Second Strike

The Newsletter for the Superformance Owners Group

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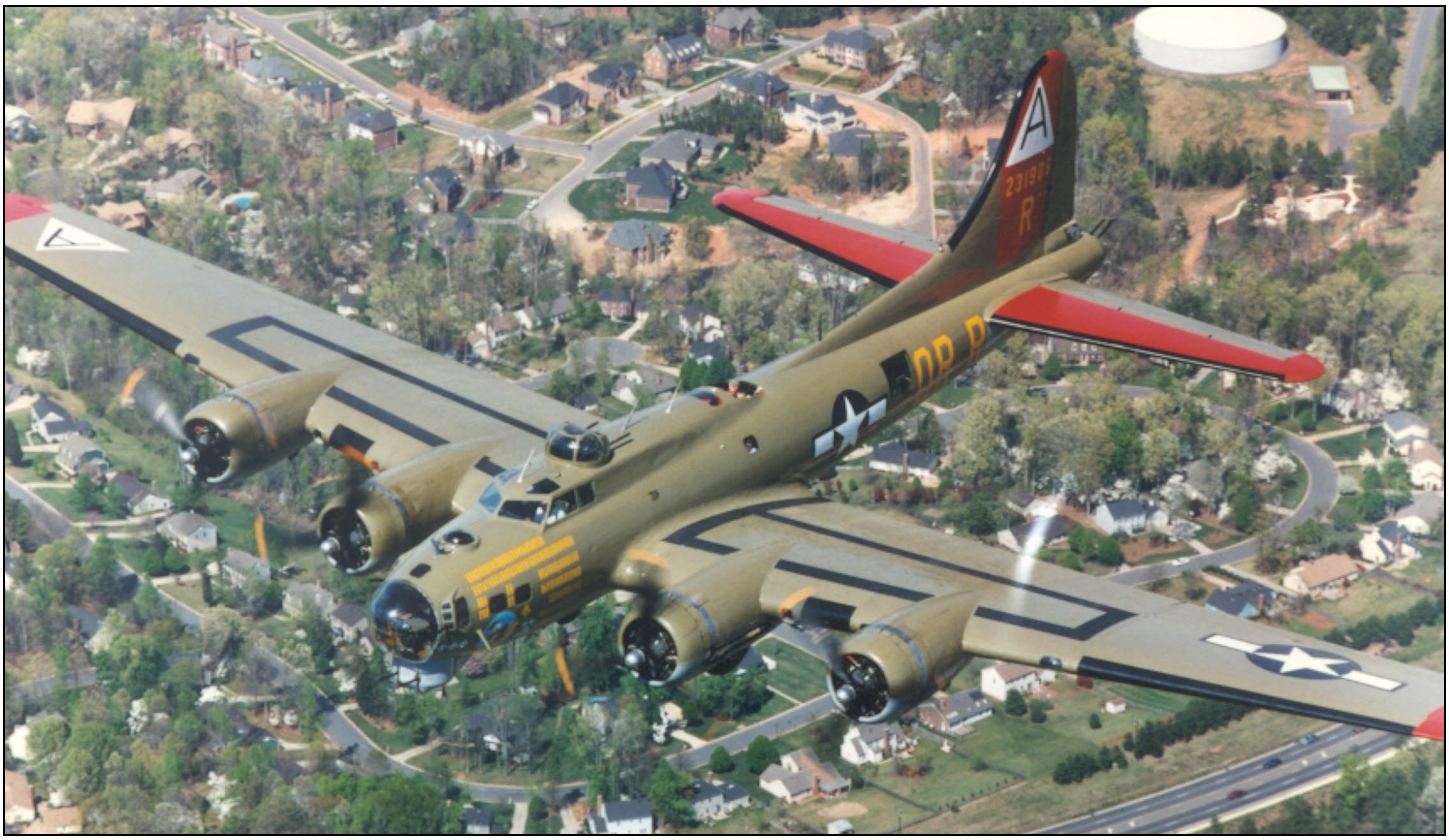
Flight of an Ancient Warrior



The Collins Foundation B-17 "Nine-O-Nine" over Charlotte September 8, 1995. Taken from the B-24 Chase Plane.

Prelude

Perhaps you think it a bit odd that a story about a B-17 would show up in a Cobra newsletter. Not as odd as you may think. Many Cobra owners were born during or just after Word War II when the American love affairs with airplanes and automobiles were closely intertwined. Both are in our blood.

Born in Charlotte North Carolina during the first year of the war, I was raised on a steady diet of victory through airpower and later as Detroit caught the wave, a steady diet of V8 muscle that brought that feeling of freedom and power and yes even salvation home to our garages. The sound of a big piston engine pounding out the horsepower moves me like no other. And many of my generation share that feeling.

I graduated from college and went to work at Pratt and Whitney just as the piston engines were being replaced by jets. I was privileged to work on such incredible aircraft as the F-14 Tomcat, F-15 Eagle, B-1 Lancer, and others. But my heart will always belong to the P-51 Mustang, the P-38 Lightning, the F4U Corsair, the B-25 Mitchell, and the B-17 Flying Fortress – the machines that served us well as we fought to save our world.

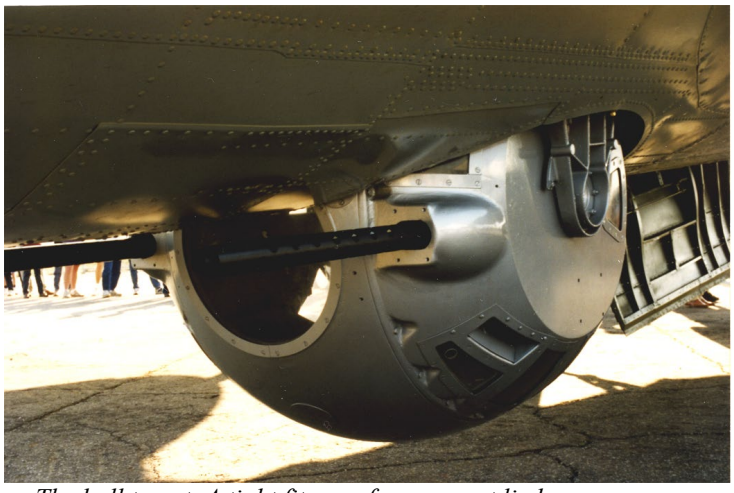
One September day in 1995 I got to live the dream of a lifetime. When I got home I wrote down this story so that I would always have the memory just as it happened.

Flight of an Ancient Warrior

Ancient is a relative term. Both the ancient warrior and I were born during the Second World War. The life expectancy of people is normally measured in decades. During the early years of the war, the life expectancy of a B-17 and its crew was measured in missions. Fully half were not expected to survive their allotted 25 missions intact. Only a handful of B-17's survive today and few of those are still flying.

Nine-O-Nine nose art and combat record

The B-17 was the first strategic bomber used in the war and contributed perhaps more than any other aircraft to the destruction of the Third Reich and the end of the war in Europe. I am old enough to have friends who flew these winged warriors in the war. I have heard their stories. They are not tales of glory. They are tales of courage in the face of fear and friendship born of incredible danger and hardship. They are tales of survival. Since I was a young child, I have been fascinated by these now ancient warriors. Today, I have been given the chance of a lifetime to fly in one along with a crew of three and six other passengers.


The ball turret. A tight fit even for compact limber young men.

The ancient warrior sitting on the runway in front of me is one of the best remaining examples of the B-17. It has been fully restored and appears much as it did when it rolled off the assembly line 50 years ago. The Wright Cyclone engines leak oil on the runway just as they did then, for these were not sophisticated aircraft. They were blunt instruments of war, purpose built and flown in anger. No room for frills. The Hamilton Standard propellers were built in Windsor Locks, just a few miles from where my wife was born and raised.

The nose guns and chin turret are there, added later in the war to ward off the devastating head on attacks that the German ME 109 and FW 190 fighter pilots favored. The top turret defends against frontal attacks and from diving attacks out of the sun, the only place a fighter can hide on the clear days favored for bombing missions. The waist guns, once open, were closed in later models like this one to protect the waist gunners from the lashing fifty degree below zero winds at 30,000 feet where the B-17 flew to escape the flack thrown up by the German anti-aircraft gunners. The ball turret in the belly rotates 360 degrees and deflects a full 90 degrees to protect the under belly. The gunner can also track and destroy fighters diving under the B-17 after an attack.

The tail gunner sits alone in cramped quarters where the fuselage tapers to its conclusion under the enormous tail. No sophisticated turret here. The two 50 caliber machine guns poke their barrels through a canvas boot. The gunner holds the grips in his hands and aims the guns through a crude gun sight outside the small Plexiglas cabin barely large enough to hold his head.

We enter the ancient warrior through the crew entry door in the rear of the fuselage. We remove the hatch in the top of the fuselage for ventilation. The hatch was used to provide one more gun location. We are assigned "seats" in the waist gunners' area and we buckle in for take off. Our seats are actually pads laid

against the fuselage skin and on the eighteen inch walkway down the center of the fuselage. The safety belts are secured to the exposed fuselage structure. The afternoon sun streams through the hatch and down through the fuselage.

Lift off

Strapped to the floor we cannot see the engines start, but we can hear them. The starter motor whines against massive pistons being forced to compress the air in their cylinders. There are nine such cylinders in each of the four 1,800 cubic inch engines. Each of the thirty six cylinders alone is larger than the entire engine in my car. I take out my ear plugs. I want to hear every sound. The propeller turns very slowly at first. The first cylinder lights off. Others begin to catch in a ragged beat that sends great clouds of oil smoke and unburned high octane aviation fuel billowing through the prop wash. The props catch the smoke and send part of it through the open hatch where the sunlight catches it. The other three engines start in turn. The ancient warrior shakes from the pounding of the pistons. The guttural sound, the smoke, the smell, the feeling. It is a symphony of the senses. The adrenaline is flowing. I look at the other passengers. We are all grinning like school boys. "Damn", every body is muttering under their breath, then out loud. "This is going to be a flight!"

At altitude in the multi-tasking hot seat
Cheek gunner, nose gunner, and bombardier

The pilot taxis onto the runway. The strut for the rear wheel interrupts the short space between us and the tail gunner. It pumps up and down as the ancient warrior moves over the undulations in the runway. The pilot stops and locks the brakes. He runs each engine up to full power in turn to check operation of the fuel system and twin magnetos. The exhaust is muffled only by its passage through the turbo superchargers. The noise is deafening. The ancient warrior shakes violently. We are again reminded that this is a raw, visceral warplane.

At last, brakes are off and we are rolling. The four 1,500 horsepower engines and the broad wings have us airborne quickly. At once, everyone releases their safety belts and scrambles into position. We stand in the open hatch and watch the Charlotte airport shrink behind the massive vertical stabilizer, the wind ripping at our heads.

I go forward, across the narrow catwalk through the bomb bay. Earlier in the day, a combat veteran told me of walking out onto the catwalk in flight with the bomb bay doors open to free a hung bomb, knowing that he had to free it so that they could land without dying.

The structure for the top turret blocks my exit from the bomb bay. I stoop and turn sideways and squeeze around. In combat, the top turret gunner would have been standing here and the structure would have been rotating as he tracked German fighters. I drop down into the passage way between the pilot and co-pilot and crawl on a walk way up to the nose of the plane. I work my way into the bombardier's chair, more a short stool actually, and turn to face forward. All I can see is a Plexiglas nose bubble and beyond it the ground and the Charlotte skyline. A truly magnificent view marred only by the remains of a few

fat June bugs who tried to out run the old warrior and failed.

To the right is the remote gunner's grip for the chin turret. The bombardier swings it into place to control and fire the chin turret. The cabin is flanked by two more forward firing 50 caliber machine guns, one on each side, one offset rearward so the gunners do not interfere with each other in the cramped cabin. I can only image sitting here watching a ME 109 German fighter closing head on with nose cannon and wing guns blazing. At a combined speed of 600 miles per hour, the pass would be over in a couple of seconds. We would be separated from the attack only by this thin sheet of Plexiglas, protected only by our courage to not flinch and the accuracy of fire that we could bring to bear.

Co-pilot!
Shot from navigator's bubble

Between my legs is the justly famous Norden bombsight. I hunch over and look through it. The optics still work. I think of the bombardier sitting here hunched over, the plane lurching violently through flack bursts and strafing fighters, having yielded his gunner yoke as his only defense while he concentrates on the bomb run. Under this great duress, he must accurately pick out the munitions shops from the schools.

I crawl back to the cockpit and stand in the top turret. The twin 50 caliber machine guns flank my ears. There would be no trouble telling when they were firing. The Plexiglas dome provides an excellent view in all directions. Above and to the right, our Russian YAK chase plane is making passes. The YAK is a Second World War vintage design, a single engine twin seat fighter. It reminds us how much faster and more maneuverable the fighters were, able to pick the best direction to attack while the lumberin-g bombers could only defend themselves. No wonder the loss rates were so high in the early days when the bombers went in without fighter protection.

I head backwards across the bomb bay catwalk to the radio operator's cabin. This is the only place in the plane that could be considered roomy. Even so, the only reason that we can stand is because the hatch is opened. We stick out heads out into the wind stream, grateful that it is a balmy day in April at 1,000 feet and not a cold clear winter day over northern Europe at 30,000 feet. We could have snapped our ears off in a few seconds. Instead, we are tracing our way down Lake Norman. The sun is low and the sky is a rich mixture of red and gold and blue. The bright green trees and deep blue lake stretch out below. The YAK is dodging left and right behind and beside the ancient warrior. Do they do this

in heaven? Can it get any better than this?

The bottom ball turret is behind the radio operator's cabin. The hatch is stuck. Perhaps it is just as well. Ball turret gunners were short and lean and flexible and I am not. It would not be a great place to be stuck on landing. The seat, such as it is, is only a few inches above the runway.

The waist gunners seem to have more protection than the bombardier in the nose, but it is only illusion. The aluminum fuselage is only a few thousandths of an inch thick. The skin and ribs are exposed on the interior. No padding. No armor plating. A machine gun bullet would pass through one side and out the other without slowing down. We are able to draw an easy bead on the YAK with the waist guns. Then again he is cruising beside us, slow and stable, and he is not shooting at us. Such easy shots did not occur fifty years ago.

To get to the tail gunners position, I would have to crawl around the open rear wheel well. I looked at the tail gunner's cabin from outside before take off. I doubt I could get in it even if I tried. I look down through the open rear wheel well. I can see the lake and then the shore. I can imagine that many a tail gunner passed through this hole on his way to free flight and freedom from a fatally wounded warrior.

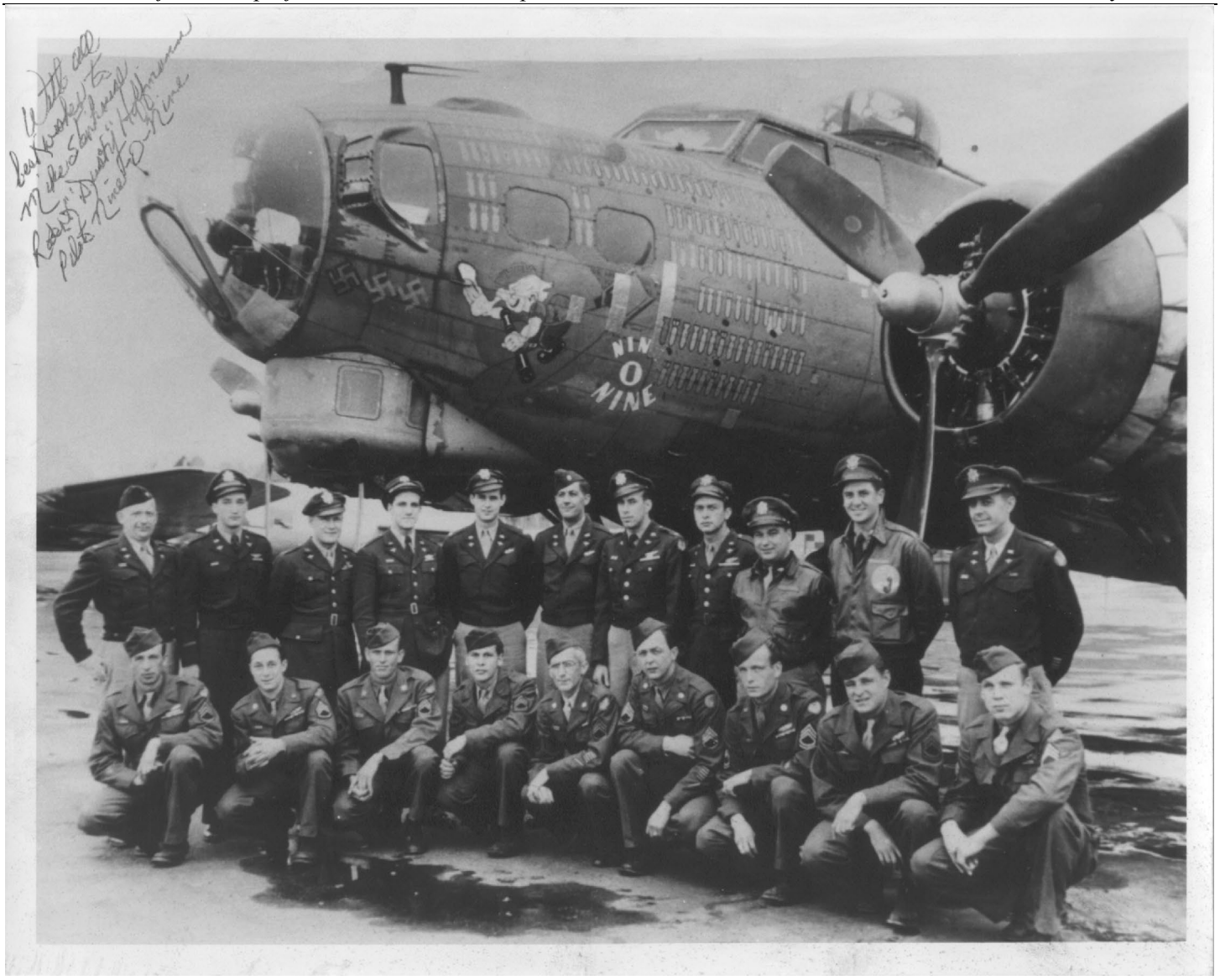
Mighty Wright Cyclones add bass beat to Eagle's concert

I return to the cockpit. The pilot offers me the co-pilot's seat. It is a tight fit to get in. I take the yoke in my hands and put my feet on the rudder petals. The dream of a life time at the tip of my fingers. My heart is in my throat. And pounding.

The pilot looks over as asks, "OK?" thinking that putting my hands on the controls would be enough. "No", I said. "I want to fly this plane. I want to know what it feels like to really fly it." He can tell without asking that I share his passion for these ancient warriors. He acknowledges with a grin that he understands and approves.

After brief instruction, I execute a rather nice banked turn, then a series of coordinated right and left turns. "I want to feel the power." A statement really, not a question. The pilot grins and nods his head. I grip the four throttles and nudge them forward, 6,000 horsepower in the grip of my palm. The engines respond with a surge of power. We climb. I nudge them back. We dive. There is an Eagle's concert at the Paladium below and we give them a nice fly over. The fans are looking up and waving. I am thinking that the pilot must be wondering how he is going to regain control. He puts his hands on the controls and I recognize that my time is up. I release my grip and relax.

Tight Turn
Collins Foundation Photo



The controls of the B-17 are stiff. No power boosted hydraulics here. Human muscle power alone is telegraphed by stainless steel cables to the wings and tail to make the warrior change course. I know why it took the pilot and co-pilot working together to bring a wounded warrior home.

It is time to land. A hard banking maneuver over the hanger brings the fans on the ground to their feet - and the passengers to their knees. I am on the narrow walkway in the bomb bay as my knees buckle under the g-forces, wondering if the bomb bay doors will hold my multiplied weight if I slip. The pilot levels out and I am released.

We return to the waist gunner position and strap in again. The gear drops into place. We see the rear wheel drop and lock. The tires bark. We have landed. An hour or two has passed. It seems like a few minutes - and a lifetime.

I have the greatest respect and gratitude for the men who flew these ancient warriors long ago when they were all so young. They are my father's age, but at the time they were no older than my children. Because of what they did, we all, friend and foe, live in a better world today. I know that I will never understand completely what they did and the price they paid, but today I understand better how hard a job it was.

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Post Script

At the next meeting of the Carolinas Historic Aviation Commission, the moderator asked if anyone who flew on the Nine-O-Nine wanted to say something about the experience. No one volunteered, so I offered the story I had written for myself. When I finished, the members, mostly WW II aviation veterans whom I deeply respect, stood and chapped. I was overwhelmed, humbled.

It got better. One of the members came up and asked for a copy of what I had read. I handed him my copy and gladly signed it when he asked. Then he introduced himself. "Dusty Hoffmann", he said, shaking hands. Dusty Hoffmann, the pilot of the original Nine-O-Nine. He had a photograph of the Nine-O-Nine and its crews taken at the Hartford airport where they began their victory tour in 1945. The photo ran on the front page of newspapers all over the country. He signed it in the upper right corner. It remains a personal treasure.

We talked for awhile. In the beginning, it was rough going for the bombers. Losses were unbearably high. Introduction of better fighters with longer range provided additional protection, but the bombers still went the last most difficult miles on their own. The introduction of the P-51 Mustang in 1944 gave the Allies a lethal fighter that could fly all the way to Berlin and back. The bombers no longer had to fly naked into the teeth of the Luftwaffe. Within six months, the Luftwaffe was gone, swept from the sky. In the end, Dusty described the missions as long and uneventful.

The Cobra Connection

Time and again these winged warriors turned the tide of battle. It is not surprising that many a foot soldier, sailor, bomber crew, and fight pilot came to associate the booming voice of these engines as the sound of salvation because in fact it very often was. It was a sound, a feeling that they would want to take home with them. And so the seeds for the intertwining of our love affair with the airplane and the automobile were sown.

Detroit responded. The 1948 Cadillac borrowed heavily from the design of the twin engine P-38 Lightning. The curvature of the first ever tail fins followed the lines of the twin vertical stabilizers of the P-38. The pronounced hood and distinct bulging front fenders followed the three element design of the P-38 as well. And the buying public loved it. Other car companies followed, adding tail fins, exhaust ports in the fenders, and gun sight hood ornaments. It was a design trend that would last for many years culminating in the twin 50 caliber machine gun blisters on the hood of the 1957 Chevrolet and the massive jet age tail fins of the 1959 Cadillac.

The big change, however, was under the hood. Out of necessity, the war brought great advancements in piston engine design. Many things considered modern today were used during the war in the effort to increase combat capability, payload, and range - overhead cams, four valve heads, fuel injection, supercharging, turbo supercharging, intercooling, water injection, nitrous oxide injection, and the extensive use of aluminum and magnesium for lightness and forged steel for strength.

In 1949 Cadillac introduced the very first American overhead valve V8 engine. Although smaller and less sophisticated, it was the visual, audible, and spiritual offspring of two famous big bore, valve in head, water cooled, V design fighter engines – the Allison V-12 that powered the P-38 and the Merlin V-12 that powered the Spitfire and the Mustang. The 1949 Cadillac was in spirit a P-38 on wheels.

Before the war, there was not a single overhead valve V8 in any American car. After the war, all the car companies followed Cadillac's lead until the last hold out, Chevrolet, announced their overhead valve V8 in 1955. The inline and flathead engines that dominated the pre-war years were suddenly as dead as yesterday's mackerel. The post war overhead valve V8 became the definitive American automobile engine.

This is the world I was born into and the world I grew up in. It should be no surprise then that I drive a lightweight, no frills, purpose built, high performance Cobra, powered by a monstrous aluminum and forged steel 427 cubic inch overhead valve V8 that thunders out big horsepower through unmuffled side pipes. When I run the diving twisting country roads east of my home at speed, I look out over the voluptuous bulge of the front fender and wonder. Is this one of the great sports cars of all time? Or is it a Merlin powered P-51 slicing through the skies over Europe?

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A Bit of History

The Nine-O-Nine

The original "Nine-O-Nine" was assigned to combat on February 25, 1944. By April 1945, she had made eighteen trips to Berlin, dropped 562,000 pounds of bombs, and flown 1,129 hours. She had twenty-one engine changes, four wing panel changes, fifteen main gas tank changes, and 18 Tokyo tank changes (long-range fuel tanks). She also suffered from considerable flak damage. In all, the Nine-O-Nine completed 140 missions, more than any other B-17, and did it without an abort or loss of a crewman.

After European hostilities ceased, "Nine-O-Nine", with its six-hundred patched holes, flew back to the United States for a Victory Tour which began at the Hartford, Connecticut airport. Later, it sadly succumbed to the scrap merchants.

This B-17 was salvaged from post war nuclear testing. The radioactivity actually saved it, keeping the scrap merchants at bay until the “green glow” faded. It has been rebuilt in the image of the “Nine-O-Nine” in honor of a 91st Bomb Group, 323rd Squadron plane of the same name. It is owned by **The Collins Foundation** and flies into over 130 cities on the annual **Wings of Freedom Tour** as a living history exhibit. Check it out on www.collingsfoundation.org.

The Boeing B-17

The B-17 was in continuous production throughout the war. There were many variations, some production level, many made in the field to meet the immediate needs of combat. Range and payload depended on the mission trade offs for fuel vs. bombs. Consequently, any specifications are just a snapshot in time in a very fluid combat situation.

Aircraft ..... Boeing B-17G
Crew ..... Ten, from front to rear
- Bombardier, also serving as chin turret gunner
- Navigator, also serving as cheek gunner
- Pilot and Co pilot
- Engineer, also serving as dorsal turret gunner
- Radio operator, also serving as dorsal hatch gunner
- Ball turret gunner
- Starboard and port waist gunners
- Tail gunner

Wingspan ..... 103 ft 9 in
Length ..... 74 ft 9 in
Height ..... 19 ft 1 in
Takeoff weight ..... 65,500 lb loaded
Empty weight ..... 34,000 lb
Maximum speed ..... 287 mph at 25,000 ft
Cruising speed ..... 182 mph
Ceiling ..... 35,600 ft
Range ..... 3,400 miles
Armament ..... 13 machine guns
- 2 50 caliber in chin turret
- 1 50 caliber cheek gun starboard side
- 1 50 caliber cheek gun port side
- 2 50 caliber in dorsal turret
- 1 50 caliber machine gun in dorsal hatch
- 2 50 caliber in ball turret
- 1 50 caliber waist gun starboard side
- 1 50 caliber waist gun port side
- 2 50 caliber in tail gun

Bomb load ..... 17,600 lb
Production ..... 8,680 G model
12,731 all versions

The Wright Cyclone Engine

Military aircraft engines of WW II were designed and continuously improved to provide power, range, and durability. The power goal was not horsepower per cubic inch, but horsepower per pound of weight. The big bore, long stroke, slow turning engines produced big power, good high altitude performance, and high fuel efficiency through the very common use of turbo supercharging.

Engine ..... Wright Cyclone R-1820-97
Configuration ..... 9 cylinder radial, air cooled, turbo supercharger
Horsepower, takeoff ..... 1,525 at 2,800 rpm
Horsepower, normal ..... 1,275 at 2,500 rpm at 3,500 ft
Displacement ..... 1823 cubic inches
Bore x stroke ..... 6.125 in x 6.875 in
Compression ratio 6.8:1
Weight ..... 1,479 lb

There is no more beautiful sound than the whine of the starter followed by the occasional cough as the big engine clears its throat and shakes out the cobwebs, each cylinder coming to life in due time until at last the engine reaches a symphony of thunder. And then the next engine begins. It is a sound you cannot really hear unless you are there, for the exhaust pulses of each 200 cubic inch cylinder shake every bone in your body.