

NEW OCEAN-CHARTING SHIPS - CANADA

The Canadian Hydrographic Service brought into commission in September, 1949, two new ocean-charting ships, the C.G.S. "*Fort Frances*" and C.G.S. "*Kapuskasing*". They are of the class of Minesweepers and have been altered for hydrographic purposes in Saint John and Halifax shipyards.

Length.....	225 feet.
Beam.....	35 feet 6".
Mean draught	10, 5 feet.
Displacement	1,100 gross tons.

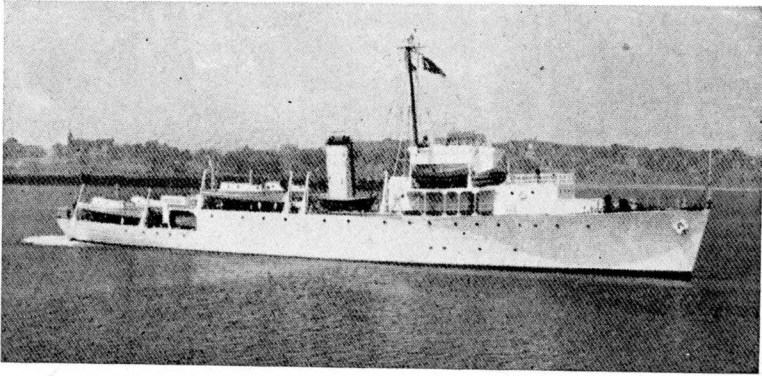
Two water-tube boilers furnish steam for twin-triple expansion engines, each with 2400 horsepower, providing the ships with a top speed of sixteen knots, and a cruising or working speed of twelve knots. Fuel oil bunkering of 254 tons and fresh-water tank capacity of 80 tons assure them of a cruising radius of some 4600 miles. Twenty-six tons of diesel oil is also carried for the diesel-driven auxiliaries, whilst for the surveying launches, 750 gallons of gasoline are contained in each of a pair of specially designed cylindrical tanks supported on the main deck aft, with shields to protect them from flash fires, and quick launching gear to hurl them overboard should danger of explosions occur.

The launches, cabin type, and thirty-one feet in length, are powered with a one-hundred horse power Kermath "Sea Prince" engine, and equipped with the Hughes-Owens Company MS-21 A 36 Volt echo sounders, dead-beat aeroplane spirit compasses, plotting table, sextants, station pointers and other nautical instruments. Radio telephone sets are installed for inter-communication with the ship.

These ships have accommodation for a complement of sixty-six, comprising the Hydrographer in charge and seven assistant hydrographers in addition to the regular ship's company. Petty Officers and crew number forty-seven. Cabins have been carefully thought out. The ships are fitted with nine motor-driven fans and heated by a circulating radiation system, and are also provided with refrigerators and cold-storage rooms.

In addition to the four heavy sounding launches, there are two standard 25-foot lifeboats with a total capacity of 72 persons, and six fisherman class dories. Launches and lifeboats are handled by Welin boom davits and Welin electric boat winches. A steam, 7 ½ horsepower anchor windlass has a 255 fathoms chain cable. Wireless telegraph apparatus provides radio telephone communication with one-hundred mile range and code key transmission of 500 miles. The late model 268 Mariner radar sets have twelve-inch viewing screens with the main console in the wheel-house and a remote screen on the upper bridge from which ship-sounding and survey operations are conducted. A Sperry Mark 14 gyro-compass is located below decks; it has five repeating dials, in wheelhouse, on bridge, in hydrographers' quarters, chartroom, Sailing Master's and Chief Hydrographer's cabins. There are also three standard binnacle magnetic compasses, Hughes-Kelvin 196-M model.

Intercommunication systems throughout the ship are complete with telephones, electric bells, and voice pipes. Both Walker's electric and taffrail logs are fitted, and a deepsea echo-sounding gear of the Huson Admiralty



The Canadian Surveying Vessel "Fort Frances".

type. Electrical power for all these powered apparatus is supplied by two steam 60 K.W. generators and one diesel-electric unit of similar capacity.

For protection against fire, the ship is thoroughly equipped; there are 38 extinguishers and 22 nozzles and, moreover, 40 Pyrene hand extinguishers are strategically located throughout the vessel.

There is a commodious machine shop and there are workshops for both the carpenter and electrician. For hydrographic purposes, the large specially-designed chartroom, or drawing office, is a prime attraction. It is forward on the upper deck, 24 feet long and 19 feet in width and contains the latest in drawing tables, one of them 7 by 5 ½ feet, with two other Hudson style, 6 by 3 feet, and a third pair of smaller tables and sets of drawers.

Echo sounders, distance and speed registers, logs, telephones, and other communication systems connecting the operating bridges, wheelhouse, sounding quarters, etc., are fitted and within sight or reach of the hydrographers controlling the ship's movements. There is ample space for nine surveying staff members to carry on their plotting, calculations and other duties. Fluorescent lighting provides illumination for night work. The instrument lockers contain the standard hydrographic or nautical surveying equipment, sextants, binoculars, station-pointers, chronometers, boat logs, and a considerable range of land survey instruments for triangulation, traversing, levelling, and sketching, such as theodolites, levels, subtense measuring gear, and stereoscopic apparatus for use with aerial photography. For oceanographical work, deepsea temperatures, collection and sampling of ocean salinities and densities, and current measurements, the ship is equipped with continuous reading bathythermographical gear or Thermarine Recorders, deepsea Nansen reversing water-bottles and Negretti and Zambra precision thermometers. Special hydrographic winches and metre-wheels handle these, and for check soundings and sea-bottom sampling, the ship has a motor-driven Thompson machine fitted on the lower bridge.

The upper bridge, from which most of the survey, as well as the navigating, observations are taken, has a radar scope, binnacle compass, gyro repeaters, azimuth readers, intercom gear, echo-sounding control, and a large covered chart plotting table, suitably lighted where top bridge hydrographers and navigators can work and control operations in fine weather.

These ships will be employed for the balance of the season in the Bay of Fundy and Nova Scotian areas.

