BOATBUILDING GUIDE

Notes for use by trainees attending the Boatbuilding Course being held under the auspices of the South Pacific Commission and the Bureau of Technical Assistance Operations of the United Nations, at Auki, Malaita Island, British Solomon Islands Protectorate.

1960-1962

ARTHUR N. SWINFIELD, A.M.I.N.A.

Vol. II: DIAGRAMS
Grind Sharp

Square Hole

Bit

Door Knob

Square Shank

Handle

Old Fire

Tong bent over and sharpened

Fig 10

Fig 12

Fig 15

Fig 16
Fig 17
Shell Auger

Slightly smaller here than at 'Point'

Section through shell.

No screw point.

Chisel edge

Fig 18
Bull Nosed Auger.

No screw point

Sharp chisel like edge.

Fig 19
CAULKING MALLET
For heavy shipwork only. Not necessary on light-boat building.

Fig 20
Caulking iron

This edge ground square and about 1/8 wide.

Fig 21
Jery Iron
Fig 26

Make up pieces

Fig 27

Heavy logs

Sag in the keel

is all right, this is called spring!

Fig 28

Nail block to keel

Steps

say 1 1/2" x 1 1/2"

about 6" long

2 Stocks left out here to make drawing clearer.

Stop

Half width of keel

Fig 29

% means centre line

Stocks
Note that grain is flat so that keel does not split so easily.
This sign means bolt here or use tree nail here.

Throat

Fore foot knee

Saw

Hog Keel

Apron

Stem

Nib

Saw

Top of stem

if cut through here we get picture like this

Knee Apron Stem

Ledge

Stem

Apron

Fig 33

Fig 39
Fig 35

Plumb bob hangs perfectly upright

Frame across top of Transom, fitted either side of packing piece.
Packing pieces

Propeller Post
Deadwood
Stem Knee

Horn timbers one each side

Hole for propeller shaft.

Mortises

Square hole through deadwood.

Note

25'0" Fishing vessel drawings show another method of building this stern frame.
Fig 39

Pocket

Bolt

Head of bolt sunk up into keel.

Nut and square washer

Propeller Post

Groove cut HALF in each timber to take bolt.

Deadwood

Pocket cut out HALF in each piece of timber.
This is the way to mark all timber with centre lines.

**Propeller Post**

**Deadwoods**

**Centre line of bolt side of the frame work.**

**Stem Knee**

This is the squared mark.

**Centre line on every piece of frame work.**

**Front**

**Back**

**Bottom**

Burns these lumps true.

Red hot bar.
Round to suit
Round inside later

Packing piece goes against here

Cross pieces
(Paint Behind)

Width of packing piece

Nails driven from outside and turned on the inside.

Transom

Joint (PAINTED)

Seam

Putty

Caulking

Fig 43

Beveling

Inner edge or shape is so much bigger than outer edge.

Gap here because edge of transom was cut square.

Nail

Planking

Fig 44
This mark is called the rebate line.

Same as above

 Rebate line

Hog

Keel

Fig 57

Fig 56

Keel

Check

Fig 59
Fig. 60

Plan view of boat

Stem

Apron

Stop hatches

Ne3 bottom

N2 bottom

Line of bevel on end

Piece of Apron

Appron bevel cutting rebate shown

Stem
deleated every case

Stem
**Fig 63**

Battens (2" x 1")

Moulds

Top or sheer plank

Bilge plank

Bottom garboard plank

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**Fig 63a**

Mould

Plank

Iron screw

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**Fig 64**

10' = 10 x 12 = 120"

120" ÷ 20 = 6"

8' = 8 x 12 = 96"

96" ÷ 20 = 4 4/5"

6" minus 4 4/5" = 1 1/5" taper.
**Fig 65**

- Bilge Plank
- Top Plank
- Bottom or Garboard Plank
- Keel

**Fig 66**

- Decking
- Packing Piece
- Inside Rubber or Gunwale
- Deck Beam
- Shelf
- Clamp
- Bent timber or frame
- Outside Rubber
- Sheer Plank
- Seam must be able to be caulked.
Fig (67)

Fig (68)

Fig (69)

Space Butts 4" apart forward then 8" back start measuring from N°3.

Every plank not shown.

Fig (70)
NOTE: Butt block fits tightly between frames and it extends 1/2" over each edge of plank. The grain of butt block timber runs up and down.
Made from 12” Length of 6” Masonite. Overlap later as required but do not fasten until filled.

Fig (73)

Midships

Fig (74)

Moulds

Masonite rough pattern

May fly up here

Runs over stem here

Fig (76)

Complete pattern of garboard with position of moulds marked on the face.
Fig 77

Pattern FITTED in place

Rebate

Keel

Pitching spot

Marked on pattern and rebate.

Fig 78

Plane straight then seam the edge.

Top edge straight

Plane truly and free from bumps

then seam the outside edge.

Fig 75

Masonite Pattern.

Rebate line

Keel

Fits here

Compasses

Compasses held this way (Vertical) for full length of pattern, especially at stem.

Keep this point on outside edge of rebate all time.
Prop or 'SHORE' to jamb and hold the hot garboard into position.

Flat piece of timber under 'shore'.

Garboard Plank

About 1" from nail to edge

Caulking seam ½" wide.
Fig 83

Pull in here

The other foot here

One foot here

2" Iron Nail

Copper Nail

Hold

Cramp

Ribands or Battens.

Fig 84

Moulds shown heavy lines

Fig 85

A bent frame or timber about moulds N°2 to N°3

Saw cut to here

Bottom.
Fig 86

Thin Batten

Board or plank shown as full length plank

Plane this edge 'Fair' & free from bumps.

Fig 87

Light nails

Board

Batten 1 1/4" x 3/8"

Bottom edge of plank planed fair.

Fig 88

Sheer plank

Next plank

Bevel or rule

Bilge plank

Rebated edge

Garboard plank

Keel
Note: All nails are 'Staggered' (AS DRAWN) so that the timbers do not split from one nail to another as would be the case if the nails were all in the same line of grain.
Fig 92

Sheer Stroke

Fig 93

Ground level

Coconut Roof

Palm fronds made rain tight

Side View

Air gaps 1" wide

Planks

Ground

Join overlaps strongly.

Masonite

Nail overlaps together

Masonite

Stealer

Shade of shutter

Front View

About 24"

Bear 4" x 4"

Strip 1"

Stone, bricks, or oil drums.
Rounded surface

Stealer

Bent timber positions.

Masonite Template of Stealer

Round Required Bent Timber

Plank

This gives round at inside

This gives hollow on outside.

Fig (96)
Fig 97

Mould

3" x 1½"

3" x 2" Spread

Decking

Galv. Nail

Allow step here say ½"

Riveted nail

Note: Shelf not shown in these sketches

Beam too high in these sketches

Allow step here ½"

Fig 98

Bent Frame

Sheer Plank

Clamp

Gap (Bad)
Exact length of clamp given by batten.

Mark on clamp giving position of batten.

Clamp.

Batten held inside transom.

End of batten.

Mark on clamp.

Batten against timbers and inside of transom.

Clamp.

Stringer

Stringer

Bent Frame

Wrong

Batten

Right

Batten

Wrong

Batten

Right

Clamp

Stringer

Stringer

X Means riveted nail.

Fig 99

Fig 100

Fig 101
Fig 102

Fig 103

Fig 104
This mark is perfectly upright from inside of planking.

This length is correct.

Finished length of deck beam (Notched)

This length would be too long

Clamp

End of Boat

This bevel is right.

So these bevels on the corrected length make a correctly marked beam.

Bent Frame

Fig (105)

X shows position of hanging knees

Quarter knee

Lodging knee

Breast hoop

Deck

Beam

Hanging Knee

Copper nails

Chamfered finish.

Rounded finish.

Fig (109)
Note this gap. Bevel shelf to fit against clamp.

Note this gap. Bevel inside edge of shelf to fit against the clamp.

Note: Frames still uncut.

The finished job, showing fastenings through the shelf and clamp.
Showing method of joining spur beam to carline with a stepped dovetailed joint. This same method should always be used to join the carline to the main beams.
Showing method of joining spur beam to carline with a stepped 'Housed' joint.

Note: Tie bolts. These should be spaced about 2'-0" apart.
Fig. 110: Screw into stringer. Flooring. Screw.

Short stringer carries all bearers.

Flooring

Floor

Bearer nail to floor.

Fig. 111: 5/8" Waterproof plywood or 2 layers of 5/8" planking.

Canvas or heavy felt

3"x2" uprights

Ground showing fastenings

Nail

Fig. 112: Packing piece

Packing

Stringer

Bent Frame

Planking
These are spaced to suit engine bolts.

Fig. 113
Cut slot right through wedge (Slack fit)

Held firmly in engine bed.

Enough cut away to take thin spanner.

Engine holding down bolt.

Cotton wick under washer.

Bronze not brass washer.

Fig (114)
The engine is shown dotted to indicate that the engine is inside the boat.

Fig 115

Deadwood

Centre line of shaft.

Reel block

A

B

Point (H)

Strong stick

Spirit level

Upright, 4' x 1'

Upright to hold 4' x 1' level.

G

about 6'

Ground level

Point (G)

Point (E)

Chalk line.
Fig 116

This should be upright or truly plumb.

Should be level
This is the centre of the auger on the 4 x 1" upright.

This is the upright nailed to the end of the chalk line of the strong stick.

This is the upright nailed to the deadwood.

This is point F on upright amidships.

This is point G on 4" x 1" nailed to the crosspiece which is over the engine.

This is the upright nailed out from the 4 x 1" upright on the transom.

Level across.
Fig 119

1. Size of propeller shaft diameter
2. Length of hole in deadwood from
   outside to inside of boat

Diagram:
- White Metal Bearing
- Suit this size
- Bore hole to
- Propeller
- Gland
- Racking goes here
- Grease Cup
- Stern Tube Bearing
- Suit this size
- White Metal Bearing
- Deadwood Flange
- Copper
- Bronze Nuts
- Brass
- 6" Right Size Point
**MEDIUM WEIGHT CANVAS**

**THICK PAINT**

4" x 1" Teak Decks.

**Deck Beam**

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*Note that nails are "Staggered"*

**Marine Plywood**

Painted and covered as above.

Brass screw at 6" spacings.

**Deck Beam**

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**Beam**

**Seam**

About \( \frac{1}{2} \)"

Caulked Deck.

**Beam**

about halfway.

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*Fig 120*
Fig (122)

Coaming 5/8" Thick
      Stiffener 3" x 1/2"
Lower Coaming
Carline Behind
      Brass Screws.

Front Coaming
Stiffener
Corner Post

Paint behind all posts
and stiffeners.
Make sure all bolts are tight.
Distance piece between cheeks
Cut off here.

3/8" hole to take pin.

Tiller
Cheeks
Cheek
Dowels
Sole
Blade
Cut off here
and here

Fig (124)
<table>
<thead>
<tr>
<th>Board A</th>
<th>Dowel</th>
<th>Dowel</th>
<th>Dowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board B</td>
<td>at Face Side</td>
<td>at Face Side</td>
<td>at Face Side</td>
</tr>
</tbody>
</table>

- Square across at Face Side
- Gauge mark on centre line
- Dowel Plane Flat

Fig. 124a
To round a square piece of timber.

Wrong

Better, particularly if mast band filed like this on inside

Mast Band.
Mortice.

Fit over like this.

Mast.

Fig (126)

Fig (127)

Copper bolt

Tongue

Boom

Mast