



Missions for
America
Semper vigilans!
Semper volans!

The Coastwatcher

Publication of the Thames River Composite Squadron
Connecticut Wing
Civil Air Patrol

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SCHEDULE OF COMING EVENT

08 NOV-CTWG Pilots' Meeting-MMK
08-09 NOV-SLS Course-Meriden
11 NOV-TRCS Meeting
15 NOV-CTWG SAREX-Flight Session
18 NOV-TRCS Meeting
25 NOV-TRCS Meeting

02 DEC-TRCS Meeting
09 DEC-TRCS Meeting
16 DEC-TRCS Annual Holiday Party
27 DEC-03 JAN-Cadet Leadership/NCO School

ANNUAL CITRUS FRUIT FUNDRAISER SALES TIME EXTENDED

The Squadron's Annual Fundraiser selling period has been extended to next Tuesday, the 11th of November. Squadron members have one more week to introduce our fine fruits to friends, neighbors, and colleagues.

Preliminary results indicate the 220 cases of fruit have been sold with 60% of our squadron members participating.

The Finance Committee urges everyone to keep selling fruit. All receipts and invoices must be turned in next Tuesday.



CADET METING NOTES

04 November, 2014

Early sunset has caused the monthly PT to be move back to the Squadron where Cadets participated in the sit and reach, push ups, and sit ups.

C/2Lt Carter, taught an informative DDR lesson on the dangers of energy drinks and caffeinated beverages.

C/1Lt Tynan lead a team building activity where the importance of communication and leadership were demonstrated and practiced.

C/A1C deAndrade and C/1Lt Tynan were presented challenge coins from the Pennsylvania Wing for completing PAWG Encampment, and Region Cadet Leadership School.



LtCol deAndrade's eagle eyes focus with covetous envy on the challenge coins while Cadets deAndrade and Tynan maintain an uneasy "at ease."

SENIOR MEETING NOTES

04 November, 2014

Squadron Commander, Maj Paul Noniewicz presented a safety briefing on adjusting auto speeds to the flow of traffic.

Noniewicz then reviewed the results of the Sub Unit Inspection (SUI) conducted by the Wing in September. An SUI evaluates how effectively, efficiently, and safely carries out its mission, its compliance with regulations and instructions, improvements in the unit programs, and an emphasis on good husbandry in regard to property and materials.

The Squadron's offices of Aerospace Education, Cadet Programs, Emergency Services, Mission Support, and Command were all evaluated a total of 12 departments.

Aerospace Education, Administration, Personnel, and Public Affairs were all rated as "highly successful." Communications, Professional Development, Finance, Supply, Transportation, Commander, and Safety. All other departments were rated "successful."

"Commendable" ratings were issued to Aerospace Education, Administration, Personnel, and Public Affairs.

Overall, the Squadron is judged "successful" with a positive culture towards CAP standards and a willingness to learn. The Squadron officers were commended for their professional demeanor and cordiality.

TWO RIVERS MAGNET SCHOOL

28 October, 2014

LtCol Stephen Rocketto presented a CAP familiarization talk and some demonstrations of the physical principles of aeronautics while visiting the Flight Academy at Two Rivers Magnet School in Hartford.

The Flight Academy is a special extra-curricular program conceived of and run by Dr. Robert Polselli who is a Certified Flight Instructor and teaches engineering and technology at the school.

The program is designed to appeal to students who are interested in aviation and wish to learn to fly. The students use two classroom flight simulators and are offered the opportunity to fly with Polselli using aircraft provided by a Brainard fixed base operator.

A short video about the program may be found at:

<http://www.youtube.com/watch?v=XOJ24LkXNLs>

CAP familiarization was accomplished using the new computer slide presentation which was created by Lt Meers and Rocketto. After a short question and answer session about CAP, Rocketto presented some demonstrations involving Bernoulli's Principle, gyroscopic stability, and air pressure and invited the students, in the spirit of Socratic dialogue to either explain or question what had been observed. Spirited argument

ensued as the students analyzed the phenomena observed.



Students set up the "mortar cart" for a demonstration of the independence of vertical and horizontal motion.

(Credit: Robert Polselli)

Rocketto discussed the possibility of forming a CAP school based squadron at Two Rivers and they will study the requirements with the hope of bringing it to fruition.

WING-WIDE SAREX

01 November, 2014

Poor flying weather caused a postponement of the flight training session until 15 November but the ground training session was held as usual. Ground teams met at the Silver City Composite Squadron's Meriden-Markham Airport site and the command staff were stationed in Hartford.

tCol John deAndrade served as Planning Section Chief at the Hartford Command Center

At Meriden, Maj Roy Bourque headed out with a ground team and was re-certified as a Ground Team Leader. Lt Sonia Simpson served as Mission Staff Assistant and received, along with LtCol Stephen Rocketto, training as a Mission Radio Operator.



Maj Bourque carries out vehicle inspection for Instructor Ceritello.



Capt Kristina Kana and Lt Sonia Simpson "man" the Meriden radio.

A number of tasks were received by radio from the Hartford Command Center which included the search for an electronic location transmitter, inspection of a bridge threatened by flood water, and inspection of an electrical sub-station damaged by trees felled in a storm.

Rainy weather added a modicum of realism to the scenarios. Radio contact was maintained between all parties although poor reception was noted periodically. The new WIMRS 2.0 computer program was utilized. Data on tasking, location of ground units, and status of the search were entered and screen displays of the current situation were available to the Ground Team Cadre at Meriden and the Command Staff in Hartford.

TRCS PRIVATE PILOT GROUND SCHOOL

The third session of the TRCS Private Pilot Ground School was held on Sunday, 02 November from 1500 to 1700. The course is designed to prepare students for the FAA Private Pilot Written Test.

LtCols deAndrade and Bergey covered various topics which included airport surface markings and signs, lighting, wind indicators, and land and hold short operations. Aircraft stability was reviewed and informal testing was used to review and reinforce knowledge about the subjects covered.

SQUADRON LEADERSHIP S COURSE OFFERED

The CTWG will offer a Squadron Leadership Course at Meriden Airport on 8-9 November. SLS is required for advancement to Level II of the CAP Professional Development Sequence.

The SLS provides CAP's senior members with a basic understanding of CAP operations at the squadron level and how those operations affect CAP's national missions. Participants will learn more about CAP customs, core values, and communications. Case studies, discussion, and group assignments are integral facets of the SLS.

The course fee is \$25. For further information, contact the Course Director, Maj Roger Malagutti at rmalagutti@aol.com or call at 203-597-7106.

WING-WIDE PILOTS MEETING

There will be a Wing Wide Pilot Meeting at Meriden airport on Saturday, 08 November.

The plan is to conduct O-flights from 0900 to 1300 and hold a pilots meeting (lunch provided) from 1300 to 1500.

Col Chapman, CTWWG Commander will speak to the pilots about implementation of FY15 flying, and the Wing's future flying plans. If time allows, WMIRS 2.0 and CAPF 104 issues will be discussed.

If you can fly a CT Wing plane in, please do so. Plan to arrive in time to start conducting O-flights at 0900. The cadets who need o-flights and ground staff to handle the O-flight WMIRS entries will be there.

If you can do o-flights or plan to just attend the pilots' meeting, please contact Maj Johnny Burke at stonyburke@hotmail.com or Maj Roger Malagutti at Rmalagutti@aol.com for planning of

a flight schedule and lunches.

POE PROMOTED

Senior Member Susan Poe was promoted to Second Lieutenant. Lt Poe serves as assistant to Lt Ray, the Deputy Commander of Cadets. She has been highly active in Squadron activities and three of her children serve in the Cadet ranks.



Maj Noniewicz congratulates the Squadron's newest Lieutenant.

ADMINISTRATIVE CHANGES AT GON

The Connecticut Aviation Authority has announced that Catherine Young has been assigned to undertake a special assignment to research potential development opportunities at the State's General Aviation airports.

Kurt Sendlein will be assigned to the Groton-New London Airport and will continue his duties at Windham and Danielson as Airport Operations Coordinator

AEROSPACE CURRENT EVENTS

Thirsty Aussie's Pub Visit

The kiwi is a flightless bird native to New Zealand and New Zealanders are often referred to as "Kiwis." In a pilot's lexicon, "Kiwis" are

“ground grippers,” a species of humanity not rated to fly aircraft. An Australian kiwi recently went on a form of “walkabout” and taxied a wingless Beech Skipper to the local pub in Newman, Western Australia.



Paddy Wagon and Skipper in Abreast Formation

An alert policeman noted the unusual site and the alleged perpetrator has been charged with endangering the life, health or safety of a person. The “person of interest” passed a breathalyzer test but the police reported that he did not have a pilot's certificate. The astute policeman also remarked that wingless plane did not try to leave the ground! A court date has been assigned.

AEROSPACE HISTORY

The X Planes Part V

Piasecki X-49 Speedhawk

Frank Piasecki was a pioneer in helicopter development and his twin rotor “flying bananas” were workhorse of the military in the '40s and '50s. Eventually the company changed its name to Vertol and ultimately was taken over, as seems to be the case in the U.S. Aero, by Boeing!

The X-49A Speedhawk was a 1997 adaption of a Sikorsky YHS-60F Seahawk. The aircraft was

built to test the Piasecki vectored thrust ducted propeller (VTDP) and a number of other features which might improve performance.



X-49A (Photo Credit: Piasecki)

The vehicle is a compound helicopter, deriving thrust not only from its rotors but also from tractor or pusher propellers. The structure around the propeller, the duct, is equipped mechanisms which redirect the air flow to eliminate torque and increase maneuverability. For horizontal flight, the ship is also equipped with wings which “unload” the rotors and a rudder for yaw control. “Unloaded” rotors allow more thrust to be applied horizontally which increases the speed of the craft, about 20 knots faster than a conventional Blackhawk.



X-49A displays its stub wings and ducted propeller.

(Photo Credit: Piasecki)

But there is no “free lunch” in the laws of physics. The improvements in performance add weight which reduces the hovering capability and of course, the cost of manufacture increases.

Nonetheless, the Speedhawk program is a clear demonstration of the positive factors inherent in the compound helicopter design and a number of manufacturers have pursued this path. Two early

examples are the Fairey Rotodyne and the Lockheed AH-56 Cheyenne. The Sikorsky S-97 Raider is the latest entry and the company has hopes that the Raider will be the helicopter of choice for the Army's Armed Tactical Scout mission.

Boeing/DARPA X-53

The practice of modifying a known and well-utilized air frame to test a new concept is common. The previously mentioned X-49 is just one example.

The Defense Advanced Research Projects Agency (DARPA), Boeing's Phantom Works, the Air Force Research Laboratory and NASA's Dryden Flight Research Center has cooperated to modify a McDonnell-Douglas F/A-16 Hornet to test a concept which may maximize maneuverability in fighter aircraft.



X-53 displays its Hornet origins.
(Photo Credit: Carla Thomas-Dryden FRC/NASA)

In 2002, they flew the X-53 which utilizes the aeroelastic twist of the wings to increase maneuverability under high g conditions and decrease drag under low g conditions.

The “twisting” of the wings is accomplished using digital computers controlling trim tabs. In banking, the ailerons not only roll the aircraft but apply a torque to the wings. This twisting is most noticeable at high speeds and large bank angles

and counters the effect of the ailerons. Tests with the X-53 are tailored to measure these effects and engineer wings and their control surfaces to mitigate the twisting.

The wings if the F/A-18 were modified with an outboard leading edge control surface, digital controls, and instrumentation. After two years of testing, the system was validated and may be applied to future aircraft.

Lockheed-Martin X-55

In some ways the largest of the X-Plane family, the X-55A Advanced Cargo Composite Aircraft (ACCA) is a modified Dornier 328J. It was built at Lockheed's Skunk Works as part of an Air Force Research Laboratory project.

The aft part of the aluminum fuselage was replaced with a wider one made with advanced composite materials. The materials are plastics but they differ from previous composites in that they can be cured at lower temperatures and pressures.



X-55 (Photo Credit: Carla Thomas-Dryden FRC)

The modified 55 foot fuselage section is nine feet wide and incorporates the vertical stabilizer as part of the structure. Composite materials are light weight and corrosion resistant. Another advantage in using composites is a reduction in parts. The new section used 1/10th the number of parts and fasteners, an important consideration in manufacturing ease, time, and cost.

First flight was in 2009. Only one was built and it is now on display at Joe Davies Heritage Airpark in Palmdale, California.

Honorable Mentions

Most of the X-Planes have been developed and flown by the National Advisory Committee on Aeronautics (NACA), National Aeronautics and Space Administration, and the United States Air Force. Not all experimental aircraft received the “X” prefix. The United States Navy flew two experimental aircraft, labeled as “research aircraft,” from 1947 to 1962.. Both were built by Douglas Aircraft and received Douglas design numbers and made important contributions to the aeronautical sciences.

Douglas D-558-1 Skystreak

The Navy Bureau of Aeronautics, National Advisory Committee on Aeronautics, and Douglas Aircraft produced a straight wing turbojet powered aircraft to explore trans-sonic flight. Power was supplied by an Allison J-35, one of the first of the axial flow turbojets.



Skystreak on display in front of the Naval Aviation Museum circa 1968.

The legendary designer Ed Heineman led the Douglas effort using information supplied by NACA, to develop a rather conventional airframe. However, a thin high mounted horizontal stabilizer mitigated the effects of shock waves produced by the wings.



The Skystreak in Pensacola is now mounted vertically on a wall.

The experimental data sought was to investigate straight wing design between Mach 0.8 to 1.3, since wind tunnels at that time could not produce reliable data. The data collected was then used to validate or calibrate the wind tunnel data.

First flight was on 14 April, 1947 with Gene May. In August of that same year, at Muroc Dry Lake, Commander Turner Caldwell, USN, established new world speed record of 640.7 mph. Five days later, Major Marion Carl, USMC, broke this record, averaging 650.8 mph.



A second surviving Skystreak at the Carolina Aviation Museum in Charlotte

Unlike Bell's X-1, the Skystreak took off and landed under its own power. However, it was incapable of achieving supersonic speeds in level flight.

Three Skystreaks were built and completed 229 flights in their six year career. A number of well known test pilots flew the Skystreak. Scott Crossfield, Joe Walker, and Stan Buchart to name just three. One of them crashed killing Howard Lilly.

Newer aircraft and better wind tunnels made the Skystreak less and less useful and led to a well merited retirement.

Douglas D-558-2 Skyrocket

The follow-up to the Skystreak was another Heineman project which first took flight on 04 February, 1948 sponsored by NACA, the Navy, and the Marine Corps. As with the Skystreak, three Skyrockets were built and completed 313 flights. Most of these flights were air-launched from a Navy P2B (Boeing B-29 Superfortress).



Skyrocket #1 at Chino

The Skyrocket was first outfitted with a Westinghouse J-34 turbojet and used the aircraft with this engine in the first stages of the program. These flights were used to calibrate instrumentation, validate wind tunnel data, and investigate stability issues.

When a Reaction Motors LR-8 rocket engine producing 6,000 lb of thrust was installed, a number of unofficial speed and altitude records were set. Scott Crossfield Bill Bridgeman, and Marion Carl pushed the speeds to around Mach 1.7 and the altitude to 80,000 ft. On 20 November, 1953, Crossfield became the first man man to exceed Mach 2.



The four chamber LR-8 rocket engine is visible in the Skyrocket in Washington.

Record setting was not the primary purpose of the aircraft and most of the flights investigated problems and solutions associated with swept wing trans-sonic flight. Various combinations of wing slats and wing fences were tried and experiments were carried out to determine the effects of external stores during high speed flight.

All three of the Skyrockets survived and are on display. NACA 143 is at the Planes of Fame Museum, Chino, California. NACA 144 is hanging at the National Air and Space Museum in Washington, and NACA 145 may be found on display at the Antelope Valley College in Lancaster, California.