

## Resume of Professional Qualifications

Laurel G. Shroers  
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### Experience

Retired on May 29, 1990 after completing 36 years of government service. At the time of retirement from the U.S. Army Aviation System Command. I was Flight Test Director of the NASA/Army XV-15 Tiltrotor Flight Research Program and was also serving as the Assistant Chief of the NASA Flight Experiments Branch, NASA Ames Research Center, Moffett Field, CA. (1989-Retirement)

Government Flight Test Director for the initial Proof-of-Concept flight tests of the XV- 15 Aircraft at the Bell Helicopter Flight Research Center, Arlington, TX, at the NASA Dryden Flight Research Center, Edwards AFB, CA, and the NASA Ames Research Center, Moffett Field, CA. (1979 – 1989)

Senior Government Project Engineer during the design, fabrication, assembly and ground checkout of the two NASA/Army/Bell tiltrotor research aircraft. Familiar with all phases of contract monitoring (witnessing, safety reviews, schedules, cost control, etc.). (1973-1979)

Participated in the Government flight test, planning and evaluations of the Canadair CL-84 and the LTV XC-142 tilt-wing Aircraft, X-14A jet-lift aircraft, XV-5A fan-lift aircraft and the OV-10A STOL aircraft. Served as Technical Secretary for the NATO International Advisory Group For Aerospace Research and Development (AGARD) V/STOL Aircraft Handling Qualities Committee. Prime author of the AGARD V/STOL Handling Qualities Criteria Report. (1966 – 1973)

Extensive flight test experience including helicopters, fixed-wing STOL aircraft, and engine development programs while assigned to the U.S. Army Aviation Test Activity. (1961 – 1966)

Junior Engineer assigned to the Army H-2 I Project office, Product Improvement Group. Reviewed Unsatisfactory Equipment Reports and correlated findings with H-2 I accident reports. (1958 – 1961)

### Additional Assignments

Member of Army Blue Ribbon Committee to review, study and document the cause of a series of accidents

involving the Army's fleet of UH-60 "Blackhawk" helicopters, 1986  
Advisor to the NASA/Army OH-6A Accident board, 1981

Advisor to the Army Advance Attack Helicopter Source Selection Board, 1973

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#### Education

BS in Aeronautical Engineering, St. Louis University – 1958

Guest Lecturer- Advance Rotorcraft Concepts

University of Texas at Arlington

Santa Clara University, Santa Clara, CA

California Polytechnic University, San Luis Obispo, CA Employment History

U.S. Army Aero flight dynamics Directorate, AVSCOM, Moffett Field, CA (1966 –Retirement)

U.S. Army Aviation Test Activity, Edwards Air force Base, CA (1961 – 1966)

U.S. Army Transportation Material Command, St. Louis, MO (1958 – 1961)

St. Louis University, St. Louis, MO (1954 – 1961)

U.S. Navy (1950—1958)

#### Publications

See attached list.

#### Affiliations, Memberships and other Credentials

Member, American Helicopter Society

Member, Society of Flight Test Engineers

Member, Experimental Aircraft Association

Member, Aircraft Owners and Pilots Association

Member, Reid Hillview Airport Association

Private Pilot and Aircraft Owner

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### **Technical Papers**

1. Development of the XV-1 5 Tiltrotor Research Aircraft –Lessons Learned, National Specialist Meeting, September 1989
2. A comparison of High Speed-Proof-Concept Research Aircraft,' NASA/Army Rotorcraft Conference Paper, March 1987
3. Dynamic Structural Aeroelastic Stability Testing of the XV-1 5 Tiltrotor Research Aircraft, AGARD paper, October 1982
4. Operating Flexibility Exhibited in Flight Test of the XV-15 Tiltrotor Research Aircraft, AHS Paper, May 1980
5. Initial Flight Test Results of the XV-15 Tiltrotor Aircraft Compared to Design Predictions, AIAA 80-0235, January 1980
6. A Simple Method Of Estimating Minimum Autorotative Descent Rate of Single Rotor Helicopters, NASA TM 78452, March 1978
7. A Piloted Simulation Study of the Effects of Control Force Gradient on VTOL Hovering Flight, January 1973
8. Considerations for Stability and Control of V/STOL Aircraft, AGARD Paper, May 1972
9. V/STOL Handling Qualities Criteria, AGARD Report R-577-70, Parts I and II, 1970
10. A Review of Facilities and Test Techniques Used in Low-Speed Flight, New York Academy of Sciences, November 1968
11. Engineering Evaluation of UH-18 Helicopter Equipped with Model 540 Rotor System, Army Flight Test Report June 1966
12. Performance, Stability and Control Evaluation of the UH-1C Helicopter, Army Flight Test Report, December 1966
13. Performance Evaluation of the OH-5A Helicopter in the Unarmed and Armed Configuration, Army Flight Test Report, 1964
14. Final Report of Engineering Test of the Stability and Control Characteristic of the OH-13 Helicopter Equipped With XM-1 Armament Kit, Army Flight Test Report, April 1964
15. Preliminary Flight Evaluation of the Allison Gas Turbine Engine Installed in a Bell UH-13R Helicopter, Army Flight Test Report, January 1964
16. Takeoff and Landing Evaluation of the Pilatus Turbo-Porter STOL Airplane, Army Flight Test Report, 1963

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## References

Mr. Terry Gosset, Chief, Simulation and Aircraft Systems Branch, U.S.Army Aero-flight dynamics Directorate, NASA Ames Research Center, Moffett Field CA (650-604-5905)

Mr. Paul Loschke, Chief, Flight Experiments Branch, NASA Ames Research Center, Moffett Field, CA (650-604-6576)

Mr. William Snyder, Chief, Rotorcraft Technology Branch, NASA Ames Research Center, Moffett Field, CA (650-604-8570)

Dr. John Zuk, Chief, Civil Technology Branch, NASA Ames Research Center, Moffett Field (650-604-6568)

Mr. George Tucker, Assistant Chief, Flight Operations Branch, NASA Ames Research Center, Moffett Field, CA (650-604-5279)

Mr. Gary Churchill, Control Systems Research Engineer, NASA Ames Research Center, CA (650-604-6091)

Mr. Ron Reber, Manager, Civil Tiltrotor program, Bell Helicopter, Arlington, TX. (817-280-2923)

Mr. Ron Erhart, Chief Pilot, Bell helicopter, Arlington, TX. (817-280-4582)

Mr. John Kidwell, Chief, Engineering Branch, Army Plant Representative Office, Bell Helicopter, Hurst, TX (817-820-7589)

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### **Consultant Qualifications**

Mr. Shcroers retired on May 29, 1990 after completing 36 years of government service. At the time of retirement from the U.S. Army Aviation System Command he was Test Director of the NASA/Army XV-15 Tiltrotor Flight Research Program and was also serving as the Assistant Chief of the NASA Flight Experiments Branch at the NASA Ames Research Center. During his career in Army aviation he has been involved in numerous helicopter and V/STOL aircraft programs. This experience includes participation in the evaluation of the Canadair CL-84 and the LTV XC-142 Tiltwing Aircraft, the Ryan XV-5B fan-in-wing aircraft, Bell X-14A jet-lift aircraft, NASA/Army/Bell XV-15 tiltrotor, and the NASA/Rockwell OV-10A rotating cylinder flap STOL aircraft. In addition, Mr. Schroers served as Technical Secretary for the NATO International Advisor Group for Aerospace Research and Development (AGARD) V/STOL Handling Qualities Criteria Report.