

Dufour 12000 CT

SPECIFICATIONS

DESIGNER

DUFOUR

CONSTRUCTION

GPR hull with glassed in stringers Balsa sandwich deck
Fittings and bolts in stainless steel Teak deck is standard

DIMENSIONS

Length of Hull..... 13.8 m (45 ft)
LWL10.40 m (34 ft)
Beam 3,98 m (13 ft)
Draft approx. 2,10 m. (6 ft 10 in)
Bridge clearance approx.16,20 m (53 ft)
Displacement approx. 12 metrics ton.
Ballast approx. 4,7 metrics ton
Headroom 1,85 m (6 ft)
Sail area approx. 100 sq m (1056 sq ft)

Berths : 8 or 9

ENGINE

Standard: Diesel PERKINS 4236 83 HP at 2400 RPM

SAIL AREA

Mainsail with 2 reefs 24 sq m (253 sq ft)
Mizzen sail with 2 reefs ... 15 sq m (158 sq ft)
Heavy Genoa50 sq m (528 sq ft)
Working jib38 sq m (401 sq ft)
Storm jib10.5 sq m (110 sq ft)

Spinnaker 100 sq m (1056 sq ft)
Stay sail 25 sq m (264 sq ft)
Light Genoa 53 sq m (560 sq ft)

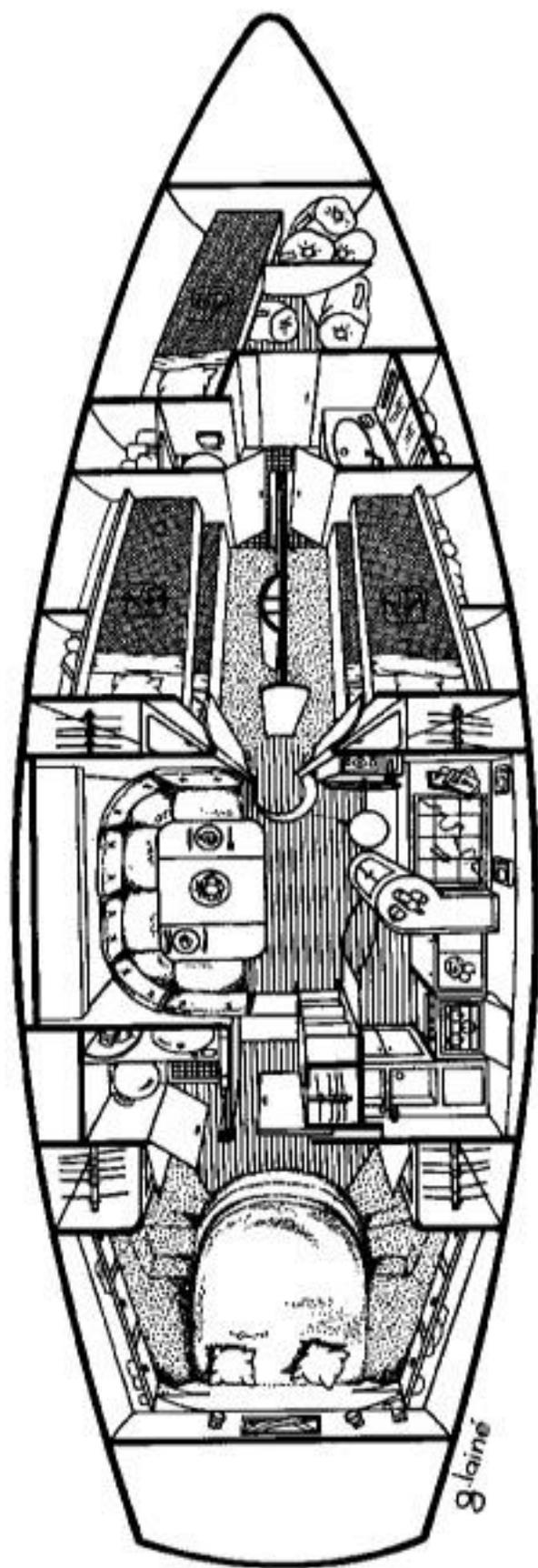
This boat has been approved by the French Merchant Navy Commission of Safety N° 1064 - 1 st category.

This boat can be approved by the Lloyd's Register of Shipping, on request.

NOTA : The drawing on the opposite page shows some optional accommodation (for example :berth in foc'sle).



Dufour 12000 CT



SPECIFICATIONS AND INVENTORY

DECK FITTINGS

- Stainless steel stem fitting with double chain roller to hold main anchor in stem head position
- Double life lines with stainless steel stanchions with two side-gates
- Electric windlass
- 1 opening tinted Goyot skylight 620 x 620 (24.4" x 24.4") for light, ventilation and access to foc'sle
- 1 opening tinted Goyot skylight 450 x 320 (17.7" x 12.6") for light, and ventilation of fore toilet compartment
- 2 opening tinted Goyot skylights 450 x 320 (17.7" x 12.6") for light and ventilation of the two central cabins
- Stainless steel rails at mast foot
- Jib sheet tracks with roller fairleads and turning blocks
- 2 three-speed Lewmar 55 winches (or similar) with cleats - Main sheet track with Lewmar 8 winch (or similar) on the roof
- Roof with tinted skylights around it, one opening sky- light on each side
- Wiper for inside steering station and opening Goyot skylight 620 x 620 (24.4" x 24.4") above helmsman for ventilation and survey of sea
- 2 teak cockpit benches with lockers underneath - Steering wheel in cockpit with compass - Helmsman's seat
- Aft Lazarette (2 m3) (7.5')
- Compartment to hold two gas bottles - Emergency tiller
- Opening stainless steel stern pushpit with fittings for 2 horse shoe life-buoys - Navigation lights

RIGGING

All rigging is grounded.

- Sound proof light alloy main and mizzen masts with internal halyards
- 1 two-speed jib halyard Lewmar 25 winch (or similar)
- 1 two-speed main halyard Lewmar 16 winch (or similar) - 1 mizzen halyard Lewmar 8 winch (or similar) - 6 winch handles
- Stainless steel standing rigging - Wire and terylene halyards
- Terylene boom topping lifts - Flag halyards
- Spinnaker boom track with slider - Terylene sheets
- Light alloy booms with quick reefing device and winch - Boom vang with clam-cleats - Light alloy spinnaker boom - Masthead light - Steaming light
- Deck floodlight

ACCOMMODATION

FOC'SLE : - Sail locker

- 1 berth (optional)
- Access from deck and from inside

FORE TOILET COMPARTMENT

- Access from both fore cabins and foc'sle
- Wash basin, shower, W.C., cabinet, lockers

TWO INDEPENDENT FORE CABINS Each cabin is equipped with :

- 1 upper and 1 lower berth (optional double berth) - 1 hanging locker (for the portside cabin)

SALOON

TO PORT:

- 1 U-shaped settee convertible to double berth
- In the center a dining table convertible in a low cocktail table
- 2 removable seats

TOSTARBOARD:

- Steering station with hydraulic steering wheel and helmsman's seat
- Chart table
- Bar and stowage locker

GALLEY: at lower level includes :

- Electric refrigerator (approximately 65 liters) (68 qt)- Freezer (approximately 65 liters) (68 qt) - Double sink
- 3 burner cooker with oven
- Fume extractor above galley
- Fresh water tank (approximately 900 liters) (237 gal) - Fresh water filter
- Hot water tank working either on the exchanger of the engine or on 200 volts or 1 10 shore power
- Lockers
- Hot and cold pressure water (approximately 900 liters) (237 gal) - 20 plates, 12 beakers, 10 knives, forks and spoons

AFTER CABIN:

- Light and ventilation are given by 4 lateral opening port-holes
- Central double bed (single-berths along the sides optional) or two cabins

- Hanging lockers

TOILET COMPARTMENT:

with direct access from the aft cabin

- W.C., wash basin, shower with hot and cold pressure water
- Many stowage lockers, cabinet
- Light and ventilation are given by a port-hole opening in the cockpit

ELECTRICS

- 2 groups of batteries with total capacity of 475 amps per hour/ 12 volts supplied by 2 separate 45 A alternators - 1 battery load indicator
- 1 electric fresh water pump
- 2 ventilators for engine compartment - Lights in all cabins
- 1 10 or 220 volts shore power with rectifier - 1 ventilator for batteries compartment

MECHANICS

- Sound proofed engine compartment with access from saloon floor
- 700 liters fuel tank (185 gal)
- Stainless steel propeller shaft and muffler
- Complete engine control panel including revolution counter, load, oil pressure and water temperature indicators
- Double engine control circuit - Sea-water filter
- 1 engine operated bilge pump

MOORING AND SAFETY EQUIPMENT - Hand operated fixed bilge pump

- 1 CQR 45 lbs anchor with 40 m anchor chain (O 10mm) - 2 twenty meters mooring lines (O 20 mm) - 2 horse-shoe life-buoys - 6 fenders

The builder reserves the right to change these specifications which will in no case be considered as a contract.

LAUNCHING

HANDLING

A lifting gear with a minimum capacity of 1.5 metric tons (16.5 tons) must be used.

It is essential that the spreaders be used to ensure a minimum transversal gap of 4 meters between the ends of each sling, otherwise the rubbing strake and upper part of the hull may be seriously damaged. Before lifting, check that the slings do not pass over through (hulls sea-cocks, inlet valves, propeller shaft) nor external parts of the log or depth finder. (See dimensions diagram at the end of this manual, page 17) Refer to Fig. 1 for positioning of the slings.

ARRANGEMENT OF RIGGING

The masts are already equipped with their running rigging. The rest of the rigging and life-lines are in numbered bags. For the installation of the standing rigging, please refer to notice Nr I annexed to this manual.

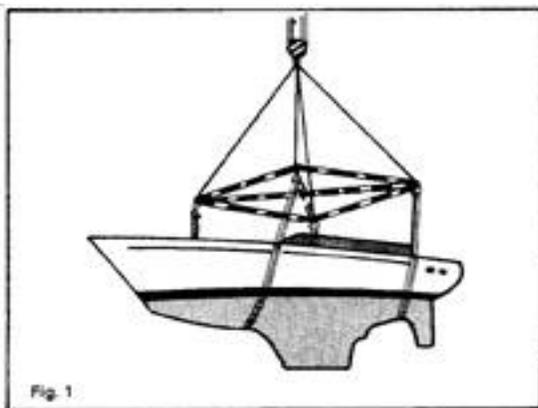


Fig. 1

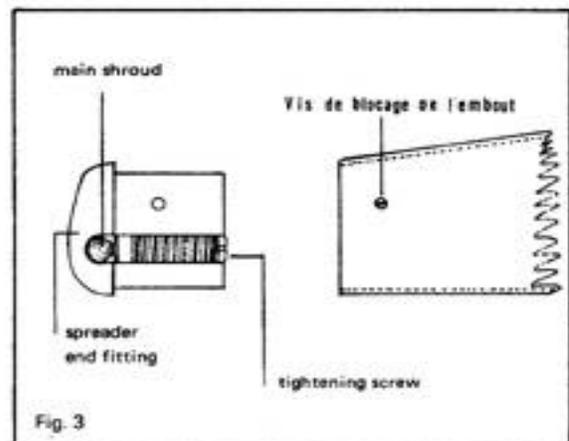


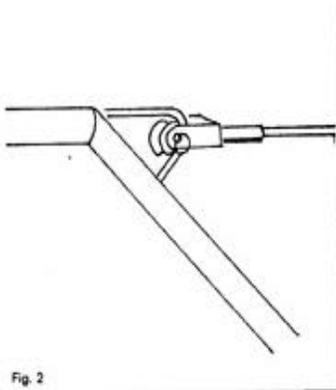
Fig. 3

STANCHIONS AND LIFE-LINES

Each stanchion must be screwed to its base.

Fig. 2. The end of the life- lines with an insulated sheave is fitted to the pulpit.

After tightening, the stanchions and life-lines must be maintained with pins which we advise to keep in place with scotch tape.



STEPPING THE MAST

- 1 . Place the masts face down on wooden supports.
2. Put the spreaders in position. Underneath the spreaders are eyes for the flag halyards.
3. Put each of the main shrouds through the end fittings of the spreaders. (Fig. 3)
- 4 Install the wind tell tale at the mast head.
Clear the halyards and shrouds along the mast and tie them to its foot.
- 5 Take hold of the main mast under the spreaders rigging. Lift and bring the mast to its tabernacle with the crane
- 6 Put the 4 lower shrouds and forestay into position. This arrangement will temporarily hold the masts in position while the crane is freed in order to avoid accidents.
- 7 Fix the forestay to the bow by the two metal battens. Use the 2nd hole for initial installation.
- 8 Fix and tighten the backstay. Follow the same procedure to fit the mizzen mast which is temporarily kept in place with the 4 lower shrouds
- 9 Tighten the lower shrouds to hold the mizzen mast parallel to the main mast.
- 10 Tighten slightly the main shrouds to hold the mast backwards by means -of the spreaders, Their tension will be balanced by the jumper strut placed forward of the mast. The backstay will hold the masthead when running.
11. Check the lateral position and backwards curve by placing the eye at the gooseneck level and looking up along the mast groove. Adjust if necessary. The final mast adjustment must be tested in force 3. As the cables of the standing rigging are of equal length, on each side, to obtain a vertical position of the mast it is necessary to check the number of threads

showing on each corresponding screw after each adjustment.

12. Fix the adjuster with the needles. Once the rigging is adjusted the needles should be covered with adhesive tape to protect the sheets.

After stepping the mast and filling of the tanks, and according to the equipment of the boat, there may be a slight heel which can be corrected by more careful storage of the equipment and filling of the tanks. This heel should not exceed 11 (ie : 34 mm per 2 meters), in that case it does not affect the performance or sea- worthiness of the D. 12000 CT.

BEACHING

Accidental grounding should be avoided.

The use of legs is not possible. However it is possible to ground the boat in certain conditions in order to scrub the bottom or renew the anti-fouling paint, for example.

The ground must be hard, flat and horizontal. It is essential that the side of the boat rests against the dock-side or against another boat of the same size which is leaning against the dock.

In any case, a line is placed round the mast and hoisted to the level of the spreaders with the spinnaker boom topping lift. This line is then tightened and tied to a bollard or ring on the quay. In these conditions, the crew may move around on board, however, movement should be restricted.

LOCATION OF THE VALVES ON THROUGH-HULLS

1. Foc'sle
 - Under the floor
 - wash-basin outlet
 - marine toilet outlet
2. Fore toilet compartment
3. Under the w.c,
 - water intake for the marine toilet
3. Galley
 - Under the companionway steps - water intake for the engine cooling system
 - Under the sink - sink outlet
4. Aft toilet compartment
 - Under the lower shelf of the washbasin unit w.c. outlet
 - w.c. water intake wash basin outlet

Two extra seats are stored away under the bunks. Their foot fits in a bracket as shown in A, (Fig. 5).

Fig. 4

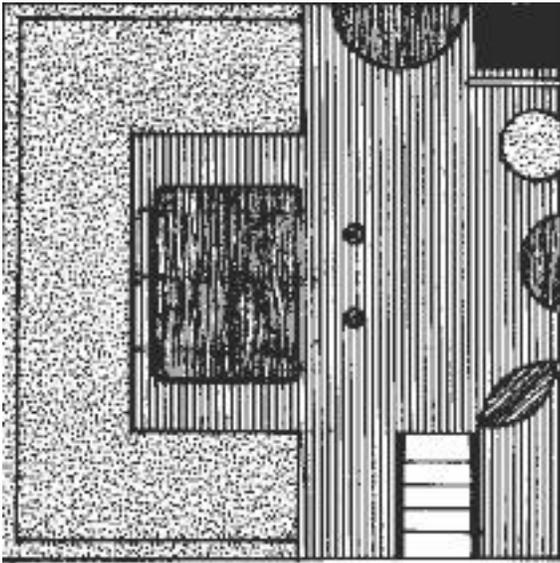
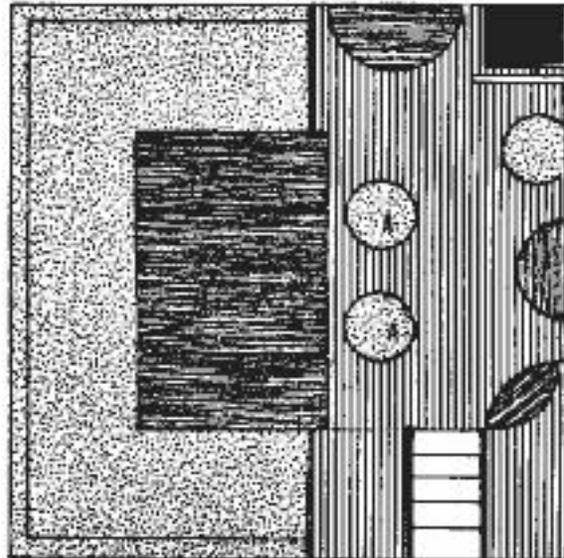


Fig 5



Galley

a) Refrigeration

b) The refrigerator operates on 12 V. It is placed under the chart table. Do not obstruct its vents.

In the bottom part of the bar is a door which opens in the working unit in the galley and gives access to the (< freezer)) (- 20 centigrade - 65 liters capacity).

The two panels placed underneath in the working area shut the refrigeration compartment (capacity 165 liters).

b) Gas cooker and oven The gas supply can be stopped by a tap placed in a locker under the oven-cooker. The cooker is on gimbals. It can be

INSIDE ACCOMMODATION

Foc'sle

The opening panel can be locked from the inside.

2. Saloon

The dining table can be placed different ways :
 - low table : fold the two leaves into the table top (Fig. 4) and place the legs in low position.
 dining table : turn the table by 90° and fit the legs in, high position, unfold the side panels which are maintained by pull-out brackets (Fig. 5).

3. - To convert the settee into a double berth : place the mattress on the table in low position.

held in stationary position by rough sea by means of a lock bolt placed on its support.

The burners are equipped with a safety appliance. Keep the control buttons pressed in a while after lighting the burners.

Above the cooker is a fume extractor which can be either pulled out or pushed in flush with the lockers. The fumes are extracted with a 2-speed ventilator. Its switch is close to the funnel. The ventilator can turn both ways and therefore serves also to diffuse the air from outdoors.

c) Broad-Box

In the locker under the companionway steps.

d) Dust-bin

A dust bag can be fixed inside the door of the locker placed under the saloon floor, facing the cooker (giving access to the transformer).

SAFETY

FIRE EXTINGUISHERS

There are two fire extinguishers. One is fixed on the right side of the desk in the steering station, the other on under the steps leading to the galley.

CHAIN LOCKER

The end of the mooring line will be shackled to its eye at the bottom of the well. A trap in the fore'sle gives access to the well.

BILGE PUMPS I Hand pump Unscrew the plate aft portside of the deck. Insert the lever which is stored inside the port locker against the aft cabin bulkhead.

2) Mechanical pump It is connected to the engine and works automatically once the engine is on. The bilge will never be completely emptied for the water remaining in the pump and piping

(approximately 3 liters) will flow back progressively.

WATER SYSTEM (plan N 45.003)

TANKS

The water is kept in 4 tanks which supply a collector. Use the plate to starboard on the deck to fill the whole system. The total capacity is approximately 900 liters (237 gal).

Each water tank can be disconnected by means of a valve placed in the engine compartment. A gauge on the portside tank gives the overall level when all the tanks are connected together.

DRINKING WATER FILTER The purpose of the charcoal filter is to suppress unpleasant smell and taste of the water. It is in the engine compartment close to the water heater. The refill must be changed every year. To replace shut off the water valve between the filter and collector. Our After Sales Service can supply these filters.

HEATER

At sea the water is heated on the engine cooling system, at land on the 220 V. Push in the button ((heater)) on the 220 V panel.

PRESSURE WATER

The hot and cold water system is put under pressure with a pump placed by the heater. Press the (< tap >> button on the 12 V panel. The pump starts off and stops automatically according to the pressure. A safety device will stop the pump if it runs-dry.

To start off the pump again, push in the ((tap)> button, and keep the switch on the steering pulpit pushed in until water comes out of the tap.

Should the pressure system break down, a foot pump placed under the sink will supply cold water to the sink. Beforehand, cut off the pressure water system with the valve placed at the end of the water filter,

SHOWERS

The sewage water is collected in a sump tank under the engine. Its capacity is about 90 liters (23 gal), and must be emptied frequently. Push in the << Pump)> button on the 12 V electric panel.

Gas The two 3 kgs (6.6 lbs) gas bottles are stored in the locker under the starboard bench. The gas supply can be cut off, either by shutting the tap on the bottle or by turning the tap in the locker under the cooker.

MARINE TOILET

Instructions for use :

- 1 Open completely the intake and outlet valves,
2. Turn the lever to (< flush >> and manipulate the pump to rinse the bowl.
3. To empty, turn the lever to << pump dry >> and manipulate the pump,
4. When not in use, leave the lever on (< pump dry)).
5. When not on board and in rough sea, close the sea-cocks.

WINTERING OF THE WATER SYSTEM

Drain the water tanks and the W.C. by removing the drain stoppers underneath, and operating the pump. The toilet should be thoroughly rinsed with fresh water, so that there are no traces of salt. This will ensure proper functioning the following season. Do not use anti-freeze, acids or corrosive products. Leave the ventilators open. If the boat is out of water, open all the cocks and drain the pumps and piping.

ELECTRICAL SYSTEM

GROUNDING THE RIGGING

The entire rigging of the main and mizzen masts is grounded by a metal strap connecting the forestay chain plate to the keel. Under normal conditions, this circuit is cut by a lightning conductor fixed on the strap situated near the water system. The circuit is reestablished only if there is an electric discharge of high intensity. This allows the use of the rigging as antenna.

BATTERIES

The batteries are all identical and their capacity is 12 volts, 90 Amps per hour. They are placed

under the saloon floor at the foot of the companionway. Remove the steps in the aft cabin for access.

1. One battery serves exclusively to start the engine. It is charged with its alternator.
2. The other four batteries are for all the commodities on board. They are charged either by their alternator or by the transformer which will work when the electric system is connected to the 220 shore power, or by the two alternators. (See paragraph below).

The batteries are cooled by means of an independent ventilator which starts off automatically when the batteries are under charge.

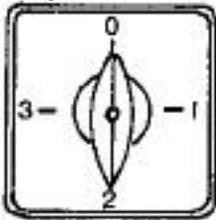


Fig. 6

MAIN SWITCH

It is in the galley facing the cooker under the saloon floor.

Position 0 -The two sets of batteries are off.

Position 1 -Connection of the batteries which control the commodities.

Position 2 -Connection of the general and engine batteries.

Position 3 -To be used in case of emergency, either to start off the engine with the general batteries or to charge these batteries with the two coupled alternators.

Changing the position is to be made with the engine stopped or running at idling.

ELECTRIC CONTROL PANELS

All switches for the various circuits are protected by circuit breakers.

The 12 V panel is placed to port of the passage way to the aft cabin. The lighting is distributed by 2 circuits.

Circuit no 1

- aft cabin ceiling light
- fluorescent tube at the foot of the bed
- fluorescent light in galley
- fume extractor
- chart table light
- saloon center ceiling light
- starboard cabin light
- fore toilet compartment
- starboard ceiling light in foc'sle

Circuit no 2

- fluorescent lights at the head of the aft cabin
- bed fluorescent tube in galley
- aft toilet compartment ceiling light
- in the dining corner
- portside cabin light
- fluorescent light in both cabins
- port ceiling light in the foc'sle

You will find the 12,V circuit diagram at the end of this booklet.

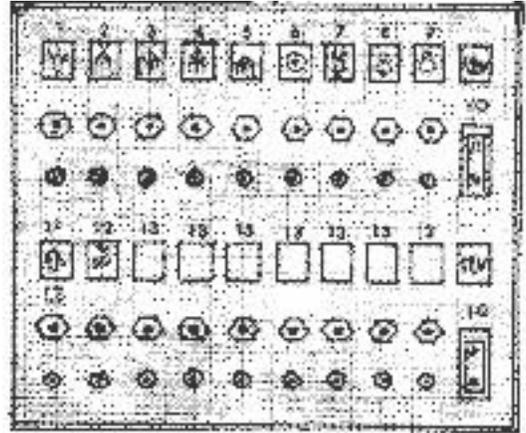


Fig. 7

12 V switchboard

- 1 . running lights and stern light
2. masthead light
3. 3. steaming light
4. main mast flood light
5. mizzen mast flood light
6. compass
7. electric f ridge
7. cabin lights nr 1
8. 9. cabin lights nr 2
9. 10. 12 V plug
10. shower water pump
11. 12. pressure water
13. switch available for other options

The 220 V (or 110 V on option) is located in the galley above the deep-freezer door.

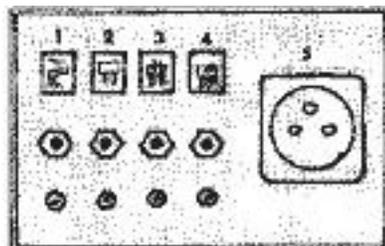


Fig. 8

220 (or 110) switch-board

- 1 - water heater
- 2 - galley plug and battery-loader
- 3 - fore toilet plug
- 4 - switch-board and aft toilet plugs

220 V system (plan nr 45.002)

The connecting plug is located behind the helmsman seat on deck. A connecting cable is supplied. The shore plug is to be installed by the customer depending on the type of plug used at his dock-space.

The shore power automatically connects the 220 V (or 110 V) circuits by the means of the differential circuit breaker which is located by the 220 V (or 110 V) switchboard. This latter is connected to the electrical plugs located at the main switch-board, in the fore and aft toilets and in the galley.

To use the battery loader, located by the main stems on the galley side :

- put the master switch in position 1
- check that the circuit-breaker (located by the battery loader) is on.
- dial the position ((automatic))
- on the 220 switch-board, switch on the circuit breaker nr 2 (galley plug and battery loader).

CONSUMPTION

Here below is an energy chart which will allow you to arrange consumption according to your needs. To obtain an idea of consumption of amps per hour add up the amperage of the various sources of consumption.

	<u>amps</u>
navigation lights	2.0
masthead light	0.3
deck light (option)	2.4
steaming light	0.3
fluorescent tube	0.7
ceiling light	0.7
reading light	0.4
wind tell-tale	0.3
depth finder	0.3
log	0.3
compass light	0.1
electric pump	9-11
refrigeration unit	6-8
hot air heater	9-15
VHF/FM radio	0.15-3
single side band long distance radio (when transmitting)	40
self steering gear	4-13

FUEL SYSTEM

(see plan at the end of booklet)

TANKS

There are three tanks and one feeder. They are in stainless steel and have a capacity of 700 liters (about 175 US Gallons).

The filling plate is located on the portside deck. There is a special funnel supplied with the boat which can be screwed to the filling plate. Each tank and the feeder can be isolated with a valve accessible from the saloon. To do so, remove the dinette cushions.

There are two fuel gauges. The first one indicates the level of the aft port side tank (or the general level if all valves are open).

The second one indicates the level in the feeder.

DECANTING FILTER

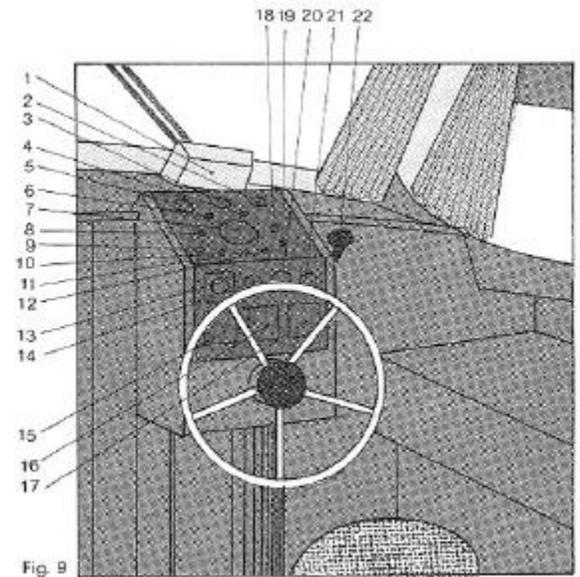
Between the tank and engine filter there is the pre-filter, which must be periodically cleaned. Dismount the filter and clean with fuel. This filter must also be changed approximately once a year.

PRECAUTIONS FOR RE-FUELLING

Since the smell of fuel is very unpleasant refilling must be effected without any spillage. Since fire is the greatest enemy on board, it is important to follow closely this procedure :

- switch off the battery, ensure that there is no flame on board and do not smoke
- close the hatches
- have all the crew disembark - clear the fire extinguisher
- fill to 95 % capacity - avoid spillage
- after filling and replacing the filler cap ensure that there is no fuel in the bilges
- open the hatches and operate the ventilator
- leave the fuel station jetty immediately. It is not the best place to leave your boat.

INSIDE STEERING STATION



Inside steering station (Perkins engine)

- 1 . wiper box
2. water temperature
3. engine oil pressure
4. Nr 2 engine blower light
5. gear box oil pressure (if hydraulic gear box)
6. Nr 1 engine blower light
7. RPM meter
8. pressure pump priming
9. instruments light
10. battery test switch (group 1 and 2)
11. wiper switch
12. wiper switch

13. water gauge
14. fuel gauge (tanks)
15. engine battery load indicator
16. cabin lights batteries load indicator
17. battery load indicator
18. stop
19. contact
20. fuel gauge (feeder)
21. engine control lever

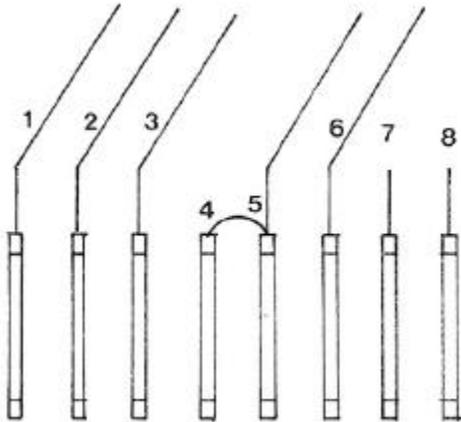


Fig. 10

By lifting the upper part of the instrument panel you can reach the fuse panel which is organized as follows :

1. brown - fuel feeder gauge
2. brown - water gauge
3. brown -fuel tanks gauge
4. red - engine blower
5. red - engine blower 2 5.
6. red - wiper 7.
7. available
8. available

ENGINE

The engine installed in your boat has already been run in for about 1 hr 30 mins. during testing pool trials.

It is advisable to use the engine at half-power only during the 1 st 25 hrs to complete running in, and gradually increase power thereafter.

You will find detailed instructions regarding the engine in the manufacturer's handbook. We would, however, also like to point out the following :

FIRST START

- read the instruction leaflet for your engine carefully
- check the levels of - battery water - fuel
- reducer oil
- engine oil : since the engine is installed in a slightly sloping position, please note that the sump is full to maximum when the oil gauge

indicates a position between maximum and minimum. Do not fill until the gauge shows absolute maximum.

- check that the decanting filter is clean
- check that the engine water and silencer drains are closed (see manufacturer's instructions)
- check the rotation of the shaft (manually)
- check the circlips of the water, exhaust, and fuel piping.

CONTROL, ACCELERATION, CLUTCH

One single lever for acceleration . and clutch, Fig. I 1.

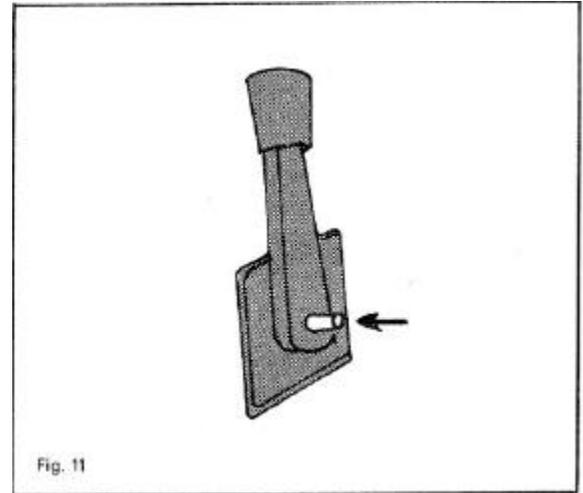


Fig. 11

To accelerate without clutch, push in the central button and turn the lever to forward or backward position.

The switch-over control is coupled automatically when the lever goes back to neutral position.

COLD START

- Open the water intake valve of the cooling system situated at the bottom of the starboard side of the companionway by turning the lever in a direction longitudinal to the boat.

- Turn the battery switch to position 2 (the red light on the engine control panel goes on. Listen for the ventilator).

- Ensure that the gear lever is in neutral by bringing it from a vertical position 20' backwards pressing on the button at the same time (fig. 11).

- Follow the instructions of the Perkins handbook.

RUNNING CHECKS

- the battery charge and oil pressure lights must go off, and bilge ventilator lights on.
- check exhaust to make sure water starts being let out within a reasonable amount of time.

- to put the engine in gear when the engine has warmed up, bring lever back to neutral.

ENGINE STOP

- put the gear lever in neutral
- pull on the stop control situated to port of the companionway steps until the engine stops
turn off the ignition key and battery switch.
Never turn off the ignition key before the engine has stopped (this causes deterioration of the alternator).

On the other hand, do not leave the ignition turned on when the engine has stopped.
if the engine is not being used over a long period, turn off both fuel supply and water intake valve.

LUBRICATION

- Engine - Refer to the maintenance drawing in the Perkins instruction book.
- Stern tube The stuffing is lined with graphite material requiring no greasing, just periodical tightening.
- Control Levers

The following procedures must be effected each month :

- lubricate the articulation of the fuel and change-over control levers with silicone grease
- lightly lubricate the control cables.

PRECAUTIONS AGAINST FREEZING

- Engine :

- refer to instructions in the Perkins handbook - ensure that no part of the pipe is below the level of the valve outlet. If necessary disconnect the pipe fitted to the water intake valve and turn the engine for 15 sec. to empty.

- Exhaust :

- open the drain plug (screw underneath the lower part).

PROTECTION AGAINST ELECTROLYTIC ACTION

The propeller is protected against electrolytic action by a zinc collar fitted onto the front. This must be checked every time the boat is taken out of the water, and must be changed once or twice each year.

BATTERY CHARGE INDICATOR

This indicator shows the state of your battery when the engine is not running.

- turn the battery switch to position 2 - leave the ignition key switched off.
- press the corresponding button on the panel to check the batteries.

HYDRAULIC STEERING LEVER

This lever is located on the side of the outside helmsman seat.

It has 3 positions :

B- Emergency tiller

R-Reversible action (only the outside wheel can be used)

I- Irreversible - both wheels can be used.

SAILS

GENOA

The standard genoa is a medium genoa.

This sail gives best performance in an apparent wind of between 6 and 17 knots.

In a light wind the sail should be slightly slackened and the sheeting point brought forward along the rail.

In moderate to strong winds the halyard must be very taught and the sheeting point brought back. This way, the curve in the genoa is moved further forward and this facilitates the air flow.

MAINSAIL

Setting : it is necessary to equalize the tension between the luff and the foot to avoid wrinkles in the sail.

Foot Outhaul : to tighten the sail on the boom use the winch fitted under the boom and the line next to the gooseneck. A clam-bleat serves to jam the outhaul in place.

Taking in a reef when under sail

1. To put the quick-reefing line in place, tie it on the s/s eye on the side of the boom near the sheeting point, then put it through the grommet on the sail, then bring it down through the block situated on the other side of the boom then along the boom to the clam-bleat behind the winch.
2. Secure the topping lift, and payout the boom vang and main sheet.
3. Bring the mainsail down the mast approx. 1.50 m so that the grommet on the luff may be fixed on to the hook on the gooseneck. Tighten the mainsail luff.
4. Pull on the quick-reefing line, make sure it is as taught as possible, using the winch, and jamming it in the cleat.
5. Sheet in the mainsail and pull in the boom vang.
6. Tie the reefing pennants round the boom.

SPINNAKER

1. Folding : In order to ensure proper execution of the spinnaker set, it is essential that both luffs

of the spinnaker be traced so that there are no twists or hour-glasses in the sail...

2. Rigging the Spinnaker Pole

Put the spinnaker bag in the pulpit and attach the bag to the pulpit with a tie.

Put the spinnaker pole in position with one end in the bell-fitting on the mast and the other resting on the pulpit to windward.

Attach the foreguy and topping lift.

Put the windward sheet into position passing it through the eye in the spinnaker pole. (Fig. 12). Raise the spinnaker boom to a horizontal position. Fasten the sheets to the spinnaker. Clip the halyard to the head of the sail.

The, spinnaker sheets must pass inside the life lines to avoid excessive strain on the stanchions.



Fig. 12.

3. Hoisting:

A crew member will go to the pulpit and help the spinnaker out of its bag gradually, following the windward luff.

The spinnaker must not be pulling before the halyard has been turned on a cleat,

To cause the spinnaker to pull, pay in the leeward sheet if reaching, and pull in the windward sheet if running.

4. Lowering

To facilitate this maneuver, it is recommended either to run or broad reach. Pay the windward sheet right out. The sheet will run through the eye in the spinnaker pole and the spinnaker will hang behind the mainsail. One of the crew will easily be able to bring in the spinnaker, catching hold of it under the boom, behind the mainsail and spilling out the wind.

Never carry out this maneuver before the mast. Do not luff up before the sail has been brought right down.

Unshackle the halyard and sheets.

Shackle the sheets and halyard together and pull the three shackles back to the end of the spinnaker pole by pulling on the windward sheet.

Pay out the spinnaker pole topping lift, bring the pole on deck.

This maneuver may be completed after the genoa has been hoisted.

Pages 12 and 13 referring to Sail adjustments and combinations - Not included in this manual

DUFOUR

DUFOUR 12000 CT

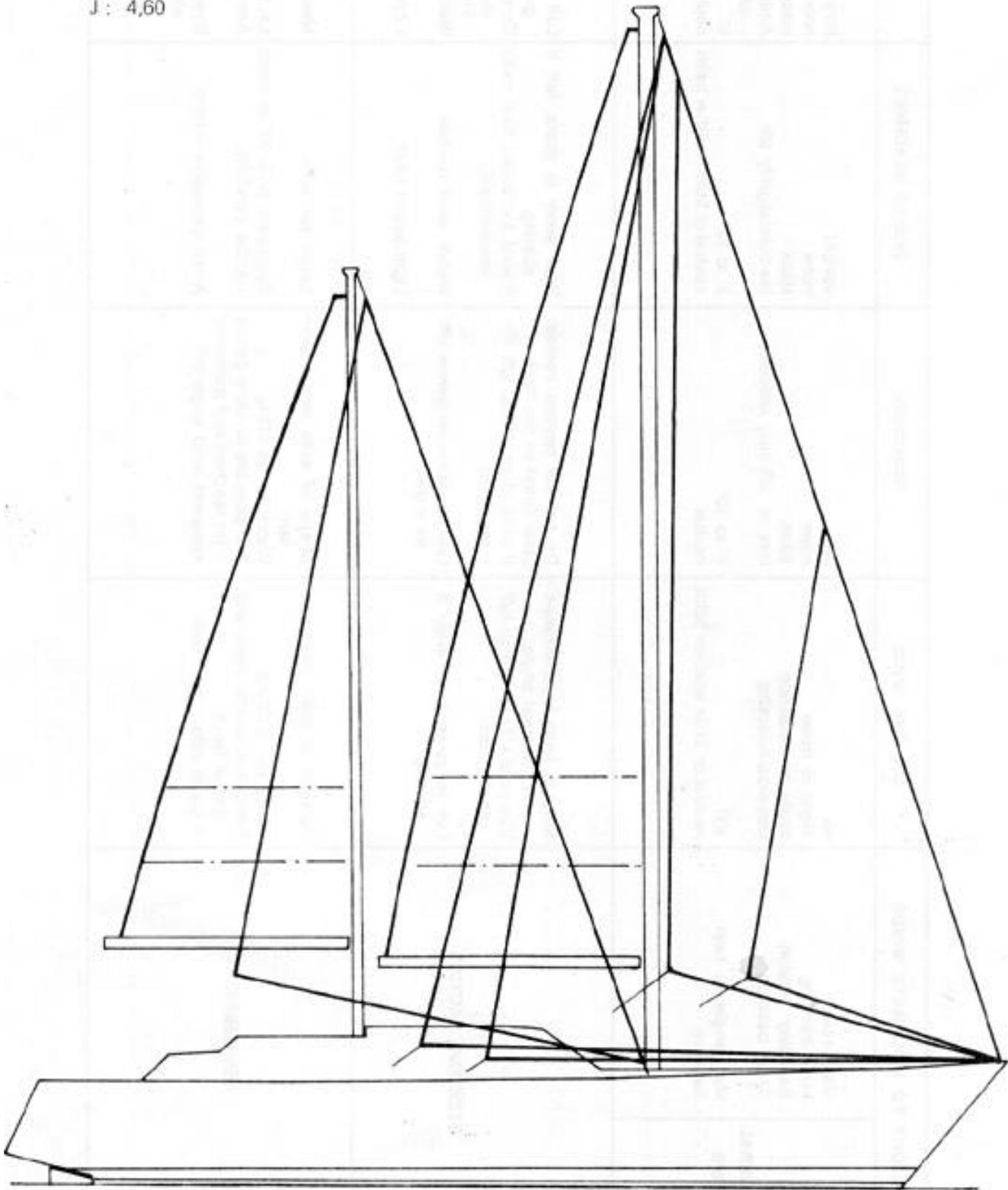
SAIL PLAN

Scale 1/70 - 1 OCT 1977

Theoretical measurements

I : 14,28

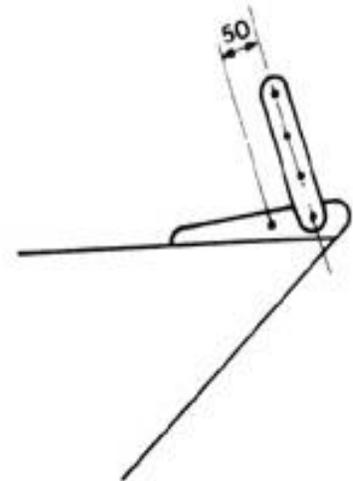
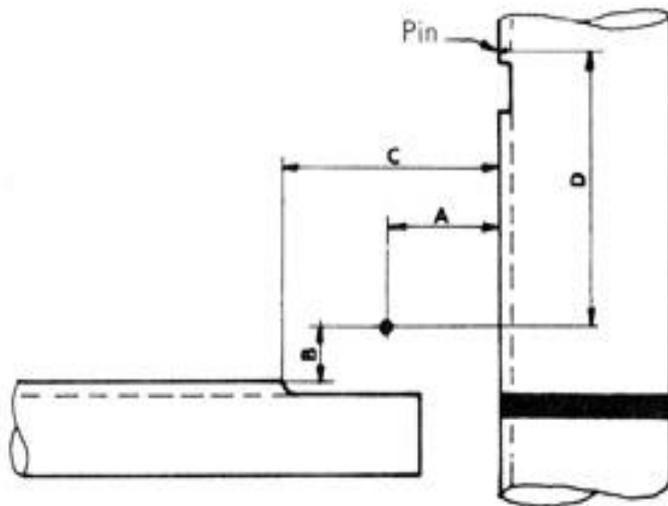
J : 4,60



NAME	LUFF	FOOT	LEECH	AREA	MATERIAL
MAINSAIL	12.40	3.50	12.90	25	
MEDIUM GENOA	14.40	7.00 env.	13.90	50	LPG 6.60 144%
WORKING JIB	13.80	4.60	11.90	38	
STORM JIB	7.50	3.60	6.10	10.5	
LIGHT GENOA	14.40	7.90 env.	13.90	53.3	LPG 7.40 160%
STAYSAIL	10.40	5.60	9.10	25	
SWEDISH MAINSAIL	10.00	3.20	10.40	16	
MIZZEN SAIL	8.60	3.20	9.10	15	
SPINNAKER	14.25	8.28		107	

NOTES

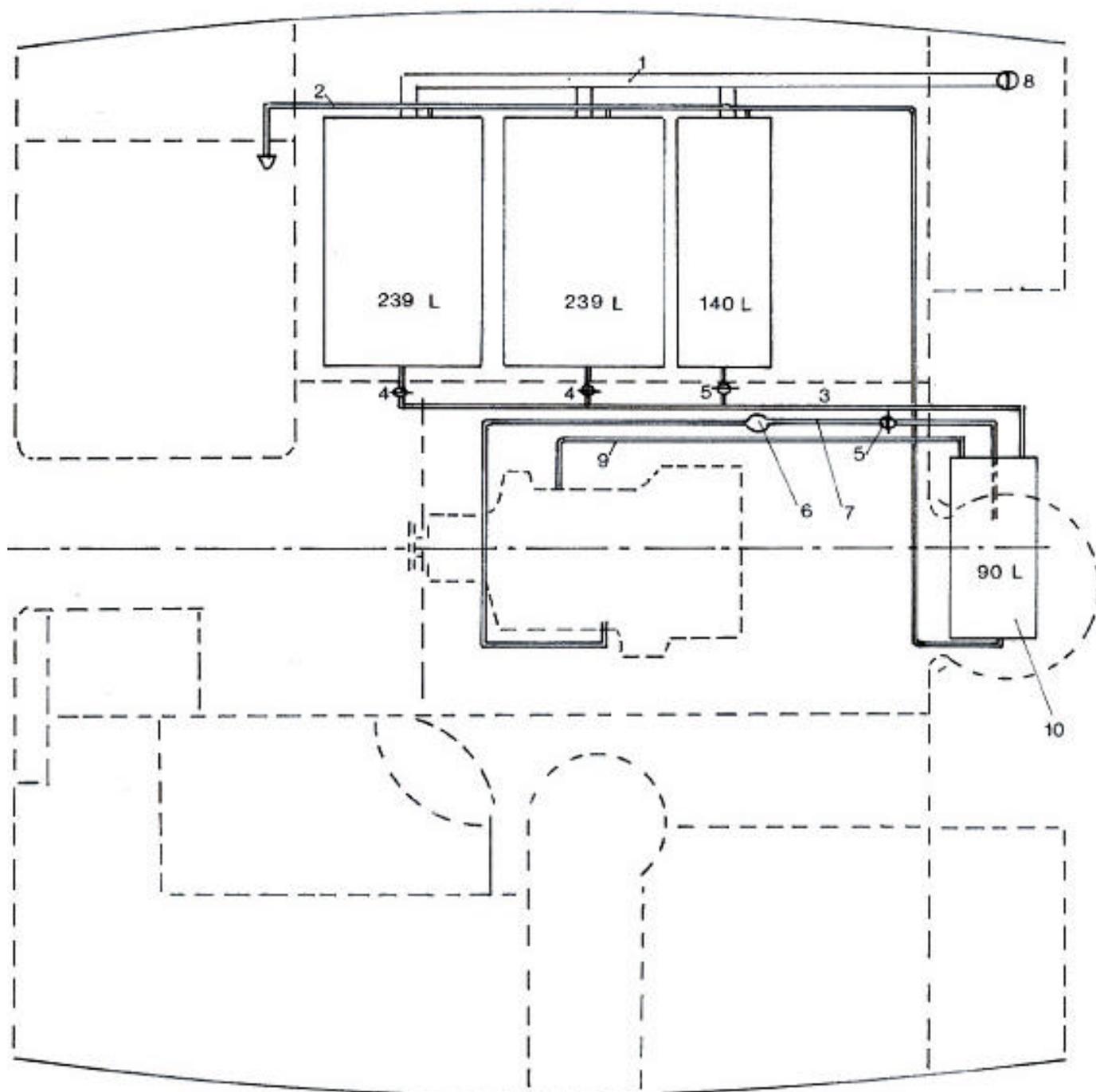
- 1 - The booms are horizontal (approximate rake of masts : 1)
- 2 - The figures given for luff and foot are the largest which can be obtained with well tightened sails.
- 3 - The mainsail will have two reefing lines 1.20 meters apart. The mizzen sail will have two reefing lines 1 meter apart. The slope of the reefing lines is left to the choice of the sail maker.
- 4 - The genoa is set outside the main shrouds.
- 5 - The working and storm jibs have headboards which bring the dimensions of their luff to 14.40 m.
- 6 - All the jibs will have a 200 mm strap at tack.



	A	B	C	D
Main mast	42	39	400	200
Mizzen mast	42	39	400	180

DUFOUR 12000 CT

FUEL CIRCUIT



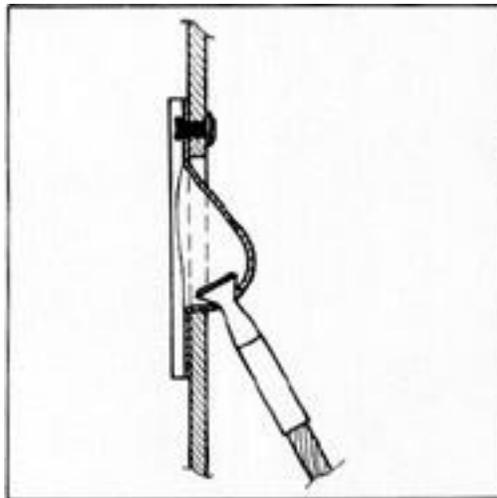
- 1 Filling piping
- 2 Vent hole
- 3 Feeder piping
- 4 Valves (dinette aft locker connection)
- 5 Valves (dinette fore locker connection)

- 6 Prefilter
- 7 Engine filler piping
- 8 Filling plate on deck
- 9 Return pipe
- 10 Feeder

Operating process to equip a mast with its standing rigging

Before stepping the mast, it is necessary to install the standing rigging which is shipped separately to avoid chafing the anodization.

- 1- Lay the mast down on two or more trestles and unwrap it.
- 2- Jib and main halyards : their shackles are just popping out of the masthead sheaves. Pull them down to the mast foot.
- 3- Masthead light (optional) : has been disconnected after testing at our plant. Re-connect the black wire to the bigger screw (ground and the blue cable to the smaller one (+)).
- 4- Install the wind tell tale (optional) in its bracket, on the right side of masthead.
- 5- Standing rigging :
 - a) Forestay : fasten to the masthead stainless steel tang on the fore side of the mast (spinnaker boom track)
 - b) Backstay : fasten to the stainless steel masthead tang on the opposite side (main- sail groove)
 - c) Main shrouds
 - insert the stainless steel shell at the end of the main shroud into the hole on the side of the mast at the top.
 - check that it rests on the inner side of the tube by pulling the shroud.
 - insert an aluminum rivet (O 5 mm, length 12 mm) in the upper hole of the shell and squeeze it, while still pulling the shroud towards the foot of the mast.
 - both main shrouds will be fastened this way.
 - d) Lower shrouds (aft) : to be fastened in the same way as above, in the holes closest to the spreaders, either side of mast.
 - e) Lower shrouds (fore) : to be fastened as above in the holes placed on each side of spinnaker boom lift bracket.



SPECIFICATIONS AND INVENTORY

DECK FITTINGS

- Stainless steel stem fitting with double chain roller to hold main anchor in stem head position
- Double life lines with stainless steel stanchions with two side-gates
- Electric windlass
- 1 opening tinted Goyot skylight 620 x 620 for light, ventilation and access to foc'sle
- 1 opening tinted Goyot skylight 450 x 320 for light, and ventilation of fore toilet compartment
- 2 opening tinted Goyot skylights 450 x 320 for light and ventilation of the two central cabins
- Stainless steel rails at mast foot
- Jib sheet tracks with roller fairleads and turning blocks
- 2 three-speed Lewmar 55 winches (or similar) with cleats - Main sheet track with Lewmar 8 winch (or similar) on the roof
- Roof with tinted skylights around it, one opening sky-light on each side
- Wiper for inside steering station and opening Goyot skylight 620 x 620 above helmsman for ventilation and survey of sails
- 2 teak cockpit benches with lockers underneath - Steering wheel in cockpit with compass - Helmsman's seat
- Aft Lazarette (2 m3)
- Compartment to hold two gas bottles - Emergency tiller
- Opening stainless steel stern Pushpit with fittings for 2 horse shoe life-buoys - Navigation lights

RIGGING

All rigging is grounded.

Sound proof light alloy main and mizzen masts with internal halyards

- 1 two-speed jib halyard Lewmar 25 winch (or similar)
- 1 two-speed main halyard Lewmar 16 winch (or similar) - 1 mizzen halyard Lewmar 8 winch (or similar) - 6 winch handles
- Stainless steel standing rigging - Wire and terilene halyards
- Terylene boom topping lifts - Flag halyards
- Spinnaker boom track with slider - Terilene sheets
- Light alloy booms with quick reefing device and winch - Boom vang with clam-cleats - Light alloy spinnaker boom - Masthead light - Steaming light
- Deck flood-light

ACCOMMODATION

FOC'SLE : Sail locker

1 berth (optional)

Access from deck and from inside

FORE TOILET COMPARTMENT Access from both fore cabins and foc'sle Wash basin, shower, W.C., cabinet, lockers

TWO INDEPENDENT FORE CABINS

Each cabin is equipped with:

- 1 upper and 1 lower berth (optional double berth) - 1 hanging locker (for the portside cabin)

SALOON

TO PORT:

- 1 U-shaped settee convertible to double berth
- In the center a dining table convertible in a low cocktail table
- 2 removable seats

TO STARBOARD:

- Steering station with hydraulic steering wheel and helmsman's seat
- Chart table
- Bar and stowage locker

GALLEY: at lower level includes:

- Electric refrigerator (approximately 65 liters) - Freezer (approximately 65 liters) - Double sink
- 3 burner cooker with oven
- Fume extractor above galley
- Fresh water tank (approximately 900 liters) - Fresh water filter
- Hot water tank working either on the exchanger of the engine or on 200 volts or 110 shore power
- Lockers
- Hot and cold pressure water (approximately 900 liters) - 20 plates, 12 beakers, 10 knives, forks and spoons

AFTER CABIN:

- Light and ventilation are given by 4 lateral opening port-holes
- Central double bed (single-berths along the sides optional) or two cabins
- Hanging lockers

TOILET COMPARTMENT:

with direct access from the aft cabin

- W.C., wash basin, shower with hot and cold pressure water
- Many stowage lockers, cabinet
- Light and ventilation are given by a port-hole opening in the cockpit

ELECTRICS

- 2 groups of batteries with total capacity of 475 amps per hour / 12 volts supplied by 2 separate 45 A alternators - 1 battery load indicator
- 1 electric fresh water pump
- 2 ventilators for engine compartment - lights in all cabins - 110 or 220 volts shore power with rectifier - 1 ventilator for batteries compartment

MECHANICS

- Sound proofed engine compartment with access from saloon floor
- 700 liters fuel tank
- Stainless steel propeller shaft and muffler
- Complete engine control panel including revolution counter, load, oil pressure and water temperature indicators
- Double engine control circuit - Sea-water filter
- 1 engine operated bilge pump

MOORING AND SAFETY EQUIPMENT –

- Hand operated fixed bilge pump
- 1 COR 45 lbs anchor with 40 m anchor chain (Ø 10 mm) - 20 meters mooring lines (Ø 20 mm) - 2 horse-shoe life-buoys - 6 fenders

The builder reserves the right to change these specifications which will in no case be considered as a contract – DUFOUR 1200 CT