Total Time for Canoe #10

Dec. '54

	Remarks	Time (Min.)	Date
Garstreaks		21	Dec. '54
Followers		197	
Plank #15		2	
Inside strips } Strip #29		160	
Inside Stems		27	
Outside Stems		9	
Keel		19	
Filler Piece		4	
Thwart Bar		45 ½	
Thwart Blocks		14	
Seat Bars		19	
Seat Slats		36	
Seat Assembly		22	
Deck Tops		20	
Deck Beam #1		6	
Deck Beam #2 & 3		4	
Deck Stringer		11	
Coamings			
Deck Strips		10	
Gunwales		30	
Lining		14	
Stem Bumper		9	
Seat Plates		5	
Thwart Plates		4	
Total Mfd. Parts			
Bending			
Planking			
Trimming			
Varnishing			
Total Assembling			
Total for Canoe			

Mar. 1963

Trimming Procedure.

1. - Fasten keel in place. 1

2. - Mark top line + points for thwarts + seats - 2

3. Smooth up at thwarts, inside + out 3

4. Put in thwarts 4

5. Saw top line at decks. 5

6. Clean up under dks. 6

7. Fit, + fasten dks + mark for screws. 7

8. Prepare gunwales 8

9. Trim at decks + stems. 9

Trimming Procedure. Mar. 1963

10.- Smooth outside to 5th joint 10

11. Put on gunwales. 13

12 - Saw top line to gunwale + smooth up. 14

13. Smooth up dks + gunwo. 17

14. Put in coamings. 18

15. Fit deck strips 19

16. Round corner of strips at gunwo. 20

17. Clean up inside of canoe. 21

18. Smooth up outside edge of gunwo. 22

Mar. 1963 Trimming Procedure.

19. Sand top of gunwale. 23

20. Fair off keel + stems. 27

21. Put on brass stem bumpers 28
Use #10T-12

22. Clean + smooth up outside of canoe. 30

23. Sand mahog. with sharp 5/0 paper. 34

Trimming

1. Fasten keel from inside of canoe with 3/4" #6 screws. Have canoe setting in jig #10-T.1. Drill with 3/32" countersink drill.

2. Drill number holes in bow stem near the top. Use push drill and metal guides.

3. Mark top line and points for seats + thwarts. Use jigs #10 T2 + #10 T3

4. Put in thwarts.
   a. Smooth outside planking around ends of thwarts
   b. Bore one 5/32" hole thru planking at each end of thwart to correspond with hole already drilled in thwart.
   c. Fasten thwarts in place with one 1½" #10 screw + washer at each end of thwart.
   d. Level thwarts with straight edge jig #10-T4 and drill and put in remaining 1½" #10 screws. Use 5/32" drill.

5. Saw top line for decks.

6. Clean up inside planking under decks

Trimming

6a. Assemble Decks

7. Fit decks and mark with chalk for gunwales screws with #10-T3
Nail in place with 3/4" copper nails
#54 drill if req.

8. Prepare gunwales:
   a. Clean up bottom of gunwales.
   b. Stain + fill bottom of gunwales.

9. Trim edges of decks and stems.

10. Smooth outside planking from gunwales to 5/4th joint with file and take-about sander.

11. Bore 9/64" holes for gunwale screws under decks and in thwart blocks. Countersink thwart block holes.
3/16" for #10 screws at decks

12. Mark each ~~even numbered~~ inside plank for gunwale screws.
Put screws in each inside plank.

13. Put on gunwales:- Glue gunw. at sides of decks.
   a. Clamp gunwales along top-line marked on outside planks.

   b. Mark for screws with #10-T5.

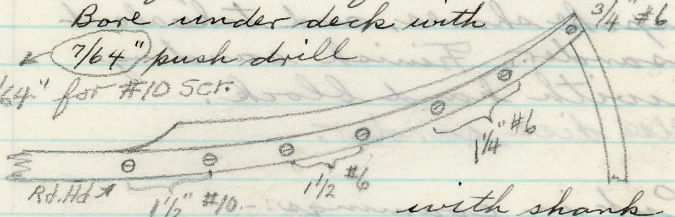
Trimming

13. Put on gunwales (continued)

c. Fasten with screws, using 3/4" #6 thru planking and 1" #6 Fl. Head thru thwart blocks.

d. Bore 1/4" (7/64") holes for plugs at the decks.

e. Clamp gunwale at the decks and fasten as follows:-
Bore under deck with (7/64") push drill 9/64" for #10 Scr.



with shank filed down full length.
Bore other holes with 7/64" electric drill.

f. Set plugs in marine glue and drive in place with light taps.

g. Mark inside strips for nails, using jig #10-T5. ~~One nail in center of each remaining strip~~ One nail at each side of each strip, and one ~~in~~ each side of joint.

h. Nail with 7/8" copper nails.

14. Saw planking to gunwale line with large compass saw.

Trimming

15. Fair off planking with gunwale, using a block plane.

16. Smooth up top of gunwale with smoothing plane + scraper. + disc sander

17. Smooth up decks and gunwales at decks with block plane, spoke shaves, and take about sander. Finish sanding with hand block. Use disc sander.

18. Put in coamings:-
    a. Clean up face with scraper and sandpaper.
    b. Bore 9/64" holes and countersink for #6 screws. 3/4" OA. Rd.
    c. Mark for bevel on back side at end with jig #10-T6 and cut out bevel with saw and chisel.
    d. Fit coaming to deck and mark for A or B on back side.
    e Stamp canoe identification number on back side of coaming with small numbers.
    f. Spread marine glue on dk beam.
    g. Fasten in place with 3/4" #6 Oval Hd.
    i. Trim bottom flush with deck beam and round corner.

Trimming

19. Fit deck strip and mark A or B:-
    a. Mark center on coaming above dot in deck beam.

    b. Scribe broad end around coaming and trim with 2" chisel

    c. Put strip in place and mark at stem. Cut off and round top corner and notch slightly for brass stem band.

    d. Mark canoe identification number in plain heavy pencil lines so it can be read through opening between deck tops.

20. Round off planking corner along gunwale. Use 2" chisel and block plane. Slant tool to give shearing cut to prevent tearing wood out of end grain. Smooth up with sand paper.

21. Clean up inside of canoe with scraper and sandpaper.

22. Smooth outside edge of gunwale with block plane.

Trimming.

23. Sand gunwale with belt sander and finish with sanding by hand with block. Use disc sander

24. If the canoe is mahogany trim, dust off and wet mahogany parts with sponge to raise the grain. (This is not done on teak trimming.).

25. Turn the canoe over.

26. Complete fastening of keel.
    a. First bore 9/64" hole through lip 1/2" from end of keel and finish the hole with 7/64" countersink drill. Drill for 1¼" #6. Drill 2nd hole (7") from end of keel with 7/64" countersink drill.
    b. Put in two 1¼" #6 screws at each end of keel using paraffine to prevent breaking.

27. Fair off keel and stem.

Trimming

28. Put on brass stem bumper.
    a. Place the 6th hole, counting from lower end, at center of lap joint and drill hole for screw with special short 3/32" drill. Fasten with 5/8" #4.

    b. Follow up the stem completing one hole at a time, using 5/8 #4.

    c. Notch slot in keel at end of stem band and bend the end down. Finish fastening along the keel with 5/8" #4 screws.

    d. File off screw heads.

Use #10-T 12

Total 19.0

29. Trim down outside stems and keel with chisel, plane & scraper. 26.0

30. Scrape glue off planking and file joints down smooth.

31. Sand with take-about sander and finish by hand and dust off. Use disc sander.

32. Turn canoe right side up.

X 33. Bend stem band down with jig #10-T 7

34. Sand mahog. with sharp 5/0 sandpaper.

Observation Record — Trimming Canoe

Date	Clock	Time	Oper.	Quan.	Aver.	Remarks
9/11-41	7:52					
	7:55	3	18a			
	7:57	2	18b			
	8:00	3	18c.			
	8:13	13	" d			
	8:14	1	" e			
	8:16	2	" f			
	8:21	5	" g			
	8:30	9	18-j			
	8:32	68	19a			
	8:42		19 b c d.			#20 previous.
	9:23	41	21			#22 done.
	9:27		25-26			#23
	9:46	19	27-28 a.b.c.d.			#24
	10:12	26	29			Stems
	10:43	31	30			one side
	10:52	9	31			" "
	11:19	27	30			" "
	11:26	7	31			" "
	11:28					Pol. S. Band.
	11:31					Smooth Rub.
	11:33					Dust Off.
	11:34		32+33			
	11:53		Clean up shop + clean file of glue.			

Observation Record

Trimming Canoe

Date	Clock	Time	Oper.	Quan.	Aver.	Remarks
9/10/41	9:50 10:03	13	1			Keel fastening
	10:15	12	3			Top line
	10:25	10	4			Thwarts
	10:35	10	5			Saw top line at ft.
	10:50	15	6			clean under ft.
	11:04	14	7			fitt + nail D
	11:26	22	8			Gun hot.
	11:36	10	9			Trim Deck, edges.
	12:00	46	10	24 m.		One side.
	1:00		10	22 m.		2nd "
	1:22					
	1:26	4	11			
	1:28	2	12			
	1:43	15	13 9			
	1:45	2	b			
	1:52	7	c			
	1:57	5	a + b			
	2:03	6 109	c'			
	2:09	6	d			
	2:48	29	e			(e with thwart) (60 min 10/29/60 complete
	2:58	10	f			
	3:02	4	g			
	3:17	15	h			b. nail on each side of joint. 30 Min. 10/29/60
	3:27	10	14			
	3:31	4	15			level plk with thwart
	3:46	15	16			
	4:03	17	15 a	≈20		Round plk edg.
	4:58	55	17			Inc. ≈22 ft

July, 1946.

1/4" Gunwale Plugs.

	Per Canoe
1. Saw mahogany or teak to 1/4" x 9/16". Est. 6" in length required per canoe. 16 plugs " " " .	.3
2. Dress 4 sides to 5/32" x 1/2" Est.	.5
3. Cut cardboard strips 1/4" wide. Est.	.2
4. Glue cardboard strip in center of one face of piece. Est.	.5
5. Put plug cutter in drill press Clamp base support in vise. Adjust depth so cutter comes to within 1/64 of cardboard Drill for plug every 5/16".	2.5
6. Run knife cut along each side of cardboard and push plugs out of holes.	1.0
	5.0

Var.

5

Finishing Canoe

1. Stain mahogany parts.

2. Varnish planking 1st. coat.
   Use 16 oz. varnish and 3 oz. turps.
   Varnish inside and then turn
   canoe over and rest on gunwales
   and varnish outside.

3. Fill pores of hardwood with filler.
   First sand lightly and dust off.
   Thin mahogany filler with turps.
   Thin Teak filler with gasoline.
   Allow one day to dry.

4. Sand canoe lightly for second
   coat of varnish.

5. Put in finishing bar located by
   the forward holes for the front
   bar of the bow seat.

6. Varnish 2nd coat of canoe.
   Varnish deck strips.

7. Sand inside and top of canoe.

Finishing Canoes.

8. Put on deck strips.
   a. Take out last screw in stem band

   b. Bore deck strips for nails with pointed push drill. Locate holes with jig #10-T8. 3/16" from edge. #10-T8-a

   c. Nail strips on with 3/4" copper finish nails. Start nailing at coaming end. Center the strip from the point on the deck beam.

   d. Set the nails with nail set.

   e. Clip nails off under the decks between the deck beams.

   f. Put in stem band screws.

9. Dust inside of canoe, turn it over and sand the outside.

10. Dust the outside and putty where necessary.
    Wipe the outside with chamois and turn the canoe over.
    Putty where necessary on the inside and deck strips.
    Wipe up with chamois.

Finishing Canoes.

11. Varnish 3rd coat.

12. Sand canoe for 4th coat.
Use 6/0 and water for hardwood
Use 5/0 dry on planking.
Dust and wipe off with
chamois.

13. Varnish 4th coat.

Varnishing Seats.

Observation record May 29, 1946.

Seat Bars, per seat:-

	Min. per Seat.
1. Dusting off	.3
2. Varnish 1st coat	1.5
3. Sandpaper 1st coat	1.4
4. Varnish 2nd coat	1.7
5. Sandpaper 2nd "	1.4
6. Varnish 3rd "	1.7
	8.0

× 2 = 16.0 per canoe.

Varnishing Seat Slats

Observation made May 19-29, 1946.

	Min per seat.
1. Dusting off	.5
2. Varnish 1st coat	2.5
3. Sandpaper 1st coat	3.3
4. Varnish 2nd "	2.6
5. Sandpaper 2nd "	1.8
6. Varnish 3rd "	1.6
	12.3

12.3 × 2 = 24.6 min per canoe.

Seat bars 8 min per seat × 2 = 16.0 min per can.
" slats 12.3 " " " " 24.6 " " "
Total 20.3 " " " " 40.6 " " "

Stain & Filler Notes.

"A" - Red mahog. stain.

"B" Red mahog. stain. Slightly lighter than "A"

"X" Red mahog. stain. Slightly darker than "A" or "B".

"Y" Red mahog. stain. Slightly darker than "A", "B" or "X".

"Y" Reduced. Slightly lighter than "Y".

"K" Stain + filler - Dark brown mahog.

Stain & Filler Notes.

3/25/63 – Filler used on canoe #965 was 2 parts Daly filler (dark mahog) 1 part Parker filler (Semi-paste mahogany #2746)
Daly filler is brownish color
Parkers " " reddish "

5/21/63:– Used "Y" stain (dark red) on Big Reynold's canoe #587 on the mahog.
Required about 5 hrs to prepare & stain mahog on #587.

5/21/63 – Yellow ochre + burnt sienna mixed with turps used to tone down inside strips on #587.

Observation Record Varnish new canoe.

	Date	Clock	Time	Oper.	Quan.	Aver.	Remarks
	1941	8:45					
	Sept 12	9:00	15				Prep for Var. 1st ct.
47		9:32	32				Appl. 1st ct.
		8:12					
	13	8:17	05		Sand + dust teak		
		8:28	11		Mix + apply filler		
		8:51	23		Wipe off + clean up.		
		8:00					
	15	8:27	27		Sand + dust for 2nd ct.		
		8:47					
110		9:31	44		Var canoe + deck both. 2nd ct.		
		10:15					
	17	10:35	20		Sand + wool inside + top		
		10:52	17		Instal. deck stk.		
		11:22	25		Sand + wool & spl		(5 min out?)
		11:43	21		Putty all over.		
		8:00					
	18	8:12	12		Dust + prep. for var. 3 ct.		
141		8:58	46		Apply var 3rd ct.		
		4:18					
	19	4:58	40		Sand + wool for 4th ct.		
		5:02	4		Sweep finish room		
		9:50					
	20	10:00	10		Prep.		
109		10:55	55		Appl 4th ct.		
			407		Total.	6 hr.	47 min.

Records on Canoe #965

1962 - 1:20 P.M. -
Dec. 17 - Start putting on inside plks.
18 Planks to #20 + inside stems in place.
19 " 21-29 in place + △ " "
20 Work on tack setter
21 " " " "

1963 2nd coat.
Apr. 3 - Varnish inside of #965 — 95 min
" decks + gunwales 115 — 40 "
" outside of canoe 60 "
175 "
Clean brush + varnish can 25 "
Total time 200 "

Apr. 8, 63:-
Put 1 lb. varnish in coffee can for 3rd coat.
1:50 P.M. start varnishing
3:40 " 110 min " finish inside + dks + gunw.
4:35 " 55 m. " outside + bottom of gunw.
5:20 " 45 m Brush + cans cleaned + trash burned

Apr. 18, '63 1 lb. coffee can = 5 oz.
Put 1 lb. varnish in can (1 lb. 5 oz.)
2:10 P.M. Start varnishing.
3:20 " Start mahog.
3:45 " Fin. dks + gunw.
4:30 " " outside + bottom of gunw.
5:30 Clean brushes (2) + var. can

Comp

6

Complete the Trimming.

1. Put in bow seat:

   a. Remove varnishing bar.

   b. Bore 7/64" holes thru planking for screws in forward edge of rear bar.

   c. Make points on the inside planks to mark the lower corners of seat bars to aid in placing seat. Use metal jig #10-T9 having holes in jig correspond with holes in planks.

   d. Place seat in canoe so that holes in the end of the bars correspond with holes in the planking and fasten with four 1¼" (1½") #8 screws and washers. Ov. head

   e. Bore remaining four holes with 7/64" drill and fasten with 1¼" (1½") #8 screws and washers. ov. head.

2. Put in stern seat.
   This is done similar to the bow seat but use jig #10-T10. for locating instead of #10-T9.

Complete the Trimming.

3. Put nameplate on coaming.

   a. Make awl holes for nails using jig #10-T 11. Fasten in place with 1/4" escutcheon pins.

4. Put painter fitting on bow deck strip 10" from point. Drill 7/64" holes and fasten with 1¼" #6 Oval Hd. screws.

   For painter eye casting

   Drill 5/32" thru deck strip and deck, then 7/64" into dk beam.

Sum.

7

Total Time for Canoe #10

	Remarks	Min. Time	Date
Garstreaks	Hr. .33	20	Sept. 1925
Followers	3.20	192	" "
Plank #15	.05	3	Aug. "
Inside strips	2.60	156	Sept. "
Strip #29	Est. .08	5	
Inside Stems	.43	26	Dec. 1925
Outside Stems	.15	9	" "
Keel	.31	19	Feb. 1926
Filler Piece	.07	4	Jan. 1930
Thwart Bar	.75	45	Mar. 1920
Thwart Blocks	.23	14	Aug 1925
Seat Bars	.31	19	Feb. 1926
Seat Slats	.60	36	" "
Seat Assembly	.25	15	Aug 1920
Deck Tops	.31	19	Feb. 1926
Deck Beam #1	.07	4	Oct. 1927
Deck Beam #2 & 3	.07	4	Aug 1925
Deck Stringer	.18	11	Feb. 1926
Coamings	.27	16	Apr. 1920
Deck Strips	.20	10	Jan 1927
Gunwales	.50	30	Nov. 1926
Lining	.23	14	Nov. 1925
Stem Bumper	.13	8	1925
Seat Plates	.10	6	Aug 1925
Thwart Plates	.05	3	Feb. 1926
Total Mfd. Parts	11.4 hrs.	688 min.	
Bending	2.5 hrs.		
Planking	17.5 "		
Trimming	10.0 "		
Varnishing	9.8 " (inc seats & thwarts)		
Total Assembling	39.8 "		
Total for Canoe	51.2 hrs.		

Total Time for Canoe #10

	Remarks	Time	Date
Garstreaks			
Followers			
Plank #15			
Inside strips			
Strip #29			
Inside Stems			
Outside Stems			
Keel			
Filler Piece			
Thwart Bar			
Thwart Blocks			
Seat Bars			
Seat Slats			
Seat Assembly			
Deck Tops			
Deck Beam #1			
Deck Beam #2 & 3			
Deck Stringer			
Coamings			
Deck Strips			
Gunwales			
Lining			
Stem Bumper			
Seat Plates			
Thwart Plates			
Total Mfd. Parts			
Bending			
Planking			
Trimming			
Varnishing			
Total Assembling			
Total for Canoe			

Canoe

Canoe Jigs

No.	Location	Remarks.
Garstreaks:		
#10-Gar. 1	M.-Ceil.	Fir 3/4" x 4" x 16'
#10- " 2	J.R.	Teak 1/4" x 3" x 3'
#10- " 3	M.-B.D.	Gar. width - 3/8" x 1 1/4" x 3 3/4".
Followers:-		#10-F9 - Horse guide for dressing plks
#10-F.1.	M-Ceil.	Measuring stick 1/2 x 1 1/2 x 17'
#10-F2	" "	Straight strip 3/4 x 1 1/2 x 17'
#10-F3	" "	Curved strip " " "
#10-F4	" "	" " " " "
#10-F5	" B.D.	Metal width guage.
#10-F6	J.R.	Pattern for follower #15.
#10-F7	M.-B.Dr.	3 1/3" gauge.
#10-F.8	B.D.	9 5/16" gauge for pls. for shaping plks.
Inside Planks:-		
#10-I.P.1.	J.R	Measuring stick
I.P.2	J.R.	3/4" cedar - 3 pcs.
#10-I.P.3	"	Shaping strips - long
#10-I.P.4	"	" " - short.
#10-I.P.5	"	Roofing paper pattern
#10-I.P.6	"	Pattern for strip #29
#10-I.P.7	M.-B.D.	End marker.
#10-I.P.8	" "	Width guage - mahog.
I.P.9 + 9a.	" "	Shaper + saw guides
Inside Stems:-		
#10-I.S.1.	J.R.	Outline patterns - 2 pcs
#10-I.S.2	M.-B.D	Saw guide.
#10-I.S.3.	" "	Shaper guide.
#10-I.S.4	J.R.	For shaping stems - 1st cut
#10-I.S.5	J.R.	" " " - 2nd
#10-I.S.6	M.-B.D.	Brass spring attachments
#10-I.S.7	" "	" " "
#10-I.S.8	" "	1 3/4" teak blocks.
I.S.9	" "	Band saw jack-stop

#10-F9-
#10-F10-
#10-F12

Canoe Jigs.

No.	Location.	
Outside Stems:—		
#10-O.S.1	J.R.	Measuring stick 4'0"
#10-O.S.2	M-B.D	Sawing gauge - oak block
#10-O.S.3	J.R.	Sawing jig - 3/4" x 48"
#10-O.S.8	M-B.D-	Brass end gauge.
#10-O.S.5		For ripping - 18° bevel.
10-O.S.6		gauge.
037	rabbet cut	
Keel:- 058	" "	
059	" "	
#10 K 1	M-B.D	Sawing guage - 3/4" block
#10-K 2	" "	Bevel guide
#10-K 3	" "	Keel gauge.
#10-K 4	" Ceil.	Keel length
#10-K 5	" B.D.	Mitre box stop.
#10-K 6	" "	Stop for shaper saw
#10-K 7	" "	Size gauge - Brass
#10-K 8	" "	Gauge for engraving
#10-K 9	" "	For cutting bevel on side
K-10		For sawing bevel.
K-11		For sawing ends.
△ Filler Pc:-		
#10 F 1	J.R.	To cut hollow side
#10 F 2	"	To saw in half
#10 F 3	"	To taper first cut
#10 F 4	"	To taper second cut
#10 F 5	"	Size of △ pc. 2" x 20
Thwarts:-		
#10-T 1	J.R.	For measuring lengths
#10-T 2	"	Thwart size
#10-T 3	M-B.D.	End guide - (Band saw)
#10-T 4	" "	Back stop
#10-T 5	J.R.	Shape marking pattern.
#10-T 6	"	Shaping jig - for edges
10-T 7	M. ceiling	Double shaping guides

(continued on next sheet)

Canoe Jigs.

No.	Location	
Thwarts:- (continued)		
#10-T8	M. ceiling	Shaping jig for top.
#10-T9	J.R.	Holder for hand shaping.
#10-T10	J.R.	Drilling jig for keels + rudder.
#10-T11	J.R.	4×4 block.
#10-T12 & 13	M-B.D.	5/32 cedar for sanding top.
#10-T14, 15, 16, 17	" "	For sanding thwart sides.
#10-T18	" "	To mark for holes when holes are on
#10-T19	" "	For shaping thwart.
Thwart Blocks:-		
#10-T.B.1	M-B.D.	Size gauge.
#10-T.B.2	M-B.D.	" "
#10-T.B.3.	" "	Sample block - Right
#10-T.B.4.	" "	" " - left.
#10-T.B.5	" "	3/4" block for grooving.
#10-T.B.6.	M-Ceil.	Shaper table " "
#10-T.B.7.	" "	Guide pc. " " right hd.
#10-T.B.8	" "	" " " " left "
#10-T.B.9	M-B.D.	For gouging groove by hand.
#10-T.B.10		Guide for shaping blocks.
#10-T.B.11		" " " back side
#10.T.B.12		" " " front "
#10 T.B.13		For sawing groove cuts.
Seats:-		
#10-S1	J.R.	Measuring stick
#10-S2	"	Bow seat - long bar
#10-S3	"	" " short "
#10-S4	"	Stem seat - long bar
#10-S5	"	" " short "
#10-S6	"	Attachment for shaper fence
#10-S7	"	For shaping stem slats
#10-S8-1 to 6.		Slat pattern (To be made)

Canoe Jigs.

4.

No.	Location	
Seats:- (continued)		
#10-S.9-1 to 5	M.B.D.	For sanding slats.
#10-S10	" "	For beveling seat thwart plates
#10-S11	" "	" countersink " " "
#10-S12-16	T-W.W.	Seat assembly.
#10-S17		For seat bar length.
#10-S18 + 19	S20, 21, 22	For seat slat length
		For sawing seat bars.
Deck Top:-		
#10-DT.1	J.R.	Deck top pattern.
" " 2	Mch. in dr.	Thickness ga. for sawing
		D.B15 - Coaming rounding.
Deck Beams:-		DB16 - cut-off stop
#10-D.B 1.	M-B.D.	Length of beam #1
#10-D.B 2	" "	" " " #2
#10-D.B. 3	" "	" " " #3
#10-D.B. 4	" "	For sawing coaming curve
#10-D.B. 5	" "	" " " "
#10-D.B. 6	" "	For sawing deck curve
#10-D.B. 7	" "	" " " "
#10-D.B 8	" "	" " " " Beam #1
#10-D.B 9	" "	" " " " " #2
#10-D.B 10	" "	" " " " " #3
#10-D.B 11	" "	For marking center of Beam #1
#10-D.B.12	" "	For drilling mast seat holes
15 " 13	" "	" " " " "
16 " 14	" "	D.S.11 - R+L. Mitre cut.
Deck Stringer:-		D.S.10 - R+L. Stringer length
#10-D.S.1.	J.R.	For shaping stringer, right
#10-D.S 2.	"	" " " " left
#10-D.S.3a.+b.	"	For sawing mitre ends.
#10-D.S.4	"	For gauging " "
#10-D.S.5	"	For Top bevel - right
#10-D.S.6	"	" " " " - left.
#10-D.S.7	M.B.D.	Stringer length stop - op. 7
#10-D.S.8 - R+L.		" " " op. 4
#10-D.S.9		Gage bl. 1 5/8 " 5

Canoe Jigs.

No.	Location	
Coaming:-		
#10-C 1	J. R.	Pattern for marking.
#10-C 2	" "	Jig for shaping.
#10-C 3	" "	For rounding top
#10-C 4	" "	For marking for screws.
#10-C 5	" "	For repairing coam. on saw table
#10-C 6	" "	Thickness gauge.
#10-C 7	M-B.D.	For rounding top.
Deck Strips:-		
#10-D.Strip-1	J.R.	For shaping
#10-D.Strip-2	"	" marking.
#10 D " 3	M-B.D.	" sanding end.
Gunwales:-		
#10-G 1		Guide for gunwales.
#10-G 2	M-Ceil.	Measuring stick-½ length.
#10-G 3		Gauge for sawing diagonals.
#10-G 4	J.R.	For tapering edges.
#10-G 5	"	Guide for tapering "
#10-G 6	J.R.	For tapering top.
#10-G 7	J.R.	" " "
#10-G 8		Sample of gunwale.
#10-G 9	Trim room	17 ft. base for sanding gunw.
#10-G 10	Boy	Slater-Bliss " " "
#10-G11 a bc.		For tapering ends
Cloth Lining:-		
#10-L 1	F-W.W.	Pattern for center piece.
#10-L 2	" "	" " end piece.
#10-L 3	" "	" " △ pc.
#10-L 4	" "	" " stem lining.

Canoe Jigs.

No.	Location	
Planking Up:-		
#10-P1.	T.W.W.	For marking bottom of filler pc.
#10-P2		" " for screws in stems
#10-P3		" " " " in outside stems
#10-P4		" " top line points
Trimming:-		
#10-T.1	T.-E.W.	For putting on keel.
#10-T.2		For marking top line between dks.
#10-T3		" " " " at decks.
#10-T4		Straight edge for lining up thwarts
#10-T5		For marking for screws in gunw.
#10-T6		" " bevel on coaming.
#10-T7		For bending end of brass stem pc.
#10-T8		For locating holes in dk strips.
#10-T9		For locating bow seat } to be made
#10-T10		" " stern " }
#10-T11		" " nameplates
#10-T12		For centering brass stem band
Stem Band:-		
#10-S.B1	North wall Trim room	For boring holes (Use SB4)
#10-S.B.2	"Mwall.	" beveling ends
#10-SB3	Store room	" bending stem band
#10-SB4	" "	" boring holes after band
#10-SB5	" "	" countersink " "
#10-SB6	" "	" bending end

Gar.

Garstreaks.

Min. per Pc.

2 per canoe
.170" x 3 3/4 x 15' 9 3/4"

1. Cut to length accurately — 1.0
Use #10 F-1.

2. Saw into 2 x 4 — 1.0

3. Straighten one edge on shaper — .5
use #10 F-2.
It is important that this be straight.
Can mark with str. edge + saw to line, then dress with shaper fence.

4. Saw to shape on bandsaw. — .5
Use #10-G1 + I.P. 9 or 9a.
3 7/8" wide at center.

5. Dress curved edge on shaper — 1.6
Use #10-G-1 + I.P. 9 or 9a.
Gauge width with #10 F-7 (3 3/4")
Mark center point
Draw center line - both edges
+ make diagonal lines on curve edge — 3.6

Garstreaks. Dec. 1954

	Min. per Pc.
6. Mark ends with #10 G2.	3.6
→ Place lugs on curved edge.	.2
7. Saw to line on band saw.	.4
8. Resaw to 1/4" on band saw. Use resaw jigs	1.9
9. Surface 1st side to .206"	1.5
" 2nd " " .176"	1.5
10 Sand best side to .170" Use 4" belt #1 grit.	.9
11. Put away for storage	.2
per pc. —	10.2
×2 = 20.4 " set.	

Fol.

2

Followers.

Min pr Pc.

26 per canoe

.170" x 88/50" (1 3/4"+) x 17'6"

1.765" (1 3/4 + .015)

1 Cut to lengths - #10 F 1 .4

2. Saw into 2 x 4 .4

3. Straighten both edges #10 F-2 .6

3 3/4 Make 3 13/16" wide #10 F 7 (3 3/4" is close margin.

a or b

Use #10 F 8, if required

(wedge taper)

→ Be sure edge is square with bottom

4. Saw to shape #10 F 3 + 1.P.9 + 9a. .5

Use #10 F-7 for width gauge.

5. Shape edge or shapes #10 F 4 .4

Use 1.P.9 or 9a gauge #10 F-11 (brass)

Mark center 1 49/64 = 1.765" ✓2

(1 3/4 = 1 48/64 = 1 24/32 = 1.750) 1 25/32 = 1.781" x2

6. Draw center lines on both edges.

Make diagonal lines on curve side .1

2.4

Followers

	Per Pc.
	2.4
7. Resaw to 1/4" Clamp spring G1 from back of saw.	1.2
8. Surface 1st side to .206"	.8
" 2nd " " .176"	8
9. Sand best side to .170" Use 4" belt – #1 grit.	1.0
11. Bevel straightedge to 80° Shaper fence + springs. Leave 1/32" square. (Adjust with fence, rather than spindle)	.6
10. Mark centers on sanded side.	.1
12. Sort into sets + put away.	7
per pc.	7 6

× 26 = 197 min per set.
= 3.3 hr.

#15

3

Outside Plank #15 (Saw table)

4 per canoe – 2 rights + 2 lefts.
(Pattern #10-F9

	Per pc:
1. Size inside strip material to 3 3/8" (or 3 1/4") making both edges straight. (28" per canoe 3 3/8" / 29" " 3 1/4")	.1
2. Set saw table protractor 75° left. Set to cut length #10-F10 for 3 3/8" / #10-F10a " 3 1/4". Cut to length: For rights have sanded side up / " lefts " " " down (or turn guide to opposite angle and have sanded side up for left.)	.2
3. Set saw guide in place (jig #10F11 – 4 1/4" from saw) and cut pcs. in half on diagonal with jig. For rights have sanded side up. For lefts " " " down	.1
4. Mark pcs. at top corner on sanded side as shown on pattern. Red crayon for right. Blue " " left.	.1
per pc.	.5
x4 = 2.0 per set.	

(over)

Outside Plank #15

Per Pc.
.5

5. Shape bottom edge to curve with #10-F12 on shaper.
Set guide 1.P.9 4¼" from knives #10-1.P.8. (or #10 F 12).

→ For Rights have sanded side up
" Lefts " " " down.

I.P.

4

Aug. 1 — 11:00 P.M.

Dec. 16, 61.

Inside planks.

Dry measured 73"

After soaking in tank 73 1/2

Strip 1 to 10 — 36 11/16

1/9/62:-

Taking off bending form

strips 1-10 = 36 3/8"

" 1-20 = 72 2/8

Inside strip widths.

Dec. 1961.

No	Width
1	3.645" = $3\frac{2}{32}$ −
2	7.290 = $7\frac{9}{32}$ +
3	10.935 = $10\frac{15}{16}$
4	14.580 = $14\frac{19}{32}$ −
5	18.225 = $18\frac{7}{32}$ +
6	21.870 = $21\frac{7}{8}$ −
7	25.515 = $25\frac{1}{2}$ +
8	29.160 = $29\frac{5}{32}$ +
9	32.805 = $32\frac{13}{16}$
10	36.450 = $36\frac{7}{16}$ +
11	40.095 = $40\frac{3}{32}$
12	43.740 = $43\frac{3}{4}$ −
13	47.385 = $47\frac{3}{8}$ +
14	51.030 = $51\frac{1}{32}$
15	54.675 = $54\frac{11}{16}$ −
16	58.320 = $58\frac{5}{16}$ +
17	61.965 = $61\frac{31}{32}$ −
18	65.610 = $65\frac{5}{8}$ −
19	69.255 = $69\frac{1}{4}$
20	72.900 = $72\frac{29}{32}$ − = $72\frac{7}{8}$ +

Dec. 54

Inside Planks

Per Set

36 short pcs. per set
40 long " " "

Short pcs:- 54 lin ft. per set .170 mat.
Long pcs. - 160 " " " " " "
Total 214 ÷3 = 71 lin ft. of 1×4 ÷3=
27 bd ft.

1. Saw 4×4 into 2×4 — 10.5
Requires 18 lin ft. of 4×4 per set.
" 36 " 2×4 "

2. Mark + saw to lengths. 10-1.P.1 +5 a+b — 26.0

3. Straighten short side on shaper. — 7.0
$3\frac{13}{16}$" is best width - Use #10-F 7 +1/16"
Use jig #10-1.P 2

$3\frac{5}{8}" + .020" = 3\frac{645}{1000}"$

4. Shape curved edge $3\frac{5}{8}$" wide #10-F 5 — 8.3
Set guide 1.P. 9 with 10-1.P.8 ($4\frac{1}{4}$" + .020")
(strip patterns)
Use 1.P. 3 + 1.P.4 - Mark center.
Make strip #1 $3\frac{21}{32}$" at center -
Gauge with aluminum spar.
See sheet for total widths. — 5 1 8

Inside Planks.

	Per Set.
	51.8
5. Mark center line with tri-square Mark ends of short strips Red + Blue. Right Left.	.9
6. Resaw to 1/4" – Use resaw jigs.	30.5
7. Separate short strips right + left	.5 Es
8. Dress back side to .206" Stamp numbers on back side.	50.0
Dress front side to .176" 9. Wet front side to raise planer- marks + let dry 2 { about 15 min. " 30 " 5/18/39	
10. Sand front side. 4" Belt – #1 grit.	16.0
11 Sort into sets	8.0
12. Make strip #29 from .170" mat. Pattern #101.P.6. 2 Rt., 2 Left. per set. –	Es 2.0 159.7

#12
Listed under operation ~~&~~
on inside strip sheet.

#23

I.S.

6

Inside Stems.

Red - 1/22/59

2 per canoe - 2 3/4 x 3/4" x 46" | Per Pc

1. Mark 1" oak with pattern #10-1.5.1a + #10-1.5.1b. 20 | 1.5

2. Saw to line on band saw. | 2.2
Spind saw .6
band saw 2.4
3.0

3. Size to 3/4" | 1.0

4. Put 1 1/2" or 3/4" saw on band saw and have it shape. + 1.5.9 (1/4" plywood) | 1.0
Clamp jig #10-1.5.2 (with base #10 1.5.2a attached) 1 7/8" at left of saw. gage with jig 1.5 8.
Saw first side of stem with jig #10-1.5.4. Start large end first.
Clamps spring G1 with base G1.a. to saw table + 1.5.9 for back stops

5. Put 2" knives in shaper head. 1/2 + 3/4 collars below
Clamp guide #10-1.5.3 with base to table 1 3/4" from knives - gage with jig #10-1.5 8. | 3.0
Attach brass pcs. #10-1.5.6+7 to shape springs.
Run pcs. thru making first cut with jig #10-1.5.4 | 8 7
Broad end first.
Have top of knives 2 3/4" above table

Clamps 1.5.9a to table on side - 1 side 2 3/4" from center.

Plywood mold mortised and screwed from underside Sp. #5

Inside Stems

	Per Pc
5a - Trim feather edge with block plane.	8.7
6 - Saw second cut on band saw with set up as in operation 4 but use jig #10-1.5.5. Run thru big end first.	1.0
7. Make second cut on shaper with set up as in op. 5 but use jig #10-1.5.5. Small end first. Put light spring on feeding side + 2 heavy springs on other side.	1.2
* 8. Sand face and end on belt and round end corner.	1.0
9. Touch up edges by hand sanding, if required.	.8
10. Drill 9/64" hole in small end 1/2" deep - Put pcs. away for storage.	.3
	13 2 per pc.
	x 2 = 26.4 per set.

Clamp 1/2" x 1" x 3" block on edge of table. Hold piece against block & edge of table.

* Trim feather edge with block plane.

O.S.

Dec, '54

Outside Stem.

Per Pc

2 per canoe – 1¼" x ¾" x 39 5/8"

1. Saw 1" oak into 40" lengths using jig #10-0.5 1 for length .7

2. { Can use 1.P.2 inside strip jig .3
Mark straight line with straight edge 5/16" from edge for 1st cut.

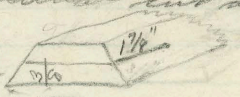
3 Attach 0.5.5 to table saw fence.
Set table saw at 18°
Set guide with 0.5.2 or 0.5.2a or 0.5.6
Saw 1st cut to line and remainder of board to guide. 1.1

or use 0.5.2b for 2 prs.

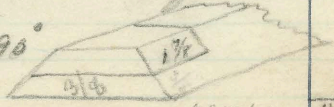
4. Surface + size to ¾" .7

5 Set table saw at 18°. .7
Saw strips in two using jig #10-0.5.3
Set guide with 0.5.#6
(Use 0.5.3a for opposite bevel is required)

6. Make longitudinal cut at broad end thus: .5
Use saw table
Use jig #10-0.5.7



7. Make cross cut 1 7/8" from end, thus .3
Set saw guide at 90°
Attach #10-0.5.9 .1



Gage length with 0.5.8 Brass or 1.5.8

8. Put away per pc 4.4

x2 = 8 8 , set

Keel

8

Keel

Per Pc

1 per canoe — 3/4" x 1 1/4' x 13'8"

1. — Use 1" (teak) boards 14' long. (mahog. 13'8") .9
Mark straight line for first cut 5/16" from edge.
Use jig #10K3 for ganging.

2. Set band saw at 19° 1.5
Set guide with jig #10-K1.
Saw 1st cut to line and rest of board to guide.
(or use K8 or K-10

3. Size two sides to 3/4" plus allowance for sanding. 2.9
Gage with K-7 (brass) before sand. .760"

4. Set band saw at 19° .8
Set guide with slat on #10-K1.
Saw pcs. in two with opposite bevels. — use K-10

5. Set shaper with feed knives with 1/4 round lip with lip down. 2.9
Set guide #10-K 2+ for 1st cut. use #10 K3a
Run thru 1st cut.
Set guide #10-K 2 for 2nd cut guaging with #10-K3b
Run thru 2nd cut. 9.0

Tenon with #10K7 (2 passes)

Keel

Dec. '54

	Per Pc
	9 0
6. Sand 3 sides with drum on shaper using guide #10-K2 for edges and regular guide for narrow face. Do this with take about roughly requires about 5 min.	2.5
7. Hollow broad side with curved knife on shaper. Use shaper fence & brass screw adjustable at back of fence — Tops of 2" knives should be 15/8" above table. or K9	22
8. Mark center and ends with measuring stick #10-K4. 15'8".	.8
9. Cut to length (in miter box) on saw table	1.0
10. Make longitudinal cut at end with 6" circular saw. 17/8" Gauge with #10-K3. Clamp #10-K6 on shaper table. Use shaper knife collars + 6" saw.	1.0
11. Make cross cut at ends (in (miter box - jig #10-K5) - 17/8" Use saw table - Use K-11 (1/32" collar) Gage length with (1.58 + #10-K3) (use 0.58 brass)	1.0
12 Put away	.9
	18.4

Δ Filler Piece

Per Set.

2 per canoe

or 5/8" if smooth cut.

1 Saw cedar to 11/16 × 2" – #10-F5 .4
(20" per canoe required)

2. Surface 2 sides to (17/32") 9/16" for saw table 4

3. Cut to 20" lengths 2

4. Hollow piece with jig #10-F1 cutting one side then the other. .9

5 Saw in half edgewise on (band saw) or saw table with jig #10-F2. .3

6. Saw to shape on band saw with jig #10-F3 for first cut and jig #10-F4 for second cut. 1.1
For 2nd cut use per set. 3.3
Shaper straight edge + clamp
to left of saw or saw table.

Time records Jan. 22, '30

7. Mark center on flat side at broad end as per sample.
Use #10F5

Thw.

10

Thw. lengths for continuous cut:-

Lengths are measured off on follower jig #10F1a

1 - 30'
2 - 59'1/4 (5')
3 - 7'4 1/2
4 - 9'9 3/4
5 - 12'3
6 - 14'8 1/4
7 - 17'1 1/2

Thw. lengths:-

Standard - 30" (29 11/16")
R.C. bow - 29 1/2 (28 7/4")
" center - 31 1/2 (31 1/8")
" stern - 21 1/2 (21 1/8")

2/18/52.

Dec. '54

Thwart Bar

Per Pc.

2 ~~per canoe~~ $\frac{7}{8}" \times 2\frac{3}{4}" \times 29\frac{11}{16}"$

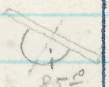
Red Cross jigs are in store room drawer.

1. Saw mahog. to $1" \times 2\frac{7}{8} \times (30")$
   (See opposite page for custom lengths)

2. Size to $\frac{7}{8} \times 2\frac{3}{4}$
   Check for fit in #10 T 6 & 8

3. Cut to 30" lengths
   (For alternative see next page)

4. Set saw table saw at 20°
   Set sliding guide $85\frac{1}{2}$° right
   Cut off 1st end (top is up)
   Use #10 T 21 (backing board 1×4×5)



5. With saw as above, set guide $85\frac{1}{2}$° left.
   Set length gauge with 10-T-2,
   set stop #10-20-a.
   (R.C. thwts use stops 10-20a+b
   Use #10 T 21

Thwart Bar Dec '54 Per Pc.

Alternate to 3, 4 + 5 -

Set saw table saw + guide as in op. 5 + length as in 5.
Make 1st cut close to end with piece at right of saw.
Then cut each succeeding pc. to length turning pc. over for each cut.
Use stops for length #10-T20a+b.
Use backing board #10-T21 (1x4"x51")
Check for fit in #10 T6+8.

6 Mark shape with 10-T-5.

7. Saw 1/32" outside of to line on band saw.

8. Set shaper with corner rounding knives. Have straight part even with collars.
Have 1/2" collar below knife collars
Raise spindle to suit jig 10-T-6
Run pc. thru - one side then other

Dra. 54

Thwart Bar

Per Pc.

9. Set shaper with thwart knives. ½" collar below knife collars. Throat plate below knife. Top of knives 3/16" from collar. Have spring on feeding side only.
Clamp 10-T-7 to table & center carefully. Run pc. three with 10-T-8, first one side, then other side

9a- Wet surface of bars

10. Fasten holder on shaper (or bench) and touch up with spoke-shave & scraper. #10-T 9. 4.0
Use #10 T-19 and paddle support rig. P-14 with bases screwed. mark top with pattern #10 T-22

11. Clamp #10 T-10 to drill table so 1/8" drill fits hole A. Drill 1/8" hole in bottom of thw. with stop 10-T-10a in hole B, then in hole C. Drill 5/8" deep in both ends Use 10-T-18 for marking if thw. blocks are nailed on. .5

Thwart Bar

Dec. '54

	Per Pc
12. Sand curved surfaces on belt. Use pad G-14 ½ grit, then 2/0 (4½ high)	3.3
13. Sand flat ends on belt Use G9+16 + T-12 + 13-	.8
14. Attach blocks with 7/8" cop. nails close to each edge. Clamp 4×4 jig 10-T-11 in vise, or fasten to bench.	1.3
15. Sand sides of blocks on belt. Use G9+16 + 10T14, 16 + 17. #17 behind belt, #16 at center #14 behind G9 G 16 on top of cross-bar. Be sure top of 16 is square with belt.	.5
16. Wet surface of mahog. by dipping in sink + sponging.	.5
17. Sand by hand	
18. Stain, fill + varnish 3 coats.	
19. Drill 5/32" holes 1" deep + ½" from forward edge of thwt. Use #10 T23	

Blok

Thwart Blocks

Per Pc

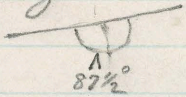
4 per canoe - 2 right + 2 left.

1. Resaw material into strips 5/8" × 2 15/16" - 1'5" required per canoe .2

2. Size 2 sides to ½" thick .1

3. Set shaper bevel table G2 to 85°
Bevel edges per gauge #10 TB.1. .1
Gage with #10 TB 1a for 1st cut.

4. Set saw table guide to 87½° left .3



Set gauge for length with #10 TB2
Have bevel ~~against~~ toward the guide + cut to length.

5. Separate blocks for right + left.
Mark with red line for right
and blue line for left pcs.
as per samples #10 T.B. 3 + 4 Ea 2
Red line is on front of blk. Blue line is on back. .9

Thwart Blocks.

Per Pc

.9

6. Set saw table saw at 20°
Raise to 1/4" above table

Right:- Set guide at 88½ right.
Set gauge with #10 TB. 3
Have bevel away from guide
and red line to the right
and against table (down)
Rem thru for 1st cut.
Adjust gauge and rem thru
for second cut.
Use #10 T 21 + #10 TB 13

Left: Set guide at 88½° left.
Set gauge with #10 TB 4
Have bevel toward guide and
blue line to the right + up.
Rem thru for 1st cut.
Adjust gauge and rem thru
for second cut.
Use #10 T 21 + #10 TB 13

Thwart Blocks.

Per Pc.

7. To set use 1/8" brass at back edge
Set grooving knife in 2" head. 1.1
Balance with spar rounding knife
Have 2 3/4" of collars below head.
Have bottom of knife 5/8" from bottom of head.
Clamp table 10-T.B.6 on shaper.
Adjust for 1/4" depth of cut.
2 13/16" above table. Adjust height of spindle. (micrometer for measuring)
Run thru right pcs with 10TB7
Red mark up + against table.

Adjust for height in changing from right to left.
Run thru left pcs. with 10T.B.8.
Blue mark up + away from table.

Alternative :- An alternative is to use 10-T.B.9 and gouge slot with 3/4" chisel.

8. Marking :- Right: Set blk. with groove bevel away from one + mark red in right side of groove. See 10T.B.3
Left:- Set blk with groove bevel toward one + mark Blue in right side of groove - See 10 T.B.4
→ Clean out groove corners if req.

Thwart Blocks

Per Pc

9 Set 4½" knives in shaper head. .4
Have ¾" + 11/16" collar below head.
½" collar above head.
Set guide 10-T.B.-10 1/32" outside of knives
Clamp blk in 10-T.B.-11 and run thru shaping back side.
Right:- Have red mark against jig + toward solid iron pc.

Left:- Have blue mark away from jig + toward solid iron pc.

10. Have guide 10-T.B.-10 as above. .4
Clamp blk in 10-T.B.-12 and run three beveling faces.

11. Sand beveled faces and round top + bottom corners on belt sander. .5
Sharp coarse paper, then fine paper for smooth finish

Bar.

Bow seat bars of mahog weigh 1 lb 10 oz.
Stern " " " " " 1 lb.
Bow " slats " " " 15 oz.
Stern " " " " " 13 "
3 lb. 6 oz.

Bow seat of teak weighs - 3 lb. 2 oz.
Stern " " " " 2 "
5 " 2 oz.

Bow seat bars of spruce weigh 1 lb. 10 oz.
" " slats " " " 1 " 2 "
36 screws 1¼ #6 brass } 3 "
8 " 1¼ #8 " }
Bow seat spruce 2 " 15 "

Stern seat bars of spruce 1 lb. 0 oz.
" " slats " " 13 oz.
24 screws 1¼" #6 brass } 3 "
8 " " #8 " }
Stern seat spruce 2 lb 0 "

Seat Bars

Per Set.

7'9" in length per canoe 1" × 1 3/4"

A Saw material (spruce) to 1⅛" × 1 7/8" 1.6

B. Size to 1" × 1 3/4"

C. Cut to an equal number of pcs. for each bar, using #1051 for marking lengths. #10517

D. Cut ends on saw table:

#1. Bow seat, long bar. Clamp 520, to saw guide after setting saw guide
Set saw at ~~6½°~~ 9°
Set guide at 83½° right
Mark gage line 30¼" to left of saw
Saw 1st end – Have pc. to left of saw.
(top is up ~~against table~~)
Set guide 83½° left
Set gauge with pattern to left of saw
Saw remaining end ~~top is up~~. use #1 521
#2 Bow seat, short bar. check length in assembly jig #10 5-12

(see next page)

Seat Bars

Per Set.

2. Saw seat, short bar.
Set saw at ~~11½°~~ 7½°
Set guide at ~~82°~~ right 82°
Mark gauge line 28" to left of saw
Saw 1st. end. (top is ~~up~~ ~~against table~~)
Set guide at ~~82°~~ left. 82°
Set gauge with pattern S21 #2
Saw remaining end

3. Stern seat, long bar
Set saw at 12°
Set guide at 79° right
Mark gauge line 20½" to left of saw
Saw 1st end (top is up)
Set guide at 79° left.
Set gauge with pattern S4 S22 #3
Saw remaining end.

4. Stern seat, short bar:-
Set saw at 6°
Set guide at 77½° right
Mark gauge line 16½" to left of saw
Saw 1st end (top is up)
Set guide at 77½° left.
Set gauge with pattern S5 S22 #4
Saw remaining end.

E. Sand top & edges Coarse paper, then fine
F Touch up corners by hand sanding.

Slat

2

Seat Slats

15 slats per canoe - 7/16" × 1¾" × 12½"
Stern seat - 6
Bow " - 9
15 9/16" (or 5/8")

Per Set

1. Saw spruce to ~~5/8~~ × 1⅞" 3.0
15 lin ft. required per canoe.

1 3/16
1⅛
½"
7/16

2. Size 2 sides to 7/16" 3.0

3. Set corner rounding knives with 1/16" outside of collars.
Attach G17A to G3.
Size pieces to 1⅞", rounding 1 corner

4. Separate pcs. for bow and stern seats allowing 9 ft. for each bow seat and 6 ft. for each stern seat.

5. Stern Slats:- Set saw table guide at 87½° left.
Set gauge at right of saw to cut 12¼" — 10-5-77. & #10.520
Cut pcs, with smooth edge against guide & round cor. down.
End against saw as front end.
Check for quantity.

6. Bow Slats:- Size remaining edge to 1¾ with set-up as in 3

Seat Slats

Per Set

7 Bow Slats: Set saw table guide at 90° and stop to cut 11" Cut to lengths with round corners down Use 10-S 20 Gauge with #10S-8. Left of saw

8. Stern Slats:- Have shaper knives as in operation 3 Attach #10-S6 to shaper fence and set in place. Taper slats to shape with #1057 Raise spindle to fit. #1057a

9. Stern Slats:- Saw table. 10-S20 Arrange pcs. in order for sets.

#2+#1 Set guide at 87° right Left of saw Set stop to cut to length #1058-1 Cut to length for slat #1, with round corners down. Cut to length for slat #2 with round corners up.

#4+#3 Set guide 80° right. Set stop with jig #1058-2 left of saw Cut slat #3 with round corner down. " " #4 " " " up

#6+#5 Set guide 73° right Set stop with jig #1058-3 - left. Cut slat #5 round corners down " " #6 " " " up

Seat Slats.

per Set

#10

10. Set up belt sander with G9 and G16.
Sand faces and edges and ends of all slats
For sanding the end use jigs #10-S.9.-1 to 5
Sand with coarse paper. (#½) then finish with #2/0

Sand ends finish

Seat

3

Dec. 1954

Seat Assembly.

Bow & Stern.

1 Set assembly jig #10 512 on caster bench & block up bench off casters. Est. 10

2 Mark seat bars for screws Place bars on jig #10-512 with bottom side up and mark with jigs #10-513, 14 & 15. 20

3 Drill 9/64" holes nearly through bars with jig #10-516 (special countersink drill) (copper should not quite touch bar) Bow 1.5 Stem 1.0 25

(do this on drill press. 20

4. Set screws in place & tap with hammer.

5. Lay slats in jig #10-512 with tops down. Place bars on slats with tops down. Fasten with 1¼" #6 screws. 120
Bow 7.0
Stem 5.0 195

6. Put away in storage. Est. 2.0

Note:- Time of 19.5 min. was carefully checked by F.C St. 6/6/46

Deck

4

Deck Tops

Per Pc.

Four per set - 2 right, 2 left.

1. Mark with pattern

2. Saw to line.

3. Use #10 D.T.2 for gauge
   Resaw to 5/16" (or 3/8) (or more)
   Note - Material must be 1 1/16" rough in order to get 3 pcs. 6/27/57)

4. Size to 7/32" (.219")
   Fasten aluminum pcs. to springs on feeding + off sides. 2

5. Select + stamp with numbers for pairs.

6. Put away -

D.B.

5

Deck Beam #1

Per Pc

2 per canoe $1\frac{5}{8}$" × $2\frac{1}{2}$" × $11\frac{1}{2}$

1. Saw for into strips $1\frac{3}{4}$" × $2\frac{5}{8}$
(23" per canoe required)
(use 2"×6" material – 1 lin. ft per canoe)
(For 2×8 see note on next page)
2. Size to $2\frac{1}{2}$ × $1\frac{5}{8}$" + ($1\frac{3}{4}$")

3. Saw table :–
Set guide to ∠ 76½° left
Set gauge for length $11\frac{5}{32}$" with #10-D.B 1
Cut to length, turning piece over each cut. Use D.B 16 for stop.

4. Set band saw table at 90°
Set up jig and saw coaming curve $10\frac{3}{4}$"
Use jigs #10-D.B.4 + 5 and sample dk beam.
(Use ¾" saw but 1½" saw can be used)
5 Set band saw table at 4¼°
Attach #10-D.B8 to D.B # 6 and clamps
D.B. 7 to table gauging with sample beam
Saw top curve center 20" from saw × square cut
6. Round lower corner on shaper :
Use shaper fence and corner rounding bearing
Or on drill press ~~D.B 15 + C44~~ + cutter H506
7. Mark center on top with #10-D.B 11. (with large table +
7a. – Sand top with coarse paper.

8. Bore 2 holes $\frac{5}{16}$" × $1\frac{1}{4}$" deep on drill press for mast seat – use jig #10-D.B 12 + D.B 13 + D.B 14.

Deck Beam #1.

Note:-

For cutting deck beams from 2×8 :— If full 8" it may be cut into thirds.

1. Cut off straight strip 2 5/8" wide.
2. Dress remaining piece to 5" or more.
3. Mark curve on 5" piece with pattern having straight edge first on one side, then on the other.
4. Saw between the lines with the band saw.
5. Dress to 2 1/2 × 1 5/8 +.

Weights.-

Weights of dk beam #1 varies somewhat:-

Fir:— 5 oz. to 6 3/4 oz. —— 6 3/4 oz.

Spruce.- 4 3/4 oz. to 5 1/4 oz — 5 oz

Deck Beams #2 & #3.

Per Set

2 of each required per canoe

1. Resaw spruce to 2"x1 3/8"+ .7
   Use paddle trimming material
   2 lin ft. per canoe required
   Can use #10-D B15 & 16 to mark for sawing.

2. Size 3 sides to 1 7/8" x 1 3/8"+ .5

3. Saw table:- 1.2
   Set guide to 75½° left
D.B.16→ Set stop with #10-D B.2 and cut off beams #2 turning each cut.
   Set stop with #10-D.B.3 and cut off beams #3, turning each cut

D. Beams #2:- 1.1
   Set band saw table at ~~30°~~ 3½°
   Attach #10-DB9 to D.B6 and clamp BD7 to table gauging with sample
   Cut off top curve
   Beams #3
   Set band saw table at 1½°
   Attach #10 D.B.10 to D.B6
   Gauge with sample.
   Cut off top curve.

.2

E. Put away 3.7

D.S.
6

Dec. 1954

Deck Stringers

Per Set

4 pcs. per canoe - 2 right + 2 left.

1. Saw 1" oak into strips 11/16"
   9 lin. ft. per canoe in multiples of 26½"

2. Surface 1 side + 1 edge to 5/8"+ x 7/8"+

3. Separate pcs into right + left.

4. Left:- Set saw table to 2°
   Set guide to 76° left.
   Set gauge to cut 26¼" long. #10D58-L.
   Place pc. with smooth edge (bottom) up and smooth side away from guide.
   Mark smooth side with blue crayon 3" from saw (bow end)
   Note: "Side" is 7/8" face
   Edge " 5/8" "

Bow end cut - Left

Right:- Set saw table 2° as above.
Set guide to 76° right
Set gauge to cut 26¼" long. #10-D.5.8-R.
Place pc. with smooth edge up and smooth side against guide
Mark red on smooth side 3" from saw

Bow end cut Right.

Deck Stringers

Per Set

5 Set shaper with 2" knives (D.S.9) and guide #10-G1 - 1 5/32" from knives. Bevel rough side with #10 D.S.1 for right + #10 D.S.2 for left. (right / Left)

Side bevel

6. Set shaper as in operation 5. (move up 1/32 #1 1/8") Bevel rough edge (top) with D55. for right + D56 for left.

Top bevel

7. Right: Set saw table to 6½° Set guide to 40½° left. Set length gauge with pattern Cut off beveled end. D.S.10-Rt. Use #10 D.S.7 (Coaming)

Left. Set saw table to 6½° Set guide to 40½ right. Set length gauge with pattern Cut off beveled end. D.S.10-L Use #10 D.S.7 (Coaming)

Coaming end cut

8. Set saw at 90° and cut bow end mitre with jig D.S.11 Right + Left.

Note:- When rt. + left pcs. are put together they should be 9/16"

Bow end mitre cut

9 Put away

Coam

7

Dec. 1954.

Coaming

2 per canoe - 9/32" x 2 3/4" x 15 1/2"
(.278)

Per Pc

per canoe

1 Mark out with pattern #10-C1 .7
1" material makes 2 coamings
1 1/4 " " " 3 " " hardly.
1 1/2 " " " " easily.

2. Saw to line on band saw. 1.8

#10-C2

3. Shape bottom with jig, having top even with jig or slightly over. (Top to be shaped in op. #7.) Leaves flush with bottom .5

4 Sand ends on belt (and top)

(.344) #10-C-6

5 Resaw to 11/32" Use jig #10-C5 .5
on saw table, or resaw
on band saw.

6. Dress 2 sides to 9/32" (.290")

7 Round top on drill press. Use specially made countersink bit and Use 4 clamps → jig #10-C7 (can be rounded by hand)

7a. Oil surface on both sides.

8. Sand both sides on belt.

9. Mark for screws and center line
Use pattern #10-C4. Use 3-1" finish
nails + pointed pencil.

10 Put away.

8 pcs total per pc
16 " " canoe

D.St

8

Dec. 1954

Deck Strip

Per Pc

2 per canoe

Deck strip pattern #10 Dk. Strip 2 for 3 7/8"

1 Saw 1/4 sawed oak into strips 4" wide and any multiple of 23 7/8" (Op. A to E can be done by marking outline and smoothing edge with shaper fence.)

2. Size to 3 7/8" on shaper. (or 3 3/4"

3 Saw to 23 7/8" lengths - make ends 88°

4. Saw in half using jig #10-Dk Strip 1

5 Taper on shaper with jig #10-Dk. Strip 1. making broad end 2 1/2" wide.

6 Mark curved end with jig #10-D. Strip 2a (alum)

7 Saw curved end on band saw

8 Resaw to 1/4" { .255" rough. .225-.215. .195-.525. .187 - sanded

9. Size to 3/16" { .195" before sanding .189" after "

10 Round ~~top~~ corners on ~~drill~~ press with special cutter.

11 Sand face and round corners on belt sander.

12. Sand broad end with jig #10 D. Strip 3 Coarse paper.

Gunw

9

4/8/5-J-

Board A breaks
when bending

Board B & C
bend alright

Mark is at end
of board.

---

10 sets grown -

Gunwales

2 per canoe — 17'2¾" × ⅞ × 1¼"

Per Pc.

1 Saw material to length 17'2¾"
Measure with jig #10-G2.

2 Saw to 1⅜" × 1½" + or according to drawing if other than 1½ material is used.

3 Size 2 sides to 1⅜" +
(These faces are bottom of gunwale.)

4 Set shaper with corner rounding knives with lip down.
Size 2 sides to 1¼" and round diagonal corners. Select for diagonal according to grain of wood.
(Inside & outside faces)

Or use smooth plane

5. Sand 1¼" sides (bottom) with Take-about sander. (#10 G9 + G10 for holding)
G-10 is 17' long so from room. After sanding, number for pairs number on unsanded sides at square cut.

6. Set band saw table to 25°
Set guide G4 with #10-G3.
Run thru with 1⅜" side on table and one round corner on table and against guide.

Gunwales

Per Pc

7. Set corner rounding knives on shaper with lip down
Set guide #10-G1 gauging with #10 G8.
Run pc thru with corner down.

8. Taper ends on band saw with jig #10-G4.
→ (End, after dressing, should be 5/16")

9. Taper ends on shaper with #10-G4
Use corner rounding knives
Use #10-G5 for guide.
or 1.8.9 + #10 G11 a, b, c.

10. Set shaper with 2 strut knives, in 2" head
Set guide #10-G1 with #10-G8 and jig #10-G6+7.
Run thru pcs, with #10-G6 + #10-G7
→ Ends should be 5/8", top to bottom

11 Touch up by hand where needed.

12. Mark center on top with #10-G2.

13. Put away for storage.

Lin.

10

Dec. 3, 1960

Muslin Lining
90" Material
(89" net)

(140 or 144 count)

Requires:-
Center sec. 3 lin. yds makes 3 canes (Average 1 yd per cane
End sec: Average 52 lin inches per cane - 1¼ yds. (1½ yd)
Complete set requires 2½ yds.
Bolt of 35 yds makes 14 canes.
Stem + △ pcs. would be in addition to above.

Center Sections:-

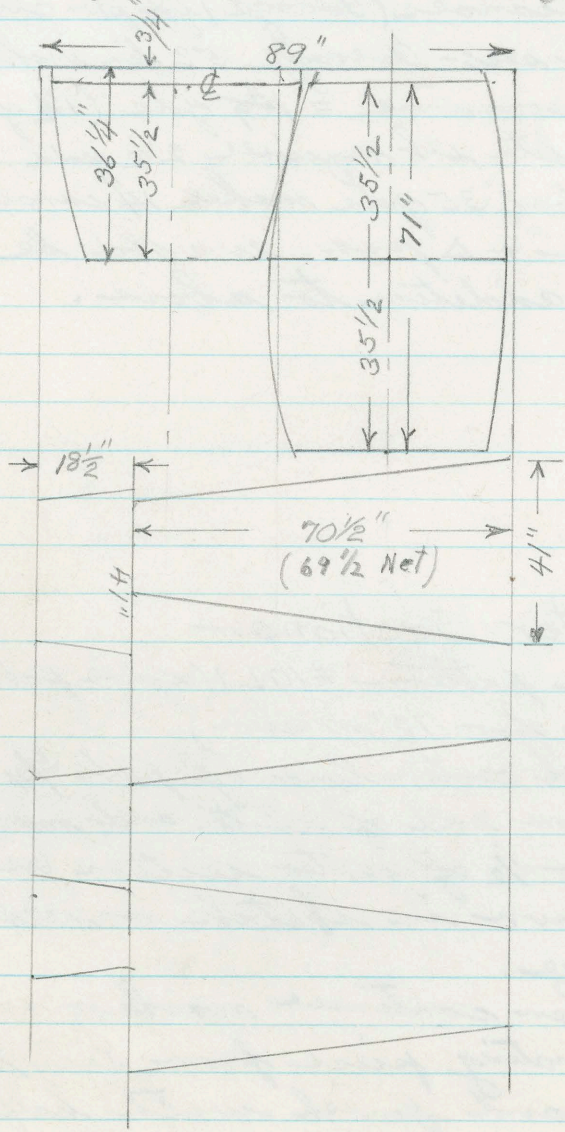
1. Use pattern #10L1 (same pat. as for 72" muslin)
Have center line of pat. 3/4" from end of cloth and mark for ½ of center section as shown in sketch on next page.
Then continue marking out, alternating pieces from side to side and finish with half

Muslin Lining 90" Material.

section to go with half section at Beginning.

Make 1/2 section 36¼' long

Make full section 71" long.



Dec. 3, 1960

Muslin Lining
90" Material

End Sections:-

1. Make a line along one side of cloth 18½" from edge as shown on sketch.

2 Mark for end sections with pattern #10 L 2 as shown on sketch and cut out.

3. Mark for end sections on 18½" strips as shown on sketch and cut out. Make 4 pcs. for each end section. Allow for ¾" overlaps at joints

For 72" Muslin -

Muslin Lining

(over) 3.05 yds. of 72" material required.
Per Set 6.0 " " 39" " "

1. Set up sewing table

(Use 72" brown muslin for large pcs.")

2 Center and Δ pieces:-
Mark around pattern #10-L1 and mark center line and center of canoe. Allow 1 3/4" space between pieces for Δ piece.
(Mark center line & side carbon)
Mark for end of Δ piece
Cut out pieces and cut off salvage edges.
Fold to center with 3½" firemen's folds.
(1 center pcs. per canoe required
(2 Δ " " ") 6.0

3. End pieces:-
Mark around pattern #10-L2 and mark center line
Cut out piece and cut off salvage edge on big end
Fold with firemen's fold from small end - 5" folds.
(2 end pcs. per canoe required) 5.0

4 Stem pieces.-
Mark around pattern #10-L4 so piece will be on bias.
Cut out pcs. 8/25/37 mark $\frac{3}{8}$ cut $\frac{5}{8}$ x2 = 1.6
(2 pieces per canoe required) 2.2
(Use 36" brown muslin for stems (or 72")

5 Put away.

Amount of 72" material used:-

44" for center piece
1 3/4" " △ "
64 " end pcs
109 3/4" total = 3.05 yds.

Stem pcs:-

It requires .14 yd per round when cut from 72 inch sheeting, cutting in 3 tiers.

Cutting 50 sets (100 pcs.) took 22 ft. of 72" material 1/15/41.

(2/21/46 — Stem pcs. cut best from 45" material)

39" material:— It requires 6 yds. for the main body pcs. made of 39" material.

54" material.— It requires 4.2 yds for the main body pcs with 54" material

Muslin Lining

54" Material

54" Material (use 140 count)

Requires:— Center section 86" = 2 ½ yds.
End section 59" = 1 ¾ "
4 ¼ "

1. Center Sect:-
Mark around pattern + center line
Cut out + cut off selvage edge.
Make fireman's fold to center, put
paper at left end + fold over.

2. End Sect.
Same as center sect. But use
pattern for end sec.

Bump

11

Jan. 1952

Brass Stem Band

Min per pc

2 pcs per canoe.

1. Cut pcs. to 5 ft. lengths. ×

   16 min to set up + cut 6 pcs. 1/2 min per pc. or 20 pcs - cutting only?

2. If 1/2" wide, mill to 7/16" wide on drill press. ×

   Takes 3 min per pc - for milling plus set up + clean up.

3. File edges by hand {clamp grooved holder jig in vise.} ×

   Takes about 4 min per pc. or 8 min for more thorough bevel

4. Clean up with steel wool. ×

   allow about 2 min.

5. Bevel ends with metal saw or saw table. Clamp #105.B.2 to saw guide with guide at 45° .8

6. Smooth up ends with file .7

   Barely touch with file.

7. Mark for screws with 105 B.1a. .

   Have top end of jig to right. Mark for 1st screw 3/8" from top end. Mark on oval side at edge toward operator. .7

2.2

Brass Stem Band. Jan 1952.

		Min per pc.	
8.	Bend around bending jig #105B3 Clamp jig in bench vise with point to right. Start with top end in slot & marks away from operator.	2.2 .5	
9.	Clamp jig #10-58.4 to drill press and drill with #32 drill set up – 8 min. 1½ run 1.5 " per pc.	2.0	R
10.	Clamp jig #105B5 to drill press & countersink for 3/8" #4 scr. #105B5 set up – 20 min. run 1 "	1.5	R
11.	Bend for top end Clamp jig #105B6 in drill press vise & support curved part of brass to a level. Bend with iron bar ½" x 1½"	5	R
12	Bend for bottom end 3/8" from end Hold on bench vise and tap with hammer.	.3	R
13.	Put away in store room	.2	
	per pc.	7.2	
	7.2 x 2 = 14.4 min per card		

Plat

/

Seat + Thwart Plates.

Seat Plates:

16 required per canoe.
Use brass washers 9/16 x 260 x 040 — Per Pc.
for #14 machine screws.
425 washer to a pound.
1 lb. makes 26 canoes.
(90¢ per lb.) 1.60 lb.

1. Countersink washers with drill on bench mounting
Use jig #10-511 — 1
(1958 .2 min - Lee .1 - Bue. + Pol. .4)

2. Bevel edges on drill Press
jig #10-510 + small wheel. — .2

Total — .3
Per canoe. — 5.0

Thwart Plates -

8 required per canoe
Use brass washers 1/16 x 260 x 051 — Per Pc.
for #14 machine screws.
208 washers to a pound
1 lb. makes 26 canoes. — (90¢ lb.)
1.60 "

1. Countersink washers for 1½" #10 flat head screws Use drill with bench mounting and jig #10-511 — Each- Min .25

2. Bevel edges on grinder using jig #10 510 — .25
Use Drill Ph. whal — Total .5

(Total 1958 .9) — Oct. 25, 1935 F.C.W — Per canoe — 4.0

Bend
2

Bending.

Per Set

1. Soak following parts in water.-
   - Gunwales - 2 days
   - Coamings - 2 "
   - Stems - 2 "
   - Long inside strips - 1 "
   - (Short " not soaked in water)

2. Prepare for steaming in short box:
   a. Charge water in copper tank.
   b. Light oil stove.
   c. Stand soaked pcs on end to drain
   d Dip the following in water
      - Short inside strips
      - Decks
      - Deck stringers
   e Place in racks and steam about 1 hr. in hot steam.

3. Bend on forms:-
   a Coamings
   b Deck stringers
   c Outside stems
   d Inside stems
   e Deck tops.
   f. Short inside strips.
   g. Long inside strips.

(over)

Bending

Per Set

4. Prepare for steaming in long box
   a. Turn the steam into long box and get it warm.
   b Put gunwales and shear strakes in box and steam in hot steam about 1 hr.

5. Bend on forms:
   a. Shear strakes
   b. Gunwales.

Weight of ½" copper tacks:—

Feb. 16, 1963:—

1 tk.	=	2.7 grains	
10 "	=	27 "	
20 "	=	54 "	= ⅛ oz.
25 "	=	67 "	
30 "	=	81 "	
40 "	=	108 "	= ¼ oz.
50 "	=	135 "	
60 "	=	162 "	
70 "	=	189 "	
80 "	=	216 "	= ½ oz.
90 "	=	243 "	
100 "	=	270 "	
120 "	=	324 "	= ¾ oz.
160 "	=	432 "	= 1 oz.

---

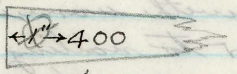
1 oz.	=	160 tacks
4 "	=	640 "
8 "	=	1280 "
{16 " / 1 lb.}	=	2560 "
2 "	=	5160 "
2½ "	=	7400 " = 1 canoe

Planking Up.

Per Set

1. Put inside strips 1 to 20 on mould.
   a. Make notch in center of strip #1 as center guide for plumb-bob.
   b. Mark center line at edge of strip #13 as a guide for filler pc

2. Prepare inside stems.
   a. Scrape and smooth up stems.
   b. Stamp canoe as follows:



Have small end to right.

   c. Put stem on mould + spread glue on sides of stems.

3. Put strips #21 to 29 on mould

4. Put filler pcs. on mould.
   a. Spread glue on planking and inside curve of filler pc.
   b. Put filler pc cloth in place and iron with warm iron. Then give it another coat of glue and iron this to harden the glue
   c. Attach filler pc with 2 canoe tacks driven down with nail set.
   d. Trim off bottom to meet stems.
   e. Mark outline with P.1 and trim to fair with planking.

Planking Up

Per Canoe

5 Put on muslin lining
a Spread 1st coat of marine glue.
b Spread 2nd " " " "
c Put on center pc of cloth and iron it with warm iron.
d Put on end pcs and iron them, having first coated with glue where end pcs overlap center pc.
e Coat around stems with glue and put on stem cloth pcs and iron with warm iron
f. Then just prior to nailing on outside planks, give the whole canoe another coat of glue.

6. Set tacks in Outside planks
a Lay out followers on bench
Have center line on gold stripe
Make chalk mark across strips on line between silver + gold at center of strip
Make chalk marks across strips on 2 gold lines near each end
b. Lay out shear streaks on bench, one at a time
Have center line on silver stripe
On #14 Make occasional marks on lower edge half way between lines at center and 1/4 way out at the ends
On #14 strips mark on top where curved silver line crosses
On other strips mark top edge even with lines

Planking Up.

Per Set

6 Setting tacks (continued)

c. Lay out both garstreaks on bench.
Have center edge toward operator
and center line on silver stripe
Make chalk marks at silver stripes.

d Put followers thru tack setter
Start with chalk mark even
with number on teak board to
correspond with number of strip
being put thru End in similar
manner.
Regulate feed with pressure on
strip between thumb + finger
When first edge is thru lay on
rack and when all are thru
turn rack around and run
thru second edge, using care
to stagger the tacks.

e Put garstreaks thru tacksetter
Do straight edge first
Start at chalk mark
Turn strips around
Adjust tack setter for center row
of tacks
a Pull out cedar stick
under lower guide
b Drop 3/8" brass plug in
lower guide hole
c Put brass pc. in place
opposite point of tack
Set tacks in center of garstreak
Set tack setter to original adjustment
and run thru setter putting
tacks in remaining edge

Planking Up.

6 Setting tacks (continued)

f. Put shear streaks thru tack setter
1. Adjust tack setter for setting tacks in top edge.
2 Run strips thru starting and ending on marks.
3 Readjust setter for lower edge and run strips thru.

g After tacks are set place strips in racks above mould with straight side toward center.

7. Nail on outside planks
Start at center using plumb bob as guide and use care in getting garstreaks straight
Keep planks even on both sides at the ends by trimming when necessary
Nail outer edge of planks just enough to hold down and finish when putting on next plank.
Wet stiff planks from #6 on around the bilge
Fasten at end of planks with 5/8" #4 screws and 3/4" copper nails, marking with #10-P.2

Planking Up

8 After setting over night knock off surplus glue

9 Give the canoe a wash of water to remove hammer marks

10 Fit outside stems and keel and mark north end A and south end B.

11 Mark outside stems for screws with awl point using #10-P3

12 Spread glue on canoe for keel and stems and also on keel and stems

13 Fasten on outside stems and keel with 1¼" #6 screws
Use 7/64" countersink drill
Countersink rather deep Use paraffine on screws
Trim down the stems to fair line

14 Mark top line points with #10-P4
Mark at center, end of deck, and stems

15 Remove end section of mould and lift canoe off, setting it down on keel jig #10-T1

Trim

4