



GULF STREAM DRIFT MISSION REPORT

• GRUMMAN CORPORATION • BUREAU JACQUES PICCARD
• U.S. NAVAL OCEANOGRAPHIC OFFICE • NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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BEN FRANKLIN DRIFT MISSION CHRONOLOGY

At 8:56 P.M. (EDT) July 14, Grumman Aerospace Corporation's research submarine Ben Franklin slipped beneath the surface of the Atlantic off the coast of Palm Beach, Fla.

Its mission: to investigate the secrets of the Gulf Stream as it drifted northward at depths of 600-2,000 feet; to learn the effects on man of a long-duration, closed-environment stressful voyage; to demonstrate the engineering-operational concepts of longterm submersible operation, and to conduct other scientific oceanographic studies.

This longest privately-sponsored undersea experiment of its kind ended more than 30-days and 1,444 nautical miles later, when the Franklin and its crew of six surfaced some 300 miles south of Halifax, Nova Scotia, at 7:58 A.M. August 14. Both craft and crew were A-OK.

Following is a capsule chronology of the epoch voyage:

Day 1 (7/14) Ben Franklin departs Port of Palm Beach, 10:40 A.M., is towed 19-miles offshore and dives at 8:56 P.M. to 1,800-feet.

Day 2 (7/15) At 1:15 A.M. Franklin rises 25-feet off bottom to begin northward drift, conducting bottom reverberation experiments.

Day 3 (7/16) Drifting faster than expected, Franklin's crew radios best wishes to Apollo astronauts about to blast off for the moon.

Day 4 (7/17) All crewmen, save Aebersold, have head colds; while the nation swelters, temperature inside Franklin is a cool 62-degrees. Scientific program progressing nicely.

Day 5 (7/18) Decision to continue for full mission is affirmed; Franklin passes 100-hour mark, bettering own submerged record.

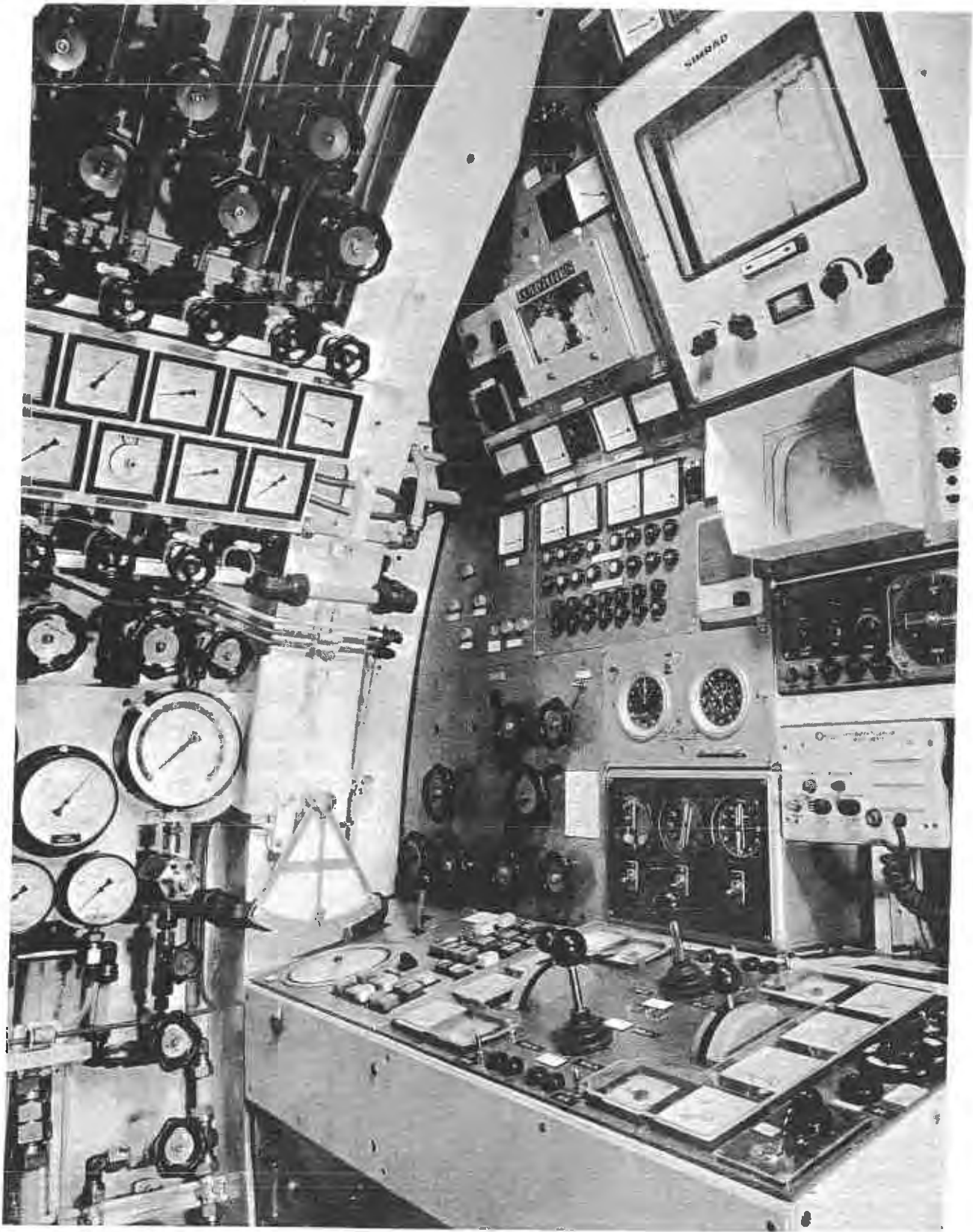
Day 6 (7/19) Colds responding to medication and advice from MD on surface ship; broadbilled swordfish attacks Franklin; neither combatant suffers injury.

Day 7 (7/20) NASA experiments progressing nicely; Franklin well within power budget.

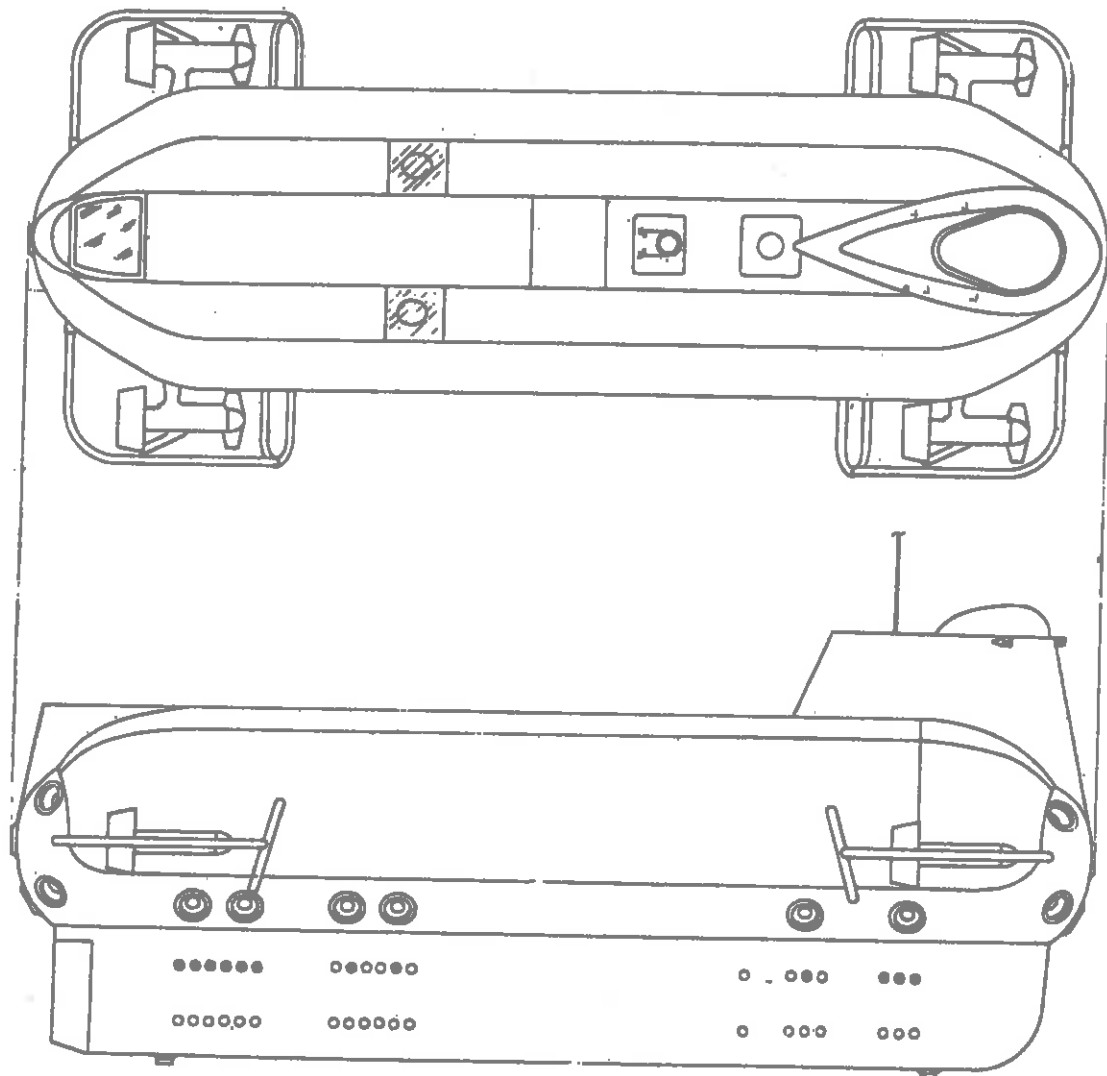
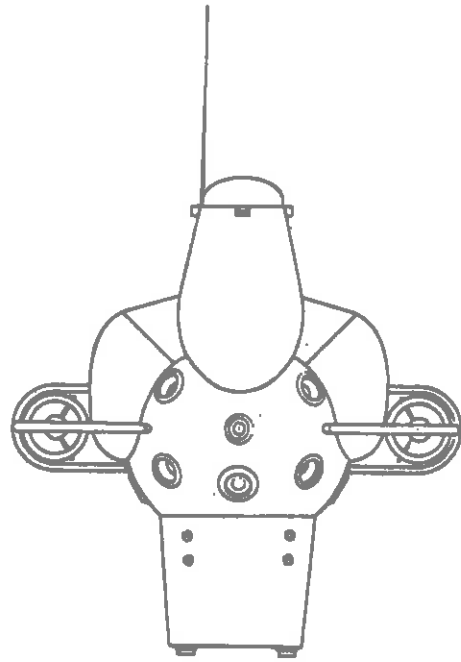
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FRANKLIN CHRONOLOGY 2-2-2

- Day 8 (7/21) Biggest problems aboard-clogged sink drain, broken head pump handle.
- Day 9 (7/22) Sonar warns of obstacles on seafloor, sub rises 100-feet off to safely pass.
- Day 10 (7/23) Sub completes 24-hour bottom photo-making cruise, first time ever done.
- Day 11 (7/24) Vertical waves throw sub off course; temperature drops to 57 degrees.
- Day 12 (7/25) Discover hilly seafloor not on charts; Deep Scattering Layer absent.
- Day 13 (7/26) Franklin expelled from stream, surfaces for tow, hatches stay sealed.
- Day 14 (7/27) Tow completed, sub dives to 1,000-feet, continues northward drift.
- Day 15 (7/28) Crew resumes scientific activities; life support systems working flawlessly.
- Day 16 (7/29) Navy ship Lynch conducts acoustic experiments with Franklin; ambient light and bottom reverberation tests also completed.
- Day 17 (7/30) Crew regarding chores now as "routine"; taped music, reading take up leisure.
- Day 18 (7/31) Indications sub caught in another eddy, 49 miles southeast of Cape Hatteras.
- Day 19 (8/1) Franklin avoids eddy; Gulf Stream starts sweeping vehicle in easterly direction.
- Day 20 (8/2) Crew alerted to tropical storm Anna brewing off Cape Hatteras.
- Day 21 (8/3) Light brush with storm; sharks sighted, dolphin sounds and whale calls recorded.
- Day 22 (8/4) Barracuda, swarms of plankton sighted underwater; one-inch specimen caught.
- Day 23 (8/5) Drift speed greater than anticipated, exceeds 2.5 knots; sub at 600 feet.
- Day 24 (8/6) Franklin passes 1,000-mile mark; tuna seen clearly in natural light at 600-feet.
- Day 25 (8/7) Speed now about 3 knots; stability problem develops, Kazimir has theory on it.
- Day 26 (8/8) Franklin now 400-miles east-southeast of Grumman HQ, Bethpage, L.I.
- Day 27 (8/9) Sub dives to 1,800 feet, conducts acoustical experiments, measures drift.
- Day 28 (8/10) Crewmen plan for "splash-up" Thursday, Aug. 14.
- Day 29 (8/11) Cruising at 1,000 feet, Franklin continues marine biological experiments.
- Day 30 (8/12) Sub now 550-miles east-southeast of Grumman, Bethpage; spirits are "high".
- Day 31 (8/13) Coast Guard cutter Cook Inlet arrives on scene; final surfacing plans begin.
- Day 32 (8/14) Franklin splashes up 300-miles south-southeast of Halifax, Nova Scotia, at 7:58 A.M.

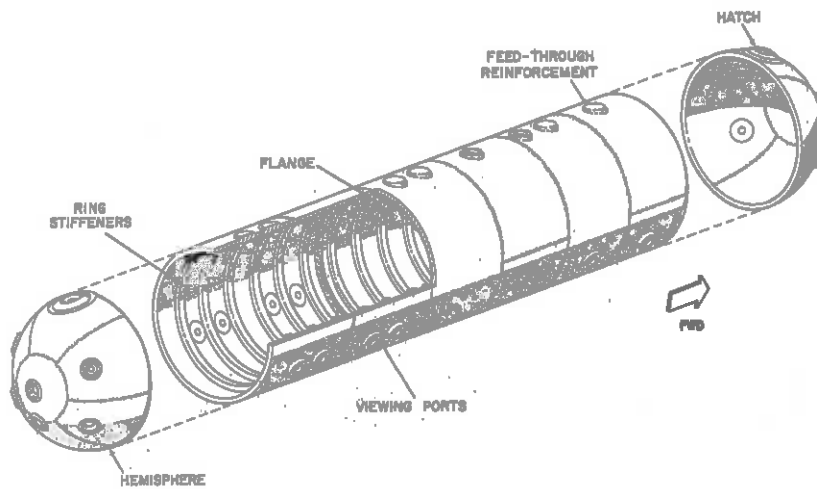


Pilots Panel



FWD

General Arrangement -
Ben Franklin



GRUMMAN/PICCARD PX-15
PRESSURE HULL

