

# WELCOME ABOARD

## THE SHIP - THE TEAM

### CONSTRUCTION

The ship was constructed by the shipyard of British Columbia, Vancouver.

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## HMCS ATHABASKAN



# THE SHIP · THE TASK · THE TEAM

## CONSTRUCTION

The unit construction technique, developed in Canadian shipyards, was employed in building this ship. Instead of building from the keel up, in the conventional manner, separate units were prefabricated, then carried to the building ways to be positioned for final welding.

This unit method makes possible the construction of the vessel by sections under cover, where the work is protected from the weather. The system also allows movement of each section within the fabrication shed in such a way as to ensure the most efficient attitude for erection and welding.

This method also makes it possible for several structural steel manufacturers to be working simultaneously on different components of the ship. Drawings are such that reference to the shipbuilder would, in these circumstances, be unnecessary. The sections could be shipped to the shipyard which would, in effect, become an assembly plant. A high production rate could thus be achieved if required.

Special consideration was given to continuity of strength where relatively large openings in the strength decks were required for machinery removal or overhaul by replacement and for the gas turbine intakes and exhaust.

The *Athabaskan* is all welded, and the welds were X-ray tested to disclose hidden defects. A large quantity of aluminum was used in the ship's interior and the hangar, thereby improving stability through weight reduction.

Extensive metal cleaning and treatment was specified for long term preservation of the weather decks, internal compartments, and bilges.



## WEAPONS

Armament: Two *Sea King* CHSS-2 anti-submarine helicopters with Mark 46 homing torpedoes

Two Mark 32 triple torpedo launchers, with Mark 46 torpedoes.

One anti-submarine mortar Mark 10.

One 5"/54 automatic dual purpose gun.

Canadian Sea Sparrow point defence missile system.

10.3 cm. rocket launchers.

The ship's armament was designed primarily to meet the role of hunting and destroying submarines while, at the same time, providing the Sea Sparrow missile system for point air defence. The size and cost of the ship was kept to the minimum practicable to meet these main requirements and to meet such secondary roles as hunting and destroying surface vessels, shore bombardment in support of troops, coastal surveillance, and protection of shipping.

The computer and display complex form the heart of the weapons system, and most items of weapon equipment are linked to them in some way. Thus, the gun, missiles, torpedoes, and mortar can all be fired, automatically, and at a second's notice, by personnel closed up on watch in the operations room.

The ship's combat control system is advanced third generation equipment having a true instant response capability against attacking submarines, aircraft, and missiles.



## PROPULSION MACHINERY

The ship has two shafts, each of which is powered by one 25,000 shaft horse power (s.hp.) gas turbine for full power conditions and one 3,750 s.hp. gas turbine for cruising power conditions. The main or cruising turbine, whichever is in use, drives a controllable pitch five-bladed propeller through a set of main gearing and shafting.

Selection and control of the engines and propeller pitch are achieved from the bridge or the machinery control room. The gas turbines are automatically connected to, or disconnected from, the main gearing by synchro, self-shifting, air-actuated clutches.

Auxiliary machinery is gas turbine, diesel or electric powered. The layout and installation of both propulsion and auxiliary machinery has been designed to withstand action damage.



## ELECTRICAL EQUIPMENT

The *Athabaskan* has very extensive and complex electrical and electronic systems. Gas turbines and diesel engines drive generators which produce enough alternating current to supply light and power to a city of 27,000.

Weapons, radar, machinery controls, communications, ventilation, air-conditioning, and cooking equipment all depend on electrical power. More than 144 miles of cable distribute power to over 12,000 individual motors and electronic units.

The electrical division operates a complex internal communications system enabling the command to be in direct contact with every part of the ship. In addition to sound broadcast systems and special telephones for docking ship, damage control, and fuelling at sea, there is a 100-line, direct-line intercom, and a 106-line automatic telephone system, similar to a public telephone service.



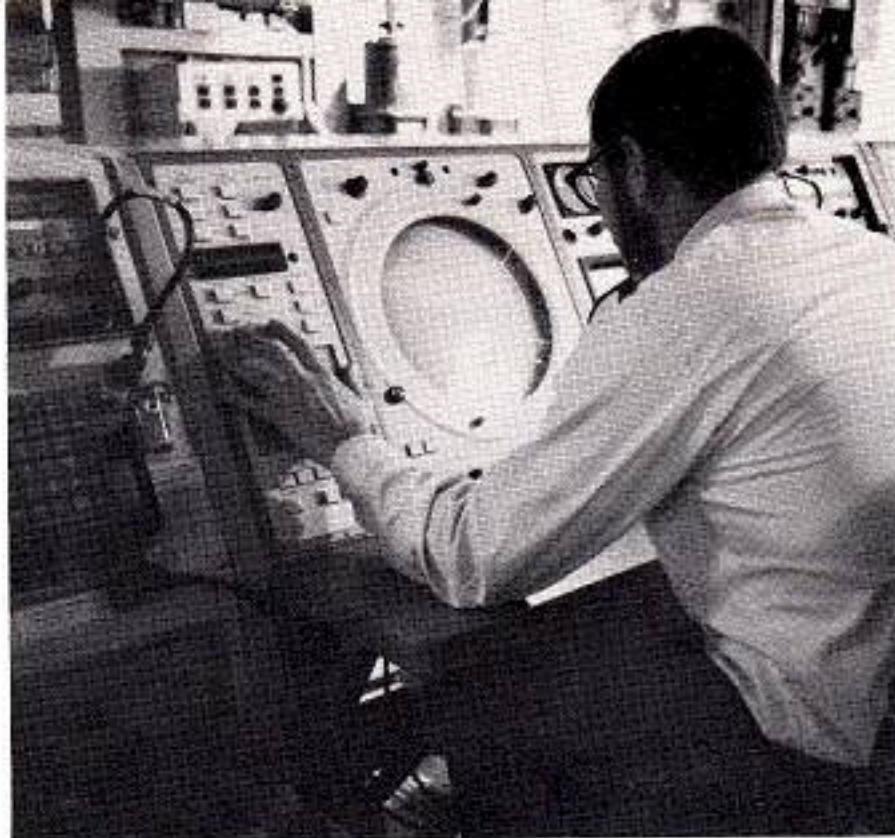
## ELECTRONICS

The *Athabaskan* brings a new dimension to electronics in the fleet through extensive use of solid-state, digital computers to control major sensor and weapon systems.

The nerve centre of the ship is a computer-controlled command and control system which provides instantaneous evaluation of information, solutions to tactical problems, and automatic data communications with other ships.

The ship has modern radar for missile and gunnery fire control, surface warning, air warning, and navigation.

The hull-mounted and variable depth sonar sets are of advanced Canadian design. Their data is fed to the digital computer-controlled underwater combat system which in turn is linked to the central command and control system.



Extensive radio communications are available in the low through ultra-high frequency ranges. A Canadian-designed and built remote-operated system allows push-button assignment of transmitting and receiving equipment to more than 30 operating positions throughout the ship, providing one of the world's most advanced and flexible naval shipboard communications systems.

The ship has modern electronic navigation aids, and is equipped with an air navigation beacon for her helicopters.

Most of the electronic equipment is solid state, employing advanced technology which provides operability, flexibility, and reliability.

## DAMAGE CONTROL AND DECONTAMINATION

The *Athabaskan* has an extensive damage control system with forward and after section bases capable of independent action. However, both section bases are normally co-ordinated by a fully automated damage control headquarters centrally located in the machinery control room.

To reduce danger of flooding and to prevent contamination of the air-conditioning system by gas, bacteria, or nuclear fallout, the hull has been built without portholes. Bilge suction, taken in hold and lower deck compartments, is accomplished by eductors driven by the fire main. A portable, high-capacity pump is located strategically in the ship.

Pumps provide pressure for a fire main which supplies fire hydrants throughout the ship. Paint is fire resistant.

A twin-agent firefighting system has been fitted in the hangar and on the flight deck. A foam system is installed and piped directly to the machinery spaces and to the flight deck. The hazard of fire on deck is much less with the turbine-powered helicopter than with piston-driven aircraft since the fuel used by the *Sea King* has much the same properties as diesel oil, and is far less volatile than high octane aviation gasoline.

The ship can be sealed against nuclear, biological, or chemical attack, with provision for recirculation and purification of air within the ship through the air-conditioning plants. Personnel who have been exposed can be decontaminated in either of two compartments, one located forward and one aft. In the event of nuclear attack a "pre-wetting" system can be activated. The ship is also equipped for hosing down contaminated surfaces on the weather decks.

All damage control features of this ship are based on the particular hull form characteristic which provides her with positive stability under all conditions of damage which she can survive.



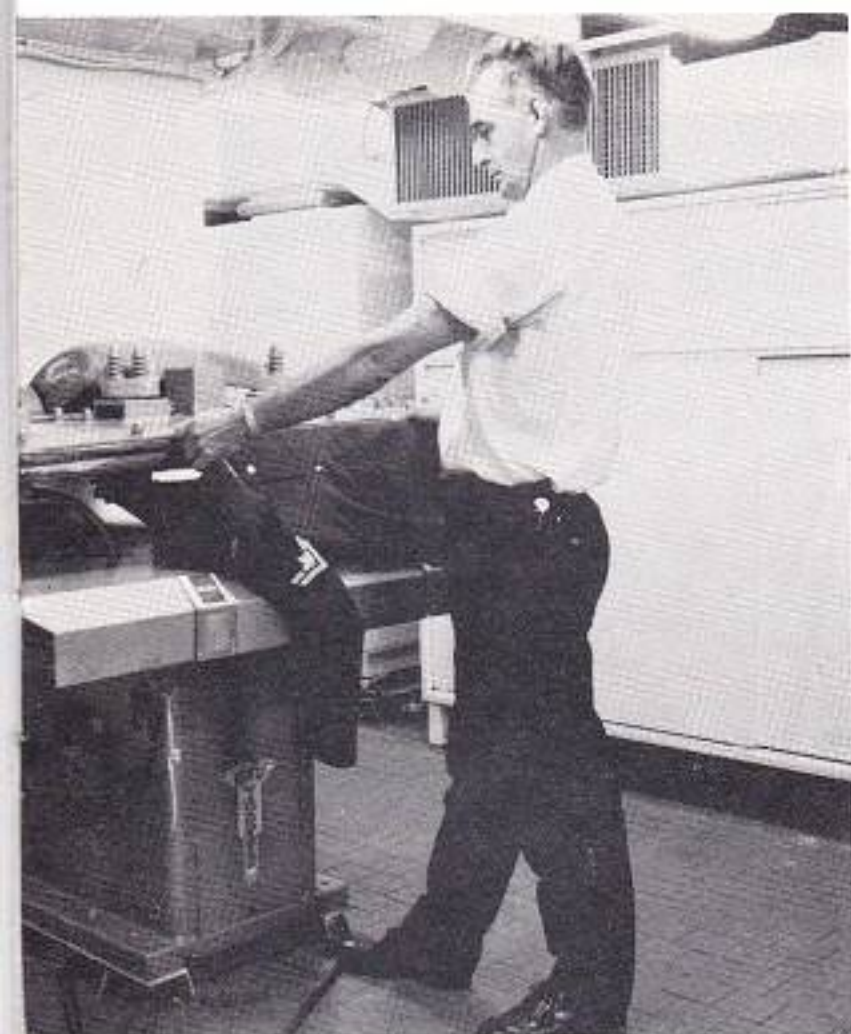
## LIFESAVING AND MEDICAL EQUIPMENT

The *Athabaskan* is equipped with air-tight enclosures containing inflatable rubber rafts for lifesaving at sea. These 20-man rafts inflate automatically on release into the sea or through hydrostatic pressure. In addition to emergency rations, each raft carries survival gear, collapsible bailers, sea anchor, floating sheath knife, and plastic whistle. The rafts have a canopy to shelter the men from the wind, sun, and weather.

The sick bay contains four berths, a bathroom, an operating table with the latest type of operating light, well stocked drug and medical lockers and diagnostic facilities. The anteroom to the senior non-commissioned officers' cafeteria provides an emergency operating/sick bay area for use in action.

## HABITABILITY

Habitability control is a military feature of a ship equal in importance with other military considerations. The goal in the *Athabaskan* was a comfortable and pleasant environment, an appropriate degree of privacy, adequate fittings and furniture, proper stowage of personal effects, and the necessary services to provide for needs of the individual sailor. By and large, these goals have been met.



The crew sleep in two or three tier bunks with foam rubber mattresses, pillows, and individual reading lamps. The ship is air-conditioned, temperature and humidity controlled, throughout. Aluminum clothes lockers, of the latest design, and additional drawer space for personal belongings are provided, as are mirrors and electric shaving outlets. Hot showers and spotless washrooms will help make life at sea more comfortable. Each living space has recreational areas for off-duty hours. In addition, a separate area has been allocated for games, movies, and other recreational activities of the men.

The officers' cabins are arranged for single and double occupancy, except for two which accommodate four junior officers each. The commanding and senior officers' quarters consist of offices and living quarters.

There is provision for cafeteria-style messing from a centrally located, electrically equipped galley. The galley contains a bakery, and sections for handling pastry, meat, and vegetables, a dishwashing machine and garbage disposal unit.

The main dining area can also be used for recreational purposes in the evenings. Lighting is fluorescent. The senior non-commissioned officers have a separate dining space nearby.

The ship has storage for 90 days' frozen provisions, compared with that for 14 days in Second World War escort ships.



