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THE RESEARCH SUBMERSIBLE SC-200

Constantin Vlad

Romanian Marine Research Institute - Constanța

ABSTRACT:

This article presents the I.R.C.M.'s submersible SC-200, the first Romanian research submersible, designed and built in Romania.

Over the last decade, the undersea vehicle has evolved from a demonstration of technological capability and scientific curiosity into a very useful means for conducting a variety of undersea work tasks and research missions commensurate with economical and national needs. In the marine research a submersible can be a significant tool indeed.

Within the last three years, our institute has designed and built a little research submersible starting from own conditions and needs. This submersible is destined for oceanological research, including fisheries applications. His versatility makes possible his utilisation also in others fields like hydrotechnical inspections, marine archaeology, offshore industry, a.s.o.

Main features of the SC-200 submersible are (Fig.1):

- length	3500 mm
- beam	2000 mm
- height	2500 mm
- draft	1500 mm

- weight	2800 kg
- operating depth	200 m
- collapse depth	550 m
- hatch diameter	600 mm
- life support duration	144 man hrs
- total power	10,56 kwh
- maximum speed	2,5 knots
- crew: pilot	1
observer	1
- payload	200 kg
- color	yellow

The submersible was launched on the 6th august 1981, in Constanța.

PRESSURE HULL

Material: steel R 52-6a.

Shape: cylindrical with hemispherical caps.

Dimensions: 2500 mm length, 1000 mm inner diameter
10 mm thickness.

POWER SOURCE

Type of batteries: 8 lead acid batteries 12 V x 110 Ah.

Batteries location: external, in two pressure resistant pods.

Total power: 10,560 kwh.

Emergency power: none.

MANEUVRING CONTROL

Main forward propulsion is provided by one, reversible sternmounted propeller powered by one 2,5 kw motor. Two dive plane and a rudder assist in providing underway control. There are two external left-right ballast tanks of 310 kg capacity by compressed air. Two external fwd./aft. trim tanks with oil-mercury can provide up/down bow angles of $\pm 20^\circ$.

LIFE SUPPORT

Oxygen is carried outside of the pressure hull in two high pressure bottles. Carbon dioxide is removed by a soda-lime

scrubber. There are monitors for O_2 , temperature and pressure. A CO_2 detector is provided.

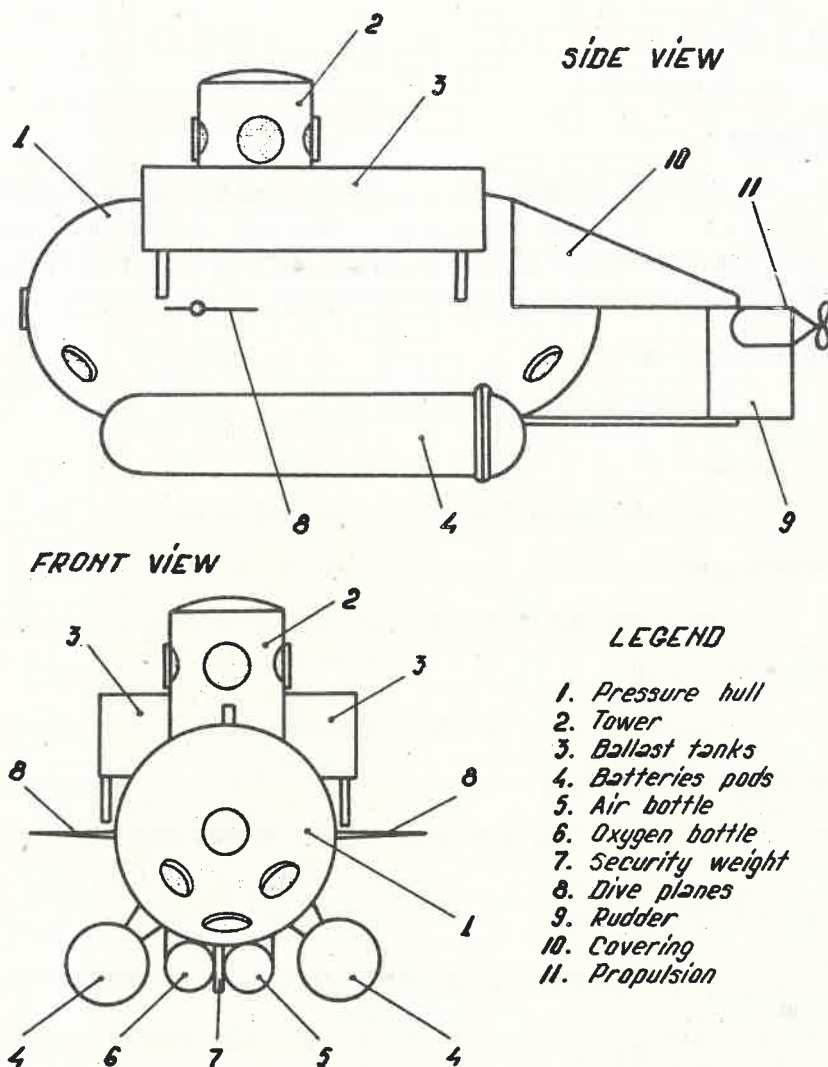


Fig.1 - Research submersible SC-200

VIEWING

Four viewports are located in bow, two in stern and four in conning tower. Each viewport has a diameter of 145 mm clear.

MANIPULATORS

None.

LIFT POINT

There are three lift points located on the upside of the pressure hull and one located upside in bow which can be opened from the inside of the pressure hull by pilot, releasing the towing link.

EXTERNAL LIGHTING

There are five 150 watts halogen lights.

LIFE JACKETS

Two inflatable Fenzy M-5 life jackets.

SURFACE LIGHTS

One flashing white light.

FIRE EXTINGUISHER

One, dry chemical fire extinguisher.

EMERGENCY FOOD AND WATER

Life boot type provisions and water. Medical first aid kit.

AUTOMATIC DEBALLASTING

Automatic release of the jettisonable weight (170 kg) when the depth of 210 m is overpassed.

SURFACE COMMUNICATIONS

One radiotransceiver, 10 w power output, frequency 157,775 MHz, 10 km operating range.

UNDERWATER COMMUNICATIONS

One ultrasonic telephone, frequency 75 kHz, 1000 m range.

NAVIGATION

There are provided one gyrocompass and one gyrohorizont, aircraft type, supplied by a converter at 36 V a.c., 400 Hz.

SONARS

None.

JETTISONABLE COMPONENTS

Security weight of 170 kg, mechanically released.

EMERGENCY BREATHING

Two scuba regulators supplied from the main air ballasting system. Two portable emergency breathing soda-lime sorbs, in case of scrubber failure.

EGRESS PROCEDURES

Hull can be flooded and occupants may egress carrying emergency life jackets.

COMMUNICATIONS PROCEDURE

Check with surface 15 minutes; abort dive if no contact within 30 minutes.

CLASIFICATION/CERTIFICATION

None.

The SC-200 submersible can operate either in conjunction with one of oceanological ships of I.R.C.M. - Constanța, on-board or towed, as support ship, or independent but under surface supervision.

After his launching and sea trials, conducted in the past year, starting with 1982 the submersible will be able to perform research dives for:

- fisheries;
- marine hydrology;