE GOPHER MOTOR ASSEMBLY

The Gopher Rowboat Motor

Eighty-five motors will be made on a production basis by the students this year

By D. A. ROGERS
Instructor in Mechanical Engineering

THE instruction of machine shop practice varies considerably in the different university shop courses. Most of the machine work is limited to having the student making a given number of bench or machine jobs or exercises and perhaps the making or building of some given machine shop project.

After about six years of considerable experimental work we have chosen this small outboard rowboat motor as a machine shop project for the sophomore year in mechanical engineering.

When the motor was first introduced in the machine shop as a project it was optional whether the student wanted to make one or not. Because of the tooling at that time it took a student of considerable previous machine shop experience to complete a motor in the short time given him.

At present each student is required to do a certain part of the work toward the production of enough parts to complete rowboat motors for the entire class taking machine shop practice. Last year we produced a complete motor ready to use in every sixty student shop hours.

Our method of handling the job here at the University is as follows: The students as a class are first given a number of elementary jobs to do, all students working on the same class of work at the same time. The nature of the work in shop is at first so laid out as to teach various standard machine shop methods, after which the entire group is put on productive work.

For an example, one student is chosen to produce all the flywheels for the entire group. This year our program calls for 85 complete motors. In this event, the student, after sufficient instruction will be held responsible for 85 finished flywheels from the time they come from our foundry until they are finally finished, inspected and put in stock.

Each of the major motor parts are produced accordingly, and an effort is being made to place the different kinds of work within the shop ability of the various students of the class.

No parts of the motor are accepted without first being inspected and must conform to all the detail drawing specifications and checked against the special gauges for that particular part in question.

Every part of the rowboat motor is being made at the University shops with the exception of the carburetor, spark plug, gas and water line fittings and a few other miscellaneous parts such as some of the standard screws and nuts, etc.

From time to time a number of the cast parts have been replaced by blanked and formed sheet metal stampings in the way of eliminating a number of difficult machine operations. Some of the special tools, jigs, fixtures and dies that are now in use were made by the students in their advanced machine shop work.

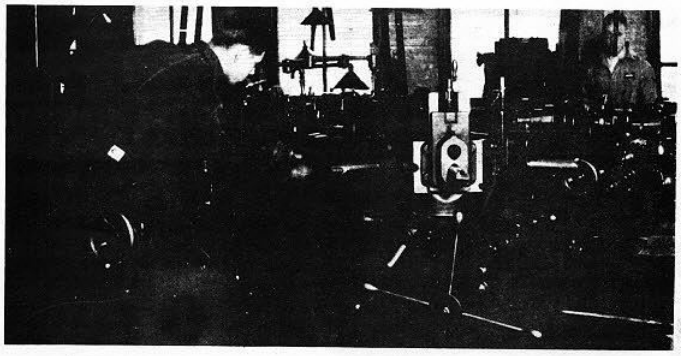
At present we have a complete set of tools to handle the motor as if it were being made in a commercial shop on production basis, including drill jigs, milling fixtures, forging dies, blanking, forming and drawing dies, special semi-automatic turret-lathe tools and metal match plate patterns

After the required quota of motor parts is completed and the unit assemblies are taken care of, the parts are then ready for general assembly after which each motor is given the first final inspection. Assembling is also handled on a production basis; each student doing his part toward the final assembly. The motors are then ready for running in under their own power. After running them from one half to one hour they are given a final inspection and test.

The time for assembling, running, and testing the entire group of motors requires only about two or three days, due to the fact that all the motor parts are manufactured so that they are interchangeable. This makes it possible to give the student the practice of the possibilities of mass production.

Commercially the rowboat motor is designed to retail at about seventy-five dollars—however, each of the motors becomes the possession of the student in the class after the university is paid the cost of the materials used.

All castings are made in the foundry as regular class exercises. Heat treatment of the crank shaft and piston pins is carried on the forge shop. The jigs for the machine shop are made by the tool construction class. Before any machine work is done on the piston or the cylinder castings they are annealed at a temperature of one thousand degrees fahrenheit to relieve any casting strains and to facilitate machining. Piston pins and gears are machined from mild steel and case hardened by carbonizing to a specified depth.



A STUDENT MACHINING A CASTING FOR THE ROWBOAT MOTOR