

Marconi
Radar Systems

LIGHTWEIGHT NAVAL WEAPON CONTROL SYSTEMS



Marconi Radar Ship Systems



Marconi Radar Systems Limited incorporates the company that designed and manufactured the world's first operational radar. It is Europe's largest supplier of air traffic control and ground and shipborne defence radars and has provided radar systems and equipment to over half the countries of the world.

Marconi Radar is the United Kingdom's leading supplier of naval radar and over the past years has supplied early warning, target indicating and fire control radars to the Royal Navy,

including the radars for GWS30 (Sea Dart) and GWS25 (Seawolf).

The Sea Dart radar is a long range tracker and illuminator, used extensively in the Royal Navy for area defence. Seawolf, on the other hand, is a fully automatic system providing RN ships with point defence against missile attack.

ST802 is the well proven lightweight tracking radar for the control of guns and missiles, suitable for small craft down to 100 tons.

Advance technology radars

Events have shown that all ships, from the aircraft carrier to the fast strike craft, are vulnerable to low level attack from either air or ship launched sea skimming missiles. To combat these threats, Marconi Radar have designed and are currently supplying lightweight radar systems to the Royal Navy.

A Complete Capability in Weapon Control



805 Seawolf System



The 805SW tracker is one of a comprehensive series of lightweight naval fire control radars. A dual frequency differential radar, it is designed specifically to match the performance envelope of the Seawolf missile.

The lightweight Seawolf radar includes equipment from the main GWS25 system, the Marconi S800 series lightweight naval radars and the Marconi Rapier blindfire radar.

The tracker is fully automatic, to provide the fast reaction time necessary to combat small targets and is autonomous, requiring only the allocation of the fire control channel to the selected target and information defining ship's motion.

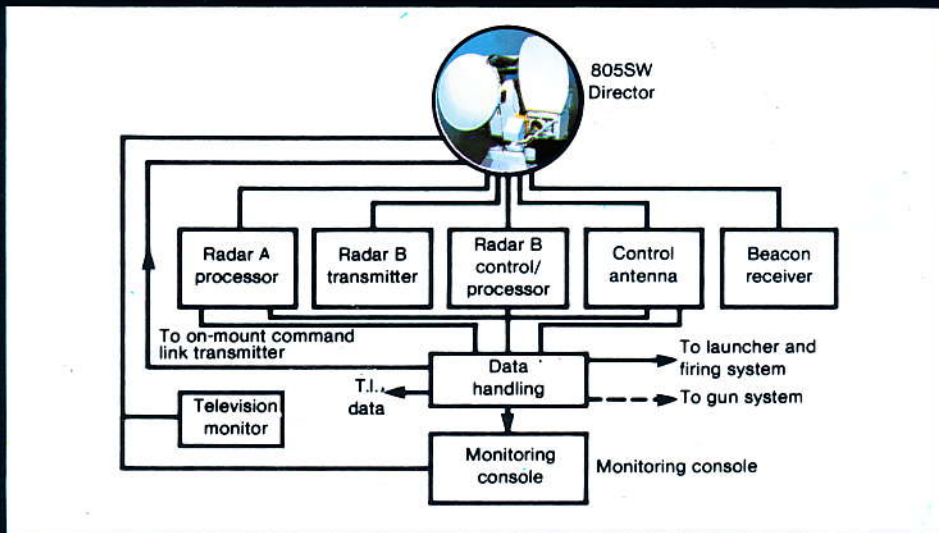
Excellent clutter rejection is provided in both frequency bands, enabling the ship to be protected in both open or enclosed waters. Special facilities are provided to enable the system to operate in hostile electronic environments.



Rapier radar

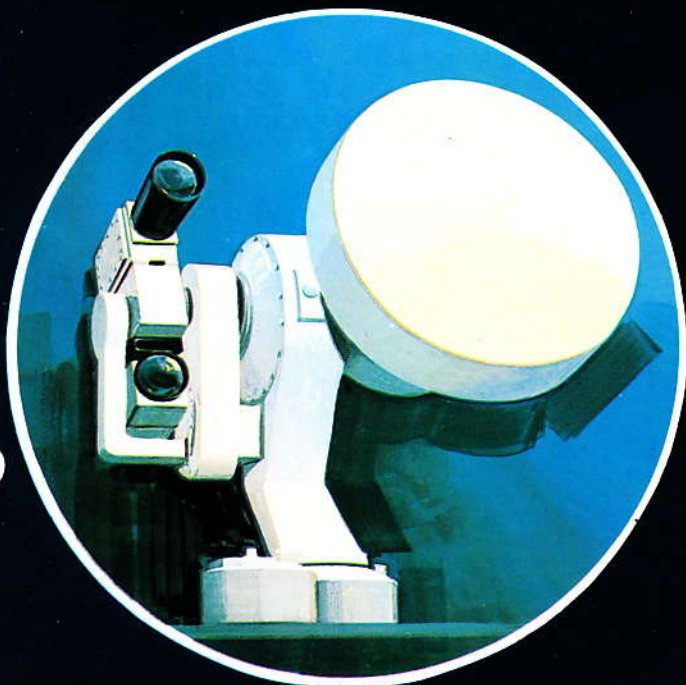
FEATURES:

- Dual frequency, using independent radars
- Makes full use of the performance of Seawolf.
- Fast reaction time — fully automatic from target detection to target destruction.
- Full blindfire control of Seawolf against missiles with high or low attack profiles.
- Excellent performance in clutter.
- Advanced ECCM techniques.
- Containerised or distributed fit.
- Lightweight director — small swept radius.
- Fast surveillance and sector search for autonomous acquisitions and threat assessment.
- Independently optimised search profiles.
- Control of naval guns.
- Ordered by the Royal Navy for new construction and re-fitted ships.



System configuration

805 Sea Dart System

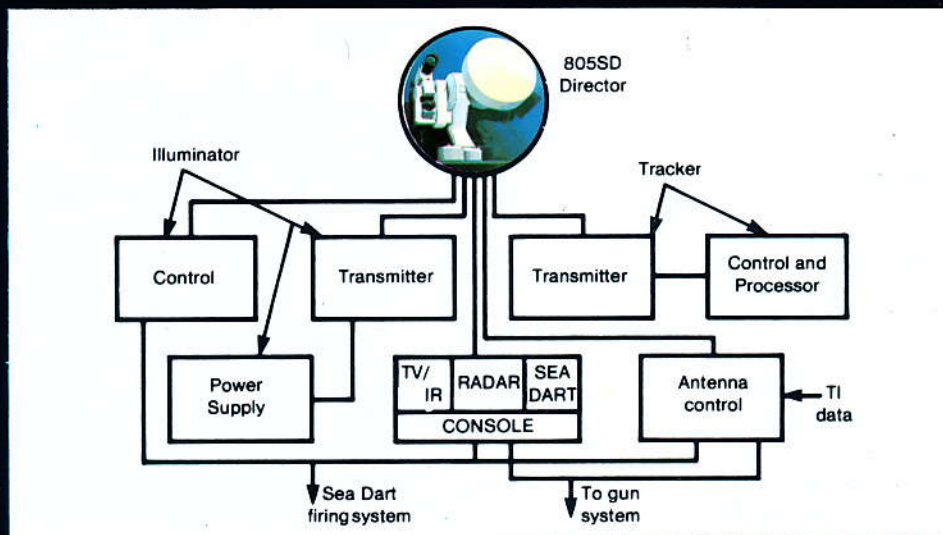


The GWS30/Sea Dart weapon system is fitted in Royal Navy Type 42 and Type 82 Destroyers and also the Invincible class. A new lightweight system has been designed, based upon the proven elements of the GWS30 system, combined with the Marconi 800 series fire control radar, to give a compact, lightweight missile control channel.

The director carries a 2.1 metre antenna, which fulfils the roles of both target tracking and target illumination, and an optronics package, tailored to the particular requirement.

FEATURES

- Engages aircraft, missiles and surface ships.
- Modern lightweight tracking/illuminating radar.
- Proven radar and command elements.
- Simple installation.
- Good operation in clutter and ECM.
- Rapid reaction.
- Autonomous single operator performance.
- Suitable for ships of 300 tons and above.
- On-mount optronics package.
- Containerised fit available.
- Control of naval guns.
- Television autotrack mode.
- Shell-splash facility.



System configuration

ST802 Tracker



FEATURES:

- Lightweight.
- Monopulse accuracy.
- Switchable accuracy.
- Automatic.
- Fast reaction time.
- Extensive ECCM.
- Shell splash facility.
- Autonomous search capability.



Fast patrol boat

Photograph courtesy of the Egyptian Navy

ST802 is a fully automatic lightweight tracking radar, giving accurate space-stabilised target data for a variety of weapon control systems. The radar is autonomous and generates its own stabilised search patterns based on target range and azimuth data obtained from the tactical command suite or the ship's AIO. Its acquisition and tracking modes are automatic. The radar has a low level search mode in which the antenna is rotated at 20rpm to provide a stabilised horizon search. The monopulse radar operates in I band and is tunable from the console.

A particularly effective digital MTI system is fitted to reduce the effects of sea and land clutter. An extensive range of ECCM facilities is included to allow operation in a jamming environment.

Television

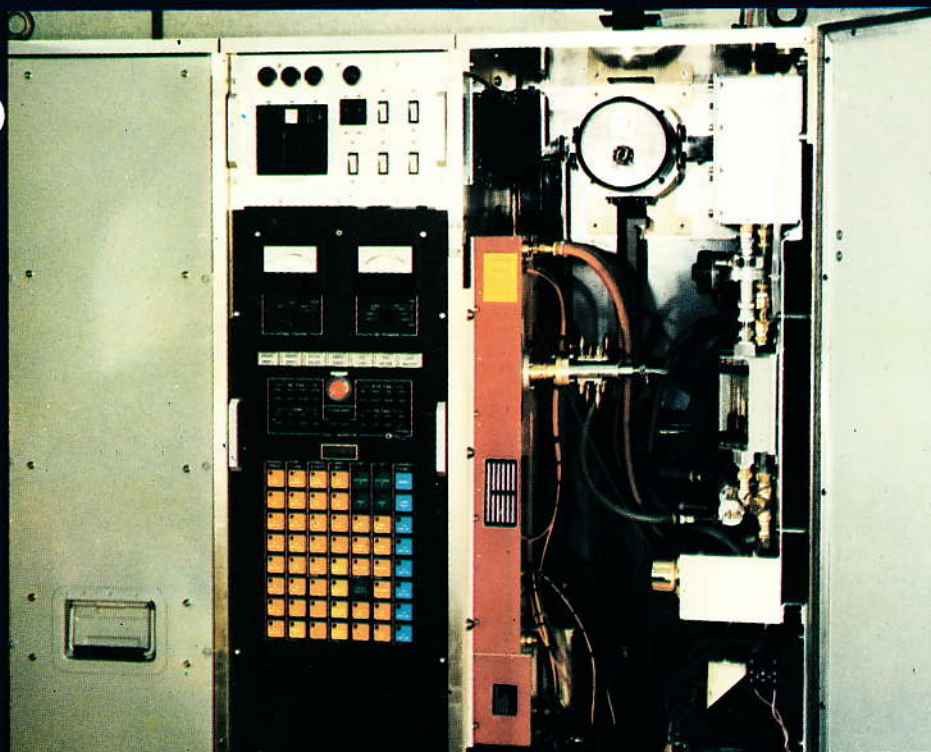
A television camera is co-mounted with the radar antenna, with the display unit mounted in the weapon console. Low light/daylight television or infra-red systems may be fitted, depending upon operational requirements.

1800 Surveillance Radars



FEATURES:

- Coherent TWT transmitter.
- Pulse compression.
- Frequency agility.
- Pulse burst MTI.
- Extensive ECCM.
- Switchable polarization.
- Dual rotation rates.
- Stabilised antenna.
- Optional data processor.



The S1820 E/F band surveillance radar is a lightweight, advanced technology radar designed to detect targets in hostile electronic environments at low level in clutter and to provide data for the accurate deployment of defensive weapons. It is suitable for fitting to fast patrol boats and larger warships.

The S1820 is fitted with a 2.4 metre lightweight antenna. A variant, the S1821, uses the same processor and is fitted with a 4 metre antenna, giving enhanced range. The equipment is currently in production for the Canadian Navy. More powerful variants are available for fitting in larger ships.

Command and Control

FEATURES

- Facilities for autotracking and rate aided tracking.
- Access to display facilities by means of keyboard and rolling ball.
- 16 inch AD16 computer controlled displays with markers and labels.
- Range and bearing display of targets selected by means of rolling ball.
- Radar retiming, enabling the proportion of display time devoted to different picture features (synthetic marks, etc) to be chosen to optimise the overall display performance.
- Retiming also improves the brightness and performance of radar video displays at high expansion settings and avoids loss of signal.
- Operator initiation of data into the tracking channels, updating of existing data and erasing of unwanted data.
- Allocation of targets to fire control channel by means of keyboard.



Fast patrol boat Weapon Control Suite

The weapon control console provides facilities for detection, tracking, target allocation and fire control. The console utilises computer controlled AD16 display units which can be programmed to meet different system requirements. The computer used is the Marconi

Locus 16 modular distributed data processor.

The AIO is modular in construction, enabling all system functions to be combined in a space conscious format.

Marconi Radar Systems

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