

AMA Charter 1344  
Gold Leader Club

# Hangar Talk

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## From the President

This past year has gone by very quickly. I find it hard to believe that we have had our last membership meeting of the year and the only get together left for the year is the Christmas Party on December 10. Thank you all for your support this past year.

The year has been quite busy and we tried to do some things that have not been done in awhile. With the exception of a lack of participation in the War Bird Fun Fly, I feel it was an exceptionally good year. Membership is up and as a general rule, more people are getting out to fly, and more people participated in such things as airfield cleanup and maintenance. I want to take this opportunity to say THANK YOU ALL and to send a special THANKS to those who went the extra mile to see that things were done, contributing not only time but money and supplies to all the activities throughout the year. I hope this will continue and expand in the upcoming year.

The runway repair, that is now completed, was a major expense but was necessary to prevent further worsening in the surface. With some effort and creative thinking of everyone, we should be able to recoup at least a major portion of the funds, during the next year. I have already been approached about us hosting an IMAC this next year and I hope the club and members will support this effort. AeroWorks has graciously offered personnel and financial support in this effort. A fly-in or two would be another possibility and I am sure many of you can come up with other ideas that would be good. Let's all get involved in this one!

Lastly, I want to Thank and remind everyone to take the time to say Thank you to all the family members who put up with us and I look forward to having at least two family oriented activities during the Spring and Summer months, next year. I hope as many of you that can, will attend the Christmas Party, and will look forward to an even brighter 2011. Do not forget to bring your tickets to the Christmas party, as we will be doing the drawing then, instead of at the January meeting. To those I will miss, I wish you a happy holiday season and may you and yours be blessed with good will, good fortune, good times and good health.

Smooth Skies and Soft Landings to All

Larry

## Upcoming meetings and events

Snow Bird January 1st

Dues are Due January

## October Meeting Notes

Hi everyone. There was the usual turnout to the October meeting. 14 members present. The only usual member missing was Larry. He couldn't make it back in time from Nebraska.

George brought a card from the Grace Wanderers. They thanked the club for having them out to the field and they made an \$80 donation to MAS. That was very nice of them and all at the meeting asked George to thank them for us. We're glad they had a good time.

The main topic of discussion was the runway resealing. Larry F. got a bid for \$4900 to seal the cracks, reseal the entire runway, and redo the paint. This would be with an oil-based sealer. The problem with the last seal we got was that it was a latex sealer and those don't last. The contractor said that if we do this now, we might have to do it again in 2 years, but after that it should be good for 4-5 years.

Larry F. also got a bid via telephone for \$4500. This contractor did not even want to come to our field to look things over, so we considered this as an unreliable bid.

Lastly, Larry F. looked into what it would cost to do it ourselves. He found out it would cost \$2800 for the materials alone. We'd need to buy tools to do the application and of course, get volunteers.

Lee spoke with Larry Pace at Adams County about getting some help with the costs. Larry Pace asked Lee to draft a letter that would be discussed at a county meeting. Lee provided this letter to Larry Pace. As of the meeting, there was no word back on the whether the county would help us or not. *Side note: Larry Pace did not win reelection, so he may not be able to help us. Not sure how all that works, but I can't imagine that it's good for us.*

That's the background.

Most of the discussion of course revolved around the amount of money. My argument was that we can't continue to do this every two years. We just don't have the funds coming in to spend like this. Jeff asked about whether we need to do a special assessment to pay for this or maybe the one in two years. The consensus from the members was that we have the money now and if need money in two years, we'll ask for it then.

A motion was made to accept the \$4900 bid and do it. The motion passed with me and Earl against. As treasurer, I'm not a fan of spending half of the club's assets in one check. We don't have a reliable enough income or expenses to be doing this so often.

At the end of it all, I wrote a check to the contractor for \$4900. At that moment, our checking account was down to ~\$1000. Savings is still at ~\$3400.

*The above was from the meeting. As of this writing, the work on the runway is complete.*

The next item was a reminder that the club Christmas dinner will be on December 10<sup>th</sup> at the Double Tree in Platteville. 7pm. A motion was made to bring some club hats and T-shirts to be given away as door prizes. This motion passed. Since Larry wasn't present, we have no information on the donations he was seeking.

Lastly, we had the elections for 2011 officers and board members. There were no new nominations since the September meeting. That meant that all current officers and board members were unopposed. All were elected. Status quo.

The meeting ended with Cliff winning the fuel drawing.

That's it for the year. I wish you all a good Thanksgiving, a Merry Christmas, and a Happy New Year.

See you at the Christmas dinner and the Snow Bird.

Tom

The Bell P-39 Airacobra is yet another in the long line aircraft studies stemming from World War 2 in the "what-might-have been" category. The system had all the looks of a top performer, armament that could go head-to-head with any contemporary and a design philosophy that could have brought about a whole new era in aircraft engineering. Unfortunately for the aircraft, several key requirements effectively doomed the Airacobra as a subjective failure - never quite living up to expectations. Still, the system served well enough, save for its intended role of high performance fighter, and went on to become a steady performer in the low-level attack role (excelling in combat under 10,000 feet). She was sent en masse to the Soviets via Lend-Lease and shunned by the British altogether - the latter finding that the aircraft (as advertised) possessed none of the capabilities being marketed by the Bell prototype.

Generally a very pleasing aircraft to look at, the P-39 design came about at a time when streamlining aircraft shapes were just coming into their own. The P-39 was a vast departure from most aircraft being conceived of at the time and featured several design elements that distinguished the type from her contemporaries. Chief among these was in the internal layout, the Allison series engine mounted in the middle of the fuselage just aft of the cockpit. Engineers ran an extended shaft from the engine through a center bearing underneath the pilots feet to the front fuselage section where the three-blade propeller and reduction gear were mounted. As a result of this engine placement, the engine had to be fed through intakes mounted along the fuselage as opposed to a conventional placement in the nose. In early P-39 forms, this meant intakes were added to the sides of the fuselage just aft of the cockpit. Other forms mounted these intakes along the wing roots and the most identifiable form saw the intake affixed to the top of the fuselage. Wings were low-mounted monoplane assemblies and the empennage featured a traditional "T-style" arrangement with a single vertical fin. The P-39 also featured a powered tricycle landing gear system, a relatively new concept in the art of aircraft design for the time.

In what turned out to be effectively an early form of the "bubble" canopy, the Airacobra featured a complex canopy design which offered up unparalleled vision over the entire design. The pilot sat in a very ergonomically-minded cockpit that featured two automotive-style "swing" doors to either side of his seat. The windows in these doors were fully retractable and done so through a car-like crank handle. Upon having to exit his aircraft in the event of damage or power loss, the pilot simply jettisoned the doors via lever and rolled out one side or the other, eventually slipping off the edges of the respective wing. If enough time was allotted, he could even make his way to the wings edge and make a controlled jump.



Cockpit design was simple and similar in scope to the P-38 Lightning and P-40 Warhawk. Control levers were dominated by the throttle lever, easily the largest of the group. Most of the main control gauges were held in a center column running from knee-to-face height and offering up easy access. The throttle and other controls were held off to the lower left in a separate assembly that included the gun controls. Space-wise, the cockpit fit the build of a standard 5'8" pilot (standard for the time at least) and offered up limited comforts for sorties that could very well last several hours. Beyond that, however, many-a-veteran would curse the system's limited conveniences on longer trips. Internally, nothing was spared in constructing a cockpit worthy of any pilot's own life. The cockpit featured air-tight sections to keep deadly fumes from the nose-mounted armament out and deadly fumes from the engine from creeping in from the rear. All vital systems were held in this area of the fuselage, which itself featured rugged and sturdy construction practices that would become synonymous with Bell Aircraft for a time.

### **A Changing World - For the Worse**

The Bell P-39 design came about at a time when the world was turning increasingly hostile on both sides of the United States. Troubles in Europe were readily apparent with the political and military movements occurring in Germany and Italy. Expansionism by the Empire of Japan in Asia were another area of real concern and forced an internal evaluation of American military power and might as it then stood. Systems then in service were found to be wholly inadequate for the new methods of war and attempts were now in motion to rectify the critical situation. Enter Larry Bell - president of the Bell Aircraft Corporation.

### **Bell Aircraft**

If change was what the United States military was after, then change is what it found in this visionary. Bell had already made a splash on the aircraft design scene with their failed - yet incredibly interesting - first attempt with the Bell FM-1 "Airacuda". This "bomber-destroyer" was to have been the military answer for an ultimate bomber interceptor with the most distinct design feature being the 37mm cannons mounted in engine nacelles on each wing (including their respective gunners as well). Engines were of a "pusher" type (Allison brand) but the aircraft proved to be simply too heavy for the intended role. The aircraft did go on, however, to field an entire squadron before production ended.

In any case, development of the Airacuda (beginning the company tradition of using a naming convention featuring the word "air" in official designations) forced Bell's team to tackle the seemingly impossible. The experience garnered in the creation of the XFM-1 Airacuda was priceless and convinced the promising team that they could develop an aircraft for the US Army's new requirement - an interceptor. Besides the Curtiss P-36s, P-40 Warhawks and Seversky P-35s then in service, the US Army had very little to go on in the way of tangling with Japan's best fighters and bombers. She fielded no such aircraft to effectively seek out attacking bomber formations at night, no aircraft to threaten the new crop making up Japanese fighter command and no aircraft to efficiently bomb or cannon ground targets in any way with repeated success. The canvas was generally a blank one and Bell and his team set to work.

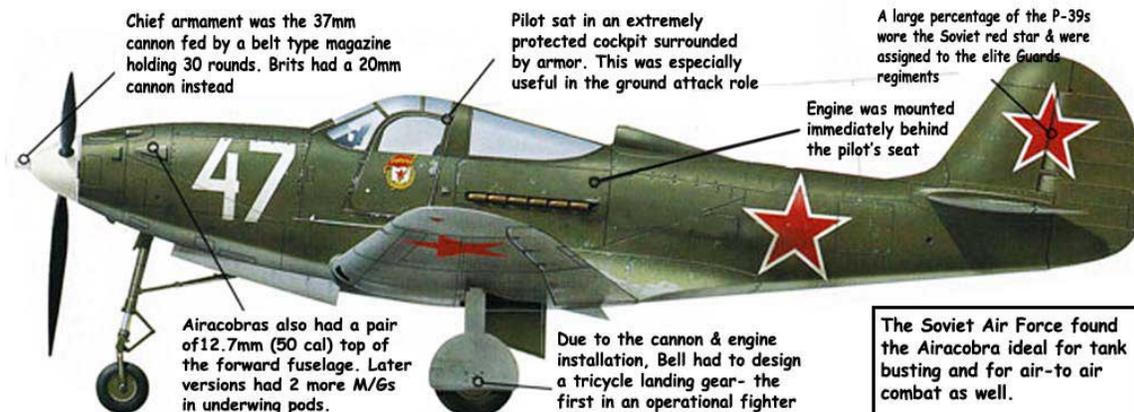
## Birth of a Cobra

Bell's engineers took some new information to heart. First and foremost, armament of contemporary American fighters at the time was generally inadequate for use against the new generation of bombers. Aircraft were still being fielded with a World War 1-style gun arrangement featuring just two rifle-caliber (7.62mm) machine guns. Bell engineers took a radical approach to arming their prime fighter design and made the centerpiece of the aircraft a powerful - though slow-firing - Oldsmobile-brand 37mm cannon. This alone brought the new design leaps ahead of anything then service. The 37mm cannon would be supplemented with heavy caliber machine guns for additional punch in the form of 12.7mm (.50 caliber) types mounted in the wings. The design crew's optimism was not in question as such an aircraft would surely be reckoned with in any skies around the world but it did present several speed bumps in the thought process. A large caliber weapon as requested by the design team meant that there would have to be proper and adequate placement for the system somewhere in the fuselage. As a result, the P-39 was basically a design set around the position of this cannon - effectively being that the Airacobra was an aircraft designed around its own primary armament.

From one point of view, the addition of the 37mm cannon forced a design that was highly unorthodox while on the other it provided the aircraft a solid center of gravity for which to fire such a powerful weapon. Being centered in the fuselage and firing through the front, the aircraft could be of such high containment that eventual weight changes within the structure would generally have very little effect in the way of the aircraft's overall performance specifications. The weapon was hence mounted in the upper forward portion of the fuselage nose with the barrel protruding and firing out through the propeller hub. Two 12.7mm machine guns were also added to the upper-forward portion of the fuselage to compliment the cannon arrangement with more concentrated direct fire. These systems were synchronized to fire through the spinning propeller blades and had their rate-of-fire affected to a point but not wholly detrimental. Additional 12.7mm machine guns were added to either wing - one to a wing - for an impressive overall armament capability. The resulting aircraft, with the powerful and turbosupercharged (the turbosupercharger was mounted on the port side of the fuselage) Allison V-1710-17 liquid-cooled engine of 1,150 horsepower, was now designated officially as the XP-39.

## P-39 Production

The initial production P-39 systems became the P-39C models and were quickly followed by the P-39D series. The aircraft almost took on the designation of P-45 due to the radical list of changes from the original proposal through it was eventually settled that the P-39 designation was sufficient in detailing the significant changes and additions. P-39C models had a pair of 7.62mm (.30 caliber machine guns) mounted in between the existing 12.7mm heavy machine guns. Sixty examples of the ordered P-39C models effectively removed the 12.7mm heavy caliber wing-mounted machine guns and replaced them with 4 x 7.62mm types (two machine guns to a wing with 1,000 rounds each) and became P-39D designations while still retaining their nose-mounted 12.7mm heavy machine guns (200 rounds each). The 37mm cannon (30 rounds) was still in place. The completed P-39C and D models initially went to war with the 31st Pursuit Group (later becoming "Fighter" Group). It was also found later that the P-39 made for a stable bombing platform, particularly in the dive-bombing role, and had a single 500lb bomb affixed to the centerline fuselage underside.



## P-39 Operators

Among early users of the type were the British which, with Germany pressing up against their door, were in desperation of finding legitimate fighter contenders for which to arm their fighter squadrons in place of their aged Hawker Hurricanes. P-39s in service with Britain took on the designation of "Airacobra Mk I" and, despite the shortcomings inherent in a turbosupercharger-less aircraft, were nonetheless thrown into the fray. To add to the mix, these P-39s began to show signs that the aircraft was not intended for use in the unforgiving sea-borne British Isle elements. The aircraft were prone to breakdowns and mechanical failures particularly in their landing gears. The rugged airfields of Britain were nothing in comparison to the smooth test-bed runways found in the United States. The mechanical service records of the Airacobra Mk I's got progressively worse over time and made the aircraft a much-hated breed on the island. To add insult to injury, it was soon found that dangerous fumes were being pumped into the cockpit after the firing of the 37mm cannon, fume levels deadly enough to kill a man. As a result, orders were issued that all RAF pilots use their oxygen masks from the point of engine ignition to the point of engine shutoff for their own safety. Whatever surplus P-39s on order the Brits had, they gladly passed them on to the hard-pressed forces of the Soviet Union (eventually to receive P-39N and P-39Q models in quantity by war's end). Any remaining P-39s after that were returned to America which, in turn, shipped them off for use to Australia (these as the P-400) - another hard-pressed nation at war or under threat.

The Russians found particular favor with the P-39 as a close-air support fighter. It proved to be quite a stable gunnery platform and the 37mm cannon was enough to give German soft armor a run for its money. Being that all of the powerful armament was basically concentrated in the nose section, this allowed for relatively easy targeting of slow-moving enemy ground units. This also provided for a very effective recoil-absorbing airframe to further the aircraft's inherent capabilities. It got to the point that some Russian P-39N and P-38Q models deleted all wing armament altogether to have concentrated firepower in the nose. In any case, the Airacobra proved its worth as a fighting platform via Lend-Lease, though still - in some respects - they remained outmoded by the German fighter offerings on the whole.

France initially ordered the P-39 early in the war but was forced to delay delivery of these units due to the country's capitulation to the German invasion. However, they would be one of the last operators of the machine by war's end and for a time afterwards. The P-39 would also be fielded in limited quantities by Allied Italian forces for a time but did little to show for their Airacobra use. Portugal interned some eighteen wayward P-39s that landed on their soil, ultimately applying payment to the United States for these captured systems at the end of the war. Regardless, the nation was glad to add some modern fighters to its stable. The Royal Australian Air Force received a mix of D- and F-models pending the Japanese invasion of the Australian mainland. These were returned to the United States when the threat officially subsided.

### The P-39 as a Dogfighter

Not to say that the P-39 was a completely useless dogfighting platform - it should be noted that the aircraft could provide a fair fight in the hands of a skilled pilot knowing the limitations of his system. If the Airacobra could drag an opponent down below 10,000 feet, it stood a definitive chance to overtake an enemy through ingenuity and firepower (controlled friendly war games with even the fabled Vought F4U Corsairs showed this to be true). Performance-wise, however, the P-39 was devoid of any truly exceptional qualities when compared to the fighter types that were purpose-built for the role including the heavy Republic P-47 Thunderbolts.

However, the P-39 made many-an ace for the Soviet Air Force where air-to-air battles along the East Front typically unfolded under the optimal 10,000 feet ceiling limit of the Airacobra. Aleksandr Ivanovich Pokryshkin, the third highest scoring Allied ace, earned 60 Luftwaffe victims flying in his P-39. Similarly, Grigori Rechkalov - the second top scoring Soviet ace - earned 44 such victories piloting a P-39. Initial P-39 deliveries to the Soviet Union arrived with the British-selected 20mm Hispano-Suiza nose cannon while later models came with the more potent American-endorsed M4 37mm cannon - the latter adjustment making quite a difference. It is of note here that the United States did not deliver the M80 AP round for these autocannons through Lend-Lease. In their place came 1.2 million rounds of M54 HE rounds, proving useful for air and soft ground targets. As such, the Soviet P-39s were not used in the dedicated "tank-busting" role.

## P-39s Across the Aleutians

Japan mounted an invasion across the Aleutian island chain off of Alaska in an effort to setup submarine replenishment points for actions in the Northeast Pacific. P-39s were thrown into the fray and mounted a valiant and pivotal defense against imposing odds. The weather in the region played poorly on the hapless American pilots, forced to wear layers of clothing and contend with the P-39s ill-suited cabin heaters. Mechanical issues were plenty and poor weather resulted in many accidents. When opportunity presented itself, however, these airmen and their P-39 mounts rained hell on the Japanese that were attempting to establish a foothold on the island chain. Targets of opportunity became flying boats, shipping vessels, airfields and depots. In all, 20 enemy aircraft were destroyed for the loss of just one P-39.

### Conclusion

In the end, the P-39 was very much of what was not intended for the design. It lacked true fighter performance thanks to the US Army decision to take out the turbosupercharger and fit in a lower-rated Allison. The aircraft was specifically and primarily constructed for the role of a high-performance fighter but much of this was lost when the system was relegated to the close-air support role. The primary 37mm armament was the systems true saving grace as the down-graded wing machine guns did not match well against contemporary aircraft mounting multiple heavy caliber systems with a combination of cannon.

And a fighter design intended to be the American answer, she essentially became nothing more than a temporary solution for air forces around the globe. The landing gear issues and general mechanical reliability did not endear the system to most though the aircraft was still well-regarded for those pilots that saw beyond her deficiencies. In the end, the Airacobra was a snake that truly lacked a poisonous bite in her intended role but seemed to make for it in other ways - internally and externally. In any case, the P-39 is regarded as a modest success in most circles but only her pilots know her true value.

Some 9,584 P-39 examples were produced during her tenure at the cost of \$50,666 dollars in 1944 money. Production ran from 1940 to May of 1944. She was introduced in 1941.



## 2010 Club Officers

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**Web Page**

<http://www.minatureaerosporters.org>

Serving the Northeast Denver Area the Miniature Aero Sportsters flying site sits on 48 acres with a 500 foot paved runway. The club is open to all who have a current AMA membership. The Miniature Aero Sportsters consists of a group of individuals with a common interest in radio control aircraft. Club meetings are on the 4th Thursday of the month at Gander Mountain Sporting Goods located at 9923 Grant Street Thornton , CO. Meetings start promptly at 7:00 pm. All M.A.S. club members are encouraged to attend meetings, and to become actively involved in the club's activities

The first year there is a once a lifetime \$125 initiation fee charged to all new members. Every year after that Annual membership dues are \$90.

For membership information check out our web page:

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