

ARCHIVED REPORT

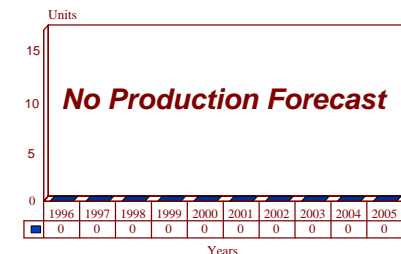
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Mantis - Archived 3/97

Outlook

- Concept definition stopped after loss of REVISE air vehicle.
- MANTIS could provided basis for Bae CASOM entry.

10 Year Unit Production Forecast
1996-2005



Orientation

Description. Air-to-surface missile system.

Sponsor. Cooperative development effort involving private and government funding.

Contractors. British Aerospace is offering the MANTIS in cooperation with its subsidiaries Royal Ordnance and BAe Systems and Equipment, as well as GEC Avionics and Smiths Industries. Royal Aerospace Establishment (RAE) is collaborating with British Aerospace, Shorts, Hunting Engineering and Thorn EMI Electronics on the REVISE (Research Vehicle for In-flight Submunition Ejection). MANTIS could be an outgrowth of REVISE.

Status. Concept definition was under way until the destruction of the REVISE air vehicle during a flight test.

The MANTIS could provide the basis for a BAe offering in the UK MoD ST(A) 1236 competition, also known as CASOM (Conventionally Armed Stand-Off Missile).

Total Produced. No production has taken place.

Application. Long-range stand-off air-to-surface missile system for the destruction of hardened aircraft shelters, runways, and other high-value (fixed) targets.

Price Range. No specific estimates are available concerning potential per-unit prices for the MANTIS, although it is likely to be in the area of between \$300,000 and \$500,000.

Technical Data

Design Features. Specific technical data on MANTIS is limited. The system (basic version) is expected to have a range of 250 kilometers.

Propulsion. The MANTIS is expected to use a turbojet engine as its main propulsion system.

Control & Guidance. The basic MANTIS version will use a combined infrared/television seeker for terminal guidance system. En-route guidance would be provided by an inertial navigation system, coupled with a global

positioning system receiver and terrain comparison and reference.

Launcher Mode. This system may fulfill the British Royal Air Force's ST(A) 1236. Launch platforms will include the Tornado GR.1/GR.4, Harrier GR.5/GR.7, and the European Fighter Aircraft (EFA).

Warhead. The MANTIS is to be equipped with a tandem warhead optimized for use against targets such as hardened aircraft shelters. The warhead would have a 75-

kilogram initial and 400-kilogram main charge. The first would penetrate the structure's outer shell, the second proceeding through this hole and detonating once inside.

Variants/Upgrades

MANTIS Family. The hard-target attack version of MANTIS will be the basis upon which a family of weapons will be developed. One proposed variant will be a submunitions-dispensing variant which will supplement the JP233 dispenser currently used by the Royal Air Force for airfield attack. The JP233 requires the carrier aircraft to fly at a low altitude directly over the target area and thus places it at great risk from ground defenses. Five RAF Tornados were lost to ground fire during the Persian Gulf War, although none were directly related to the use of JP233.

A third proposed member of the MANTIS family is an extended-range variant which will use a millimeter wave radar seeker coupled with a laser designator to guide each

of the 16 armor-piercing munitions to its target. This version, called Autonomous Target Interdiction System (AUTIS), will have a range of up to 600 kilometers. The AUTIS could provide the basis for a nuclear-armed cruise missile to replace the existing WE 177 free-fall bomb, but is initially planned to be fitted with a submunition dispensing system or a dual warhead for strikes against hardened aircraft shelters.

MANTIS is being developed to meet various UK MoD requirements include the ST(A) 1236 (engagement of static targets) and ST(A) 1241 (attacking mobile targets). No specific contractor has been selected to fulfill either of these requirements.

Program Review

Background. The United Kingdom has developed Staff Target (Air) 1236 for the procurement of a new long-range stand-off air-to-surface missile system. This requirement envisages a conventional weapon capable of destroying hardened aircraft shelters, runways, and other high-value (fixed) targets. The system selected is expected to have a maximum range between 200 kilometers and 600 kilometers. A system being proposed for this need is the British Aerospace MANTIS (MAN-in-the-loop Target Interdiction System). MANTIS is designed to exploit experience gained during Operation Desert Storm, where the stand-off capability of the McDonnell Douglas AGM-84E SLAM deeply impressed UK Ministry of Defence officials.

MANTIS is being developed from a BAe/Defence Research Agency in-flight submunitions ejection test-bed known as REVISE (Research Vehicle for In-flight Submunition Ejection). Royal Aerospace Establishment (RAE) is collaborating with British Aerospace, Shorts, Hunting Engineering and Thorn EMI Electronics on the REVISE.

REVISE. The United Kingdom has been working on a modular stand-off weapon research program known as

REVISE (Research Vehicle for In-flight Submunition Ejection) since 1988. This program is intended to reduce the risk associated with the development of future air-launched dispenser weapons.

REVISE was tested on RAE's West Freugh range during 1991 (free flight tests were conducted in 1992). The vehicle was released from the centerline station of a Royal Air Force Tornado, was flown away from the aircraft, then entered a controlled trajectory during which it dispensed two dummy submunitions. A parachute recovery and flotation system allowed the REVISE vehicle to be recovered for further trials. An enhanced operational variant, known as REVISE Plus, could provide the design basis for meeting the Royal Air Force's ST(A) 1236 that was originally intended to be fulfilled by MSOW. However, the program has experienced trouble since the almost complete destruction of the REVISE air vehicle during a flight test. Furthermore, British Aerospace withdrew from REVISE after program responsibility was transferred to BAe Defense Dynamics from BAe Aircraft. Private venture money would have been needed to build a new REVISE air vehicle. Since MANTIS is derived from REVISE, the future of the former program has been placed in doubt.

Funding

No information is available on funding levels for the MANTIS or ST(A) 1236. Budget cuts have taken away any sense of urgency concerning procurement of a stand-off weapon by the UK, and a firm timetable for such an acquisition has yet to be established.

Recent Contracts

No contracts have been issued for the MANTIS.

Timetable

	1980s	Cooperative NATO MSOW design effort terminated
	1980s-90s	Alternatives to canceled MSOW revealed
	1991-92	BAe announces MANTIS
Late (a) estimates	1990s ^(a)	CASOM system to enter service

Worldwide Distribution

Exports of the MANTIS will depend on where the system enters full-scale development as part of the United Kingdom's ST(A) 1236 competition.

User Country(s). None.

Forecast Rationale

No production of the MANTIS air-to-surface missile system is anticipated. The program was aimed at providing British Aerospace with a test vehicle for the development of such weaponry, and was not intended to enter production itself.

Ten-Year Outlook

No forecast has been provided since no MANTIS production run is planned.