

# Davis

## NEWSLETTER

July 1997, Issue 07

### MINE COUNTERMEASURE FOR THE ARLEIGH BURKE

As has been anticipated, in September 1996 DAVIS signed contracts with both Bath Iron Works and Ingalls Shipbuilding to supply our Active Shaft Grounding (ASG) system for Flight II-A of the USN DDG-51, Arleigh Burke Class.

Flight II-A comprises twenty-two ships to be built between 1994-2001, with production shared between BIW and ISI. To date, four shipsets have been delivered for DDG 79-82. The remaining eighteen shipsets are to be manufactured and delivered over the next two years.

This 200 Amp ASG system is the same system that has been delivered to Electric Boat for the Seawolf (SSN-21) attack submarine.

The ASG system has also been specified on the new USN LPD-17 amphibious assault ship, which was recently awarded to the consortium led by Avondale Shipyard.

The first deliveries to Ingalls were made in March 1997, and they will continue to both companies at a rate of three to four shipsets per year.



USS Barry, Second of Flight I, Arleigh Burke Class

### Focus

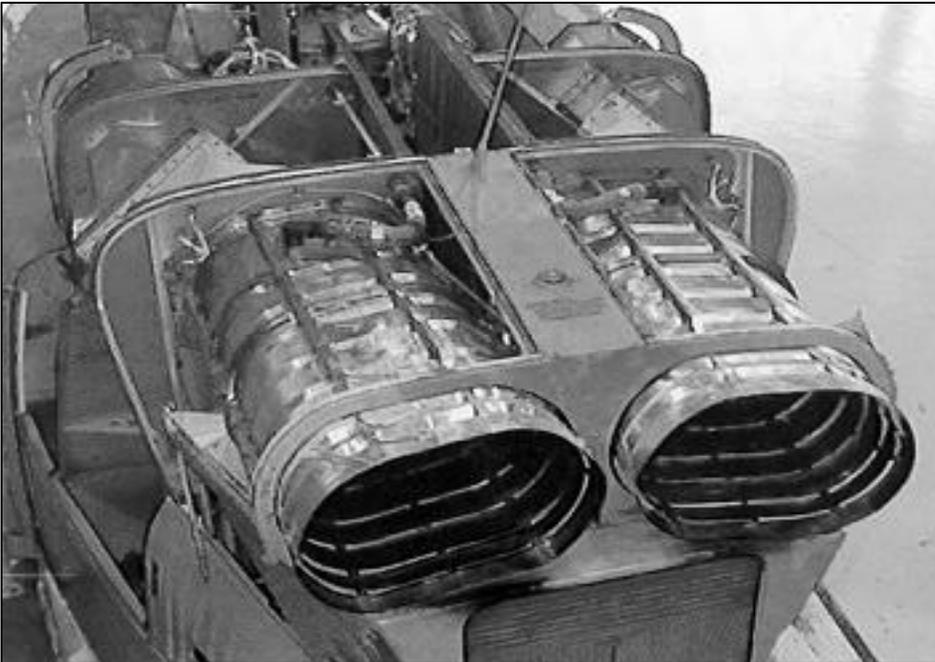
In May 1997, we successfully completed another fiscal year that saw several significant milestones for the company. This year showed a continuing trend in growth, reflected in both sales and the addition of new staff. DAVIS also added new clients in several countries, including India, Australia, Taiwan and Singapore.

Our new helicopter IR suppressor (Bell 412/212) demonstrated very good performance during flight tests at Cold Lake, Alberta in September 1996, and will provide an entry for our IRSS technology into the air environment. We intend to follow this up with the development of an IR suppressor for the Hercules (C130) transport aircraft.

Our Heat Pump Technologies Group has been establishing our product line through development and a Canada-U.S.A. marketing thrust. These initiatives are now resulting in an increasing backlog of orders. We think the coming year will clearly establish our presence in the field.

The combined thrusts of our efforts in expanding the base for our defence products to the air environment and moving into the energy field, will provide us with a good basis for our future growth.

Rolly Davis, P.Eng.  
President



Film Cooled Tailpipe in CH-146 Griffon (Bell 412)

## BRIEF UPDATES

- DAVIS has recently completed the commissioning of a 7 inch birdgun for Pratt & Whitney Canada. The gun will be used for bird ingestion certification of P&WC aero engines.
- In November 1996, DAVIS delivered the last of eight military shelters to the Canadian Department of National Defence.
- David Vaitekunas visited Melbourne, Australia in April 1997 to conduct a training course on NTCS/SHIPR for the Defence Science and Technology Organization (DSTO).
- Ian Jeffrey spent three weeks in Taiwan in January 1997, setting up and commissioning a wave generator for the Institute of Harbour and Marine Technology. He was accompanied and assisted by Dan Peltier of CHC/NRC.
- In April 1997, Rolly Davis visited the Bazan shipyard in Ferrol, Spain to initiate work for the IR signature management for the new F-100 Frigate.
- DAVIS' address for our home page on the World Wide Web is <http://www.davis-eng.on.ca>

## HELICOPTER IRSS

A very significant milestone has recently been reached in the development of an Infrared Signature Suppression system for the Bell 212/412 helicopter.

The DAVIS IR suppressor, designated the Film Cooled Tailpipe (FCT), has successfully completed flight test evaluations at CFB Cold Lake as part of the NATO EMBOW VII IR trial.

The photograph shows the installation of the FCT in a CH-146 Griffon (Bell 412). The FCT has been designed as a mission kit and is easily retrofit without any airframe modifications. The installation results in a very low power loss and weight increase to the helicopter.

Flight tests have confirmed the previously measured performance of the IRSS system at both the DAVIS hot gas wind tunnel and the NRC engine lab. IR measurements taken by DREV showed a significant decrease in IR signature of the aircraft with the DAVIS System installed. This results in a reduced IR missile lock-on range and ultimately an increase in the survivability of the aircraft.

DAVIS is currently in the application process for the certificate of airworthiness and is expecting a contract from the Canadian DND to supply kits for part of the CH-146 fleet. Other countries have also expressed interest in this product.

# Davis

## EMPLOYEE PROFILE

### STEVE REINISCH, MECHANICAL DESIGN OFFICE

Steve joined Davis Engineering in 1984, a year after completing the Mechanical Engineering Technology program at Algonquin College in Ottawa.

Steve began his career at DAVIS working in manufacturing, and then moved to the design office.

Other positions that Steve has been involved in over the past thirteen years include Project Management and Quality Control. In his present

position as head of the Mechanical Design Office, Steve has overseen the transition of the design/drafting process from a paper based system to a completely computerized system.

In his spare time Steve is a sponsored competitive bicycle racer, having reached the Senior 1 level. Competitions keep him busy most weekends during the season traveling and racing across Ontario, Quebec and the northern United States.



Steve Reinisch, Mechanical Design

## IRSS FOR JAPANESE FRIGATE

Another successful milestone has been reached in the evaluation of the DAVIS IRSS technology by the Japanese Defence Agency (JDA).

In January 1994, we supplied Sumitomo Heavy Industries (SHI) Uraga Shipyard with a DRES Ball IRSS system for the new technology platform designated ASE 6102, which was commissioned as the ASUKA, in March 1995.

This DRES Ball design is similar to that which has proven to be very successful with the Canadian Patrol Frigate (CPF).

During Sea Trials in March 1996, the DRES Ball was instrumented extensively for both pressure and temperature and the results confirmed that the performance exceeded the design goals and that the system was very effective

in cooling both hot metal and gases generated by the GE LM2500 gas turbine exhaust system. Most recently, the IR signature reduction benefit was measured in IR Trials (Dec 96) and, as expected, the results

were very impressive and similar to that seen on the CPF.

We are now in discussions with SHI, with the intent of licensing SHI to manufacture the DRES Ball for the next generation DD class.

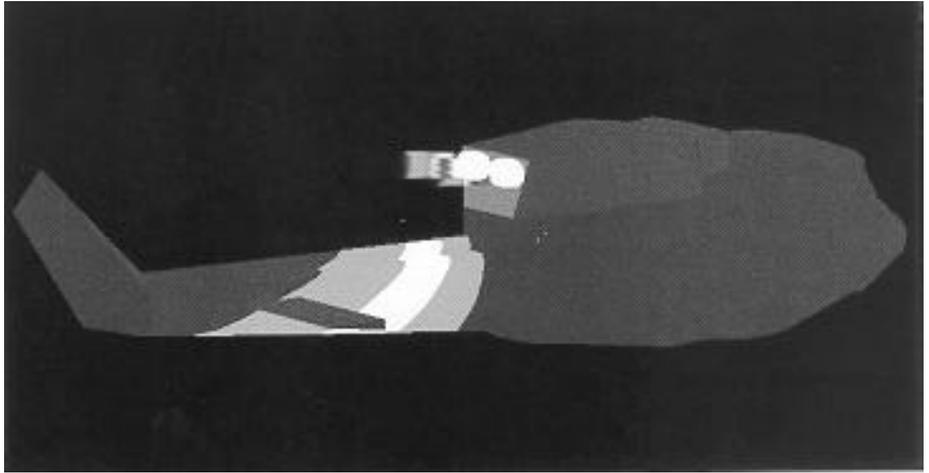


New Frigate "ASUKA"

## NTCS / SHIPIR SOFTWARE

The past year has seen a dramatic increase in both the capability, and introduction to new users, of the IR code designated Naval Threat Countermeasure Simulator (NTCS/Ship Infrared (SHIPIR)). This software has been adopted by the ship signature research study group (RSG-5) of NATO, and will be used by NATO countries as a standard for ship IR signatures.

Three major initiatives which centered on the code were conducted during this period. The first involved a series of enhancements to the code that were requested by the RSG-5 of NATO. The enhancements were implemented by the end of 1996, and the code was introduced to fifteen NATO representatives during a training course conducted at DAVIS in February 1997.



Screen Capture of a Base Model Bell 412 in the 3-5 : m Band

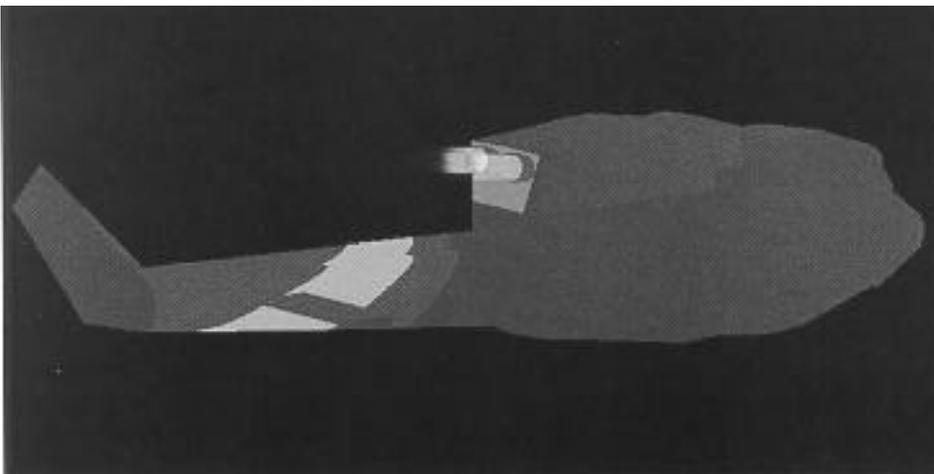
The countries that were represented were: France, U.K., Denmark, Italy, Holland, and the U.S.A.

The second project involved an infrared signature study and technology transfer for the Indian

Navy. This project was completed in May 1997 and involved utilizing NTCS in a comprehensive signature management study for a new frigate. While performing the study, Indian Navy personnel were seconded to the DAVIS team to undergo training on the software.

The third research project was carried out for the Defence Research Establishment Valcartier (DND) and comprised validation of the NTCS/SHIPIR code using extensive measured IR data that has been accumulated for Canadian ships.

As for the future, we expect this code will be utilized extensively by both navies and design yards in their evaluation of design options.



Screen Capture of Bell 412 with DAVIS IRSS Devices Installed

For further information please contact:

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