

## GRAY SEAL SLOOP

### SPECIFICATIONS

Deep keel and centre-board versions will be about equal in overall performance and ultimate seaworthiness, and building cost. The gunter rig may be used on the keel version, but the bermudan is not recommended on the centre-boarder.

### WOOD

Most structural timber is hardwood. Suitable timbers, depending on availability, are Honduras or African mahogany, iroko, ash, etc.. Larch (tamarack) could be used for deckbeams, hatch framing etc.. Fir, cedar or spruce are used for interior joiner work. Details such as handrails, coaming trim, toe rails, cabin and hatch trim etc. may be oak or teak.

### GLUE

Epoxy is recommended for gluing. Resorcinol is also suitable. Urea types are not; except for interior work.

### FASTENINGS

Relatively few are needed in this glued construction. Fastenings are specified where necessary; many parts will also need screws for gluing pressure, but unless specified these need not be permanent. Bronze is generally best; stainless steel is OK.

### LOFTING

The boat does not need to be laid down full size, except for the stem and sternpost, and ballast keel. Moulds are drawn full size, as they are shown quartersize on sheet 8. The positions of plank laps are marked on each mould, using dividers x 4.

### BOOKS

Standard boatbuilding texts will be useful, especially "How to Build a Wooden Boat" by Bud MacIntosh (WoodenBoat). Robert Steward's 'Boatbuilding Manual' (International Marine ) is another. The 'Gougeon Brothers on Boat Construction' (Gougeon) may be the most useful, dealing with glued construction methods. John Guzzwell's 'Modern Wooden Yacht Construction' (I.M.) is also a good one.

### METRIC

Metric dimensions are added for European builders, and others who have been brainwashed into conversion. But an Imperial/metric tape will be needed when taking offsets from the Lines Plan.

### ENGINES

The English Dolphin 12 b.h.p. two-stroke is shown (sheet 5), as a simple, unobtrusive and quiet unit. It weighs 90 lbs., and comes from Dolphin Yacht Engines Ltd., Omaha Rd., Bodmin, Cornwall, UK. In America, check for conformity with Coast Guard regulations.

For more serious motor-sailing a small diesel may be preferred; the sketch shows the Volvo-Penta MD 5 B 7-5 h.p.

### VENTILATION

All parts of the boat should be properly drained, ventilated, and accessible, as far as possible.

#### 1. FRAMES

2" wide x 1- 3/16" (50 x 30mm). Three laminations of full 3/8" (10mm).

Frames 1 and 9 are sided 1-1/2" (40mm).

Blocks are screwed to the moulds, and frames laid up around them. Frames need not be joggled to fit against the planks between

laps; but this can be done by adding an extra lamination outside the mould edge, and trimming it at the fairing-up stage. Or, wedges

are added as necessary. Upper ends are notched into clamp--see sheet 11. Finally fitted after sheer clamp.

2. STEM & STERNPOST

1-5/8" x 3". (40 x 75mm). Five laminations of 5/16" (8mm). Outer Face bevelled to 1" (25mm) wide.

3. OUTER STEM

Sided 2-3/8" (60mm). Moulded as per Lines Plan. 5/16" (8mm) laminations.

Fitted after planking, before deadwood. Outer face 1-1/4" (30mm); may be protected with a metal band 1-1/4" x 3/16" (30 x 5mm).

4. KEELSON

1-7/8" x 7" (48 x 180mm). Three laminations of 5/8" (16mm). Glued to stems about as shown, bending as far as it wants to (before gluing). Fastenings are not essential.

5. SHEER CLAMP

1-3/16" x 2" (30 x 50mm). Three layers of full 3/8" (10mm). Screws into stem fore and aft: 2 1/2" x 12g. (65 x 6mm).

6. PLANKING

1/2" (12mm) marine plywood. Lands (laps) 1" (25mm). Screws at ends only: 1 1/4" x 10g. (30 x 5mm); 3 each end, set in and bunged to (max) two veneers depth.

7. DEADWOOD

Sided 5" (126mm). CB versions: widths from Lines Plan. Keel version: ditto - (as rabbet line - plus 1" to allow for planking.)

Check against ballst keel widths. Lower edge gradually bevelled to match stem forward, and 2" (50mm) width aft. Depth of pieces about 4 to 5" (100-130mm) depending on available stock. Aft vertical piece finishing 2" wide aft.

8. FLOORS (CB version)

Sided 1 1/4" (30mm) - act as sole bearers. Same at Stations 6 1/2 - 7, in way of keelbolts. Block at Fr. 8 to fit frame.

9. INTERMEDIATE FLOORS (CB)

Laminated - as No. 11. Notched into case logs.

10. CENTRE CASE FLOORS

Bolt to top of case logs.

11. LAMINATED FLOORS

At Stations 3 1/2 and 6 1/2, as frames, extending over three lower stakes.

12. FLOORS-- (KEEL version)

Sided 2" (50mm), beneath frames, Fitted before planking - lightly screwed to moulds. Limber holes 1" radius.

12A. FRAME 2 FLOOR

Moulded 2" (50mm). All or part laminated.

13. INTERMEDIATE FLOORS (K)

As no. 12; laminations as frames, covering 4 lower stakes.

14. BULKHEADS

1/2" (12mm) plywood. May be fitted to frames before setting up.

15. KNEES

1/2" (12mm) plywood. Five 1/4" (6mm) laminations, routed and /or chiselled 1/2" to fit knee. Width is 1-1/2" (38mm). As the ply is on one side of the frame (or deckbeam), the 'outside' edge of the knee laminations may overlap the frame. Note extra knee in way of mast.

16. CHAINPLATE BACKING BLOCKS (CB)

Alongside Frame 4 and mast knee, about 1" thick x 2" (50mm). Also aft of Frame 6. May be ply or solid wood, shaped to fit planks.

17. CHAINPLATE BACKING BLOCKS (K)

Shaped about as shown, extending as least 2 1/2" (60mm) fore and aft of chainplates.

18. MAST STEP

Oak; width as keelson. Sided 2 1/2" (60mm). Glued and screwed. 1/2" (12mm) notch to fit mast pillar.

19. MAST PILLAR

2 1/2" square - bevelled corners. Cut out around deckbeam.

20. MAST DECK PAD

Sided 1 1/4" x 5 1/2" (30 x 140mm). Glued and screwed to king plank and deckbeams. Note wedge under deck step to bring it horizontal.

21. DECKBEAMS

Sided 1 1/4" (30mm). 1 1/2" deep at ends, and below king plank.

Notched into clamp; cutting angled notches as indicated on Sh. 6 may be better than the stepped cutout at Sh. 11.

22. DECK

1/2" (12mm) plywood. Side decks are 11" (280mm) wide in way of house, tapering to 10" (255) at aft bulkhead.

If deck panels are to be butt joined, the joins may be just aft of Stns. 3 and 6. The butt strap - also 2" ply - may extend the full width between deckbeams.

23. SIDE DECK BEAMS

As deck beams. Notch into clamp and carlin the same way.

24. CABIN DECKBEAMS

1" x 2" (25 x 50mm). Laminated from three layers of 5/16" (8mm).

Five layers at Fr. 4 and at mast; to finish 1 1/2"+ (40mm).

25. KINGPLANK

1 1/4" x 2 1/2" (30 x 65mm).

26. CARLIN

1 1/4" x 1 1/4" (30 x 30mm). Notched into ply knees, and deckbeams fore and aft.

27. CARLIN TRIM

2 1/2" x 3/4" (65 x 20mm).

28. CLAMPS

1 3/4" x 3/4" (45 x 20mm)

29. CABIN SIDES

1/2" (12mm) plywood. Epoxy fillet (or quarter-round beading) at deck joint.

30. TRIM

1" x 3/8" (25 x 10mm)

31. FRAMING

Forward and aft 1 1/2" x 3/4" (40 x 20mm).

32. CABIN TOP

Two layers of 1" plywood (6mm). The inner layer is laid athwartships, the panels joined at Stn. 5. Screws 5/8 x 8 (15 x 4mm), spaced about 3".

The top layer is laid fore and aft. 1" (25mm) screws. Extra screws 1/2" x 8 (12 x 8mm); about three between each deckbeam area.

Holes pre-drilled in top layer - this allows excess glue to escape.

33. SAMPSON POST

Oak 2 3/4" square. (70mm). Chock at stem: 1 1/4" x 3" x 5" (30 x 75 x 130mm). Screws 3" x 14 (75 x 6mm)

34. COCKPIT FLOOR BEAMS

1' x 2" (25 x 50mm). Between frames, are epoxy filleted to hull sides.

35. STANCHION

1 1/2" x 2" (40 x 50mm)

36. COCKPIT FRAMING

1 1/4" x 1 1/4" (30 x 30mm).

37. COCKPIT FLOORING

1/2" Plywood, (12mm).

'Forward berth' layout- (Sheet 6). Extends to hull side; epoxy filleted.

Stowage area outboard is accessible with hatches, either cut-out ply on light framing, with turnbuttons, and/or round plastic hatches.

'Quarter berth' layout- (Sheet 7). Floor extends only to cockpit side. The area aft of the berth may be enclosed, with dry

stowage under, or may have open seats as on Sheet 6. Either way, the lower seat aft is more comfortable.

If enclosed, the seat may

lift up, over a 'damp' stowage area, draining inboard. In this case, the cockpit floor extends to the hull side. Cockpit width

floor may be screwed on bedding compound.

38. COCKPIT SIDES

1/2" plywood, (12mm). Epoxy fillet or quarter round beading at deck.

39. COAMING CAPS

1 1/2" x 1" (40 x 25mm). May be laminated, the aft end is carved, to the same section.

40. TRIM

1" x 3/8" (25 x 10mm)

41. COCKPIT SEATS

Beams at bulkheads and at Frame 7, sided 7/8" (22mm) by about 2" (50mm). Slats 3" x 3/4" (75 x 20mm).

#### 42. COCKPIT DRAINS

1 1/2" i.d. (40mm) plastic pipe, with suitable skin fittings. Avoid plank lands. With a wide cockpit floor, they will need a non-return valve.

#### 43. LAZARETTE HATCH

Should be as large as convenient, though not too close to the floor.

#### 44. CENTRE-BOARD CASE

Keel logs 2" x 3" (50 x 75mm). Rebated 1" as shown for 1/2" plywood sides - note how sides are set back to clear the

board. The logs are installed first, with 3" x 1/4" (75 x 6mm) screws to keelson. Sides are then cut to given dimensions,

with spacers fore and aft of 1 1/4" x 1" (32 x 25mm). Screws 1" x 10g (25 x 5mm). Capping pieces are sided 5/8" (15mm);

- 7/8" (22mm) over forward part - between Frames 4 and 5. Screws 2" x 1/2" (50 x 6mm). The pivot is a 1" dia. bolt, in a

bronze bushing in the deadwood. A hard-board mock-up of the board can be made to the shape of the centre-board, to check the fit;

this can then be used as a pattern for the plate.

#### 45. CABIN SOLE

May be boards of 3/4" x 3" approx. (20 x 75mm), or 1/2" plywood. Cleats 1/2" x 3/4" (12 x 20mm) as necessary between floors

(CB) - (The extra floor timbers at Frames 4-5-6 project above the sole). Turnbuttons allow easy removal and access to the

bilge.

#### 46. COMPANIONWAY

Slides are 1/2" plywood, with a beam across the bottom edge of 5/8" x 1 1/2" (15 x 40mm), except the bottom one. The top

panel stops 1/4" (6mm) approx. short of the hatch frame, for ventilation.

Side frames of 5/8" x 1 3/4" (15 x 40mm) form a slot or channel to retain the slides. The bottom piece drains outboard.

#### 47. COMPANIONWAY HATCH OPENING

Rails under cabin top: 1" x 1 1/4" (25 x 30mm). (H. runners sided 1 1/8" (28mm). Note hand holds cut out.)

Brass strips 1" x 3/16" (25 x 5mm).

Forward beam sided 7/8" (22mm) - moulded 1 1/2" (40mm) - curved as cabin top. 1/2" square lip at top. The extra beam

fwd. is 3/4" x 1" (20 x 25mm) - forms a half-inch channel which drains outboard - as shown in 'Forward Hatch' detail. Trim

- each side and fwd.: -2 1/2" x 5/8" (65 x 15mm).

#### 48. COMPANIONWAY HATCH

Forward beam sided 7/8" (22mm). Moulded 1 3/4" (45mm); curved as deck. Fore and aft frame sided 1" (25mm), moulded 2"

(50mm). Rebated for brass runner. Aft beam 1" x 1 3/4" (25 x 45mm), plus trim pieces 5/8" x 1 1/2" (15 x 40mm). Mid. beam:

three laminations 3/8" x 2" (10 x 50mm).

#### 49. FORWARD HATCH

Strictly optional. Between Frames 2 and 3; framed as detail, opening 18 to 20 square (400 - 500mm).

50. WINDOW

1/4" (6mm) Lean. Shaped as on Sheet 2. Frame of 1/2" ply, glued not screwed.

51. INTERIOR FRAMEWORK

Generally 3/4" x 1 1/4" softwood (20 x 30mm).

52. BERTH FRONTS, GALLEY, LOCKERS & SHELVES

3/8" (9mm) plywood.

53. BERTH TOPS

Ditto, or may be slats of about 5/8" x 3" (15x75mm). Tops are in sections, or have hatches for easy access.

54. BERTH COAMING

5/8" x 3 3/4" (15 x 95mm)

55. FIDDLE RAILS

5/8" x 7/8" (15 x 22mm).

56. CEILING

A light ceiling of 1/4" (6mm) cedar is recommended under berths. It may be continued up to the sheer. 1/2" x 3/4" (12 x 20mm) cleats support the boards at bulkheads where necessary.

57. VENTILATION BOXES

5/8" wood or 1/2" plywood, epoxy filletted together and to hull. Aft panel could be removable. Air goes in and out via 1 1/2" (40mm) hole in planking, just above the plank land; into the boat via three 1" dia. holes below deck. Note baffle and drain holes.

Depending on climate and circumstances, more ventilation may be advisable; e.g.a. forward galley would benefit from a mushroom vent and dorade box.

58. CHAIN LOCKER

Of 1/2" plywood, epoxy filletted all around. Hull protected with an extra panel of light ply, or epoxy/fibreglass.

59. COMPANIONWAY STEP

Sided 3/4" x 9" (20 x 225mm). Rests on berth coaming with positioning cleats of about 1/2" square, and on c-case side.

K-sided 7/8" (22mm), one piece full width.