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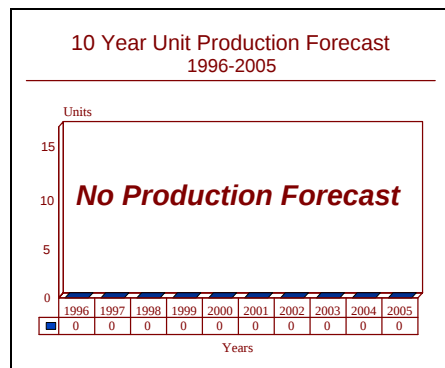
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Antilope - Archived 10/97

Outlook

- Production is believed to have concluded.
- There will be a small market for spares or possible export orders



Orientation

Description. J-band TWT airborne radar for low-level penetration attack aircraft.

Sponsor

Delegation Generale pour l'Armement
10/14 Rue Saint Dominique
F-75997 Paris Armees
France

Service Technique des Telecommunications et des Equipements Aeronautiques (STTEAe)

Contractors

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55 Quai Carnot
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F-92214 Saint Cloud Cedex
France
Tel: +331 4602 5000
Telex: 250787

Thomson-CSF

Division Equipements Avioniques (AVS)
178 Boulevard Gabriel Peri
F-92242 Malakoff Cedex
France
Tel: +331 4655 4422
Telex: 204780

Dassault Electronique is the prime contractor. Thomson-CSF is the main subcontractor.

Licensee. No license for the production of this system has yet been issued.

Status. In-service.

Total Produced. Approximately 105 radars (including spares and training/support systems) were delivered through mid-1994. No follow-on orders have been placed since that time.

Application. The Antilope V equips the Dassault-Breguet Mirage 2000N, a two-seat, low-altitude- penetration nuclear strike aircraft designed for the French Air Force.

Price Range. Based on the comparable costs of similar systems the unit price of the Antilope radar was likely in the region of US\$3.5 to US\$4.0 million..

Technical Data

Design features. Antelope V is a modular system assembled from Line Replaceable Units (LRUs). With the exception of the display module, these LRUs are mounted in the nose of the Mirage 2000N. The primary mission is served by the generation of flight- control information, to either control autonomously, or assist the pilot in controlling high-speed, low-altitude flight. In order to ensure safe and effective operation, extensive Automatic Test Equipment (ATE) and system redundancy are built into the architecture permitting the detection of faults and bypassing of malfunctions during flight. Antelope V uses a Traveling Wave Tube (TWT) transmitter, operating in the J-band. The antenna differs from other Mirage 2000 radars in plan, having greater width and less depth, though it remains of the flat slotted plate type. Display is effected via a HUD for the pilot, with trichromatic Cathode Ray

Tube (CRT) head down display for the navigator/systems manager. Antelope V uses advanced digital signal processing and features extensive ECCM.

Operational characteristics. The primary mission of Antelope V is as a contributory system to the accurate and effective delivery of the French ASMP nuclear missile. To this end, it provides a terrain following function at a platform speed of typically 600 knots and an altitude of 60 m. Further to this primary mission, Antelope V provides manually selected or automatic updating of navigational data by surface correlation. A number of secondary capabilities complementary to the delivery mission exist, including air-to-air search, air-to-air tracking, air-to-air combat, air-to-surface search, air-to-surface tracking and air-to-surface ranging.

Variants/Upgrades

An export version of the Mirage 2000N, the Mirage 2000S will be fitted with the **Antelope 50** radar.

Program Review

Background. Research commenced during the early 1980s on Antelope V, with Dassault Electronique as prime contractor and Thomson-CSF as a collaborative partner. By 1983 the first prototype system had been installed onboard one of the two Mirage 2000N prototypes. Development problems led to a decision to equip the 18 Mirage IV-Ps undergoing modification to deliver the ASMP missile with Thomson-CSF Arcana radar. By 1985 what Dassault Electronique referred to as "Identification Prototypes" were in the final stages of development. These were said to differ only slightly from envisaged production radars. Also during 1985, development of the terrain following and navigation updating functions continued. At that time, Dassault Electronique revealed that it expected to receive orders for a further batch of radars and the go-ahead to commence production of the Antelope V navigation updating correlators in 1986.

Production of Antelope V was provisionally scheduled for 1987 with 36 of the scheduled total of 112 (75 nuclear-

capable and 37 conventional low-level attack) aircraft entering service by 1988. Deliveries by June 1988 totaled 22 aircraft. Initial production aircraft replaced Mirage IIIE and Jaguar nuclear strike aircraft. As a result of French defense budget reductions, the planned force of 112 Mirage 2000N nuclear strike aircraft was first reduced to 70 and subsequently to 45. However, in 1992, the number of Mirage 2000N aircraft projected was increased back to 75 before being cut to a final total of 70.

It was planned to augment these with 105 Mirage 2000D, a version of the aircraft optimized for the delivery of conventional weapons. Currently, 35 of these aircraft have been ordered and existing plans are to restrict production to 45, all ordered by 1993 with delivery to be completed by the mid-1990s. A minor realignment saw this number increased to 50 by the re-order of 5 Mirage 2000Ns. This requires a total of between 120 and 145 radars depending on spares and support inventory holdings. Only 105 had been delivered by mid-1994 with no follow-on orders placed.

Funding

Development of the Antilope V has been undertaken with French Government (DGA) funding. No details are available concerning either the extent of its involvement or overall development costs, although a French Air Force nuclear capability is a very high national priority both in terms of effectiveness and budgetary provision.

Timetable

	1975	Antilope IV multimode radar shown at Paris Air show
	1977	Antilope IV program canceled
	1980	Antilope V radar program revealed
May	1983	First prototype installation aboard Mirage 2000N
	1984	Mirage IV-P/Antilope V installation canceled
	1986	Preproduction radar scheduled for delivery
	1987	Production of Antilope V scheduled to commence
Jul	1988	Mirage 2000N enters service
Jun	1989	Mirage 2000N production cut back
Jun	1990	Further cut-back in Mirage 2000N production
Jul	1992	Mirage 2000N production restored to 75
	1994	Final Mirage 2000N production cut to 70 plus 50 Mirage 2000D

Worldwide Distribution

France (105 systems on 70 Mirage 2000N and 50 Mirage 2000D)

Forecast Rationale

The increase in force level of French Mirage 2000N has raised the production total back to 70 aircraft; this will equip four units at a unit equipment (UE) of 15 aircraft per squadron, with the remainder being assigned to reserve and OCU duties. Three additional units with 50 Mirage 2000D aircraft will also be formed with 35 of the aircraft already ordered. Once the radars for these orders are completed, Antilope V production will be terminated.

The export market is not accessible to Antilope V. The Antilope V is intimately tied to the Mirage 2000N, the nonnuclear-capable Mirage 2000D, and the export derivative of the Mirage 2000S. There is no evidence at all to suggest that the radar is being considered for any other platform besides those two derivatives. It is inconceivable that any of the aircraft against which the Mirage 2000N usually competes, the MiG-29 — the F-16 and the F-18 —

would be subjected to the extraordinary cost of being modified to carry the Antilope radar. There is no possible rationale for such a modification.

While interest in the Mirage 2000 has revived, this centers around the new Mirage 2000-5 with the multipurpose RDY radar. Taiwan has ordered 60 of these aircraft. Any future Mirage sales will also be of this variant.

The available data for the Antilope V radar suggests that all radars currently under contract have been delivered, and that no follow-on order has been placed. This suggests that either the last 15 Mirage 2000D aircraft will not have radars (possibly with the airframes being placed in store as attrition reserves) or that the airframes in question will be equipped with systems previously supplied as spares and training sets. No export orders are forecast.

Ten-Year Outlook

No Production is forecast.

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