

Restoring the Mustang

Finishing Plays a Key Role in



"Crazy Horse," flown by Lee Lauderback, is the flagship aircraft of Stallion 51 Corporation.

Refinishing parts to restore antique aircraft is a highly specialized field. It requires mechanics with the expertise and patience to take engines and fuselage apart piece-by-piece, then each piece must be restored to like-new condition, and put back together so that the aircraft is better than new. This requires a finisher who will give each part the care needed to prepare and finish it to the original specifications and quality. Richard

and Peter Lauderback of Stallion 51 Corporation

have restored numerous aircraft during their careers, and Dave Roach of Peninsula Metal Finishing knows what it takes to refinish hard-to-replace parts to the original specifications. Their efforts are helping to keep a flying legend—the P-51 Mustang—around for all to enjoy.

There is excitement in his voice when Dave Roach, CEF, president of Peninsula Metal Finishing, Orlando,

FL, talks about the P-51 Mustang, a WWII fighter/bomber that is one of the most popular antique aircraft among collectors. A pilot himself, Roach and his company are refinishing parts for a local company that restores old warbirds. It isn't the first time Peninsula has provided this service. The company has refinished parts for an aircraft museum for years. The P-51, however, holds a special place in the world of airplanes.

"There is a following of people who own and appreciate P-51 fighters," Roach says. "They are mostly

successful professionals with the money to invest. The P-51 Mustang was the ultimate fighter of WWII. It gave the allies long-range capability for protecting long-range bombers." Many of the world's most successful and respected test pilots became famous flying the Mustang.

Preserving a Legend

Stallion 51 Corporation of Kissimmee, FL, not only restores and

maintains Mustangs, one of its owners is certified to train people to fly them.

According to Lee Lauderback, there are two sections of Stallion 51 Corporation—flight operations and maintenance operations. Flight operations is run by Lee, an

experienced, highly trained pilot who has taught others, including military pilots, to fly the P-51. Lee has been flying since he was 15 years old and has experience in a variety of aircraft, including a number of jet fighters.

The maintenance section of the company is run by Peter and Richard Lauderback, identical twins who specialize in restoring antique aircraft. The Lauderback brothers know the aircraft inside and out, and they take special pride in being among the elite who have successfully restored a number of P-51s, P-40s, and other warbirds to a flight-worthy state. "When we finish with them, they are better than new," says Richard.

Flight Operations

Formed in 1987, Stallion 51 started by training U.S. Navy test pilots. The Navy requires some of its pilots to have high-performance propeller aircraft training, and Stallion 51 Corporation contracted to provide it. The company is still under contract with the Navy and also trains pilots for the U.S. Air Force.

After forming the company, they became aware that there were many successful individuals who wanted to own and fly a restored P-51, because it is one of the most popular of the collector aircraft. The P-51 Mustang, with its 12-cylinder Rolls Royce Merlin engine, is considered the classic of the WWII fighters. There are only about 200 Mustangs in the world, according to Peter, and only about 130 are flightworthy. About five percent of the planes change ownership each year. Who buys them? Highly successful people with a passion for flight, such as doctors,

The P-51 Mustang was the ultimate fighter of WWII.



The Lauderback brothers pose in front of Crazy Horse. Lee, center, heads flight operations, performs demonstration flights, and is a certified pilot instructor. Peter, left, and Richard restored this plane and others like it.

"When we finish with them, they are better than new."



Dave Roach, CEF, of Peninsula Metal Finishing, is shown here with some P-51 parts that have been cleaned and are ready to plate.



Richard and Peter Lauderback show Dave Roach, right, some working parts of a Mustang that the brothers restored.

lawyers and successful businessmen. Every new owner is required to prove his aircraft is flightworthy, and that he or she can operate it safely. That's where Stallion 51 Corporation provides a service. The company is endorsed by every major insurance company. Anyone who buys a Mustang and wants to fly it is required to have the plane thoroughly checked by a certified aircraft maintenance establishment, and also required to be trained and qualified to fly the plane.

You don't have to own a Mustang to experience it. The company also has a program for those who can't afford to buy the plane, but for a fee, can receive some degree of training in one of the company's TF-51 aircraft. TF stands for Trainer/Fighter, indicating that this particular Mustang has been modified to carry two people—one seated behind the other—for flight training. There are two TF models currently used by Stallion 51 Corporation—"Crazy Horse," the workhorse of the company, and "Mad Max," a recent addition owned by an associate of Stallion 51 Corporation. The Lauderback brothers have also restored several stock fighter models. There are only 10 existing TF Mustangs in the world, Lee says. The TF weighs 8,000 pounds in normal loading and the Rolls Royce Merlin V-12 engine puts out more than 1700 horsepower. It can fly in excess of 500 mph.

Lee performs in "Crazy Horse" at 10 to 12 air shows held throughout the U.S. every year, including large air shows at Oshkosh, WI, and Lakeland, FL.

Prior to forming the company, Lee worked 16 years for golf legend

Arnold Palmer, piloting his Lear Jet, C-I, C-II and C-III Citation Jets, and his MD500E helicopter. Lee has about 4,000 hours in the P-51s, logging more than 400 hours in 1997 alone. He also has flight experience in many jets, including the F-18. He keeps company with some of the world's greatest pilots, such as WWII fighter aces Chuck Yeager, Bob Hoover and Bruce Carr.

Maintenance Operations

Maintenance is the heart of the operation. Lee says the company puts in 10 hours of labor for every hour of flight. Pre-flight and post-flight checks are standard procedures, as are standard inspections much like those required of commercial airline operations.

Mustangs average about 450 hours of flight between complete engine overhauls. Some have performed as long as 700 hours between overhauls, while others have gone much less. It costs about \$100,000 to overhaul the engine on a P-51, says Peter. "There are 11,000 parts just in the

engine," he says, "and there are a lot of other parts that have to be restored to their original condition before a P-51 is ready for flight."

The Lauderback twins were both airplane mechanics in the U.S. Air Force. They have a special bond to each other, and to the antique planes they cherish.

Lee tells this story: A few years ago Peter and Richard were restoring two P-40s side-by-side at the Orlando Executive Airport. They progressed at an equal pace, pausing occasionally to fuss with each other over what part was going into which aircraft. They finished their projects about the same time, and much like twin brothers, ended up with airplanes that were alike.

Peter and Richard work closely with each other on every project. They are currently gathering parts for a P-40 for a project they expect to start sometime this year.

Refinishing Parts

Peninsula Metal Finishing recently completed the refinishing of all the

"There are 11,000 parts just in the engine."



Parts from a P-51 Mustang are shown after plating and anodizing work is completed.



This engine block of a Rolls Royce Merlin V-12 cylinder liquid-cooled motor is part of a current restoration project at Stallion 51 Corporation.

nuts, bolts and other engine hardware for a Merlin engine that will be used for display at Stallion 51 Corporation. Roach says the parts are all unique and hard to find. They were treated just the same as if they were going into a plane being prepared for flight. "It really doesn't matter that the engine will be used for display," Roach said. "We handle each part the same way. When we finish and this engine is re-assembled, it can be put into a P-51 and it will perform like a new one."

Before the parts are finished, they are mechanically cleaned. All parts are treated as high-strength steel, and they are finished to the original specifications to meet flight standards (Mil Spec QQ-P-416F). Roach says this is important so that each part will fit and perform properly. Hydrogen embrittlement is the most common cause of part failure in restored engines, Roach said. That's why plated parts receive a 24-hour bake for hydrogen embrittlement in a

calibrated oven. The plating shop used some bright electroless nickel on the cylinders for the display engine, just to make them look good. All aluminum parts were anodized.

For those restoring an aircraft, it is also important to use a plater who knows how to handle aircraft parts. Some parts, for example, must be mechanically cleaned, rather than chemically cleaned, to keep the part working properly.

Aircraft plating is a highly specialized field, but Roach has an extensive background for it. His company has provided plating and finishing services for companies in the aircraft and aerospace business for many years. "The lives of the people who fly these planes are on the line," Roach said. "The parts have to be finished right."

Team Effort
Stallion 51 Corporation is a team operation. It requires a

very special type of on-site maintenance and painstaking refinishing work off-site. Stallion 51 has been at the Kissimmee Airport for about seven years, moving from the Orlando Executive Airport.

The company maintains two hangars at the airport, one at the corporate office for minor maintenance, and another a short distance away that is used for major overhauls and restoration projects.

The greatest of the WWII fighters, the P-51 Mustang, built by North American Aviation, was first flown just 120 days after it was designed. The operational career of the Mustang went beyond its use during WWII. It concluded its front-line U.S. military service flying ground attack missions in Korea, and was flown in the air forces of 20 additional countries. Replaced by the first U.S. jet fighter, the Mustang ceased production with 15,686 completed.

Stallion 51 Corporation's flagship aircraft, "Crazy Horse," wears the authentic colors of the 487th Fighter Squadron, which was stationed in Asche, Belgium in 1945. The plane and the personnel of Stallion 51 provide many pilots with the ride of their life. They also keep alive a unique part of history and nostalgia, to remind us of the role played by the P-51s and the pilots who flew them to help preserve a free world. *P&SF*

Mustangs & Pilots Were Legends of WWII

The P-51 Mustang was the plane that gave the allies an edge in Europe during WWII. Bruce W. Carr, who is a friend of Stallion 51 Corporation's Lee Lauderback, became one of many pilots who gained notoriety while flying one of the warbirds.

While stationed in England, Carr was credited with shooting down the first enemy aircraft attributed to his squadron on March 8, 1944. He was later reassigned to the 354th Fighter Group's 353rd Squadron, because he was labeled "over-aggressive in combat" in his first unit.

While flying with the 353rd Squadron, Carr became a "triple ace" by scoring 15 aerial victories, plus a number of probables, as a Mustang pilot. A pilot becomes an ace by scoring five aerial victories.

Carr's WWII tour extended from March 1944 through April 1945. He also served on combat tours in Korea and Vietnam. Carr and others from the P-51 era became some of the best combat and test pilots in the world. He retired from the U.S. Air Force as a colonel and now lives in Florida.

