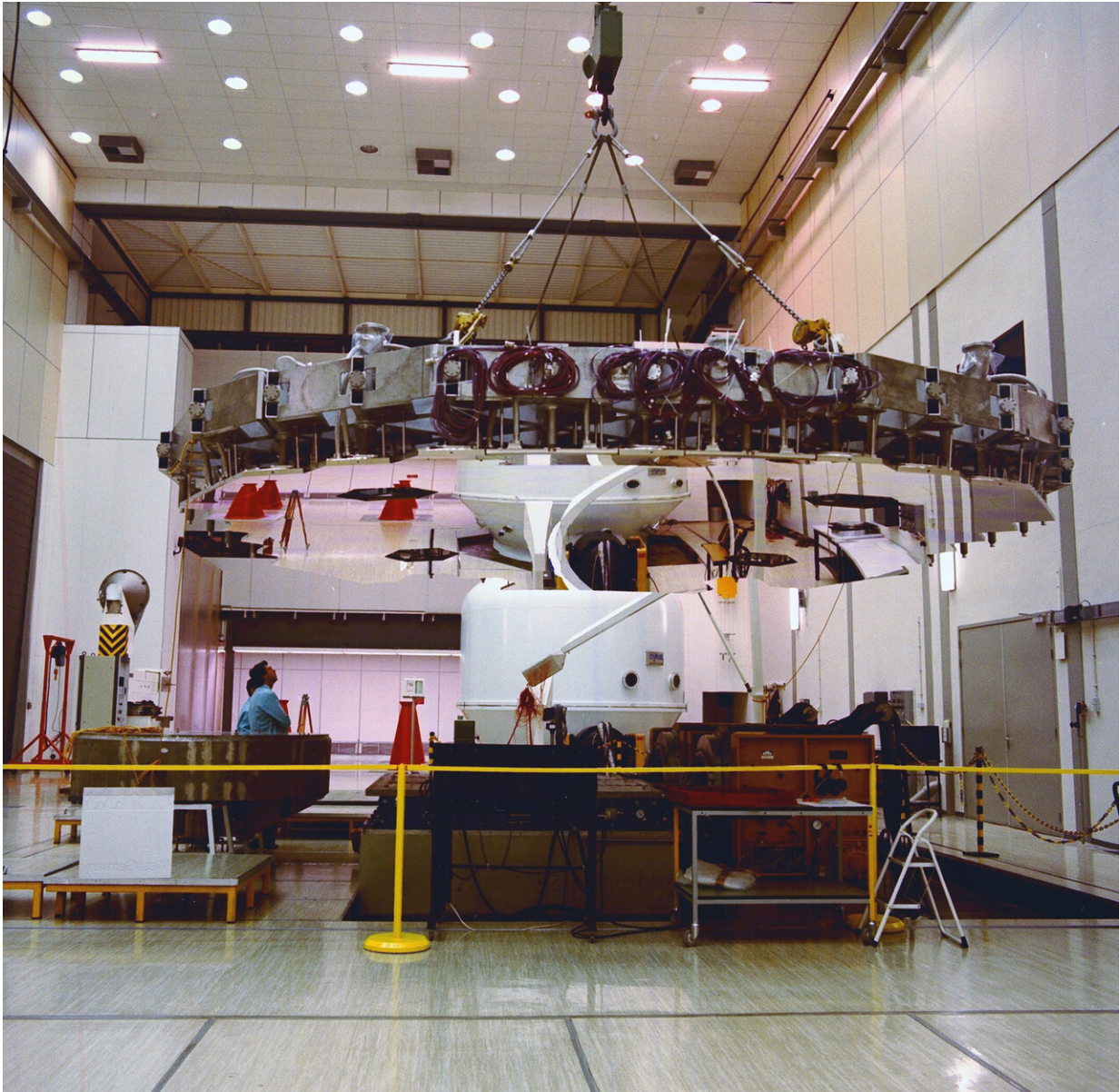


Image: Mirror array for LSS

April 17 2019



Credit: ESA, CC BY-SA 3.0 IGO

The giant 121-segment mirror array used to reflect simulated sunlight into the largest vacuum chamber in Europe seen being hoisted into position within ESA's technical heart back in 1986.

This [mirror](#) array remains an integral element of ESA's Large Space Simulator at the ESTEC Test Centre in Noordwijk, the Netherlands. It is used to subject entire satellites to space-like conditions ahead of launch. At 15 m high and 10 m in diameter, the chamber is cavernous enough to accommodate an upended double decker bus.

Satellites are lowered down through a topside hatch. Once the top and side hatches are sealed, high-performance pumps create a vacuum a billion times lower than standard sea level atmosphere, held for weeks at a time during test runs.

This mirror [array](#) is made of 121 separate hexagonal segments. Its task is to reflect a 6-m diameter beam of simulated sunlight into the chamber, at the same time as the walls are pumped full of -190°C liquid nitrogen, together recreating the extreme thermal conditions prevailing in orbit.

By re-orienting the individual segments a much tighter beam can be focused, helping to simulate higher intensity [sunlight](#), such as the 10 solar constants experienced in the vicinity of Sun-scorched Mercury, for testing the ESA/JAXA BepiColombo mission.

The LSS has tested dozens of space missions over the years, including many of ESA's largest: as well as BepiColombo, the 8-tonne Envisat and the 20-tonne Automated Transfer Vehicle.

Provided by European Space Agency

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