

MIRAGE 2000-9 : SOGITEC'

After a long period of in-depth reflection between pilots and engineers, the United Arab Emirates have opted for the tailor-made solution proposed by Sogitec for the logistic support of their future Mirage 2000-9 fleet.



Static view of UAE Mirage 2000-5 SAD8.

It is a true complete Integrated Logistics Support (ILS) system involving its two divisions that Sogitec has designed with the United Arab Emirates for their future fleet of Mirage 2000-9 aircraft.

This is a first for the company, which will implement a solution that is adapted to the multi-faceted need which has been determined in close collaboration with the user.

The context :

- supply of new aircraft (30 Mirage 2000-9) equipped with recent weapons systems:
 - Magic missile for close combat,
 - Mica missile for interception
 - Black Shahin cruise missile,
- gradual upgrading of in-service Mirage 2000 SAD 8 to bring them to Mirage 2000-9 standard,
- maintaining of the existing training capacity for the transient phase.

The solution was put together with the customer step by step, determining the needs down to the finest level of detail.

The first positive consequence was a significant shortening of the negotiation times needed to reach an agreement.

The duration of the programme (it will extend through till 2007) will require the integration of evolving technologies

S TAILOR-MADE...



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Mirage 2000-5 (-9) UAE.

Taking account of the pilots initial qualification level, the vital training has been split between COBALT* (Computer BAsed Learning and Training system) (see insert) and training simulation proper.

Basic training: extensive resources

Sogitec will install its COBALT system to train the pilots and mechanics on the new aircraft Mirage 2000-9.

The content of the system has already been determined jointly with the users.

INSTRUCTION AND TRAINING: THE TAILORED SOLUTION



The chosen solutions, based on Sogitec's expertise and experience in training and simulation products, constitute a synthesis that is adapted to the needs of the local air forces.

The supply is broadly characterized by a large selection of training resources consisting of instruction proper, training and simulation.

* COBALT (Computer BAsed Learning and Training system).
See insert box and the «COBALT» article herein for further details

COBALT

A SPECIFIC TRAINING DEVICE

Computer BAsed Learning and Training system developed by Sogitec

The COBALT system proposed to the UAE is, like its counterpart for Qatar, an original Sogitec development based on commercially available resources and validated technological solutions.

The course syllabuses are adapted to the needs and skills of the pilots and technicians attending them. 280 hours of training have been prepared for the pilots and 220 hours for the technicians.

Extensive infrastructures are needed to accommodate the courses : eight classrooms, two of them equipped with workstations with control stick and throttle. Each room will have 16 trainee workstations, one instructor station and a screen with video projector.

All the classrooms will be connected to administrator stations for managing the system.

●●● INTEGRATED LOGISTICS S



Pierre et Gilles

Another important characteristic of this contract is that before delivering COBALT, Sogitec will provide initial training in France for Mirage 2000-9 pilots, technicians and future instructors.

This means that a large population of engineers, pilots, technicians and instructors has started to take up temporary residence on the banks of the river Seine.

Networked training and simulation and terrain database generated by Apogée

The two airbases to which the Mirage 2000-9 squadrons will be assigned will also accommodate the training facilities, namely four trainers and two mission simulators.

One of the two airbases provided with a training school will have two simulators: MS (Mission Simulator, single-seater) and TSS (Two-Seater mission Simulator).

The four trainers will be installed in the squadrons.

One of the strongpoints of the set-up is that the trainer/simulator system will function in a network with a common tactical environment.

It will be possible to couple it with other existing or future air fleet training systems.

The cockpits of the simulators and trainers will have the same level of reproduction fidelity for both the interior fittings and the displays (instrument panel, head-up,

Example of trainer: Mirage 2000-5, export version.

●●● TRAINING, TRAINERS AND SIMULATORS: PROGRAM MILESTONES

The programme **began in spring 1999**, with deliveries planned **through until 2005**.

The initial **training** of instructors, pilots, mechanics and armourers began in France at the **end of 1999**.

Delivery of **the first trainer available** for a first training phase is scheduled for **mid-2002**.

The **other three trainers** and the **MS** (Mission Simulator, single-seater) will be installed on site at the **end of 2002**.

The **TSS** (Two Seater mission Simulator) will be delivered last, after the retrofitting of the Mirage 2000 SAD 8, at the **beginning of 2005**.

SYSTEMS

head-down and lateral displays, symbology, etc.)

The terrain database will be the same for all the equipment. It will be used by the Apogée image generator designed and developed by Sogitec.

The differences between the installed equipment will concern the reconstruction of the environment and the modes of image projection, namely closed-sphere projection in the simulators, and visual with three windows in the trainers.

Lastly, Sogitec will integrate the user's representatives in its own development teams. These people will receive specific training so that they are able to take part in the upgrading of standards of delivered simulation equipment.

the technical documentation for the Mirage 2000-9 but also the upgrading of the documentation for the Mirage 2000 already in service.

In the long run the customer will have a unique documentation source for a uniform aircraft fleet based on the single-seater and two-seater versions of the Mirage 2000-9.

The chosen offer concerns documentation that is produced entirely on electronic media (production, publishing, and viewing).

The difference with respect to preceding programs (concerning the Mirage 2000-5 in particular) is that although electro-

databases were produced, export customers received the documentation printed on paper. This documentation is currently being revised on electronic medium.

Egypt is the first customer to have ordered a complete documentation on CD-ROM.

The United Arab Emirates have asked to receive the entire documentation on electronic medium: operating manuals, maintenance manuals, illustrated parts lists and component maintenance manuals.

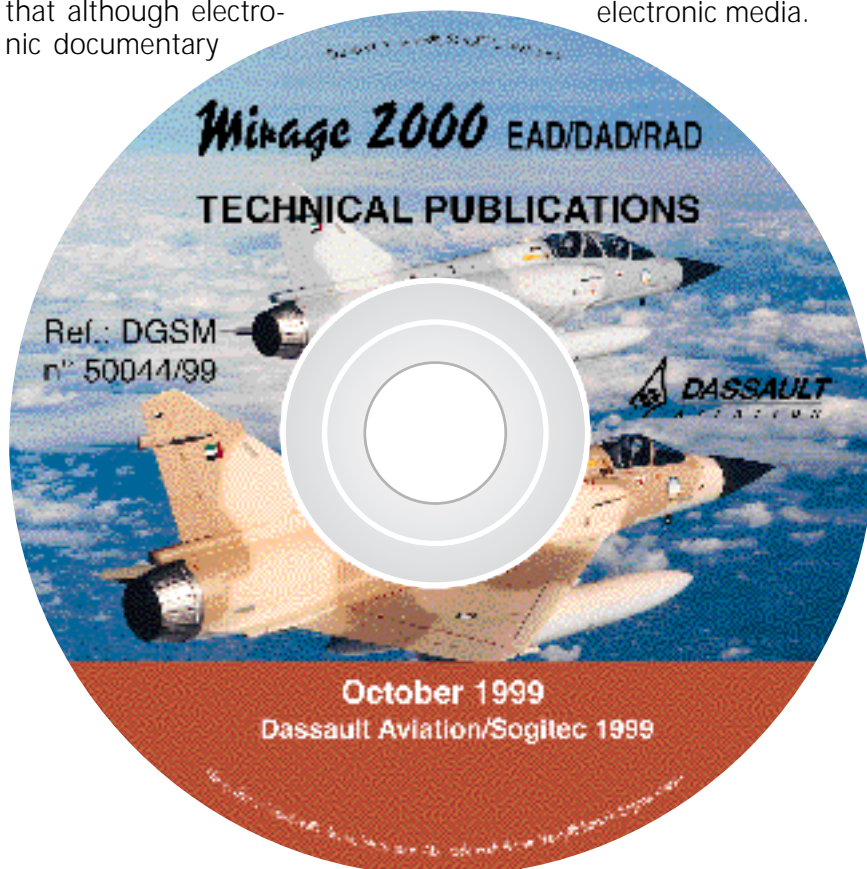
However, a few paper copies of the documentation will nevertheless be supplied along with the electronic media.

**UNIFORMITY OF FLEET
TECHNICAL
DOCUMENTATION
THANKS TO
ACROSS-THE-BOARD USE
OF ELECTRONIC MEDIA**

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Sogitec has proposed, alongside the principal manufacturer, documentary services and support means based on its mastery of standard tools.

The documentation program defined when examining the needs of the air force will concern not only



100 % electronic documentation.

●●● **Variable browsing levels**

From the purely electronic aspect of the documentation, it must be borne in mind that the browsing levels will vary according to the domains.

The richest domain in this respect will be that of the aircraft maintenance and identification (IPC) documentation.

The documentary database relating to the aircraft maintenance documentation is in SGML format, and it will offer fast and efficient information access paths via the ViewTec™ browser.

The users will have a whole range of means of accessing the information: tables of contents, sequential browsing or backtracking, direct access through the documentary database tree structure, by work card number, by character string or "full-text" searches.

There will also be the additional possibility of inter and intra-document hypertextual browsing using the semantic structure of the documentary database.

Advanced functions, such as for checking the effectivity of documents, for the acquisition of users' annotations, the memorizing of predetermined browsing paths, and the management of temporary revisions, will all be highly appreciated by experienced users of ViewTec™.

The user documentation will be more conventionally computerized in page format, with means of access being linked to the lowest level of information structuring.



Mirage 2000 EAU flying over desert.

F. Robineau - Dassault/Aviaplans

The user will thus be able to access information by using the table of contents, sequential browsing, character string or full-text searches.

The components and ground support equipment documentation is also to be put on electronic media.

The "manuals" sections will be digitized.

The IPC (Illustrated Parts Catalog) sections, for which the majority of the production is computerized, will be proposed in a structured format allowing hypertextual navigation between text and illustration, as is provided for in the aircraft documentation IPCs.

The full scope of Sogitec's know-how in documentation engineering

The tools used in the production of the maintenance and identification documentation (SDI Open in particular) have been designed and developed by Sogitec.

They are capable of managing the large volumes of pages in the operating, components and ground support equipment manuals.

As compared to "paper" documentation, the use of electronic media for documentation authoring, fabrication, and publishing will considerably reduce the documentation production cycle.

Shorter lead times will enable Sogitec to propose yearly subscription-based revisions over several years.

It will reduce to 6 months the time required from the decision of including the latest available technical data to the actual release of the fully updated documentation. Consequently, users will benefit from a faster revision process to access up-to-date technical information.

Regarding urgent information dealing with the safety of personnel and equipment, temporary re-

visions could be issued on diskettes.

The implementation of scheduled revisions will be made easier since insertion of updated "paper" pages will no longer be required.

As regards documentation consultation and viewing, the customer has chosen the ViewTech™ software developed by Sogitec.

The customer has wished to implement it in a networked environment on its own facilities.

The various publication sets will be supplied on CD-ROM or DVD, but deliveries will not necessarily all be made on the same physical media.

The different document collections being intended for different user categories – operating documentation, maintenance documentation (1st and 2nd line maintenance), components and ground support equipment documentation – specific deliveries will be made.

TECHNICAL DOCUMENTATION PROGRAM MILESTONES

Document deliveries for this programme, which **began in spring 1999**, should continue **until 2007**.

A **preliminary delivery** will be made in **early November 1999** with the supply of a CD-ROM containing the **IPCs** of the Mirage 2000s currently in service with the customer so that it can start familiarizing itself with the future new support medium.

Partial deliveries of the preliminary operating documentation will begin in **October 2001**.

The «intensive» part of the program will involve providing two documentation deliveries for each aircraft standard. However, these deliveries will not be 100 % complete because this part of the program will correspond to the OJT (on-job training) period, during which the aircraft standard itself is not yet definitively set. A six-month period will be allowed for the introduction of any necessary information complements.

Two standards have been adopted:

- **SAD 91**, corresponding to the delivery of the definitive documentation in **December 2002**.
- **SAD 92** with one definitive delivery in **September 2004**, comprising the update of the preceding version.

Besides, prior official deliveries, a provisional documentation will be supplied to be used during the «on-the-job training» period for which the aircraft standard is not entirely set.

An additional delivery will be made in **2007**, providing a normal revision taking into account all technical events that may have affected the aircraft in the interim.



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Mirage 2000 SAD 8 in formation flight.