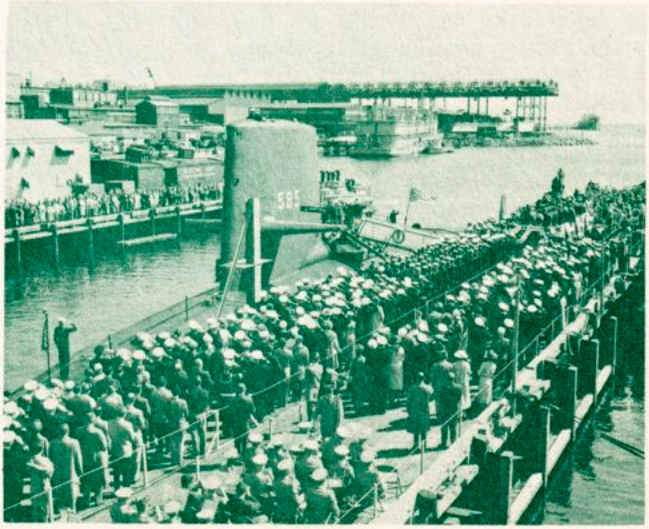
U S S SKIPJACK

SS(N)585

LAUNCHING



COMMISSIONING

U. S. S. SKIPJACK (SS(N)585)
SHIP'S HISTORY

SKIPJACK, radically different and speedier than any predecessor submarine, is the first of a new generation of fighting ship. SKIPJACK marks important milestones in many areas of research and development. Her blunt-nosed, football-shaped hull is in itself an important development—used for the first time in a combatant ship. The adoption of this hydrodynamically superior hull shape, devoid of all superstructure, makes it possible for her efficient, nuclear power plant to give her the highest submerged speeds yet attained. Authorized by Congress as a part of the Navy's fiscal year 1956 shipbuilding program, her keel was laid at the Electric Boat Division of General Dynamics Corporation, Groton, Connecticut, on May 29, 1956. Two years later Mrs. George M. Mahon, SKIPJACK'S sponsor, broke the traditional bottle of champagne over the bow and SKIPJACK slid down the ways into the Thames River.

SKIPJACK commenced her sea trials on March 8, 1959, and on their completion was acknowledged to be the world's fastest submarine. She was commissioned on April 15, 1959, and joined the Submarine Force, U. S. Atlantic Fleet. Immediately, she started work to prove the soundness of her radical design for, as is indicated by SKIPJACK's motto "Radix Nova Tridentis", (Root of the New Sea Power), much of the Navy's future depends on her. Her basic hull form and the nuclear power plant has been used for almost all new submarines, including the potent Polaris missile submarines. During SKIPJACK's shakedown cruise in August 1959 she became the first nuclear ship to pass the straits of Gibraltar and operate in the Mediterranean. During this cruise she visited Portland, England, LaSpezia, Italy and Gibraltar. During subsequent operations, SKIPJACK has also visited Bermuda, Faslane, Scotland and many East coast ports of the United States.

The nuclear propulsion plant in SKIPJACK is the result of a decade of developmental research by the Naval Reactors Branch of the Atomic Energy Commission and the Westinghouse Electric Corporation who also provided the reactor plant for the first nuclear submarine, NAUTILUS. By careful engineering progress it has become possible to greatly reduce the size and complexity of the plant and to use a single, maximum efficiency propeller instead of the usual multiple propellers of other warships.

The present SKIPJACK is the third ship of the United States Navy to bear this distinguished name. The first SKIPJACK was launched in 1911. One of her earliest Commanding Officers was Lt. Chester W. Nimitz, later to be Fleet Admiral and Commander of American Forces in the Pacific Theater of World War II. The next SKIPJACK was commissioned in 1938 and was in Manila Bay when the United States was thrown into World War II.

USS SKIPJACK (SS(N)585), with her capability of going faster than any other submarine, and with her strong combat potential, has a vital role in assuring the freedom of the seas to all nations.

Combat Potential

True submarines like SKIPJACK are fitted wtih the most modern anti-submarine fire control and sonar equipment, and are the most effective single weapons system available to combat other submarines. SKIPJACK's primary mission is to seek out and destroy enemy submarines and shipping. Other nuclear submarines are fitted to fire ballistic missiles. Both these classes of submarines can remain fully submerged on station almost indefinitely. They are invisible and virtually undetectable and indestructible. They present an almost unchalleneable deterrent force-in-being to any potential aggressor.

ENGINEERING PLANT DESCRIPTION

Primary System

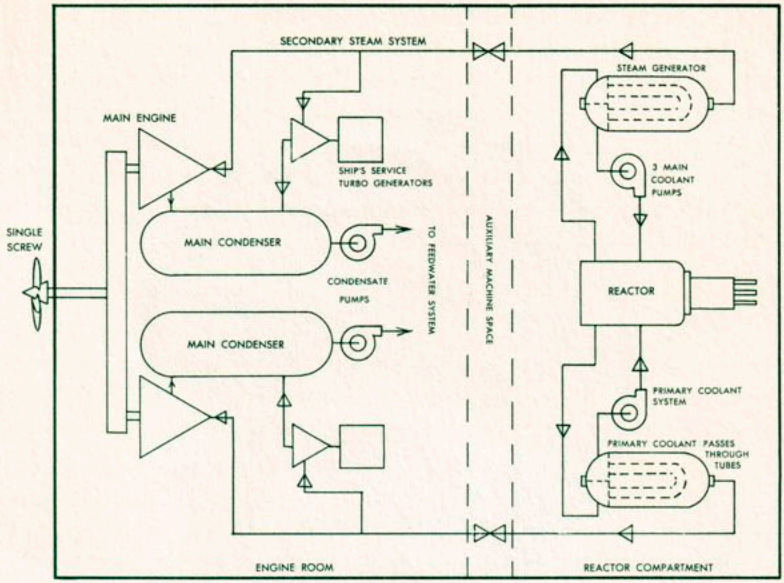
The reactor compartment equipment includes one reactor, and two primary loops.

The reactor gives up heat to the primary coolant water, which then is forced through the steam generator tubes where it gives up heat to form steam on the shell or secondary side of the boiler. The primary coolant is then pumped back into the reactor where it is heated again.

The primary coolant water is kept pressurized to insure that boiling will not take place in the reactor.

Secondary System

The secondary system is the steam system. It is completely



isolated from the primary system since the primary water goes through the tubes of the steam generator while the secondary water, which is boiling to make steam, is on the shell side.

Steam rises to the top of the steam generator where the water carry-over is separated from the steam. The dry saturated steam then flows back to the engine room where it drives ship's service turbo generator sets (SSTG), and the main propulsion turbines.

Provision is made for declutching the propulsion turbines and reduction gear from the propeller shaft so that the ship can be driven through the water by the electric motor mounted integrally on the propeller shaft. The electric motor can receive power from the battery, from small diesel engines or from AC-DC motor generator sets.

Reliability

The SKIPJACK's S5W Reactor Power Plant has one reactor and a single propeller. Between these two vital components

almost every electrical and mechanical system is installed in duplicate on the port and starboard sides of the ship. In addition, every control feature of the power plant and of the ship has at least one backup method of operation in addition to normal operation. The single propeller is made to the same standards of strength as are ice breaker propellers while the shock resisting and strength characteristics built into the reactor virtually rule out physical damage to the reactor.

Radiation

When the reactor is in operation, the lower level of the reactor compartment is kept isolated and personnel cannot enter this space. Within a few minutes after shutdown the lower level reactor compartment can be entered to perform maintenance work.

The shield of the SKIPJACK reactor reduces the radiation to a level such that, during a cruise lasting the life of the reactor, the average crew member will receive less radiation than he would during a lifetime from x-rays and cosmic rays and natural radioactivity in the sea, air, drinking water and ground. In one year of operation the average crew member will receive less than the Bureau of Standards allowable radiation dosage for one week.

Startup

A typical schedule for startup from a cold condition follows:

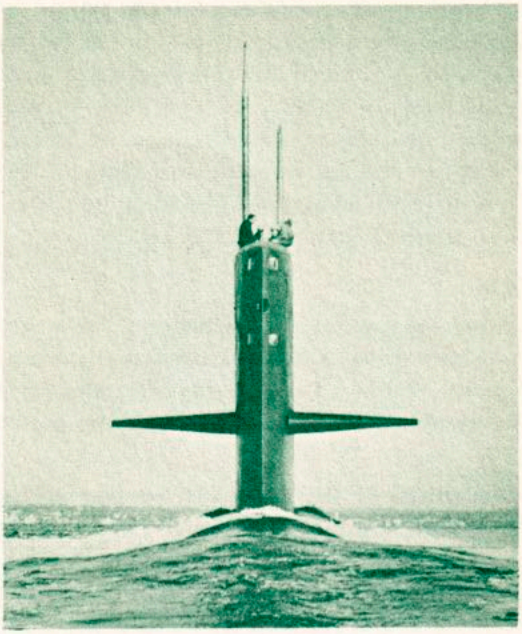
Four hours before underway—Start a pre-critical checkoff, which is a thorough check of all reactor control equipment. The in-port watches in the engine room and reactor compartment check systems lined up for operation.

Two hours before underway time—Engineering duty section stations the watch. Commence pulling rods.

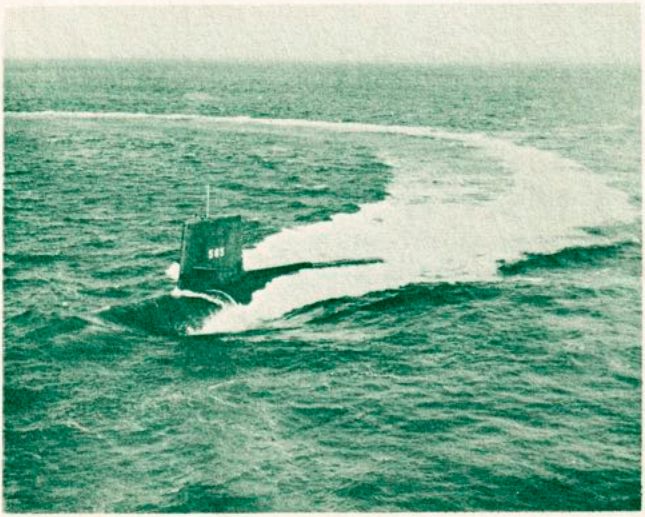
One and one-half hours before underway time—Reactor startup completed—warming up primary loop and steam lines.

Thirty minutes before underway—Warm up turbines. Put turbo generator sets in operation.

Fifteen minutes before underway time—Ready to answer bells.



UNDERWAY TRIALS



A UNIT OF THE FLEET

KEEL LAID:	May 29, 1956
LAUNCHED:	May 26, 1958
MAIDEN VOYAGE:	March 8, 1959
COMMISSIONED:	April 15, 1959
BUILDER:	General Dynamics Corporation Electric Boat Division

Printed in U.S.A.
SM-1-62-P.P.