

Nichols on 3

OWNER'S HANDBOOK

After Sales Copy

CAMPER & NICHOLSON'S LTD
Gosport Hampshire PO12 1AH Eng



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Nicholson 38

GENERAL

GENERAL - Section 1 LEADING PARTICULARS

Dimensions

Length Overall	37'10"	11,53m
Length Waterline	27'0"	8,23m
Beam (extreme)	10'6"	3,20m
Draught	5'2"	1,58m
Tons Thames Measurement	13	-
Tons Displacement (mean)	7.1 tons	7214 Kgs
Lead Keel	2.65 tons	2692 Kgs
Tons per inch immersion	0.39 tons	-
Fuel tank (Main) <i>U.S. - 45 Gal.</i>	38 gallons	173 litres
Water Tank (Main) <i>U.S. - 70 Gal.</i>	75 gallons	340 litres
Wing tank (optional) Port	25 gallons	114 litres
Wing tank (optional) Starboard	30 gallons	136 litres

Shipping Dimensions in Cradle

Length (less davits and pulpit)	37'10"	11,53m
Breadth (Over spreaders)	11'0"	3,44m
Height (less windscreen davits and pulpit, but including 1'0" for mast lashed on deck)	11'8"	3,64m
Weight (Including cradle)	8 tons	8128 Kgs
Length of Mainmast	44 ft.	13,74m
Size of Mainmast	14"x14"	35cmx3,1m
Weight of Mainmast	250 lbs.	114 Kgs.

GENERAL - Section 2 LIST OF EQUIPMENT

Item	Type	Supplier
Automatic Pilot	Neco Mk II	Neco Marine
Batteries	Exide 6KHV 154JL 94amp/ hrs.	Exide
Blocks (ex Spinnaker Halliard)	See Rigging Schedule	M.S. Gibb
Compass	Sestrel Major	F. Smith
Cooker	Flavel B 500	Calor Gas
Engine	4107/M Perkins	Gillams
Fairleads		Goads
Gearbox	T.M.P.	Gillams
Hull & Deck Mouldings	G.R.P.	Halmatic Ltd.
Mast & Spars	Anodised Alloy	Sparlight Ltd.
Mooring Bollard	Cat No S.L.1379	Simpson Lawrence
Mooring Cleats	Cat No S.L.139 CP Type A	Simpson Lawrence
Opening Windows & Skylights	Nicholson 38	Camper & Nicholsons
Pressure Set	Aqua Maid 12770 (Cat No 407 & 407a)	Simpson Lawrence
P & S Navigation Lights	Cat No.1304	Simpson Lawrence
Pulpits	Nicholson 38	M. Smith
Radio	Various	F. Smith
Refrigerator	Mariner P22	Lec Refrigera- tion

Rigging Screws	Cat No 545 Special	M.S. Gibb
Shower	Mira	Kennedys
Shower Darin Pump	Water Puppy 7600	Cleghorn & Waring
Silencer	McMurdo 1½"	Yacht Char- ters of G.B.
Silencer	Parsons 1½"	Parsons En- Ltd.
Speedometers & Logs	Various	F. Smith
Spinnaker Halliard Block	Cat No 356 Lewmar	M. Smith
Stanchions	2'3" Cat No 1045 Lewmar	M. Smith
Stanchion Sockets	Cat No 1099c Lewmar	M. Smith
Standard Sails	As Plan	Ratsey & Lapthorn
Steaming Lights	SL 1303	Simpson Lawrence
Steering Gear	L.S. Type	Mathway Marine
Stemhead Fitting	Nicholson 38 Lewmar	M. Smith
Stern Light	A.P. 3932	McGeoch
Toilets	Moray	W.H. Rowe Son
Toilet Fans	Tannoy	Tannoy Ma- Ltd.
Upholstery	Various	Camper & Nicholsons

Water Heater	Vaillant Mains Pressure 125	Calor Gas
Wheel	21" Laminated Teak	Port Hamble
Windows Fixed	Nicholson 38	British Steel Frame Co.Ltd.
Winches	'E' 'D' & 'L' Type	Camper & Nicholsons Ltd.
Windscreen	Nicholson 38	British Steel Frame Co.Ltd.
Windscreen Wiper	Dudley Heavy Duty	Simpson Lawrence

GENERAL - Section 3

SERVICE

In order to obtain the quickest service it is generally best to contact the suppliers of the particular piece of equipment directly, quoting the year of building and the number and name of the yacht. The addresses and telephone numbers of the principal suppliers are given under Section 4.

For service within the warranty period it is essential to contact Camper & Nicholsons in the first place to get clearance for work to proceed, details of the warranty are set out on the Order Form.

However, we would always appreciate it if any service requirement were referred to Camper & Nicholsons as we can then ensure that similar trouble be avoided on other yachts and also this enables us to circulate to all other owners the necessary

Our Service Manager will generally be available to inspect yachts free of charge within a radius of 25 miles from Gosport and at greater distances on payment of travelling expenses and £5 per day. It is however urged that every effort should be made to return the yacht to our Gosport yard where any work will be carried out with the maximum of expertise and the minimum of delay.

GENERAL - Section 4 LIST OF ADDRESSES, PLANS & PAMPHLETS

British Steel Frame Company,
195 Cambridge Heath Road, London E2. Shoreditch 3272

Calor Gas (Distributing) Company Ltd.
Windsor Road, Slough Bucks. Slough 23824

Cleghorn Warning & Company (Pumps)
Limited,
31 Hitchin Street, Baldock, Herts Baldock 2071

Exide Battery Service Station,
80 Castle Street, Salisbury,
Southampton Salisbury 3373

M.S. Gibb Limited,
Clock Tower Buildings, Warsash,

GENERAL - Section 4

E. Gillam Limited,
Royal Motor Yacht Club Yard, Panorama
Road, Sandbanks, Poole, Dorset Canford Cliffs 77664

Goads (Chandlers) Limited,
Maidstone Buildings, 74 Borough
High Street, London, S.E.1. 01-407-7482

Halmatic Limited,
Brookside Road, Havant, Hants. Havant 6161

Kennedy Limited,
69 Commercial Road, Southampton
Hants. Southampton 25537

Lec Refrigeration Limited,
Bognor Regis, Sussex. Bognor Regis 3161

Joseph Lucas (Electrical) Limited,
Great King Street, Birmingham 19. Northern 5252.

Mathway Marine Limited,
18-20 Lakedale Road, Plumstead,
London, S.E.18. 01-854-1138

McGeoch & Company Limited,
Bordesley, Birmingham 10. Victoria 3371

McMurdo Instrument Company
Limited,
Rodney Road, Portsmouth, Hants. Portsmouth 35361

Neco Marine Limited,
Walton Road, Eastern Road,
Cosham, Hants. Cosham 71711.

Parsons Engineering Limited,
18-20 Lakedale Road, Plumstead, London
S.E.18. 01-854-1138

Port Hamble Limited,
Hamble, Hants. Hamble 2361

Ratsey & Lapthorn Limited,
Gosport, Hants. Gosport 81322.

W.H. Rowe & Son Limited,
Quayside Road, Bitterne Manor,
Southampton. Southampton 2563

Simpson Lawrence Limited,
Castle Trading Estate, Portchester
Hants. Cosham 70062

Spartlight Limited,
Clovelly Road, Southbourne, Near
Emsworth, Hants. Emsworth 3027

F. Smith & Son,
Alexandra House, 10-11 Queen's
Terrace, Southampton. Southampton 22206

Montague Smith Limited,
Town Quay, Southampton. Southampton 24667

Tannoy Marine Limited,
West Norwood, London S.E.27 01-670-1131

Yacht Chandlers of Great Britain,
Newton Abbot, S. Devon. Newton Abbot 4557

Pamphlets

Docking Plan	Steering Gear Handbook
Sail Plan	Toilet Pamphlet
S.R.P. Booklet	Toilet Diagram
Ratsey & Lapthorn Booklet	Cooker Pamphlet
Engine Handbook	Battery Guarantees
Gearbox Handbook	Refrigerator Pamphlet
Viring Diagram	Refrigerator Diagram

need

HANDLING -Section 1 HANDLING UNDER SAIL

This yacht should be handled as a sailing yacht and has no abnormal characteristics. Being a ketch, balance between head-sail and mizzen is important and careful sheeting is well worth while.

To Windward

Use genoa, main and mizzen in apparent wind speeds up to about 20 knots then change genoa for working jib for wind speeds up to 27 knots and then use working jib and mizzen only up to 35 knots, then storm jib and mizzen.

Normally keep main and mizzen luff and foot tensions really hard and jib luff tension as hard as the crew can manage. All tensions should be eased in very light winds.

Reaching

Both the spinnaker and the mizzen staysail may be carried with the apparent wind about 10° ahead of the beam. The mizzen staysail is tacked with a lanyard to the weather cap shroud chain plate and sheeted through a snatch block on the outboard end of the mizzen boom, the halliard should be set up until the luff is just clear of the main backstay. Hold the main boom down hard as for running.

Reefing

Stand on the weather side of the mast. Release main tack tackle and lacing through 3 bottom slides and with some wind in the sail roll boom up, when gooseneck is at the top of track release 2ft. - 3ft. of halliard, make fast again and repeat rolling. Be sure to slide kicking strap eye to aft end of boom and try to pull sail aft on boom while rolling.

Heaving To

With the genoa backed and the main eased a little the yacht will lay about 9 points off the wind or with the working jib backed about 5 points off, and in both cases will make about 1 knot forward and 1 knot to leeward. It is normally possible to gybe the yacht out of the hove to position so that no sheets need be touched.

General

1. Use the mizzen as a riding sail or for reducing rolling when motoring or at anchor.

In good conditions the yacht can tack through 80° but allow 90° at sea with probably 5° leeway into normal sea conditions.

If motor sailing, sheets should be in as hard as possible.

Running

Let go lee mizzen backstay to let mizzen boom forward but remember to make up again before gybing. Ensure that the boom is held down firmly by a handybilly tackle or a foreguy, this will help the steering and increase speed. A genoa or spinnaker may be boomed out in hard weather. Taking off the mizzen will improve steering.

2. The working jib and storm jib tack to the strop on the stemhead fittings.
3. The genoa tacks to the snapshackle direct on the stemhead fitting.
4. The working jib and storm jib sheet inside the cap shrouds when close hauled or outside when reaching.
5. The genoa sheets outside all the shrouds all the time.
6. It is normal practice to fly the national flag from the mizzen masthead both underway and at anchor.

The Mizzen Staysail

The mizzen staysail is made of nylon and should be treated generally in the same way as the spinnaker. It can only be effectively used with the wind way on the beam to nearly dead aft. The tack pennant of 1" terylene and about 6 ft. long should be permanently attached to the tack of the sail and the sheet should be snapshackled to the sail clew.

1. Ensure main boom is held down firmly by boom vang.
2. Attach snatch block to aft end of mizzen boom for mizzen staysail sheet.
3. Attach tack pennant to weather mainmast capshroud chain plate, leaving the tack of the sail about 3ft. above deck.

HANDLING - Section 1

HANDLING UNDER SAIL

4. Pass sheet over main sheet and to leeward and outside of all-mizzen rigging and through the sheet block to the lee cleat on the after deck.
5. The halliard should then be taken around the leeward side of the main mast backstay and with the sheet cleated the sail may be hoisted until the luff is just clear of the main mast backstay. Also see that the sail does not get snagged on the windscreen wiper. The sail should be set as high as possible.
6. This sail must be lowered and the halliard and sheet released before tacking or gybing.

HANDLING - Section 2

HANDLING UNDER POWER

1. General Hints

- A. Remember that the propeller turns clockwise looked at from astern thus tending to drag the stern to starboard in ahead gear and to port in astern gear.
- B. If a shaft brake is fitted always remember to loosen this off before putting the engine in gear. If this is not done, you will burn out the fibre lining on the brake and a good way of preventing it is to hang the engine keys on the shaft brake when locking the brake for sailing. If a locking pin is fitted this should be attached to the starter key.
- C. When approaching a difficult berth or entering a crowded anchorage, always test the astern gear for a short burst some time before reaching the berth to ensure that the astern gear is working properly.

5. Turning at Rest

The Nicholson 38 is very manoeuvrable in tight circumstances and the procedure for turning the boat under these circumstances should be as follows: Put the wheel hard over in the direction of turn required and put the boat into hard ahead. As the boat builds up a good swing in the right direction, put her hard astern in order to check any headway and to start the boat coming astern again. Do not attempt to reverse the wheel whilst doing this manoeuvre as this will have very little effect and will merely tend to confuse you. As soon as the swing of the bows slows down, go ahead again hard in order to maintain the swing. Continue to carry out this backwards and forwards motion until headed in the desired direction. Always remember if in doubt turn away from the wind as the wind will tend to blow the bow off and if the wind is not a major factor, always turn to port if you have a choice.

6. Cautions

- A. If moving fast in astern use the rudder with caution as it can take charge and put enormous strains on the steering gear.
- B. Avoid running the engine at its critical vibration speed of about 800 rpm.

2. Steering Boat in Ahead

The 38 steers very easily in ahead under power and has an extremely small turning circle with a diameter very little greater than its own length. The turning circle to port is considerably smaller than that to starboard owing to the paddle wheel effect of the propeller.

3. Steering Boat in Astern

As a general principle, the stern will tend to pull to port due to the paddle wheel effect, but in a wind or tide the effect of the propeller is likely to be considerably less strong than the effect on the boat of the wind or the tide. In general, it is not worth trying to control the boat accurately in astern without expecting to use the ahead gear quite frequently for correction.

4. Coming Alongside or Leaving a Berth

Firstly, remember that the wind will tend to blow the bow off and bring the stern up. Secondly, when approaching a leeward berth, approach the berth as fine and as slowly as possible whilst maintaining steerage way. This should be a simple manoeuvre as the wind will carry the boat down onto the berth. Always remember to check the tidal stream first as this may be strong enough to push the bow or stern back away from the wharf.

Approaching a windward berth, this is a much more difficult manoeuvre and should be approached much faster and at a greater angle of approach in order to give the stern a good swing in towards the berth.

SAILING EQUIPMENT - Section 1

MASTS AND SPARS

All are of aluminium alloy, gold anodised.

Main Mast

Sparlight Section D.Q. 10.E sound deadened internally with all halliards external. Wiring is fitted for the masthead steam-light and for the spreader lights which are optional. A pull through wire is also fitted to the masthead to allow other electric wiring to be fitted if required. This wiring is arranged between the mast wall and the foam insulation. The wiring is taken from the heel of the mast to a junction box beneath the cabin sole below the settee locker just aft of the mast, See Electrical Section.

The sail track takes Holt Allen HA 91 internal nylon slides. A track and sliding ring is fitted on the fore side of the mast. Two "D" type halliard winches are fitted, main to starboard, genoa to port.

Mizzen Boom

Sparlight section D.Q.5 with foot rope groove and fixed gooseneck Gib Cat. No. M.S. GIBB 560

Spinnaker or Booming Out Pole (optional)

3" diameter double ended with spring plunger worked eye end fittings. Release line fitted end to end. Keep plungers lightly greased or oiled regularly.

NOTE If it is required to fix additional fittings to these spars this may be arranged by using stainless steel self tapping screws or if available pop rivets. All sections are of uniform thickness varying from about $\frac{1}{8}$ " for the mainmast to $\frac{1}{16}$ " for the spinnaker pole.

To Step Masts

It is necessary to use a crane giving a hook height at least 29 feet higher than the top of the coachroof. A rope strop should be arranged around the mast below the spreaders and the crane hook arranged on the foreside of the mast. The main mast weight is about 250 lbs. Ensure the butyl rubber mast coat is fitted and carefully lower mast into yacht with normal mast rake. Hand heel of mast through toilet sole being careful to protect electric cables which must be fed through slot on port side. Check tenon of mast heel is in mast step and weight is taken on tenon and that shoulders are clear of step flanges. Attach cap shrouds as soon as possible and set up all as in Fitting Out Schedule. See Maintenance 3.

The Mizzen is stepped on deck, this may be arranged by crane again with a strop under the spreaders or if four men are available this may be set up by hand.

Mizzen Mast.

Sparlight Section D.Q.7.E sound deadened internally with all halliards external. A pull through wire is fitted to the masthead for wiring as required. Please ensure the mast socket drains are clear to avoid undue corrosion at the step. The sail track takes Holt Allen H.A. 89 $\frac{5}{8}$ " internal nylon slides. An 'L' type winch is fitted on the starboard side for the mizzen halliard. The handle stows in the main backstay guide.

Main Boom

Sparlight Section D.Q.4.B with foot rope groove and Sparlight internal outhaul and Lewmar type A.20 reefing gear and handle. This should be fitted with the spindle at the bottom and kept lightly greased. A sliding ring is fitted for a boom downhaul of the same type as on the forward side of the mast.

To Unstep Masts

Mainmast

Remove any electrical wind equipment from masthead. Remove mast wedges at heel, mast coat and rubber wedging at deck. Disconnect electric cables from heel of mast. Let go any aerial connections. Let go all stays from chainplates, stemhead, mizzen mast pot, leaving cap shrouds until last. Take weight on crane hook strop and carefully lead heel out of yacht, taking care to protect electric cables.

Mizzen

This is easily lifted off by crane or may be unstepped by four men by hand

NOTE When setting up or letting go standing rigging be particularly careful not to loose overboard parts of rigging screws as being stainless the ends will unscrew very easily and cannot be fished for by magnet.

SAILING EQUIPMENT - Section 2

STANDING RIGGING

All standing rigging is 1 x 19 stainless steel wire with swaged eye top ends and swaged stud bottom ends screwing directly into the rigging screws. Rigging screws are of stainless steel and are fitted with locknuts but locking wire should always be used in addition. Split pins should be kept well taped over. Toggle clevis pins should have the head outboard. Split pins should be used only once. Top ends are all secured by clevis pins through double tangs.

SAILING EQUIPMENT - Section 2

Mainmast head.	All pins $\frac{7}{16}$ " dia.
" lowers.	" " " $\frac{5}{16}$ " dia.
Mizzenmast head.	" " " $\frac{5}{16}$ " dia.
" lowers.	" " " $\frac{1}{4}$ " dia.

GUARDRAILS

Are all 1 x 19 stainless steel wire. The top wire is $\frac{7}{32}$ " dia., and the bottom wire $\frac{5}{32}$ ". All these wires are of marginally different lengths on each yacht so that if a replacement is required it is necessary to return the actual wire or exact and detailed dimensions must be given. $\frac{5}{16}$ " dia., rigging screws are used on both upper and lower wires.

Use	Size		Rigging Screw & Toggle M.S. Gibb Cat No.545 Spec. with 543 T.E. Toggles.	Other Details
	Circ.	Dia.		
Main Forestay	$\frac{7}{8}$ "	$\frac{9}{32}$ "	$\frac{1}{2}$ " Rigging Screw & Toggle	3 Ft. Nylon Tube 6 Ft. Nylon Tube & Ball 6 Ft. Nylon Tube & Ball
Main Backstay	$\frac{7}{8}$ "	$\frac{9}{32}$ "	" " " " " " " " " "	
Main Cap Shrouds	$\frac{7}{8}$ "	$\frac{9}{32}$ "	" " " " " " " " " "	
Main Lower Shrouds fwd	$1\frac{1}{16}$ "	$\frac{7}{32}$ "	$\frac{3}{8}$ " " " " " " " " " "	
Main Lower Shrouds aft	$1\frac{1}{16}$ "	$\frac{7}{32}$ "	" " " " " " " " " "	
Mizzen Cap Shrouds	$1\frac{1}{16}$ "	$\frac{7}{32}$ "	" " " " " " " " " "	
Mizzen Backstays	$1\frac{1}{16}$ "	$\frac{7}{32}$ "	$\frac{3}{8}$ " " " " " " " " " "	
Mizzen Lowers	$\frac{1}{2}$ "	$\frac{5}{32}$ "	$\frac{5}{16}$ " " " " " " " " " "	

The rigging should normally last about six years but it should be wiped down at least once a year. Initially the oil in the wire will be squeezed out and will collect dirt, so it is recommended to wipe it down two or three times in the first year.

Please ensure that the lee mizzen backstay is always attached even if it is not set up, as this will prevent the hook from rotating.

SAILING EQUIPMENT - Section 3

RUNNING RIGGING

All running rigging is generally of 3 strand terylene rope or 6 x 19 flexible galvanised wire. All shackles stainless steel.

Item	Size Circ.	Length	Shackle	Remarks
Main Halliard	$1\frac{1}{4}$ " Terylene	83'	Goads Captive Pin	Prestretched
Jib Halliard	($1\frac{1}{4}$ " Terylene $\frac{3}{4}$ " Wire)	44' 49'	Lewmar 233	Rope Tail
Topping Lift	$1\frac{1}{4}$ " Terylene	83'	$\frac{5}{16}$ " 'D'	Prestretched
Burgee Halliard	$\frac{3}{8}$ " Terylene	80'		Plaited
Jib Tack Strop	$\frac{3}{4}$ " Wire	4'6"	Lewmar 233 $\frac{5}{16}$ " 'D'	7 x 7 SS. Plough
Genoa Tack Shackle			Lewmar 233	
Boom Foreguy	$1\frac{1}{4}$ " Terylene	48'	Lewmar 233	
Main Tack Tackle	1" Terylene	13'	$\frac{5}{16}$ " Bow	
Mizzen Halliard	($1\frac{1}{4}$ " Terylene $\frac{1}{2}$ " Wire)	26' 26'	Goads Captive Pin	Rope Tail
Mizzen Topping Lift	1" Terylene	49'	$\frac{5}{16}$ " 'D'	
Ensign Halliard	$\frac{3}{8}$ " Terylene	48'		Plaited
Halliard Lashings	$\frac{1}{4}$ " diam.	3 off 3'	6 Cliphooks	Shockcord
Main Sheet	$1\frac{1}{2}$ " Super Braid	72'		Spliced to Block
Jib Sheets	$1\frac{1}{2}$ " Super Braid	98'	Gibb 531 J.C.	Separate Sheets
Mizzen Sheet	$1\frac{1}{4}$ " Super Braid	45'		Spliced to Block
Optional				
Spinnaker Halliard	$1\frac{1}{4}$ " Terylene	83'	Lewmar 233	
Spinnaker Pole Lift	1" Terylene	49'	Lewmar 233	
Spinnaker Sheets	$1\frac{1}{2}$ " Super Braid	122'	Lewmar 643	Separate Sheets
Mizzen Staysail Halliard	$1\frac{1}{4}$ " Terylene	49'	Lewmar 233	
Mizzen Staysail Sheet	1" Terylene	31'	Lewmar 233	
Mizzen Staysail Tack	1" Terylene	8'		
Signal Halliards Each	$\frac{3}{8}$ " Terylene	44'		Plaited

SAILING EQUIPMENT - Section 3

BLOCK LIST

All blocks are from M.S. Gibb except the Spinnaker Halliard Block.

NOTES It is recommended that halliard tails should be passed through their relevant cleats and stopper knots tied.

Lash the Mainsail clew to the clew outhaul slide leaving about 2" between and ensure there are at least 2 turns around the boom. This will avoid bending the slide when reefing.

See also Maintenance 3. Fitting out Schedule.

Qty	Use	Cat No.	Shackle
1	Mainsheet boom block	262	$\frac{5}{16}$ " Bow
1	Mainsheet deck block (starboard)	258	$\frac{5}{16}$ " 'D'
1	Mainsheet deck block (port)	255	$\frac{5}{16}$ " 'D'
1	Maintack top block	116	$\frac{5}{16}$ " 'D'
1	Maintack bottom block	193	$\frac{5}{16}$ " 'D'
2	Topping lift blocks	239	$\frac{5}{16}$ " 'D'
1	Mizzen sheet boom block	262	$\frac{5}{16}$ " Bow
1	Mizzen sheet deck block (starboard)	258	$\frac{5}{16}$ " 'D'
1	Mizzen sheet deck block (port)	255	$\frac{5}{16}$ " 'D'
2	Genoa sheet blocks	992	
1	Foreguy block	992	
Optional			
1	Spinnaker halliard block	Lewmar 356	$\frac{5}{16}$ " 'D'
1	Spinnaker pole lift block	178	$\frac{5}{16}$ " 'D'
2	Spinnaker sheet blocks	992	

SAILING EQUIPMENT - Section 4

STEERING GEAR

The steering gear is by Mathway Marine and is the L.S. Type operated by a 21" teak steering wheel by Port Hamble. The wheel cap is a push fit and must be pulled off to expose the wheel nut. A pull off panel is fitted in the bulkhead above the galley sink, this gives access to the steering wheel bevel box. A second bevel box is fitted at the forward end of the port cockpit locker.

The shafting then passes through 2 bulkhead bearings in the aft toilet bulkheads and then to the aft reduction box in the aft peak. All gear boxes are filled with spirax 90 gear oil, the oil level should be checked annually.

Grease nipples are fitted to each bulkhead bearing and the ball ends of the drag link to the tiller and should be greased two or three times a year.

The emergency tiller, of galvanised tube, may be mounted on the top end of the rudder stock by unscrewing the flush deck plate aft of the mizzen mast. The tiller operates reversed, and may be stowed in the aft peak; do not stow near compass.

A steel muff coupling is fitted to the rudder stock to allow easy withdrawal of the rudder. To remove the rudder the heel fitting and steady band must be removed. These are secured with stainless steel machine screws tapped into the G.R.P. and locked with Pre-Gel. The rudder is moulded around the stock so the latter is not removeable. The maximum rudder angle is controlled by rubber stops against the tiller arm. Very high

loads may be set up against these stops if the yacht is hoisted with the wheel free or if motoring fast astern. See also Mathway Handbook.

SAILING EQUIPMENT - Section 5

DECK GEAR

Stemhead Fitting

Of stainless steel by Lewmar with tufnol chain roller and captivekeep pin. The forward hole is for the forestay, the centre hole is for the jib tack, the aft hole is for the foreguy block.

Anchor and Chain

When the yacht is handed over the chain is lashed with Terylene to the web in the chain locker. This should not be shackled as it may be necessary to cut the chain adrift. The anchor recess is moulded to take a 35 lb. C.Q.R. Anchor. All chain supplied is calibrated $\frac{5}{16}$ " chain which will suit S.L. windlasses if fitted later.

Anchor Windlass

The whole area between the foredeck fore and aft stringers is reinforced for a windlass if required. If a 510 Windlass is fitted it may be found that the brake on the gypsy is difficult to free. A sharp tap backwards on the lever will normally free

SAILING EQUIPMENT - Section 5

this but otherwise it is necessary to make the chain secure forward of the windlass so that the brake may be unscrewed against this. Always leave brakes 'off' when not in use.

Vinches

ib sheet winches	Camper & Nicholson	'E' Type
mainmast halliard winches		'D' Type
ainsheet winch		'D' Type
mizzen halliard winch		'L' Type

Please give number of yacht when requesting spares as modifications have been made on these winches from time to time.

Sheet Tracks

These are all through bolted and are $1\frac{1}{4}" \times \frac{3}{16}"$ Lewmar Cat 19 and are fitted with Lewmar slides Cat No. 943c.

Stanchions & Sockets

These are S.S. 27" high Lewmar Cat No. 1045 with Lewmar Cat No. 1099c sockets. Please ensure split pins are fitted. Gangway Stanchions are Lewmar Cat. No. 1045/GW.

Fairleads

Goads Type 6 $\frac{1}{2}"$ AO 1623 and AO 1633.

Mooring Cleats

Simpson Lawrence Type 1396cp Size A.

Mooring Bollard

Simpson Lawrence Type 1379.

Cockpit Side Screens

If these are to be fitted these should be fed into the track working out from the centre, the forward edges on the windscreen being inserted last. French chalk will help the screens to slide in the track. The screens should pass inside the canopy pillars.

Cockpit Doors

The doors to the cabins are on lift off hinges and for normal sailing it is recommended to remove both the saloon doors and the portable sill piece.

Liferaft

If one of these is fitted it is normal to fit this in chocks above the aft cabin hatch. Please ensure that the release line is firmly secured to the chocks and that you are able to operate the quick release hook on the lashings.

Toerail

Please note that the hull to deck join is made entirely in G.R.P. and that there is no possibility of leaks from this. The screws around the inside of the rail pass through solid G.R.P. and only secure the outer piece of teak toerail.

Handrails

These are secured by machine screws tapped into alloy plates moulded in the deck.

Deck

The maindeck and coach roof sides are solid G.R.P. with a mean thickness of about $\frac{1}{4}"$ with alloy plates and plywood pads moulded in for deck fittings are necessary.

Davits

The davits are spaced 4' 8" apart and are of welded steel construction polythene coated, by J.G. Meakes Cat No. A 105.

It is recommended that the sling points on the dinghy are as low as possible and that they should be spaced about 5' 6" apart. Anti tipping lines will be necessary to prevent the dinghy turning over when lifted out of the water. It is essential to hoist the dinghy up so that the gunwhale is held in the V brackets and the highest side just clears the mizzen boom.

Make fast the hoists and pass a lashing from the centre thwart over the aft side of the dinghy down to the centre davit bracket, to hold the dinghy down. Diagonal webbing girdles and a lashing direct from thwart to centre bracket are also recommended for security.

Pulpits

By Lewmar 1" O.D. stainless steel tube.

Cockpit Canopy

To remove this, let go the four bolts to the top of the windscreen, and the canopy light plug if fitted, and simply lift on each side; the pillars at the aft end are a push fit into sockets in the canopy. Carry the canopy forward and turn so that the aft end is forward. The canopy then fits into the stowage chocks provided. The locking screws at the base of the pillars may be let go to release the pillars and the screws replaced. The pillars are not interchangeable.

The coachroof top is of sandwich construction with the top layer of G.R.P. about $\frac{3}{16}"$ thick, a core of $\frac{3}{4}"$ end grain balsa and an inside layer of G.R.P. about $\frac{1}{8}"$ thick.

SAILING EQUIPMENT - Section 6

INSTRUMENTS

COMPASS

A Sestrel Major Compass is binnacle mounted in front of the wheel. Illumination is by a 6 watt 12 volt S.B.C. bulb mounted in the eyebrow shutters. The compass is oil, not alcohol filled. A dimmer switch is fitted to port of the wheel, access to this rheostat is via a pull out panel over the galley sink.

The compass is not adjusted for deviation unless this is requested and in which case this should be done when all gear is on board. Take particular care to keep light meters, knives and metallic objects away from the compass.

The corrector magnets are in the small tubes at the base of the compass but do not overtighten the end plugs as the magnets are easily broken.

Echo Sounder.

1) The Seafarer is fitted with a single transducer below the aft end of the starboard saloon settee. This is a fixture and can only be repaired by replacement which requires the yacht to be slipped. A secondary position for the instrument is fitted on top of the coachroof inside the windscreen. See also Manufacturers pamphlet.

- 2) The Hecta may be fitted with a second transducer in which case this is fitted on the port side in the locker under the stove. The Hecta transducers may be removed with the yacht afloat as blanking caps are supplied to screw over the hole. If the transducers are removed for any reason be careful not to lose the loose retaining rings. If a repeater dial lead is disconnected a shorting plug must be fitted in its place. A calibrating screw is fitted on the back of the instrument. See also Manufacturers booklet.

The most common fault with echo sounders is marine growth on the face of the transducer which must be cleaned carefully, not scratched. Never Anti-foul the faces.

Speedlogs

- 1) The sumlog is driven by a nylon impeller on a fixed bracket under the hull to port of the engine. A stainless steel flexible drive is taken to the instrument to port of the wheel. 12 volt illumination is arranged with the switch by the engine starter panel. The impeller is robust and does not foul easily but can only be cleared by slipping the yacht or swimming. This log cannot be adjusted and usually over-reads 10%.
- 2) The Harrier is fitted with either one or two impellers fitted under the forward cabin sole to port of the toilet. Always retract these when not in use. If an impeller gets fouled

hind the bulkhead lining up to the transmitter. The earthing plate is a "Dynaplate" and should not be antifouled. For further details of radio see Manufacturers booklet.

Auto Pilot

The Neco Mk II is wired entirely independantly of the rest of the yacht and has its own master switch and two fuses under the chart table to starboard of the main battery switches. The sensing unit is fitted under the forward saloon settee just aft of the mast and must be free to swing in its gimbals. Also avoid stowing magnetic articles in this locker. It is important that if the steering chain is disconnected for any reason this should be professionally re-aligned as otherwise there is a possibility of damaging the steering gear and bending the rudder stock.

The manufacturers handbook should be closely followed, common faults (fuses etc.) and their remedies are listed therein.

It is most important to switch off the auto pilot master switch when leaving the yacht as there is a possibility of running down the batteries if this is left on.

while underway rotate impeller 180°, if this fails withdraw and fit blanking cap, while cleaning impeller. The latter should rotate freely when blown at.

Calibrating screws for speed and distance are fitted at the back of the instrument. For further details see Manufacturers booklet.

Radio

If reception only is required an insulated wire is taped to the starboard mizzen cap shroud and led through a deck insulator to the radio over the chart table.

If a transmitter is installed the Tx aerial (230036 Type 9 Cable) leads from the set over the chart table under the starboard side deck, through a deck insulator to the starboard mainmast cap shroud which is insulated at top and bottom by No. 7 Norseman insulators. The stay is insulated from the spreader by Nylon tube and a jumper wire connects the stay to a triatic aerial wire between the mastheads. A special aerial elastic and glass insulator are fitted with a Terylene lanyard to the mizzen head. It is important when refitting to ensure that all aerial connections are clean and well made.

If a Sailor Locator D.F. set or Sestrel Hand Bearing compass is used ensure the batteries have non-magnetic cases.

A specially designed earthing plate is used for earthing the transmitter. This is bolted through the hull under the cabin sole under the chart table. A copper earthing strip is fitted be-

ENGINE - Section 1**INSTALLATION DETAILS**

The Perkins 4/107/M is a vertical four stroke fresh water cooled marine diesel engine, with four cylinders of $3\frac{1}{8}$ " (79.4mm) bore and $3\frac{1}{2}$ " (88.9mm) stroke. A Meadows T.M.P. 2:1 reduction reverse gear box is fitted and is all installed on pedestal resilient mountings.

The centreline beam in the cockpit is portable so that the engine may be lifted out.

Louvres are fitted in the steering console to provide air for the engine.

The engine serial number is stamped on the chain casing athwartships on the port forward side of the engine and is prefixed by 107U.

pressure switch light. They are covered with perspex with drain and ventilation holes.

If an engine hour meter is fitted this is fixed over the gearbox casing and simply operates from the engine vibration.

ENGINE - Section 2**STARTING**

The full procedure is laid down in the Perkins manual which should be studied. Below is a practical resumé.

Pre-Start

- 1) Check oil, water, fuel, saltwater inlet seacock and exhaust seacock if fitted.
- 2) Ensure shaft brake is off, and there are no warps over the side.
- 3) Turn down sterntube greaser.
- 4) Make sure battery switches are on and Stop button is pushed in.

Start

- 1) Put Morse control in neutral with half throttle.
- 2) Turn engine key clockwise and engage starter until engine starts, then release.
- 3) Whenever possible turn engine in neutral at 1500 revs until the water temperature comes up to 170° before engaging gear.

Controls and Instrumentation

A Morse combined throttle and gear shift is installed Type M.T.E. 32897 with two 33c cables. Forward movement of the lever engages ahead gear and then progressively increase the speed. Rearward movement does the same for astern. If the lever is pulled inboard it may then be used to operate the throttle without engaging gear, but is spring loaded to return to the normal neutral position.

The starter panel, stop button and wiper switch are fitted in the forward end of the port cockpit locker.

Standard instruments comprise, mechanical tachometer, ammeter, water temperature gauge, oil pressure gauge and oil

4) CHECK THAT COOLING WATER IS COMING FROM THE EXHAUST OUTLET.**Cold Start**

Very rarely required in England. If Engine does not start normally in very cold weather:-

- 1) Open tap on cold start diesel tank.
- 2) Turn key anti-clockwise to H. for 15-20 seconds, then start by turning hard anti-clockwise.
- 3) If this fails try it for a further 10 seconds. Do not abuse the cold starting system.

Stopping Engine

- 1) Pull out stop button until engine stops.
- 2) Switch off one battery if both are on.
- 3) Give stern tube greaser a few turns.

ENGINE- Section 3**COOLING & EXHAUST SYSTEMS****Cooling**

The engine itself is cooled by fresh water which is thermostatically controlled. The fresh water is circulated by a rotary pump with a bronze impeller on the forward end of the engine. The system has a header tank with access to the filler cap through the small hatch at the forward end of the cockpit sole.

ENGINE - Section 3

Check level regularly and ensure that no undue oil or scum is present. Normal running temperature 170° F (77° C).

The salt water cooling intake at the aft starboard end of the engine is fitted with a strainer which may be removed for cleaning by turning off the wheelvalve, clockwise, and then slackening the wing nuts at the top of the strainer. The oval cap plate can then be pivoted aside and the mesh strainer lifted out and cleaned. Remember to open the seacock afterwards.

The salt water first passes through the gearbox and then to the salt water circulating pump. This is a Jabsco type with a dipstick which should be checked annually. The salt water then passes through the heat exchanger then aft to the Parsons silencer where it is injected into the exhaust.

Exhaust

The exhaust manifold is water cooled but the piping from there to the Parsons silencer is dry and so gets very hot. A convoluted steel section of pipe allows for engine vibration, this section should not be lagged. The lagged section to the Parsons silencer is rigid. From this silencer a short section of metal pipe is followed by reinforced rubber hose all the way to the transom. A drain cock is fitted at the lowest point in the bottom locker in the aft toilet. At the transom a rubber McMurdo silencer is fitted. This is of the self closing type preventing re-entry of water. A wheelvalve may also be fitted if requested.

The gearbox has its own dipstick and, if the oil level registers between the mark on the blade and the bottom of the dipstick, there is sufficient oil in the box; capacity 1½ pints (0,85 litres). The reduction box level is determined by a level plug on the side of the casing; capacity is approximately ¾ pint (0,43 litres).

Stern tube greaser

See Stern gear.

ENGINE - Section 5

FUEL SYSTEM

If the fuel reaches the fuel pump and is clean, free of water, suspended dirt, sand and other foreign matter, and conforms to B.S. No. B5.2869 (1957) Class A, nine out of ten potential engine troubles will be eliminated. To assist in this two filters are fitted but remember no warranties cover foreign matter entering the engine so fuel should be filtered through a fine gauze when filling the tank.

A glassfibre tank of 38 gallons (173 litres) is matted in below the cabine sole at the aft end of the saloon. A bolted cover is fitted on the tank top, to take all connections and give access when required. The filler on the port side deck is engraved and fills direct to the tank. The tank is vented to a fitting on the outside of the cockpit coaming by the wheel. A dipstick calibrated in gallons is also supplied.

The fuel suction pipe is taken down to about 1" from the bottom of the tank then feeds to the glass bowl filter at the forward starboard end of the engine room then to the fuel

ENGINE - Section 4

LUBRICATING SYSTEM

Engine

The capacity of the engine lubricating oil system is 7 pints (4,0 litres) and it will normally be filled with either Esso HDX 20 or Shell Rotella 20/20W when it leaves the yard; for alternative oils, see the Perkins engine manual. A dipstick is located on the starboard side of the engine and a pressure gauge is fitted to the instrument panel. Oil pressure should normally be between 30 - 60 lbf/in² (2,1 - 4,2 kgf/cm²) at normal engine speed and temperature.

The yacht may heel up to 30° without adverse effect on the lubrication system, providing she is righted occasionally in order to lubricate the valve assembly. The engine may thus be run with confidence while beating to windward.

There is an oil filter mounted on the starboard side of the cylinder block (see engine manual). The element should not be cleaned, but should be renewed every 150 hours, or once a year, whichever is the shorter period (see Engine manual).

Engine oil should be drained from the sump and renewed every 50 hours running, or once a year, whichever is the shorter period (see engine manual).

Gear box

This is a hydraulic gear box and a separate manual is issued regarding it. Bearings in the reduction gearbox are bath lubricated, whereas those in the main gearbox are force lubricated. In this respect it should be noted that the systems are not common and each must be filled separately with the same lubricating oil as the engine.

lift pump on the starboard side of the engine. A hand priming lever is fitted on this pump. The fuel then passes through a paper element filter and then to the fuel injection pump. The fuel is then forced at high pressure to the four injectors. Surplus fuel from the injectors is led back by a common spill pipe and together with the surplus fuel from the paper element filter is led back to a separate fitting in the main tank top.

Auxiliary G.R.P. tanks may also be fitted in the bottom of the cockpit lockers P & S. These tanks are filled through filler pipes on the actual tank tops and separate breather pipes and dipsticks are also fitted. The port tank has a 25 gallon (114 litres) capacity and the starboard tank 30 gallon (136 litres). The feed pipes from the bottom of these tanks are fitted with wheel valves and then feed to the main tank filler pipes.

Care should be taken not to overfill the main tank as the dipstick fitting may leak. Also ensure the main tank is not too low as this will lead to air in fuel system.

To Bleed Fuel System

- 1) Slacken bleed screw on engine filter and operate hand priming lever, until fuel without air is pumped out, then tighten bleed screw.
- 2) Slacken small nut on extreme top of injection pump, operate starter until neat fuel is flowing, tighten nut.
- 3) Slacken any two injector nuts, operate starter until fuel spurting regularly, tighten nuts.
- 4) Start engine.

See also engine manual and diagrams.

ENGINE - Section 6

STERNGEAR

The propeller is 3 bladed right hand of 16" (406 mm) diameter by 11½" (292 mm) pitch of manganese bronze and is driven by manganese bronze intermediate and tail shafts of 1⅝" (34.9 mm) diameter. Flexible couplings are fitted at each end of the intermediate shaft. The stern-tube has two white metal bearings with a packing gland at the forward end, the remote greaser for this is on the starboard side of the engine room aft bulkhead. This gland should drip slowly when underway but should not leak with the shaft stationary. The greaser should be turned down every time the engine is stopped. Use Neox or any soft water resistant grease. The gland packing should be checked annually.

Drum type shaft brakes were fitted on many yachts up to No. 44, and shaft locking pins were fitted after this. A set drill should be evolved to prevent the engine being put into gear with the shaft locked.

FUEL CONSUMPTION

Theoretically 0.4 pints (.227 litres) per B.H.P. per hour or alternatively normal cruising should give about 8 miles to the gallon with a maximum of 12 miles to the gallon in smooth water at approximately 6 knots.

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DIAGRAM (COOLING AND EXHAUST SYSTEM)

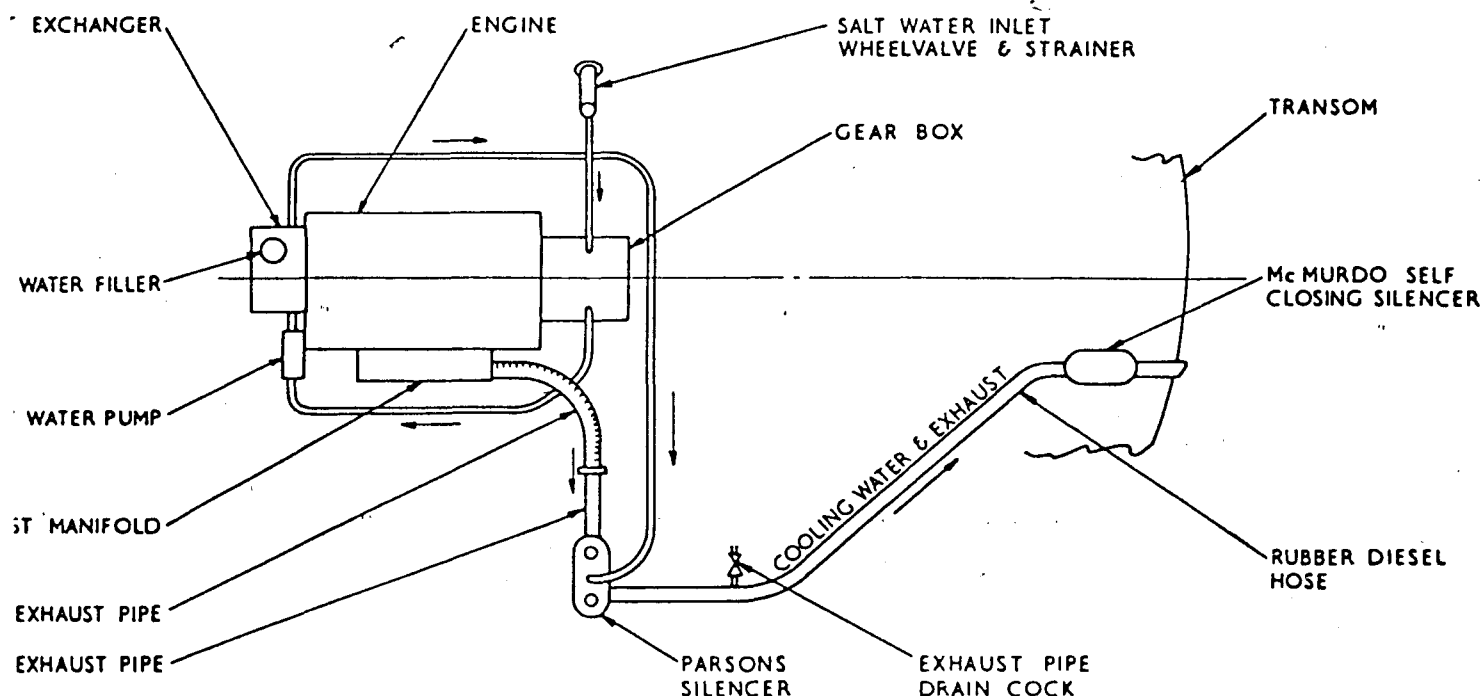
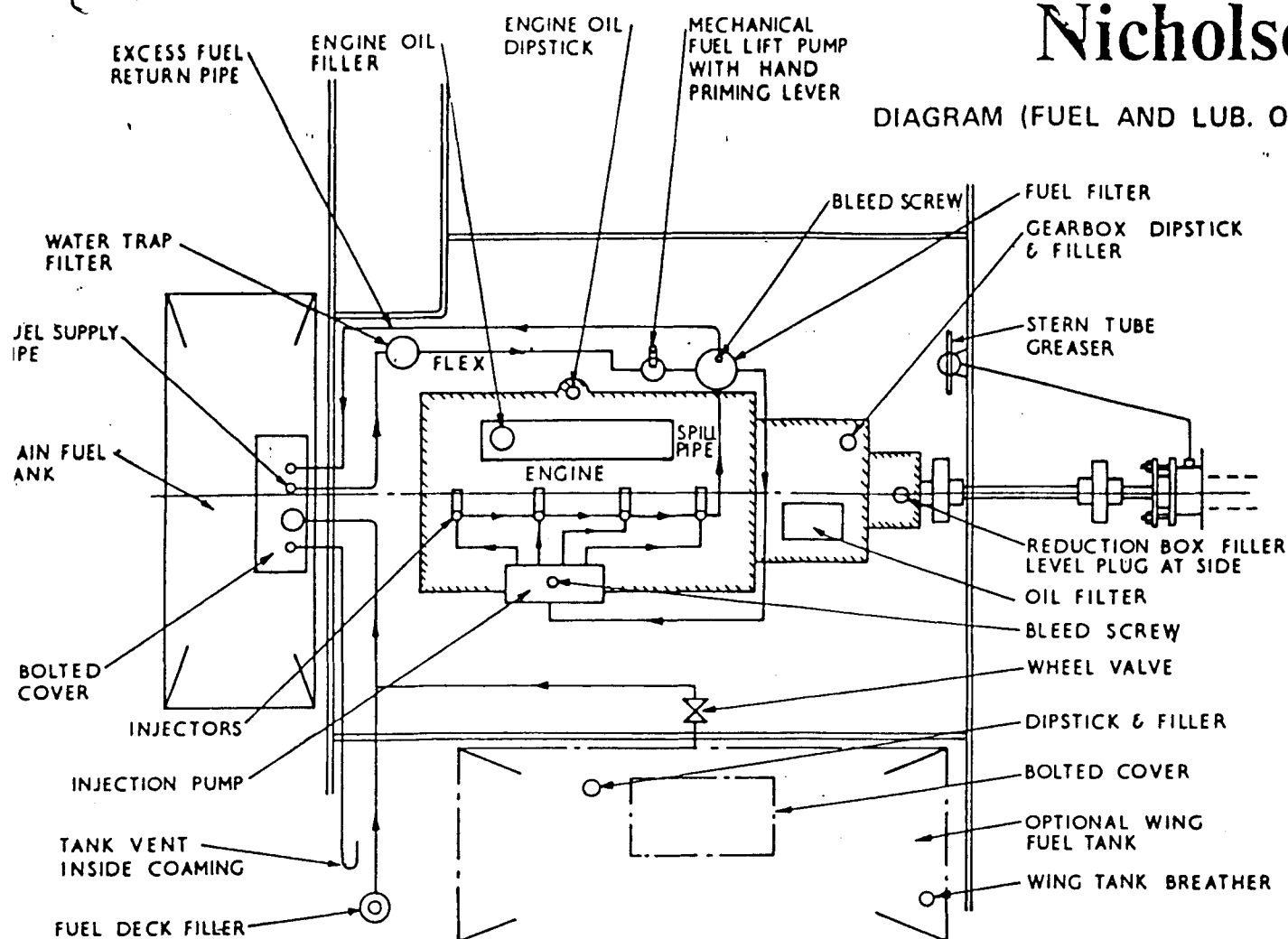


DIAGRAM (FUEL AND LUB. OIL SYST



ELECTRICAL - Section 1 GENERAL

The engine belt drives a C.A.V. Type. 280 Alternator which has a maximum charging rate of 45 amps. The output however is voltage controlled so that the rate will soon drop as the battery voltage increases.

The regulator and cut out are fitted under the inboard side of the chart table.

The 12 volt batteries are fitted in parallel, Type 6KHV 154JL 94 amp/hours capacity each. Each battery is fitted with a separate cut out switch under the chart table so that either battery may be used for every service, or if required both together. The switch must be 'on' for the battery to be charged. To switch 'on' push in and turn clockwise.

An alternator cut out switch is fitted outboard of the battery isolating switches. This should normally be pulled out to allow the alternator to charge but may be pushed in to cut it out so avoiding interference with the radio D/F., etc.

A distribution panel with fuses and switches is fitted in a small locker above the chart table. A key to the fuses is in the locker door. The switches are labelled. See wiring diagram.

NOTES

- 1) Check tension of alternator belt regularly.
- 2) Always switch off one battery when stopping the engine to ensure that one battery is available in a charged condition to start the engine. It can not be started by hand.

- 3) A Honda Type ED250 generator is suggested as a very useful machine to keep the batteries charged as this will charge at a constant 18 amps as the input from this to the batteries is not voltage controlled.
- 4) Check battery acid level weekly.

ELECTRICAL - Section 2

FITTINGS

Electrical Pumps

The water pressure system has a Jabsco Aquamaid pump fitted under the galley Model 12770 with an impeller Part Number 14609. This has a separate fuse and switch in the switch locker and is fitted together with a pressure switch and a dry tank cut out switch Part Number SP 6070-05, a small hand starting lever switch is fitted on this which should be pressed down to prime the system.

The shower drain pump is a Jabsco Water Puppy 7600 with an impeller Part Number 6303. The switch is the lower of the two above the wash basin.

Toilet fans are fitted in both toilets complete with a switch giving two speeds, intake or exhaust. These are Tannoy standard 12 volt units. Care should be taken not to leave these running for long periods.

Windscreen Wiper is a Dudley Heavy Duty Type with 12" S.S. arm and 12" blades and is operated by a pull switch by the engine starter panel.

ELECTRICAL - Section 2

refrigerator, behind the louvred panel which may be pulled out inboard. To remove the unit release the refrigerator door and face surround which will expose the piping to the cooling coils.

The cabinet is foamed all around so is not easily replaceable and care should be taken to use no abrasives when cleaning.

The refrigerator consumption is 7 to 5 amps when running so it is vital to economise on this by opening the door as seldom as possible and by not using a colder setting than is necessary. When set at 'N' the compressor unit should operate about 1/3 of the time with an ambient temperature of 70° F 21° C. It will however barely make ice at this setting.

Ensure the door is locked when sailing, and also that the air passages to the cooling coils beneath the refrigerator are not blocked by gear in the lockers. It is vital that the refrigerator door makes a really airtight seal.

Deckhead lights are BMAC 212

Bulkhead lights are BMAC 177

Port & Starboard lights are Simpson & Lawrence Type 1304 with 6 watt cartridge bulbs.

Stern Light is a McGeoch Type A.P. 3932 with a 6 v S.B.C. bulb.

Masthead Steaming Light is Simpson Lawrence 1303

Spreader Lights are sealed beam units and must be replaced by a new unit.

Chart Table lights are Elbolites.

Compass Light bulb is 12 volt, 2.8 watt, MESscrew

Cathodic Protection (Optional). M.G.Duff Type G737 wired to the stern tube and to the engine. Do not paint this anode when anti-fouling, it is fitted with permanent through the hull beneath the aft cabin settee.

Battery State Meter (optional). This is fitted in the switch locker and is connected via the battery isolating switch so that the state of either battery may be checked. The meter in fact a sensitive voltmeter and will also register when the battery is being charged.

Refrigerator

This is of 2 1/4 cubic feet capacity and is refrigerated by a Mariner P22 compressor type unit. A transverter unit converting 12 volt D.C. to 20 volt A.C. is fitted beneath the port saloon settee. The compressor unit is fitted beneath the

PLUMBING - Section 1 FRESH WATER SYSTEM

Tank

The main water tank is a separate G.R.P. moulding matted in under the cabin sole with two Henderson inspection hatches. The tank is filled via a deck filler on the starboard side just forward of the cockpit and is vented to a swan neck fitting discharging into the galley sink. Capacity 75 gallons (340 litres) approximately.

Hand Pump

A Whale hand pump is fitted in the galley which draws direct from the tank if the pressure system should be out of action for any reason.

locker is off. The cut out will also operate if the system has been switched off for some time. To start the system check that all taps are off and then hold down the re-set lever on the front of the dry tank cut out switch until the pressure switch stops the pump.

Hot water and shower.

This is heated by a Vaillant Type A060-6GB instantaneous gas water heater which feeds the hot taps and the Mira shower valve. The outside ring of this valve controls the amount of water, the central bar controls the proportions of hot and cold, but this must be run for about 15 seconds before the hot water reaches the valve.

Pressure System Faults.

The most common fault is lack of water in the tank which will operate the dry tank cut out switch or a small piece of dirt lodged in the non-return valve which will allow the pressure to drop slowly as water leaks back to the tank. The pump will then run to build up the pressure, cut out at the top pressure and then cut in again as the pressure falls. The non-return valve is fitted between the pump and the pressure switch and has separate unions so this may be easily removed for cleaning.

A leak in a pressurised pipe or tap washer will also give the same intermittent running of the pump until the leak is traced and cured.

Pressure System

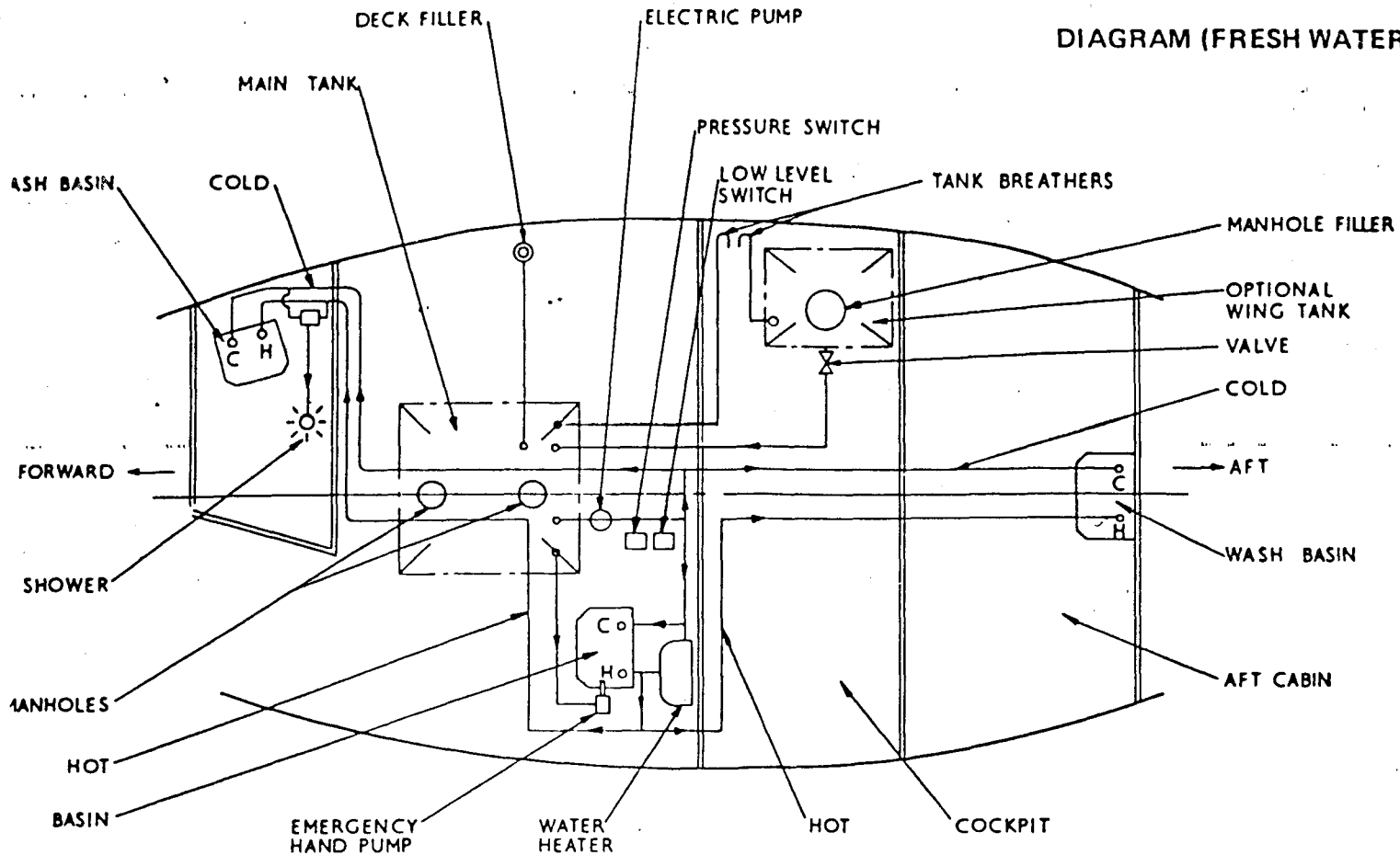
The Jabsco Aquamaid electric pump draws water from the tank and passes this via a non return valve, pressure switch and dry tank cut out switch to a small cylindrical tank from where all the cold taps are supplied direct and which also feeds the hot taps after passing through the water heater. Cold feeds are generally P.V.C., hot pipes are of Copper and are lagged.

The pressure switch normally starts the pump when the pressure falls to 20 p.s.i. and stops it when the pressure rises to 30 p.s.i. The pump will however be cut out by the dry tank cut out switch if air is being drawn into the system or if a tap is operated when the master switch in the switch

If the pump labours and does not stop, either the batteries are low, the pressure switch upper limit is set too high, or the pump impeller is damaged. The impeller is removed by releasing the three screws in the cover plate at the bottom of the pump, the plate and impeller will then fall down. Running the impeller dry will rapidly damage it.

Wing Tanks. (Optional)

Additional tanks may be fitted in the bottom of the cockpit lockers port and starboard. Normally the starboard tank is employed for water, 30 gallons (136 litres) and the port tank for fuel, 25 gallons (114 litres). The tanks are generally filled through their own tank top hatches or filler pipes and delivery is controlled by wheel valves arranged as in diagram. The tanks are vented via swan necks close under the sidedeck. Care should be taken to ensure the outlet wheel valves are normally shut. In all cases these wing tanks supply the main tanks. It is good practice when opening any wheel valve to open completely and then turn back ¼ turn.



PLUMBING - Section 3

DRAINS & BILGES

Basins, Sink & Shower

Wastes from the sink and both washbasins are by gravity via plastic hose to wheelvalves at the ships side. The shower drain is via an electric Jabsco Water Puppy pump Type 7600 with an impeller Part No. 6303 which is switched above the wash basin and discharges into the washbasin drain. Please ensure this pump is not run dry and try to prevent an excess of sand or hair being drawn through. A small gauze strainer is fitted in the shower tray. The tray is not fixed so may be lifted out to clear the drain pipe.

Cockpit Drains

The cockpit seat drains are teed into the cockpit sole drains which are fitted in each corner of the cockpit. These drains are teed together each side and lead to wheelvalves port and starboard.

It is recommended that these drains should be checked regularly as these may be easily blocked by floating dirt.

Bilge System

The fore peak and chain locker drain aft through limbers to the space by the mast step, this then drains under the water and fuel tanks, under the engine tray, to the deepest part of the bilge under the aft cabin sole. The aft peak drains forward below the washbasin and under a teak capping on the centre line to the same deep bilge.

The bilge pump is a Henderson Type Mk III T.A. fitted in the starboard cockpit locker, both suction and delivery are of convoluted hose with a strum box at the bottom of the suction under the aft cabin sole. The discharge wheel-valve is fitted in the starboard cockpit locker just above the waterline. This should be operated until several strokes have sucked air to prevent any danger of siphoning back.

Scuppers

Three scuppers are fitted each side and are matted integrally on the inside of the hull so that no valves are required.

Anchor Drain

The anchor recess has a small drain, no valve, and should be kept clear.

PLUMBING Section 4

WATER CLOSETS

Each toilet compartment is fitted with a Moray water closet. The inlet (small diameter pipe) is connected via a seacock to the W.C., and the soil pipe (large diameter pipe) is taken to a outlet via a wheelvalve. The inlet seacock has a lever handle which must be turned through 180° and which is only half open if it is in line with the pipe.

Forward W.C. The inlet seacock lever is under the cabin sole to port of the toilet (access by a trap), and is open when up; to close it, turn down through 180°. The soil pipe outlet wheelvalve is just inboard of the W.C. casing near the base.

Aft W.C. The inlet seacock lever is under the aft cabin sole (access by a trap), and is open when down; to close it, turn up through 180°. The soil pipe outlet wheelvalve is right forward inside the lower locker in the toilet compartment.

W.C. Operation. The Moray W.C. works on the single lever principle, for pumping both in and out. First ensure that both inlet seacock and outlet wheelvalve are both open.

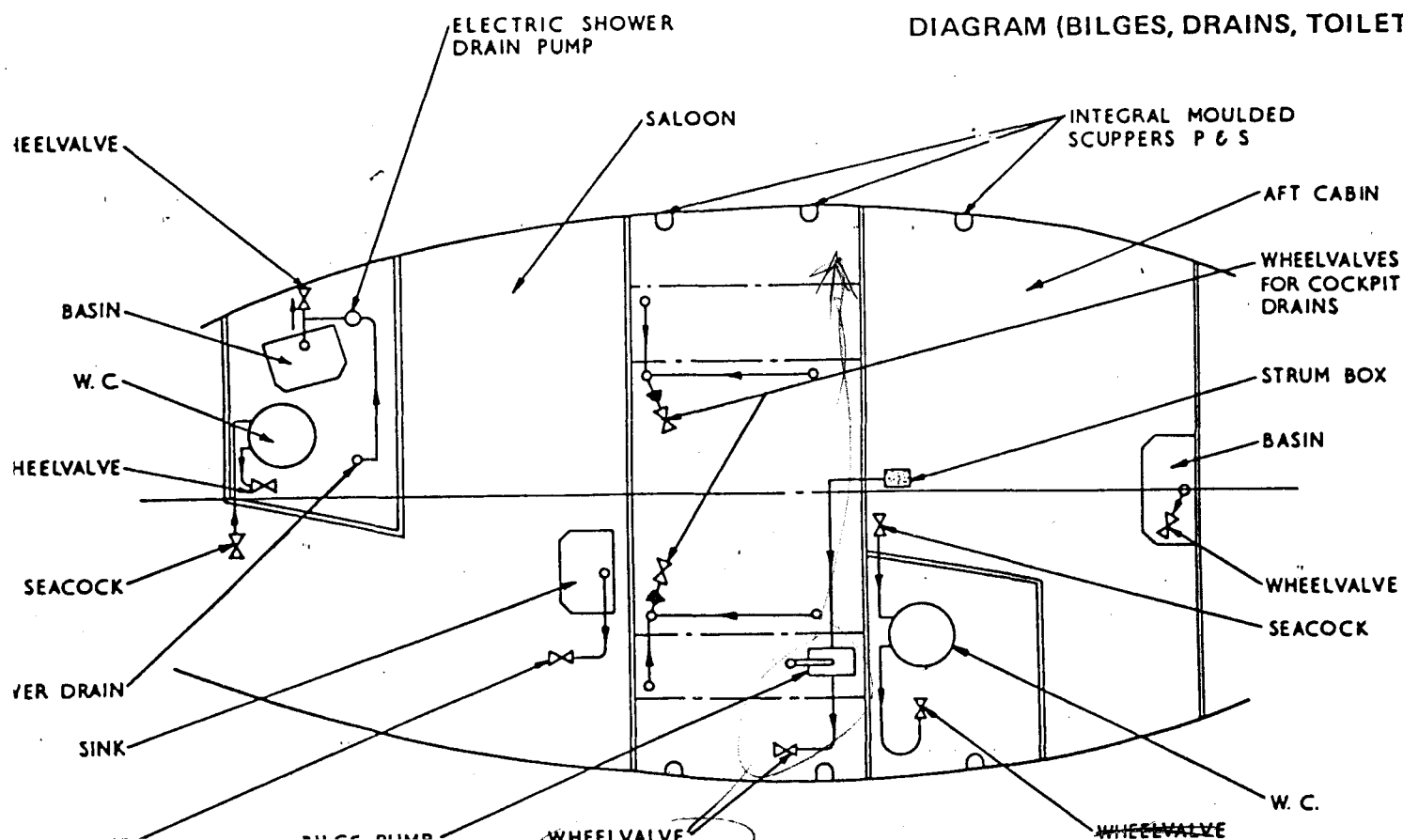
After use, open the small valve on the W.C. itself, turn anti-clockwise. Then pump until all soil has been cleared from the bowl. Close the small valve (which will stop water coming into the bowl) and pump to clear the bowl of all water, then give four or five more strokes to pump air into the soil pipe to prevent any possibility of siphoning back.

Close inlet seacock and outlet wheelvalve if leaving the yacht for any time. Always leave small valve on the W.C. in the closed position, but do not over tighten.

Maintenance. Soft absorbent paper should be used in preference to interleaved. Avoid emptying foreign bodies (tea leaves, match-sticks, pins, cloth, vegetable peelings, Tampax, etc.) down the bowl. Bleach type disinfectants must not be allowed to remain in the bowl for any lengthy period. Refer to detailed instructions before making adjustments or repairs.

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DIAGRAM (BILGES, DRAINS, TOILETS)



PLUMBING - Section 6

GAS SYSTEM

Either Calor Gas or Camping Gaz may be used as long as the correct regulator is fitted. Only one bottle is connected at one time; the supply is led to the water heater and cooker. The piping is of reinforced flexible P.V.C.

When changing bottles please check that the washer between regulator and bottle is in good condition. Please note the thread is left hand. Screw down tightly. Overtightening will squeeze the washer out of shape.

IMPORTANT

Turn off gas at bottle when ever possible and regularly check for leaks by sniffing under galley in vicinity of bottles. If turning off the bottle the water heater must also be turned off.

Remember that Butane gas is considerably heavier than air and will flow like water, and can be bailed out with a bucket or even by using the bilge pump. A Tannoy Snifette gas detector may be fitted or a more rudimentary method is to take a sample of bilge air in a tin and drop a match into it on deck.

ON DECK

Cooker

The cooker is the Flavel B500 with a fixing latch and gimbals. The whole cooker may be lifted out of these gimbals for cleaning or servicing. The gas taps are spring loaded and must be pushed before turning. A clip is fitted to retain the grill pan. The oven is not thermostatically controlled. See also cooker leaflets.

Water Heater

This is the Vaillant Type A060-6GB and is mounted over the sink and exhausts through the deckhead. The vent will become very hot so do not leave anything near this on deck.

To operate turn on the gas bottle and then turn heater knob from '0' to 'I' and light pilot jet through hole in front of heater. The pilot should be allowed to warm up the bimetal strip which cuts off the gas if the flame goes out, and then the knob turned to position 'II'.

The main gas jets will not ignite without a flow of water so the water pump must be on and working. A water shut off valve is fitted on the inlet at the back of the heater so this may be isolated if required. Now turn on a hot tap and the heater should ignite. Water temperature is regulated by the small knob below the gas control knob. Turning it anti-clockwise will leave the gas supply at the same level but restricts the flow of water and thus makes it hotter. All hot pipes are lagged.

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MAINTENANCE

MAINTENANCE - Section 1

HULL

For maintenance of the G.R.P. see Halmatic pamphlet. The hull is colour pigmented to just below the waterline and is moulded clear below that. Both waterline and bootop line are moulded on and if a separate bootop colour is arranged this is painted between these two lines.

The standard anti-fouling is International Hard Racing Copper Red and needs about ½ gallon to each coat.

Care must be taken **NOT TO PAINT** echo sounder transducer heads, radio telephone earthing plates or sacrificial zinc anodes. If any different anti-fouling has been used it is necessary that the paint manufacturers be consulted.

DO NOT USE 'FLASH' FOR CLEANING ANY GLASS FIBRE WORK.

Exterior Teak Work

This is normally varnished with EPIFAN epoxy based varnish. Other varnishes other than two pack Polyurethane may be applied over this but for best results Epifan is recommended and is available from C & N Ltd.

If the exterior work is oiled this should be coated regularly with Linseed oil.

Interior Teak Work

This is oiled with teak oil and a quarterly rub over will keep this clean and of good colour.

Chromium and Stainless Steel

It is important that the fittings are kept clean as this will greatly lengthen the life of the chromium and will prevent the yellow stains on the stainless known as bleeding. Use Silvo, Duraglit or similar polish and then rub over or spray with Ambersil M.S.4. or similar. **NEVER USE STEEL WOOL** as this will break down and give thousands of rust spots.

Rigging

It is advised that after the first week or so the standing rigging should be wiped down with a rag to remove excess oil and that this should be repeated with M.S.4. at the end of the season and again in the spring.

Check the wire parts of the genoa and mizzen halliards annually and replace if rusty or if any wires are broken.

Before each cruise oil all snapshackles and check that main and mizzen halliard shackles for security, check rigging tensions and rigging screw locking wires and locknuts, and check all shackle pins and split pins. All shackles aloft should be securely wired.

Liferaft

This should be returned to the servicing agents annually and **MUST** have its release line made fast to the yacht when refitted.

MAINTENANCE - Section 2

and tend the legs as she takes the ground. If alongside a wall or piles move weight to the inboard side also and use a halyard to ensure she leans inwards.

If stranded and dried out on a flat beach the buoyancy of the hull will lift her before the water reaches the deck edge.

MAINTENANCE - Section 3

LAYING UP

It is quite satisfactory to lay up the yacht afloat in conditions where some ice will form, but care should be taken to prevent abrasion around the waterline due to thin surface ice if moored openly. If moored alongside, efforts should be made to prevent chafe by springs over the toe rail by parcelling springs and lifting them clear of the rail.

In most Marinas it is possible to rent small electric heaters which are permanently plugged into the shore mains. This keeps the yacht sweet and dry below.

In icing conditions it is important that all fresh water systems be carefully drained. Pump covers should be eased off, seacocks closed, engine drain cocks opened, exhaust drain cock opened (lever across), galley pump piping released, pressure system and water heater drained.

Sails should be moved ashore if the yacht is not heated and should be stored in dry conditions. Ratsey & Lapthorn operate a valleting and storage service.

Cockpit sidescreens and sail coats.

May be scrubbed with Detergent. Not Flash.

Upholstery

The Vinyl type may be cleaned with Vim or Detergent but the cloth types should be cleaned with hot water and soap and not dry clean.

Cabin Sole.

This is treated with Bournseal and should be rubbed down and re-coated once a year.

MAINTENANCE - Section 2

HAULING OUT

See Docking Plan A/284/57. The 38 may be lifted by crane if suitable slings and spreaders are provided or more conveniently by Renner or Travelift. In every case it is important that the forward sling is positioned to clear any speedometer impeller guards, usually fitted abreast of the aft side of the forehatch. The impellers should be withdrawn. Wire slings should be well covered or padded to avoid scoring the G.R.P.

The bottom of the keel is 14 inches wide so the yacht tends to stand upright.

Drying Out.

If drying out on legs try to choose a hard clean beach with a reasonable slope up forward. Move any portable weights

All running rigging should be removed leaving one Jack line through the masthead. Booms may be stowed below. Cockpit canopy and sidescreens should be securely rigged.

Batteries should be moved ashore for charging.

FITTING OUT SCHEDULE

Masts should be cleaned down in the Spring, also the standing rigging.

Mainmast

The longest wire is the backstay and is to be threaded through the saddle on the mizzen mast to the deck fitting. The longer of the two lower shrouds is the aft one. The masthead shrouds lead to the centre chainplate. The forestay is taken to the forward most hole in the stemhead fitting.

Mizzen

The two cap shrouds lead to the forward most chainplate. The forward lower shrouds lead to the lug on the foremost chain-plate. The aft lower shrouds which are the shortest lead to the small chain-plates. The mizzen backstays with releasable screws lead to the aftermost chain plates and are attached through shackles on the chain-plates. The mizzen mast is stepped in the shoe with rubber lining.

General

Ensure all bottle screws are securely wired, lock nutted and taped over. Ensure that all clevis pins are secured with split pins spread right out. There are three clevis pins on each stay. Ensure that the main forward lower shrouds and the

capshrouds are attached, so that the nylon tube rollers are above the parrell balls. The jib tacks to the centre hole in the stemhead fitting. The foreguy block snaps into the aft hole. The toggles on the bottle screws go on the chainplates. The main forestay and capshrouds should be really tight. You should not be able to move the forestay more than about 3" at shoulder height

Fitting out Schedule

It is not possible to wire the releasable screws on the mizzen so these should be checked frequently.

The running rigging has all single part halliards. The main halliard through the starboard sheave. The genoa halliard through the port sheave. The Spinnaker block shackles to the forward most tang and the topping lift block shackles to the pin under the backstay tang. The burgee halliard is also to be rove through the eye provided. The block for the spinnaker pole lift is attached to the tang just above the spreaders. The ends of the spreaders must be fitted with CANPA moulded covers to prevent them from snagging the sails. Ensure all shackles up the mast have their pins securely wired.

The rubber mast coat must be slid on from the bottom of the main mast before this is stepped. The mast rake is normally arranged to be 2" in the height of the toilet bulkhead. Mast heel wedges are provided for the mast tenon to prevent fore and aft movement. Soft rubber strip is provided to go around the mast in the hole through the deck. It is recommended that the mast coat be bedded

on Bostik onto the mast and is whipped around mast coaming. The skirt may be cut shorter and turned up to give a neat finish.

Fitting Out Schedule

The small main tack tackle leads to the lowest cleat on the aft starboard side of the main mast. The topping lift leads to the small cleat above this. The spinnaker halliard leads to the large cleat high on the port side. The spinnaker pole lift leads to either of the small cleats low on the forward side of the mast. The main halliard leads to the large cleat low on the starboard side. The jib halliard leads to the large cleat low on the port side. The mainsheet has one double block on the boom and two quarter blocks. The boom is safe on the topping lift. No crutch is necessary unless really exposed mogrings are normal. The main boom should be shipped with the handle spindle and the shackle for the tack tackle at the bottom.

The mizzen halliard leads to the large cleat below the halliard winch. The mizzen topping lift leads to the cleat on the port side. The ensign halliard leads to the small cleat. The mizzen staysail halliard has the block shackled to the tang on the foreside of the mast head, the halliard leads to the large cleat on the foreside of the mast. The sheet has two quarter blocks on the deck, a double block on the boom and leads to the aft cleat on the starboard coaming.

MAINTENANCE

Note.

For best appearance the mizzen mast should rake slightly more than main mast. If the masts are rigged parallel they will appear to converge.

MAINTENANCE -Section 4

WINCH STRIPPING

Headsail Sheet Winches

C & N type 'E' sheet winches are single speed and fitted with a ratchet handle. There is a small pull-out plastic oiling plug on the top and a few drops of oil each week-end will be sufficient. To strip the winch, remove the top locking and lift off the winch barrel to expose all working parts; (there are no loose internal parts.) All pawls are activated by rubber buffers. The gear pinion spindles are locked with a 3/32" A/F Allen key. Care must be taken to replace each pinion in the same position, as these are individually mated.

Halliard Winches

The C & N type 'D' mainmast halliard winches (also used for the mainsheet) and the C & N 'L' type used for the mizzen halliard are direct action winches fitted with two pawl tracks, one at the top of the barrel for the handle ratchet, and one at the bottom for the winch ratchet. The handle is retained in the winch by a central spring plunger, but should be removed when not in use to avoid snagging sheets, etc. Care should be taken not to bend the plunger

To strip the winch, use a small screwdriver to remove the locking screw close to the plunger, then unscrew the centre section of the winch by using the winch handle as a screwdriver. Removing the top cover of the winch will expose the pair of plungers which work at the handle end of the winch. If the winch is horizontal, the plungers remain in situ if the barrel is not tilted while it is removed together with springs and plungers.

When reassembling the winch, it is most important to replace the plungers the correct way round; The spring, or inner, ends are completely flat and sharp edged, while the outer ends which bear on the tracks are very slightly rounded. Before replacing the centre section, check the position of the small locking screw hole and then screw section in tight. Next, unscrew it enough to line up the holes, fit the locking screw and then secure. Keep all parts cleaned and oiled to prevent plungers sticking due to salt, etc. Do not use thick grease.