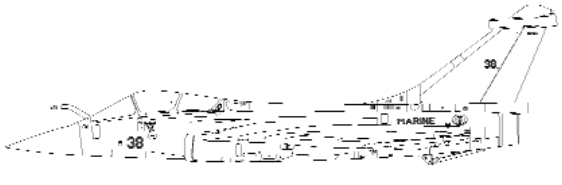
THE RAFALE MARINE SUPPO

100 % electronic, the common source data base designed and developed by Sogitec for the Rafale aircraft contributes decisively to the operational effectiveness of a Naval Air Force thoroughly revamped by the entry into service of the latest versatile fighter aircraft from Dassault Aviation.



While the naval action force is getting ready to embark the first Rafale Marine aircraft onto the deck of the Charles De Gaulle air carrier and host them at the Landivisiau naval air base (five standard 1 aircraft operational by the middle of this year), the support documentation production program (see boxes) just made a long hurdle. The official services in charge of managing the program have accepted , in accordance with the schedule for the year 2000, most of the data necessary for publication of the aircraft's initial documentation (crew documentation, maintenance documentation, and spare parts documentation). This year the first updates were just delivered.

GALILÉE, INTEGRAL PART OF THE INTEGRATED LOGISTIC SUPPORT SYSTEM (SLI)

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About to start a long life cycle in the armed forces, the multi-purpose Rafale aircraft thus disposes of an essential element of the support system specially designed by Dassault Aviation to optimize its operational availability.

This step is a landmark on the long journey undertaken by Sogitec when it was chosen by the French arms authority (Délégation Générale pour l'Armement) and Dassault Aviation, in 1996, to design and develop the Galilée documentation system whose objective was to provide the fleets and squadrons with support entirely backed up by computer systems. A contract awarded in 1997 by the aeronautical program agency gave Sogitec the responsibility of developing the documentation information system (SID), a component coming ahead of Galilée, with Dassault Aviation as the prime contractor.

"BUILDING BLOCKS" ASSEMBLED AND EXCHANGED DEPENDING ON NEEDS

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Developed according to the principles of the AECMA 1000D documentation specification via an application protocole, the SID is used for creating electronic publications highly innovative with respect to the conventional reference documents based on the page/paper combination. The common source data base is a data base composed of thousands of " building blocks ", the data modules (DMs), supplied by the manufacturers taking part in the program or by governmental bodies. These DMs are uniform fragments linked together which, once assembled, i.e. published, correspond to the traditional entities of conventional documentation: chapters, sections, subjects, tasks, sub-tasks, etc., in accordance with a predefined architecture. This breakdown of the documentary fund into DMs permits to keep information unique: whereas there is only one sample of any piece of data at any time in the database, this piece of data

RT DOCUMENTATION...

can be used in several instances in different publications. These DMs contain information associating text and graphics in the form of computer files and codified in accordance with international standards (SGML for text, CGM illustrations) which allows electronic documents to be exchanged. Each DM has an identification code (IC for " Information Code ") which allows it to be extracted from the data base and assembled with other DMs for the purpose of creating publications intended for users, crews, and maintenance personnel.

Sogitec wrote out and structured the DMs in accordance with the AECMA standard and validated them with Dassault Aviation before delivering them to the customer "ready for use". Sogitec had previously written on CD-ROMs the "industrial publications" designed to validate both the basis of the documentation product (relevance of the technical content and utilization logic) and its form (ergonomic aspects, legibility, navigation), accompanied by publication "outlines", DM assembly schemes. This procedure is thus used to obtain a consistent common source data base which is validated under operating conditions by the armed forces.

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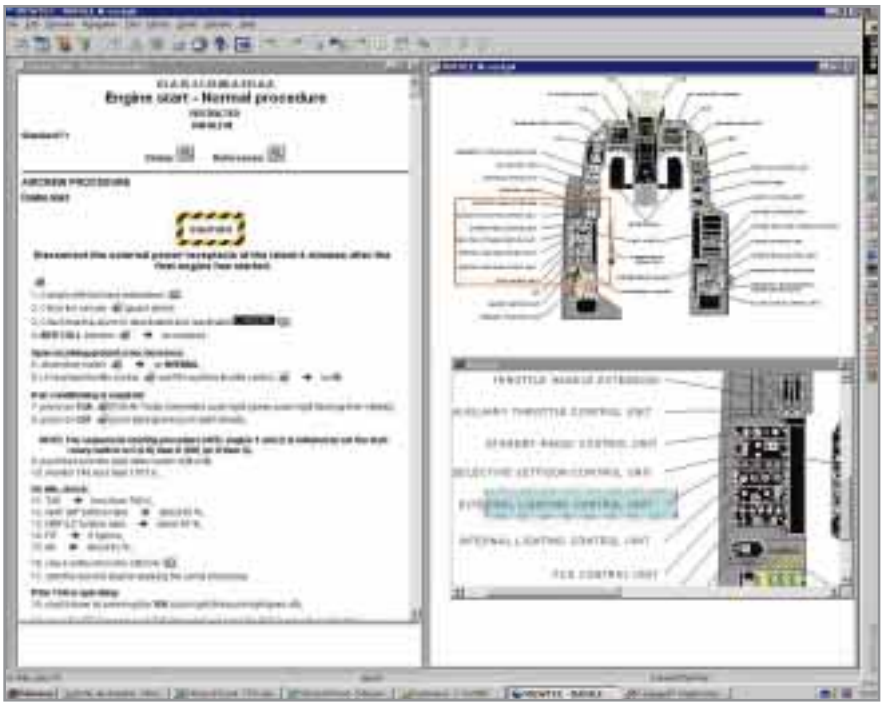

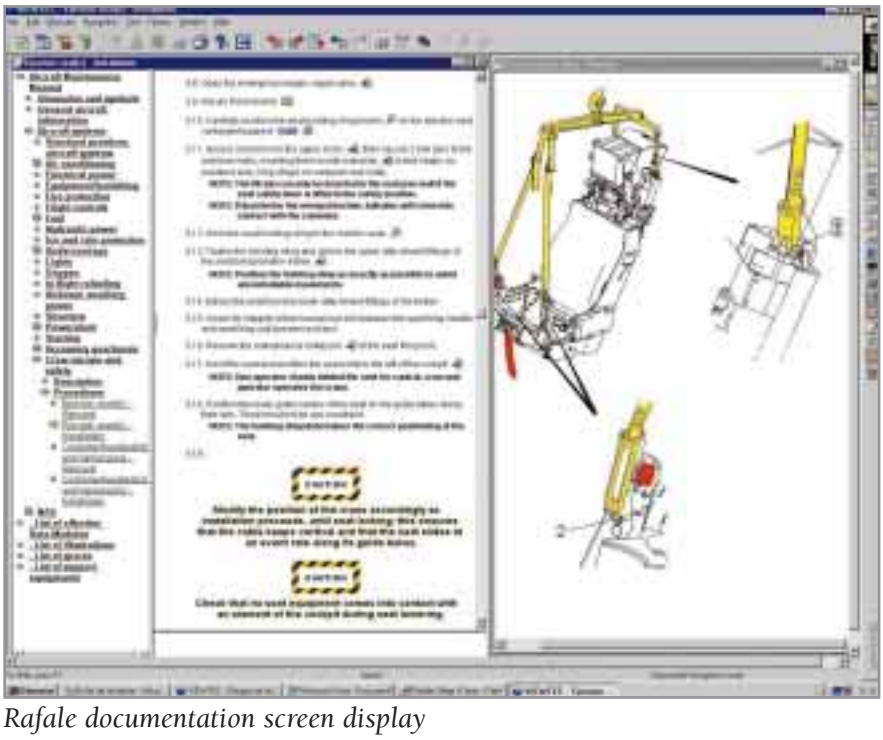

Rafale documentation screen display

FLEXIBLE UTILIZATION, ADAPTED TO THE USER'S PROFILE

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As he desires, the customer can, himself, assume the management and utilization of the common source data base for the Rafale through an ad hoc structure, the French Air Force technical documentation center (CDTAA), located at the Romorantin air base (France) where the SID is installed (see box).

For the French Navy and Air Force, the CDTAA receives DMs

... IS READY !

DATA MODULES : THE RISE OF EQUIPMENT MANUFACTURERS

To date, 80% of DMs supplied to the customer are composed of information coming from Dassault Aviation and are divided up between:

- crew documentation (delivered as of July 2000) : 650 DMs
- maintenance documentation (delivered as of March 2000): 4000 DMs
- IPC documentation (Illustrated Parts Catalogue delivered as of March 2000): 1100 DMs.

In the end, the aircraft manufacturer's portion will drop to 50% of the contents of the common source data base, knowing that the contribution of the so-called front-line manufacturers (engine, radar, and missile manufacturers) and other equipment manufacturers should pick up speed right to the termination of the contracts. Sogitec is currently updating the common source data base by incorporating aircraft configuration management changes, negotiated by the customer with the manufacturers concerned. When the aircraft is placed in service, corrections will be made on the basis of user "remarks".

coming from the manufacturers and, after checking their conformity to specifications (generic technical clauses, AECMA 1000D application protocole), incorporates them into the common source data base.

At this point, the teams in charge of DM utilization can define and organize the contents of the publications intended for the end users by drawing the DMs involved from the common source data base and assembling them in accordance with their own criteria (outline).

In this manner, the items of documentation delivered last summer appeared in publications which were approved by the general staff and released to the forces as of January 2001.

The main advantage of the "all electronic" documentation is indisputably the different types of publication media it makes available: CD-ROM, Internet, Intranet, paper etc. Typical example : aboard the nuclear-powered aircraft carrier "Charles de Gaulle", the maintenance crews can extract, via the local Intranet, all the items required for a given procedure, using the common source data base stored on board, and consult them right at the aircraft via the documentation operating system (SED) downloaded into a portable computer. Let us recall that the heart of the SED is composed of ViewTec™, an SGML and XML compatible electronic display tool, for use in a network or with CD-ROMs , designed and developed by Sogitec.

The SID concept makes possible the creation of "access tables", or tables of contents, customized in relation to user profile, for example, engine maintenance crews or electricians.

The system is of the feedback type as the CSDB is supplied at

THE FACETS OF SUPPORT DOCUMENTATION

Support documentation covers four types of contents:

- Crew documentation
- Maintenance documentation
- Spare parts identification documentation (Illustrated Parts Catalogue)
- Equipment documentation

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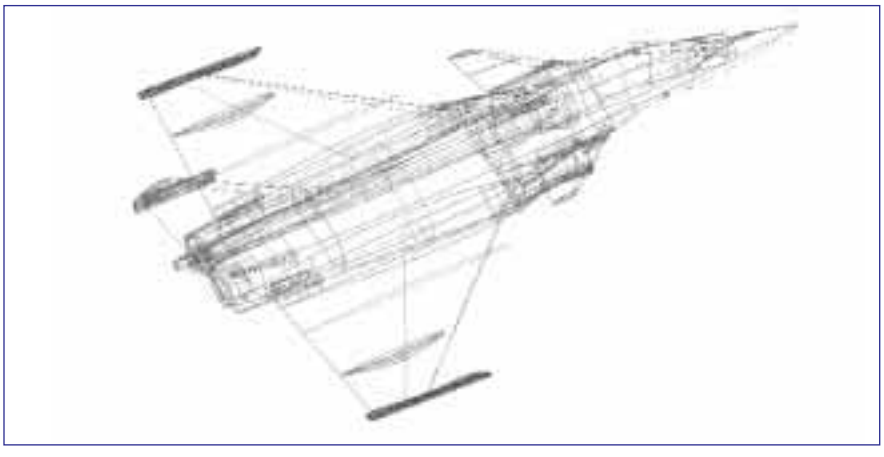
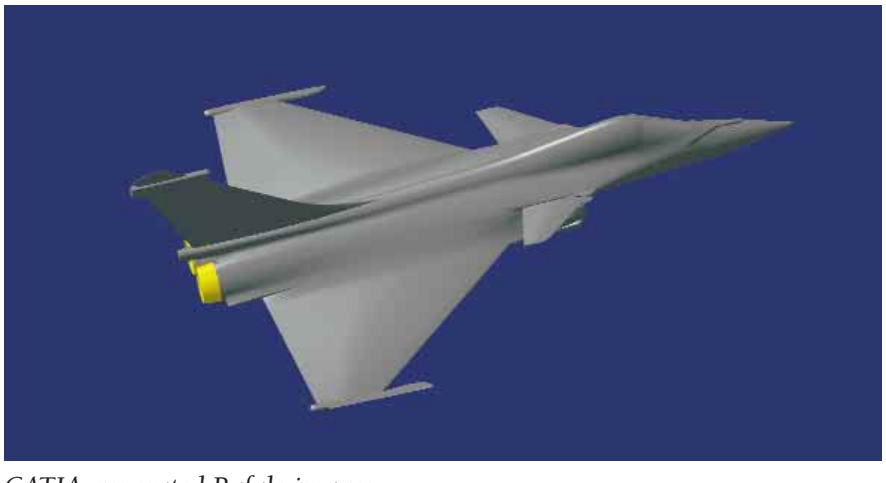
Rafale trainer cockpit and Apogée-4 display

Lieutenant BRAUD,
head of the CDTAA computerized documentation division





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CATIA-generated Rafale images

the rate of new deliveries or as guaranteed by the manufacturers involved in the program. This allows "refreshing" of computerized publications on request from the General Staff.

AIRCRAFT CARRIER, VECTOR, SLI: AN INNOVATIVE TRIPTYCH

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The implementation of Galilée, via its two main constituents – SID and SED – thus contributes as of the present time to the operational effectiveness of the French Naval Air Force. It is rare indeed that such a complete and innovative triptych enters service, associating the aircraft carrier and its main vector with, for the latter, an unprecedented documentation system.

The bet made by Sogitec is today about to be won. The experience acquired and the decisive advances are vital for more than one reason: the understanding of the technical expression of an entirely new need, a methodology that is able to adhere to the accomplishment times allowed, the originality and effectiveness of the solutions proposed which provide real opportunities for other programs.

Characterized by its high performance level and low operating cost, the Rafale fighter aircraft is presently being delivered to the French Navy and will equip the French Air Forces in the future.

The pilots and the personel in charge of implementing and maintaining the aircraft will be provided with computerized documentation to AECMA 1000D standard. The CDTAA (French Air Force Technical Documentation Center) is in charge of the acceptance and the verification of the data modules, then of the production and distribution of computerized documentation via the SID (documentary information system). These publications can be consulted by users via the SED (documentary exploitation system).

Since its creation in 1992, the "Galillée" computerized documentation program of the Rafale has gone through the following stages:

- End of 1998, installation of the SID at Romorantin, in new premises with French Air Force and Navy Air Force personel,
- From mid 1999, acceptance of the first data modules,
- End of 1999, acceptance of the SED,
- End of 2000, production of the first publications designed for the Marine Rafale.

The "Galilée" operation provided the partners with the means to demonstrate that they had the capacity to build a state-of-the-art support for the exploitation of documentation by pilots and mechanics. Currently in its application phase, this innovative concept valorizes the Rafale aircraft and its specific environment.