CANARD PUSHER

OCTOBER 1997 | RUTAN AIRCRAFT FACTORY | VOL.12, ISSUE 4, NO. 90

John Denver
1943-1997

As many of you have heard, popular folk singer John Denver died after the Long-EZ he was flying crashed into Monterey Bay, California on October 12. While John was well-known for his melodious voice and spirit-lifting songs, many people were surprised to learn that he was an avid aviator as well.

John was known as a great lover of aviation and was an accomplished pilot. His father "Dutch" Deutschendorft Sr., was an Air Force test pilot, and it is said he taught John to fly in 1976. Over the years John has been known to pilot vintage biplanes, a Cessna 210, a Learjet and a Christen Eagle aerobatic plane.

John owned his Long-EZ for only a few days before the fatal accident. However, this was not a brand new airplane on its first flight. It was an experienced airplane, certified since 1987, with over 1,000 hours. It may have changed hands as many as four times in its career. John was checked out in the Long-EZ by its former owner prior to its move to Monterey Airport.

The NTSB investigation is continuing with no word yet on the cause of the crash. Here at RAF our hearts are heavy with the sad news of John Denver's death.

A Dream of Africa
by
Hans Georg Schmid

Due to the lenght of Mr. Schmid's wonderful story, and our limited space, RAF will print it in a three-part series.

The Long-EZ with its widely visible red pods below its wings had made its maiden flight on May 12, 1988 out of Zurich airport. Over the past few years the aircraft had been modified and optimized in preparation for a planned long distance flight. The old Lycoming 0-235 was exchanged with a factory new 0-320 engine of 160 hp; a King KLN-90 GPS, which could be coupled to the wing-leveler, was installed; a large ferry tank found a temporary home on the back seat; and a LASAR electronic ignition system was fitted. Dozens of smaller modifications had been tried and were incorporated, of which all proved to be useful.

By chance I found out in July of 1996 that the famous Swiss flight pioneer Walter Mittelholzer had taken off 70 years ago from Zurich for Cape Town and that the anniversary of his flight would be on December 7, 1996.

A DREAM WAS BORN . . .

By doing some rough calculations I concluded that unlike Mittelholzer, who had disassembled his aircraft in Cape Town and shipped it back home, I would also be able to fly the return trip, as long as I used a ferry tank. A dream was born!

As Mittelholzer had been the first general manager and chief instructor of Swissair, I planned to do the flight as a memory to the opening of scheduled flight services between Switzerland and South Africa in close cooperation with Swissair. Unfortunately the former CEO of Swissair, Mr. Otto Loepfe was not totally convinced of my idea, which meant I had to look elsewhere for help, with the result that my departure date had to be postponed to March 1997.

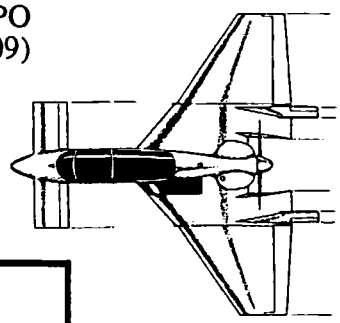
see AFRICA page 3

It's time to order your Christmas Wish List!
See page 3 for the RAF CD-ROM and page 4 for Plane checks

BRIEFS

Congratulations are in order for newlyweds Jim & Allinson Weir of RST Engineering. The happy couple were signed off by Rev. Bill Barnhart on Compass Hill at Oshkosh '97, Saturday, August 2. Friends and family stood by to celebrate this first flight, including official witness Dick Rutan.

Aircraft Spruce West has new address— make a note of it. Irwin International, Inc., DBA Aircraft Spruce & Specialty Co. is relocating! Any shipments scheduled to arrive on or after September 15, please ship to their new offices at: 225 Airport Circle, Corona, CA 91720. Mailing address: PO Box 4000, Corona, CA 91718-9961. Phone (909) 372-9555. Fax (909) 372-0555.



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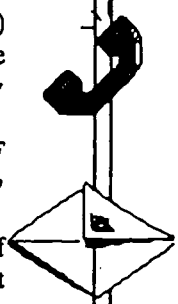
RAF HOURS: Rutan Aircraft is officially open every Wednesday. Please call between 10 am - 2 pm (805) 824-2645 and give your name, serial number and nature of the problem. If you are not in an emergency situation, we ask that you write to Mike.
Note — Sometimes you can catch Tonya at RAF Monday thru Friday. She is in and out. Try and try again.
When writing to RAF, send along a stamped, self addressed envelope, if you have builder's questions that need to be answered. Please put your name and address on the back of any photos you send.



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If you are building a RAF design, you must have the following newsletters:
VariViggen (1st Ed)
CP 1 to current
VariViggen (2nd Ed)
CP 18 to current
VariEze (1st Ed)
CP 10 to current
VariEze (2nd Ed)
CP 16 to current
Long-EZ
CP 24 to current
Solitaire
CP 37 to current
Defiant
CP 41 to current

A current subscription of the Canard Pusher is mandatory for builders, as it is the only formal means to distribute mandatory changes.

Africa

A first attempt to depart from Switzerland on the anniversary date didn't work out for a number of reasons, so a new departure date was found, vacation requested, and additional passport acquired, and a Jeppesen Africa Trip Kit purchased. My plans were helped by the fact that I had already done some preparatory work and so I was already in possession of all the addresses of embassies to obtain visas as well as the knowledge of where and how to get the necessary landing and overflight permissions.

At this stage the aircraft underwent its 100-hour check, the ferry tank was fitted, my emergency gear organized and last-minute faxes sent out to secure the outstanding overflight permissions. I was able to finalize all my preparations during the final week before departure although it did require one last big effort with plenty of working late into the night.

I finally decided on a departure date of March 18, 1997 with three different scenarios having been prepared to ensure I would be able to circumnavigate any possible meteorological and/or political problems which I was certain would show up.

AND THEN THE PHONE RANG

Less than a week before my departure I had a telephone call from a person whose voice I some how recognized and was asked: "Are you the pilot?" Rather stunned I answered "Yes," but I couldn't quite comprehend the question. The mystery was soon solved when I found out the caller was one of the three anchormen from the main Swiss evening news, who asked if he could do a short sequence on TV about my intended flight.

What started off as a minute's air-time in an early evening broadcast became a . . . question whether it would be possible for TV anchorman Mr. Kapproth to fly aboard my plane for the first leg.

Fortunately I am quite a flexible person. During discussions with the TV people the first leg got longer and longer until it was finally agreed that I would be accompanied down as far as Luxor, Egypt. A little bit later they came to me and asked if I would also be prepared to give Swiss TV a ride from Nairobi to Cape own — of course I agreed.

The fact that I was now going to have a passenger on-board meant that the flight had to be replanned and new overflight permissions obtained. The ferry tank was removed and sent to Luxor; Swissair finally agreed to cooperate and numerous other tasks were completed in those final hectic days before departure.

The Flight of Walter Mittelholzer to Africa

On December 7, 1926 at 10:13 AM a Dornier Merkur with Walter Mittelholzer at the controls took off from Lake Zurich for an expedition across Africa to Cape Town which at the time was most extraordinary and attracted a lot of interest.

The flight had to be postponed several times due to bad weather before its December departure. It took all of 77 days and 96 flight hours to reach Cape Town via Athens, Alexandria, Cairo, following the Nile Valley to Luxor, then Aswan and Khartoum. From there, still along the Nile, Mittelholzer flew to Lake Victoria, then via Tanzania to Beira in Mozambique and from there along the coast of the Indian Ocean to its final destination Cape Town, where the *Switzerland* landed safe and well in February 21, 1927.

The expedition was very well received en route and got all, when not more than needed, support from the Swiss representatives: the colonial powers as well as the local population. The interest of the press was accordingly. Walter Mittelholzer published by end of 1927 his well known book "Afikaflug" which he wrote in cooperation with his travel companions Rene Gouzy and Arnold Heim.

This flight was in its time an exceptional endeavor which gained a lot of interest. Mittelholzer proved the utility and reliability of the modern aircraft against all other means of transport and so led the foundation for the later expansion of air routes all over Africa.

Walter Mittelholzer was as from 1924 general manager of Ad-Astra-Aero and after its fusion with Balair to the new company Swissair its first general manager and chief pilot. He was a flying pioneer and also an air photographer with a worldwide reputation.

Somehow I finally was able to separate the most essential tasks from the essential, to load the aircraft and to fly it to Zurich airport, where it was placed besides a Swissair MD-11 as the main focal-point for TV-interviews about my impending flight.

Saint Peter who invented fog and wind

Shortly before 7 am on March 18 I arrived at the General Aviation Center at Zurich airport. Soon after TV anchorman Stephan Klapproth arrived with his crew, followed by numerous journalists, so I divided my time between making final preparations to my aircraft and answering various questions about my flight.

The weather was almost perfect at this stage — a clear day with the sun shining. However, the official forecast was foggy and it wasn't until just after 9 am that the required visibility conditions close to the ground of five kilometers were met. "Special VFR" had been requested but not approved. As we wanted to fly to Heraklion/Crete on the same day, it was soon apparent that we already had a problem with daylight to the east fading fast.

Although the weather over the Swiss Alps was somewhat hazy, it was nevertheless a marvelous flight over the mountains, on down to the Po river, over north-eastern Italy and then following the Adriatic coast with its deep blue waters to Bari.

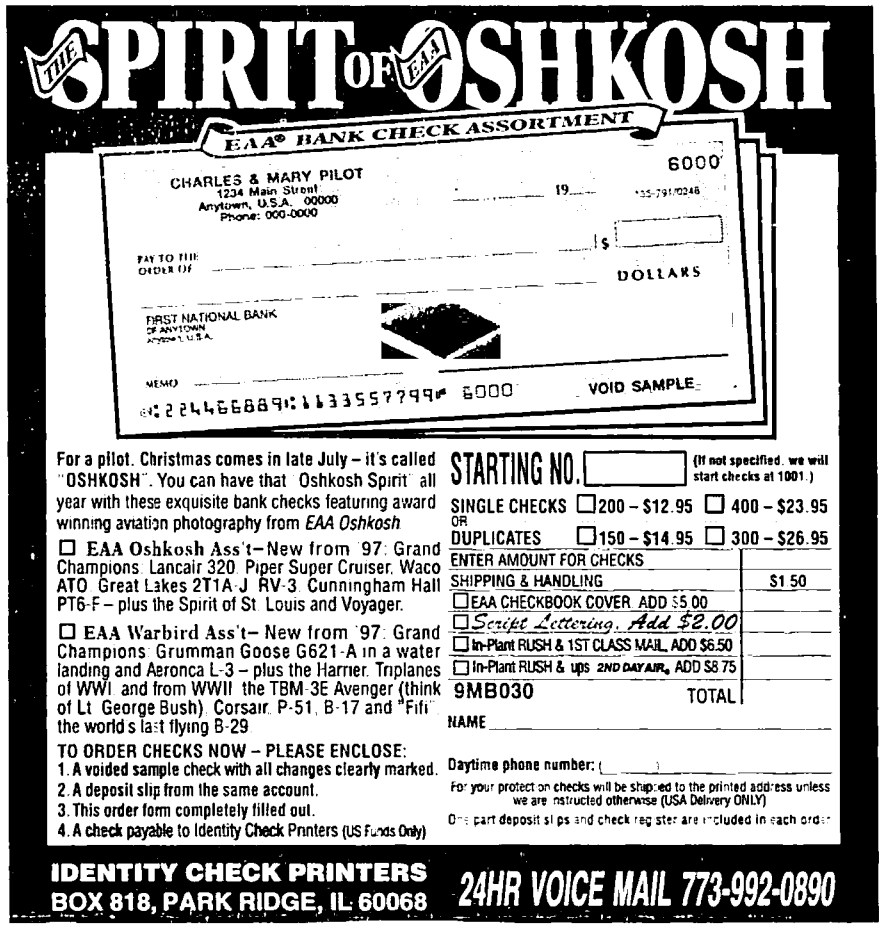
On arrival my passenger, having completed his first four hours of the flight, was still happy and so I went ahead and quickly filed my flight plan to Heraklion. Soon the only thing remaining to do was to refuel which I thought wouldn't take long — but I'd forgotten, this was Southern Italy. It was more

see Africa page 4

EAA Young Eagles Program Benefits from Check Manufacturer

EAA AVIATION CENTER, OSHKOSH, WI — The Experimental Aircraft Association's Young Eagles Program, which introduces young people to the world of flight, will again receive support from aviation enthusiasts who purchase bank checks from Identity Check Printer of Park Ridge, IL. For the Fourth straight year, the check manufacturer is contributing part of every check purchase to Young Eagles.

The checks offered are of special interest to aviation enthusiasts. Both sets contain award winning aircraft photos by EAA's photo staff. The "OSHKOSH ASSORTMENT" features home builts, antiques and classics. The new '97 assortment contains the Lancair 320, Piper Super Cruiser, Great Lakes, Waco ATO, RV-3, PT 6-F, Spirit of St. Louis and the Voyager. The "WARBIRD ASSORTMENT" for '97 features the Grumman Goose and the L-19, plus two Triplanes from World War I, two Bombers and three Fighters from World War II and the Harrier Jump Jet from the current inventory.



For each order received through March 31, 1998, Identity Check Printers will contribute three dollars to the Young Eagles Program. Those funds help maintain the program, which has provided 300,000 young people with a free demonstration flight since July 1992.

Africa

than an hour and a half before someone showed up with fuel so it was rather a late departure on course for Crete.

Under an azure sky we passed over Brindisi and then Kerkira (Korfu), where I asked for the latest weather at our destination Heraklion. Not exactly as per the forecast, Heraklion had in the meantime been closed to us, due to overcast conditions and poor light, which prompted me to divert to Athens. Shortly before nightfall we landed on runway 33R with a rather unpleasant crosswind of some 20 kts. Stephan's first adventure in the Long-EZ was behind him. The compulsory handling by Olympic Airways at Athens was invaluable, and was carried out in an efficient and friendly manner, although it was rather expensive.

The next morning we departed and flew over the calm, dark blue Aegean Sea towards the south. In Greece there is only "controlled VFR" which has the advantage that you are always visible on radar over the long overwater stretches but on the other hand, it means that it is almost impossible to make any diversions for sightseeing. After some three hours, the brown coast of Northern Africa appeared, out of the haze, on the horizon. We crossed the Egyptian coast west of Alexandria over the region of El Alamein. We requested a clearance to proceed via Cairo and the Nile river, which was denied and so we had to fly for another tow and a half hours over the fascinating Sahara desert, via New Valley, to Luxor.

It was during this flight sector that the new electronic LASAR ignition system, which I was subjecting to a long-range test on behalf of UNISON Industries in cooperation with ZIMEX Aviation of Zurich, really proved its worth. During the flight of six hours and 30 minutes the 0-320 burned a bare 6.5 USG (24.67 l) per hour at a true air speed of average 140 kt (260 km/h).

Mr. Schmid's story will be continued in the next C.P.

The Demise of Defiant N20SR

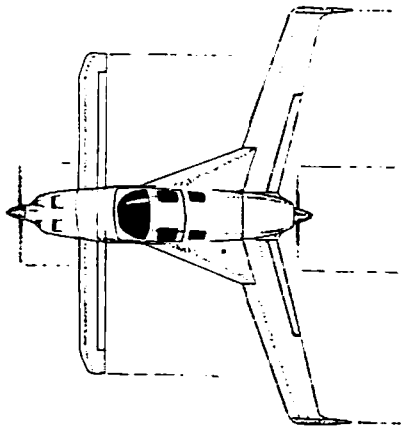
by Daniel Taylor-Ide
Franklin, W.V.

Having flown my wonderful Defiant in for a crash (forced landing?) the following shares both what happened and thoughts on why it happened. First, though, I congratulate Burt once again for a phenomenal design. I remember sitting in the audience at Oshkosh (1978?) and his telling us "I am designing an airplane where safety is the number -one parameter." I worked so many years building, then a year-and-a-half flying, and finally crashing it. I came to know in new ways how good a job he did.

The Story: Let me start with the ending, then go back to where problems started. On Saturday after leaving Oshkosh, taking off in Michigan, 500 feet above the runway the Defiant's canopy flew up. It rolled right, then left, then stabilized. In the plane were my 13-year-old daughter, 13-year-old niece, and myself. With my niece, I pulled the canopy back down for a short period. We had lost altitude — I had to keep flying the plane — so I turned to that. She could not hold it; the canopy flew back open.

With drag again greater than lift (both engines at full throttle) and struggling to keep level, I saw an old clearing ahead in the midst of white pines and turned to that. The landing site was amidst saplings about 2 inches in diameter. I flew the plane into those brambles — it stopped after about 50 feet.

I had loosened my shoulder harness to pull on the canopy. When the plane came in I went face into the firewall, knocking myself unconscious, but held by my seatbelt. Fire broke out at the fuel selector at my feet and started to burn around my legs. The two girls were unhurt. They took off their harnesses, stood up, screaming, then saw me. With quick thinking, once got out, the other stayed in the plane, and they pulled me out.



I have no memory now of events surrounding the crash, but they say I told them to walk us from the site. The plane rose into an ever taller column of flame and smoke. (Total injuries to them were a small foot cut and a sprained wrist; to me a broken collarbone, broken nose, and burns on feet and arms. Yes, we're very grateful).

How Did it Happen? On Saturday afternoon at Oshkosh many planes were queued up trying to take off before the air show. I was back on row 112 beyond the ultralights very much in the grass. Usually I taxi when on grass using the rear engine, but given the delays with other aircraft, I opted to use the front engine hat has better cooling. (I should have taxied on the rear engine, probably it would not have heated up until I got onto hard surfaces; then switched to the front engine). In any case we departed Oshkosh thinking all to be normal.

Landing at Alma Michigan for refueling, the preflight inspection revealed nicks on the leading tips of each end of the front prop. A friendly Bonanza owner lent me a hacksaw and sandpaper and I trimmed half an inch off of each end. (My memory is gone from this point on due to the concussion; what follows is what the girls tell me and reports from the ground). First I did a high-speed run-up on the ground, then inspected the prop. Then, with the girls on the ground, I did a test flight in which I meticulously checked everything. Everything was in order — in particular there was no uncommon vibration and no separation in woodgrain of the prop.

The girls got back in. The plane was well-loaded with baggage and almost topped up with fuel. The girls (who liked to read the check list out to me) tell me I said. "All's OK, I just did a test flight." (Mistake number two). In a departure from my normal procedure, I led with the front engine rather than the rear engine — I assume to attend to possible vibration problems. Had the canopy been unlocked, this leading with the front engine would have opened it. The plane took off normally; there was time for the girls to pass a snack to each other. At what ground observers tell me was at about 500 feet AGL the plane suddenly banked to the right, then over to the left, and the nose dropped, but did not go below horizontal. Then in a descent mode it turned slowly left and the observers watched it disappear into the forest.

The girls report that after the canopy opened, the plane banked right, then left. When I had it level, I loosened my shoulder harness and with the help of my niece in the back seat, pulled it down, but it slipped from her grip and flew up again. In any case, I do have one memory of the incident, the mantra "fly the plane, always fly the plane" running through my head. It seems that when it flew up the second time I concentrated on that, keeping wings level this time, picking the old clearing to settle it in on. The site was providential as on either side was a big forest of white pines, not the saplings.

Clearly the plane took off with the canopy only partially latched — then unlatched at about 500 feet. Clearly also the safety latch did not engage. (The safety in the plans seemed weak as well as unattractive, so I had developed my own). My latch would fail if it had latched, so, I assume that somehow it did not latch and that the main latch was only partial). Mistake number three — I needed a safety that was not only strong but guaranteed to latch even with pilot oversight.

My Analysis: This was virtually a stock Rutan Defiant. However I suspect every builder makes some changes. Mine were mostly in adding five windows in various places that greatly improved visibility in an already open airplane, particularly for the back seat. I also changed the attachment on the front deck, but after discovering the wisdom of Rutan's design there, went back to plan specs.

See Defiant page 6

Burt, Tonya and friends beat the thunderstorms July 3 when they landed the Boomerang at Cavern City Aiport in Carlsbad, New Mexico. VariEze pilot Jerry Heine and EAA Chapter 833 kindly offered to house the Boomerang in a hangar overnight before Burt & Tonya continued on to Roswell, New Mexico the next morning.

Here Burt demonstrates the Boomerang's control panel for Jerry Heine and friends.

Jerry's first flight in his VariEze took place at Cavern City Airport in March '97.

Defiant

Two other changes related to the canopy. As an earlier Defiant had its canopy rip off when the top was opened on a windy day, I tied two parachute cord guy lines from behind the pilot's seat to each outside end of the canopy. Not only did this provide a shock cord in case of wind, it also made the canopy much easier to reach up and close. These shock cords also kept the canopy from opening to a full 90 degrees, allowing it to open to what I guess was 70 degrees. Had those shock cords not been on, probably the canopy would have ripped off by the winds. (What a fully open cockpit would do for drag Burt would have to tell us).

A point here is critical. The head rest on the co-pilot side had become loose on the flight up to Oshkosh. In this condition it had twice before gotten a part of its padding jammed in between the seat back and the cross support bar in the canopy, making it difficult to close the canopy. I suspect that this happened again, that the jammed headrest prevented the canopy from coming fully down, preventing the latch from rotating around to its positive, fully-locked position, and (somehow I do not understand) preventing the safety latch from engaging. At 500 feet the incomplete latch system joggled open.

My diagnosis is that I was so fixed on attending to my propeller that I overlooked what I love about flying which is the interdependent process. Ever since a friend got into big trouble in Alaska with a damaged prop, I've been hyper about mine. Focused on the propeller, I made four big mistakes: not fixing the headrest thinking that it was only a piece of loose foam; omitting the checklist for the final flight; omitting checking the latch; and when I changed Burt's safety latch system, not coming up with a design that was better.

A propeller is indeed a big deal. The above four mistakes are not flight critical. Any two of those mistakes I could have gotten away with and would not have lost my airplane, but I fixed on my propeller and then made all four mistakes.

Epilogue: I took an Apache up a few days ago for my first flight since the accident. It was 500 miles to Cape Cod. I had some meetings there, and then 500 miles back. We flew across mist-covered Appalachian mountains, around President Bill vacationing on Martha's Vineyard, then the lovely Connecticut coast at sunset, back down the Hudson River through New York City glittering at night 1,000 feet above the river, chatted with a host of controllers as they handed us off and vectored us through a tight 360 around the Stature of Liberty, and attended to all the systems in the plane. It was mighty good to be flying again. However, I was paying attention to the whole process, not any one of these lovely things.

But flying this in a borrowed Apache when once I could do this in my own Defiant? ●

RAF thanks Daniel for sharing what must be a painful story to tell. We're thankful that he and the young girls survived to tell it.

Engine Mount Warning

by Nat Puffer
Co-Z Dev.

Along similar line to the engine loss in a VariEze that as reported in your Canard Pusher #89, I would like to relate the experience we had, which might be of benefit to other builders.

When we decided to evaluate the Franklin engine in our Cozy Mark IV, we simply unbolted our Lycoming from the firewall (it has a conventional engine mount which bolts to the corners of the firewall, not to extrusions on the centersection spar), because the Franklin engine requires a completely different bed-type mount. While the Lycoming 0-360 was out of our airplane, we decided to have it rebuilt. So we delivered it to the licensed engine shop on our field with it still mounted on the engine mount. They did a very thorough job of rebuilding our engine, installing new Superior cylinder assemblies, regrinding the crank, remachining the cases, complying with all the ADs, replacing all of the hardware, and checking it out with a brief run-in. After a years evaluation of the Franklin, when we were ready to put the Lycoming back in, the engine shop delivered the rebuilt Lycoming to our hangar mounted on the engine mount, same (we thought) as when we delivered it to them. We reinstalled it by bolting it to the firewall and reconnecting all the controls, lines and wiring. We put 9 hours on the rebuilt engine locally, and it broke in nicely with the CHTs dropping down nicely, so we changed the oil, checked the installation one more time, and felt confident starting out on a 5-week trip, going first to Arlington, WA, then on to Minnesota, then to Oshkosh, and finally home again.

At Duluth, Minnesota, when I was doing my preflight, I reached in the lower engine cowling through the NACA scoop, felt a large object, and pulled out a Lord mount bushing, and an engine mount bolt and nut. The nut was the standard AN-7 lock nut specified for use with the Lord mount bushings used in the dynafocal mount, but it was worn out and could be spun freely on the bolt. At that point I took off both cowlings, and found that the Lord mount bushing had come from one of the lower dynafocal doughnuts, the other lower one and one of the top ones were about ready to come apart. ***There was only one tight Lord mount bushing on the top holding our engine on!*** I requested the assistance of a mechanic at the local FBO. He said he never saw anything like it. He had some new AN-7 locknuts and helped me reinstall the bushing which came apart and replace all of the other nuts.

It was interesting to us that we did not feel any increase in vibration as these nuts loosened during the then 25 hours on the engine, nor did we feel any reduction in vibration after we installed new nuts and tightened them up. Reflecting on this matter, we decided that we were very fortunate, not only to have discovered the problem and fixed it, but to have a pusher rather than a tractor engine installation. If our engine had been pulling, rather than pushing, I am sure the problem would have been much worse.

When we returned to Mesa, I visited my engine shop, and showed them the junk nuts they had used to install the engine on the engine mount. They thought it was humorous! They disclaimed any responsibility. They said that installing the engine mount on the engine before returning it to me was airframe work, for which they were not responsible. They admitted they had used junk hardware, and it was up to me to disassemble the dynafocal mount and reinstall it with new hardware. It was all my fault!

The lesson I learned was not to trust anyone, even a very reputable shop, but to check everything myself! Even though I am incriminating myself to publish this, I think the greater good is to let other know, to avoid a similar experience, with perhaps a less satisfactory outcome. •

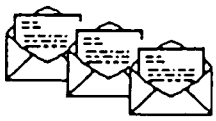
The Boomerang
Oshkosh '97

George Rutan explains Boomerang aerodynamics to a crowd at Oshkosh.

The Williams V-Jet II and Visionaire Vantage taxi together after flying in the Oshkosh air show. Both aircraft were built at Scaled Composites.

The William's V-Jet II draws a crowd.

Reader Mail



Brake fire caught early

Dear Mike,

Yesterday a local Long-EZ builder (I'll leave him anonymous, he can come out of the woodwork if he wants), who had been to Oshkosh, landed in Lexington, KY to go through customs (inbound from Canada) and take on 50 gallons of avgas. After a long taxi to the far end of a long runway and a runup before departure, he felt one of the brakes "go to the floor."

As he sat there cursing his luck he heard a "pop." Shutting down the engine, he got out to investigate. He discovered that the "pop" had been his tire exploding, the wheel was on fire, and the fire was starting to move up the gear leg.

He hurriedly called for a fire truck on the radio and started throwing his belongings out of the airplane. At the last moment, he spied the canopy cover. He yanked it out and contained the fire with it until the firemen arrived to put the fire out.

The gear leg was ruined, softened by the fire. He disassembled the Long-EZ with the help of EAA Chapter 169 members and drove it home in a rental truck.

The Long-EZ had the standard red Hydrol-type brake fluid installed, which is flammable. Some builders, including myself, are flying with DOT 5 silicone brake fluid instead. Not only is it *not* flammable, it doesn't absorb water and it doesn't affect paint. I can't speak for others, but the standard seals and O-rings in my Long-EZ brake system have not developed any leaks as a result of using the DOT 5 fluid, nor have I seen any evidence of deterioration. A couple years ago a Defiant on the ground in Albuquerque developed a brake fire, and the aircraft was destroyed. The use of DOT 5 brake fluid might have prevented bother of these fires.

Fred Mahan
Merritt Island, Florida
Long-EZ N86LE

Nose Gear fails

Mike,

I thought I'd forward the results of an incident that occurred to me in April with my VariEze. As we departed Merced, CA en route to Nut Tree, CA, the steel rod that connects the nose gear at NG#3 and NG#4 clamp failed. This allowed the nose gear to swing freely, which meant it would not be of any use during landing.

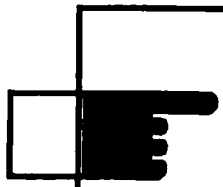
A second EZ flown by Rod McKenzie verified that the rod was hanging down with the strut. During the 45-minute trip home we discussed the procedures I should use for landing. Prior to landing I called the fixed base operator and advised them that I would be disabled on the runway. One of their employees stood by with several fire extinguishers just in case.

A normal landing was accomplished, and on short final I shut down the engine to minimize any forward thrust. I knew that the canard would stall at 60 mph, so I wanted the nose to be only a couple of feet above the runway when that happened. I found this very hard to judge. The next time any of you sit in your EZs with the nose gear retracted, look at the angle of attack and try to visualize where two feet is.

I guess all is well that ends well for there was no damage to the airframe, however the rubber skid ground completely off just before the aircraft stopped. The nose strut was scratched, but not damaged.

Most of EZs are different in many respects. The original builder of my aircraft installed a retraction system that utilizes a Chevy Corvair Steering Gear. This connects to the extension rod that goes to the NG# 3/4 clamp on the nose strut. This system has been free of all faults until now, and it's endured 18 years, 700+ hours, and who knows how many retractions and extensions. In my case it was a weld that broke, not the rod. It's been repaired, and I'll be checking it more closely from now on, not just at annual time.

Best Regards,
Jerry Martin
EZ222SK



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or Fax (805) 824-4174

Spin-On Oil Filter Adapter for Lycoming

B & C Specialty Products' latest product is the neatest idea I have seen in a long time. It is a 90-degree, spin-on oil filter adapter for Lycoming engines. It is beautifully made by CNC milling out of a solid aluminum billet and bolts onto the accessory case in place of your oil screen housing or AC spin on filter adaptor. It fits perfectly, does not interfere with the magnetos, the vacuum pump or even the mechanical tachometer drive. It also has plenty of clearance on your engine mount and firewall, important considerations when you operate an EZ!

I installed one on N26MS and now have a full flow, spin on champion oil filter, with no high pressure hoses to a remote mounted filter which could leak. It comes with everything you need to install it: a new gasket, new aluminum washer for the vernatherm, and new copper washer for the oil temperature sensor. They even send a small container of the proper sealant for the gaskets. Of course it comes with new Lycoming bolts to mount it.

It is fairly expensive at $395 but is available to EZ flyers until the end of 1996 for $350. I am extremely pleased with mine and I heartily recommend it for anyone running a Lycoming engine on an EZ. A fuel flow spin-on filter allows 50 hours between oil changes and prolongs the life of your engine.

Give B&C a **call at (316) 283-8662 or fax (316) 283-8000.** You'll be glad you did! ***Mike***

RAF Recommended Suppliers

These suppliers are still the only authorized RAF dealers for all your various aircraft materials and components.

Brock Mfg.
11852 Western Ave
Stanton, Ca 90680
(714) 898-4366

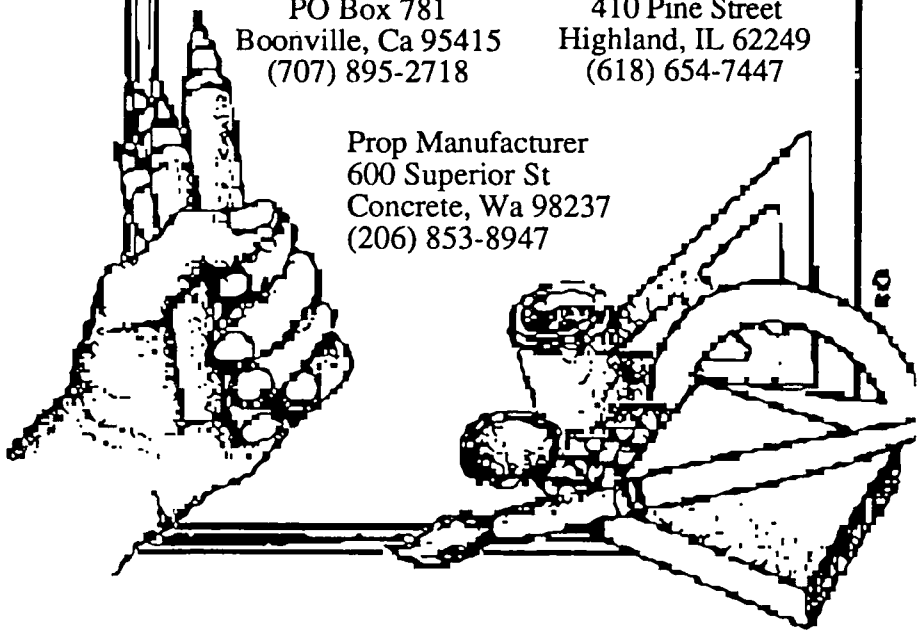
Aircraft Spruce West
PO Box 4000
Corona, Ca 91718-9961
(909) 372-9555
Fax (909) 372-0555

Aircraft Spruce East
PO Box 909
Griffin, GA 30224
(770) 228-3901
(800) 831-2949

Feather Lite
PO Box 781
Boonville, Ca 95415
(707) 895-2718

Wicks Aircraft
410 Pine Street
Highland, IL 62249
(618) 654-7447

Prop Manufacturer
600 Superior St
Concrete, Wa 98237
(206) 853-8947



MOLDED VORTEX GENERATORS

These pre-molded generators are specially engineered for aircraft application. Available in white, they can also be custom molded in quantity to match specific paint colors for aircraft manufacturers and OEM suppliers. After installation, the sail appears to be molded an integral part, rather than and "add-on". The final result not only looks better, it performs better than typical hand-made aluminum fences. Molded vortex generators adhere better, do not corrode, require no painting and are easy to install: one Long-EZ canard can be equipped with a full span of generators in less than 90 minutes.

A kit containing fifty generators is available for a price of $25.00 plus $2.00 shipping and handling per kit. Two kits are sufficient to equip the full span of a typical canard (i.e. Long-EZ, Dragon-Fly, et al) or both ailerons on either canard or conventional planforms. Documentation is included. Please send check or money order to:

CCI, PO Box 415, Quakertown, NJ 08868-0415
Please allow 2-3 weeks for delivery, Sorry, no COD's.

Note: These vortex generators are not TSO'd for use on type-certificated aircraft.

Canopy Stolen

My entire canopy was stolen off my airplane in August while tied down in a shade hangar at North Las Vegas airport, South C-6 area. It had an outside air temp gauge in the forward right hand side with the probe portion sticking outside on a 45-degree angle. The arrow stock in the rear used for head cushion support was broken and it had two blade-type electrical contacts which were wired to two control panel lights on either side of the canopy. All the hardware for battening it down were on the left as usual, and the safety locking mechanism was on the left also.

It had some sticky tape residue on the inside that I hadn't yet removed, and the inside color was a rough gray paint. The outside was of course white in color. There is also a NACA inlet (small) with a screw-down control mechanism in the center of the front structure.

In addition to the canopy, two parachutes were also taken. They are the old military type with a round canopy and military gray-green in color. One of them was steerable. They were manufactured by Switlik serial # 51565 and Sorenson serial # 11513.

Anything you can do to help recover these items will be greatly appreciated. You can reach me at (702) 384-5964 any time.

Ray Allen, Las Vegas

Nose Gear Ratchets

I have agreed, effective October 1, to take on the job of producing the nose gear ratchets that have been supplied by Dr. Curtis Smith. The job kind of overwhelmed him, and I am hoping that it does not do the same to us! I have orders for around 25 outstanding right now and am tooling up to do an initial run of 100. Price has, of course, gone up. The cost of materials and labor always does. I will be offering the units built exactly to his original specifications. I can't improve on a perfect design! I will, however, be offering the units in two finishes. The standard unit, part number 44807, and a chrome finished version, part number 44812. These are also the Sears part numbers for the two finishes of the 1/4 inch ratchet drives. Each ratchet includes installation hardware and instructions. Prices are as follows:

44807 Ratchet	$49.95
44812 Chrome finish ratchet	59.95
Shipping & Handling	5.00

See our award winning Long-EZ at http://www.flash.net/~infaero/acgear.gif

Projected shipping times are 5 to 7 working days after ARO. There is, as with all our products, a 30-day money back guarantee provided the unit is undamaged. Sorry, no COD orders. Prepaid personal check is preferred. Your check is held until 30 days after shipment to you. Visa and Master Card are also accepted. Please add $3.00.

Thank You,

Bill Theeringer, N29EZ

Composite Aircraft Accessories
PO Box 21645
Santa Barbara, CA 93121
(805) 964-5453
email _ composite_aircraft_accessories_@CompuServe.com

Canopys

Airplane Plastics

8300K Dayton Rd, Fairborn, OH 45324

(513) 864-5607

FLUSH, INTERNALLY MOUNTED ANTENNAS

A complete line of antennas, specifically designed for, and flight tested on, composite aircraft. The antennas are tuned for maximum performance and in general those who have used them so far report reception is doubled over standard external antennas.

VariEze builder/flyer Bill Butters has started a company to develop a full range of buried antennas. These are normally supplied with a BNC connector built into the actual antenna, but can be supplied without connectors to include enough length of co-ax cable to facilitate easy installation with minimum weight and bulk.

Call Bill Butters ***800-758-8632*** Advanced Aircraft Electronics, PO Box 4111, Florissant, MO 63032

Feather Lite

LONG-EZ PARTS PRICE LIST

Main gear strut	$349.00		
Nose gear strut	$58.00		
Engine cowls, pr. (glass)		$329.00	
Engine cowls, pr. (Kevlar)		$480.00	
Cowl inlet	$48.00		
Wheel pants (3.5x5)		$150.00	
Wheel pants (500x5)		$180.00	
Above item in Kevlar		$215.00	
NG 30 cover	$21.00		
Pre-cut canard cores	$160.00		
Pre-cut wing & winglets			$1199.00
Leading edge fuel strakes w/bulkheads			$524.00
Strut cover SC	$19.50		
Nose wheel cover NB	$19.50		
Sump blister	$19.50		
NACA inlet		$47.00	
3" extended nose gear		$70.00	

Feather Lite, Inc. is proud to announce another product to re-introduce to EZ builders: The original Space Saver Panel by the late Rusty Foster. This is a bare fiberglass panel with a molded recess for builder installation of an aluminum flat stock electrical panel. $40.00

Contact Michael Dilley or Larry Lombard (both former RAF employees and EZ builders and flyers)

Feather Lite, Inc., PO Box 781
Boonville, CA 95415
707-895-2718

TITANIUM ACCESSORIES AVAILABLE!

Custom anodized to any of 15 different colors, shades of copper, purples, blues, greens, yellow/gold, even rainbow effect. Rudder and aileron gustlocks - $20.00-30.00.

GU canard full span vortex generators with layout template - $170,00. These are very exciting! Rudder horn CS-301L&R replacements, $25/pair. Shipping inc.

Ti Specialties, PO Box 1052
Grover Beach, CA 93483-1052
805-489-8155

STARTER FOR 0-200 CONTINENTALS

B&C Specialty has introduced a beautifully made, 12 volt starter specifically designed to be installed into the accessory housing on a Continental 0-200 engine, or on an 0-240.

This starter has been thoroughly tested at Teledyne Continental (more than 5000 start cycles without a single problem!).

Bill Bainbridge has these starters available for immediate delivery and they can be had STC'd or for homebuilts.

Contact: B&C Specialty Products, Inc.
123 East 4th Street, Newton, KS 67114
316-283-8662

EZ pilot Hans Georg Schmid and journalist Stephan Klapproth retrace the 1926 route flown by Walter Mittelholzer in a Dornier Merkur. See page 1 for story.

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