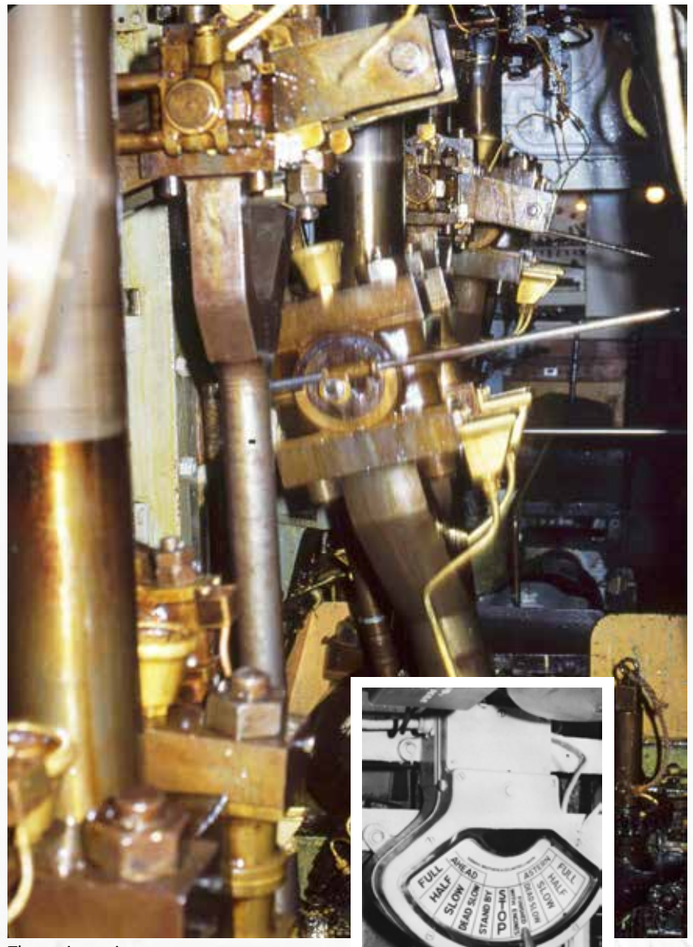
The computer

SS Explorer was fitted with a computer to help analyse the research data. In the 1950s this was cutting edge stuff because up to this point all computers were on land, not out at sea where the experiments were being done. Although the analogue computer took up an entire room and only had the power of your average modern digital pocket calculator, it paved the way for other ships to fit their own systems and greatly advanced maritime research. Other equipment installed aboard measured data from the engine, propeller, hydrographic survey gear and the trawl lines.

Communications

The telegraphs were electric and navigation was state of the art for the period with electronic gear such as radar, direction finder, gyro-compass and Decca Navigator sets fitted.
A fully electric intercom system was installed alongside the more traditional voice tubes. Many Bakelite phones remain in place and still work.


The main engine

Siemens mechanical engine room telegraph

The main engine

The jewel in *SS Explorer's* crown is her main engine. The triple expansion steam engine is one of the last remaining UK examples of the marine type still in its original context. It is rated at 1000 ihp and could push the ship through the seas at a quoted speed of 12 knots, as well as operate for long periods of time at smooth, low revolutions – ideal for trawling. Her large fuel-oil tanks, gave *SS Explorer* a range of up to 8000 nautical miles. She could be pushed beyond her stated design speed if provoked though. We have been told of a race between her and some diesel boats on the return to Aberdeen from a research trip, when 19 knots was indicated as *SS Explorer* beat them home, singing with the vibrations from the main engine the whole way.

"There were scientific advantages to the vessel being steam-powered, as she was remarkably quiet and smooth, a great bonus when trying to make scientific measurements."

The boiler

The boiler is a triple-furnace, fuel-oil fired 'Scotch' type which delivered steam at 225psi. This boiler also provided the steam for the main and aft plankton winches, as well as the anchor windlass on the bow.

MARCONI LODESTAR

"It's a time capsule of everything that was good in shipbuilding in Scotland back in the day of scientific enterprise, initiative, and world-leading science"


Wheelhouse voice tube


Electrical switch gear

Electrical power

In a concession to developing technologies, all auxiliary pumps such as the boiler feed, circulating and fuel pumps, are electrically driven rather than being powered by steam from the boiler as would normally be expected. Following the era in which *SS Explorer* was built, many ships were fully diesel driven and the need for such auxiliaries vanished. It would be safe to suggest that the engineering set-up of *SS Explorer* is therefore unique.

A **Ruston 4VRH** and two large **Ruston 6VPH** engines, which may be familiar to railway enthusiasts, provide the bulk of the electrical power.
The two mains generators each produced 80kw at 220v DC and the auxiliary harbour set produces 24kw at 220v DC. An AC system was fitted for the extensive lab equipment and it was generated by an alternator set near the bow. It was also possible to connect *SS Explorer* to a shore mains supply.