WFC member Ed Ciolkowski fuels his Archer II at KSDC in preparation for a flight to the Alton Bay Ice Runway (B18) on February 21, 2021 (Chris Houston)

Important Dates:

General Meeting
December 9, 2021
WFC Clubhouse

Board Meeting
January 6, 2022
WFC Clubhouse

General Meeting
January 13, 2022
WFC Clubhouse

Inside This Issue:

Williamson Flying Club Newsletter December 2021

From the President's Deck by Randy Christian

Let me start this month's entry by wishing all members and families a happy and safe holiday season! I do hope everyone was able to enjoy Thanksgiving this year as well.

By the time you read this entry, we will have completed our 2021 Christmas party held on December 4th. We gathered 53 members and their guests at Buntsy's Neighborhood Food and Drink in Webster for a great night of overdue camaraderie, good food, and lots of laughs. Considering that we decided to cancel the 2020 celebration, I believe this is just one more step in a return to normalcy for the WFC.

With elections on the horizon once again, I want to take a moment and offer a little detail in regards to the process. Per our by-laws I need to appoint a Nomination Committee. The task given to this committee will be to vet out candidates and offer up a slate to the membership by the January general meeting. I am also going to ask the Nomination Committee to work with Mike Bjerga on election night to do the tabulation and confirmation of all votes.

The offices up for election this year are: President, Vice President, Secretary, Treasurer and one Director seat. All offices are a one year term with the exception of Director, which is a three year term.

(Continued on page 2)

Williamson Flying Club

Williamson-Sodus Airport (KSDC)
5502 State Route 104
Williamson, NY 14589

Find us on the web at:
www.williamsonflyingclub.com

Board of Directors

President:	Randy Christian	Director, 2019:	Paula Sippel
Vice President:	Brad Roehrig	Director, 2020:	Lesly Jean-Louis
Treasurer:	Bob Herloski	Director, 2021:	Dick Swingly
Secretary:	Steve Murray		

Contact: bod@williamsonflyingclub.com

Medical Advisor: Dr. Pam Tarkington

Aviation Quote

"Before take-off, a professional pilot is keen, anxious, but lest someone read his true feelings he is elaborately casual. The reason for this is that he is about to enter a new though familiar world. The process of entrance begins a short time before he leaves the ground and is completed the instant he is in the air. From that moment on, not only his body but his spirit and personality exist in a separate world known only to himself and his comrades.

As the years go by, he returns to this invisible world rather than to earth for peace and solace. There also he finds a profound enchantment, although he can seldom describe it. He can discuss it with others of his kind, and because they too know and feel its power they understand. But his attempts to communicate his feelings to his wife or other earthly confidants invariably end in failure. Flying is hypnotic and all pilots are willing victims to the spell."

— Ernest K Gann
Island in the Sky

From the President's Desk by Randy Christian

(Continued from page 1)

Lastly, I plan to communicate who will be on the Nomination Committee by the December general meeting. If you are interested in a board position and meet the criteria to hold office, you will want to reach out to the Nomination Committee member(s) to start the process.

As 2021 winds down, it is amazing to me how quickly yet another year has gone by. I hope that one and all found ways to enjoy yourselves and thrive in these trying times. We continue to do our very best to help the Club and our airport grow and succeed as a new year appears on the horizon.

Blue Skies,
Randy

Winter Flying Operational Tips by Mike Bjerga

Winter flying is upon us!

- Oil cooler cover plates are installed on club aircraft. They should be removed if the temperature is going to be above 50°F.
- Engine pre-heaters are plugged-in. Keep them plugged-in until you are ready to fly.
- Yak-Tracks or something similar work great when pulling/pushing the airplane!

Below are additional winter flying tips:

- Flight plan along well traveled roads / airports.
- Watch for cars with fresh snow, an indication of snow ahead.
- Turn around if visibility becomes reduced.
- File a flight plan. Update enroute if required to divert.
- Have an ELT.
- Ask other pilots.
- Plan an "out".
- Update your "out" as necessary.
- Enroute weather from AWOS/ASOS, Flight Service, uplinked weather (e.g., XM or ADS-B), ATC and PIREP's
- Check departure / destination airport conditions before you come out to the airport.
    - Check AWOS Online for current and historical weather.
    - Check WEBCAM Online for

(Continued on page 3)


I-90 and a Genesee County winter landscape (Chris Houston)


Little Sodus Bay after an early snow (Chris Houston)

Winter Flying Operational Tips by Mike Bjerga

(Continued from page 2)

surface conditions.
    - Give time for airport to be cleared of snow after a shower.
    - Call destination airport for conditions.
- Runway lighting may be obscured.
- Watch for snow removal equipment.
- Prepare a basic kit including things like blankets, high calorie snacks, fire starting gear.
- Check that you are using proper power settings! RPMs used during the summer are too much for winter air density.

Aircraft Preparation:

- Install aircraft oil cooler covers.
- Use proper grade of oil.
- Check crankcase breather for ice blockage.
- Inspect heater components Check slack on control cables.
- Keep battery fully charged.

Lake Ontario shore in winter (Chris Houston)

- Remove wheel covers.

Aircraft Operation — Preflight:

- Drain fuel sumps, checking for blockage.
- Preheat engine as well as cockpit if possible below 20°F.
- Leave preheat plugged-in until ready to start.
- If engine is cold, turn propeller through by hand a few times to loosen things up.
- Do not over prime (may scour cylinders or cause fire).
- Beware of spark plug icing. Use of carburetor heat may help prevent.
- Allow radios to warm up.
- Check to be sure (blown) snow is removed from hiding spots.
- Check fuel vents.
- Remove **all** ice and frost from aircraft surfaces, hinges, pivot points, spinner and other.
- Watch for ice/snow on hangar roof and pull aircraft well clear to prevent potential "avalanche".

Aircraft Operation — Taxiing:

- Avoid sharp turn and quick stops.
- Recheck steering/braking effectiveness along taxi.
- Slow down and leave plenty of room for coasting/slowing before anticipated turns
- Avoid snow drifts (ice beneath).
- Be aware that wind may blow aircraft sideways.
- If in doubt, **stop**. Shut down and get help.
- Watch wing tip clearance with snow banks.

Contribute to the Newsletter!

"Hey! I take some pretty great photos, too! Why aren't mine in the newsletter?"

We're always looking for an opportunity to showcase how our members enjoy aviation. Or maybe you have a great story to tell? We'd love to share it. We'll even help you write it!

Submit your photos and stories to the newsletter by emailing:

Newsletter@williamsonflyingclub.com

- Taxi down runway to leave reference marks for takeoff and check traction/braking effectiveness.
- Park aircraft on clear surface for run-up.
    1. Ensure the aircraft has some place to go if it starts moving.
    2. Keep hand on throttle and reduce power immediately if aircraft begins to move.
    3. Take time on run-up to allow for engine to properly warm up.

Aircraft Operation — Takeoff:

- Use pitot heat if temperature is within 5°C of freezing and visible moisture is present.
- Monitor oil temperature during climb out.
- Limit crosswind component. Depending upon surface conditions, directional control will be limited or non existent.
- Be aware of snow banks along

(Continued on page 4)

Winter Flying Operational Tips by Mike Bjerga

(Continued from page 3)

edges and ends of runway.

Aircraft Operation — Enroute:

- Watch for snow showers and avoid white outs.
- Follow well-traveled roads.
- Watch oncoming cars for evidence of snow ahead (snow covered cars).
- Use inflight WX info along route: AWOS/ASOS, uplinked weather (XM or ADS-B), ATC, PIREPs, Flight Service and HIWAS.

Aircraft Operation — Landing:

- Surface condition (braking action reports).
- Circle the field to check conditions.
- Watch for snow banks and visual references.
- Watch for blowing snow.
- Limit crosswind component.
- Be ready to go-around.

Post Flight:

- Fill fuel.
- Use covers.
- Leave propeller straight up/down to prevent snow build up in the spinner.
- Plug in pre heater if available.

Types of Icing:

- Carburetor
  - Impact
  - Fuel Vapor
  - Throttle
- Aircraft
  - Clear
  - Rime
  - Mixed

Aircraft Icing:

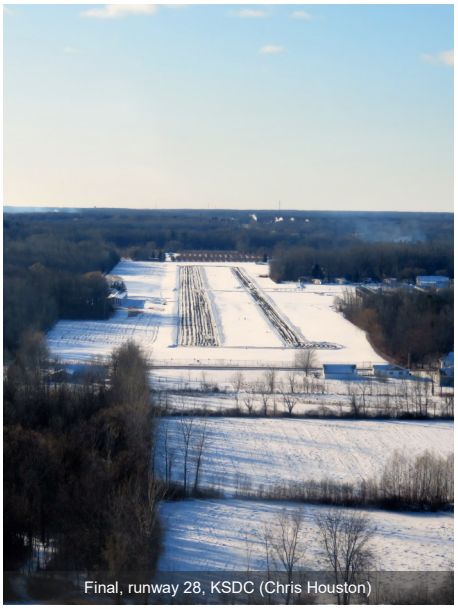
Most GA aircraft are **not certified** for flight into known icing conditions. Proper preflight weather information is essential to flight preparation. AIRMETs are issued for potential/actual moderate icing conditions. SIGMETs are issued for severe icing conditions. Light icing conditions may still be present and must be avoided.

Known Icing Conditions:

Circumstances where a reasonable pilot would expect a substantial likelihood of ice formation on the aircraft based upon **all** information available to the pilot.

The pilot should consider factors such as the route of flight, flight altitude and time of flight when making such an evaluation. Pilots should also carefully evaluate **all** of the available meteorological information relevant to a proposed flight, including applicable surface observations, temperatures aloft, terminal and area forecasts, AIRMETs, SIGMETs and PIREPs. As new technology becomes available, pilots should incorporate the use of that technology into their decision-making process. If the composite information indicates to a reasonable and prudent pilot that he or she will be operating the aircraft under conditions that will cause ice to adhere to the aircraft along the proposed route and altitude of flight, then known icing conditions likely exist. If the pilot operates the aircraft in known icing conditions contrary to the requirements of 91.9(a), 91.13(a), 91.103, the FAA may take enforce-

(Continued on page 5)



Final, runway 28, KSDC (Chris Houston)

Snowbanks at KSDC (Chris Houston)

Watch those wing tips! (Chris Houston)

Winter Flying Operational Tips by Mike Bjerga

(Continued from page 4)
ment action (Source).

Useful Tools:
1800wxbrief.com:

- Using the Interactive Map
- Select "Icing" layer
- Click "Probability" and "SLD Threat" (super-cooled large droplets, aka freezing rain)
- Select appropriate altitudes and times

Clear Ice:
Often preceding a warm front, after a cold front. Clear ice is most likely to form in freezing rain. It is possible for liquid water drops to exist in the atmosphere at temperatures well below the normal freezing point of water. These are known as super-cooled drops. This situation can occur below a warm front. Super-cooled drops are unstable and will freeze on contact with a surface that is below zero degrees — the skin of an airplane, or the propeller blades, for example. The surface of clear ice is smooth. Clear ice can alter the aerodynamic shape of airfoils quite dramatically and reduce or destroy their effectiveness. Clear ice is tenacious and, if it does break off, large chunks may damage the airframe. Freezing rain may exist at higher altitudes in the presence of ice pellets formed by rain falling from warmer air and freezing during descent through colder air. The presence of ice pellets usually indicates cold air below freezing with a layer of warmer air above. Wet snow, however, indicates sub zero temperatures at some higher altitude. The snow, which formed in the sub-zero temperatures of air above, melts to form wet snow as it passes through the warmer air at lower levels.

Rime Ice:
Rime ice occurs when tiny, super-cooled liquid water droplets freeze on contact with a surface whose temperature is below freezing, giving a rough, opaque, crystalline deposit that is fairly brittle. Rime ice often forms on leading edges and can affect the aerodynamic qualities of an airfoil or the airflow into the engine intake. Due to entrapped air and slow accumulation rate, rime usually does not cause a significant increase in weight. The temperature range for the formation of rime ice can be between 0 and –40°C, but is most commonly encountered in the range from –10 to –20°C.

Mixed Ice:
Different moisture droplet sizes are commonly encountered in clouds. This variation produces a mixture of clear ice (from large drops) and rime (from small droplets.)

Icing Characteristics:
Icing can occur any time you are flying in visible moisture (rain, drizzle, mist, clouds) at temperatures at and below 0°C. Icing affects all four forces of flight. Frost can reduce lift by as much as 40%. Icing conditions **must** be avoided. If icing occurs, efforts should be made to **limit exposure**. Sharp surfaces accumulate ice fastest (tail surfaces, propellers). [Editor's note: on Cherokees, fuel cap handles are a common, early accretion point that can warn of ice accumulation.] Abrupt control inputs should be avoided. Land with slightly higher speed and little or no flaps. Use defroster or side windows if necessary. Turn on pitot heat

Cool Places To Fly by Chris Houston

Destination: The Alton Bay Ice Runway (B18), Alton Bay, NH

Distance: 258 nautical miles

Why It's Cool:
Located on the southernmost tip of New Hampshire's Lake Winnipesaukee, the Ice Runway at Alton Bay is unique in that it is the only FAA-approved ice runway in the continental United States. The "field" is charted as a seaplane base, though it is evidently much less active in that capacity than it

(Continued on page 6)


Landing at Alton Bay in 2018 (Ed Ciolkowski)


Chris Houston, Paula Sippel, and Ed Ciolkowski at B18

Cool Places To Fly by Chris Houston

(Continued from page 5)
once was. However, when the winter ice on Alton Bay thickens sufficiently (12" is the minimum), it becomes an active airport and a popular destination for pilots seeking a unique experience in the Northeast.

I last wrote about Alton Bay in 2018 (see Cool Places To Fly in the February 2018 issue of the WFC Flyer). Rather than rehash the information available in that article, this is intended as an update. Readers are referred to the earlier article at the above link for more information and tips.

Long time volunteer ice runway prime mover Paul LaRochelle recently announced that he is retiring. However, the volunteer crew intends to carry on with the ice runway tradition in partnership with the FAA and New Hampshire DOT. Some operational changes may occur, but there are no details available yet.

Along with Paul's retirement, the telephone information line for the ice runway has been updated. The new number is **603-271-7398**. The Alton Bay Seaplane Base and Ice Runway Facebook page has been a surprisingly excellent source for ongoing runway updates as the ice thickens, the runway opens, undergoes weather-related temporary closures, and ultimately ceases to exist by March.

In the past, Alton Bay swag was available for purchase at Facet Jewelers. That is no longer the case as the store is now closed.

A significant operational change went into effect in 2020. Due to a spate of accidents over the years for aircraft landing to the south, Alton Bay was changed to a one-way airport. Aircraft are now only allowed to land and depart to the north on runway 1. Runway 19 is no longer available for use.

The FAA frequently sponsors an annual Alton Bay safety seminar. That has not been announced for 2022 yet, but the 2021 course is still available (link).

I made my fourth visit to Alton Bay in February 2021. It was also my first arrival there as a passenger, which gave me a new perspective on the experience. Photos and a video of the arrival are available on my blog. Feel free to reach out to


Waiting to depart Alton Bay (Chris Houston)

me with any questions about the ice runway. I gave a seminar to the club on this subject a couple of years ago — let me know if there is interest in doing that again.

Club members are reminded that 150 hours and a grass checkout with a club instructor are required for any pilots wanting to fly a club plane to Alton Bay.

Tips:

- See the February 2018 article for more operational details.

Images submitted by Ed Ciolkowski

On December 1, we said goodbye to the Diamond DA 50 RG visiting our field. The aircraft is a recently certified five place, composite airframe, retractable, single engine aircraft powered by a Continental CD-3000 diesel.

Trip Report: Stealth Fighter Restoration by Chris Houston

The Opportunity

In June of 2021, I received an invitation from the Kalamazoo Air Zoo, an aerospace museum in Michigan where I volunteered from 2000 until 2006. The museum recently procured a Lockheed F-117A Nighthawk stealth fighter, one of a small number finding their way into museums. The invitation involved a personal tour of the aircraft and an opportunity to participate in the restoration in a hands-on way.

Backstory on the F-117A

The stealth fighter project, codenamed *Have Blue*, was a tremendous leap for an organization that was already lionized for innovation in building untouchable aircraft. Their U-2 spy plane was designed to fly so high (70,000 feet) that it was effectively out of reach from other aircraft and ordnance. (Until it wasn't.) Their next untouchable design was the SR-71 Blackbird spy plane (and variants); somewhat stealthy, but possessed of speed (Mach 3.2) and altitude (85,000 feet) capability that allowed it to fly anywhere in the world with impunity. But the stealth fighter was an entirely new paradigm. It would not be untouchable because of speed or altitude, but because it was incredibly difficult to detect by radar.

From the beginning, *Have Blue* presented as an oddly faceted arrowhead shape dubbed the "Hopeless Diamond" by its Lockheed designer, Denys Overholser. Designed to reflect radar energy anywhere but back toward the originating station, there is not a rounded surface or a right angle anywhere on the aircraft. Stealth technology was based on the revolutionary idea that radar cross sections are not a function of aircraft size as previously thought, but aircraft shape. Although pilots later praised its flying qualities, the design broke so many aerodynamic rules in the name of stealth that a human being could have never manually controlled it. Instead, pilot input was reinterpreted by a computer that drove impulses to each aerodynamic surface to ensure controllable flight. This system was not perfected in the original pair of *Have Blue* test beds and pilots nicknamed them "Wobblin' Goblins".

During evaluation, the radar cross section of the *Have Blue* demonstrator was so small that the radar signature of the pole carrying the model was actually significant. Rumors that Lockheed was somehow gaming the radar cross section results led to an MIT radar expert being dispatched to the test site where he proceeded to attach ball bearings of varying diameters to the nose of the aircraft. A ball bearing of 1/8 inch diameter could still be differentiated against the radar background of the aircraft!

This effort eventually led to the F-117A Nighthawk stealth fighter, a program so secret that security measures rivaled those of the Manhattan Project. Though operational since 1983, stealth fighters are most commonly associated

(Continued on page 8)

Public domain Air Force photo of an F-117 in flight

Trip Report: Stealth Fighter Restoration by Chris Houston

(Continued from page 7)

with 1991's Gulf War where the aircraft flew 1300 sorties over Iraq. Although the aircraft was called a "fighter", it was really a ground attack aircraft equipped with two laser-guided bombs intended for precision strikes. Two bomb bays occupy the belly of the aircraft. Maintaining stealthiness requires bombs and other weapons to be contained within the fuselage. Opening the bomb bay doors increases the airplane's radar cross section -- and thus detectability -- abruptly. In an eight second operation, a bomb bay door would open, hydraulics would lower the bomb into the slipstream below the Nighthawk, the bomb would be released, the hydraulic gantry retracted, and the bomb bay door would close. All in a brief eight seconds, but they were eight seconds of vulnerability.

The bomb bay doors are signed by all pilots and crew who ever flew *Shaba*. The grill covers an engine intake.

In total, sixty four Nighthawks were built and the fleet was officially retired in 2008. More recently, some F-117s have found their way into museums. The Air Zoo in Kalamazoo, MI became a rare non-government affiliated museum to acquire one in December of 2020. The Air Zoo's Nighthawk is named *Shaba*, a Saudi nickname for the aircraft that translates to "ghost" in Arabic.

Travel

Reaching Kalamazoo (KAZO) required a four hour non-stop flight in my Warrior on an instrument flight plan against a 20ish knot headwind and through weather over Canada. I arrived just in time to squeeze in an excellent lunch with one of my best friends before my appointment with *Shaba*.

Restoration Work

At the Air Zoo, I was introduced to Dick Klass, the head of *Shaba's* restoration effort. Dick is ex-Air Force, a former F-104 Starfighter

Restoration of the left wing leading edge was complete.

The unusual slotted exhaust of the F-117.

Passing around the weather over Ontario, Canada

crew chief. He proceeded to explain his strategy for restoration of the stealth fighter.

Shaba's demilitarization included sandblasting the proprietary paint from the fuselage (the Air Zoo repainted it black for display purposes), removing the radar-absorbing leading edges (fiberglass panels filled with a metal particle impregnated foam that scattered radar energy), and removing the unusual exhaust. The Air Zoo's goal is to restore the airplane to resemble its original operational appearance for display purposes.

They chose to replace missing panels with aluminum sheet metal, but were presented with some challenges due to the faceted construction of the aircraft. Trying to precisely bend the aluminum to the correct angles with a sheet metal brake would have likely been a frustrating exercise in trial and error. The sharp leading edges of the wings posed another difficulty. Aluminum sheet metal becomes brittle when bent past 90°. How to fashion the leading edges?

Piano hinges became the solution to both problems. With each skin piece placed properly, hinges would simply accommodate the necessary angles. Once complet-

(Continued on page 9)

Trip Report: Stealth Fighter Restoration by Chris Houston

(Continued from page 8)

ed, the seams of the hinges would be filled with Bondo, sanded, and painted black. The new skins would look original and the presence of the hinges themselves would be undetectable. (Bondo is evidently the secret to stealthy hinges.)

F-117s were basically hand-made in small batches of five. Spacing of screws and bolts, which would normally be uniform on mass-produced aircraft (and even on most home-built aircraft) was erratic. Each airplane was unique. A former F-117 crew chief who visited Kalamazoo complimented Dick and his team on their craftsmanship, but chuckled as he noted that the new leading edges were just too straight. "Nothing on this airplane was ever that straight," he reputedly said.

The exhaust of the F-117 presented an unusual challenge in that it had been removed entirely and photographs of it are quite rare. Conventional aircraft produce bright exhaust plumes that are both visible at night and create hotspots readily detected in the infrared part of the spectrum.

Instead, the exhaust on the F-117 was diffused through relatively narrow slits in the rear of the aircraft. Ceramic baffles would have acted to cool and diffuse the exhaust. The horizontal slot running beneath the baffled exhaust allowed engine bypass air to cool heat reflecting tiles around the outlet. The Air Zoo fabricated replacement baffles from plastic.

I was tasked with working on the right wing leading edges. The sheet metal was already placed, but more holes had to be drilled through the new sheet metal into the underlying structure of the Nighthawk. Because of the unevenly spaced fasters already in the stealth fighter's skin, someone had marked their positions on a piece of tape before putting the new skins in place. My job was to drill through the skin and into the stealth fighter structure while avoiding the marked obstacles. I drilled several holes and applied temporary cleco fasteners.

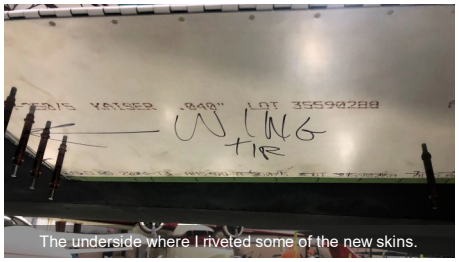
On the underside of the right wing, I removed a number of clecos, countersunk the metal skin, and riveted the skins in place. While solid rivets were used to attach the hinges, attaching the skins to the stealth fighter required blind rivets (pop rivets) because there was no way to use a bucking bar. Someday, my rivets will be covered over with Bondo and completely invisible. But I was pleased to have played a very small part in the restoration effort and, as intended, I gained an appreciation for the work done by Air Zoo volunteers.

Aside from the hands-on work, the personalized tour of *Shaba* that I received was second to none and completely worth the flight from New York. Thanks to Dick and several of his volunteers who shared their knowledge of the aircraft with me and allowed me to watch and assist what they were doing. Their passion for this project comes as no surprise. I expect nothing less from the Air Zoo.

More details and photographs can be found on my blog for those interested.

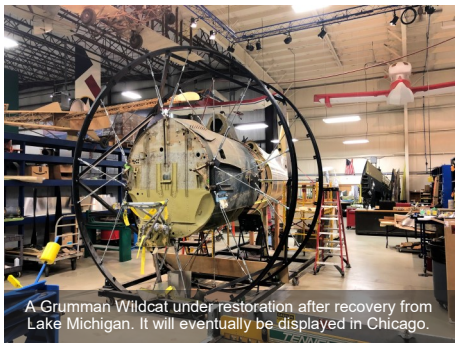
For anyone interested in learning more, the story of the F-117's development is well-told in *Skunk Works* by Ben Rich and Leo Janos (1994).

The right wing and some of the clecos I set into place.



The underside where I riveted some of the new skins.

A Douglass SBD Dauntless under restoration. It just arrived in Hawaii for display at the Pearl Harbor Museum on Dec 3!



A Grumman Wildcat under restoration after recovery from Lake Michigan. It will eventually be displayed in Chicago.