



Making Dreams Become A Reality!

February 2nd 2021 started our seven (7th) winter season with Flight Expo's Build A Plane program. It is hard to believe that we have grown from 6 potential students to a consistent 15 per session student base. When we (the Flight Expo Board) made the decision that they wanted to form a Build A Plane program at that time we had no aircraft, no building, no tools and no idea what the program would look like.

God really must have wanted us to start right then, because three months before our start date we received a call from a Doctor located in the Eden Prairie, MN area that wanted to come and see what we were all about and possible donate his aircraft. After several communications, a site visit to Kruse Aviation (Duane's shop) he made the decision to donate his Kitfox to our group. Then two weeks later I received a call from the (former) National Build A Plane group that they had a Mini 500 helicopter on the west coast for us if we were interested.

A month out we were still looking for a site and Duane mentioned that we could use the concrete building on our property that currently was another location for Kruse Aviation, Inc.—he stated he would remove his personal items. So we cleaned up the building, painted the yellow markings on the floor, did the local parade and other functions to promote the new program and placed an ad in the Community flyer.

The first year was tough—with the heat going in and out on us, not having hardly any type of tools for the kids (many hand tools that Duane donated to us) but no Shear, Brake, shelving etc. Again, the program has been blessed with many fantastic Samaritans that have donated heating units, aircraft parts that we can sell to use the proceeds to pay rent, electric, gas and new parts for the aircraft we are working on, tools from Napa Auto Stores, cash donations and other things that we have been able to build upon. We also have had a fantastic volunteer group and parents group that have helped grow the program. Things as simple as taking photos, helping clean up or donating the snacks for the kids have made a huge deal.

We still have a long way to go to provide the type of learning these kids/students are thriving for.

Let me give you a typical night when the student arrives. They first sign in (we keep track of all hours for our records and theirs to be used if they want to obtain their A & P license), then they pull their bags out with their safety glasses and masks to be used and proceed to check in with Duane and John. Each student is put onto a task that will effect the aircraft we are currently building. If it is sanding after putting Eko Fill on or taping, welding or sand blasting it all pulls the aircraft together.

This

2021 Winter/
Spring session we started to go through the Aircraft and Power plant (General Section) FAA Manual with those students that are interested in learning more about the career and for those that can use it as a portion of their schooling. We currently have 5—6 students that are participating in this program. These are not watered down questions; they are receiving FAA questions from the manual such as:



**Cade Stommes & Owen Larson
(on the floor) 2021**



Cade Stommes with his Sister 2016

Which aircraft record entry best describes a repair of a dent in a tubular steel structure dented at a cluster?

- A) Removed and replaced the damaged member
- B) Welded a reinforcing plate over the dented area
- C) Filled the damaged area with a molten metal and dressed to the original contour.

So which one would you select? If you selected (B) you were correct.

The purpose of doing this is to prepare those students that want to become an Aircraft and Power plant mechanic to be able to take the FAA test when they reach the authorized age and start their career right out of High School with very little debt and a huge amount of hands on knowledge.

To be able to make a difference in each one of these students lives we do need additional space to be able to have three aircraft projects going all the time along with housing the three aircraft that are part of Flight Expo's Flying Program.

What type of building does this look like? We have found an 80 x 100 steel building by Worldwide Steel Buildings that can be added onto when need be. Ceiling height will vary upon what the usage of area—for example the class room area will be lower ceilings and the hanger area will be about 17' - 20' high. We will be able to house all of our programs under this one building and have room to grow.

Our plans are not fancy we will start with the basics:

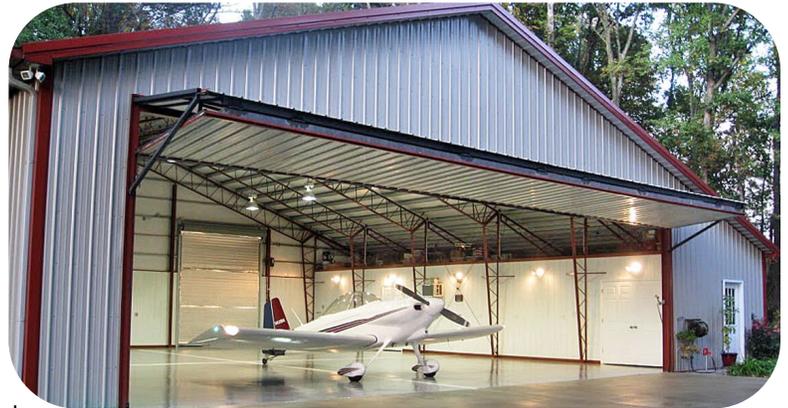
Restrooms, office and class room area, building area and space for the flying aircraft.

The building itself is not expensive—it is the electric, water, gas hook ups and plumbing, the sprinkling system we will need, the concrete (we would like floor heat—due to retaining more heat when you need to open the hanger door in the middle of the winter).

What are we talking in costs? The winter of 2020 the costs came in around \$700,000. We have in-kind donations that are over \$210,000 of this. (individuals that have stepped up to help with their areas of expertise).

Location Currently, we have located a space at the Princeton Airport, MN. Our student base is from the Sherburne County, Isanti, Wright and Mille Lacs County area. It is a central located area for the majority of the students that we serve.

Fundraising for the building Many of you have received via mail a small postcard



A collage of promotional materials for a sweepstakes. The main poster features the text "SWEEPSTAKES 'Rising Above for Education'" and "Grand Prize: 2021 Polaris General or \$15,100 Cash!". It also includes logos for GAL.S. TECHNOLOGY and Flight Expo, Inc. To the right, there is a smaller poster titled "Plus Additional Prizes!" which lists ticket prices: "10 for \$400", "5 for \$225", and "1 for \$50". It also includes contact information for GAL.S. Technology & Flight Expo, Inc. and a thank you message for supporting non-profit educational organizations.

Or maybe one of our youth stopped by your door to ask if you would help out, we also have been selling them via the internet on www.flightexpo.org or galstechnology.org web sites. Currently, we have sold 200+ tickets; but we have a "cross-country" length to go. Can you help out? Several of our ticket purchases have stated very clearly to me that if they win they plan to donate it back to Flight Expo/G.A.L.S. Technology because what do they need with a side by side or the cash! So, if the problem of you winning and not needing—you can do the same as others. Or you can win and except your prize with a huge smile on your face also.

On March 5, 2021; for those **Aviation Buffs** we will be drawing one of the 4 signed, double matted and framed Tsunami prints. The signatures on the prints are the late John R. Sandberg (Owner, builder, and pilot), the late Bruce Boland (Designer and Builder) and Steve Hinton (SR) (Pilot and Builder). This print retails for over \$400! The signatures on the print is not a stamped image. Trust

me. Back in 1987 Janet Bjornstad & Sharon Sandberg (John's daughters) forced all three gentleman to sit in our small rented motor home at the Reno Air Races and sign 500 prints. Now we should have a lot of the prints left, but if any of you knew John Sandberg; when he did not like something he got rid of it. I (Sharon Sandberg) ended up pulling what I could out of the dumpster at Metal Master of Minneapolis after everyone left for the evening. So what we have left is under 100 prints and once they are gone we will not be able to get additional authenticated signed prints from John R. Sandberg or Bruce Boland.



With your ticket purchase you are helping the future generation develop various skills, knowledge and moving road blocks that seem to be in the way for youth. You also are helping us keep in line with our mission statement of "Promoting Aviation through Education and Preservation". Thank you taking part of this ground breaking adventure.

Do you need a Cessna or Two? This last weekend a group of six (6) trailers and trucks picked up over 8 various Cessna airframes, wings and other components for Cessna aircrafts. What do we plan to do with this? A few of them we will venture to put together in the Build A Plane program, many of them will be parted out to replenish our financial coffers, so we can buy new parts that are needed for the aircraft we are working on. A huge thank you to Jared, Tammy, Charlie, Christopher, Asher, Alden, Dan, John, Wally, Duane, Cade, Brody and the group in Lake Elmo.



We had been hoping to get this done the last two weekends, but with temperatures in the -25's plus a wind chill factor; we kept pushing it to later in the month. The weather broke last Wednesday here in MN (ok above 0) and we felt confident that it would be a perfect day to pick up our treasures.



Piper Colt Update: As of February 23, 2021; the project has had the following done:

Wings: both wings have had at least three coats of Eko-Fill, and sanded in between each coat and are ready for painting process.

Surfaces: All of the surfaces have had 4 coats of Eko-Fill, and sanded in between each coat and are now ready for painting process.

Fuselage: Is completely covered, taped and ready for Eko-Fill coats and sanding.

Engine: Timed, checked for any cracks, leaks etc, painted and ready to install onto the aircraft.





Tsunami

Update: Ok, I have to admit that the hardest thing for me was to walk into the concrete building and see the tail section completely disassembled. No #18, No Wave for me to look at, No tail gear. I know it had to happen to continue rebuilding the aircraft; but it felt like part of Dad was going away. After all of these years (30) it still seems unreal. Dad should be here rebuilding the aircraft. In fact the aircraft may have been rebuilt 20+ more times all over again with a new design.

This last month John, Wally and Erin completely disassembled the tail section of the aircraft to be able to use portions of this section in the rebuild and to be able to use it for a pattern. They are now in the process of developing the correct jiggging to hold the complete fuselage together, so nothing twists while they continue building the new components.

So now that the shock is over, I am exciting to see the new progress developing with this section of the aircraft. In the photo to the left, Wally is showing the students how to drill out flush rivets, that will not create a huge hole.



Duane's Progress on Cessna 172 Project that will be going into the Flight Expo's Flying Club

Duane Kruse has been working on restoring one of Flight Expo's Cessna 172. He has been chipping away at this project off and on for the past couple of years, although he has recently made some notable progress. Duane has installed many of the instrument gauges into the aircraft and has begun installing seatbelts into its interior. He has stripped the metal of the aircraft while also making progress on the aircraft's engine. The engine itself is nearly completely rebuilt, but it still needs to be installed onto the main body.



The near-completed engine

First, however, some of the baffling needs to be prepared and riveted, a project he is having Flight Expo's Build-A-Plane students help out with. And then, after the baffling work is completed, Duane will move on to installing the engine. The following step will be to purchase and install the windshield.

Duane has put in a lot of effort into restoring this Cessna 172, and so it is exciting to see him continue to make long strides in reaching this goal!



Some of the baffling components



The Cessna's firewall



Installing step for re-fueling aircraft



Seatbelts partially installed



New gauges

An Essay on the Importance of Fossil Fuels in Today's World

by Nicholas Johnson

The aviation industry relies extensively on fossil fuels both for its fuel and for the manufacturing of its parts. In recent years, however, and more now than ever, fossil fuels have been under heavy attack. Many advocates of so-called "green energy" have called for the elimination of all fossil fuels within the next decade.



The effects on the aviation community would be devastating, as well as all of the communities, industries, and businesses which rely on flight for transportation. But is the elimination of fossil fuels really justified? Is "green energy" a good alternative to fossil fuels? I think that an honest assessment of the facts will bear out the conclusion that while fossil fuels may have some drawbacks, the elimination of them would wreak havoc on our economy, society, culture, and even on our most basic standards of living. And while a detailed analysis cannot be presented here, I would like to

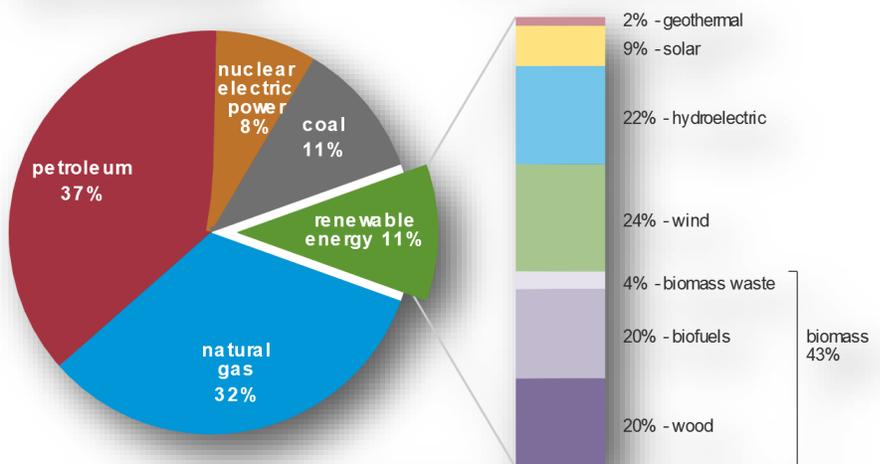
point out some interesting facts pertaining to the fossil fuel/green energy debate.

I would like to start by pointing out how much of our energy supply is derived from fossil fuels. According to BP's Statistical Review of World Energy 2020, 85% of global energy is supplied by fossil fuels. This energy has been used to bring literally hundreds of millions of people around the world out of poverty, and has built up the economies, industries, and standards of living of dozens of nations around the world. And the primary reason fossil fuels are still used today instead of renewable resources, is because they are dependable and efficient. And this is despite having spent over \$100 billion dollars in renewable energy subsidies in the United States alone. Renewable energy sources, such as solar and wind energy, produce intermittent power that is not continuously available due to the myriad of factors which hamper the ideal conditions necessary for them to operate. And they are certainly not efficient; in fact, according to a recent Forbes article entitled, "Can the World Economy Survive without Fossil Fuels?," it would require 20 wind turbines, each the size of the Washington monument, occupying 10 square miles of land, constructed using 30,000 tons of iron ore, 50,000 tons of concrete and 900 tons of nonrecyclable plastics, to produce the same energy as a single natural gas turbine the size of a typical residential house.

U.S. primary energy consumption by energy source, 2019

total = 100.2 quadrillion British thermal units (Btu)

total = 11.4 quadrillion Btu



Note: Sum of components may not equal 100% because of independent rounding.

Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1, April 2020, preliminary data



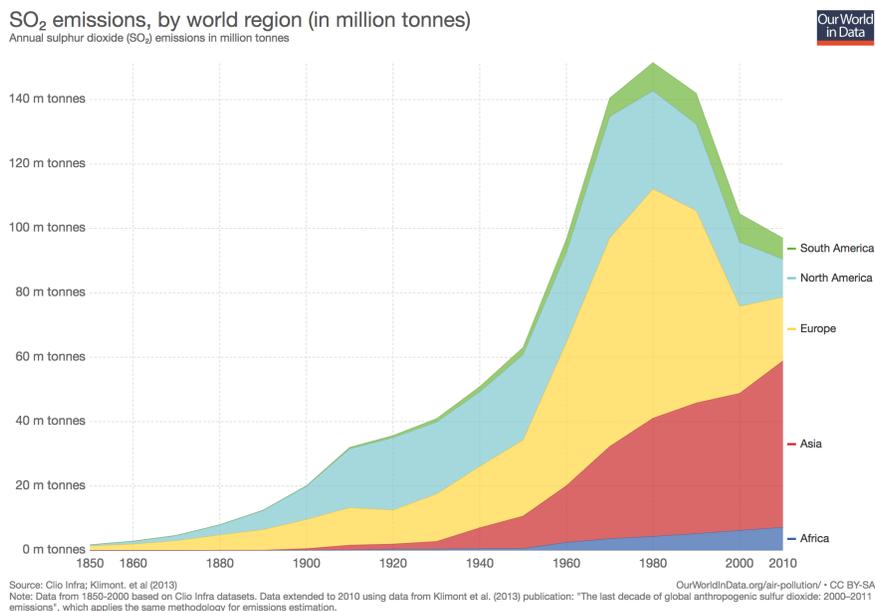
Secondly, I think it is worthwhile noting that our nation's food supply depends on reliable electricity derived from fossil fuels. This energy is needed to run equipment, heat barns, and irrigate fields. And this is not including the role fossil fuels play in the transportation and preservation the agricultural products.

In the third place, our health care system depends on equipment and laboratories which rely on fossil fuels for their construction and operation. These include dialysis machines, X-Ray machines, MRI machines, and EKG machines, among others. There is are also the aircraft and ambulances which provide direct and dependable transportation for both patients and healthcare professionals. This leads also into the roll fossil fuels play in providing us with many of our electronic devices and communication technologies, all of which depend on fossil fuels.



Next, let's take a look at plastic. Conventional plastic production is dependent upon natural gas and oil. According to the Global Environmental Facility, plastics productions currently consume 6% of oil production globally, a figure projected to increase to 20% by 2050. But besides plastics, we also have steel and cement which depend on coal. The World Coal Association states that coal is used in 71% of steel production. This same steel is used in almost all of the buildings and infrastructure we see today.

Finally, I would like to address the argument made against fossil fuels from the perspective of their environmental impact. Firstly, it is important to note that despite a strong increase in fossil fuel consumption since 1970, air pollution in the United States has decreased as a result of technological improvements. For example, U.S. power plants as a whole have reduced their emissions by more than 60% since 1970, and coal-fueled power plants in particular emit 90% fewer emissions (data is taken from the National Mining Association).



Moreover, energy produced by fossil fuels has greatly increased our clean water supply, driven our sanitation systems which have eradicated deadly diseases such as cholera, and increased human life expectancy and standards of living. Furthermore, climate-related deaths have declined by 93% due primarily to the energy supplied by fossil fuels (see the research article entitled, “Humanity Unbound: How Fossil Fuels Saved Humanity from Nature and Nature from Humanity,” by Indur M. Goklany). For instance, death resulting from extreme weather conditions, storms, natural disasters, and droughts have all significantly dropped since the development of technologies dependent upon fossil fuels. Lastly, I think it is worth pointing out that, contrary to popular opinion, fossil fuels are not the leading cause of climate change. In fact, a research paper published in 2019 concluded that, “the annual methane emissions from Animal Agriculture alone causes more incremental global warming than the annual CO2 emissions from all fossil fuel sources combined” (see “Animal Agriculture is the Leading Cause of Climate Change” by Sailesh Rao).



In conclusion, it seems a wise choice to refrain from dictating a hasty condemnation of fossil fuels. Fossil fuels are responsible for the majority of the technology contributing to our current standard of living. This technology includes the numerous aeronautical innovations that have allowed us to travel the world, explore the earth and sky, conduct regional and international business, and interact with other cultures and peoples. To put it into perspective, over 4 ½ billion flight passengers in 2019. And even with the COVID-19 restrictions, 1.8 billion passengers boarded flights in 2020 (data is taken from Statista). It is therefore of vital importance that we not abandon so readily our freedom to innovate and further advance our society by rashly deciding to abolish fossil fuels. Nevertheless, Flight Expo recognizes that innovation in the field of alternative forms of energy is necessary for the future. Thus, as a nonprofit, we encourage research and experimentation to discover efficient and affordable alternative energy sources which can propel the next generation into the future.



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**Next Bonus Drawing for a signed
Tsunami Print: March 5, 2021!**

