

LOG BOOK  
OF  
RAY HASBROCK'S  
TINKER TOY

RECORD

# LOG BOOK

OF

Steam Launch

"TINKERTOY"

The decision to build  
"Tinkertoy" was made in  
July of 1983 after viewing  
the 2LL 2Luminum Sport  
Boat again being made  
available by Grumman  
The boat is 15 Feet Long  
43" Beam

100 Lb. Weight

A boat was ordered from  
"Sunset Sporting Goods Store"  
(Tony Tzutillo in Ohioville)  
The boat was delivered  
in August 1983.

Work actually started  
on the boiler in Nov. 1983

The boiler is a water tube design similar to a "Roberts" with a central horizontal steam drum 4" dia. of  $\frac{1}{4}$ " thick standard pipe. The lower drums are of  $1\frac{1}{4}$ " pipe. The heating coils are  $\frac{1}{2}$ " O.D. copper type "K" with .062" wall thickness. There are 22 tubes giving a total heating surface of 12 Square Feet. Total weight of boiler with casing and stack 100 lbs.

The Engine: is a 90° Vee design with double acting simple cylinders.

1.375" bore 2.00" stroke  
ALL bearings are ball or needle  
Reverse is by  
Stephenson Link.

The drive is by horizontal  $\frac{5}{8}$ " shaft from the engine to the transom. There a toothed belt pulley

arrangement is provided where engine to propeller ratio can be changed by using different sized pulleys. At the upper end of the bolt drive is a  $90^\circ$  gear drive which in turn drives a converted outboard lower end. Different Props may be used which are mounted "outboard style" using a shear pin. The original Prop is a 10" dia. by 12" pitch. Original bolt ratio  
32 teeth on Engine shaft  
20 teeth on gear box

Overall Ratio

Engine to Prop = 11 i / 3

[ Engine turning 400  
Propeller turning 470 ]

Boiler and propane firing system bench tested  
July 5, 1984 boiler holds  
4-5 quarts of water

Boiler Feed: is by a ram type pump which operates at  $1/85$  engine speed by belt drive and a worm gear 90° reducing drive.

The Hotwell pump is a single acting ram type  $5/8$ " dia.

The Plant is Condensing  
The Kail condenser is  $12 \frac{1}{2}$  Feet of  $5/8$ " O.D. copper tubing.  
Steam pressure pushes the condensate up into the Hotwell.

The Hotwell has 3 compartments, with a towel Filter under the condensate return in the first compartment. "Loofa" Sponges are in the second compartment. The Hotwell holds  $1 \frac{1}{2}$  gal boiler capacity is only one gallon.



Firing is by Propane  
Fuel supply is 220 Lb.  
Horizontal tank just  
behind the forward seat.  
there is one main  
burner which was made  
from 4 units of a  
home heating furnace.  
An independent pilot  
is used. which will  
light, and relight the  
burners.

### Steering:

steering is by moving  
the propeller, outboard  
style. Two steering  
stations are provided  
one forward and  
one aft.

July 31, 1984 Boat in water  
for the first time at  
"Kingston Round out creek"  
Steamed about 30 minutes  
at about 70 PSI Engine  
turning 370 R.P.M. Everything  
fine except load knocks in  
the engine really started  
to knock load and then  
seized tight. Paddled  
back to dock, then tried  
engine and was free.  
also Leaks in the steam  
manifold polder joints.  
Speed appeared to be  
about 3 mph.

Aug 13 - 17 Engine repairs  
Made new bronze valves to  
replace scored brass ones.  
Reduced piston dia. by .002 inch  
to eliminate seizing.

Cut new  $\frac{3}{16}$  Keyway in  
shaft and Flywheel  
Made new cylinder drain  
valves All repairs completed  
9:30 P.M. Friday Aug. 17, 1984

Aug 18, 1984

Took boat to Roundout in  
water about 11:30 A.M.

Took 10 minute cruise  
up stream to check  
engine it seemed to be O.K.  
Traveled down to "Marine  
Museum" at foot of  
Broadway Kingston distance  
was 2.2 miles and took  
45 minutes for the trip.  
Arrived about 12:30 P.M.

Tied up to dock.

Saw many Antique boats  
about 15 one Steam tug  
all metal new design  
from Philadelphia  
"S. S. FIREFLY"

compound "Lowe" engine  
very nice. At picnic  
Lunch Anne had prepared  
and started back to our  
Launching site at 2:00 P.M.  
Return trip took only 35 min  
Tide was coming in.

total steaming time  $1\frac{3}{4}$   
hours weighed fuel tanks



still had 13.5 Lbs of  
fuel. Appears fuel  
consumption will be about  
3 Lbs per hour. When  
running 70 psi and  
engine turning 370 R.P.M.  
Plant performed quite  
well. Feed pump needed  
a small amount of hand  
pumping every 20 minutes.  
Rear drive bolt must not  
be too loose or bolt will  
try to climb teeth.  
Hotwell work. Five  
had twelve layers of  
towel, no oil past the  
4th layer. Changed  
towers of the Steam  
Museum.

Aug. 20, 1984

took boat to "Orange Lake"  
Anne found Leak around  
screws in bow of boat  
explaining why we were  
getting some water.

In about 11:30 A.M.

Launching Fee \$4.00

\$8.00 if you skip

Cruised around complete  
Lake cool crisp weather  
only one other boat on  
the Lake, took boat out  
12:30 P.M. everything  
operating nicely.