SPANISH SURVEYING VESSEL "JUAN DE LA COSA"

Originally scheduled to take part in a scientific expedition along the Amazon, this ship was designed and built at the shipyards of "*La Union Naval de Levante*" in Valencia. It was launched on 16th February, 1935, and completed early the following year.

It was first called the *Artabro*, after the earliest inhabitants of the northwest coast of the Iberian peninsula. It now bears the name of "*Juan de la Cosa*", a famous Spanish cartographer and navigator who accompanied Christopher Columbus on his first trips to the New World, and author of two maps of great renown, one of Africa as explored up to 1500 and the other showing the discoveries of Columbus and his successors at the beginning of the XVIth century.

The duties assigned to the vessel when it was designed called for special provisions with regard to tropical climates and river navigation, so that everything was taken into account that would fit it for long ocean cruises.

Its principal characteristics are as follows :

Overall length	57.30 m.
Beam	10.80 m.
Maximum draught	2.50 m.
Displacement	880 tons.
Shaft horsepower	500 HP.
Speed	9 knots.
Cruising range	3,000 miles.

Careful provision was made aboard the ship for healthy living conditions. All living-space is provided with antimosquito devices, and the vessel is so designed that by using double wire-screens, a large amount of space (such as the navigating bridge wings) is available for use as work-rooms, etc. in tropical areas.

All working departments and living accommodations are provided with warm or cold air through a thermotank forced system of ventilation.

Navigating conditions can be changed at will within a wide range by filling or emptying ballast and reserve tanks of huge capacity, modifying the draught and trim of the vessel to a large degree.

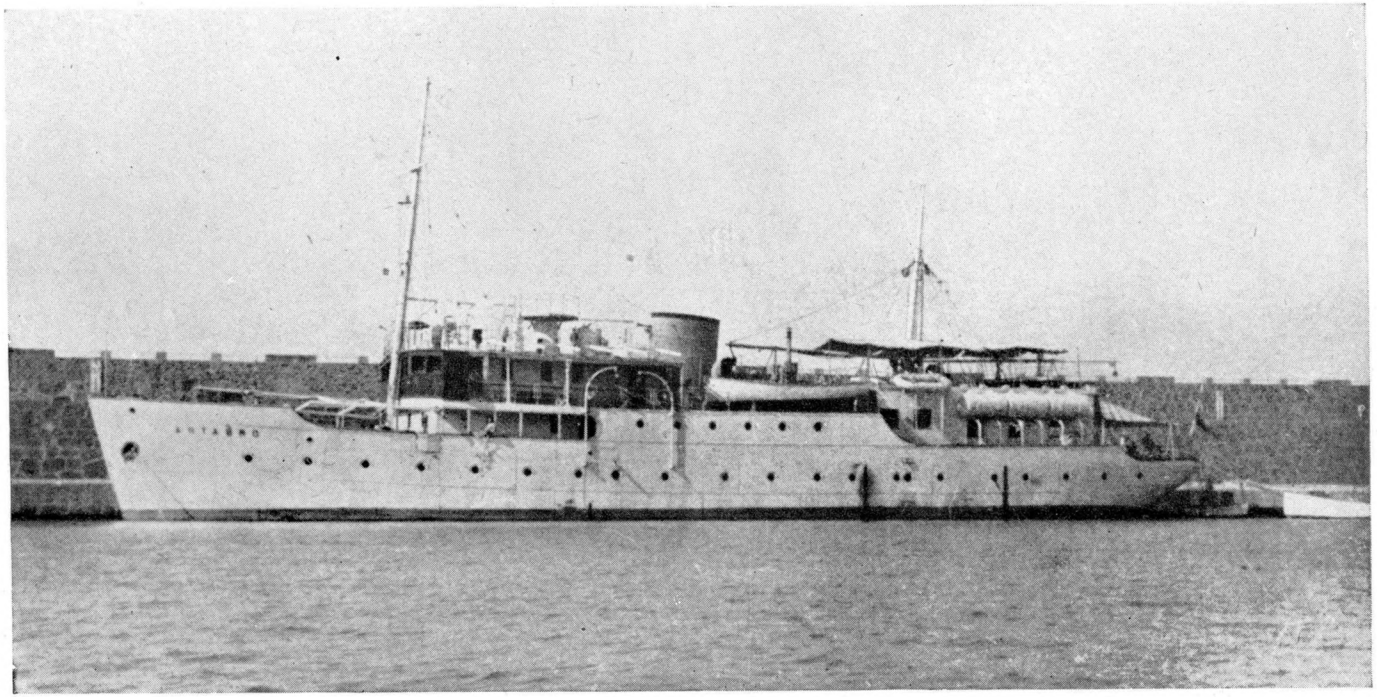
Propulsion is by two 350-horsepower 680 rpm Diesel-Burmeinster engines driving two direct-current independently excited 205-KW generators and two Westinghouse exciters each of 50 KW.

The electric power produced feeds a Westinghouse double-induction motor geared to the propeller-shaft, with a total horsepower of 500 HP. at 300 rpm. ; the excess power is used in the ship's mains.

The propulsion-motor may be operated from either one of two control-points, one located on the control-bridge, and the other, to be used in case the former breaks down, in the engine-room. This arrangement makes it possible to handle the ship with ease and great speed while manœuvring or reversing.

Gas-oil is used as fuel.

The ship is planned in such a way that it can berth a complement consisting of the Master, 12 officers, 25 petty officers and 111 men, including 37 specialists in all types of surveying operations. Accommodation for the entire ship's company is comfortable, spacious, and sanitary.



Spanish Surveying Vessel "Juan de la Cosa".

The large drafting-room (7 × 7 metres) is on the main after deck ; lighting conditions are excellent, owing to the ample size of its several windows and of the skylight in the roof of the structure. A strongly diffused light, which can be spot-lighted as required, is used for illumination of the two drafting-tables.

One of these drafting-tables, or plotting-tables, measures 1. 20 × 1. 90 metres and the other 2. 40 × 1. 90 metres. Both can be joined together by means of a tabling device to make a single 1. 90 × 3. 60 metre table, which is large enough for all working purposes.

Necessary furnishings on board include closets, book-cases and storing facilities for plotting sheets, together with two large work-tables that can each comfortably seat for plotting purposes three men at one time.

Leading directly to the drafting-room are the office of the Chief of operations, photographic laboratory, and surveying equipment store-room, in which special measures have been taken to protect precision instruments against vibration and to insulate them against rapid changes of temperature, etc.

The vessel is supplied with Hughes sounding equipment, both for average and greater depths, two mechanical depthfinders, a patent log of the Forbes type and a few others of the Walker type, a gyro-compass, two magnetic compasses, a Marconi direction finder, and all types of navigational equipment in current use.

There is also a very complete wireless installation comprising two extremely powerful transmitters, small radio-telephones for field-work, and other usual equipment.

The steering-engine is electrically powered, directly connected and has a high rate of speed.

Surveying boats consist of two large (8.00 × 2. 60 × 1. 16 metre) gas-oil motor boats with a speed of 8. 5 knots. Both are equipped with a Kitchen steering system and Lucas mechanical depth-finder coupling devices.

There are also two 4. 90 × 1. 70 × 0. 70 metre life-boats, a motor-boat for the Captain's private use (5. 20 m.) and a 3 metre barge used for beach-landings.

Lowering and hoisting of the boats is carried out by means of a two-ton tackle which is also used in moving heavy weights from the engine-room. The smaller craft is handled by ordinary davits.

The electric power servicing the ship in port is supplied by two 50 KW· Diesel units, which are sufficient to meet usual needs : lighting, pumps, baking, refrigeration, forced ventilation, etc. Power voltage is 220 volts, and voltage for lighting purposes 110 volts, which is obtained by using a small transformer-unit.

In order to guard against possible damage to the auxiliary motors already mentioned, there is a set of storage batteries that can supply the ship with 110-volt current for lighting purposes during three consecutive days.

Two large cold-storage rooms, one for meat and the other for vegetables, are fitted with machinery enabling them to attain temperatures of 5° C. and 2° C. respectively.

There are special workshops, each appropriately equipped (with lathes, drills, etc.), for the ship's engineer, electrician and carpenter ; laundering is done entirely by machinery.

The vessel carries, in the superstructure aft, six oil and gasoline tanks with a total capacity of 12,000 litres that can be jettisoned immediately in case of fire by means of a special device. The ship is also provided with Mulsyfire fire-fighting equipment, of the emulsifier type.

Health facilities have been thought out in careful detail : there is a good-sized infirmary on board with surgical equipment and annexed departments, and a water-filtering and purifying plant, together with elements necessary for analysis, has been provided.

In addition to the boat tackle described above, the foremast is equipped with another tackle used for loading the vessel's automotive equipment, consisting of a fast car and small truck used in field-work.

Anchors and chains of great strength have been supplied, since account had to be taken of the fact that the vessel would be riding at anchor over long periods, frequently offshore. There are three anchors of the Hall type, each weighing 1,295 kgs. ; and one Admiralty anchor of 330 kgs.

Heavy surveying equipment is stored in a large hold forward, which is sufficiently ample for containing drags, sectional observation towers, buoys, beacons, etc., and is serviced by an electrically operated two-ton tackle.

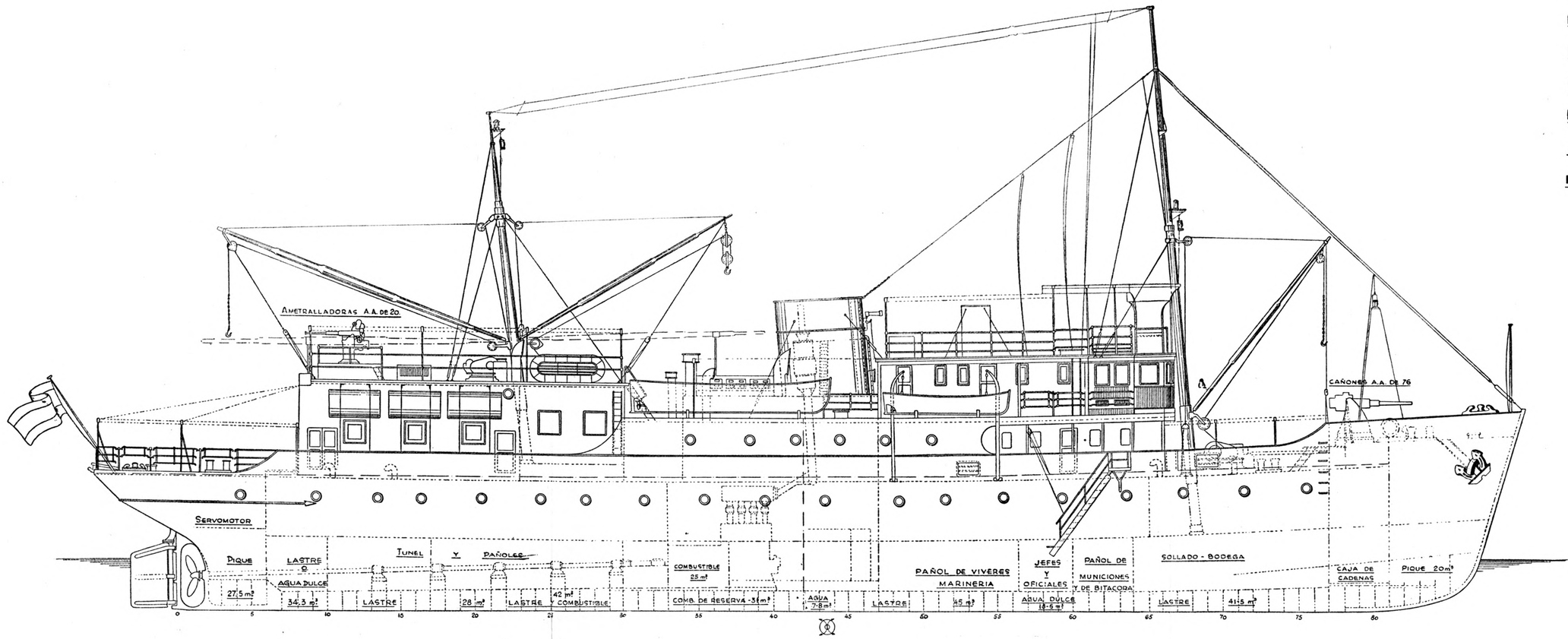
During hydrographic expeditions, the vessel is usually attended by a small auxiliary steamer which is used in shallow depth-sounding, in carrying stores and personnel, and which performs other necessary duties.

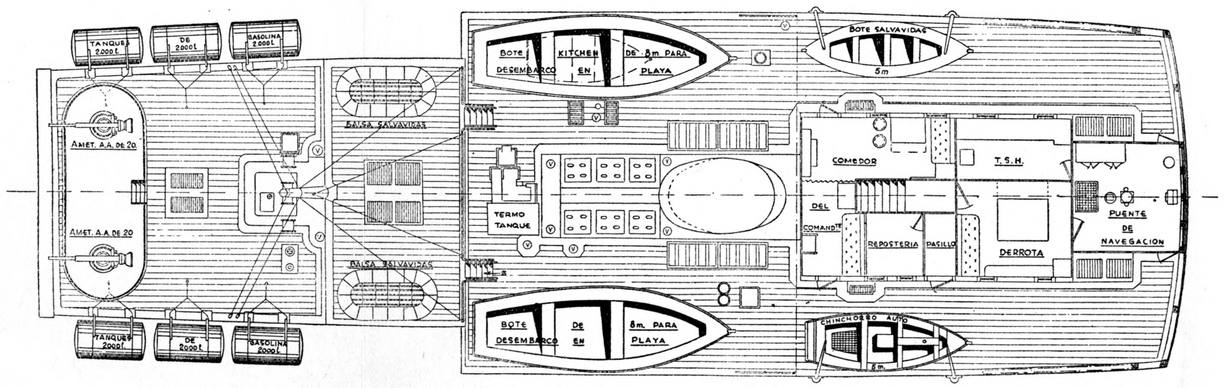
BUQUE HIDROGRAFO "JUAN DE LA COSA"

CARACTERISTICAS

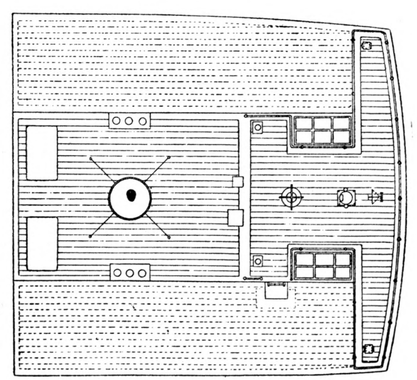
ESLORA ENTRE P.P	52.20 m.
MANGA	10.80 m.
PUNTAL	5.00 m.
CALADO EN CARGA	2.10 m. APROX.
DESPLAZAM^TO EN CARGA	880 TONS.
VELOCIDAD	9 NUDOS
MOTOR ELECTRICO DE PROPULSION	500 S.H.P.

ESCALA 1:100

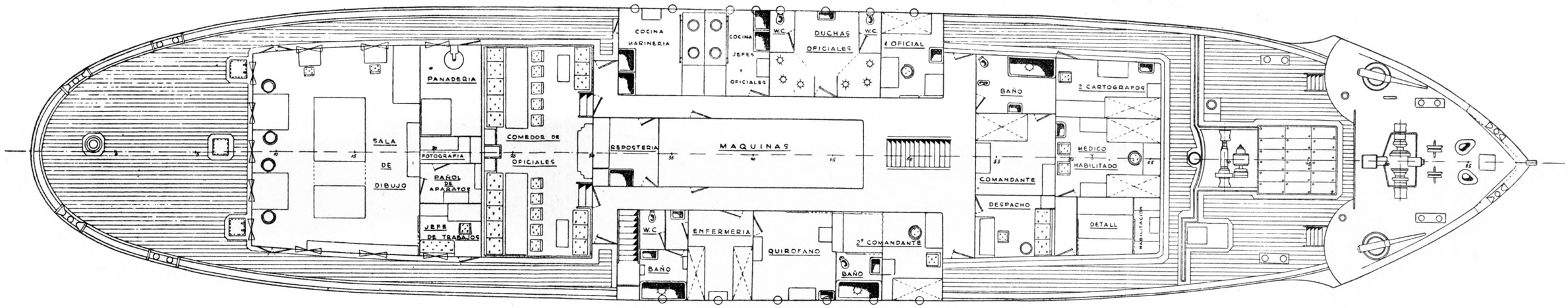




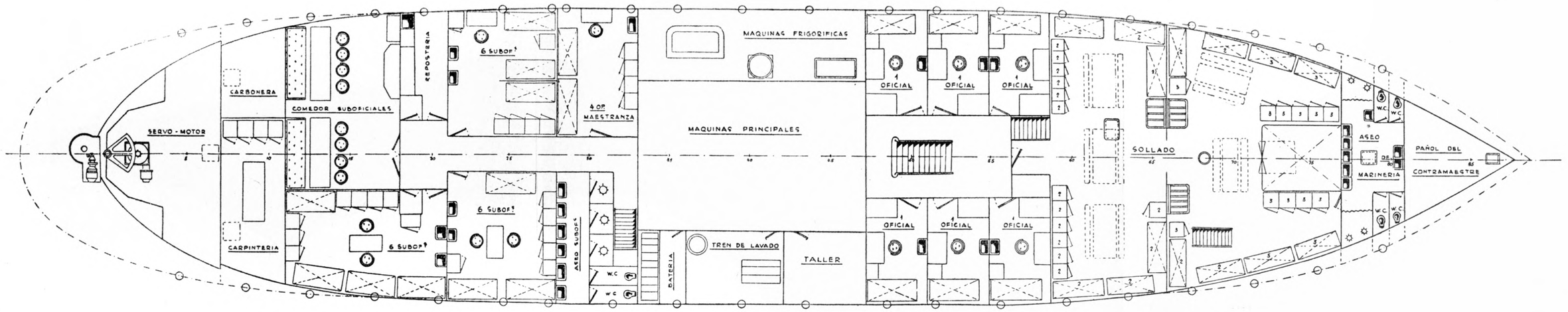
CUBIERTA DE BOTES



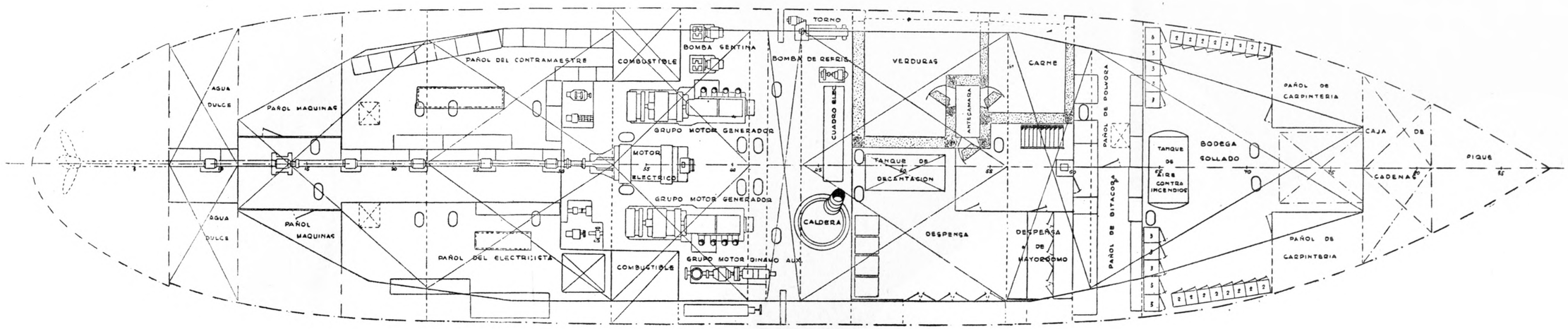
TECHO DE LA CASETA EN LA CUB. DE BOTES



CUBIERTA PRINCIPAL



CUBIERTA BAJA



CUBIERTA DE BODEGA