# Hangar Talk

September 2023 | Northern Palm Beach County Experimental Aircraft Association Chapter 203, Inc. | Volume 27, Number 9


## Inside This Issue



## Participate in VMC Club

Since 2015 and 2017, respectively, EAA members have enjoyed participating in organized hangar flying through EAA's VMC clubs.

VMC Clubs are extensions of local EAA chapters and offer monthly VMC program meetings where pilots can network and share knowledge and experiences. The purpose of EAA Visual Meteorological Conditions (VMC) Clubs build proficiency when flying under visual flight rule conditions.

**New Website.** Go to https://chapters.eaa.org/eaa203 to see the new look! New Category called Membership Forms allows you to print out necessary documents.


## Can You Identify This Aircraft

Send your Answer to sdthatcher@bellsouth.net
The answer will be in Next Months Hangar Talk

## Find the Air Speed Indicator

Hidden somewhere within the pages of this newsletter is an ASI similar to the one shown here (will be smaller). All you need to do is find the page on which it appears, specify article or photo and send to sdthatcher@bellsouth.net to win. Winning Entries will be published in the newsletter.

**ASI Location: One Prize Only awarded for correct ASI location.**

**ASI Winners:** Craig Buttery and Russ Karnap. Congratulations!

**Aircraft Winners:** Doug Carson correctly identified the Bell P39! Nice Job Doug!

## Calendar of Events

### Sept 9

**EAA203 General Meeting sausage, pancakes, and coffee!**

***Presentation by Woody on his Gyrocopter!***

### October 14th

***Presentation by Bob Santom of CGS Hawk Single and Ultra LLC***
***Raffle of a Flight in their 2-Place Shirts also Raffled off***

### VMC Club Meeting

The VMC club is an opportunity to share knowledge and experience while discussing real-world scenarios. The next meeting is this Saturday after the General Meeting. Be sure to attend this Saturday!

# Ercoupe Flying Club by Charles Metcalf

I am trying to get some pilots that would be interested in a 1946 Ercoupe to be based LNA/F45.. If an interest in a flying club or just a partnership. VFR only, 100 hp Continental O-200A, LSA qualified. The typical cost of tie tiedown or hanger space and annual would be shared,

Insurance for myself is $ 1,400 a year but might not go up much depending on pilot qualifications.

Thanks, Charles Metcalf
561-758-9582

*Photo is for illustration only. It is not the actual aircraft.*

## Young Eagles

**Ever wondered what your neighborhood looks like from the sky? Or maybe you're curious how airplanes even work. You might even dream about being a pilot.**

If you're nodding your head "Yes" and are between the ages of 8 and 17, you're ready to take a free Young Eagles flight and see what real pilots do on the ground and in the air.

Since 1992, more than 2 million Young Eagles have enjoyed a flight from EAA's network of volunteer pilots.

**For more information contact Rick Golightly, metro9100@aol.com.**

## Meeting Directions

The next EAA Chapter 203 meeting will be held at the hangar located at North County Airport (F45). The EAA Hangar is found by going to the junction of the Beeline Highway (SR710) and PGA Blvd (SR786). Then go 2.6 miles NW (from PGA); turn left at the airport sign, and cross the train tracks. Follow the road to the hangar, which is on the left-hand side before you get to the FBO terminal, hangar 11250-5.

## Barntoons


Used by kind permission of Dennis McLane (dennisdeanmclain@gmail.com)

# Last Month's Aircraft — Bell P-39 Airacobra

The Bell P-39 Airacobra is a fighter produced by Bell Aircraft for the United States Army Air Forces during World War II. It was one of the principal American fighters in service when the United States entered combat. The P-39 was used by the Soviet Air Force, and enabled individual Soviet pilots to collect the highest number of kills attributed to any U.S. fighter type flown by any air force in any conflict.[N 2] Other major users of the type included the Free French, the Royal Air Force, and the Italian Co-Belligerent Air Force.

Bell XP-39 showing the position of the supercharger air intake

It had an unusual layout, with the engine installed in the center fuselage, behind the pilot, and driving a tractor propeller in the nose with a long shaft. It was also the first fighter fitted with a tricycle undercarriage. Although its mid-engine placement was innovative, the P-39 design was handicapped by the absence of an efficient turbo-supercharger, preventing it from performing high-altitude work. For this reason it was rejected by the RAF for use over western Europe but adopted by the USSR, where most air combat took place at medium and lower altitudes.

Together with the derivative P-63 Kingcobra, the P-39 was one of the most successful fixed-wing aircraft manufactured by Bell.

## Design and development

Circular Proposal X-609

In February 1937, Lieutenant Benjamin S. Kelsey, Project Officer for Fighters at the United States Army Air Corps (USAAC), and Captain Gordon P. Saville, fighter tactics instructor at the Air Corps Tactical School, issued a specification for a new fighter via Circular Proposal X-609. It was a request for a single-engine high-altitude "interceptor" having "the tactical mission of interception and attack of hostile aircraft at high altitude".Despite being called an interceptor, the proposed aircraft's role was simply an extension of the traditional pursuit (fighter) role, using a heavier and more powerful aircraft at higher altitude. Specifications called for at least 1,000 lb (450 kg) of heavy armament including a cannon, a liquid-cooled Allison engine with a General Electric turbo-supercharger, tricycle landing gear, a level airspeed of at least 360 mph (580 km/h) at altitude, and a climb to 20,000 ft (6,100 m) within 6 minutes. This was the most demanding set of fighter specifications USAAC had presented to that date. Although Bell's limited fighter design work had previously resulted in the unusual Bell YFM-1 Airacuda, the Model 12 proposal adopted an equally original configuration with an Allison V-12 engine mounted in the middle of the fuselage, just behind the cockpit, and a propeller driven by a shaft passing beneath the pilot's feet under the cockpit floor.

The main purpose of this configuration was to free up space for a 37 mm Browning Arms Company T9 cannon, later produced by Oldsmobile, firing through the center of the propeller hub for optimum accuracy and stability. This happened because H.M. Poyer, designer for project leader Robert Woods, was impressed by the power of this weapon and pressed for its incorporation. This was unusual, because fighter design had previously been driven by the intended engine, not the weapon system. Although devastating when it worked, the T9 had very limited ammunition, a low rate of fire, and was prone to jamming.

Bell XP-39 showing the position of the supercharger air intake

A secondary benefit of the mid-engine arrangement was that it created a smooth and streamlined nose profile. Much was made of the fact that this resulted in a configuration "with as trim and clean a fuselage nose as the snout of a high velocity bullet". Entry to the cockpit was through side doors (mounted on both sides of the cockpit) rather than a sliding canopy. Its unusual engine location and the long drive shaft caused some concern to pilots at first, but experience showed this was no more of a hazard in a crash landing than with an engine located forward of the cockpit. There were no problems with propeller shaft failure.

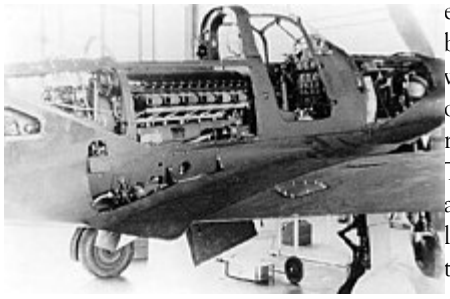
## XP-39 developments

The XP-39 made its maiden flight on 6 April 1938. at Wright Field, Ohio, achieving 390 mph (630 km/h) at 20,000 ft (6,100 m), reaching this altitude in only five minutes. However, the XP-

# Last Month's Aircraft — Bell P-39 Airacobra

39 was found to be short on performance at altitude. Flight testing had found its top speed at 20,000 ft (6,100 m) to be lower than the 400 mph (640 km/h) of the original proposal.

As originally specified by Kelsey and Saville, the XP-39 had a turbo-supercharger to augment its high-altitude performance. Bell cooled the turbo with a scoop on the left side of the fuselage. Kelsey wished to shepherd the XP-39 through its early engineering teething troubles, but he was ordered to England. The XP-39 project was handed over to others, and in June 1939 the prototype was ordered by General Henry H. Arnold to be evaluated in NACA wind tunnels to find ways of increasing its speed, by reducing parasitic drag. Tests were carried out, and Bell engineers followed the recommendations of NACA and the Army to reduce drag such that the top speed was increased 16%. NACA wrote, "it is imperative to enclose the supercharger within the airplane with an efficient duct system for cooling the rotor and discharging the cooling air and exhaust gases." In the very tightly planned XP-39, though, there was no internal space left over for the turbo. Using a drag-buildup scheme, a number of potential areas of drag reduction were found. NACA concluded that a top speed of 429 mph (690 km/h) could be realized with the aerodynamic improvements they had developed and an uprated V-1710 with only a single-stage, single-speed supercharger.



Bell P-39 Airacobra center fuselage detail with maintenance panels open

At a pivotal meeting with the USAAC and NACA in August 1939, Larry Bell proposed that the production P-39 aircraft be configured without the turbocharger. Some historians have questioned Bell's true motivation in reconfiguring the aircraft. The strongest hypothesis is that Bell's factory did not have an active production program and he was desperate for cash flow. Other historians mention that wind tunnel tests made the designers believe the turbocharger installation was so aerodynamically cluttered that it had more disadvantages than advantages.

The Army ordered 12 YP-39s (with only a single-stage, single-speed supercharger) for service evaluation and one YP-39A. After these trials were complete, which resulted in detail changes including deletion of the external radiator, and on advice from NACA, the prototype was modified as the XP-39B; after demonstrating a performance improvement, the 13 YP-39s were completed to this standard, adding two 0.30 in (7.62 mm) machine guns to the two existing 0.50 in (12.7 mm) guns. Lacking armor or self-sealing fuel tanks, the prototype was 2,000 lb (910 kg) lighter than the production fighters.

The production P-39 retained a single-stage, single-speed supercharger with a critical altitude (above which performance declined) of about 12,000 ft (3,660 m). As a result, the aircraft was simpler to produce and maintain. However, the removal of the turbo destroyed any chance that the P-39 could serve as a high-altitude front-line fighter. When deficiencies were noticed in 1940 and 1941, the lack of a turbo made it nearly impossible to improve upon the Airacobra's performance. The removal of the turbocharger and its drag-inducing inlet cured the drag problem but reduced performance overall. In later years, Kelsey expressed regret at not being present to override the decision to eliminate the turbo.

Bell P-39K-L internal layout from *Pilot's Flight Operating Instructions P-39K-1 and P-39L-1 (T.O. No. 01-110FG-1)*

After completing service trials, and originally designated P-45, a first order for 80 aircraft was placed 10 August 1939; the designation reverted to P-39C before deliveries began. After assessing aerial combat conditions in Europe, it was evident that without armor or self-sealing tanks, the 20 production P-39Cs were not suitable for operational use. The remaining 60 machines in the order were built as P-39Ds with armor, self-sealing tanks and enhanced armament. These P-39Ds were the first Airacobras to enter into service with the Army Air Corps units and would be the first ones to see action.

## Technical details

Bell P-39K-L internal layout from Pilot's Flight Operating Instructions P-39K-1 and P-39L-1 (T.O. No. 01-110FG-1)

The P-39 was an all-metal, low-wing, single-engine fighter, with a tricycle undercarriage and an Allison V-1710 liquid-cooled V-12 engine mounted in the central fuselage, directly behind the cockpit.

# Young Eagles Last Saturday

Wow! What a great group of Young Eagles last Saturday.

18 scouts showed up for the Merit Badge.

Myself, Joe H, Bill,S and Henry C, conducted the flights.

Ground crew was led by Rick and assisted by Eric, Joe G, Charles M and Steve. (I hope I didn't miss any ground crew)

Mark Beeda was given a special task to guide and instruct scouts through building and test flying a FPG-9 ( which is a foam plate glider that has elevons and a rudder)

I am including a few pics that I was able to g[illegible] this finds you in time for the newsletter.

Respectfully submitted

Craig Buttery

# EAA Chapter 203

| | |
|---|---|
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| At_Large | Rick Golightly |
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## Meetings

The Chapter normally meets monthly at 9:00 am on the second Saturday of each month at hangar 11250-5 at North County Airport. Guests are welcome to attend two meetings but are expected to join the Chapter at the third. Dues are $35 per year.

## Notice

**A COPY OF THE OFFICIAL REGISTRATION AND FINANCIAL INFORMATION MAY BE OBTAINED FROM THE DIVISION OF CONSUMER SERVICES BY CALLING TOLL FREE 800-435-7352 WITHIN THE STATE. REGISTRATION DOES NOT IMPLY ENDORSEMENT, APPROVAL, OR RECOMMENDATION BY THE STATE.**

## Newsletter

Contributions need to be in the editor's hands by the last Wednesday of the month preceding publication, unless the moon is full, in which case the deadline is the Thursday preceding the first Wednesday prior to the next scheduled meeting of the Editor's staff. **Be an Author!! Send us something.**

# Other Stuff

## Board of Directors Meeting

Please contact President Bill Siegel for time and place of each monthly meeting.

## Editor's Report

***September2023 Newsletter.***
***114 Email Notifications Sent.***

## Membership

33 Current Paid Members
03 Honorary Members

## Advertising

Two and one-half column-inches costs $5.00 per month. A half-page ad is $15.00 per issue. Digital artwork or photos are preferred. Contact the editor for further details.

Chapter 203 members with email addresses on file will receive email notification of the link to the on-line edition of "Hangar Talk". Send your email address to the editor at Scott Thatcher, 423 SW Talquin Lane, Port Saint Lucie, Florida 34986. 561-818-0499 or *sdthatcher@bellsouth.net*.

## Disclaimer

The content of this newsletter is provided for entertainment only. No claim is made, nor assurance given, for the accuracy of the material presented, nor do we verify anything before we print it. **Send rumors**.

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