



The Construction of the Steamlaunch “Rushforth”

Where we left off



Where we left off

Hull based on “sketch” in “Steam
Boats and Modern Steam Launches”
“Panatella”

Widened to 5 feet from 4’6” to
Increase stability 100%. I can stand
On the gunnel amidships and jump
up and down! VERY stable!









Picture showing heavy framing of fantail/keel

Planking identical to
Ruell Parker's method
but scaled down.

Bottom:
 $\frac{1}{4} \times \frac{3}{4}$ western red cedar
Covered with 2 layers of
3mm plywood layed diagonally
and 10 ounce cloth
Inside and out.

Sides:
2 layers of 4mm ply and
10 ounce cloth outside



Interleaved chine planking joint
with 4" cloth overlap.

Reclaimed Western Red Cedar bottom strip planking in place,
made for a 140 year old wine barrel...note the wine stained nail holes!



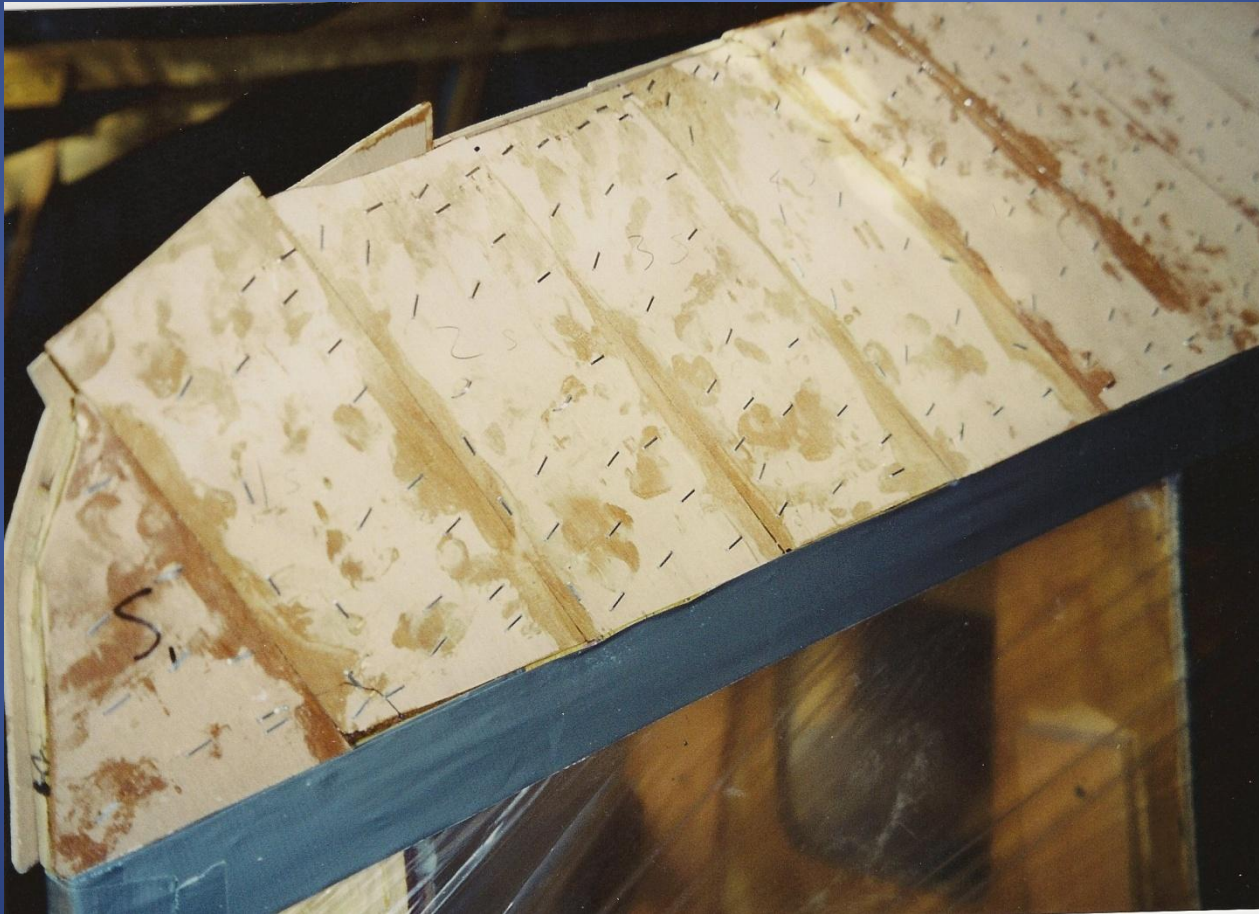




Lining out for the cold molded layers and checking fairness



Dry fitting plywood strips prior to numbering and gluing



First layer of cold molded plywood on..note staples....all must come out before the next layer.



6000 staples on this layer.....and 6000 on the next layer
Every one was removed after the glue set, and before the
Next layer went on....one at a time!

Where we left off





All ready for glass cloth!



Jim Daley and Will Weidner helped me cloth the bottom
I did the sides. Thanks Guys!

Roll-over Day!

September 26, 2002

Roll-over Day!



Roll-over Day!



Roll-over Day!



Roll-over Day!



Roll-over Day!



Roll-over Day!



Roll-over Day!



Roll-over Day!



And Then!

There was a significant Event!



The “quiet” years.....2003-2005



Meet the crew!

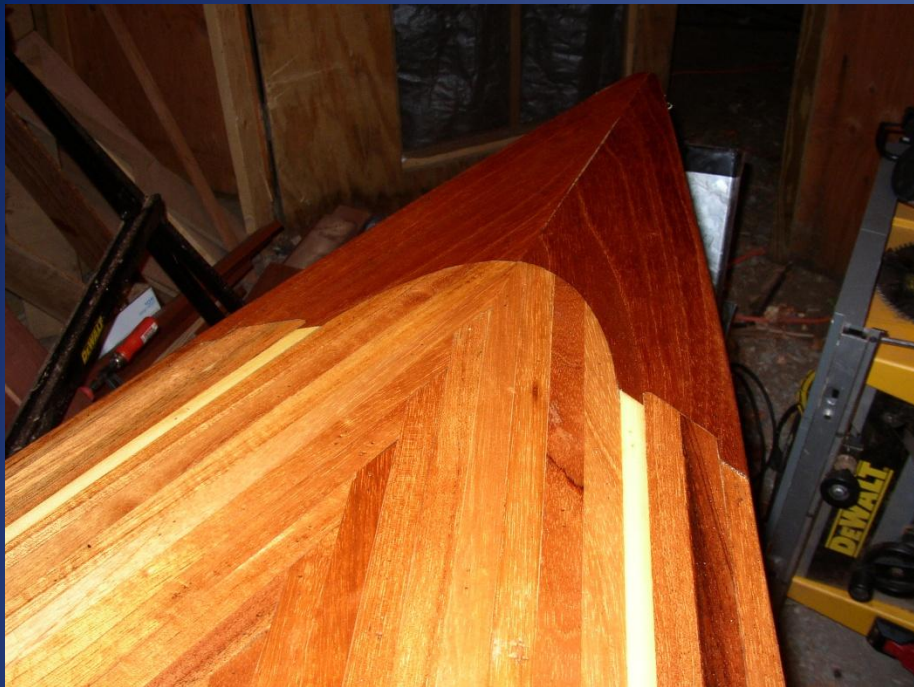
2005...OK back at it!

The Deck

3mm ply covered by $\frac{3}{4}$ x $\frac{1}{4}$ Spanish cedar strip
laid "herringbone"

All covered with 4 oz glass cloth and varnished





Launching Day



A proper blessing.....Thanks Reverend Susan!

Launching Day!
July, 2007
No Boiler in the boat.....yet

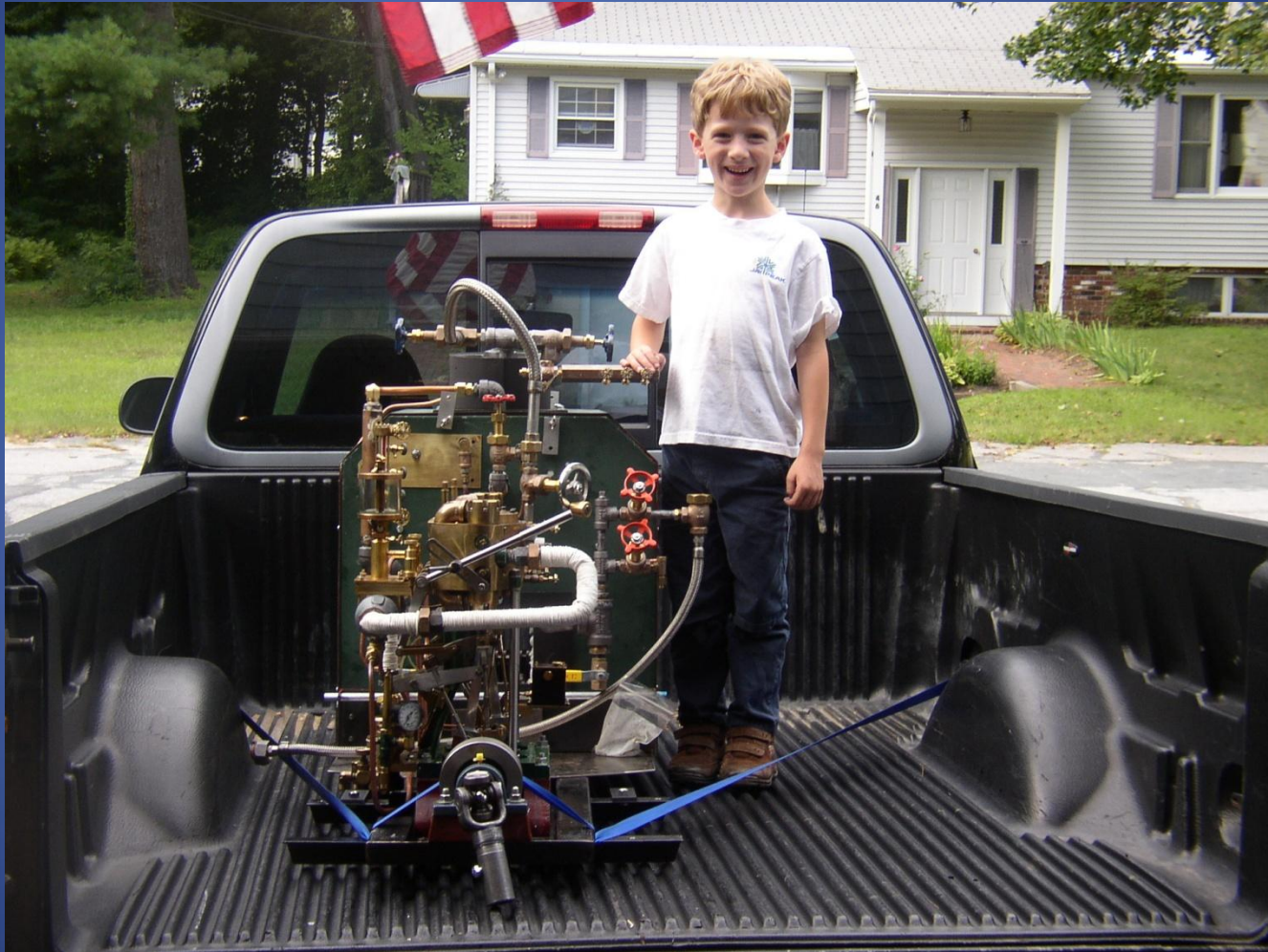


...but she's a boat now!



...and a very stable boat too!..but Jim wasn't taking any chances.....

Engine and boiler meet boat!..2008...I was happy too!



October 2008 , first steam!

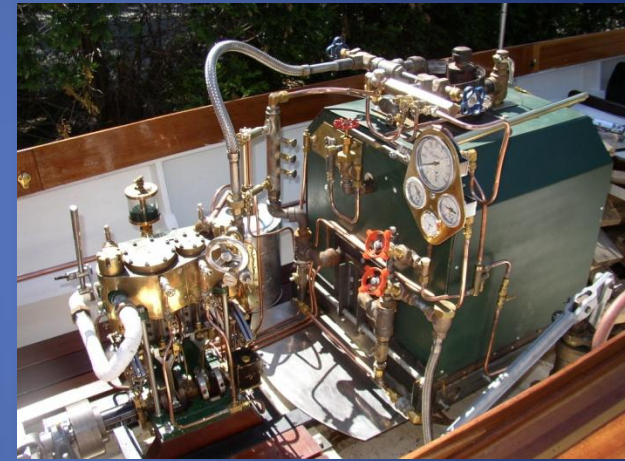


Complete!.



...but the story Isn't over....how about the engine?

Rushforth's engine



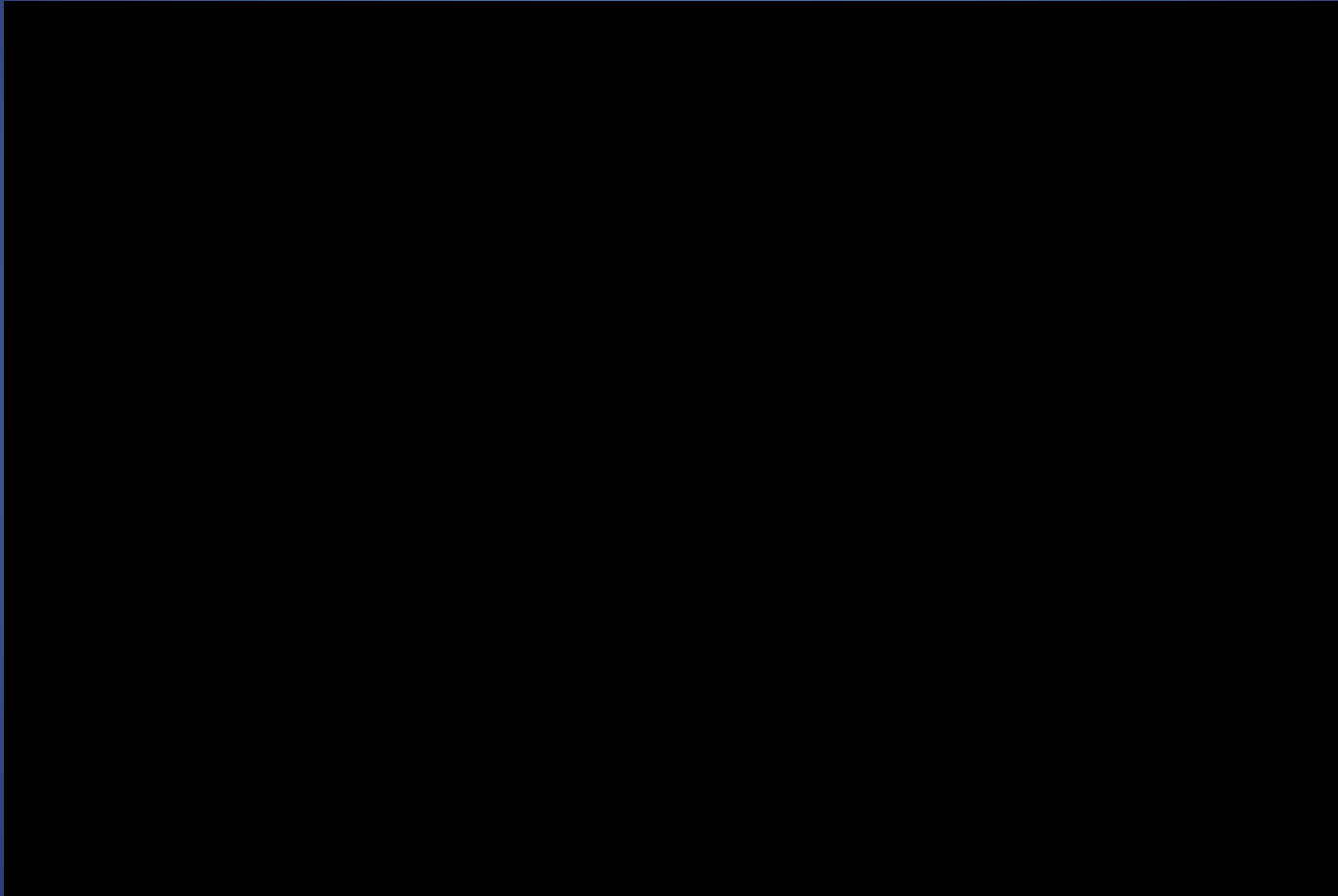
Rushforth's engine

Started 5 years before the boat started or about 1995

Completed in 1999

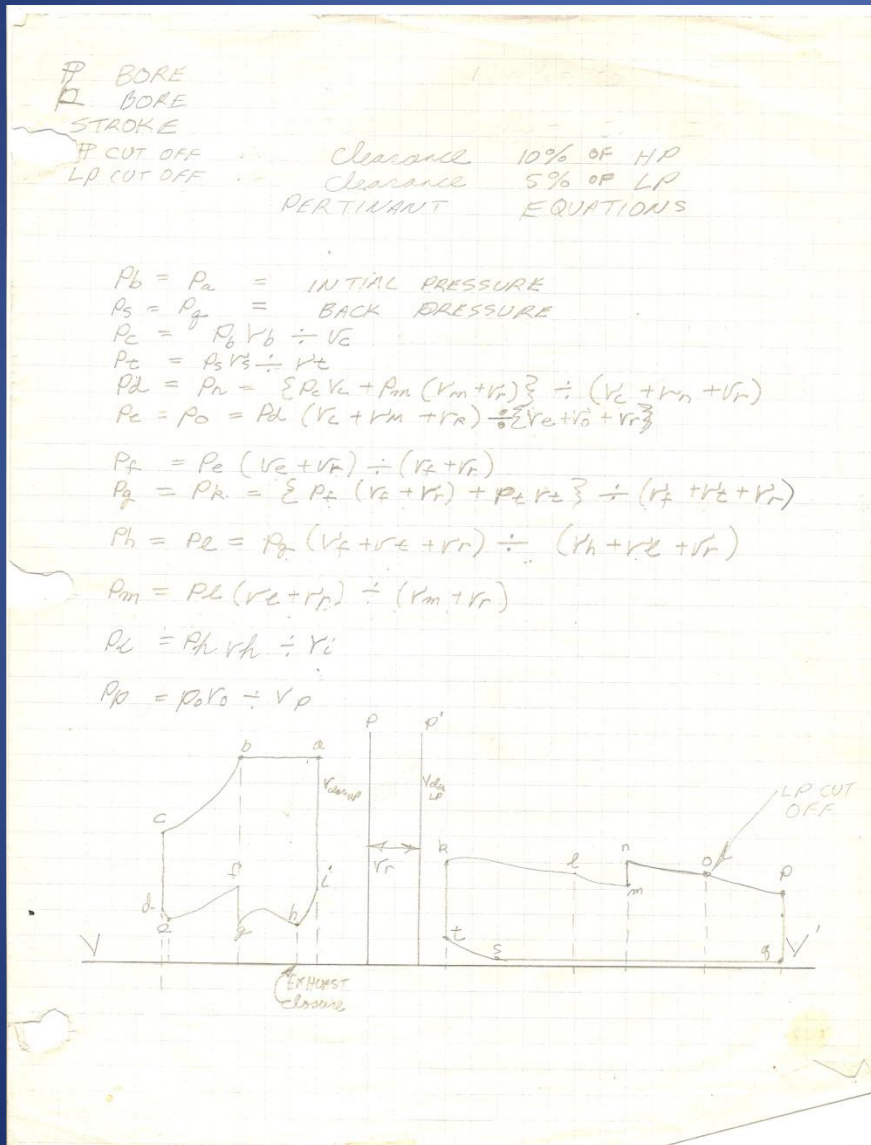


Rushforth's engine

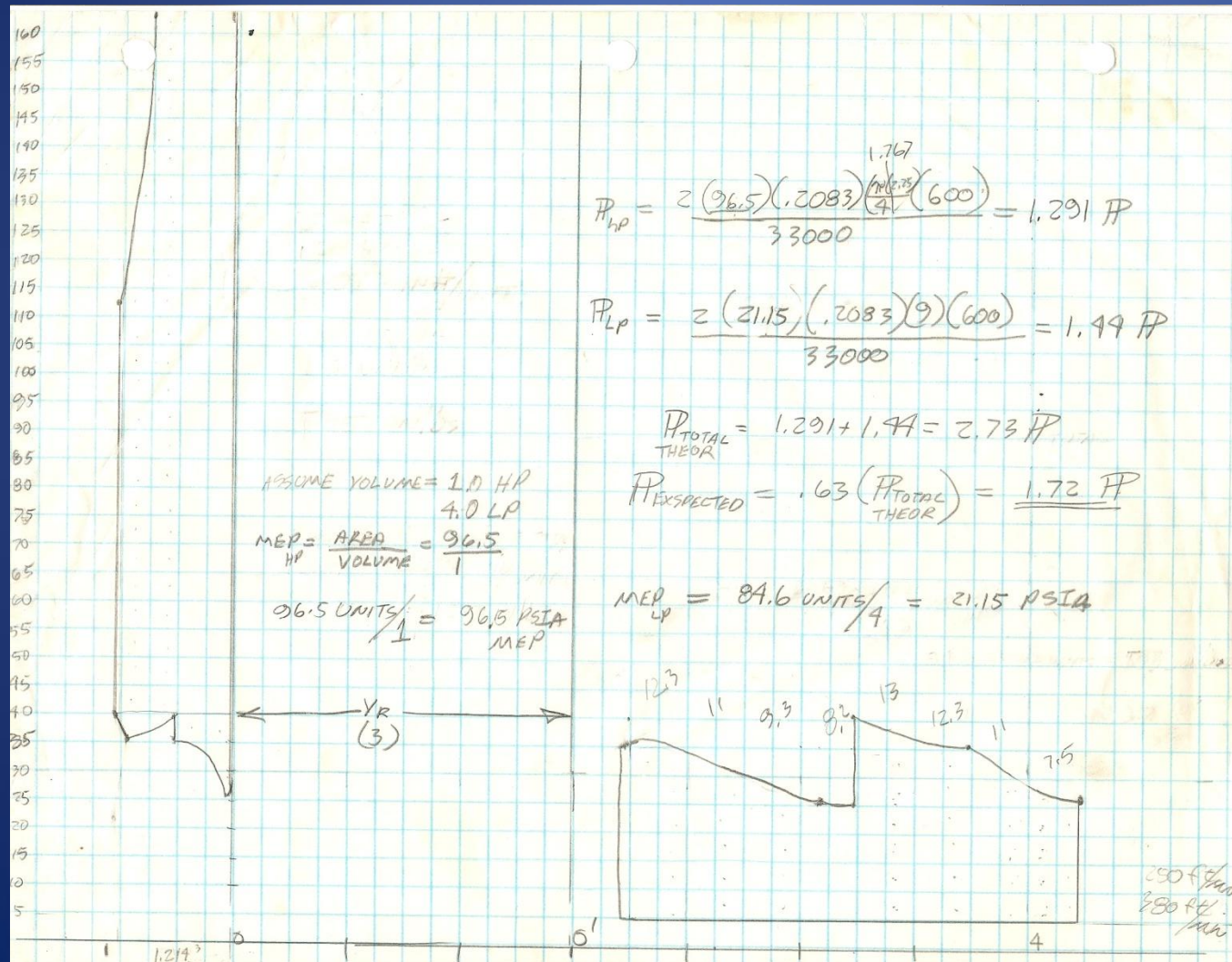


Engine theory

Simultaneous equations for PV diagram From Peabody



Theoretical Pressure/Volume diagram

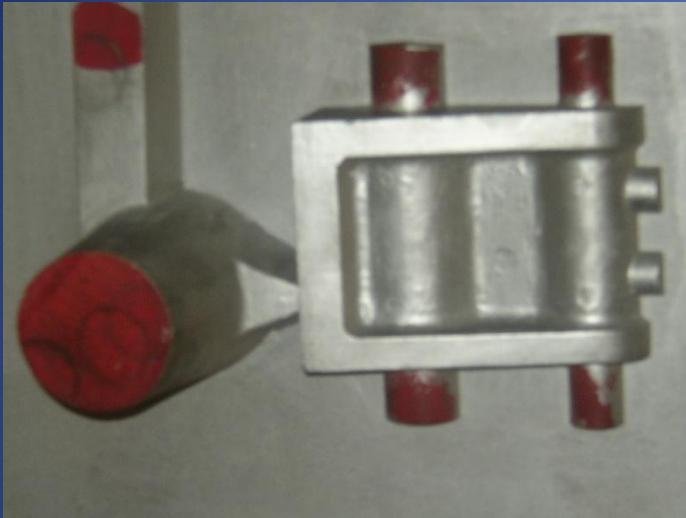


1.72 -2.73 HP
(about 2 HP actual)

Design Considerations

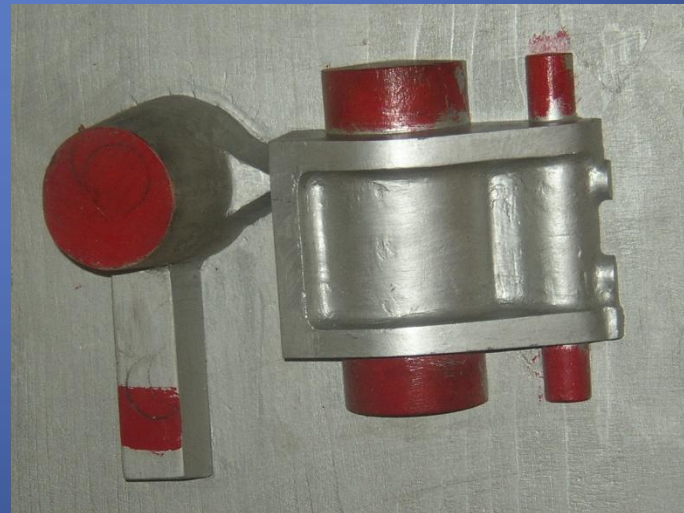
- Design Considerations:
- 1.5" HP
- 3.0" LP
- 2.5" stroke
- 7075-T6 aluminum connecting rods of traditional "shovel handle" pattern
- 75% maximum cut-off on both cylinders for equal power.
- NO exhaust lap
- Inside admission on HP
- Outside admission on LP
- Piston valves on both cylinders
- Aluminum pistons
- Receiver volume = 4 x HP swept volume
- Teflon Piston rings on cylinders
- Lapped piston valves with out rings
- 160 psi steam
- 18" Hg vacuum.....when I can get it!
- Pressure lubed big end bearings on the connecting rods

Design Considerations

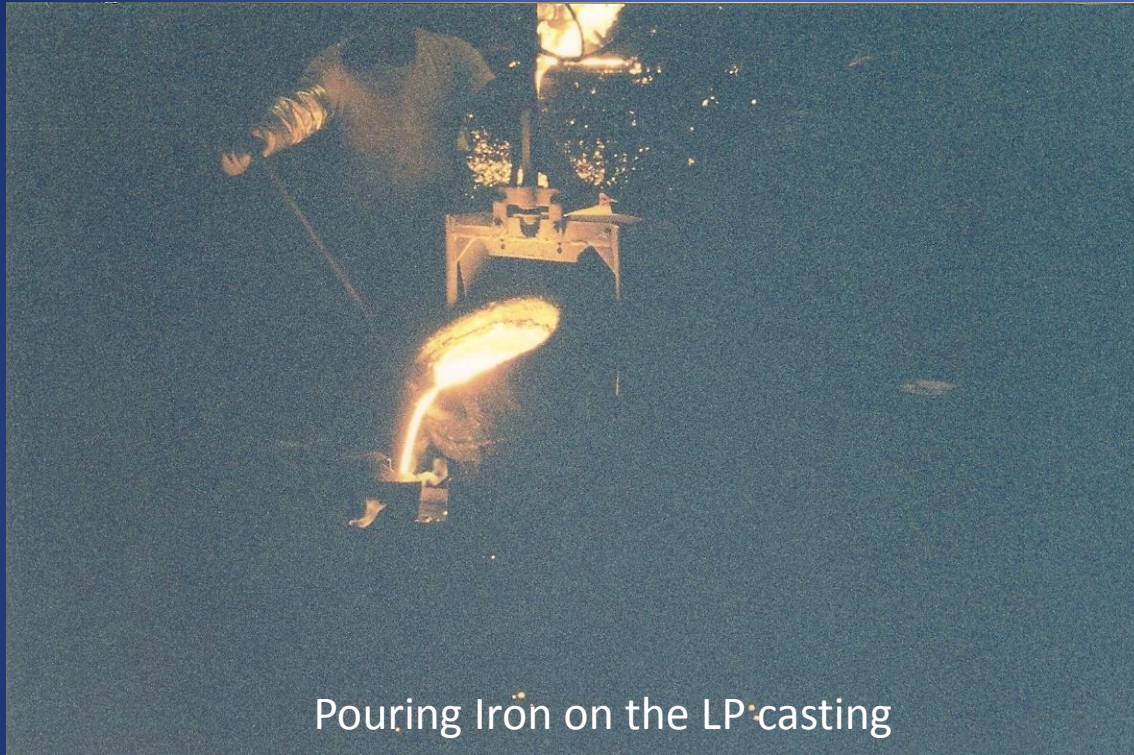


- Castings.
- I made the patterns
- I made the match boards
- Nashua Foundry made the gates and risers and poured the iron
- These are the only castings. Everything else is bar stock or fabricated via welding or silver soldering

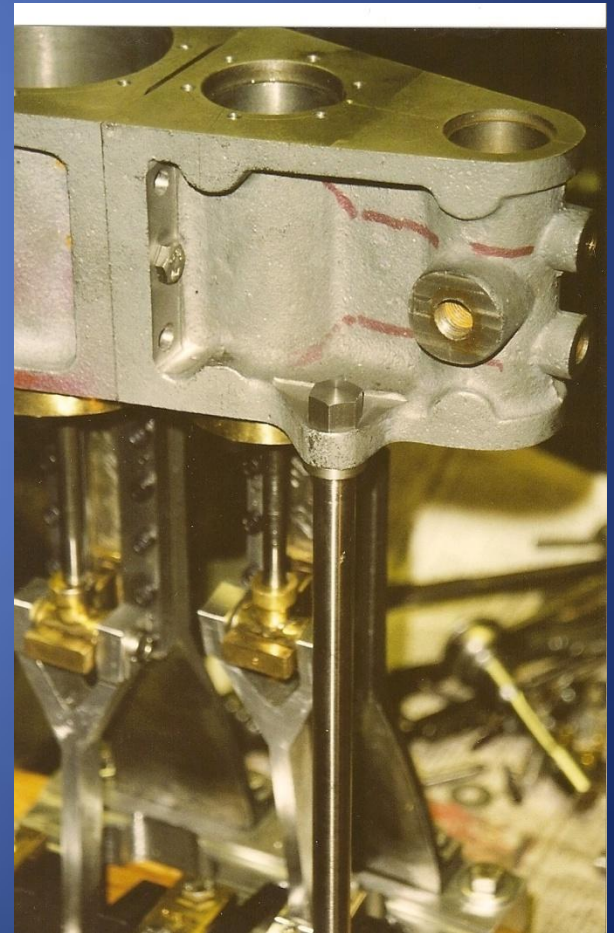
Many Thanks to Pete Lyons at Nashua Foundry!



Under construction



LP and HP joined



Under test on the Prony Brake

80 psi steam (wet) running non-
condensing

0.75 Hp @ 600 rpm....and she
wanted more!

NICE BARK!

I knew I was going to be alright...this
was 4 years of work by itself



Prony Brake

Fish Scale

Boiler

What makes her “Really”go!

- Based on a proven design by Cliff Blackstaffe “A” configuration
- SA-106 schedule 80 for the drum
- SA-106 schedule 40 for the downcomers and mud drums
- Welded by a certified pressure vessel welder
- Hydrostatically tested to 400 psi twice yearly
- Includes 4 sq feet of economizer.
- Purchased and used Section I code requirements for the design.

Port side generating tubes, steam drum and initial design economizer

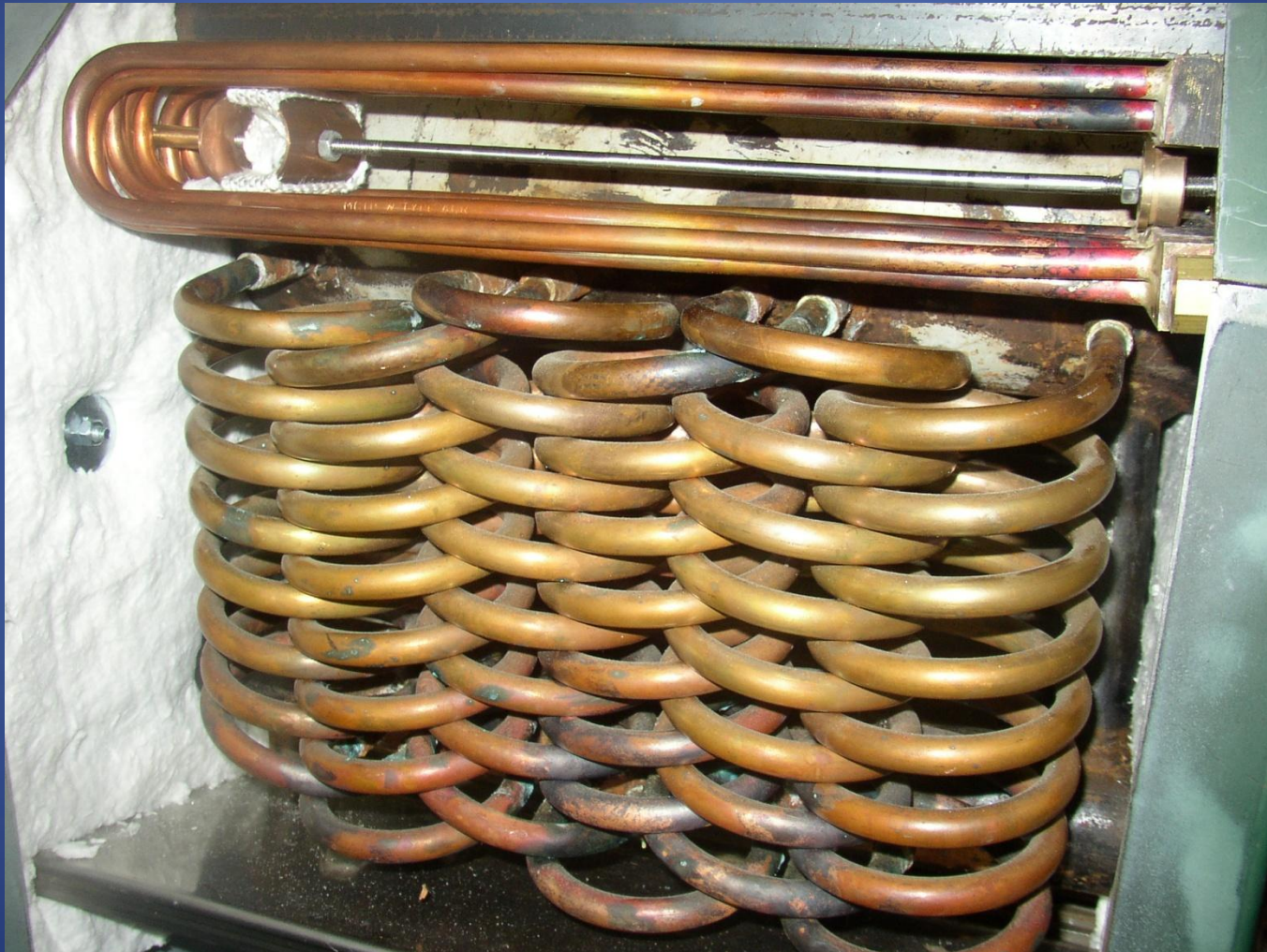


Photo from Lee's Mills Steamboat meet 2010
Showing basic plumbing

Feed:

Large volume hand pump

Injector (Superscale Locomotive works)

Engine driven feed pump

All feed methods are separate and can
be isolated

The economizer can be isolated.

8 gallon bow feed tank

Can draw feed from the water I am in also.

Bow tank filled through deck fitting

Feed water heater (1 sq ft) located on port
Side just before the keel condenser.

Port and Starboard blow down valves

Wood fired

Boiler weighs 350 pounds all up



Forward cockpit
Passed Coast Guard safety check inspection



Lee's Mills meet 2010
Her first "public" outing



Lee's Mills meet 2010
Her first "public" outing



Lee's Mills meet 2010
"Massive" wake from 2 HP at 6.5 mph
Turning a 16/18 prop @ 550 rpm





Its been a long journey....

OK

So what's with the name?

Rushforth, comes from old English roots

It was my mothers middle name. She's the one who showed me how to chase my dreams.

So it's my view on life.

"Rushforth and make haste, chase your dreams today! You don't know what tomorrow will bring".

Thanks for listening!

Hope you approve Ray!...Thanks for the years of encouragement!