

ARCHIVED REPORT

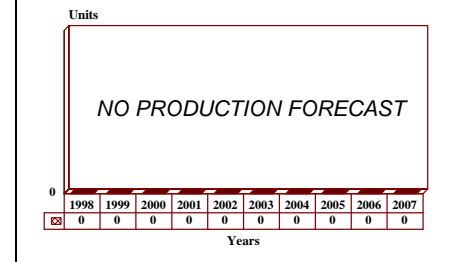
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Hermes - Archived 9/99

Outlook

- Production believed to have ended in 1997
- Many nations had expressed dissatisfaction with the system
- **THIS REPORT WILL BE DROPPED IN 1999 BARRING A PROGRAM RESTART**

10 Year Unit Production Forecast
1998-2007



Orientation

Description. Airborne electronic support measures system tasked with gathering information on electronic emissions, analyzing that data to isolate hostile systems and passing the appropriate information to weapons systems control.

Sponsor

United Kingdom Ministry of Defence
Procurement Executive
Contracts Branch CB/AWL31B
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St Georges Court
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Tel: +44 171 632 6014

Contractors

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Warren Lane
Stanmore
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United Kingdom
Tel: +44 181 954 2311
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Licensee. No known production licenses have been granted.

Status. Out of production, but believed to be in service.

Total Produced. Approximately 447 Hermes systems are believed to have been produced through 1997.

Application. A modular range of electronic support measures systems. The system is designed to meet a wide variety of ESM requirements and can be made available in naval-, air- or land-based configurations.

Price Range. Based on known costs of comparable systems, the unit price of Hermes is around US\$400,000 (1991 dollars).

Technical Data

Characteristics

Frequency coverage: C-J bands
Angular coverage: 360 deg

Design Features. The Hermes system is modular and configurable to carry out a full range of ESM functions. The basic modules can be combined to provide systems capable of functioning as a simple radar warning receiver or as a more complex full EW reconnaissance suite. The system is extendible and covers the complete range of radar frequencies likely to be experienced in the air environment.

The Hermes modules are capable of providing all levels of ESM, ranging from the RWR requirements of small

fixed-wing and rotary aircraft to full ESM systems for reconnaissance or AEW aircraft. It is thought that a further package of Hermes modules, intended for RPV applications, is now under development. Hermes is related to the land-based Sentry system, using common modules. It is also possible to configure the Hermes system for small naval craft, such as patrol or fast attack craft.

Variants/Upgrades

The original ARI-18241/1 system is deployed on Tornado GR.1 aircraft with a modified version installed on the Tornado F.3.

Program Review

Background. The ARI-18241/1 RHAWR (Radar Homing and Warning Receiver) was developed to provide radar warning facilities for the Tornado GR.1 and is effectively equivalent to the German ERWE system. ARI-18241/1 was originally installed only on the GR.1 variant of the Tornado. Hermes was derived from, and is effectively an export version of, the ARI-18241/1. In 1987 this new system replaced the RHAWR in all Italian Tornado's. Hermes was developed to support a series of applications in the electronic support measures field.

The Indian Navy specified Hermes as the standard ESM system on its Sea King Mk.42B helicopters in place of the MIR-2 system originally installed. This is believed to reflect Hermes' greater capability in the anti-surface ship role for which the Mk.42B is optimized. Westland handed over the first Indian Navy Sea King Mk.42B helicopters in January 1989. The delivery marked the end of an unhappy saga for Westland involving differences with the customer over system performance and financial terms. Westland had to make financial provisions totaling 55 million pounds in three financial years to cover program slippage.

During June 1989, Marconi was awarded a contract to modify and install the ARI-18241/1 RHAWR in the Tornado GR.1 as part of that aircraft's mid-life upgrade. The modifications include the replacement of existing

traveling wave tubes with solid-state components and using additional advanced technology to enhance system performance. Effectively, this results in ARI-18241/1 and Hermes being identical. As this upgrade was carried out, original standard ARI-18241/1 systems were installed on the Tornado F.3. This suggested that the Tornado GR.1 upgrade was, in reality, a complete replacement of the existing RHAWR with Hermes, followed by the installation of the RHAWRs so removed into the Tornado F.3.

The Tornado F.3 air defense variant, mid-life upgrade program was canceled in mid-1990, reflecting RAF dissatisfaction with the aircraft. Following the deployment of RAF Tornado F.3 aircraft to the Arabian Gulf as part of the Persian Gulf War, a much more limited upgrade was undertaken. This involved installing additional chaff/flare launchers but did not affect the built-in electronics on the aircraft. The modifications are to be extended to both the Royal Air Force and Saudi Arabian Air Force fleets.

During 1990/91, reports from the United States claimed that Saudi Arabia was extremely unhappy about the performance of the EW systems on its Tornado F.3s and was considering replacing them with the ALR-56. The Royal Saudi Air Force and GEC-Marconi both emphatically denied these claims and regarded them as an attempt to enter the Tornado retrofit market.

Following technical problems with the SADIE processor in the Orange Reaper (Racal Kestrel) system specified for the EH-101 and integration problems related to antenna placement, some suggestions have been made that the EH-101 ESM system contract could be rebid. IBM had placed a contract for the supply of 44 Kestrel systems before the end of 1992. The Merlin HAS.1 equipment integration presented many problems but these have apparently been resolved.

In 1993, the Saudi Arabian Government finally announced its long-awaited order for an additional 48 Tornado GR.1 aircraft. These aircraft will probably mount the Tornado variant of the Hermes radar warning system. The final deliveries for this order took place in mid to late 1997.

Funding

ARI-1824/1 was developed under UK Ministry of Defence funding. Hermes was a company-funded program. Marconi Defence Systems have been awarded a contract to upgrade Tornado avionics which will, inter alia, bring ARI-1824/1 up to Hermes standard.

Recent Contracts

No contractual information is currently available.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Jan	1989	Sea King Mk.42B delivered to India
Jun		Marconi installed ARI-1824/1 in Tornado
Mar	1991	Tornado F.3 mid-life upgrade abandoned

Worldwide Distribution

India. 20 Hermes systems on Sea King Mk. 42B

Italy. Up to 99 on Tornado Gr. Mk. 1

Saudi Arabia. 72 ARI-1824/1 on Tornado GR.1 and 24 on Tornado F.3

UK. Approximately 208 systems composed of modernized and unmodernized Hermes systems on Tornado variants

Forecast Rationale

Hermes is an airborne electronic support measures (ESM) system used for both surveillance and analysis of radar signals. The system can discriminate between a large variety of radars stored within its library. Those emissions deemed hostile will be indicated so that the pilot can take evasive action and/or launch a weapon.

Reservations have been expressed by many over the performance of the system as a whole. It appears that neither India or, in particular, Saudi Arabia wanted the system, but may have been forced into procuring it as

part of a deal for the aircraft. Previous upgrades from the original system have also apparently halted within the UK.

The ten-year forecast indicates that no further production is expected for this system. Even though a number of nations fly the Tornado, Hermes never really obtained a solid export market even after adoption by the UK Royal Air Force. This in itself would indicate that the system performed in a less than satisfactory manner.

Ten-Year Outlook

No production is forecast. **THIS REPORT WILL BE DROPPED IN 1999 BARRING A PROGRAM RESTART.**

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