

A Phantom Jet and an MU-2, Both Merit Restoration to Keep on Flying

By Mike Taylor

Mike Taylor is a former aircraft design engineer, 25-year aviation industry veteran, private pilot and current marketing consultant.

The act of rebuilding something commands a leap of faith, strong determination, and a persistent belief that this something has merit. If not for such passion, entrusted to a select few individuals, the masterworks of our predecessors hasten to be forgotten. Significant pieces of history are lost.

Take for example the numerous historic aircraft that fill our museums and hangars. While a great many reside in well-trafficked places like the Smithsonian, countless artifacts remain hidden from public view. Oftentimes, though, uncommon collections exist in little known places, like your community airport.

Aircraft and collections spring from the obscure, and as such each historical piece has a unique story to tell. The vastness of historical artifacts struggle to be counted even in books. Importantly, those that do represent our current knowledge. Therefore, we must fully appreciate those individuals who devote themselves to history's telling.

Well aware of this dilemma, one enthusiastic individual has taken upon himself the telling of a history to which he is innately connected. Rich Wall is in equal parts a builder, pilot and visionary. He's also an MU-2 owner/operator and he inscribed to us at MU-2 Magazine, "Hey, if you are looking for other things to write about, check out my deal, wingsandrotors.org."

Thus, I was introduced to Rich and set about familiarizing myself with his exploits and museum. I quickly learned his is a collection dedicated uniquely to preserving and flying Vietnam-era fixed and rotary wing aircraft. Rich Wall is also the CEO of two companies, Welded Fixtures and Rack Displays. But it's obvious that his current passions are consigned to the museum he founded.

Rich was a teenager during the Vietnam War, thus explaining his inspiration for starting the museum. He articulated, "I got lucky on draft lottery day and was number 300+. So I didn't have to worry about getting drafted. Several friends did." As Rich described it, "The press made it into a bad situation. The soldiers were treated horribly."

Flying Has Its Steps

As for many, Rich's interest in flying began as a child. Later, as an adult, his passion was fed constantly. "I used to fly back and forth to work for several years in a Comanche 400 which I have logged about 3,000 hours in," he said.

The Comanche 400 is a structurally strengthened (primarily in the tail) Piper PA-24 single-engine 4-seat aircraft with an aerodynamically balanced rudder. The PA-24-400 is powered by a, coincidentally, 400-horsepower 8-cylinder Lycoming IO-720 engine developed specifically for the Comanche. Produced from 1964 to 1966, only 148 were built. Due to high fuel burn (16 to 23 GPH), the aircraft was disparaged as expensive to operate. Top speed was 194 knots.

As his travel needs grew, including the need for more room for family, Rich was drawn to the MU-2. He was attracted by its short-field capability, and its greater power and speed. While investigating the possibility of acquisition, Rich heard the MU-2 had a reputation for being well-built and fun to fly.

Moving up in aircraft size and performance involves a series of steps. Rich explained, "Before buying my first MU-2, a broker

took me for a demo ride in a King Air. I found out the Comanche was faster!"

Determination apparently being one of Rich's character traits, he pushed forward on the path to MU-2 ownership. "When I went to look at the Mitsubishi, I was told it is too hard to fly and that I'd need twin-engine experience first. Well, I didn't believe them." He relished,

"The MU-2 is the only twin I have flown. Having taken lessons in it after the purchase, 1,000 hours later I am still here."

Rich juggles two jobs, his two companies, effectively one, and the museum. While the museum is something he's passionate about, the work demands some creativity and challenges. Both companies are manufacturers of retail display fixtures. Welded Fixtures is a custom shop that designs and builds large quantities of custom made-to-order displays, parts and printed products. The other, Rack Displays, is Web-based where stock items are



Rich Wall sits in the Phantom F-4 he's restoring for Wings & Rotors Air Museum.

generally shipped to individuals.

Rich admits, "With the way the world is, most of the display business has gone to China. However, thanks to high shipping costs and longshoreman strikes, a lot of business has returned to the U.S." He offered an example, "I have had to bail out customers on several occasions with time sensitive products that were stuck on a ship... good for me!"

A Passion For Flying Erupts

In 1992, Rich seized an opportunity to travel to Russia and fly in an Su-27. "It was awesome to fly," he remarked. "After that, I wanted a jet." Thus initiated the impulse for Rich's purchase of a Phantom F-4.

The Sukhoi Su-27 is a twin-engine supermaneuverable fighter aircraft conceived as a direct competitor to large, fourth-generation fighters such as the F-14. It was introduced in 1985 and used predominantly in Russia and China. Still in production, over 800 Su-27 aircraft have been built.

"The F-4 was in a guy's backyard in the hills behind San Diego," Rich said, "along with a B-24 he was restoring for a museum." With an opportunity to buy the F-4, and it being from the Vietnam era, Rich envisioned a way to honor those of his generation. "I made a deal to get the F-4 and started restoring it in 2003. The museum's F-4 stands today as a symbol of respect for those who served in the war," stated Rich, reflecting on those less fortunate than he.



Rich Wall with the MU-2 he "salvaged" out of Africa and currently operates.

Rebuilding Is Second Nature

Rich is by nature a compassionate and determined individual. He's also intrinsically a builder. While his business centers on fabrication, thus making value out of what's raw, with his museum Rich is a re-builder. He takes things discarded and gives them new purpose. "I didn't want a graveyard for old aircraft. We work hard on the goal of keeping everything flying. We are getting there with the F-4," he confided.

"The aircraft in our museum exist for the enjoyment of our patrons, and their preservation should be seen as a benefit to anyone interested in their telling of the histories they carry," he continued. To Rich, the inspiration for maintaining aircraft is much the same as the inspiration

for building retail displays. With each completed project, he is enabling a story to be told. In the display business, a message is conveyed as the end result of its fabrication.

For The Love Of Flying

Rich Wall founded Wings & Rotors Air Museum in 2005. However, his love of flying spans over 40 years. And the museum's history reflects back on the era when Rich first started flying.

Wings & Rotors Air Museum is a non-profit organization dedicated to restoring and showcasing Vietnam-era aircraft. The many people involved day-to-day with the museum's activities take great pride in their work, striving for exact historical accuracy. Through extensive research and study, Rich and his staff learn about the aircraft with the goal of honoring the soldiers who used them.

The aircraft, their stories, and the museum stand, "In memory, from 1959 to 1975, of 58,479 brothers and sisters who never returned from the Vietnam War." So states a marker in honor of the era.

Phantom BuNo 145310

The museum's centerpiece, a Phantom F4H-1 (Bureau No. 145310) was delivered to the Navy in August 1959 and was the 11th pre-production Phantom to be built. It was used in different tests including weapons trials, carrier work, and some "Sageburner," or speed record, trials.



Wings & Rotors Air Museum tells of the Vietnam War in honor of those who never returned.

One of the Phantom prototype's more memorable performances was demonstrating its bombing capability. On April 22, 1961, it carried twenty-two 500-pound Mk 83 live bombs and dropped them at Fort Bragg, North Carolina. Observing that day was President John F. Kennedy.

It was this demonstration that later sold the Phantom to the U.S. Air Force, filling its need for a hefty fighter-bomber. This 4.9-ton load, however, allowed for no external fuel and limited its combat radius. Later though, a mix of fuel plus bombs resulted in the F-4 being capable of delivering 8–10 bombs on target at a reasonable distance from the carrier.

During one of the weapons tests in 1961, BuNo 145310 (the museum's F-4) launched a sidewinder missile and burned the paint clean off the bottom of the wing, landing gear door, and pylon. Also, in 1961, 145310 suffered an engine failure in flight, but the aircraft landed safely.

In 1964, the Navy was finished with its F-4 test aircraft, and 145310 saw its last flight in September of that year. It retired with less than 1,000 flight hours, and it would then spend the next 35 years in different storage locations throughout the U.S.

BuNo 145310 had been declared military surplus, processed through the Defense Reutilization and Marketing Office, stricken from the inventory and basically was reduced in stature to scrap. It sat as a gate guard at one point, spent time in an East Coast museum storage yard, and eventually migrated west to Southern California.

One lucky day in 2000, a former Phantom Crew Chief and a couple of friends with financial backing, found BuNo 145310 in acceptable condition, and for an undisclosed amount purchased the aging Phantom. And so the journey began for this tired warrior and a new adventure.

The Disappearing Phantom QF-4

Rich is understandably proud of his museum centerpiece, the Phantom F-4. As a history buff with an affliction for unique aircraft, his passion extends to following the movements of the aircraft with which he's been acquainted. Rich pointed out, "I

just heard that the U.S. Air Force flew the last F-4, a drone, so the U.S. has no more flying." (See USAF QF-4 Target Drones.)

But in spite of the demise of the F-4 and its drone use in the U.S., Rich informed me that these aircraft indeed still play a military role around the world. He noted, "The Iranians are still flying them, bombing ISIS locations in Iraq." It is also reported that the Hellenic (Greek) AF operates 34 upgraded F-4E-PI2000 and 12 RF-4E aircraft as of September 2013. Turkish F-4s remained in use as of 2015, until recent accidents led the TAF to withdraw its RF-4Es from active service.

Repeat Affair with an MU-2 and an Inclination Toward Restoration

Rich owned his first MU-2 some 20 years ago and loved it. However, that aircraft was sold to start his Welded Fixtures business. "When a deal came along ten years ago," lauded Rich, he purchased an MU-2 for the second time. "I got the plane out of Africa and made a rebuild project out of it."

Rich's current MU-2, N770RW, is not the same aircraft that he had previously owned. He explained, "The one I have now was kind of left for dead, timed out in Africa where it served as a fly-around mobile hospital. It has amazing logbooks of daily half- to 3-hour flights all over Africa taking doctors here and there. The plane had all kinds of wiring in it, even out through the wing to power some kind of medical devices.

"It was in pretty bad shape when I got it. I was thinking it just needed to have the hot sections done and we would be good," he divulged, adding that "inexperience" got him taken to the cleaners by a couple of "turbine engine hoodlums." While the -6s were worn out, including their propellers, they were good for some parts. So, he traded the original -6 engines for complete -10s off a parted-out Marquise.

Pleased with his -10s, complete with 4-bladed props and good times remaining, Rich set forth re-wiring the MU-2. "This took the most time, particularly hooking up the SRL system (see footnote)." He continued, "I installed all new avionics and

(Continued on page 16)

Supersonic F-4 Phantom

The McDonnell Douglas F-4 Phantom II is a tandem two-seat, twin-engine, all-weather, long-range supersonic jet interceptor aircraft / fighter-bomber originally developed for the U.S. Navy by McDonnell Aircraft. It entered service in 1960 with the Navy and later the Marine Corps and Air Force, eventually playing a major part in each.

The Phantom is considered a large fighter with a top speed of over Mach 2.2. It can carry, externally, more than 18,000 pounds of weapons on nine hardpoints. It set 15 world records for in-flight performance, including an absolute speed record, and an absolute altitude record. During the Vietnam War, the F-4 was used extensively; it served as the principal air superiority fighter for both the Navy and Air Force, and later ground-attack and aerial reconnaissance roles. 5,195 F-4 Phantoms were built from 1958–1981.



Project Sageburner

In 1961, the Navy commemorated 50 years of Naval Aviation, sponsoring a project known as Sageburner. The project was designed to set new speed records, at low altitudes, flying F-4A Phantoms. The initial attempt ended in tragedy as Commander J. L. Felsman was killed when a pitch dampener failure led to pilot-induced oscillations. However, the second attempt succeeded on August 28, 1961, when Lt. Huntington Hardisty (pilot) and Lt. Earl De Esch (RIO) flew F4H-1F BuNo 145307 at an average speed of 902.760 mph over a 3 km low-altitude course at the White Sands Missile Range in New Mexico. The maximum altitude reached during this flight was only 125 feet, fully living up to the name of the project—Sageburner. The F-4A (BuNo 145307) was later turned over to the National Air and Space Museum and is preserved in storage at the Paul Garber Restoration Facility at Suitland, Maryland.

A Phantom Jet and an MU-2 (Continued from page 7)

interior. Today, I have about 1,000 hours of MU-2 time. It was the first twin I ever flew.”

Though the MU-2 project had many hurdles, Rich noted it was not without humor. “While the aircraft sat in primer gray for several years, one of my guys painted a big red Japanese meatball on the side for fun.” He concluded, “The rumors at the airport had it that I was re-building it for the Japanese Air Force!”

An Inclination Toward Restoration and a Passion For Preservation

The F-4 now at Wings & Rotors Air Museum is housed with three additional Vietnam-era aircraft, all whirlybirds. These include: 1) a piston-engined Sikorsky H-34 Choctaw, 2) a Bell UH-1B “Huey” assault model of the U.S. Army, and 3) a Bell OH-58A (model 206, akin to the civilian derivative Jet Ranger) “Kiowa” Light Observation model of the U.S. Army.

The Phantom F-4 has a great storied history and we are fortunate for folks like Rich who are dedicated to telling it. Rich summarized, “Both the MU-2 and the museum represent what I like to do, which is to rebuild things.

“The F-4 and the Huey were the same way. I’ve enjoyed rebuilding them and making them fly, well almost flying, as with the Phantom. The Phantom’s jet engines are at the overhaul shop. I’m hoping to have them re-sealed and run on the test stand later this year. Engines are the last hurdle. Everything else is in place and we are hoping to have it flying by the end of the year.”

The museum occupies two hangars at French Valley Airport, in Murrieta, California (midway between Los Angeles and San Diego off I-15). Hours are Monday–Friday, between 9 am and 4 pm. All visitors are welcome.

All aircraft are kept in operational condition and are frequently used in airshows. For more information, go to wingsandrotors.org or visit Wings & Rotors Air Museum at: 37350 Sky Canyon Dr. Hangar 7, Murrieta, California 92563

Thanks to Rich Wall and the Wings & Rotors crew for sharing their passion for flying and its history.

www.weldedfixtures.com
www.rackdisplays.com

USAF QF-4 Target Drones

Designated QF-4 (the “Q” prefix signifies a drone conversion), the Phantom II served as a drone at the end of its days. Beginning in 1995, over 230 Phantoms were “droned.” At a cost around \$800,000 per aircraft, the modification equipped the retired jets with a digital control system allowing remote operation of the aircraft’s steering, throttles, flaps, landing gear, brakes, braking parachute, and tailhook. Wingtips and tail were painted orange to distinguish the aircraft as a drone. The QF-4s were almost always flown with a pilot aboard, unless a weapons launch was to occur. Hands-off, the pilots sat ready to take over if ground control was lost or the aircraft departed. However, pilots would fly the aircraft themselves on chase missions and to maintain proficiency. Drone controllers would have a flight instrument display on a monitor, but no direct visual contact with the aircraft, flying with a joystick, keyboard, throttles, and rudder pedals. Most test and evaluation flights were steered by computer, at times allowing up to six QF-4 aircraft to be controlled in formation. Operators relied on GPS to maintain each aircraft in position relative to the flight track.



L-R: Jen Franklin, Museum Administrator; Richard Wall and wife Vicki; and Pat Rogers, Museum Director and Crew Chief pose with the museum’s Sikorsky H-34 Marine helicopter.

SRL, or Single Red Line, is a computerized engine temperature indicating and control system. The SRL system provides a single reference value for gauging engine performance, in this case, the EGT. It became standard issue on Solitaire and Marquise models.