

Designer's Workbench™ helps improve Flight Safety at KLM

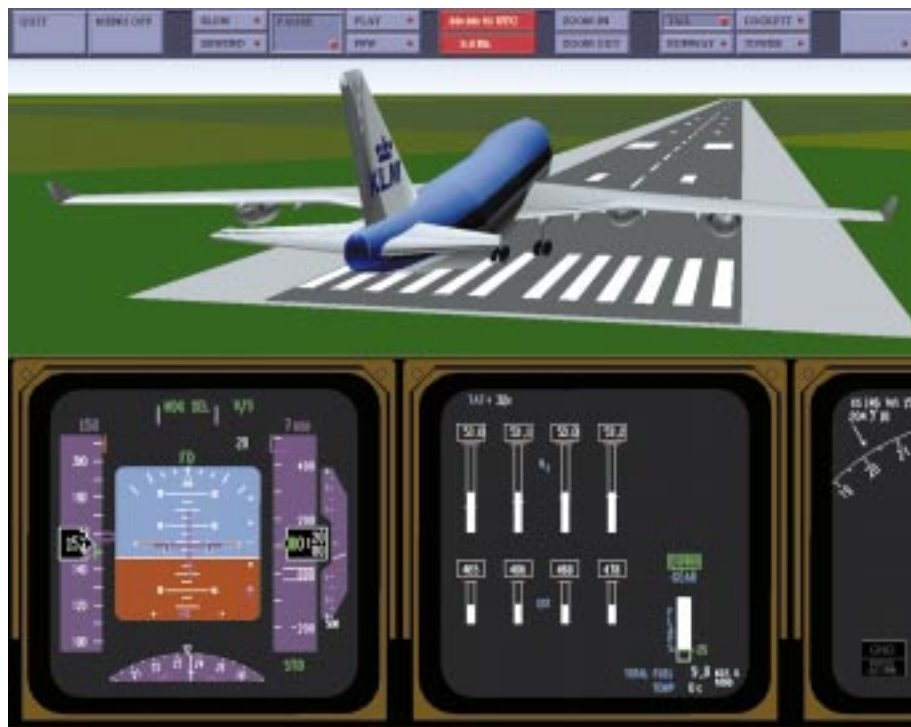
Most people already know that commercial aircraft are fitted with cockpit voice recorders and flight data recorders. Since the 1970s however, all KLM aircraft have been equipped with another unit called the Aircraft Condition Monitoring System (ACMS) for recording additional aircraft and flight parameters.

Maintenance engineers remove optical disks carrying the data from 50 to 60 aircraft daily. The data is downloaded onto a network accessed by various departments in KLM.

This information is used by the Flight Analysis Group within the Flight Safety and Quality Assurance Department to monitor 'operational exceedences', such as speed, ground proximity, sink rate, bank limits and so on. The volume of data analysed is typically around 300MB/day, comprising just numerical streams in a rather 'user *un*-friendly' format.

If an operational exceedence is found, the Flight Analysis Group simply logs the event onto a database within the Flight Safety Department who then decide what course of action should be taken.

Occasionally, further investigation may be called for. The Flight Analysis Group offers a number of options to view the data surrounding the exceedence event, including the ability to see a 3D reconstruction of the aircraft



KLM's Flight Replay System showing Boeing 747 on approach

Image courtesy of KLM

flight path and behaviour, together with a view of selected instruments. This option, called the Flight Replay System, has been developed using Designer's Workbench from Centric Software. The System runs on an SGI Octane™.

The formal nature of investigations by the Flight Safety Department means that several people (pilots and non-pilots) are involved. The Flight Replay System is a powerful tool that gives each individual a common picture of up to 120 flight parameters during the event in terms they can understand. The System is very easy to operate having a set of controls rather like those on a VCR for viewing the replay of the event.

"The 3D animation of the exceedence event gives the data added credibility so pilots are able to recognise both their aircraft and its behaviour during flight", said René Reinders of the Flight Safety and QA Department.

Furthermore, any findings from the

investigation may be passed on to the Chief Pilot or to the Training Group. Since this may result in changes to procedures, training or even landing charts, it is highly important that the System reflects the event (and in fact replays it) as accurately as possible. Several aircraft types and their instruments have been modelled during the 5 years the system has been in service.

KLM intend to enhance the System further with new models and instruments and make it more widely available. This will be achieved by porting the application onto PCs under Windows® NT using the DWB™ Source Code Generator option for OpenGL™.

For further information, contact:
René Reinders at reinders@klm.nl
or Aerobel



Centric Software launch PIVOTAL™



Centric Software launched PIVOTAL at CIMdata in Atlanta recently. PIVOTAL is a Collaborative Virtual Product Development (CVPD) tool for the *full lifecycle* of a product spanning conceptual design, marketing, analysis and simulation, virtual manufacturing, training and maintenance. It enables companies to deliver products ranging from small consumer appliances to commercial aircraft with more innovation, faster and with less risk.

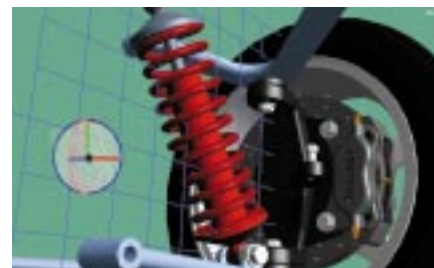
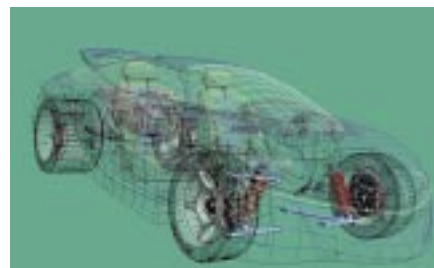
PIVOTAL is the first application to provide a truly **collaborative** environment that brings together dispersed team members, suppliers and customers worldwide, across intranets and the

Internet.

Each member of a PIVOTAL team can personalise their interface to the overall program so they can publish and subscribe to the right information, at the right time and in the right context. PIVOTAL provides powerful capabilities to explore, visualise and validate a multitude of 'what-if' scenarios and in the process build **re-useable knowledge assets**.

Volvo (Monitoring and Concept Center, Camarillo CA) and Boeing (Space Coast Operations, Kennedy Space Center, FL) have already purchased the first site licences of the PIVOTAL suite. Both organisations are keen to enhance collaboration between cross-functional teams as well as partners, suppliers and vendors in a shared, unified environment.

Contact sales at Aerobel for further information and to see the introductory video.



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Aerobel's South Wales Database

Aerobel's demo at ITEC '99 used a geospecific terrain database of South Wales.

The database is available in geometrically correlated versions for ground warfare applications involving naval, ground and low/high-altitude airborne entities.

The 50km x 50km database includes

2 high fidelity areas. Versions for use with far-IR sensors and MoDSAF can also be supplied.

It has already been procured by several organisations since it meets the requirements of many SE programmes. Contact sales for the full specification and pricing details.

ITEC '99 at The Hague, The Netherlands

Aerobel's combined arms Synthetic Environment (SE) demo produced especially for ITEC this year drew considerable attention on the Sony.

The 8-minute looping demo was running in realtime at 60Hz on an SGI Onyx Infinite Reality together with a 3-channel Sony display system using their flagship VPH-G90E projector with soft-edge blend.

The SE demo featured 3 separate scenarios illustrating some unique technology developed in-house:

- ♦ the first clip showed a naval task force with a future carrier launching a pre-cursor

attack with cruise missiles as seen from a Lynx helicopter

- ♦ the helicopter then moved on to protect a ground force crossing a river with a bridge layer and dismounted infantry. Some of the armoured fighting vehicles left dynamic tracks as they crushed the crops in the fields
- ♦ finally the helicopter was engaged in a high intensity battle with ground forces withdrawing in difficult terrain from an enemy breakthrough.

Aerobel have produced a VHS video of this SE demo (in UK PAL format). If you'd like a copy, please contact sales at Aerobel.



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Forthcoming Events:
DSEi '99 14th - 17th September
Chertsey [Stand No. 1145]
 Aerobel's focus will be SE-based acquisition