



"Coming to a Theater Near You ... in 2003!"

WEAPON SYSTEM DEVELOPMENT UPDATE

Aircraft

Modifications are in progress on all major subsystems of the YAL-1A aircraft. Aerial refueling was begun and the challenging 1000 bulkhead, the airtight wall which keeps the crew separated from the laser chemicals, and the 220 bulkhead, which supports the approximately seven-ton turret, are being built. Since the modifications have moved into a critical phase, daily reviews are now conducted to oversee progress.

Beam Control/Fire Control

A successful preliminary design review for the Inertial Reference Transfer Unit/beam walk sensors was held in August. The plan for guaranteeing surrogate turret airworthiness was approved at the program level. Modifications to the Lockheed Martin Integration, Assembly, Test and Checkout test facility are underway.

The beam expander telescope support structure fabrication was completed by Composite Optics, Inc. Surrogate turret ball halves were delivered and accepted. The processor trade study was completed and a factor of three reduction in required boards obtained.

Laser

The Laser Integrated Product Team (IPT) continues to make progress toward completing hardware design and build in support of Laser Module 1 (LM1) integration and testing. Progress on the turbopump risk reduction effort continues. The new second stage design was tested with water on 15 Sep 00, and the first pieces of LM1 hardware have arrived at the Capistrano Test Site.

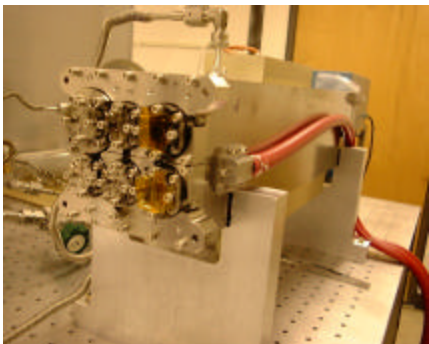
Battle Management

In August, the BMC⁴I IPT successfully completed the on-board Intercom Critical Design Review, and the first upgraded Multifunction Information Distribution System terminal was delivered on time to Boeing Seattle. Also, ABL integration into the Joint Defense Planner approach was approved by the IPT.

In September, the Crew Systems Working Group met, with excellent Air Combat Command participation, and the process to ensure operational crew review of developmental software was established. In addition, the IPT reviewed Infrared Search and Track and Active Ranging System (ARS) progress and schedule updates at Lockheed Martin Orlando, and a Memorandum of Understanding was completed with the 83 Comm Squadron, AF Participating Test Unit, at Langley AFB, VA, to support AF certification testing of Link 16. BMC⁴I is on track for completion of Software Build 1C (all required functionality to support BMC⁴I ground testing at Wichita).

DEOS Inc, of Bloomfield, CT, completed assembly and initial testing of two CO₂ laser modules for the ARS.

The two modules are being integrated to provide the required output. Following integration and acceptance testing the lasers will be delivered to Lockheed Martin Orlando for installation in the ARS pod.



Laser Assembly in Test Fixture at DEOS

DR DELANEY VISITS ABL AT WICHITA

On 26 Sep, the assistant secretary of the Air Force for acquisition, Dr Lawrence J. Delaney, took a tour of the Airborne Laser at the Boeing Wichita, KS facility. Dr Delaney is responsible for all Air Force research, development and acquisition activities.

Among his comments to the media, Dr Delaney said he was impressed with the work being done in Wichita and pleased with what he saw. He explained that the workmanship demanded on this program relies heavily on the information technology work tools for the new kinds of specifications going on this aircraft. Dr Delaney also added, "It's processing really as well as we could have expected. It relies on a great team spirit which we have with the government and the contractor."



Dr Delaney talks to the media in Wichita

In wrapping up his successful ABL tour, he remarked that the ABL program is a significant step up in the country's capability for theater

missile defense. He commented that it shows the wisdom of investing in science and technology for more than 30 years. Dr Delaney also feels the ABL project will be a good bargain for the defense of the country.

Contributed by Lavonne Bartel, Boeing

NORTH OSCURA PEAK (NOP)

The beginning of September 2000 marked the end of the extremely successful Non Cooperative Dynamic Compensation Experiment tests at NOP, White Sands Missile

Range, New Mexico, by the Air Force Research Laboratory, Directed Energy Directorate.

These tests accomplished a number of "firsts." This

was the first demonstration of high performance adaptive optics and edge tracking using extended beacons in a dynamic, scaled ABL engagement. In essence, they fired a laser at the sensor-laden target board - shaped like the missiles ABL will engage - located on a Cessna Caravan. As the aircraft traveled in a 50-kilometer arc around the test site, a tracking illuminator laser was fired and its reflection from the



Cessna Caravan with target board

target board provided tracking information. The beacon illuminator laser was then fired at the target board and its reflection used for atmospheric compensation. The resulting energy of the surrogate high-energy laser on the target board increased significantly once the beam was compensated for with the adaptive optics system.

Ongoing data analysis indicates the test team also was able to significantly demonstrate they could reduce beam jitter, increase the Strehl ratio, and increase the energy on the target board. From this analysis, they are continuing with their efforts to compare the performance of the system to the simulation wave-optics predictions for code-anchoring.

Contributed by Capt Carey Johnson, ABL SPO

STAR SCINTILLOMETER

We have completed the data analysis on the remaining Spring data. The SPO believes the results of all three campaigns indicate the atmospheric assumptions for the ABL design were correct. Further data analysis will be conducted to address Office of the Secretary of Defense concerns, and investigate correlations between turbulence and potential causal factors such as terrain and weather.

AIRBORNE LASER LABORATORY (ALL) REUNION

Don't miss the ALL Millennium Reunion on 4 Nov 00. The eighteenth annual Airborne Laser Laboratory Reunion will be held at Tanoan Country Club in Albuquerque. As usual, dinner will be a buffet. For more information or to update your address or that of someone else who should be invited update, contact Denny Boesen at (505) 842-8911 or e-mail dboesen@logicon.com. The Directed Energy Professional Society (DEPS) continues to grow. You can read about it at www.deps.org. The annual DE Symposium this year is again the same week as the ALL Reunion (coincidence?). This year it will include "public domain" sessions on Tuesday and Wednesday. You can get the preliminary program and registration forms on the DEPS web page. See you on 4 Nov!

Contributed by Denny Boesen, Logicon

BRIEFINGS

- 25 Aug - update to Mrs Darleen Druyun, SAF/AQ
- 28 Aug - update to Lt Gen Bruce Carlson, Director, J-8, Joint Staff
- 26 Sep, update to Dr Delaney and Col Underwood of SAF/AQ at Boeing Wichita
- 6 Oct – program update to Lt Gen Ronald Kadish, Director, Ballistic Missile Defense Organization

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