

2013 Eagles



James G. Rider, Colonel, USAF (Ret.)

**Air Force Systems Command, Lightweight Fighter Joint Test Force Director
YF-16/YF-17 Test Pilot**

Colonel Jim Rider entered the US Air Force as an aviation cadet in June 1954 and received his pilot wings and commission as second lieutenant in September 1955. He earned his Bachelor's degree in Aerospace Engineering from the University of Arizona in May 1965 then entered the USAF Aerospace Test Pilot School where he graduated in September 1966.

Colonel Rider's USAF career, spanning more than 30 years, included duty as an all-weather interceptor pilot in F-86D/L aircraft, nuclear strike in support of NATO in Europe flying the F-101. Instructing at the USAF Test Pilot School was followed by a tour in Southeast Asia flying F-105 aircraft from Takhli, Thailand. After completing this combat tour of more than 350 flight hours, Col Rider returned to the Air Force Flight Test Center at Edwards AFB, California where he participated in several flight test programs. The most notable was as the Director of the Lightweight Fighter Prototype testing (YF-16 vs. YF-17) and then as Director of the F-16 full-scale development testing. With the F-16 initial testing complete, Colonel Rider introduced the F-16 into the Tactical Air Command as Director of Operations for the USAF's first F-16 wing at Hill AFB, Utah. In addition to testing and instructing in the F-16, Colonel Rider was the F-16 demonstration pilot for the Air Force Systems Command and Tactical Air Command from 1974 through 1980. Jim's last assignment in the USAF was as the U. S. Defense and Air Attaché in the U. S. Embassy in Canberra, Australia.

Colonel Rider is a command pilot and has accumulated over 8,000 flight hours and has flown more than 50 types of aircraft. His military decorations and awards include the Legion of Merit, Distinguished Flying Cross, Meritorious Service Medal and Air Medal with 12 oak leaf clusters. Jim is a Fellow in The Society of Experimental Test Pilots.

During his 12 plus years with the aerospace industry (General Dynamics & Lockheed Martin), he had engineering proposal responsibility for the sale of F-16's to many of the current international customers including Japan. Jim and Jackie returned in 1996 from living in Nagoya, Japan where Jim was the Director of Operations in Japan for the Lockheed Martin Tactical Aircraft Systems participation in the Japan F-2 fighter program. Jim and Jackie moved back to Texas in 1984. After retirement from the USAF, Jim took a job with the General Dynamics Ft. Worth Division where he worked F-16 International Model Improvements. Jim and Jackie have two children, three grandchildren and two great grandchildren.



Robert C. Ettinger, Colonel, USAF (Ret.)

Air Force Systems Command, YF-16 Test Pilot

Colonel Ettinger served for 27-1/2 years in the United States Air Force (USAF) as a fighter pilot and test pilot. He received his Bachelor of Science Degree in Mechanical Engineering and an ROTC commission in the Air Force from the University of California at Berkeley in 1959. From 1961 to 1967 he flew the F-102 and F-4 as an operational fighter pilot. He flew the F-4D for 130 combat missions with 100 combat missions over North Vietnam during 1967-68. Returning to the United States, Col Ettinger completed the Aerospace Research Pilot School (ARPS) at Edwards AFB, CA. After graduation, he was assigned to the Fighter Branch of the 4950th Test Wing at Wright-Patterson AFB, Ohio, where he flew numerous system test projects in the F-4 and F-100 aircraft including performing as one of two USAF pilots to evaluate the Survivable Flight Control System (a fly-by-wire F-4 research aircraft). He earned a Master of Science degree in Aeronautical Engineering from Ohio State University at Columbus in 1973.

Colonel Ettinger was reassigned to Edwards AFB where he served as the Air Force Systems Command (AFSC) project pilot for the YF-16 as part of the Lightweight Fighter Joint Test Force, flying both the YF-16 and the YF-17. He was project pilot on the Fighter Control Configured Vehicle (YF-16 with vertical canards), an AF Flight Dynamics Laboratory research program. When the F-16 was selected to be the Air Combat Fighter for the USAF, Colonel Ettinger served as the Operations Officer, Deputy Director and finally Director of the F-16 Combined Test Force. He participated in all phases of the F-16 full scale development including flutter, loads, weapons separation, propulsion, air starts, performance, stability and control, and high angle of attack testing. He was the first USAF pilot to fly F-16A No. 1 and F-16A No. 2. In 1979, he was the co-recipient of the Society of Experimental Test Pilots' Iven C. Kincheloe "Test Pilot of the Year" Award for the successful completion of the hazardous high angle of attack and departure testing of the F-16.

In 1980, Colonel Ettinger returned to Wright-Patterson as Chief of the Flight Control Division of the Flight Dynamics Laboratory, AF Wright Aeronautical Laboratories. He joined the Aeronautical Systems Division as the Director of the A-10 System Program Office (SPO) in 1981. In December of 1982, he became Director of the Fighter/Attack SPO when the A-10 SPO became part of that organization. Colonel Ettinger rejoined the F-16 program in July 1983 as the Deputy Director of the F-16 SPO. He returned to Edwards AFB, CA in May 1985 as the Vice Commander of the Air Force Flight Test Center. Colonel Ettinger retired from the Air Force in 1987 to become an executive in the aerospace industry. From 1997 to 2006 he managed all phases of the RQ-4A Global Hawk flight test program from first flight to operational aircraft flying overseas an average of 22 hours a day in support of the Global War on Terrorism (GWOT).

In 2005 he won the Society of Experimental Test Pilots' James H. Doolittle Award for outstanding technical management for his efforts in leading the Global Hawk test program. In 2007 he was inducted into the Aerospace Walk of Honor in Lancaster, California. He is a member of the Board of the Aero Club of Southern California. He currently works as a consultant for Northrop Grumman's Flight Test Department. Since retiring from the USAF in 1987, Colonel Ettinger has held a variety of positions in the aerospace industry as an engineer, test pilot, manager and consultant and recently retired as the Manager of Flight Test for Northrop Grumman Unmanned System's High Altitude Long Endurance (HALE) programs.



Philip F. Oestricher

Chief Test Pilot for General Dynamics, YF-16 Test Pilot

Phil Oestricher was born September 26, 1931 in Orlando, Florida. Following graduation from Orlando High School in 1948, he attended Orlando Jr. College and the University of Florida, receiving Bachelor of Aeronautical Engineering and Master of Engineering degrees from the latter institution in 1952 and 1953, respectively.

He was employed for a little less than one year at Consolidated Vultee in Fort Worth, TX as an Aerodynamics Engineer working on B-36 performance predictions and flight manual performance data.

He joined the Naval Air Reserve in 1950 and transferred to the Marine Corps Reserve in 1953. He then commenced active duty as an Officer Candidate at Quantico, Virginia in 1954. Following commissioning as a Second Lieutenant, he completed Basic Officers' School and went to Pensacola, Florida early in 1955 for pilot training. He was designated a Naval Aviator in May, 1956 and was named the Outstanding Jet Fighter Syllabus Graduate for Fiscal 1956. He was then stationed at Cherry Point, North Carolina where he flew F9F- 8 Cougar and F4D-1 Skyray fighters and a variety of other aircraft. A six month cruise with the Skyray aboard the USS Franklin D. Roosevelt capped his active duty career. He continued to fly in the Marine Air Reserves until late 1973 at which time he retired as a Lieutenant Colonel in command of Marine All Weather Fighter Squadron 112. While in the reserves, he flew FJ-3, FJ-4B, T-1, T-33, F-8, SNB and H-34 aircraft.

Upon returning to civilian life, he again joined Convair/Fort Worth as an Aerodynamics Engineer and worked on B-58, NX-2 and RB-57F projects. He was responsible for the changes in the exterior configuration of the latter aircraft. He served as a Design Safety Engineer on the F-111 and transferred to the Flight Department in late 1965.

He was named the Outstanding Student of Class 44 of the U. S. Navy Test Pilot School when graduating in October, 1966. Upon returning to Fort Worth, he flew engineering test flights in all versions of the F-

111 until 1972 when he began working full time on the YF-16 as Project Test Pilot. He made the first flight in early 1974 and continued a high level of participation in experimental and production test flying of YF/F-16 aircraft through 1986. Following eleven years as Director of Flight Test, he became an Engineering Division Specialist in Advanced Design working on new aircraft concepts such as very large Wing-In-Ground-Effect sea-based transports. He last flew an F- 16 on July 30, 1992 and retired the following day.

He was a co-recipient of the Ivan C. Kincheloe Award for Outstanding Professional Accomplishment in Flight Testing, 1 July 1978 to 30 June, 1979 by the Society of Experimental Test Pilots. He is a Fellow of the Society.

He married the former Patricia Ratti in 1952. The couple has four children and resides in Benbrook, Texas. Phil's hobbies include aviation and military history, model airplane building/flying, motorcycling, music and conversations/visits with old friends.



**Michael J. Clarke, Lieutenant Colonel, USAF (Ret.),
Air Force Systems Command, YF-17 Test Pilot**

Born in Wilmington, Delaware on November 4, 1937, Mike grew up in Camden, DE where he attended Caesar Rodney Schools. In 1955 he attended The University of Delaware on an Electrical Engineering scholarship.

In 1956 Mike was selected for the second class to enter the US Air Force Academy at Lowry AFB, Denver, Colorado. At the Academy he earned his Paratrooper and Navigator Wings in addition to a Bachelor's Degree in Military Science. After graduation from the USAFA at the new site North of Colorado Springs in 1960, he was assigned to Otis AFB, Cape Cod, MA navigating on RC-121's for one year before entering pilot training at Reese AFB in Lubbock, TX, where he received his Pilot Wings as a Distinguished Graduate in 1962. He remained at Reese instructing in both T-33's and T-37's, later serving as a Check Pilot in T-37's, until leaving in 1964 enroute to Vietnam where he flew unarmed C-123's as an Agent Orange Pilot/IP. He accumulated 250 low level spray sorties, 458 combat hours, 88 hits, 1 Purple Heart and, the sobriquet "Magnet Ass". Mike then extended in-country to fly single seat A-1H/J's as the Operations Advisor in Premier Ky's personal 522nd (Nam Tram Hai Muoi Hai) VNAF fighter squadron, also known as the Palace Guard, where he accumulated 93 additional sorties, 125 combat hours and, 3 more hits – but at least now he could shoot back. Mike was awarded the Distinguished Flying Cross, the Meritorious Service Medal, thirteen Air Medals, the Purple Heart and, three Republic of Vietnam Crosses of Gallantry.

After Vietnam Mike was assigned to the 32nd FIS/TFS at Soesterberg AB, The Netherlands from 1966-1970 where he flew both F-102's and later F-4E's as a Flight Commander. He entered the Aerospace Research Pilot School at Edwards AFB, CA in 1970, remaining at Test Operations after graduation flying high altitude research projects in U-2's and experimental tests in F-4's while maintaining currency in F-104's. In 1972 Mike checked out in the AU-23A for a special air-start program. Due to a unique test requirement at Test Ops, Mike attended the Rotary Wing conversion course at Fort Rucker, AL in 1973 which he completed as a Distinguished Graduate. Soon thereafter, he became Deputy Director of the YF-16/YF-17 Joint Test Force and Project Test Pilot for the YF-17 and, in mid-1975 became the Test Force Director for the F-16 Radar fly-off. Following six fantastic years at Edwards Mike paid his dues by going remote to Osan AB, Korea in mid-1976 as the Chief of Safety for the 51st Composite Wing and 314th Air Division, maintaining currency with the 36th TFS in F-4E's. After Korea Mike was Chief of Safety at Eglin in mid- 1977/78, flying test support in F-4E's. In mid-1978, Mike was given a

diplomatic posting to the Spanish Air Ministry in Madrid as the USAF's Program Manager for the Spanish Air Force's Future Attack and Combat Aircraft selection process during which the Spanish Air Force contracted to buy \$2.3 billion worth of F/A-18's. Mike also served as the Director of Operations for the Embassy aircraft, flying super King Air's as PIC/IP. During his Air Force career Mike earned three ratings – Paratrooper, Master Navigator, and Command Pilot and, a Masters Degree in Management.

After retirement from the USAF, Mike joined Northrop in 1982 as the Director of Operational Requirements and Crew Station Design for the Advanced Tactical Fighter, later renamed the YF-23 Stealth Fighter. After Northrop won the ATF prototype down-select, Mike was given the opportunity to create the first Crew Systems organization at Northrop with crew station design and man-machine interface responsibilities and/or oversight for all man-rated programs. In late 1987 Mike joined UTC/Sikorsky as Manager of their Crew Systems organization, with oversight for the Comanche crew station design, operability, and man-machine integration. While at UTC/Sikorsky Mike won and became program manager for one of industries' first aircraft related large Artificial Intelligence programs known as the Day/Night Adverse Weather Piloting System, and later assumed responsibility for all CR&D. Mike also created and directed the first Crew Systems and Human Factors Section in the American Helicopter Society.

After leaving Industry in 1995, Mike became the Executive Manager for Heritage Village in Southbury, CT, a 500 acre active adult community of 2600 homes and 3800 people. Mike and Emma, his bride of 43 years, retired to Sky Ranch, a residential fly-in community, in Baker, Florida in 2004 where Mike still flies his experimental Skybolt aerobatic biplane. In 2007, Mike was honored by the DOT/FAA with “The Wright Brothers 'Master Pilot' Award” for Fifty Consecutive Years of Dedicated Service in Aviation.



Dean Stickell, Colonel, USAF (Ret.)
Tactical Air Command, YF-16 Pilot

Dean Stickell was born July 30, 1941, in Frederick, Maryland, where he attended Frederick High School. In 1963 he graduated from the Citadel with a Bachelor of Science degree in Civil Engineering, and was commissioned as a second lieutenant. After graduation he attended pilot training at Reese Air Force Base, Texas, where he flew the T-37 and T-38. From Reese AFB, Dean went to Luke AFB, Arizona, for combat crew training in the F-100. In 1965 he was assigned to the 493rd Tactical Fighter Squadron, Royal Air Force Lakenheath, England, flying the F- 100.

Dean spent the year of 1969 with the 416th Tactical Fighter Squadron in Vietnam, again flying the F-100. In 1870 he returned to Luke AFB and served as an instructor pilot with the 69th Tactical Fighter Training Squadron, flying the F-104. In 1971 he attended the USAF/GAF Fighter Weapons School and remained there as an instructor pilot.

In 1974, Dean was assigned to the Lightweight Fighter Joint Test Team as a Project Pilot at Edwards AFB, CA, where he flew the YF-16, YF-17, F-4 and T-38. From Edwards he went to Hill AFB, Utah and served as Squadron Commander of the 16th Tactical Fighter Training Squadron. In 1981 Dean went to the Pentagon as Director, Fighter Division, AF Studies and Analyses. After attending the Industrial College of the Armed Forces in 1983, he served as Wing Commander of the 432nd Tactical Fighter Wing, Misawa Air Base, Japan, flying the F-16. In 1987 Dean was assigned US Defense/Air Attache, US Embassy, Australia, where he flew the C-12. He ended his AF career serving as Professor of Air Science, University of Virginia, Charlottesville, VA.

Dean is involved in the Frederick, MD community where he has served as: Chairman of the Board of Directors, Maryland Sheriff's Youth Ranch; Chairman of the Frederick Airport Commission; and President of the Frederick Airport Association. He owns and flies a Glasair III. Dean is married to Irene Robbie from Selkirk, Scotland. They have two daughters, Carolyn and Jil.



**Richard R. Hildebrand, Air Force Civilian,
Air Force Systems Command, YF-17 Lead Engineer**

Richard R. Hildebrand's 36-year service career with the Air Force culminated with his retirement in 1997 as Executive Director of the Air Force Flight Test Center, Edwards Air Force Base, California.

Mr. Hildebrand began his career in 1961 as a Performance and Flying Qualities flight test engineer on the B-52H. During his initial years he worked on many different programs including the B-58 Hustler, EC-135 airborne command post and, at the time, a highly classified effort determining how to operate bombers from dry lake beds around the world. He was the lead performance engineer for the F-111A and later the Lead Engineer for all F-111 performance and flying qualities programs.

In 1970 he was chosen to lead the Fighter Section of the Performance Engineering Branch and subsequently supervised performance and flying qualities testing of several F-111 models, B-57F, B-52G/H projects, YF-17, YC-14, and YC-15. In 1975 he was selected to be the Deputy for Engineering for the Advanced Medium Short Take Off and Landing (STOL) Transport Combined Test Force, the first such position established. As such he was responsible for the technical oversight of all YC-14 and YC-15 developmental flight testing.

In 1977 he was named as Deputy Director of the Air Launched Cruise Missile Combined Test Force for the competitive fly off and subsequent source selection. After then managing three different engineering divisions, in 1983 he became Director of a classified organization later revealed to be the B-2 Combined Test Force. In this role he headed the Air Force's test planning for the B-2 and the design of the B-2 test facilities complex at South Base.

Promoted to Technical Director of the 6520th Test Group in 1985, Mr. Hildebrand was responsible for supervising the engineering aspects of all AFFTC flight testing and technical infrastructure development. In 1987 he became the AFFTC Technical Director. In 1993 his duties were expanded to Executive Director of the AFFTC, the principal deputy for all matters under the cognizance of the Commander.

After retiring from federal civilian service Mr. Hildebrand served as a senior engineer for Science Applications International Corporation (SAIC). In that capacity, among other things, he represented the

Office of the Secretary of Defense's Director of Operational Test and Evaluation for the conduct of Y2K Operation Evaluations of C2ISR systems in Germany and Korea at the turn of the century.



**Charles Van Norman, Air Force Civilian,
Air Force Systems Command, YF-16 Flying Qualities Engineer**

Charlie Van Norman has worked in various aspects of flight test for nearly 50 years. He began his career at the former Air Force Flight Test Center in June of 1964. During the next 15 years he worked on flight test programs involving the YAT-28E, RB-57F, Lear Jet Model 23, U-10B, XC-142A, C-123K, C-5A, EC-47Q, NC-123X, C-130A, C-130B, B-52A, B-52G, A-9A, YF-16, B-1B, Have Idea, YC-14, YC-15, A-7D, O-2, KC-135, and ALCM. In addition, he was the AFFTC Program Manager for the Joint AF/NASA testing of the F-111 TACT, HiMat, AFTI-16 and AFTI-111 research aircraft.

He subsequently moved into the technical support area as the Deputy for Operations and then the Chief of the Computer Sciences Division. When the Range Division and the Computer Sciences Division were merged to create the 6521st Range Squadron he became the Deputy Director and Operations Officer. While at the Range Squadron he was also given responsibility for representing the AFFTC in the design and development of the South Base technical support facilities that became the home of the B-2 CTF. Before completion of the construction, he became the B-2 CTF Director and upon later assignment of a military officer as Director, he moved to the position of the first B-2 CTF Deputy Director.

In 1988 he was promoted to the executive level of technical leadership at the AFFTC and retired in 1998 as the Senior Technical Advisor of the 412th Test Wing. Subsequent to his retirement from federal service, he worked in various technical and management positions with CSC and TYBRIN. He is currently employed by both INQU and NDTI. He holds a BSAE from Cal Poly and an MSME from USC.



James A. Papa, Air Force Civilian
Air Force Systems Command YF-16 Flying Qualities Engineer

James A. Papa is currently a senior systems engineer with Science Applications International Corporation where he supports a number of business development areas including Systems Engineering, Modeling Simulation and Analysis, and Test and Evaluation. He is a retired member of the AF Senior Executive Service (2003), where he was most recently the director of engineering and technical management, Headquarters Air Force Materiel Command (AFMC), Wright-Patterson Air Force Base (AFB), Ohio. He was directly responsible to the AFMC commander for the effectiveness of systems engineering and manufacturing policies and processes throughout the command. He initiated systems engineering revitalization efforts for the Air Force which are still in place today. He was also responsible for the enhancement of career development programs for members of the command's systems engineering and technical management community. Before moving to the AFMC Director of Engineering position, he was the Executive Director for the Air Force Flight Test Center at Edwards AFB, CA.

Mr. Papa has an extensive background in systems engineering and testing. In 1966, he was commissioned in the U.S. Air Force and served four years at the AFFTC as a flight test engineer on F-111 and F-4 aircraft. He entered federal civil service in 1971 and worked as a project flight test engineer on numerous aircraft including the F-111, YA-10, YF-16, F-16 and B-2. He has held key systems engineering, management, and executive positions leading a number of large organizations responsible for program management, systems engineering, and acquisition associated with software systems, range instrumentation, and aircraft weapon system development.

Mr. Papa has earned the following degrees: Bachelor of Science degree in aerospace and mechanical engineering, at Princeton University in 1966, Master of Science degree in aeronautical engineering in 1975, University of Southern California, and in 1985 a Master of Science degree in management, Sloan School of Management, Massachusetts Institute of Technology. He has the following professional members and affiliations: Charter Member, Society of Flight Test Engineers Member; International Test and Evaluation Association, Past US Member; Systems Concepts, Systems Engineering, and Integration Panel, NATO Research and Technology Organization; Member, National Defense Industrial Association (NDIA); Member, Defense Planning and Analysis Society; Member, Air Force Association; Past

President, Engineer's Club of Dayton; Trustee, Engineer's Club of Dayton Foundation; Trustee, Engineering and Science Hall of Fame; and Trustee, Wright B Flyer Organization, Dayton Ohio.

He currently resides in Beavercreek, Ohio with his wife Regina. They have two sons, Anthony and Vincent.



James H. Doolittle III, Colonel, USAF (Ret.)

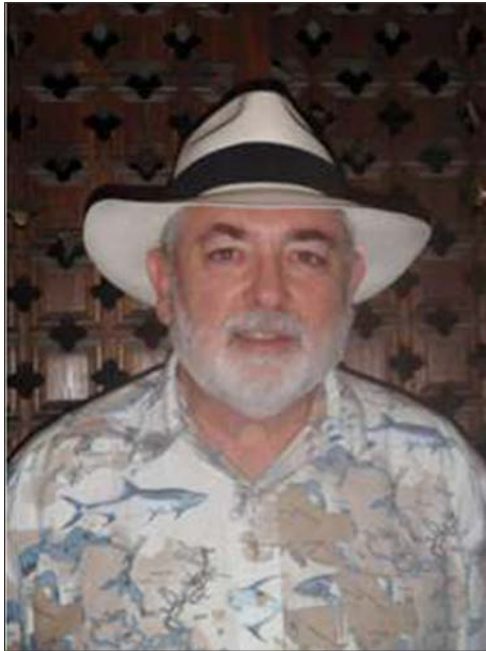
Air Force Systems Command, YF-17 Systems Project Engineer

Jimmy Doolittle III graduated as a member of the Cadet Corps at Texas A&M with a Bachelor of Science degree in Mechanical Engineering (ME) and a US Air Force commission as a 2LT. He stayed on for a year to finish his Master's degree in ME and then went directly to Williams AFB, AZ for pilot training, entering the pipeline to Southeast Asia. He flew more than 200 combat missions in the venerable A-1 Skyraider flying into Laos and Vietnam from Nakhon Phanom Royal Thai Air Base. Jimmy returned to the states to complete a tour as a T-38 pilot training instructor at Laredo AFB, TX and was then shipped to Edwards (EAFB) CA as a Flight Test Engineer on the F-15, Lightweight Fighter (LWF) and A-10 Combined Test Forces. He served as the Systems Project Engineer on the Northrop YF-17 side of the YF-16/YF-17 LWF fly-off.

Jimmy left the AF Flight Test Center (AFFTC) to serve as a tactical fighter/attack pilot at Myrtle Beach AFB, SC and Davis-Monthan AFB, AZ in the Vought Corsair II A-7D and then returned to EAFB his second time as a student in USAF Test Pilot School (TPS) Experimental Test Pilot Course, Class 79B. He remained at EAFB and served as Project Test Pilot on A-7K and F-20 TigerShark flight test projects. Jimmy then served his first TPS staff tour as TPS Ops Officer flying the A-7, U-6 and T-38. He moved on to an Air Liaison Officer short tour with the US Army 2ID on the DMZ of South Korea and then went to Air Force Systems Command (AFSC) Headquarters and on to Wright Patterson AFB's 4950th Test Wing as Deputy Commander for Operations where he flew global test bed Boeing EC-135, EC-18, YC-141A and the T-39 Sabreliner. Following a short time as 4950th Vice Commander he moved back to EAFB for a third tour to serve as Commandant of the USAF TPS and Vice Commander of the AFFTC where he flew the F-16 and T-38 as a TPS staff instructor pilot.

Retiring from the USAF at EAFB after 31 years of commissioned service Jimmy delighted in almost 7 years of flying work as a line 737 pilot for Southwest Airlines. Jimmy has more than 12,000 hours of flying time in the A-1, A-7, F-16, F-20, T-38, U-6, B707, B737 and about 100 additional different types

of aircraft. He is a Fellow and former President of the Society of Experimental Test Pilots, an active member of the AFA, EAA, and Daedalians, a former Scout leader, married to Patricia Sue Nagel of San Antonio, father of two Eagle Scouts, a grandfather and an avid outdoorsman. Jimmy is an active longtime board member and former Chairman of the Board of Directors of the FLIGHT TEST HISTORICAL FOUNDATION which benefits the AF Flight Test Museum at EAFB. He is very happy to still have a couple of part time flying jobs: tow pilot at the glider port at Tehachapi (where the TPS flies its glider curriculum) and flying as an engineering test pilot in test bed aircraft.



**John W. Hicks, Air Force Civilian,
Air Force Systems Command, YF-16 Performance Engineer**

John Hicks is a graduate of the University of Texas-Austin in Aerospace Engineering and the California Institute of Technology (CalTech-Pasadena) in Aeronautics. He also attended the USAF Test Pilot School (Class 69B) at Edwards AFB and the Defense Language Institute, the Presidio of Monterey, California, in German and Russian. He was selected in 1978 as the first civilian flight test engineer from the Air Force Flight Test Center (AFFTC) to be an Exchange Scientist/Engineer in the USAF program with Germany, serving near Munich, Germany for two years in 1980-1982. He has authored about 47 technical papers and reports, contributed chapters in books on his flight test experience and lectured at universities and research centers around the world.

He spent the first half of his 33-year federal engineering career at the AFFTC beginning in 1969 where he tested such aircraft and missile systems as the C-5A, FB-111A, YF-16, DyMoTech flight research program, and the Air Launched Cruise Missile (ALCM). In Germany he worked with the DFVLR-Oberpfaffenhofen and E-61 Manching Flight Test Center to test the European Tornado aircraft. Moving to the National Aeronautics and Space Administration's (NASA) Dryden Flight Research Center in 1985 to expand his professional research experience into the hypersonic flight regime, he first served as the Chief Engineer on the X-29A Forward Swept Wing aircraft for its two-year flight envelope expansion program. He then worked on a series of hypersonic research and development space planes such as the X-30 NASP, X-33, X-34 and X-37.

From 1992 to 1998 he lead a joint NASA-CIAM Russian flight test program of their Mach 6 large-scale scramjet engine, successfully launching a 70-second hydrogen-powered flight on an SA-5 missile in Kazakhstan. He also conceived and developed the X-43A Hyper-X flight vehicle configuration and NASA-funded program beginning in 1995, which by 2004 reached hydrogen-fueled flight speeds of the airframe-integrated scramjet to a world record air breathing-engine speed of almost Mach 10 at 100K ft. Near the end of his professional career he also was program manager of the hypersonic Mach 10 Pegasus Wing-Glove flight research program, as well as the program manager of the NASA ERAST program

which developed and flew the solar-electric Helios aircraft to a world altitude record of 96,000 feet and the Predator B Unmanned Aerial Vehicle drone flight vehicle.

He retired in early 2002 and has enjoyed developing his skills as a watercolor artist, selling his paintings through art galleries and art shows, and becoming more of a world traveler. To date he and his wife of 43 years have been to some 25 countries on six continents with about three dozen often exciting but always fascinating trips.



Richard A. Wood, Air Force Civilian
Air Force Systems Command, YF-17 Performance and Flying Qualities Engineer

Richard A. “Woody” Wood graduated from Clarkson College with a Bachelor of Science Degree in Mechanical Engineering in 1967. After graduate study in fluid dynamics at Princeton University he joined the Air Force Flight Test Center (AFFTC) in 1969. Mr. Wood served in the Civil Service at the AFFTC for over 33 years (June 1969-August 2002) as test engineer and manager. He held a variety of positions in flight test, technical development, simulation, and environmental management.

For the first 10 years he served as a flight test engineer in both performance and flying qualities evaluations on C-7A, F-4C, A-7D, YA-9A, YF-17A (Lightweight Fighter Program), YC-15, YF-16CCV, C-123K, and C-140 projects. He also flew as a test engineer in T-33, T-37, T-38, F-4C, C-123K, and C-140 aircraft.

After a year's sabbatical (1978-79) to obtain a Master of Science Degree in Aeronautical Engineering from the University of Washington he served as a Branch Chief in the Performance and Flying Qualities Division. In this capacity he oversaw projects on A-7K, A-7D DIGITAC, C-141B, and KC-135R projects. In 1982 he became Chief of the Flight Test Simulation Branch where he was instrumental in integrating flight simulation into flight test projects, upgrading the facilities computers and simulators to modern standards, and integrating the flying-qualities/stability-control simulators with the avionics simulators in one facility (known at the time as West Base).

In 1986 Mr. Wood was assigned as Branch Chief of the Technical Development Branch where he supervised the Test Center's Improvement and Modernization Program. A wide range of test infrastructure was installed during his tenor including new radars, fiber-optic data links, and GPS systems for precise aircraft positioning data.

From 1989 to 1998 Mr. Wood held a variety of positions that included Deputy Division Chief, Assistant to the Test Wing Technical Director, a variety of special assignments, and Chief of the Airframe Systems Division. In 1992-93 he took a second sabbatical to study National Securities Studies at California State

University San Bernardino where he earned a Certificate in International Relations and membership in Pi Sigma Alpha (National Political Science Honor Society). In 1998 he became Director of Environmental Management for the AFFTC. After four years of overseeing environmental compliance issues and toxic material clean-up he retired in 2002.



Frank N. Lucero, Air Force Civilian
Air Force Systems Command Y-16 Systems Engineer

Frank N. Lucero is presently retired after spending 44 years at the Air Force Flight Test Center (AFFTC). He obtained an aeronautical engineering degree from Cal Poly, San Luis Obispo, CA and a master's degree from the University of Southern California. Mr. Lucero received several awards including Air Force Association Civilian of the Year and Meritorious Civilian Service awards.

His career at the AFFTC began with development testing of USAF aircraft arresting systems (BAK-6, -9, and -12) and flight test programs (B-52 Nose Gear Shimmy, F-104 Nestable Tanks, and T-37/J69 Engine Tests) from 1960 to 1964 as a project engineer. Then in 1964-1967, he was lead engineer on VSTOL programs (CH-3C Category III, and XC-142 Ops Suitability Tri- Service Programs) and also monitored the X-19 and X- 22 Programs.

From 1967 to 1980, he was the senior systems project engineer on attack and fighter aircraft (A-7D Category II; A-X (YA-9/YA-10); and LWF (YF-16/YF-17) Programs). He then was the deputy for engineering on the F-16 Full-Scale Development Program in 1976. Intermingled between these programs, he was chief of the armament and propulsion systems sections. In 1980, Mr. Lucero was deputy director of CTFs for focalizing CTF activities. He then was Chief of the Airframe Systems Division in 1982, which covered structural dynamics, subsystems, human factors, reliability and maintainability, and decelerating devices. In 1988, he became deputy director on the C-17 FSD Program for the combined program that included contractor, U.S. Army and Marine Corps, and Air Force Operational T&E Center personnel.

The last 12 years of Mr. Lucero's career involved strategic planning that included initiating and leading the Air Force Aircraft-Propulsion-Avionics "Single-Face-To-The-Customer" Division and co-leading the DoD tri-service Air Combat "Reliance" planning construct. He then transitioned this division into the Advanced Planning Division and led development of long-range planning. Mr. Lucero authored 12 technical reports and several symposium papers and originated or coordinated on several hundred deficiency reports and technical reports.