

Patrick Kenney overseeing the routing of control cables with Shawntell Armfield and Sabrina Brawley.



Larry Mayer

*Over the last several years my sixth-grade classes have built Chanute's 1896 biplane, a 1900 Wright Flyer, and a powered version of Chanute's 1896 triplane. Each aircraft was built in nine months at our EAA chapter hangar and between 28 and 35 students were involved per airplane.*

# THE PIETENPOL KIDS

Montana students restore historic aircraft

PATRICK KENNEY, EAA 275132

**W**hen I first joined EAA Chapter 57 in 1986, it wasn't long before I started hearing rumors about a Pietenpol built in 1932 that was stored in Roundup, Montana. My interest in the aircraft grew, as it seemed that everyone had heard of it but few had actually seen it.

The story of that Pietenpol and the life story of the man who built it have become inextricably connected with our EAA chapter, and with a group of Montana grade school students who are learning about aviation and themselves as a result.

I'm a schoolteacher, and a group of sixth-grade students have built or restored several historic craft over the last few years as a result of that Pietenpol.

It all started in the summer of 1995. I was at a radio-controlled fly-in at the Roundup Airport and an older gentleman approached me asking about the Buhl Bull Pup I was flying. The conversation eventually turned to full-sized aircraft and Pietenpols—in particular, a certain Pietenpol that this gentleman had built back in 1932 and that was still in storage not more than a mile away.

It turned out I was talking to David Comstock, the builder of the much-rumored Pietenpol and founder of the airport where we were flying. I could not believe my good luck, especially when I learned that he lived in Connecticut and just happened to be in town for a reunion. Inviting me to view the aircraft did not take much convincing and shortly we were at a storage facility where the mysterious Pietenpol had been residing for many, many years.

Opening the door and seeing the aircraft was like opening a time capsule. This aircraft, built during the Depression and flown during Roosevelt's first term in office by a then 17-year-old David Comstock, was a portal into history.







LITTLE DID I KNOW that 11 years later my students and I would be restoring the aircraft and, more importantly, the memories that Comstock and this aircraft shared so many years ago.

Comstock was born and raised in the small town of Roundup. Coal mining and ranching were the major occupations in the area and his father, Charles Comstock, owned the blacksmith and machine shop. Somewhat inspired by Lindbergh's transatlantic flight in 1927, Comstock built his first aircraft in the summer of 1929 at the age of 14. This single-seat glider was built from pine procured at the lumberyard across from his father's shop. It sported a 23-foot wingspan and baby buggy wheels. Comstock began his engineering career by replacing its wing-warping with ailerons. His first flight occurred after being towed aloft by a friend's Buick Roadster down Roundup's main street.

Lacking any proper flight training, he shortly found himself aloft in a tail-heavy aircraft that was rolling from side to side, narrowly missing the light poles and shop windows on either side of the street. Comstock's predicament was further complicated by the fact that they were flying at night (actually 3:30 a.m.), a time chosen because the sheriff was asleep! Making one more flight in Glider No. 1, he decided the aircraft was inherently unstable and moved on to a 1916 Avro 504, which he and a friend bought for \$25. Still lacking any formal flight training, he taxied the Avro until he felt comfortable and then began making short hops in it of 20 to 30 feet AGL. Feeling proficient, he eventually took up the Avro for a circuit of the local prairie airport and landed successfully.

Early in the fall of 1932, David ran across plans for the Pietenpol in the *Flying and Glider Manual* and started construction. Nine months later, his Pietenpol was finished with very few changes to the plans aside from adding two feet to the wingspan. It was built from spruce, which was harvested and cut from the surrounding Bull Mountains. The entire aircraft was scratch-built except for the spars, which were purchased from Bernie Pietenpol. Total cost of the aircraft was \$500, which Comstock paid for by sweeping popcorn, stoking the furnace, and running the projector at the local theater.

Powered by the standard Ford Model A of the time and covered in Sears and Roebuck's finest muslin, he made his first flight



Patrick Kenney

**LEFT TO RIGHT:**  
David Comstock with the Pietenpol in 1934. It was then powered with a LeBlond radial.

Comstock about to fly a glider in 1929 at age 14, with two unidentified helpers.

The Pietenpol with the Ford Model A engine.

on July 21, 1933, logging a full five minutes. After his first few flights he noticed that the radiator was too small and the engine needed to be throttled back to prevent overheating during warm weather. With a field elevation of 3,491 feet and a 90-degree day, Comstock's log shows one flight when he was forced to dive down into the valley immediately after takeoff and fly for miles before he was able to regain field elevation! Subsequently, his first change was to take a Chevrolet radiator core, split it down the middle, and place one section behind the other, which cured his overheating problems. His next major change was to replace the original hickory gear with a welded split axle gear made from steel tubing. Comstock felt that it improved the looks and made landing in sage brush and grain fields less dangerous.

However, his most remarkable change came with the addition of a supercharger built from a discarded Hoover vacuum cleaner housing and impeller. The impeller was mounted on ball bearings and driven at a speed of 13,500 rpm by a system of V-belts and light aluminum pulleys. The supercharger was mounted under the motor and was enclosed by the cowl.

The Pietenpol when it first arrived in EAA Chapter 57's hangar after 70 years of storage.

**LEFT TO RIGHT:**  
Aunaya Martin prepping the Model A engine's radiator.

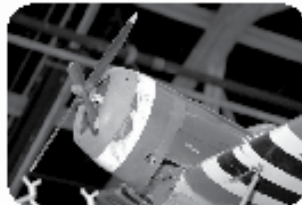
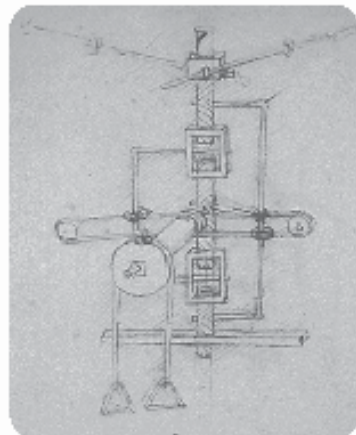
Alli Anderson compressing the engine's valve springs.

Sabrina Brawley sanding an elevator section after the rotted wood was replaced.



# AIRCRAFT TOOL SUPPLY

Whether you think of your plane as a priceless DaVinci or as a work in progress...it still needs to be kept in museum quality condition.



## 10% OFF SALE

This month only, we are offering a special offer on cleaning and polishing supplies. For the month of April we will take 10% off any item offered in this ad!

Spring is the time for cleaning, fixing and prepping for the upcoming flying season.

We have put some of our best cleaning and prepping supplies on sale just for you!



ATS Deluxe Vertical Polisher Kit  
p/n ATS4601K  
\$189.95



Met-Ale Detailing Kit  
p/n MDPKIT  
\$39.95



Branson Ultrasonic Cleaner  
p/n B200  
\$189.95



ATS 8" Palm Polisher  
p/n ATS4602  
\$189.95



ATS 7 pcs Mini Polisher Kit  
p/n ATS4600K  
\$189.95



ATS Rivet Spot Sand Blaster  
p/n ATS201  
\$39.95

**This is a Special Offer for all Sport Aviation Readers!**

Call or go online to request your FREE

Full color ATS Catalog.

PO Box 170 ~ Orem, Utah 84058

Fax: 989-739-1448

Toll Free: 800-248-0638



Visit our Website and use code: **SA0407** to take

**10% off any item featured in this ad.**

This offer is good thru April 30, 2007

**www.aircraft-tool.com**

In the few flights he made with this apparatus, he found that the engine would accelerate more rapidly but would not turn any faster at high speed. Since the purpose was to increase the speed of the engine, he abandoned the supercharger and instead decided to purchase another engine rather than risk flying with insufficient power for another season. In 110 hours of flying and 250 flights the engine functioned perfectly and over half of this time was spent carrying passengers or on cross-country trips.

In the fall of 1934, Comstock purchased a 60-hp LeBlond for the Pietenpol. Again the aircraft went through numerous modifications, including a new engine mount, 21-gallon gas tank, oil tank, and repositioning of the front cabane struts to make room for the larger gas tank. With these modifications, Comstock went on to fly the aircraft for another 40 hours and reported the cruising speed to be 85 mph with a top speed of 100 mph.

While building and flying the Pietenpol, Comstock was also earning a mechanical engineering degree at Montana State University. Upon graduation he was hired by Chance Vought Aircraft in 1937 and placed the Pietenpol in storage. Comstock soon found himself as head of the F4U Corsair production project staff. In 1948 he went on to work for the United Aircraft research department on the Meteor Ramjet Missile project until 1951. Joining Norden, he engineered gun fire control computers, bombing gyros, and gyro accelerometers. He stayed with Norden throughout the 1960s, working on instrumentation that was used to track and locate space capsules after splashdown. He retired in 1977.

## SAD NEWS LED TO RESTORATION PROJECT

In the spring of 2005, Doug and Shirley Parrot contacted our chapter. Doug is a retired 747 captain and Shirley is the treasurer of the Musselshell Valley Historical Museum in Roundup. The news they brought that day was that Comstock had passed away in January. They also brought word that Comstock had left a donation for his aircraft to be restored and for a hangar to be built next to the museum to house it. After a series of meetings the idea of getting my students involved in aircraft restoration as an educational project was born.

Over the last several years my sixth-grade classes have built Chanute's 1896 biplane, a 1900 Wright *Flyer*, and a powered version of Chanute's 1896 triplane. Each aircraft was built in nine months at our EAA chapter hangar and between 28 and 35 students were involved per airplane. Average student hours worked went from eight for the biplanes to 28 for the triplane.

Subsequently, I decided that I would involve only five or six students for Comstock's aircraft so they could become very familiar with the aircraft and their history. I interviewed students from my 2006 class for the project and applied for several grants, which I wanted to use to reward the students with U.S. Saving Bonds to help them in their futures.



**TOP TO BOTTOM:** Kimberly Randall sanding the Pietenpol's bottom longeron.

**Sabrina Brawley and Krystune Berg installing the restored instrument panel.**

**Krystune Berg polishing the valve lifter holes in the Model A engine.**





**TOP TO BOTTOM:** Kimberly Randall honing the cylinder bore on the Ford Model A engine.

**Kimberly Randall and Sabrina Brawley putting a primer coat on the Model A engine.**

**Sabrina Brawley installing the crankshaft.**

Although the grants never came through, some sixth and seventh graders from Billings School District Number 2's Bench and Ponderosa Elementary schools, Riverside Middle School, and Castle Rock Middle School, and a Sky-view High School junior, sure did! Sabrina Brawley, and Krystune Berg, both 13, decided the project was worth joining. Two months into the restoration Aunaya Martin enlisted. We were soon joined by Kimberly Randall, 12, who had helped on the 1900 Wright Glider, and by Alyssa Espinoza, 12. Around October, I contacted the Civil Air Patrol about enlisting an older student who had a serious interest in aviation and wanted to supervise and mentor the other builders. That's when Alli Anderson, 17, a high school junior and CAP master sergeant, completed our team.

As each student joined he or she was given a tool bag, safety glasses, and a journal. After each building session students log the date, hours worked, and a paragraph or two about what they did that evening. Pictures taken each evening were printed and given to the students to paste in their journals. In addition, the team selected Sabrina as the lead project manager. Her duties involve writing monthly budget and status reports to the museum and working every building session while the other workers rotate.

In the spring of 2006, Comstock's Pietenpol was stripped of covering and work began with the goal of restoring the aircraft to its Model A configuration, including the supercharger. With the students working every Friday night, they quickly progressed through restoring and covering the tail. As the school year ended, the students stepped up their building sessions to two and three days a week and moved on to the fuselage. Despite extensive wood rot, the fuselage was repaired and covered in several months while the instrument panel was restored. Moving on to the Model A engine, the students quickly learned how to lap valves and hone cylinders and reassemble the engine. As of this writing, we are ready to cover the wing, build the cowl, and prep the aircraft for final paint.

Instruments from Pitcairn, Pathfinder, and Consolidated, brace wires made of fence wire, and wire-wrapped control cable splices remind us constantly of the heritage of this aircraft. Our deadline is July 4 so that the aircraft can be entered in the Roundup Fourth of July Parade and presented to the Musselshell Valley Historical Museum for permanent display.

To date, the students have put more than 670 hours of their time into the project and continue to show the perseverance and dedication needed to complete this project by our deadline. We have stepped up construction to Monday, Wednesday, Friday, and one day during the weekend. It is not at all unusual for these students to put in 15 to 20 hours during a weekend.

It's never skill or craftsmanship that completes airplanes, it's the will to do so. Without the will to see the project to the end all is for naught, and our builders on this aircraft have shown tremendous will throughout the

# EXHILARATION

T-tail  
Turbofan  
Time to Unveil



See the Newest Generation Aircraft  
at Sun 'n Fun Fly-In 2007.  
Booth 18 & 19.

*Epic*

[www.epicaircraft.com](http://www.epicaircraft.com)

888 FLY EPIC

Copyright © 2007. All rights reserved. Epic is a trademark of AAI, Inc. Specifications subject to change without notice.





Krystune Berg, Alyssa Espinoza, and Sabrina Brawley installing the engine.

Patrick Kenney

project. It's easy to come up to the hangar when the day is warm and sunny and the airport is bristling with activity, but it's a completely different matter when it's 10 degrees, snowing, and not a soul is in sight.

One of the prerequisites for working on the project is having a grade point average of 3.5 or higher, so these students have become very efficient in their time-management skills as they juggle both school and the project. In addition, three of the six also compete in the school science fair and have concurrently been building their own projects along with the airplane. And yes, all their projects involve aircraft and aerodynamics.

These students have also sacrificed a great deal along the way, such as sports and various social activities. Their enthusiasm and tireless dedication have never wavered and are truly inspiring. I have also found that girls are always the better builders. In fact, it's the girls that set the incidence, did the rigging, and completed most of the building on our last three aircraft.

As an educator, it's a privilege to be working with such an outstanding team of students who are not only drawn to this project because of the skills acquired but also because of the history that it represents. The students have picked up many specialist skills along the way. Kimberly is our detail person, Sabrina is our welder, Alyssa

is our painter, Krystune does fabric, Anaya works aluminum, and Alli loves to work on engines. With Alyssa in my sixth-grade class, Kimberly, Sabrina, Krystune in seventh grade at Riverside, Anaya in seventh grade at Castle Rock, and Alli in 11<sup>th</sup> grade at Skyview, communication and scheduling have been a real challenge.

EAA Chapter 57 and its members have also been extremely supportive of the kids and their work. Rich McKamy donated the black walnut that we needed to carve the Model A prop, along with an IBM Thinkpad laptop that Sabrina uses to write her monthly budget and status reports.

This past summer, Doug and Shirley Parrot gave all the kids Young Eagle rides in their Stearman, along with a private tour of the museum where the aircraft will be displayed. The highlight of the tour was seeing Comstock's flying helmet, goggles, construction journal, flying logbook, and original correspondence from Bernard Pietenpol.

Chapter members Larry Mayer, Steve Tostenrud, and Roger Petersen also have given the builders airplane rides. Sabrina in particular has been bitten hard by the flying bug. After her ride with Doug in the Stearman, she decided that flying is her calling.

Learning of this, Tanner Woodcock, a CFI and captain

# LIGHTNING QUICK



**Lightning**

Sleek, sporty, and strong, the Arion Lightning gives you speed and rugged dependability—and does it all on a budget.

The Arion Lightning gives you the performance you may have thought was beyond your means—and at a fraction of the cost of comparable sport aircraft.

The Arion Lightning is faster in the air than most kit-built aircraft. Build time is shorter. Its modest kit cost puts the Lightning well within reach of those who may have believed a performance aircraft was too expensive. And, the Arion Lightning is American made.

Contact Arion Aircraft today and see how smart and easy owning a Lightning can be.

A R I O N  
A I R C R A F T

Arion Aircraft, LLC • 2842 Hwy. 231 N. • Shelbyville, TN 37160 • 931-680-1781 • [www.flylightning.net](http://www.flylightning.net)



258MPH at Reno with 250HP! Need we say more?

Get your speed on with  
Superior's new race proven  
250HP XP-400SRE!

"Superior's New XP-400 Engine™ is the only one that delivers the extra performance and reliability that I was looking for."

Scotty Germain, Owner/Pilot of  
Unleashed Racing Team



Superior's 220 h.p. XP-400 Engine delivers race-ready performance with:

- Proprietary ESR Crankshaft
- Millennium™ angled head cylinders
- Roller lifter technology
- Unique balanced lubricating system
- 'Unleash' the 250 h.p. SRE version with racing high performance pistons and a specially designed racing camshaft.

SUPERIOR  
EXPERIMENTAL™  
ENGINES  
XP400

SUPERIOR  
AIR PARTS, INC.

Order your race proven XP-400 Engine now: 800.277.5168  
Watch our website [www.xp-series.com/ebaa](http://www.xp-series.com/ebaa) for news and special offers on the XP-400!

Unleashed photo by Chris Luvato



Larry Mayer

with Big Sky Airlines, gave her several hours of ground school. Bobbi Powers, another CFI, then followed up by donating her time to give Sabrina her first instructional flight. Needless to say, Sabrina is well on her way to a career in aviation.

With Tanner's help, Alyssa is also taking lessons and both she and Sabrina have made their first landings. Lorne Erbe and Paul Miged of Roundup have also been extremely helpful in supplying us with Model A parts and piecing together the history of the aircraft. In fact, Paul remembers seeing the Pietenpol flying over the city and Lorne actually saved the aircraft from destruction at one point.

The kids also have one very important and enthusiastic supporter of the project—Comstock's widow, Barbara. We send photos and journal entries to Barbara via e-mail to Connecticut and she forwards them to their son and daughter, Claudia and Craig. Barbara has also been sending us some of her late husband's aviation books and other items—in particular, a whole series of F4U Corsair assembly, hydraulic, and pilot manuals, which we cherish and love to pore over.

Another supporter of the students has been Bob Redding, who has not only been my mentor for many years but also has supported us on past projects with opportunities for our builders.

The students and I consider ourselves fortunate to be restoring this aircraft and an important piece of

**Some of the projects' players: Shirley Parrott, Musselshell Valley Historical Museum treasurer, Bonnie DeMaio, museum president, chapter member Doug Parrot, Sabrina Brawley, Alyssa Espinoza, Krystune Berg, Patrick Kenney.**

Montana's aviation history. We are actually lucky to even have the aircraft because in 1960 the Comstock house and blacksmith shop was set afire by the city to clear space for development. Loren Erbe, a friend of David's, was watching the house burn when he remembered that the Pietenpol was still inside. Rushing over to the burning building, Loren pried open the doors and pulled the Pietenpol out while the building was burning.

In a 2003 interview with David Grubbs of the *Billings Gazette*, Comstock told him the aircraft we are now restoring is the first Pietenpol built by someone other than Bernard Pietenpol himself!

Our last task during our weekly building sessions is to clean the hangar. Since we have a popcorn machine that is popular among chapter members and the kids, we frequently have popcorn all over the floor. Watching the kids sweep popcorn always makes me think back to how Comstock paid for this Pietenpol by sweeping popcorn in the theater. It dawned on me that Comstock's life history and his aircraft have now come full circle in the form of a restoration meant to inspire these students to achieve their dreams and goals. 