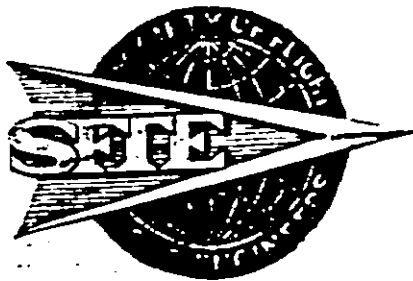


**Society of Flight Test Engineers
13th ANNUAL SYMPOSIUM**

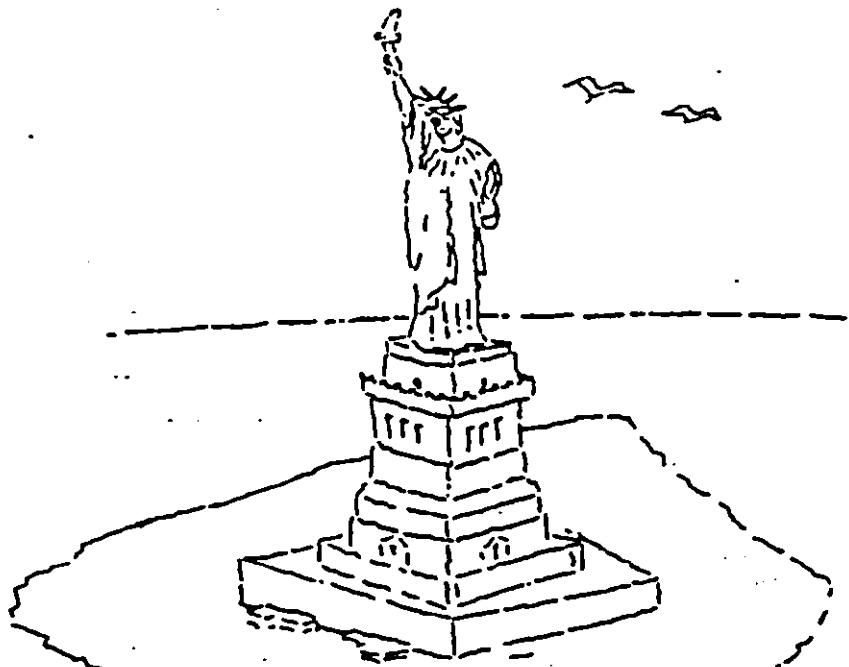
FLIGHT TESTING TECHNOLOGY A STATE-OF-THE-ART REVIEW



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LONG ISLAND CHAPTER**

**New York City at the
Grand Hyatt Hotel**

September 19 to 22, 1982



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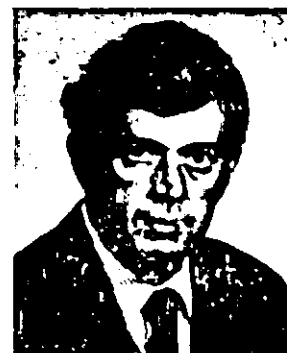
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Activities



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FREDERICK W. SCHAEFER
"KELLY" JOHNSON AWARD

The recipient of the "Kelly" Johnson Award for 1982, signifying exceptional performance in the discipline of Flight Test Engineering, is Fred Schaefer of the Grumman Aerospace Corporation. Fred's selection recognizes his outstanding contributions to a test program designed to determine the effects of asymmetric thrust on the boundaries of controlled flight for the F-14A "Tomcat."

Under his guidance (and performing many of the tasks himself), the simulation program was reduced to a manageable size, the critical combinations of control inputs and throttle chops were defined and the departure boundary criteria were established. During the subsequent flight testing, Fred led the effort by defining the test conditions, making the decisions in the Telemetry Station during flights, and synthesizing the flight results for comparison to the simulation results.

Fred's talents as aerodynamicist, simulator specialist, software programmer and flight test engineer were deciding factors in the successful completion of this uniquely hazardous program.

A graduate of the Polytechnic Institute of Brooklyn, Fred joined Grumman in 1967 and has contributed to the flight test programs of virtually all of the corporation products since then. Now a Senior Flight Test Engineer, Fred has recently been assigned to the X-29 Forward Swept Wing program.

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**FLIGHT TESTING TECHNOLOGY
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PROCEEDINGS



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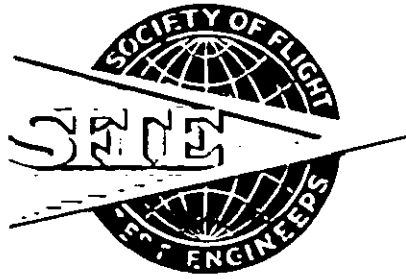
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FOREWORD

Welcome to New York City and the 13th National Symposium of the Society of Flight Test Engineers. We hope your visit here will be both professionally stimulating and enjoyable. The officers and members of the Long Island Chapter stand ready to assist you in attaining these goals.

"Flight Testing Technology: A State of the Art Review" has been chosen as the theme for this year's symposium. To this end, the symposium has been designed to provide a test technology review covering a broad spectrum of engineering disciplines representing both vehicle and systems test requirements.

Recognizing that test and evaluation is a dollar-intensive activity, we have also included the business side of testing in this conference. Thus it is fitting that our keynote address will be delivered by the Director of Test and Evaluation for the Department of Defense, our biggest customer. We have also organized a panel of experts from Government and Industry to discuss the business aspects of test and evaluation, including such questions as test resources, specifications and standards, productivity, cost and other relevant questions; your participation is heartily encouraged.

Consistent with both the technical and business aspects of the flight testing profession, it is appropriate that we involve those contractors who provide our sophisticated hardware. An excellent technical vendors' display has been assembled to allow attendees to view and discuss the latest equipment available.

Finally, we of the Long Island Chapter have attempted to provide our members and guests an opportunity to meet, visit and socialize in an environment second to none. We have scheduled a program of social events designed to permit your making the most of your visit to the 13th National Symposium in New York City. We invite you to take full advantage of this unique opportunity to exchange your thoughts, concerns and perspectives with your fellow professionals.

ACKNOWLEDGMENT

The Long Island Chapter of the Society of the Flight Test Engineers expresses its sincere thanks to the Grumman Aerospace Corporation for their assistance in preparing these proceedings.

REAR ADMIRAL ISHAM LINDER, UNITED STATES NAVY (RETD)
DIRECTOR DEFENSE TEST AND EVALUATION

KEYNOTE SPEAKER

Admiral Linder began his career of active duty in the Navy, following his graduation in 1946 from the United States Naval Academy, on the USS SPRINGFIELD (CL-66) in the Pacific Ocean. Subsequent assignments have included operational naval duties, advanced education, and naval staff posts. A naval aviator, his fleet duties have included assignments with Patrol Squadron 21 in the Atlantic Fleet, on the staff of Commander Amphibious Group 2 (also in the Atlantic), as Executive and then Commanding Officer at Air Antisubmarine Squadron 25, Executive Officer of USS ENTERPRISE (CVN-65); he has also commanded USS CLEVELAND (LPO-7) and USS INTREPID (CVS-11). After promotion to flag rank he was assigned as Commander, Cruiser-Destroyer Flotilla 2.

Admiral Linder holds a BSEE (1949) from the Massachusetts Institute of Technology, an MSEE (1956) from the Naval Postgraduate School, and a PhD in Engineering Science (1961) from the University of California at Berkeley. He qualifies as a Naval Nuclear Propulsion Supervisor through study at the Naval Reactor Training Schools at Mare Island, California and at the National Reactor Testing Station, Idaho.



MAJOR RONALD J. GRABE, USAF
BANQUET SPEAKER

Upon graduating from the Air Force Academy in 1966, Grabe went to Darmstadt, West Germany, as a Fulbright Scholar. He returned to the United States in 1967 to complete pilot training at Randolph Air Force Base, Texas, and subsequently flew F-100 aircraft with the 27th Tactical Fighter Wing at Cannon Air Force Base, New Mexico. In 1969, Grabe was assigned as an F-100 pilot with the 3rd Tactical Fighter Wing at Bien Hoa Air Base in the Republic of Vietnam and flew 200 combat missions. A reassignment to the 27th Tactical Fighter Wing at Cannon Air Force Base followed in 1970, where he flew F-100 and F-111 aircraft and participated in the operational test and evaluation of the weapons system of the F-111D aircraft.

Grabe graduated from the USAF Test Pilot School in 1975 and was assigned to the Air Force Flight Test Center as a test pilot for the A-7 and F-111 serving as the program manager and chief project pilot for the Air Force's digital flight control system for tactical fighters (DIGITAC) evaluation. From 1976 to 1978, he was with the Royal Air Force at Boscombe Down, United Kingdom, and served as the chief project pilot for the Royal Air Force Harrier and the Royal Navy Sea Harrier.

Major Grabe was selected as an astronaut candidate in May 1980 while teaching at the USAF test pilot school. With 3,000 flight hours (2,900 in jet aircraft), he now has completed training to qualify him as a Space Shuttle pilot.

CONTRACTOR'S DISPLAY

The 13th National Symposium is pleased to have 10 separate contractors on display for you. The list below provides the contractor name, address and name of the representative(s) in attendance.

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