DIRECTIONS FOR USE OF THE MARAMU

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You have just taken delivery of your Maramu. We are convinced that you are going to take nice trips aboard her.

Although she is a simple boat, we would like, in the following pages, to make the features of the Maramu known to you, so that you make the fullest possible use of them.

We have attempted to make this material as succinct as possible, leaving to the particular leaflets of the various equipment (particularly engine, heating, autopilot) a more detailed discussion of those devices.

ENGINE AND RELATED

Apart from moving the boat, you run the engine for three other reasons. The Maramu is laid out so that these three needs can be satisfied at the same time, considering the "store" side of the installations.

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The engine produces :

1. Hot water in an isolated tank,
2. Electricity with its two alternators in two sets of storage batteries,
3. cold in the eutectic plate (cold accumulator).

During a typical trip under sail over several days' duration, it is preferable to run the engine for three periods daily : one in the morning, one at midday, and one in the evening, rather than for one longer period only. This need varies according to the level of consumption of hot water, level of usage of electrical equipment, and opening of the refrigerator. With high usage, it is possible that the engine will need to be run as long as two to three hours daily.

BEFORE STARTING UP THE ENGINE, check :

1. the oil level of the engine (the dipstick contains 8 litres of Shell Rimula X 20/40 to be changed every 120 hours). As for the reverser, it contains 0.75 liter of Shell Dexron ATF 11D 20137.
2. that the fuel cock in the alleyway is open, and from time to time that the filters and decanter are clean.
3. that the sea-water valve is open and often that its filter is clean.
4. the connection of the engine fans.

Change over switch at dead center, almost at full gas, switch on the ignition to H in order to preheat 15/20 seconds, then to HS to start up.

Then turn back to R and observe the oil pressure (minimum 2 bars) and the exhaust (sea-water outlet). Once the engine is hot, the water temperature must not exceed 90 °C. In engine navigation, 2,500 revolutions per minute will produce a fast cruising speed, while 2,000 revolutions per minute will produce an economical running speed. You must determine "by ear" an easy speed for running without any vibration, somewhere between 2,000 and 2,500 RPM's.

You stop the engine by pressing on the electrical control, and only then you switch off the ignition. The alarm sounds only when the oil pressure drops or cooling water overheats.

Tighten with one turn the shaft lubricator after every ten hours' use. Further details of the use and maintenance of the engine appear in the engine booklet, and it is essential to refer to this document.

THE ENGINE COMPARTMENT IS VENTILATED as follows :

1. A closeable vent on the aft port side of the cockpit back supplies two shafts, one coming out freely halfway up the engine compartment, the other one pumping out with an electric air inlet, down on the fore port side of the engine compartment.

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2. An electric air outlet pumps in the polluted air at the top of the aft part of the engine compartment, and pumps it out through a closeable vent outside of the aft part of the cockpit girder.

When the engine is running, operate these two electric fans, and make sure that the vents are open.

You fill up the tank with fuel and gauge it from the deck. Ventilation is accomplished by a vent placed outside on the aft starboard side of the cockpit.

The cock in the alleyway supplies a copper line connected with a decanter laid out ahead of the engine frame (drain its water every now and then). From there, a pipe is linked to the fine mesh screen which is fixed on the engine, and thence to the injection pump which sucks the fuel and distributes it into the injectors. A manifold of fuel return is connected to a second copper line which brings the excess of fuel back to the top and ahead of the tank.

When the boat is fitted with fuel heating, a bypass with cock exists after the decanter and supplies the heating electric pump which reverses the flow into a filter and then into the measure of the machine. A fuel return is bypassed from the reversing of the electric pump of this heating system, and is connected in the engine compartment with the return from the engine.

TO REMOVE AIR FROM THE FUEL SYSTEM of the engine 4154 year 1984 :

1. Loosen the vent screw on the top of the fuel filter (see fig. P2),
2. operate the priming pump on the top of the fuel filter until fuel, free from air, comes from the filter vent point,
3. with the priming pump held down, tighten the filter vent screw,
4. loosen the return connection of the fuel injection pump (see fig. P16),
5. operate the priming pump until fuel, free from air, comes from the injection pump vent point,
6. with the priming pump held down, tighten the return connection of the injection pump,
7. loosen the high pressure fuel pipe connection at the atomisers,
8. ensure that the stop control (if fitted) is in the "run" position. Operate the starter motor until fuel, free from air, comes from the pipe connections.
9. tighten the high pressure fuel pipe connections.

Fig. P2.
Removal of air from fuel filter.

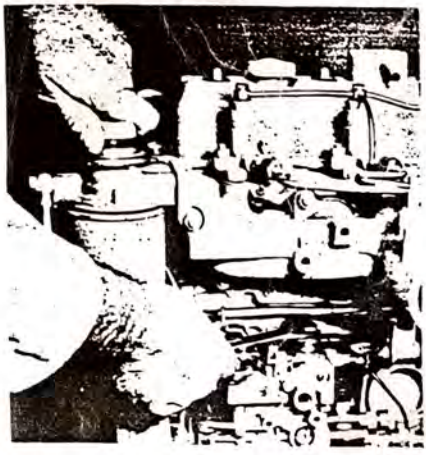

Fig. P16.
Removal of air from fuel pump.

. set accelerator to the fully open position,
. run the engine until fuel, free from air bubbles, issues from both fuel pipes.

Nota bene :
If the camshaft driving the lift pump lever is on maximum lift, it will not be possible to work the lever by hand. In this case, turn the engine one revolution with the starter.

ELECTRICITY

In an equipped harbour, the Maramu connected to the 220 volt-shore power, will charge the service batteries with the aid of the charger, supply the 220 volt-refrigerator, the 220 volt heating system of the alleyway and 2 sockets. This will enable a life in the harbour, using shore power getting through the batteries. Yet, you will have to run the engine in order to get hot water.

The 12 volt motor circuit is independent with ~~its two~~ ITS BATTERY ON PORT SIDE batteries (~~the ones of the aft side~~), its alternator No. 1 (the one on the fore starboard side), and is only used to start the engine, and for the fans of the engine compartment only. The state of charge of the motor batteries is indicated on the voltmeter at the top of the companion way. The charge of the alternator No. 1 is controlled by the extinction of the motor instrument panel light. The diagram of this motor circuit is the one of the engine maker.

The 12 volt service circuit, which has got nothing to do with the latter, is made up of 6 batteries, the switchboard, all the 12 volt services on board, without any exception. The bottom voltmeter ~~in~~ ABOVE the companionway shows the state of charge of the batteries, the ammeter shows the current output which charges or discharges the batteries, whatever the charging appliance or the appliance in service is (however, the windlass, too much avid, does not get through the ammeter). Three means of charge for the service batteries are possible on board of the Maramu :

. first of all the 220/12 volt shore supply that must be used at about 2 thirds of its power,
. then with the engine, a big alternator (No. 2 on the fore port side) and its governor. That machine will charge the batteries (for instance at anchor), while the engine at 1,200 /1,500 revolutions will produce hot and cold water.

Extra supply : under sail, change over switch at dead center (if you wish it, you can jam the propeller by putting on "reverse"), the propeller will drive an alternator No. 3 + governor whose total output can be read on the ammeter and the start on the light on the starboard side of the companion-way. For security reasons, we have scheduled a system of in-separable keys that prevents from starting up simultaneously the engine and this propeller alternator.

Always for security reasons, and to avoid wrong movements, the main switch has numerous functions, and will prevent from starting up the engine or the charger, which would damage the alternators particularly. This main switch with 4 positions has the following functions :

SWITCH IN COMPANIONWAY ...
DISCONNECT STARTER MOTOR NEEDS NON HANDILY DISCONNECTED ON BATTERY (RED WIRE)

.../...

. "Arrêt" : batteries cut-off (motor as well as service ones),
. "Normal" : the two motor and service circuits in service separately. Impossible to connect the charger.
. "Secours" : the engine can be started up with the service batteries. Then turn back to "Normal".
. "Charge" : the charger can be used. Impossible to start the engine.

The board in the companion way protects with its circuit breakers the lines and appliances. The mast lights are protected by the circuit breakers under the mainmast foot.

Out of security, a battery cutoff switch insulates also the negative of the batteries. Leave it always in service, except when the boat winters. Never switch it off when the engine is running.

THE REFRIGERATING SYSTEM is double.

The fridge cabinet and the ~~220~~ 110 volt-system are the same as the ones you have at home. Of course, you need a harbour fitted with ~~220~~ 110 volt-shore power, a ~~220~~ volt-fridge switch pressed, and the 220 volt-thermostat engaged. You must also see that the closeable air vent in the cockpit near the steering wheel is open ; the 220 volt-fridge will be ventilated through it.

Apart from the cabinet, the frigoboat system is completely independent of the latter. It produces cold only when the engine is running, in the following way : a 12 volt-thermostat (independent of the 220 volt one) controls an electromagnetic clutch driven by the engine and coupled to a powerful compressor, which forces back into a condenser, cooled by a bypass of the engine seawater system. This condenser supplies an eutectic plate (evaporator), placed in the refrigerator. A dehydrator and a security pressostat is to release the compressor if the pressure gets too high. This happens particularly when something stops the seawater getting into the condenser. When the latter cools down, the pressostat will automatically supply the clutch again.

The Maramu is fitted with a ventilation shaft distributing the air into the three cabins and the two toilet compartments. The air supply is made through the closeable vents on the fore port side, inside the cockpit. When leaving the boat winter, you must leave every vent open.

When the boat is occupied, she can be ventilated according to the number of open vents, by one or two electric ventilators. Note that you can use their switches only when the adjustable distributor is properly placed.

The distributed air can be heated. In order to do it, the distributor, completely drawn, will free the fuel-heating switch.

This FUEL HEATING SYSTEM is placed behind the back on the port side of the cockpit. Its ventilation is provided by its own turbine, and we have added in series a ventilator which injects fresh air in it. This heating system works with a thermostatic regulation after starting (switch completely drawn). You can

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stop it by pushing the switch right in, and the apparatus keeps on getting ventilated automatically during several minutes to cool down.

What is said above is very important ; it is for that reason that you must cut the batteries off only a few minutes after the heating has stopped (you will find more details in the explanatory leaflet of the apparatus).

Mind a fender placed unfortunately before the exhaust, or a boat moored against yours to port.

In case of list to port, the heating exhaust must not be under the waterline if the apparatus is working, to avoid a counterpressure in the combustion chamber.

Make sure the cockpit vents (at least two) are open, otherwise the security cutout will break the circuit. In this case, you must open the coffer and reengage one of the cutouts which is on the left side of the apparatus.

Lastly, this apparatus works only with a 12.5 volt current at least. This means that if the batteries are lower than 12.5 volts, you will have to run the engine a few minutes in order to increase their voltage.

Even short power cuts prevent the apparatus from working properly. You have to stop it and change the position of the main switch for instance.

<u>The hull openings under the waterline are the following ones</u> :

. The cockpit outlets are stratified in a mould together with the hull. They pass through the engine compartment.
. The engine and the aft WC pump seawater in, through the hull valve and the filter of the motor compartment. The fore WC has its own suction and the depth-sounder its sounding placed in the alleyway of the fore wardrobe, the log has its through-hull fitting in the fore cabin.
. close these valves and take out the soundings which stay for a long time in the water, if they are removable.
. the shafting is composed of a floating stuffing box which is easy to control in the engine compartment.

<u>Over the waterline, the openings are</u> :

. The rudder stock bearing is topped by a stuffing box,
. the aft WC reverses the flow in a hull outlet with valve,
. the aft washbasin and the sink flow out into a common hull outlet with valve, placed in the cockpit locker, near a second one which receives the flow reversed by the two bilge pumps,
. the engine and heating exhausts are made through hull outlets, without valve, of the cockpit locker,
. the fore WC and washbasin flow out into two hull outlets with valve existing in the forward toilet compartment.
Concerning these valves above the waterline, except if needed, leave them always open. Work them from time to time to control their functioning. Be careful not to use the WC with outlet valves closed. This would jam the valves and require a dirty dismantling operation.
. The sail lockers are self-draining through holes made in the hull.

With the compartmentation of the bottoms, you must in normal function leave the three forepeak and isolation valves of the watertight compartment open, and the bottom stoppers between galley/companion way and engine, closed. In this way, the water flowing out from the showers, the chain, eventually the fore cabin, from the whole part of the boat behind the companion way, will reach the bilge. In case there is water in the saloon bottom, you should lift off the two stoppers, one accessible in the engine compartment to port, the other one under the companion way.

An alarm warns when the bilge is full. You can stop it, but a light reminds you to switch it on as soon as the bilge has been emptied by the hand or electric bilge pumps.

In case of overflow in the chain locker, close the valve placed under the berths of the fore cabin. Thus, the chain locker becomes a watertight compartment.

In case of overflow in the fore cabin and toilet compartment, close the saloon door. Close the two valves under the floor below this door. Put the two cross pieces on this door and tighten the screws. In this way, the whole forward part of the boat from this main bulkhead is isolated.

The fresh water tank is in the keel, it is filled up from the cockpit and its capacity is gauged in the companion way. The overflow comes out in the cockpit. The cleaning of the water tank is made through inspection covers existing under the floor and under the table. An independent emergency system with a foot pump reverses the flow to the sink. The normal system with the electric pump, supplies the three points with hot and cold water. Control the filter on the pump suction, particularly when the boat is new. A small pneumatic regulation tank and a pressure reducer regulate the working of this electric pump. Note that the flow can be adjusted by screwing on or unscrewing the pressure reducer which is with the water-heater at the bottom of the cockpit locker. When you leave your boat, leave one fresh water tap open, so that the circuit does not remain under pressure.

In case of frost, essentially in the North and Baltic Seas, the fresh-water and water-heating systems will have to be drained off. It is not necessary in La Rochelle, because the boat is isolated enough. This information is also available for the engine. However, be careful if the boat is in a dry place, then you must drain the sea water and put antifreeze.

The back piece of the rudder is driven by two cables connected to the rudder stock, under the berth of the aft cabin. There, rudder stops are provided. However, you must avoid letting go of the tiller on sternway. The two cables are crimped on opposite racks driven by a gearwheel fixed on the same shaft as the steering wheel. The various articulations and gearwheels need to be lubricated every now and then.

In order to fit out the tiller, open the berth of the aft cabin and open the deck stopper. Take the auxiliary rudder head out of the cockpit locker, and from the aft cabin, stick it into the deck opening, and lower it on the square rudder stock, taking the marks into account. Put in the 2 V-shaped pieces which are

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near the rudder stock top, over the square auxiliary rudder head and tighten the two bolts. Put the tiller on the aft deckhouse and tighten its bolts as well. In case the cable control is hard or jammed, uncouple the two small connecting rods to release the rudder stock.

The engine of the automatic pilot drives the wheel shaft with chain and gearwheels. It runs only if necessary in one way or the other. Once the indicator is put on the heading you want, you start the pilot which will keep on course. Adjustments are also scheduled :

. Sensitivity/Yaw : value of the heading difference before which the pilot acts. A too much demanding adjustment obliges the pilot to run often and to use current.

. Rudder : value of the sheer maximum angle.

. Trim : permanent helm - well adjusted, it saves current. At any time, you can stop the pilot and steer again, or correct the course on the board.

BATHING LADDER

The bathing ladder/gangway placed for instance on the deckhouse of the aft cabin, will receive its floor, immobilized then by two bolts. The two lateral security ropes will also be put on each side of the small wheels. Then, the joint will be sticked in the socket of the name-board gate, the gangway will be lowered onto the quay or the pontoon, and held back with the ropes, taking care that it does not turn aside. Then the stanchions will be stuck in their sockets and the tension rope installed. You will have to make the two lateral security ropes fast at the two angles of the name-board. If you wish it, in order to be able to raise slightly this gangway in the evening, you lash on the mizzen-sail halyard the wooden crosspiece whose two bottom ropes are to be fixed to the end of the gangway on the small wheels side. To have further ideas, the sketch below gives information.

ENCLOSED DOCUMENTS TO REFER TO :

. directions for use and maintenance of the engine,
. engine electric scheme,
. electric scheme of the service circuits,
. fluid circuit scheme (see enclosed page),
. position of the hull openings (see enclosed page).

Eventually extra documents :

. leaflet and directions for use of the autopilot,
. directions for use and schemes of the heating system,
. scheme of the installed gangway (see enclosed page).

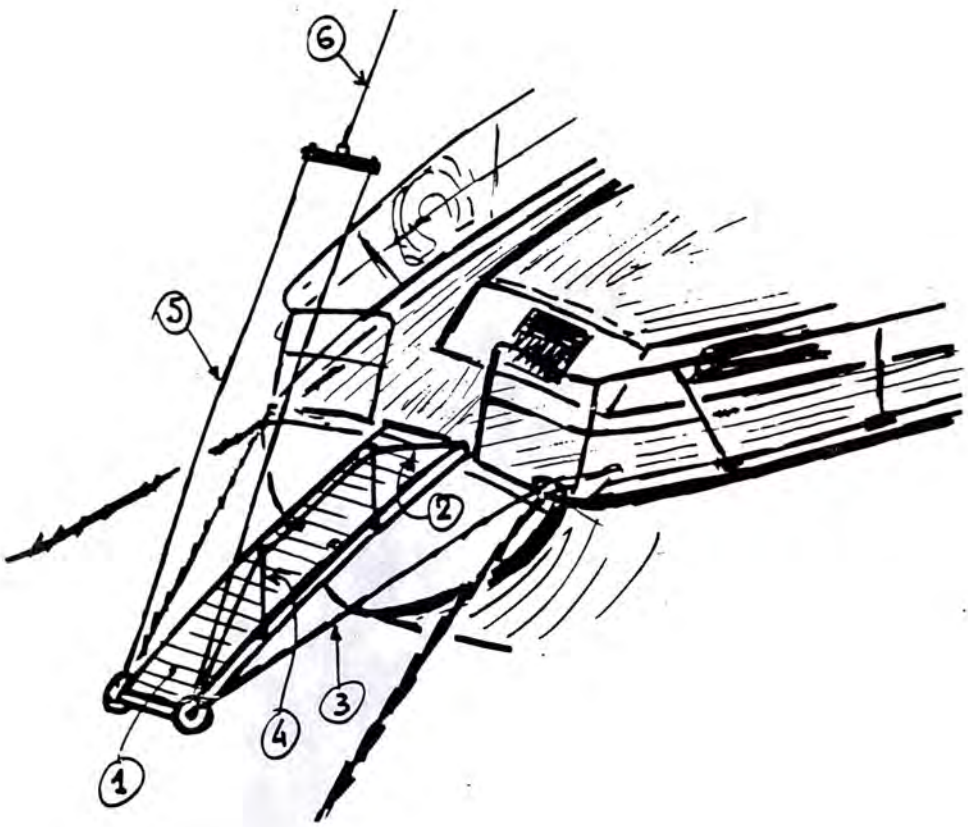
A M E L

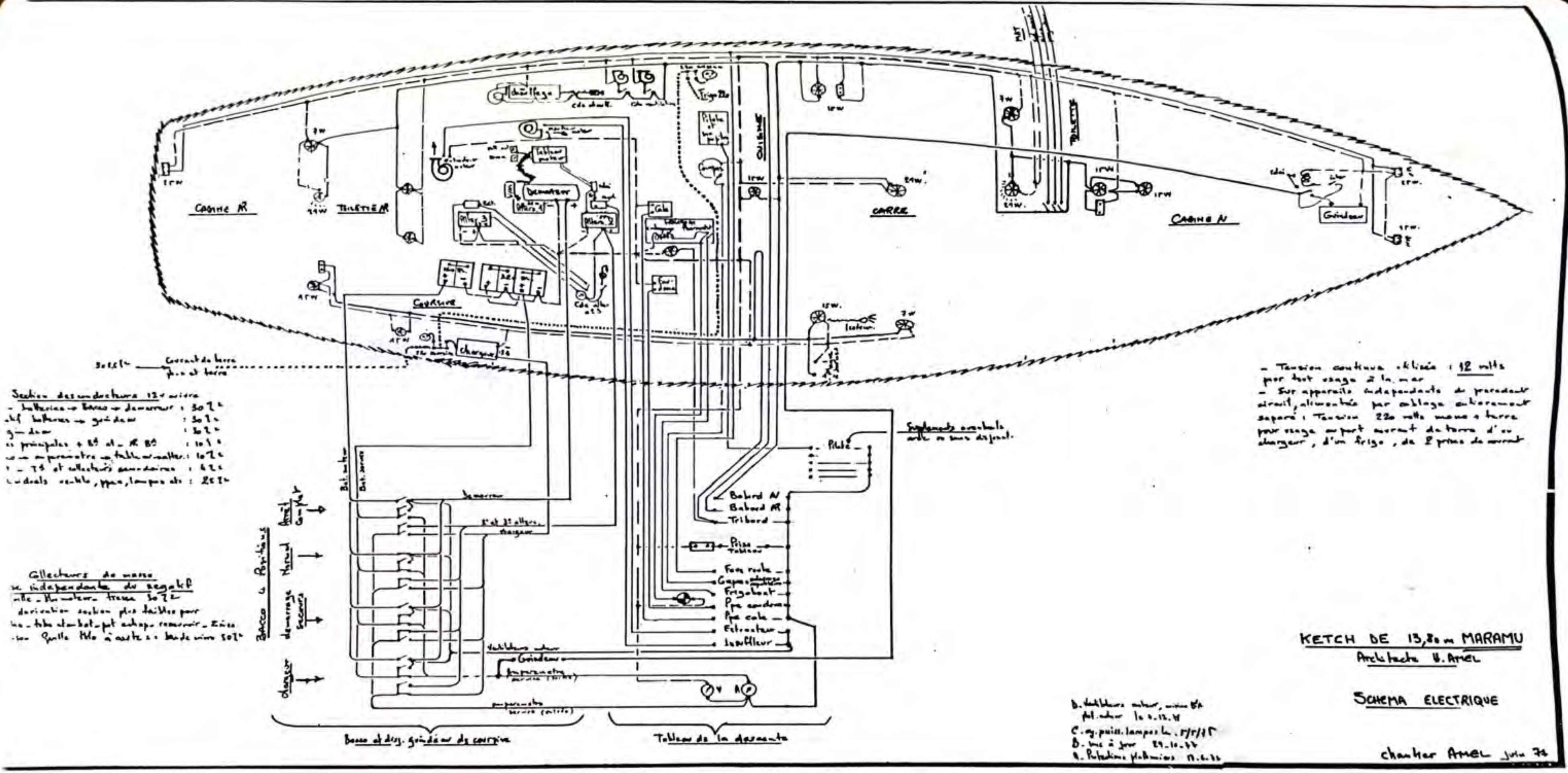
INSTALLATION OF THE SWIM LADDER/GANGWAY

- take the swim ladder and put it on the aft deckhouse,
- put the floor on it and bolt it (1),
- stick the joint in its socket (2) and hold the gangway in a vertical position,
- lower the gangway onto the dock, hold it back with the two springs (3) and be careful it does not turn aside,
- secure the springs to the angles of the name-board,
- stick the stanchions (4) in their sockets and tighten the handholds,
- make the two uphauls fast to the gangway,
- lash on the mizzen halyard (6) the wooden crosspiece. Thus, you will be able to raise the gangway in the evening.

Nota Bene :

The springs (3) are always left on the ladder/gangway and they are also used for the swim ladder when it is in service or to raise it.



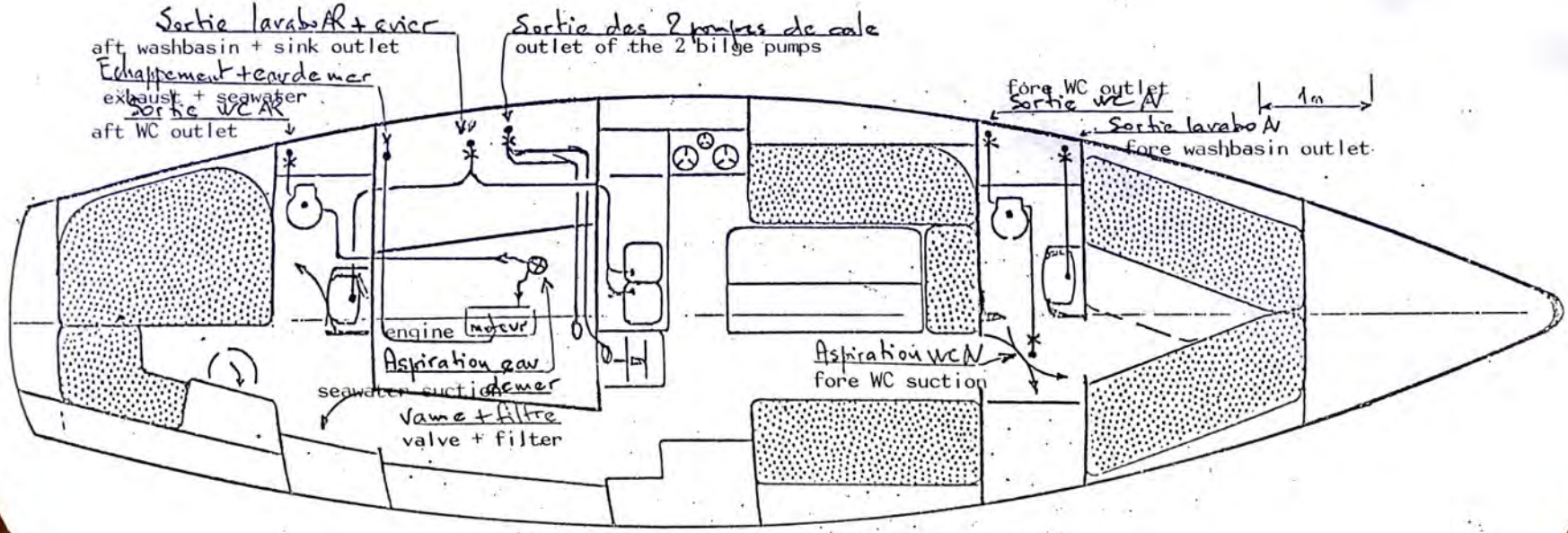


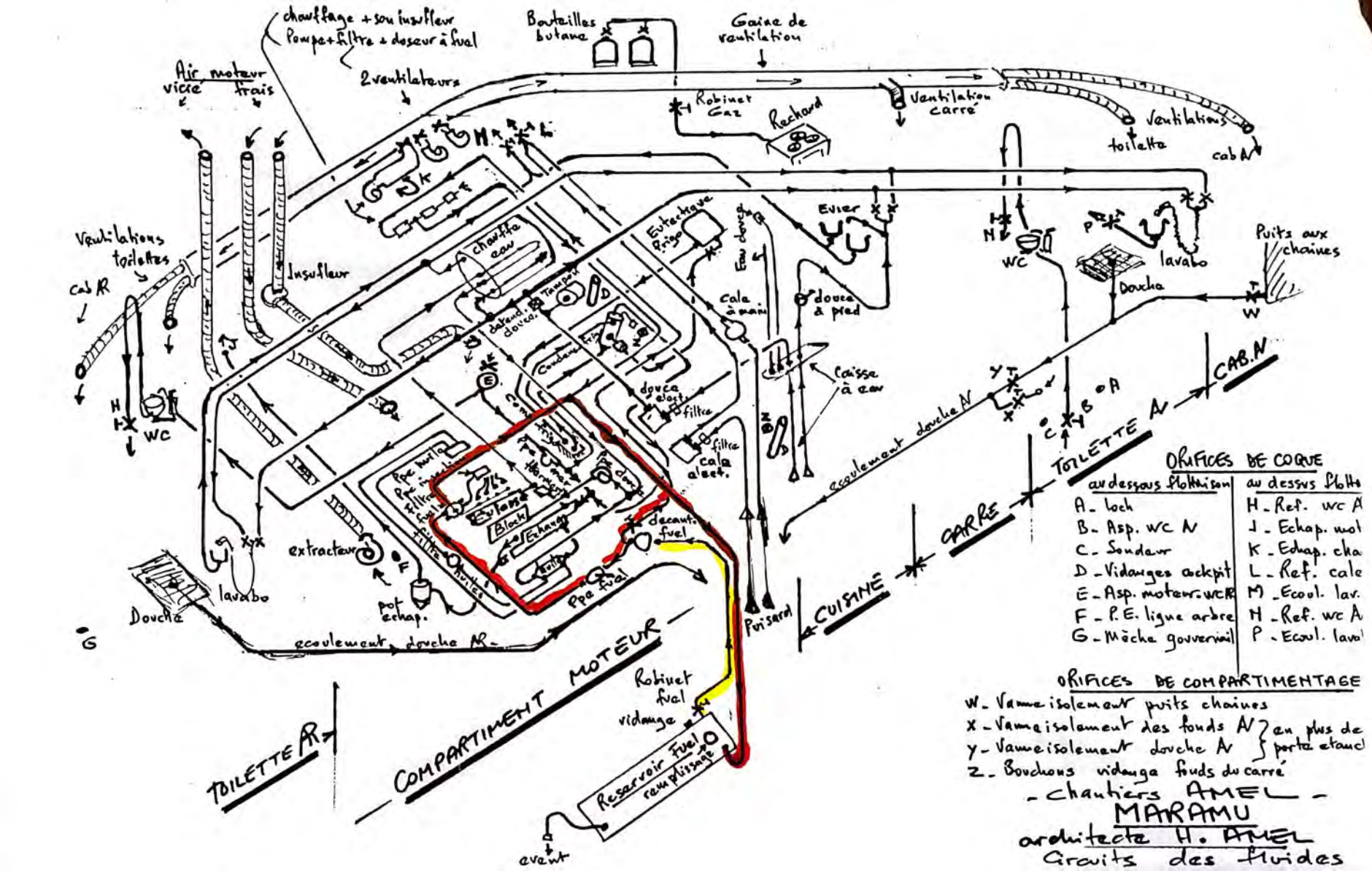
CABINE AR
TOILETTE AR
COURSIVE
CUISINE
CARRE
CABINE AV
chauffage
Frigo 12v
Démarreur
Tableau moteur
chargeur
Babord AV
Babord AR
Tribord
Prise Tableau
Feux route
Frigoboat
Pompe cale
Extracteur
Insuffleur
Guindeau
Pilote
Suppléments éventuels
Tableau de la descente
– Tension continue utilisée : 12 volts
KETCH DE 13,80 m MARAMU
Architecte H. AMEL
SCHEMA ELECTRIQUE
chantier AMEL juin 74

MARAMU

PLAN VANNES DE COQUE

Architecte H. AMEL





ORIFICES DE COQUE

au dessous flottaison	au dessus flotta
A - loch	H - Ref. wc A
B - Asp. wc AV	J - Echap. mot
C - Soudeur	K - Echap. cha
D - Vidanges cockpit	L - Ref. cale
E - Asp. moteur. wc AR	M - Ecool. lav.
F - P.E. ligne arbre	N - Ref. wc A
G - Mèche gouvernail	P - Ecoul. lavo

ORIFICES DE COMPARTIMENTAGE

W - Vanne isolement puits chaines
X - Vanne isolement des fonds AV } en plus de
Y - Vanne isolement douche AV } porte etanch
Z - Bouchons vidange fonds du carré

- Chantiers AMEL -
MARAMU
architecte H. AMEL
Circuits des fluides

AMEL BOATS

INSTRUCTIONS FOR WINTER LAYUP

- remove the gas tanks,
- grease the bearings of the electric roller furling jib and roller furling main and mizzen,
- empty the water out of all the pipes in the boat by switching off the pump on the switchboard and opening the faucets in the galley and the toilet compartments,
- take out all the soundings (depth-sounder, log/speedometer),
- close all the seacocks,
- for the engine, check the density of the antifreeze, drain the engine cooling seawater by opening all the faucets (see engine leaflet),
- for the water heater, disconnect the inlet and outlet fresh water pipes (the two small hosepipes above and below),
- disconnect the two pipes of the fresh water pump,
- drain the water tank.