



Missions for America

Semper vigilans!

Semper volans!

To put your life in danger form time to time...,breeds a saneness in dealing with day-to-day trivialities.

*Neville Shute
Slide Rule*

SENIOR MEETING

23 June, 2020

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

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Maj Farley reviewed pilot pertinent information from Wing Operations\.

Major Bourque, Lt Sprecase and Lt Kopycienski spoke briefly about training opportunities available in emergency services, aircrew and communications respectively.

Lt Jason Otrin [resented a comprehensive briefing on GSP basics: infrastructure, theory of operation, applications, and the features of Differential and Wide Area Augmented System corrections.

In response to a question, Capt Johnson explained jamming and deception techniques which can compromise the system.

Issue 14.26

24 June, 2020

CADET MEETING

24 June, 2020

- 1 July - Cadets: Leadership
- 7 JUL - Senior Staff Meeting
- 8 July - Cadets: Aerospace / Leadership
- 14 JUL- Senior Meeting-Commander's Call
- 11-12 JUL-LISP
- 14 JUL-Senior Meeting - Commander's Call
- 16 JUL-Cadet Meeting-Character Development
- 25-26 JUL-LISP
- 8-9 AUG-LISP
- 29-30 AUG-LISP
- 19-20 SEP-LISP

Maj Bourque offered an aerospace lesson on the the history of rockets based upon *Aerospace Dimensions Module 4-Rockets*

REPORT ON WEEKLY OPERATONS AND ACHIEVEMENTS

Long Island Sound Patrol

The Squadron flew four LISP missions over the weekend. On Saturday, Lt Sprecase and Lt Otrin flew the early mission and Maj Noniewicz and Lt Col Kinch flew the sundown patrol.

On Sunday, Lt Sprecase and Capt Johnson took the early duty and Maj Noniewicz and Lt Babor of the 186th Composite Squadron flew in the evening.

CADETS-WRITE LETTERS OF THANKS TO THE UNIFORM DONORS. IT IS THE RIGHT THING TO DO.

A UNIQUE SOLUTION TO A CHRONIC AVIATION PROBLEM.

Overweight, Too Slow, Not Enough Get Up and Go?

From the 1950's on, there has been a propensity for an aircraft to get heavier as their designs evolve. Generally, it is because the customer starts adding features which they see as desirable. The military is especially guilty of this practice.

But unnecessary weight is the enemy of flight performance. Ed Heinemann, Douglas's great designer understood and he paid bonuses to anyone who could figure out a way to reduce weight. He said "If an aircraft's gross weight is increased by ten percent due to additions in the form of equipment and performance is to remain constant, then the wing area, power plant, fuel and structure must be increased by as much as 100 percent." And this also has a financial penalty. Heinemann opined that every pound of added weight cost \$40. His classic A-4 Skyhawk is a prime example of his genius. Douglas brought it in on schedule and under the Navy's estimated cost!

The performance figures which manufacturers present must be taken with a grain of salt. The data is obtained by factory tuned aircraft flown by experienced test pilots under ideal conditions. For example top speed is rarely needed and if used its time may be restricted by engine limitations. Take an aircraft up to its maximum (operational) altitude and you are pushing its performance in terms of rate of climb and stability. Max performance has a hidden cost.

But in the real world, a time comes when operations demand that the performance envelope must be stretched out, perhaps to gain the ability to lift more payload or go higher or go faster. One solution is the addition of one or more "jet packs." Jet packs are essentially podded turbine engines which can be attached to the air frame or more rarely the fuselage.

Air Force cargo haulers are good examples to study. The Fairchild C-123 Provider was designed

with reciprocating engines. At first, a pair of the excellent Pratt & Whitney R-2800 Double Wasps producing 2,300 HP each. Later, an improved Double Wasp could produce 2,500 HP.



The Coast Guard used the C-123B to support its far-flung network of LORAN stations (Credit: Pima A&SM)

The Army was using DeHavilland of Canada CV-2 Caribous for their logistic missions. The Caribou had excellent STOL performance and a much lighter foot-print than the Provider so it was an outstanding performer as a tactical air-lifter, arguable superior to the Provider and therein lies the story of how the Provider got its pods.



Renamed C-7, the Caribou at the New England Air Museum used to be based at Groton.

It starts in 1948 in Key West, Florida. Missions were parceled out among the services and the Army was limited to helicopters and small fixed wing aircraft. The Army got a waiver to fly to larger aircraft, specifically the Caribou and Grumman's OV-1 Mohawk. The Mohawk was armed and its offensive armament proved offensive to the Air Force. They viewed it as an Army incursion into its aerial attack mission.

The Army used the Caribou's superb STOL performance and ability to operate in and out of unimproved airstrips, airstrips not open to the Provider. To compete, the Air Force converted 183 C-123B Providers into the C-123K by adding two auxiliary jet engines housed in underwing pods. And so the Provider, due for retirement in 1961

got its pods and continued in the Air Force inventory until 1980!

C-123K taxiing at Groton



Negotiations led to the Air Force taking over the entire Army fleet of Caribous in exchange of allowing the Army unrestricted development of rotary aircraft. As it turned out but not apparent at the time, this was most favorable for the Army. Over the years, they developed and incorporated heavy lift and attack helicopters more than making up for the loss of the Caribous and Mohawks.

A somewhat different approach was used on ten of the Providers. They were equipped with Fairchild J-44 turbos developing about 1,000 lb of thrust each mounted on the wingtips. This was the C-123J.

Only 10 C-123Js were built and most ended up with the Air Guard in Alaska.



The aerial fire fighting community did something similar to the Fairchild C-82 Packet. In order to carry heavier loads of water or chemicals the attached a Fairchild turbine to the top of the fuselage. Around a dozen were equipped with Westinghouse J-30s or J-34s which gave the aircraft about 3,000 lbs or thrust. TWA used one as a freight hauler.



*TWA Packet equipped with a Fairchild "Jet Pac."
(Credit: Ted Quackenbush)*

In the waning days of World War II, the Navy was looking for a new land based maritime patrol aircraft and Lockheed submitted the winning design, the P2V Neptune. Another extraordinarily versatile aircraft, the Neptune was operated by the Navy from 1947 to 1984.



P2V-1

The aircraft had seven distinct versions and many sub-variants tailored to specific missions. As might be expected, as the "goodies" got added, the weight increased and the demand for extra power was served by two J74 engines mounted in under wing pods. The P2V-5F was born.



The Neptune's jet engines used the same avgas as the piston engines avoiding the complexity (and weight) of a separate fuel system. Primarily used for take-off, the engines and then shut-down and run at flight idle when the Neptune operated at low level, generally on an anti-submarine patrol. If one of the piston engines failed, the pilot could spool-up the jets. When Neptunes became a popular aerial fire fighter, this feature was an asset for lifting the loads and providing a safety margin. Aerial fire fighting companies such as the aptly named Neptune Aviation favored this feature.



If you have a need for speed, power augmentation with add-on jets may be just the thing. The Consolidated B-36 Peacemaker's earliest models has six P&W Wasp Majors producing a total of 22,800 HP. Starting with the B-36D, four General Electric J47 engines, two to a pod were hung on

pylons below the wings. The jets improved take-off performance and dash speed and doubled the horse power available. The jets would be shut down when not needed and louvers closed over the intakes to reduce drag.



B-36 without and with auxiliary jet engines. (Credit: USAF)



Speed also became an issue during aerial refueling operations. The tanker fleet consisted of Boeing KB-50 and KB-97 Stratotankers, converted bombers and cargo aircraft. As the Strategic Air Command refitted with jet powered Boeing B-47 Stratojets and Tactical Fighter Command expanded its jet fighter inventory, the mis-matched speeds of the props and jets caused problems. The solution was to hang a J-47 under each wing of the KB-50s and KC-97s.



KB-50 refueling three different types at once. (Credit USAF)

But suppose you want to get high. High aspect wings and a couple of podded auxiliary engines are a plus. The Air Force took some of their Martin B-57 Canberra bombers and tasked them with high altitude atmospheric sampling, a sign of

nuclear testing, and of course, photo-intelligence missions.

EB-57B



They were styled as the WB-57F and RB-57F. Extensive redesigning was required by General Dynamics. The wing was twice the length of the fuselage. New main engines doubled the thrust. Pratt J60 turbojets were positioned outboard of the main engines. They were used at altitude and pushed the Canberra two or three thousand feet higher. The service ceiling is listed as greater than 60,000 feet and the modified Canberras carry almost double the payload of the U-2. Some sources say that under certain conditions, the Canberra can challenge the U-2 for the title "King of the Mountain."



WB-57F (NASA 928) (Credit: NASA)

NASA operates three WB-57Fs out of Ellington Field, Houston, Texas. One of them, 927NA, has the distinction of being the longest stored aircraft returned to service, 41 years in the Arizona desert. The aircraft are part of NASA's Airborne Science Program which participates in a wide range of research activities on behalf of universities, private corporations, the military and various government agencies.



WB-57F (AF 63-13295) waiting in the "Bone Yard" c. 1975 not so soon to be NASA 927

After a 41 year wait, technicians at the Davis Monthan AFB 309th Aerospace Maintenance and Regeneration Group, technicians spent two years restoring "927" to flight status.



NASA 927 gets airborne stripped of its auxiliary jets. (Credit: Christopher A. Ebdon/The Aviationist)

The use of jet packs seems to have been used almost entirely on U.S. built aircrafts. The Coastwatcher can find one example of a foreign piston designs which had jet packs added as additional equipment, Nord added jet packs to a few of its Noratlas series. It is unlikely that the technique will be used again. Probably all aircraft so equipped are retired. The aircraft which needed the auxiliary power were so equipped to meet conditions of operation not foreseen in the original design. Today, the thrust developed by current turbines obviates the need for add-on jet packs.

AEROSPACE CHRONOLOGY FOR THE WEEK

June 24, 1925 – In North Atlantic coastal waters, a United States Coast Guard Vought UO-1 becomes the first aircraft to assist in the capture of a rum-runner.



Beware the consequences of a good intention. The

ill-conceived 18th Amendment to the United States Constitution banned the manufacture, sale, and transportation of alcohol in the United States and became a mother lode of opportunities for criminality. Ships carrying cargos of alcohol would stand off the coast and transfer their goods to smaller faster boats which would bring the bottles and barrels ashore. Rum Row was born.

The US Coast Guard, a branch of the Treasury Department was charged with interdicting the rum trade. It was not easy. They were underfunded and the criminals operated under the cover of darkness abetted by crooked officials and had faster boats. Does this sound familiar?

In 1921, Lt. Cmdr. Carl Christian von Paulsen, commander of the Coast Guard Station at Gloucester, Massachusetts suggested using aircraft to search for and track the rum runners. The Coast Guard bought into the idea but the mills of bureaucracy grind slow and it was not implemented until 1925 when a borrowed Navy Vought UO-1C was based at the Naval Reserve Air Station in Squantum, Massachusetts and commenced patrols.

On the 20th of June, von Paulsen and Leonard Melka located a rum runner but no arrest was made. Four days later marked their first success and directed surface patrol boats to an interception.

Lt. Cmdr. Carl Christian von Paulsen, his dog Brutus and co-pilot Ensign Leonard Melka in front of their borrowed Navy Vought UO-1 amphibian at Gloucester, Mass. (Photo: courtesy of the von Paulsen family.)



June 25, 1935 – United States Coast Guard Lieutenant Richard L. Burke sets a world seaplane speed record carrying a 500-kg load over a 100 km course at an average speed of 174.05 mph flying a Grumman JF-2 Duck. Two days later Richard L. Burke sets a world seaplane altitude record of 17,877 ft in the same airplane.



The Duck! Not your conventional image of a speed demon.

Burke was the doyen of air-sea rescue pilots. From the time he earned his wings until retirement after World War II, Burke participated in, directed, and established procedures for using aircraft to save lives at sea. He made the first open-sea rescue ever in 1933 flying a Douglas RD Dolphin which earned him the first of his two Distinguished Flying Crosses.

USCG Douglas RD Dolphin (Credit: USN)



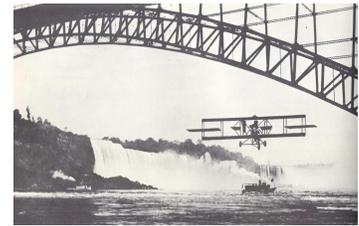
During World War II, Burke commanded the Elizabeth City, North Carolina Air Station. The waters off Hatteras were the happy hunting ground for the U-boats and the Elizabeth City aviators were credited with many saves of torpedoed merchant mariners. Later, Burke was appointed Air-Sea Rescue Officer for the Eastern Sea Frontier with the responsibility for coordinating search and rescue operations for all of the armed services.



He closed out his career as a Captain, Chief of the Aviation Section of the Coast Guard. The citation

for his second Distinguished Flying Cross sums up his career. *“His cool courage and unswerving devotion to duty at all times as pilot in charge of aircraft constituted an inspiring example to the forces under his command.”*

June 26, 1911 - Lincoln Beachey flies his Curtiss pusher biplane over Niagara's Horseshoe Falls and then caps the performance by flying under the Niagara Falls Bridge.



June 27, 1909– The first newspaper advertisements offering aircraft to the general public are published.

Wyckoff, Church & Partridge
ANNOUNCE

The First actual building and selling of Aeroplanes which are practical in flight, and which can be delivered to the purchaser within FORTY DAYS from date of order.

THE HERRING-CURTISS AEROPLANE IN FLIGHT.

¶ We have arranged with the manufacturers for the construction and sale of the
HERRING-CURTISS AEROPLANE,
a machine for air navigation, pronounced by competent authorities to be the most compact, practicable and efficient Aeroplane for the use of the amateur.

OUR FIRST SALE

Within 24 hours from the making of our arrangements with the builders, the FIRST SALE was made to Mr. A. P. Warner, Vice President of the Warner Instrument Co.

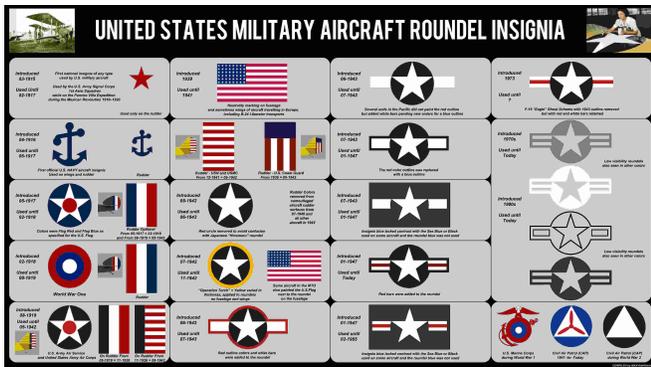
¶ The HERRING-CURTISS Aeroplanes are the outcome of the combined thought and skill of the two most prominent and successful scientists in the aviation field, Mr. A. M. Herring and Mr. Glenn S. Curtiss. Mr. Herring's work dates back to the very beginning of experiments with heavier-than-air machines. His use of the Hot Air engine has been the work of all other men who have contributed to the science of aeronautics. Mr. Herring also enjoys the distinction of being the first human being to navigate the air in a self-propelled heavier-than-air machine.

We have established an aviation department, and solicit a hearing from those interested in the purchase of an aeroplane.

We are prepared to arrange for convincing demonstrations of the utility of the HERRING-CURTISS MACHINE, and to quote prices for early delivery.

**Aviation Department,
Wyckoff, Church & Partridge,
1,743 Broadway, at 56th Street.**

June 28, 1943– The US. military replaces its aircraft markings for the second time in two years. The new insignia consists of a white star centered in a blue circle flanked by white rectangles, with the entire insignia outlined in red. In 1942, they eliminated the red circle in the star to avoid confusion with Japan's Hinomaru (Circle of the Sun).



The Chinese government awarded the resisters and the flight crew with substantial sums of money and gifts.

June 30, 1977 – US president Jimmy Carter cancelled the B-1 Lancer program after four B-1A prototypes had been built. He stated that its "would wasteful of taxpayer dollars." and will replace the Bone with ICBMs, SLBMS, and modernized B-52s able to carry air launched cruise missiles. Within a year, he authorized work to proceed on what will become the B-2 Raider.

But the red outline finds disfavor and will only last until 1943 when it will be eliminated. Some units did not paint the red outline but used white bars.

June 29, 2012 – Six apparently crippled ethnic Uyghur men, on crutches, board Tianin Airlines Flight 7554, an Embraer ERJ-190, in Hotan, China. Shortly after take-off they dismantle the crutches and produce bars as weapons and claiming they have explosives, attempt to force their way into the cockpit. The passengers and cabin crew will have none of this.



B-1B in foreground and B-1A in background.



Delays in the B-2 program lead to revival of the B-1. Important changes are made. The aircraft is optimized for low altitude flight, the bomb bays have been modified to carry a wide range of ordnance and a full suite of electronic counter measures have been installed. Within 10 years, the Strategic Air Command receives 100 B-1Bs and they become a workhorse of the bomber fleet. Equipped with precision munitions they are often used on tactical missions to support troops in contact or destroy high profile targets.

Fu Huacheng, a passenger and the Lop County minister of education called out his fellow passengers: "Come on! Let's stand up and fight them." They manage to block the cockpit doors with a food cart and pummel the hijackers. Two hijackers are killed and 11 flight crew and passengers are injured. The aircraft returns to Hotan. Three of the hijackers are sentenced to death and one receives a very long prison term.



The USAF Heavy Bomber Triad