

Who's Afraid of the Big, Bad Wulf?





The Frasca family's Flug Werk Fw 190

BY JIM BUSHA

PHOTOS JIM KOEPNICK

Who's afraid you ask? Well, for starters study the tales told by the early war RAF Spitfire and Hurricane pilots who slugged it out with Fw (Focke-Wulf) 190s over occupied France and the English Channel. For most of them, fighting this new breed of fighter was like grabbing a tiger by the tail. Or better yet, talk to most any B-17 or B-24 crew member who had to endure

a gauntlet of 190s on his way in and back out again from targets over occupied Europe. Some will break into a cold sweat as they describe the chaos and fear as their bombers were mauled by ravenous packs of 190s, quickly becoming tattered and torn, looking like something the cat dragged in as they limped back home. The Luftwaffe didn't call the 190 the "Butcher Bird" for

nothing. Unfortunately for modern day warbird aficionados, the Fw 190 was on the losing side of the war, and the few dozen airframes that survived became war prizes for the Allies. Most ended up in museums, with their wings clipped; never gracing the skies again. But that all changed in the mid 1990s thanks to the efforts of the dreamers and craftsmen at Flug Werk.



JIM KOEPNICK PHOTOS



Flug Werk

Fueled by the ghosts of the past along with a clear vision to witness an Fw 190 fly once again, the Flug Werk team located in Gammelsdorf, Germany, began its incredible journey in June 1996 with a clean sheet of paper. With modern computer technology at its fingertips along with old wartime blueprints, the Flug Werk group positioned itself to re-create one of Germany's greatest fighters. Utilizing both lightweight modern materials along with original wartime parts the group set out to produce the world's ultimate full-scale warbird kit. By July 2004, the group made its first test flight and quickly realized it had a winner on its hands. Momentum and interest grew within the warbird community as budding warbird buyers lined up to get their hands on the cloned replica.

According to Flug Werk repre-

sentatives, the entire airframe is as close to 98 percent to the original, with some minor deviations, where the use of more reliable systems dictate the fabrication of special brackets to mount these items. The entire aircraft is a whopping 992 pounds lighter than the original (empty weight on the real Fw 190A-8 was 7,652 pounds). Most of the weight savings is due in part to the deletion of guns, armor plates, and the cumbersome wartime radio equipment that was carried inside the fuselage.

Although most of the original 190s were powered by the BMW 801 fuel-injected, twin-row, 14-cylinder, air-cooled radial engine rated at 1,700 hp, Flug Werk decided to power its new build with the Russian Shvetsov ASh-82, a 1,570 carbureted radial engine. Cooling the big engine was a concern early on so the engineers at Flug Werk relocated the oil cooler

from inside the engine and repositioned it on top of the cowling, right under the upper gun hood. A German MT-designed, three-bladed, wooden composite propeller pulls the replica through the air at fighter-like speeds.

The landing gear, which was originally designed to operate from rough field conditions like those found on the Russian front, the deserts of Libya, and the farm fields of France retain their trademark wide stance but now utilize more modern materials. These include the use of Boeing 737 nose wheel tires as the rubber for the main gear. Flug Werk states these tires are not only more affordable and readily available; they also come with a proven safety record of being able to withstand the stress and strains of operating these aircraft from hard-surfaced runways. And speaking of tires, all Flug Werk 190s have original, combat history,



tail wheel units. Flug Werk claims that these units were recently found in a discarded World War II shelter, and each one has been overhauled allowing for the use of modern seals and equipped with standard strut valves to ensure service ability all over the world.

The Flug Werk Fw 190 is sold as a kit; think of it as the ultimate warbird model, but not like the one you put together as a kid. Unfortunately you won't be able to use that great orange-smelling glue as this kit comes with partially assembled wings, empennage, fuselage, and most other

major parts stuffed inside a shipping crate. Missing is the engine, instruments, oxygen system, wiring, and paint. At more than \$760,000, Flug Werk has sold more than 20 kits, with some of them already flying in Europe and the United States. By studying one of these finished Fw 190 kits up close, it's easy to see why someone would want to own, build, and fly one. And in this story, it took the combined teamwork of a group of dedicated historians to accomplish that task.

Kid in a (Warbird) Candy Store

When Matt Nightingale was 12 years old he was offered what many in the aviation world would consider a once-in-a-lifetime opportunity: sweeping floors at the Planes of Fame Air Museum in Chino, California. His boss—one of the original “Chino Kids,” Steve Hinton—saw great promise in the young man but was a little disappointed in him on that first day.

“I was like a kid in a candy store surrounded by warbirds of all makes, models, and sizes,” recalls Matt. “I was supposed to knock the dust off the airplanes, but all I did was stare in grand awe at all of the history that stood before me. Did Steve really think a 12-year-old would dust wings on his first day of work? It

took me a while, but I finally got around to touching them, maybe a little too much!”

Steve must have been smitten with Matt's enthusiasm for the old warbirds and literally took him under his wing as he cultivated the young warbird dreamer into one of the country's top warbird restorers. For the next 20 years, Matt learned the finer points of the restoration trade. Under Steve's tutelage, he learned how to turn jagged pieces of rusted metal into award-winning warbirds. But working on them was only one facet of his life. When he wasn't turning wrenches at the shop, he could be found across the field earning an assortment of pilot ratings. Matt must have impressed his boss with his flying abilities as well because he quickly became a volunteer pilot for the museum, flying some of the same warbirds he worked on.

By the time Matt hit the big “3-0,” other warbird owners and collectors from around the globe took notice of his restoration talents and began to seek him out for their projects. The second generation “Chino Kid” soon found himself restoring aviation treasures like the Curtiss Hawk 75 along with a Pearl Harbor veteran P-40B Warhawk. But it was a chance meeting with Rudy Frasca while at



Matt Nightingale left and Fw190 pilot John Maloney.

the 2004 Duxford, England, air show that Matt's number one warbird wish was about to come true.

"As a restorer there has always been one warbird at the top of my list that I wanted to lay my hands on, and mine was an Fw 190. But I knew that the odds of actually working on one were pretty slim. That all changed when a mutual friend, warbird photographer extraordinaire John Dibbs, introduced me to Rudy Frasca. Everyone I have talked to in the warbird community has always spoken very highly of Rudy. And it was easy to see why as Rudy and I hit it off right away, so much so he asked if I would be interested in building his Flug Werk 190. I said yes before he could finish his sentence!"

Convening back at Rudy's "Frasca Field" near Urbana, Illinois, Matt was able to get an up-close look at the Flug Werk kit. Matt, Rudy, and his sons Tom and David agreed from the onset that they really didn't want to use the ASh engine and instead wanted to replace it with a proven

American engine.

"We came up with the idea of installing a 2,100-hp, 18-cylinder Double Wasp Pratt & Whitney R-2800-54 radial engine up front," said Matt. "It was really a no-brainer as not only has it proven its reliability as a tough, dependable engine, it is also an engine that most any warbird mechanic around the country is comfortable working on. Besides the ASh was going through some growing pains at the time, and we didn't want to have to troubleshoot along the way."

By March 2007, the Flug Werk kit arrived at Matt's California Aerofab facility in Rancho Cucamonga, California, with only one requirement from Rudy: make it look just like the picture!

Making It Look Just Like the Picture

Matt admits he is truly blessed with all of the aviation talent found in and around the Chino area. To build this kit, Matt enlisted the help of his

brother Patrick, who works for Boeing, Peter Law, who spent more than 40 years with Lockheed *Skunk Works* as a thermodynamics engineer, along with Steve Hinton and John Maloney and the rest of the gang at Planes of Fame Air Museum. With all of the collective brain power assembled, it was agreed that most of the systems supplied by Flug Werk would be either replaced or redesigned.

"My hats go off to Flug Werk for this huge undertaking," said Matt. "They had great vision in putting this all together and offering these historic airplanes as kits to the general public. Unfortunately, they sent us a set of original Fw 190 manuals which would have been a great help had the kit come with a set of original Fw 190 parts. I come from a serious warbird background, and with that comes knowledge on what type of parts should be used or not used. I took the path of building this kit like I would if it were an Unlimited Reno racer. We had to basically start from scratch figuring out how

the electrical systems were going to work, how the landing gear was going to remain locked in place, and a dozen other examples. The bottom line in my book was that I wanted a finished product that Rudy would feel safe flying in so we made those changes to fit that need.”

One of Matt’s biggest headaches was figuring out how to get the landing gear to function safely and consistently all while retaining the original look. Matt made a few minor modifications to the landing gear system, allowing it to function easier with the addition of a down lock system. Another issue Matt had to deal with was the engine mount.

Matt explains, “The R-2800 was about 1-1/2 inches larger in diameter and over 50 pounds heavier than the BMW 801 engine. Needless to say we had to rework the mount along with enlarging the very tight-fitting cowling. Because of the carburetor, we also had to add an air scoop that we faired right in front of the machine gun breech bulges. I think we succeeded in keeping it looking original.”

Matt also points out that the stuff you don’t see in the pictures are the things he changed out for safety reasons. For example, when the pilot wants to lower or extend the gear he simply pushes a button and the gear goes up or down. Matt adds that there are a lot of things going on inside the airplane, out of sight to make that happen.

“We were never going to build this airplane around the system, but rather our goal was to try to fit the systems inside the airplane and still retain the original look of it.”

Although the Fw 190 was a German-designed aircraft, the Frasca Flug Werk kit soon became “Americanized” with all kinds of pieces and parts. These include the use of F-86 Sabre flap motors, a B-24 electric propeller governor, P-39 Airacobra brakes, and the use of three cut-down C-46 Commando propeller blades to name just a few. Thankfully, though, the cockpit looks “just

like the picture.”

“The cockpit is pretty original,” claims Matt, “and I think is one of the coolest parts of the airplane. We did make some American instruments look German, but for the most part we tried to keep this area as close to original as possible. It’s amazing to see that the panel is pretty primitive with limited instrumentation. But the Germans made do with what they had and really didn’t need much more to fly with.”

If you have been wondering what picture Matt is referring to, it’s the one that Rudy obtained from his friend, Oscar Boesch, a World War II Luftwaffe ace that flew Fw 190s. In later years you may recall seeing Oscar perform his aerobatic glider routine at AirVenture.

“In Oscar’s honor, Rudy wanted me to paint his Fw 190 in the same scheme that he flew it in during the war,” says Matt. “I have to say with all honesty that when it was all said and done, and the Fw 190 was pushed out in the California sun for the first time, it really did look like the picture!”

The entire project took Matt and his team more than a year and a half to build. And according to Matt, in that time he developed a bond and newfound respect for the Flug Werk 190.

He says, “You really end up building a relationship with the airplane. You end up learning so much about it, and you become conscious of every weak spot and every strength in this airplane. It’s like watching a child grow, I guess; you are witnessing it turn into and become what it is supposed to be. I felt like a nervous, proud parent watching it fly for the first time. But I knew it was in good hands when it finally became airborne.”

Flying the Replica Butcher Bird

It was just about darn near impossible for John Maloney not to become an original card-carrying member of the “Chino Kids.” As the son of Ed Maloney, founder of the

Planes of Fame Air Museum, John was exposed to a variety of warbirds at a very early age. John admits he literally cut his baby teeth inside the cockpits of some of the more exotic warbirds in the collection. When John wasn’t working side by side with his brother-in-law Steve Hinton restoring warbirds, he could be found at the controls of the museum’s collection of aircraft. But it wasn’t until May 2010 that John finally got to scratch his Fw 190 itch.

“Learning to fly the Fw 190 and manage its systems was probably one of the most frustrating, exciting, and fulfilling airplanes I have ever had the pleasure of operating,” said John. “My only wish was that they made the cockpit a little bit bigger, especially for a guy who has broad shoulders like me,” he adds tongue in cheek.

John has flown just about every airplane in the Planes of Fame collection and believes that it’s a lot easier to go from an American fighter into a Japanese one; they both have the same feel and look about them when it comes to instrument, lever, and knob locations inside of the cockpit. But when he jumps inside a German model, the whole ball game changes.

He says, “For me, that was the hardest part in flying the 190. The gear handle found in most fighters is actually two push buttons in the 190, the green one for down and the black one for up. To make matters worse, they are right next to the three push button flap switches. If you’re not paying attention to what you are doing, it could cause a real problem. But like any airplane I fly for the first time, it’s all about doing your homework on the ground first before you take it up flying.”

All in all John states that the 190 is its own animal in the air with decent aileron control with straight forward stall characteristics. He claims it’s not as solid or beefy like a Mustang or a P-40 but believes the reason for its lightweight feel is the fact that it is devoid of any guns in the wings, nothing but an empty shell.



He says, “It’s definitely a lightweight, but I like the fact that it has a ‘flying stabilizer’ and that the control stick is relatively short; there’s not a whole lot of leverage, though. Unfortunately it doesn’t trim out very well either so you have to constantly fly it. Forward visibility is pretty good, and with those big prop blades out front, there is a lot of torque on takeoff. We use 15 degrees of flaps for takeoff, and the rudder doesn’t become effective until I hit 40 knots. Once in the air it flies pretty nice; it’s not as fast as the original ones, but it is right up there with a 250 mph plus cruise speed. If I had to sum it up, the Flug Werk 190 reminds me of no other fighter I have ever flown. It’s unique in its own right, and I would jump at the chance to fly a real 190 to compare the two. But for right now I can only rely on what Steve Hinton has told me. He’s the only one who has flown both of them.”

Will the Real Fw 190 Please Stand up? Comparing a Real Fw 190 With a Replica

So whom do you call when you need your warbird test flown, raced, or showcased in a movie? Most people call Steve Hinton, president of the Planes of Fame Air Museum. It’s hard to tell how many different warbirds Steve has flown in his lifetime; he doesn’t brag about himself so don’t look to him for the answer. As a humble warbird pilot, Steve will tell you he’s “nothing special,”

just a kid who grew up around warbirds and the men who flew them. He considers himself the “luckiest man alive” when he’s at the controls of any given warbird. So when Steve Hinton talks airplanes, his audience is all ears, especially when it comes to comparing a real Fw 190 to a homebuilt one.

He says, “The Flug Werk 190 flies a lot like some of the other big powerful warbirds out there with a high wing loading. It takes off, climbs, cruises, and has similar performance characteristics to the P-40 Warhawk. But the controls are heavier than the P-40’s. Most everything on the Flug Werk is electric, just like the real 190s. So without electricity, the stabilizer and elevator trim won’t work, the prop isn’t controllable, the flaps don’t work, and the gear can free fall like a typical warbird. It’s hot and snug inside the cockpit; like a Bearcat kind of feel. Historically it is a great airplane to look at, and it really means a lot to a lot of people as it fills the missing link to the warbird story that we all try to tell and preserve. But it doesn’t compare to the real McCoy.

“I was recently invited to fly Paul Allen’s Flying Heritage Collection Fw 190 and found it to fly completely different to the Flug Werk 190. First off it’s really light, and the ailerons are just fabulous, light as a feather. The original Focke-Wulf design is a jump ahead of all other WWII period fighters. Axis or Allied. It was designed to be simple to operate, and the pilot didn’t have to memorize

anything. The throttle system was revolutionary for its day because it had a mechanical computer that figured out how much rpm to give the engine, what kind of fuel flow, what the magneto timing should be, and where the supercharger should be. It was just like a jet engine: move a single throttle lever forward and let the computer do the math.

“In my mind the only downside in flying a real Fw 190 is it’s the only real one flying in the world. You always have to have a conservative attitude when flying it because you want to make sure it’s around for the next generation to study and enjoy. That’s why flying and displaying the Flug Werk fills that void. Aesthetically it looks like a real 190, but make no mistake, structurally it’s not a Mustang or Hellcat; it has to be flown within its limits. Although it’s stronger than any factory-built general aviation airplane out there, it’s not an airplane you can hang bombs and rockets on and go into combat with. It doesn’t meet those standards.

“For example, it’s easy for me to tell the two apart because on the real 190 the wing panels have inner and outer skins that are built in two halves put together, and then the leading edge is screwed on. The Flug Werk on the other hand just uses regular ribs. All in all, though, my hat goes off to guys like Rudy Frasca and Matt Nightingale who go above and beyond in sharing their dreams with the rest of us as they keep history alive.”



Luftwaffe Wartime Memories

Steel fist of the Luftwaffe
Oscar Boesch, Feldwebel (Flying Sgt.)
Strumstaffel 1 (JG) 3 UDET



My introduction in the Fw 190 consisted of three training flights. From the first minute I sat in the cockpit, I could see that this was a much better aircraft than the bf 109. I felt comfortable right away with the cockpit layout and location of gun switches and gunsight. The only thing I had to get used to was the big BMW 801 engine out ahead of me. All forward visibility was blocked until I became airborne.

I took off in the three-point attitude because the 190's wheels were forward of the center of gravity (CG). There was no way you could do that in the narrow-geared 109 unless you wanted to chase your tail round and round! Our 190s also had some extra weight added to them for protection against the Allied bombers.

Five mm armor plates (Panzer Platten) were bolted to the sides of the fuselage along with 30 mm armored glass panels attached to the canopy area. The 20 mm wing guns were removed and replaced by MK108 30 mm canons. The internal fuel load allowed us to remain in the fight for one-and-a-half hours, and with the addition of a single belly tank we added another 45 minutes to our flight. If a Tiger tank had wings, this is what it would have looked like!

My test of courage came on April 29, 1944, in the early morning hours. It had been reported that a heavy bomber formation was over France and that Berlin was a likely target.

We spread out and lined up behind the bombers. From one-half mile away, I saw the muzzle flashes and flickering of the B-17s' defensive guns as they tried to bracket me. I didn't hear them, I couldn't see them, and so far, I didn't feel them. I picked out a B-17 and let its wings grow in my gunsight with my finger resting on the trigger. That's when I got hit.

The first bang shocked me. The second bang arrived seconds later followed by a third one that tore the top glass canopy away from the 190. Tremendous noise and -50°C cold temperature invaded the cockpit. In terror, I flew right behind a B-17 blasting my guns and watching the hits as the B-17 fired back at me. I aimed for the tail gunner to knock out

his guns; they fell silent as I went in for the kill. All around me there were a series of explosions and tracer rounds as other Staffel pilots tore into the formation. Every shot had to count as a combination of cannon and machine gun rounds raked the B-17s.

As fast as the battle began, it was now over. I dove for the deck as I was low on fuel, freezing cold beyond belief, and without any means to

contact the ground controllers; my antenna was attached to the top of my shot-off canopy. My greatest fear was from P-51s as my head jerked from side to side looking for them to come out of nowhere. Fighting a P-51 was hopeless as our Fw 190s were just too heavy and I was too damn cold!

Lucky for me I never saw any Mustangs. My flickering low fuel light told me I must land soon. More good luck, an airport right under my wings! The field below contained a Junkers factory with a big white cross laid out on the grass. It was a signal for the factory workers that this was a target for incoming bombers and to seek shelter immediately. I only hoped I could make it in before the bombs went off, and I certainly knew what that was like.

I came in over a row of trees and my landing was superb. Touching down I soon noticed that the grass runway canted downhill. I applied the brakes, and my forward speed increased as my tires began to hydroplane over the wet grass. I quickly passed between two bomb craters, through a hedgerow, and into a plowed field. That's when my luck ran out.

The 190 flipped over on its back at a high rate of speed and I found myself completely embedded in soil. I dug out large clumps of earth from my mouth as I choked on the dirt I couldn't remove. My fingers scrambled to find the master cutoff switch as I felt gallons of gasoline begin to run over my body: I thought the damn tanks were empty?! There was no way I could get out of my coffin. I didn't think anyone saw me land because of the alarm. With my last dying breath I cried for help but no one answered, and I began to lose consciousness from a lack of oxygen and high-octane fuel fumes.

And then a miracle happened! I was brought back to life by resuscitation from a nearby rescue team. They had dug under the cockpit and pulled me out. After a few hours of recuperation, lucky to be alive, I traveled back to my unit. So ended my first mission.

