



TECHNICAL  
PRESS INFORMATION  
N.S. SAVANNAH

COMPILED FOR THE  
U.S. ATOMIC ENERGY COMMISSION  
U.S. DEPARTMENT OF COMMERCE  
MARITIME ADMINISTRATION

BY NEW YORK SHIPBUILDING CORPORATION, CAMDEN, NEW JERSEY

PART II-A

DESCRIPTION OF HULL AND OUTFITTING

The SAVANNAH is a single screw, passenger-cargo ship with an overall length of 595-feet 6 inches. She has a molded beam of 78 feet and her design draft is 29-feet, 6 inches when fully-loaded. Total displacement at this draft is approximately 22,000 tons. Her cruising speed is 21 knots developed with a normal output of 20,000 shaft horsepower. She is essentially a sheltered deck vessel of advanced design with a raked stem and a modified cruiser stern. The ship will carry 60 passengers, a crew of about 110, and about 10,000 tons of dry cargo.

The vessel is fitted with three complete decks. Ten main transverse, watertight bulkheads divide the ship into eleven thwart-ship compartments. The hull is built on a transverse framing system except for the inner-bottom, which is a combination of transverse and longitudinal framing especially stiffened in the reactor area to provide positive protection to the nuclear steam plant in case of ship collision. The vessel meets a two-compartment standard of subdivision at a draft of 29 feet 6 inches.

With its modern sweeping lines, the SAVANNAH presents a most attractive profile. Her teardrop-shaped superstructure is set sufficiently aft to enhance the vessel's foresection which tapers to its well raked bow. This expanse of deck accommodates hatch openings for Nos. 1, 2, 3 and 4 cargo holds which will be served by two sets of cargo gear support trusses and their eight

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attendant ten-ton booms and cargo handling gear. The cargo handling has been specially designed for the SAVANNAH. It is the lightest yet developed for the modified Ebel rig and fitted for extremely rapid handling of cargo. Immediately aft of No. 4 cargo hold and forward of the wheelhouse another hatch is located to provide access to the reactor space.

Aft, the superstructure steps down to a generous expanse of deck at the Promenade and "A" deck levels. One set of support trusses equipped with four ten-ton booms serves No. 6 and No. 7 cargo holds. Cargo hatch covers are set in coamings on "A" deck and are of the flush closing type on "B" and "C" decks. All hatch covers except for two non-tight, lift-off pontoon covers on the cargo deep tanks in No. 6 hold, are hydraulically operated from local stations at each hatch. The vessel has one additional cargo hold, No. 5, which is served by side ports exclusively.

The uppermost deck, referred to as the navigating bridge deck, serves a dual purpose. The forward end is given over to the pilot house with the radio room on the starboard side and chartroom on the port side outboard of the gyrocompass housing. The balance of the navigating bridge deck includes living quarters for three radio operators and two cadets as well as space for the fan rooms, a battery room, and the emergency generating room.

The pilot house is completely outfitted with the latest navigation and communication equipment. Dominating the area is

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the wheelhouse control console, housing all conventional wheelhouse instrumentation. It is situated well forward and on the center line. The magnetic compass is of the reflecting type, the first to be manufactured in this country. On either side of the steering stand there will be installed the latest type of navigational radars, the first to utilize "true motion" presentation of data. Another important unit in the wheelhouse will be the control console for the anti-roll stabilizers which will be located on the port and starboard sides amidship. The fins are operated hydraulically by a gyro system capable of sensing sea conditions and providing the counter-measure for reduction of the roll. Each fin has a lift of approximately 70 tons at twenty knots. Meteorological instruments for recording sea water temperature, atmospheric pressure, wind direction and velocity, humidity, and air temperature are incorporated into the vessel making her a veritable floating weather station. A special radio facsimile receiver will make it possible to receive world-wide weather map transmissions at sea from the U.S. Weather Bureau in Washington, D.C.

The Boat deck, the next uppermost deck, is devoted entirely to officer's accommodations. A spacious officer's lounge located in the after-end affords observation on either side of the ship as well as aft overlooking the passenger recreation area.

The Promenade deck is devoted exclusively to public rooms and spaces. A "walk around", the full width of the deck, features a series of 30-inch high windows permitting an unobstructed, yet sheltered forward view of the sea. Just behind the Promenade

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deck "walk around" is the main lounge which can be closed off from the adjacent writing room and card room by folding screens. The main lounge will be equipped with projection equipment for motion pictures as well as for closed circuit television viewing of the reactor spaces. The after end of the Promenade deck structure includes the veranda and cocktail bar, which, through sliding glass doors, opens onto the swimming pool. The remaining deck space on this level will be utilized as shipboard game area.

Within the hull structure, "A" deck level is assigned to the main lobby, passenger staterooms and accommodations for the purser, steward, doctor, and nurse. The ship's hospital and dispensary are also located on this level as is the health-physics laboratory. In keeping with the modernity of its nuclear propulsion system, a modern decor is carried out in all of the passenger staterooms and public areas utilizing materials which are functional as well as decorative. All of the public areas on the ship, the passenger staterooms and the passenger's dining room (located on "B" deck) are to be completely air conditioned.

The SAVANNAH has a viewing gallery, on "C" deck, which allows visitors to observe the engine room from three sides and to look through the large windows of the main engine and reactor control room.

The vessel is equipped with five elevators: one 2,000-pound passenger elevator from the Boat deck to "C" deck with all stops; two 2,000-pound cargo elevators; and two 2,000-pound stores elevators.

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The hull is built on a conventional transverse framing system except for the inner-bottom. The inner-bottom, below the reactor space, is "egg crated" with transverse floors at every frame; and a deep vertical keel and many keelsons in the fore and aft direction. In addition to this great strength in the inner-bottom, there are two heavy longitudinal collision bulkheads (21'-9" off center line on the port and starboard sides) adjoining the reactor space. Outboard of the collision bulkheads, "B", "C", and "D" decks have heavier-than-normal plating, continuously welded to the beams. Inboard of these bulkheads are collision mats, extending between "C" deck and the 14-foot flat for a length of 35 feet adjacent to the central portion of the reactor containment vessel. This mat is made up of alternate layers of steel (1" thick) and redwood (3" thick) for a total mat thickness of 24 inches.

The additional hull strength assures very high resistance to collision and grounding. In event of a broadside collision opposite the reactor space, the ramming ship would have to penetrate 17 feet of stiffened ship structure, the heavy collision bulkhead, 2 feet of collision mat, 1.5 feet of reinforced concrete shielding, and the reactor containment vessel, before the actual reactor plant could be damaged.

The high strength of the inner-bottom plus the very strong supports for the containment vessel offer tremendous resistance to reactor plant damage due to grounding.

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### LIFEBOATS

The SAVANNAH has four aluminum lifeboats hung from steel gravity davits. One boat is hand-propelled, another is motor-propelled, and two are oar-propelled. They have a total capacity of 190 persons.

### ANCHORS AND GROUND TACKLE

The ship is equipped with two 12,000-pound Danforth cast-steel bower anchors, and one 12,000-pound Danforth cast-steel spare bower anchor. Each bower anchor is furnished with 165 fathoms of 2.5-inch cast-steel stud link chain.

The steering gear is a four-cylinder, electro-hydraulic ram type driving the crosshead through a Rapson slide. Two independent power plants are capable of handling the rudder with a maximum torque requirement of about 7,000,000-inch-pounds. The rudder is a balanced, streamline spade type capable of turning hard over to 38 degrees port and starboard.

### REFRIGERATING MACHINERY

A complete refrigeration system is provided to serve the ship's cooling system of approximately 9,000 cubic feet. Two refrigeration units are provided, each capable of handling the normal sea load.

### AIR CONDITIONING

All public spaces, living accommodations, medical spaces, passages, offices, and shops aboard the SAVANNAH are air conditioned.

### CARGO HANDLING EQUIPMENT

The SAVANNAH has some of the latest cargo handling gear

available. In lieu of the normal kingposts, the SAVANNAH has a tubular rigid frame structure for the ten-ton booms. This is the lightest structure yet designed for Ebel-rigged booms. The Ebel rig is a modern method for fast cargo handling. The rig makes it possible for one or two deckhands to unstow and position all booms on the ship for cargo operations in less than an hour; and the shifting of booms from inshore to offshore operation during loading can be accomplished in one or two minutes by the winch operator without moving from his station. An inherent safety condition in this system makes the rig refuse to lift a load if tension in the falls tends to exceed a safe limit.

#### DECOR IN PUBLIC SPACES

The interior design of the SAVANNAH will reflect the finest products of modern American materials, craftsmanship, and technology. Metals and plastics will be apparent throughout. Bulkheads will be surfaced with a variety of maintenance-free materials. Textured vinyl film will be applied throughout passenger staterooms and much of the public room area. Bulkheads of senior officers' quarters and bathrooms will be finished with melamine laminates. Patterned, color anodized aluminum will be veneered to bulkheads enclosing the Main Stair. Integrally-colored marine veneer will line passenger corridors. Furniture, incombustible beyond the requirements of the U.S. Coast Guard, will feature steel, aluminum, and plastics construction. Carpets, draperies and upholstery will utilize a maximum of man-made fibers, such as saran, nylon, and dynel.

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The glass-enclosed "Visitors Gallery" surrounding the engine room, and overlooking the SAVANNAH's complex control center, will feature diagrammatic line drawings describing the ship's nuclear propulsion system. They will be incorporated in the plastic laminated bulkhead panels.

Thirty staterooms, each with private bath, accommodate one, two, or three passengers. Adjoining rooms open up to form two suites.

The Dining Room on "B" deck will seat approximately 75 people. A huge, parabolic sculptured mural will provide a dramatic background at the aft end of the room for the captain's table. Opposite, at the entrance foyer, a small golden model of the original "Savannah" will be suspended in a glass panel.

The Main Lounge, located at the forward end of the Promenade deck, is elliptical in shape. The aft curved bulkhead will serve as background for a traveling exhibit of American art. These paintings will be on loan from various museums and artists collections and will be changed each time the ship comes home.

The National Park Service of the U.S. Department of the Interior in Holbrook, Arizona is cooperating with the designers in selecting two 36-inch-diameter, 3-inch thick slabs of petrified wood to be cut, polished, and used for coffee table tops in this room.

On the aft end of the Promenade deck, the Veranda Bar looks out on the swimming pool area through a deck-to-deck glass bulkhead. The dance floor, centered in the room is outlined

with tables whose illuminated tops will glow by means of "panelescence" lighting. The same electroluminescence will also light the dials of six clocks showing the time in various cities around the world. On the backbar, a free-form design of stainless steel honeycombs will house the various wines and liquors.

The enclosed Promenade on the SAVANNAH is treated as a terrace and the deck will be covered in ceramic tile of various tones of blue and green.

The interior and exterior styling are being executed by the marine specialists, Jack Heaney and Associates, of Wilton, Connecticut.