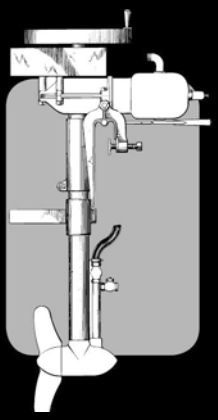
Rowboat Motor Journal

Official Publication Of The

Southern Ontario Rowboat Motor Chapter



Vol 2, Issue 2 2009

Arlan Carter (center) getting ready to run the worlds oldest known Evinrude motor (serial #610) at the 2009 Tomahawk National Meet. Only an unfortunate and unforeseen mechanical failure (loose wire) and a rule technicality decision prevented Arlan from claiming the "Oldest Running Motor" prize.

THE ROWBOAT MOTOR JOURNAL

About "The RBM Journal"

The Rowboat Motor Journal was created in order to provide rowboat motor-related information to any and all interested parties, as well as be used as a means of communication between collectors of the early motors that form the foundation of the marine outboard engine industry as well as the original building blocks upon which our hobby is based. Intended for quarterly publication, it is a non-profit enterprise with all information (technical or otherwise) procured, verified within reason for accuracy, and assembled strictly through the work of volunteers.

To that end, participating members are encouraged to share their expertise and understanding so as to assist in the future preservation of not only the motors themselves, but the knowledge there-of. Members may be solicited by the Editor to assist with providing in-sight with respect to restoration techniques, part reproduction, shop practices, motor information and any other pertinent exchange of data, up to and including publication of donated pictures or images, detailed accounts of current restoration projects, recent "new" old motor discoveries or acquisitions, or pictorial demonstration(s) of rowboat motors on display or in actual use.

The Editor of the Rowboat Motor Journal and its contributors assume no responsibility whatsoever for any incident or injury that may arise from any use of information (in whole or in part) presented within the contents of this publication.

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From The Editors Desk….

It's late August already, and the summer outboarding season is almost over. That doesn't mean the motors will get put away just yet, as there'll still be plenty of in 2009 time to enjoy boating; I may just need to dress a little warmer for early-morning or late-afternoon excursions. I've been busy enough with motor or boat related projects during the spring & summer that production of the chapter newsletter has more or less ground to a halt while I was occupied playing in the garage or at various meets.

We had a few folks who provided parts of the answer to the patent number quiz from the last issue, but nobody came up with all of the answers. P.G.H Hallongren of Stockholm, Sweden filed a patent application for a "device used for propelling boats" with the United States Patent Office on September 14, 1914. This device assisted in making boating easier by reversing the lower unit with the engine running, but he wasn't the first; there was another patent for a reversing lower unit design that was granted almost a year earlier than Hallongren's invention.

The 2009 Tomahawk meet in Wisconsin was a huge success, and we did have a very nice representation of rowboat motors present. Brook Newcomb made a notable contribution with his menagerie of Evinrude devices including water pumps and a garden tractor powered with a single-cylinder Evinrude RBM powerhead. Greg & Lori Schmidt as well as Rick Eichrodt had sizable exhibits in the arena that featured antique boats as well as motors. In particular, the Schmidts round-bottomed Evinrude boat restoration display was a sight to behold. Tom Theurwachter and myself provided early Evinrude Detachables that were used in the BRP display. The oldest running motor contest field was almost made up exclusively of Evinrude Detachable Rowboat Motors, as 5 out of 6 entries were Evinrudes, with one Johnson Light Twin competing as well. From a rowboat motor point of view, the grand finale was the impromptu "Rowboat Motor Parade" of Friday afternoon, with no less than nine RBM-powered boats on the water. Motors seen running included Bill Andrulitis' Koban, Lee Holland's Evinrude Model D, Rick Eichrodt's Evnirude Model "K" Lightweight, Bob Grubb's Model "AA" Four-Cycle Twin, and numerous Evinrude singles of varying vintage and description. It was a memorable occasion for all who were able to attend, whether they participated in the parade or observed the proceedings from shore.

As reported in the previous issue, there is a seven-page bit that I scanned from a technical publication would, in my opinion, serve as a very good tutorial on flywheel magneto system fundamentals. I wanted to use it as part of the bank of information that gets built up as time goes on. The intent was for the documents to be posted at a separate link on the website as soon as we receive permission from the publisher who owns the copyrights. Seven months later, I'm no farther along as far as obtaining that permission is concerned, or even finding out who is really the owner of the copyrights, as the original publisher of the book is no longer in business, or at least they are not publishing books under that name any more. Trying to contact organizations that logically would make sense has gotten me nothing but a pile of unanswered emails or unreturned telephone messages. I'll give it one more shot, but I'm getting the idea that another try is no guarantee of success.

The Ford Lake meet in Ypsilanti, MI is coming up, and many of us are looking forward to an afternoon of visiting with Model T fanatics and riding around in their antique cars while reciprocating with rides in our RBM-powered watercraft proved to be enjoyable for all concerned. Event photos will be included in the next newsletter.

I mentioned in the previous newsletter about trying to put a list of identifiable features that could be used as reference in attempting to figure out the likely year of manufacture of Evinrude rowboat motors that lack an ID plate. I could really use some help on this. The more knowledge we can harness, the better off we'll all be. ☺

THE ROWBOAT MOTOR JOURNAL

ROWBOAT MOTOR GEARCASE REBUILD

Text By Dave Lockwood and Dick Alcock
Photos by Dick Alcock

This details the steps taken to rebuild a gear case on a Lockwood-Ash/Motorgo rowboat motor, circa 1918.

Materials Needed

24 inch length of 5/8" round stock, "304" stainless, use for both shafts.
2 each – steel, plain bore, 20 degree angle Miter Gear, 12 pitch, 21 teeth, 1.75" pitch diameter, 5/8" bore
(McMaster-Carr # 6529K21)
OR
(Boston #L121Y/12194)
OR
(Martin #M1221B)
2 each – Bronze Bearing stock; 0.625" ID X 0.750" OD X 2.00 inch length (Motion Industries (#CB 1012-16)
1 each – 3/8-24 X 5/8" Socket Hd. Set Screw (#Q drill bit & tap)
1 each - #3 X 1-1/2" taper pin (#14 drill bit and #3 tapered reamer)
1 each – ¾" round stock (i.e. drill rod) for making a mandrel or fixture to hold gears and bushings during machining, and for installing bushings
1 each – 1.250" round stock, 1020 Cold Rolled Steel, for pump cam.
Silver Solder and Flux (smallest diameter solder rod you can find)
Sulphur-based cutting oil (or "Tap Magic")
Loctite #680

Procedure

The first thing to anticipate on this project is that the propshaft tail support/rear bearing may not be in proper alignment with the nose bushing. Evidently the wall of this area of the casting is thin enough to allow distortion during incidents of abuse to the lower unit. It can be brought back to acceptable alignment by inserting a 5/8" diameter shaft from the front and "tapping" it to reposition the tail support/rear bearing so that the propshaft will "eye-ball" concentric with the threaded hole on the front of the gear case. For final fitting later on, figure on 0.003" to 0.004" play between the grooved bushing on the front of the propshaft and the I.D. of the large adjusting nut to allow for slight, residual mis-alignment.

The replacement propshaft and the mandrel/fixture can be created first. Next, chuck onto the tail support/rear bearing and bore the casting to 0.670" (or as needed) and set in with Locktite. (Figure 1)

Note – lathe/chuck configuration must be such that the rotation of the skeg has sufficient clearance. **Cut lightly!**

Note – the bushings in the tail support and the top cover are "stacked".

Re-establish the lube hole in the inner portion of the casting. Repeat the process on the input stem of the top cover.

On the propshaft gear, turn down the hub to .800" +/-.001". (**Fig 2**) Machine to within 0.015" of the face, this will accept the new water pump cam.

For the pump cam, turn the round stock to 1.235" OD. The shaft hole is offset 0.145"; it should be 0.001" over the .800" diameter of the gear hub. (**Fig 3)** After boring, cut a chamfer on the cam to allow it to hold a solder bear, then cut the cam to 0.670" wide. Solder it to the gear with flux and silver solder. Use as small a diameter solder as available, 0.015" if you can get it. After the assembly has cooled, drill a hole for the setscrew. Use a "Q" bit to drill, and tap the hole for 3/8-24. (**Note -** Use plenty of lube for this and all other drill/tap operations on this project.) Use a 3/8-24 X 5/8" socket head setscrew with the nose turned down to .3120" X .218" to fit a 5/16" blind hole in the propshaft. Use anti-seize compound when installing the gears onto the shafts to prevent galling.

On the driveshaft gear, turn the hub to 1.118", or enough to clear the inside of the top cover casting. Machine a new driveshaft. To determine gear position, allow approximately 1/8" of the shaft to extend beyond the edge of the gear teeth; this allows the shaft to ride upon the rear bearing portion of the lower section of the gear case. With the gear in the correct position, drill a .182" diameter hole through the gear and shaft with a #14 bit, using a moderate to slow speed.

Remember to use plenty of oil. Seat the taper pin and dress ends flush with the hub.

Since there's not much opportunity for lube to get up into the driveshaft bushing, you can add a groove to intersect with the lower retainer screw. That hole was slightly enlarged and tapped for ¼-28 to allow a grease zerk to be temporarily installed for a light application of lube, then replaced with a brass round-head screw to match the others. This screw will have to be machined in conjunction with this project, as ¼-28 brass screws are seemingly unavailable over the counter.

Take plenty of time to do the final gear fit/adjustment. The fiber nose button may have to be shimmed. Do not crowd the pitch centers; leave approximately 0.005" to 0.010" loose. Tips of the gear teeth should be flush with each other.

The round head screw on the top front of the gear case that serves as a setscrew for the large adjusting nut should have the head bottom out against the case; the end of the screw should NOT be touching one of the channel bases. While you don't want the nut to be able to rotate, you do want to allow it to have a certain amount of "float" to allow for alignment with the prop shaft's front bushing.

(Many thanks to Dave Lockwood for sending this in for publication, and to Dick Alcott for sharing his time and expertise; Dick has used this method to successfully rebuild two of these gear cases.)

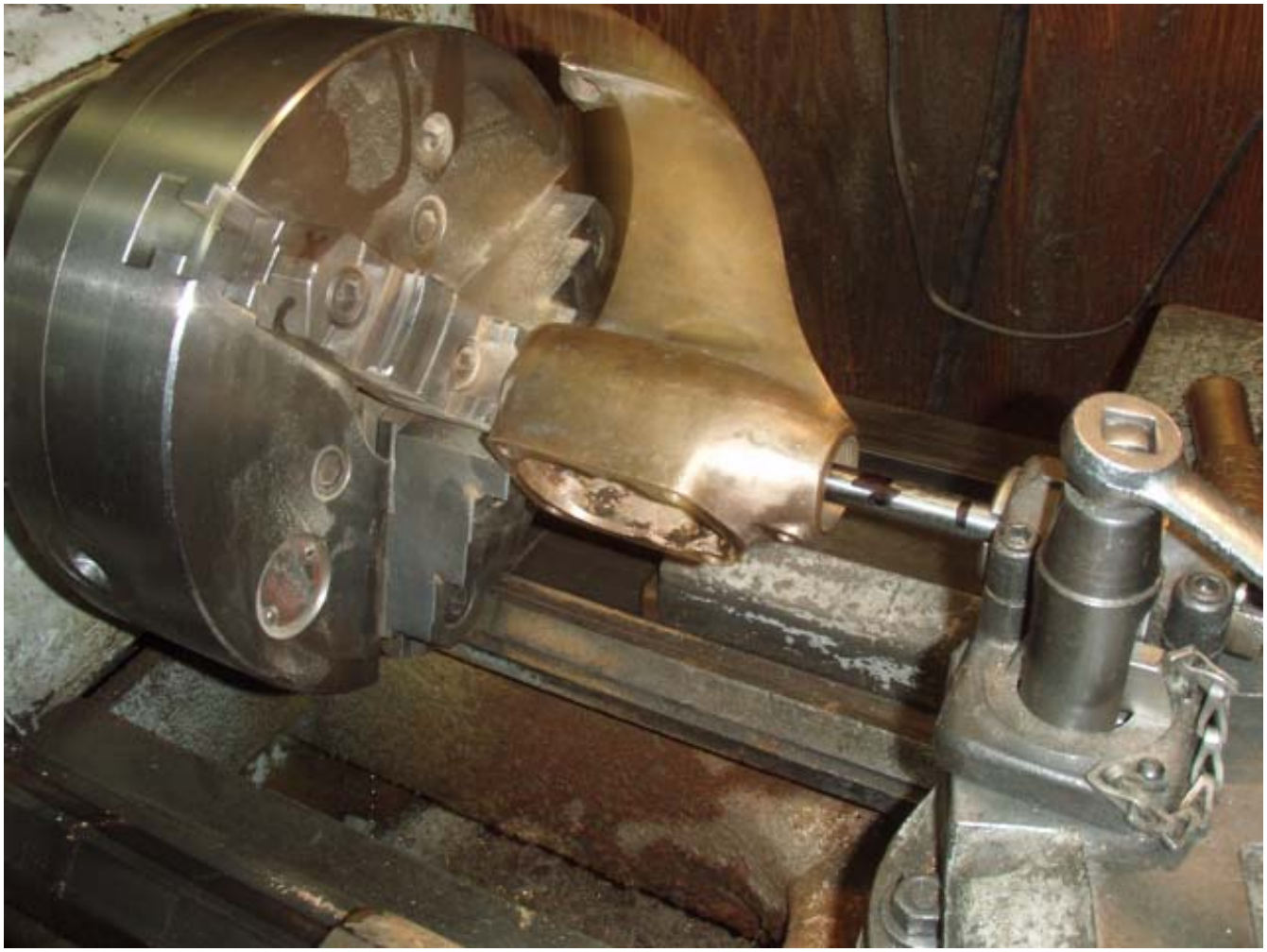


Figure 1 - Boring gear housing in the lathe

Figure 2 - Machining Gear Hub, note use of mandrel to hold gear

Figure 3 - Machining the off-set hole in the pump cam

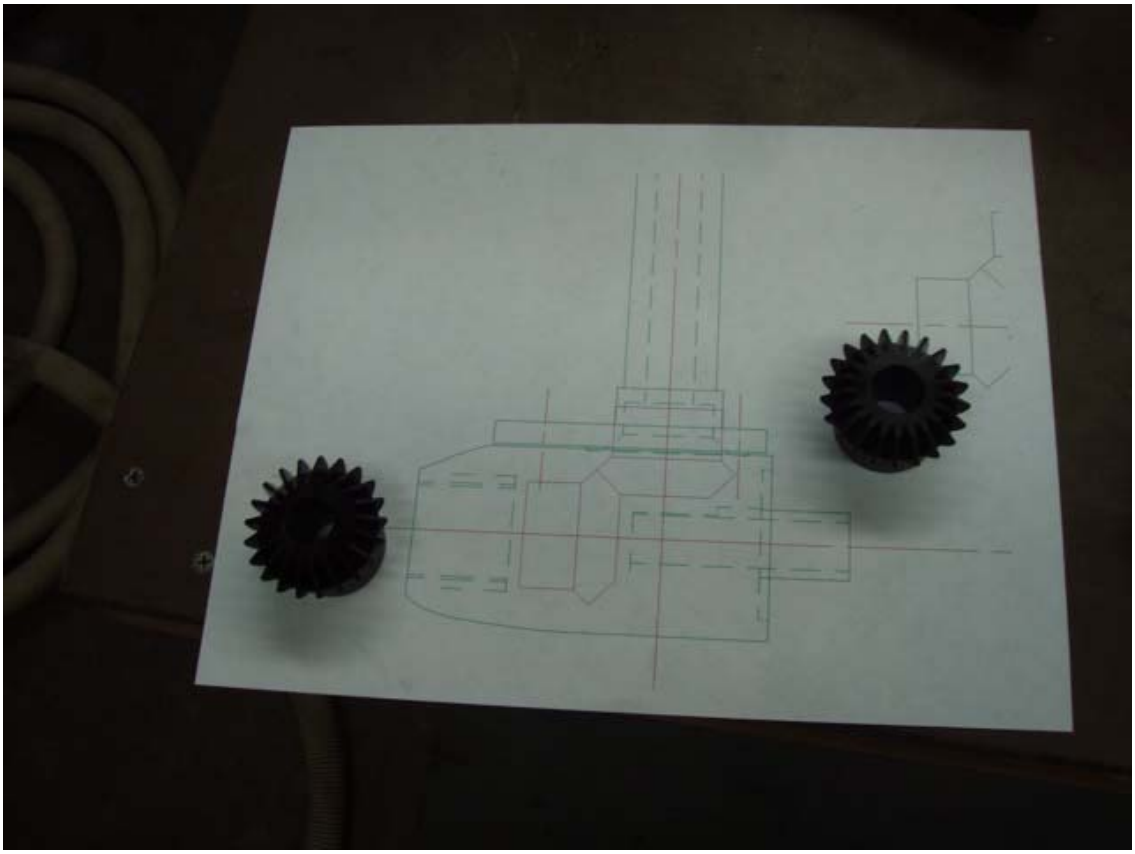


Figure 4 - Sketch of assembly

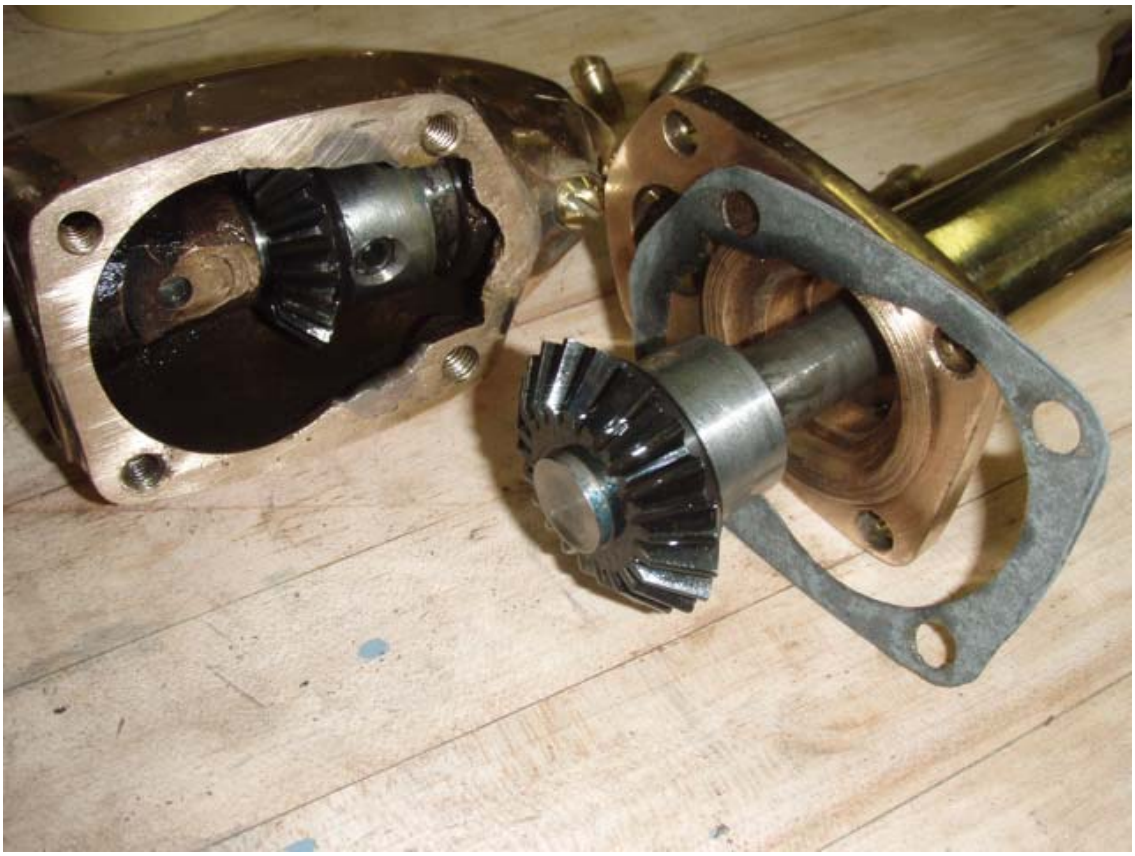
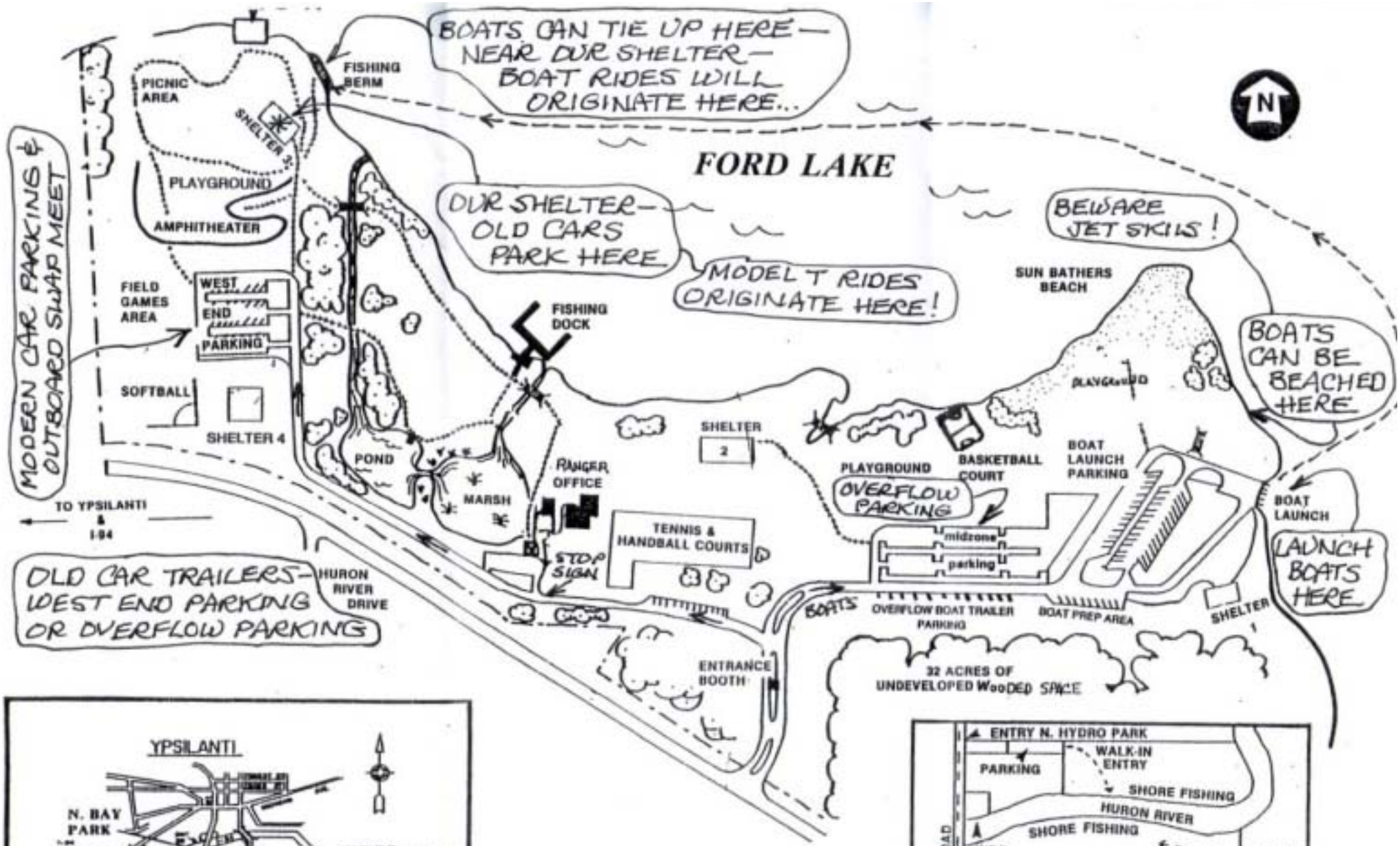
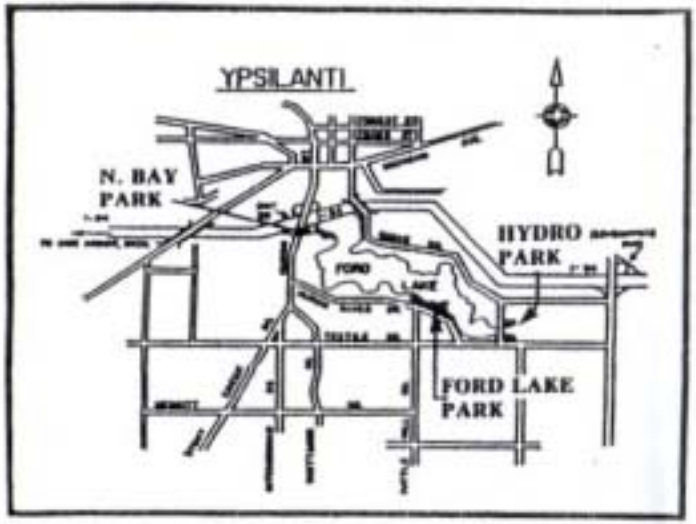
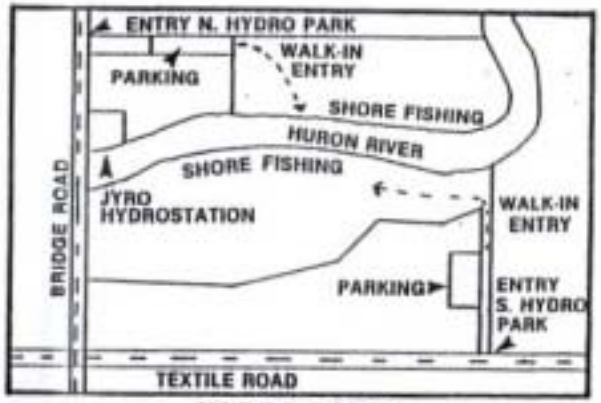


Figure 5 - Gears before final assembly, note amount of driveshaft that protrudes from the bottom of gear







HYDRO PARK

NO ENTRY FEES
PARK ONLY IN AREAS MARKED
WALK-IN ONLY
HOURS: SUNRISE TO SUNSET

Site Map for August 22, 2009
Piquette "T" Chapter of MTFCI & MTFCA, Horseless Carriage Club of America, and AOMCI
GLC and RBM Chapters Combined meet
Ypsilanti, Michigan

Photo Album Archives…..Miscellaneous shots From The 2009 Tomahawk Meet

Brook Newcomb's 3 1/2 ton (I mean HP) Evinrude commercial RBM

Another one of Brook Newcomb's motors, a beautifully restored 1912 Evinrude

Here is part of the group that formed the "RBM Parade" at Tomahawk. Motors running in the parade included a 1916-17 Evinrude "AA" Four-Cycle, a 1915 Evinrude Model "D", several other Evinrudes between 1910 and 1918, and a 1918 Koban.

Bob Grubb cord-starts his Evinrude "AA" Four-Cycle Big Twin while Kees Alderden ducks to avoid the knotted end of the rope

RBM Chapter members Tom Thuerwachter and Chris Scratch supplied early Evinrude motors for the BRP display

Arlan Carter (blue shirt) has his 1910 Evinrude (s/n #610) purring away in the test tank

THE BACK PAGE

FEATURING ROWBOAT MOTOR ITEMS OF INTEREST

For your enjoyment and/or torment, some more “what-iz-it and what-iz-it-for” pictures.

These were seen at the recent Tomahawk National Meet in Wisconsin.