

# Local man restores aircraft engines to museum quality

By Thomas Melville  
Apex Herald Editor

Practice and thought might gradually forge many an art.  
—Virgil, 70-19 B.C.

Graham White likes to say his wife, Diane, is the artist and he is the mechanic.

Her paintings cover the walls of their beautiful home in the White Bridge community of Apex. And she designs and maintains the well-manicured landscaping around the house.

But Graham is no less an artist. Just peek into their two-car garage and you will see his sculptures that are breathtaking. Stand next to them and you can feel their power, coiled in an inertia-packed spring ready to pounce to life.

Graham White is an artist of pistons, crankshafts, and cylinders and he has created three masterpieces that reside in his personal museum.

The Rolls-Royce Merlin, Rolls-Royce Griffon and the Pratt and Whitney R-2800 WWII airplane engines are completely restored and in working order.

"I think I'm the only guy in the world who does this stuff," White said. "It's therapy for me. What else am I going to do, sit around drink beer, eat pretzels and watch television?"

A small, fastidious man, White's library is filled with volumes and memorabilia from the history of aviation. He has become such an expert on WWII airplane engines that the Society of Automotive Engineers, of which he is an active member, asked him to write a book about it. He did. *Allied Aircraft Piston Engines of World War II* came out in 1995 and is a bestseller for the Society of Automotive Engineers (SAE).

The book shows some of the historically significant technical developments that were put into WWII aircraft engines that directly contributed to the execution and tactics of the war, according to the book's cover.

"The book has been surprisingly lucrative for me," White said. "I had done some magazine articles about piston engines and mentioned to some people at SAE that I was thinking about writing a book. A few weeks later they sent me a contract," White said. "But you know the old Chinese proverb about getting what you wish for?"

The book took about 18 months to write and during that time he almost lost his job, his house, and did lose a chapter in a fried hard drive and all his specially designed tools. Oh yeah, he also got married and moved to North Carolina.

White is originally from England, but since 1969 has lived abroad, first in the Bahamas and then in south Florida.

He said he raced cars during the 1960s and 70s, which piqued his interest in engines. But after reading about airplane engines he became fascinated about their high technology and power.

"Airplane engines are the ultimate hot rods," he said. "They are lightweight with high horsepower. Car engines are primitive compared to these things."

While working as a mechanical engineer at IBM, Boca Raton, he became bored and needed something more interesting than his little Cessna 150 airplane that he island hopped with.

After he sold his plane he noticed an advertisement in an aviation magazine for a Rolls-Royce Griffon aircraft engine and his curiosity got the best of him.

"The ad said it was in good shape, but it wasn't. It was derelict," White said.

When he got the dented and corroded metal hulk home he made a life-changing decision—to restore it to working and exhibition condition.

"When I started to restore the Griffon it was a rude awakening to the complexity of aircraft engines," he said. He gathered all the manuals he could find and dived in elbows deep.

White's next obstacle was where to find Rolls-Royce WWII aircraft engine parts. "Nothing is ever thrown away on Rolls-Royce engines. They just refurbish the parts," he said. "Even the ball-bearings are refurbished."

That's when he got know a lot of aviation people who helped him out. "They were happy to see someone interested in preserving these things, so they have been a big help."

After about two years he finished the Griffon and kept going. He found a Pratt and Whitney R-2800 engine and got back to work.

Another two years went by and

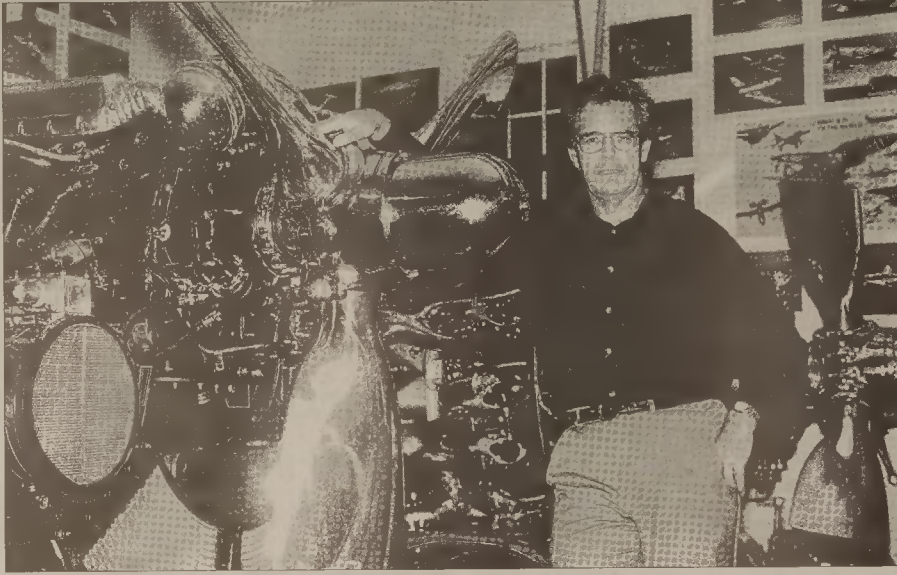


Photo by Thomas Melville

**MACHINERY MAN**—Apex resident Graham White leans on his Rolls-Royce Merlin WWII aircraft engine that he restored to exhibition and working order. Behind him is the Pratt and Whitney R-2800 also restored to working condition. (Below) White's bestselling book on WWII aircraft engines pivotal role in leading the Allies to victory.

another restored engine completed. "The Pratt and Whitney radial engine was very tricky to work on and I had to make a lot of the parts myself," White said. But all the time and devotion was worth it when he cranked the R-2800 engine for the first time.

"It was a real thrill to get one of these monsters running. I had to warn the neighbors because these engines are incredibly loud."

The latest of his creations, the Rolls-Royce Merlin, is his favorite and took about 10-years of turmoil to finish. "It looked like someone had attacked it with a sledgehammer and it was corroded when I first saw it."

But when he got the engine home he found out the damage was mainly cosmetic and the insides were in good shape. "The engine was manufactured in 1942, but had an overhaul in 1943 and was never used after that."

The Merlin engine is legendary in military history for the role it had during the Battle of Britain in 1940. All front-line Royal Airforce fighters used the powerful Merlin and out-manuevered the German aircraft.

During restoration White found out the ignition system was shot, which his buddy AJ Marcucci rebuilt, and he needed parts that just could not be found.

So he improvised and made his own parts. At one point he used a dump truck air tank for an oil tank and a stainless steel mixing bowl, from his wife's kitchen, for an oil-pump cover.

And he can thank the Drug Enforcement Agency for the propeller. According to White, a DC-3 on a drug run out of Columbia had some trouble on take-off and damaged its propeller. When the plane landed in Florida the DEA seized the plane, but the damaged propeller could not be used and was taken off.

When White found out about the damaged propeller he knew it would fit his Merlin so he grabbed it.

During 1993-94, in the middle of his restoration efforts, White inked his book deal and married Diane. Then, the same year, he found out his IBM job would be eliminated in two months. On his last day he nabbed a job in another part of IBM negotiating contracts.

But he had to move to Raleigh. The Merlin was put on the back-

burner along with the book as he emptied his house into three 40-foot trailers and headed for North Carolina.

"The first year here was traumatic," he said.

First, all his customized made tools for working with aircraft engines were stolen and then their house almost burned down. "The house was wired wrong and it shorted out. It was a tough start up here."

After about a year of unpacking and getting organized, along with finishing the book, White went back to the Merlin. Only a few months later White warned his new North Carolina neighbors and cranked up the Merlin in his driveway.

Now, White is concentrating on a new book and thinking about restoring a Pratt and Whitney R-4360. He added that he would never sell any of his restorations.

"Along the way I learned never to criticize people's hobbies no matter

how oddball they may be. I feel I'm doing something useful.

"I'm preserving history that is important and that is what most collectors do."

## Engine facts

### Rolls-Royce Merlin

- 1,500 horsepower
- Aircraft used in:
  - U.S. P-51
  - Supermarine Spitfire
  - Hawker Hurricane
  - Avro Lancaster

### Pratt and Whitney R-2800

- 2,500 horsepower
- Aircraft used in:
  - Martin B-26 Marauder
  - Grumman F-6 Hellcat
  - Republic P-47 Thunderbolt

### Rolls-Royce Griffon

- 4,500 horsepower
- Aircraft used in:
  - Avro Shackleton
  - Late model Spitfires and British Navy aircraft

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New Engine	V6	V6	V6	V6	I6	V6	I6
Permanent Four-Wheel Drive	Yes	No	No	No	No	Yes	No
14 Gauge Full Length Boxed Chassis	Yes	No	No	No	No	No	No
Independent Temp Control	Yes	No	No	No	No	No	No
Four Channel All Terrain ABS	Yes	No	No	No	No	Yes	No
Head Lamp Washers	Yes	No	No	Yes	No	No	No
Mirror Washers	Yes	No	No	No	No	No	No
Aluminum Body Cage	Yes	No	No	No	No	No	No
Inner Body Cage	Yes	No	No	Yes	No	Yes	Yes
Cargo Capacity	46-70 cu. ft.	45-80 cu. ft.	43-91 cu. ft.	46-88 cu. ft.	43-80 cu. ft.	85 cu. ft.	12-91 cu. ft.
Towing Hitch	Optional	No	Optional	No	Optional	Optional	No
Towing Capacity	5,500-7,200 lbs.	3,500-5,000 lbs.	1,000-6,200 lbs.	5,000 lbs.	2,000-6,200 lbs.	5,000 lbs.	5,000 lbs.
8 Speaker Sound W/ Subwoofer	Yes	No	No	No	No	Optional	Yes
Central Locking Alarm	Yes	Optional	Yes	Yes	Yes	Yes	Yes
Swivel For Seven	Optional	No	No	No	No	Optional	Optional
Rear Rack	Standard	Optional	Optional	Optional	Standard	Standard	Optional
Stacked Seating	Yes	No	No	No	No	No	No
Hydraulic Rear Step	Optional	No	No	No	No	No	No
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