

BLAINE AIRPORT PROMOTION GROUP

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8891 Airport Road C-2, Blaine MN. 55449

Sixth Year of Publication



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MODELS OF SPAD VII



American volunteer aviators had been flying in Allied squadrons since the early years of World War I and by 1918 all-American squadrons began active operations.

The 1923 Curtiss Jenny JN-4 was mass-produced as a training aircraft for U.S. Army pilots but no American designed fighter aircraft saw action except for the Curtiss flying boats H-12 and H-16 that operated anti-submarine and anti-Zeppelin patrols over the North Sea from April 1917 to October 1918. American pilots were provided second-rate and obsolete aircraft such as the Nieuport 28, Sopwith 1½ Strutter, and Dorand AR.2 types. As equipment and numbers grew the American Expeditionary Forces were finally receiving more advanced aircraft such as the twin-gun SPAD XIII, Sopwith Camel and the Royal Aircraft S.E.5a. The French Salmson 2.A2 was the first aircraft to use the “fixed” liquid-cooled radial engines in military aircraft.

At the start of WWI groups of fliers would fly in columns or lines giving little thought to the need for efficient use of the military aircraft. It was a simple command instruction to the column to follow the leader. Through experience with this new found weapon and observation of migratory birds that form into migratory V formations provided the example needed to improve efficiency during flight. All the birds in their migratory V formation except the leader will fly in the upwash from the wingtip vortices of the bird being followed. In the proper position of “vortex surfing” each bird can achieve a reduction of induced drag and as a result increase the groups range and be assisted in the support of the individuals own body weight in flight.

As the Vic formation was adopted as the basic flying formation a basic unit was a three plane section and two sections made up a flight and two flights made up a squadron. Squadrons would fly in line astern, one Vic behind another with the squadron leader effectively watching out

for the enemy. The Vic formation provided better communication between flight leaders and their formations, kept the formation intact and provided good defensive protection.

The Vic formation was in use during WWII for both bombers and fighter formations. The German air force changed to a



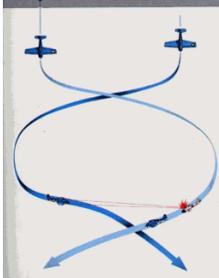
more flexible and aggressive pair (leader and wingman) and four (two pair) combination forming the “finger-four” arrangement.

The RAF pilots had been trained in Vic formations and had no previous wartime experience

when they were attacked from July 10 to October 31, 1940 during the Battle of Britain. New pilots went up against this new finger-four tactic and learned that when modifying the Vic structure by opening the formation and the rear-most Vic in the Squadron was tasked with weaving it improved observation. Later when the U.S. Army Air Force used its strategy of daylight bombing with box formations of massed Vic formations, the German pilots reverted to the Vic formation to tackle them.

In the Pacific on June 4, 1942, Lieutenant Commander John S. Thach and his wingman Edward O’hare led a six-plane sortie from the USS Lexington VF-3 escorting twelve Douglas TBD Devastators from the Yorktown VT-3, when they were attacked by 15-20 Japanese fighters. Thach had studied combat tactics and devised strategies that he believed could be used against the superior Japanese Zero. Thach in his

Thach Weave



Grumman F4F Wildcat decided to use his maneuver making this its first combat usage and accounted for downing three Zeros and his wingman accounted for another. The Thach Weave was used extensively as a combat flight formation that could counter enemy fighters of superior performance in aerial defenses.

Formation flying found its place in aviation history; the dawn of aviation over Western Europe during World War I. Development of formation flying has progressed continually for nearly a 100 years with a rich heritage of procedures and protocols that provide training for modern civilian groups and flight clubs to exercise sound judgment and self-discipline in their qualification training in Formation Fundamentals.

Published pilot knowledge guides are available that use 100% military sourced material devoted to Formation Fundamentals, Two and Four Aircraft Formations, Aircraft Rejoins, General Operating Limits and Abnormal Procedures, Formation Visual signals, Briefing and Debriefing Skills. Also, maneuvering skills that are critical to a safe formation pilot. Extended Trail instructions are designed to help produce a safe formation pilot that can recognize, react, and control varying situations of range, closure and aspect on a constantly maneuvering aircraft. Tail Chase is a challenging maneuver formation for the wingman to precisely maintain a line astern interval with the flight leader.

Strict adherence to protocols that are in place will be the ultimate priority of every formation pilot stressing the importance of Safety, Mutual Support and Harmony in actual displayed performances.

The Federal Aviation Administration reviews formation flying training and evaluation programs provided by training organizations such as *Formation Flying Inc.*, *Formation and Safety Team (FAST)* and *Training Squadron One*. These are confederations of signatory vintage aircraft organizations that assure adherence to certain levels of standardization concerning formation flying training and pilot evaluation and acceptability for airmen to meet the FAA requirement, as established in FAA Order 8900.1, volume 3, chapter 6, section 1, for conducting non-aerobatic formation flight operations in waived airspace for aviation events. FAST has received acceptance by the FAA through December 2017.

This particularly dynamic discipline is a growing venture for more General Aviation pilots desiring new challenges and the high flying standards required as they move through advanced ratings and flight clinics starting with a red code status requiring an instructor to be in the aircraft, then pink meaning a pilot has some formation training and can fly solo in a two-ship formation, yellow indicates pilot is safe to participate in four-ship formations, green shows pilot has passed a wing check-ride, and blue designates flight leader.

BLAINE HIGH SCHOOL CEMS Center for Engineering, Mathematics and Science

On April 21, 2016 thirty five Blaine High School students toured the Blaine airport with a special stop at Key Air for an introduction to the airport and special speaker Robert Eicher. Curriculum Coordinator, Jennifer Birkmeier organized the tour to promote the interest in career development in aviation with her students. R.C. Avionics and SimFlite provided small group tours and instruction, a private hanger was open for the tour and a tour of the tower were highlights of this 4½ hour tour that included a luncheon at the EAA facility with menu of Pizza.



BLAINE AIRPORT PROMOTION GROUP SCHOLARSHIP



Harvey Karth, Founder and Treasurer of the Blaine Airport Promotion Group presented Brady Clarke the group's first ever scholarship at an awards ceremony held at the Blaine High School on May 10, 2016. The recipient of this year's scholarship will graduate in June with a 3.99 high school GPA and plans to pursue a degree in a field of Aerospace.

Brady Clarke joined the Air Force National Guard in September and will go to basic training following graduation and will complete tech school for C-130 hydraulic mechanics in November 2016. Brady is enrolled in the commercial aviation program at the University of North Dakota and will start spring semester on January 25, 2017. Following his four year degree he's plans include having a commercial pilot's license, multi-engine rating, instrument rating and float rating. After Brady receives his degree he will be eligible to apply for the Air Force National Guard's pilot program as an officer. In that program he plans to attend a 23 month school to learn to fly the C-130 Hercules.

Brady believes that the CEMS program at Blaine High School has made him a stronger student by putting him through more challenging classes. *Harvey Karth*

