

*Missions for America  
Semper vigilans!*



*Semper volans!*

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Maj Scott Farley, Roving Correspondent  
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29 JUL-05 Aug-CTWG Encampment  
01 AUG-TRCS Staff Meeting  
08 AUG-Commander's Call  
15 AUG-TRCS Meeting  
19 AUG-Connecticut Aviation Day-GON  
22 AUG-TRCS Meeting  
29 AUG-TRCS Meeting  
09 SEP-Touch-A-Truck-East Lyme  
15-17 SEP-CTWG Conference  
21-24 SEP-Durham Fair Parking Detail  
23 SEP-Scarecrow Festival-Preston

## **CADET MEETING**

*25 July, 2023*

*submitted by*

*Capt Jennifer Thornell*

C/CMSgt Nicholas Buchko briefed the cadets on preparing for encampment and demonstrated techniques for boot polishing.

Maj Roy Bourque instructed the cadets on the fundamentals of aircraft flight control.

C/Capt Matthew Fago presented a safety briefing on foot care and the treatment of blisters.

C/MSSgt Tiger Bland and C/TSgt Braeden Larson have both attended three sessions at Hawk Mountain Ranger Training School, Summer, Winter and the Field Medic Course and recounted their experiences.

## **SENIOR MEETING**

*25 July, 2023*

*submitted by*

*Capt Adam Sprepace*

Capt Sprepace discussed the factors involved in making a decision whether or not to fly in marginal weather.

Maj Scott Farley explained the Squadron's role in planning and operating the cadet orientation flights held during the Wing's summer encampment next week. He also reviewed the Squadron's involvement in the Durham Fair in September.

## **AEROSPACE CHRONOLOGY**

July 25, 1953 — The Consolidated B-36's capability to carry, launch and recover F-84 aircraft in flight is announced. The project was called FICON for "fighter conveyor." A number of scenarios were envisioned which would extend the range of the parasite aircraft to either act as an escort for the bomber, provide a reconnaissance function or use the parasite aircraft to deliver a

nuclear weapon, relying on its small size, maneuverability and speed to deliver the weapon and return safely the mothership.

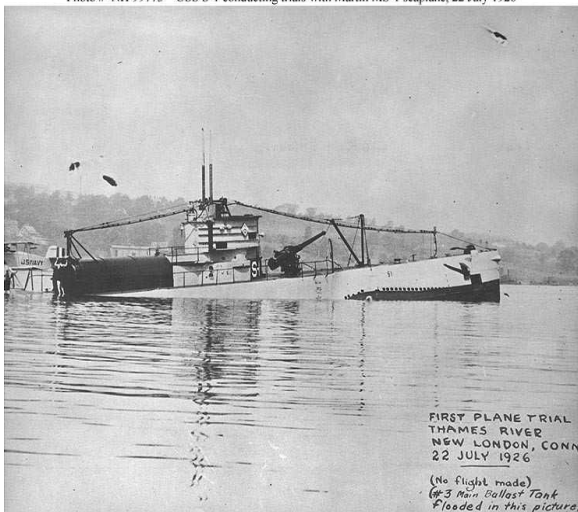


*YRB-36 with YF-84F at launch. (Credit: USAF)*

A similar set of experiments called “Tip Tow” and “Tom Tom” were attempted. In those trials, F-84 fighters were attached to the wing tips of the mother ships but a range of technical problems led to the abandonment of the FICON programs.

July 26, 1926 – Thames River, New London, Connecticut. The Navy carried out a full cycle experiment on using a submarine to carry, launch and recover aircraft.

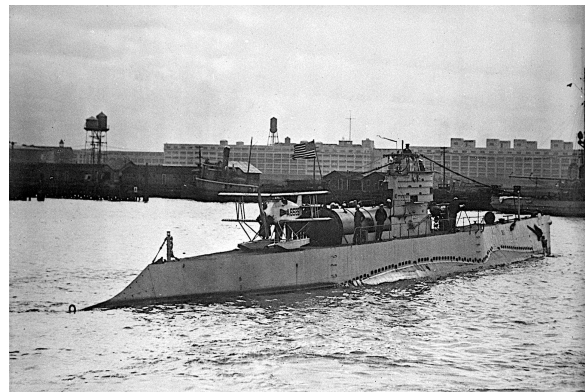
Photo # NH 99773 USS S-1 conducting trials with Martin MS-1 seaplane, 22 July 1926



The submarine USS SS-1 surfaced and the crew removed a disassembled Martin MS-1 from a deck hangar, assembled it, launched it, retrieved it, disassembled it, stowed it in the hangar and submerged.



Photo # NH 71028 Assembling a Martin MS-1 seaplane on board USS S-1, October 1923



*SS-1, re-designated SS-105, 1923, possibly in Norfolk, Virginia. (Credits: USN Historical and Heritage Program)*

July 27, 1935 – Two Bulgarian MiG-15s shot down El Al Flight 402, a Lockheed L-049 Constellation, killing all 58 on board. The aircraft had accidentally flown into Bulgarian airspace. After an investigation and the usual diplomatic recriminations, the Bulgarians apologized and paid compensation.



*4X-AKC, the aircraft shot down. (Credit: J M G Gradidge Collection)*

July 28, 1938 – Pan American World Airways Flight 229, a Martin M-130 flying boat named the *Hawaii Clipper*, disappears westbound from Guam to Manila with 6 passengers and 9 crew members.



*Hawaii Clipper at her moorings.* (Credit: PanAm Historical Foundation)

A number of conspiracy theories have made the rounds about the cause of the disappearance, one involving an insurance fraud and a second involving a Chinese business man carrying a large sum of money for the Chinese government, to use in their war with the Japanese.

The Martin Clippers were a boon to Juan Trippe and Pan American. Only three were built but their ability to fly nonstop from California to Hawaii opened up the Pacific to PanAm's commercial exploitation. It even was the star of a 1936 film, *China Clipper* with Humphrey Bogart playing a role based upon the legendary Capt. Ed Musick.

But it was not a blessing to Glenn Martin Aviation. Trippe made a hard bargain with Martin who contemplated further business but Trippe only ordered three and Martin took a bath on the development and manufacturing costs.

All three met sad ends. *China Clipper*, the last to be produced and the first to fly, crashed at Port-of-Spain, Trinidad in a botched landing that took the lives of 23 passengers and crew, seven surviving.

*Philippine Clipper* crashed in California hitting a mountain while executing an approach in rain, clouds and fog. All nineteen aboard died including Rear Adm Robert English, commander of the U.S. Submarine Force, Pacific.

PanAm replaced the Martins with the Boeing 314, twelve were built and nine flew as PanAm Clipper and three were operated by British Overseas Air

Corporation.

July 29, 1988 – Launch of Space Shuttle Discovery STS-51-F. Six shuttle launches have been aborted on the pad within minutes or seconds of launch but this was the only one aborted after launch.

Three minutes and 31 seconds after launch a sensor on Engine #2 failed. The sensor measured the fuel turbo-pump turbine discharge temperature. Two minutes and 12 seconds later, the other sensor on the engine, a redundant instrument measuring the same parameters, also failed and the center engine shut down. About two minutes later, a sensor on the right engine failed and the back-up instrument displayed readings approaching the redline for engine shutdown. The automatic shutdown feature controlled by the remaining sensors was disabled on the advice of ground controllers to prevent the loss of a second engine which would have required a Transoceanic Abort Landing. Analysis revealed that the sensors were at fault due to a design error.

There are four pre-planned abort modes on the shuttle checklist. Abort to Orbit (ATO) is preferred.



*Abort Mode Choices-Rotary switch ATO Abort Option* (Credit: NASA)

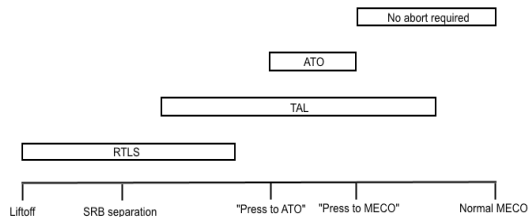
A second option is Transoceanic Abort Landing (TAL) in which a predetermined location in Africa, Western Europe or the Azores can be selected.

The third option is Abort Once Around (AOA) which would be used during a narrow time window between ATO and TAL. The landing site would be either Edwards AFB, Kennedy Space



Center or White Sands Space Harbor.

The final option and most dangerous is Return to Landing Site (RTL) used if the vehicle in the launch phase did not have sufficient energy for successfully executing one of the other modes. When NASA considered making the very first mission an RTL practice, Commander John Young refused saying "Let's not practice Russian roulette...RTL requires continuous miracles interspersed with acts of God to be successful."



*A diagram showing the abort options at each phase of climb-out. (SRB stands for solid rocket boosters and MECO stands for main engine cut-off.)*

The primary mission for 51-F was taking the Spacelab 2 laboratory module, outfitted with a plethora of experimental gear, into orbit.

51-F also ran the notorious "cola wars taste test." Coca-Cola had developed a can which allowed dispensing a carbonated beverage in space and got NASA to schedule it for a flight. When Pepsi caught wind of Coke's plans, they got the test delayed until they could develop their own system for serving a carbonated beverage and the tests were scheduled for STS-51-F.



*The competing dispensers*

A problem with drinking a carbonated beverage in a micro-gravity environment is that the carbon dioxide bubbles will not leave the liquid so with each swallow, the drinker gets a healthy dose of gas and is afflicted with an elephantine case of the "orbital burpees." The seven man crew was split up into a red team (Coke) and a blue team (Pepsi)

and each issued a can to drink and evaluate. John-David Bartoe was the odd man out. He thought the idea was "frivolous" and distracted from the science of the mission and balked. 'I'm not going to do it, I think it's a terrible idea.'"

The astronauts main complaint was that since there was no refrigeration on board, they had to drink a luke-warm soda. The recommended temperature is around 40°F. In the end, they said they would prefer Tang which can be mixed on-orbit with chilled water from an onboard shuttle dispenser.



*The Crew of STS-51-F*

*(kneeling left to right) Gordon Fullerton, commander; and Roy D. Bridges, pilot. Standing, left to right, are mission specialists Anthony W. England, Karl G. Henize, and F. Story Musgrave; and payload specialists Loren W. Acton, and John-David F. Bartoe. (Credit: NASA)*

Astronauts selected by NASA have remarkable credentials. Here is a list of some of the qualifications of the 51-F crew.

Gordon Fullerton was a lead test pilot for NASA and was a principal pilot for flying the B-52 mother ships used to air launch experimental aircraft and the Boeing 747 used to transport the shuttles. He was chosen as one of the initial shuttle pilots and landed STS-3 at the White Sands Space Harbor when Edwards AFB got flooded. Fullerton was also one of the pilots who flew the Tu-144LL "Concordski" in a NASA-Soviet cooperative program exploring advanced technologies.

Roy Bridges flew 262 combat missions, commanded the USAF Flight Test Center and retired as a major general.

Tony England earned a Ph.D from M.I.T in earth and planetary sciences and was a distinguished graduate from the USAF Undergraduate Pilot Training Program.

Karl Henize held a Ph.D from Michigan. As a boy scout he only earned one merit badge, astronomy. Henize was instrumental in establishing and organizing the Smithsonian Astrophysical Observatory's Baker-Nunn satellite camera system with which the Editor was once associated. He is buried on Mount Everest at the 20,000 foot level after dying of pulmonary edema while working on a study of the effects of solar radiation on the human body.

Story Musgrave flew six shuttle missions and holds an M.D from Columbia. He is the only astronaut to fly on all five shuttles.

Loren Acton is an astrophysicist with a Ph.D from the University of Colorado.

John-David Bartoe holds a Ph.D. in physics from Georgetown.

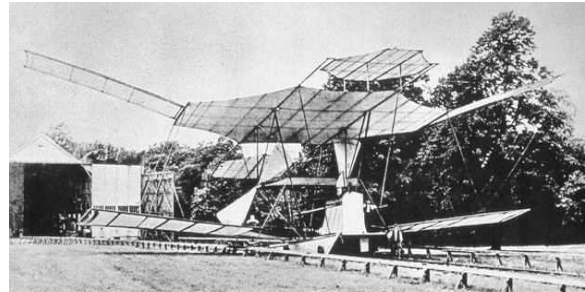
July 30, 1935 – Lieutenant Frank Peak Akers, United States Navy, took off from the Naval Air Station San Diego, California, in a specially-equipped Berliner-Joyce OJ-2 biplane. With his cockpit covered by a hood to prevent him seeing outside, he flew completely by reference to electronic devices on board the airplane and made the first instrument landing on an aircraft carrier.

Akers had a long and illustrious career in naval aviation. During World War II, Akers was the navigation officer aboard the carrier *Hornet* when it launched the famous air raid against Tokyo led by Gen. Jimmy Doolittle and was aboard the *Hornet* at Midway. Akers also held the honor of “Gray Eagle” The award is presented to the naval aviator on continuous duty who has held the designation for the longest period of time. Akers retired as a rear admiral in 1963 with 37 years service wearing the “Wings of Gold.”



*Lt. Frank P. Akers, wearing flight helmet and goggles, briefs Rear Admiral Ernest J. King in white hat. (Credit: U.S. Navy)*

July 31, 1894 – Hiram Maxim attempted to launch his giant experimental biplane powered by two 180 hp steam engines. The wingspan was 100 feet and the launch was made from a length of railroad track. On the third attempt, it managed a two hundred foot hop before crashing.



*For scale, take a look at Hiram Maxim standing in front of the airplane.*

Maxim wrote off the £20,000 investment and turned to other inventions including the Maxim machine gun, electric lamps and steam pumps. And his relatives were no less inventive. Hudson Maxim, his brother, was a chemist who pioneered smokeless powder. Hiram's son, Hiram Percy Maxim was a pioneer in radio, founder of the American Radio Relay League and inventor of the Maxim silencer.

August 1, 1959 – Improperly set stabilizer trim caused Scott Crossfield to lose control of a prototype North American XF-107 “Ultra Sabre” during a take-off. Sensing trouble, Crossfield aborted the take-off but the nose wheels blew out, left main gear caught fire and the aircraft was written off.



*(Credit: NACA)*

The aircraft was based on the F-100 Super Sabre and conceived of as a nuclear capable Mach 2 fighter bomber. Three prototypes were built and two are on museum display at Pima and Wright-Patterson.