

# THE CANARD PUSHER

No. 67

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If you are building a RAF design, you must have the following newsletters:

VariViggen (1st Edition), newsletters 1 to 67.

VariViggen (2nd Edition), newsletter 18 to 67.

VariEze (1st Edition), newsletters 10 thru 67.

VariEze (2nd Edition), newsletters 16 thru 67.

Long-EZ, newsletters 24 through 67.

Solitaire, newsletters 37 through 67

Defiant, newsletters 41 through 67.

A current subscription for future issues is mandatory for builders -- as this is the only formal means to distribute mandatory changes. Reproduction and redistribution of this newsletter is approved and encouraged.

**PLEASE NOTE: BUILDER SUPPORT IS ON TUESDAY ONLY FROM 8:00 TO 5:00** When you call on Tuesdays for builder assistance, please 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. However, if you require immediate assistance, Mike will make every attempt to return your call between 3:30pm and 5:00pm (our time).

When writing to RAF, send along a self addressed, stamped envelope if you have builder's questions to be answered. Please put your name and address on the back of any photos.

## LICENSE AGREEMENTS

Many of you have called RAF in the past month regarding your new license agreement number.. We ask your patience since the cut-off date has just recently been reached. After "digesting" the hundreds of forms that were returned, we will, indeed, issue new numbers to those of you who quality for continuing builder support. It may take us a little time, but it will be done as soon as possible.

## POND UPDATE

The challenge to break the world propeller driven speed record and win in the Gold Unlimited Class at the Reno Air Races was no small undertaking. Our contender, the Pond Racer, first took flight on March 22nd and has undergone six additional test flights as of this writing. So far, we have only about 10% of the development problems one might expect in such a project. The airframe and flying qualities have proved excellent through the first seven flights, and already we have been to 290KIAS----Burt and his crew sure did a great job!

The racer flies like a pussycat and is very graceful on the ground even though it's a twin engine tail dragger. The airplane takes off and lands at 130KTS and we are doing wheel landings, holding the tail off till about 80KTS. Surprisingly, there is no loss of directional control as the tail touches down. Once on the ground, the steerable tail wheel is very positive. The hard idle prop drag is high and the braking is very good. One could operate the aircraft off a 3K' R/W comfortably.

We have increased the take off power to 42" of Manifold Pressure or about 350HP per engine; quite a bit of power for such a small aircraft (wing span just over 25 feet). Wing area just about the same as a VariEze!

Although the airframe is ready, we continue to gather data and re-work the engine software. Each engine is totally computer controlled and the programming will take more "fine tuning". These power plants are brand new to aviation and

so unlike the antiquated airplane engines we have grown accustomed to.

The methanol fuel is also a challenge and has presented it's own unique problems. For instance, when the fuel gets into the oil, it has a tendency to "thicken up" and then blow out of the breather. To remedy that, the engines are preheated prior to each run. We have also run into hurdles with corrosion in the fuel system and must purge and flush each engine after every run up--whether we fly or not.

The Electramotive V6-30 engines are very special and must be preheated for an hour so we do not damage the close tolerance bearings. Also, at engine shut down the ground crew immediately blows air through the engine compartment to "quick cool" and to keep the heat from the turbochargers from soaking back into the composite structure.

The Pond Racer is a unique machine and requires a lot of care. There is so much power available (we are only using 40%) that the tail must be tied down for even a run-up. If the pilot exceeds 25" MP with the chocks/brakes on, even with full aft stick, it will nose over--bad news for props. We are currently running the low RPM flight test engines, turning each at 5600RPM while the props turn at 2050RPM through the gear box. The full race engines will turn 8000RPM for the same 2050RPM prop speed. At that time we can go to a full 1000HP and fly at record breaking racing speeds.

We are still in the very preliminary phase of flight test and have quite some way to go in building the speed to 430KEAS, but right now we are very pleased. See you all in Reno!

Dick Rutan

### A LETTER FROM BURT

We print this letter in CP67 because it is a typical reply to many we receive and in the hope that it will clarify the situation.

"Dear Craig;

We confirm that our records do not show you as authorized to build a Long-EZ as you do not have a license from RAF.

No new licenses were issued after July 1985.

The person who sold you plans may or may not hold a license. If he does, he could contract with you, as he is an authorized manufacturer of a Long-EZ. If he, as the manufacturer, is willing to accept the responsibility of this aircraft and thus, in effect, sub-contract its fabrication to you, he may do so. However, be sure before you start, that he is willing to accept responsibility as the authorized manufacturer and is committed to providing support to you during your fabrication, and while you fly your aircraft. We, RAF, will support him (the authorized manufacturer) as long as we are able to do so.

We strongly recommend that you obtain a written contract with him to guarantee that you will be provided with support. It is not advisable, and may be extremely dangerous, to build an airplane referring only to plans and without the benefit of a safety information system. In effect, you would be doing a true prototype without benefit of experience of others.

Also, please see *Canard Pusher #46*, pages 9 and 10, and *Canard Pusher #54*, page 1 for further explanations.

Burt Rutan"

### DEFIANT FLYER

A newsletter for the Defiant builders and owners is now being put out by Defiant builder/flyer John Steichen, 960 86th St, Downers Grove, IL 60516, 708-969-3535 (days), 708-985-6671 (nites) and Fax 708-969-4692.

John is taking over from Charlie Simms who has done such a wonderful job for a number of years but really needs to get serious about finishing his own Defiant.

John would like to hear from anyone who is building or flying a Defiant. This newsletter is

an absolute must if you are currently building. John is an extremely methodical guy and is keeping an accurate list of builders' projects as well as flying airplanes. Help him to keep these lists as current as possible so that important information can be disseminated to the people who really need it. RAF wholeheartedly supports the job Charlie started and John has now taken on. We will do all we can to support them in their very noble efforts.

### FLY-INS

#### KANSAS CITY GIG

"GRAZIN' IN THE GRASS"

A NATIONAL CANARD FLY-IN

JUNE 14-15-16, 1991

Put on by the Central States Association, this fun event will be held at the Johnson County Industrial Airport (IXD). Please write to Terry Yake, 8904 West 116th Terrace, Overland Park, KS 66210 for details. Mark your calendar, pickle-fork flyers, this will be a memorable event and is not to be missed.

~~Please let Terry know if you plan to attend. He needs to know in order to plan. He specifically is requesting the following information: Name, address, type of aircraft (if flying or building), aircraft "N" number, number of people attending and arrival and departure dates.~~

Shirl Dickey is once again planning a full program of R.A.C.E. (Rutan And Composites Enthusiast) events.

#### KANAB CANARD HONK-OUT

Kanab, Utah

May 25, 26 and 27

Aikens Lodge        801-644-2625 (25 rooms)

A & N Lodge        801-644-2420 (4 rooms)

Please make your reservation by May 8th, otherwise there is no guarantee.

Activities: Saturday night, barn dance at the Red Hill Convention Center. Sunday, race and awards banquet (Travelers Inn).

They have requested a Fly-by over their Memorial Day Parade as we depart the area Monday morning.

#### JACKPOT EZ BASH

Jackpot, Nevada

July 5, 6 and 7

Cactus Pete Resort and Casino - 800-821-1103

Please make your reservation before June 20th.

Activities: Friday evening, live entertainment in the Galla Room. Saturday, race and Special Guest cocktail hour (sponsored by Cactus Pete).

#### BONNEVILLE SPEED WEEKEND

Wendover, Utah

Aug. 31, Sept. 1 and 2

Stateline Inn - 800-648-9668 (Reserve early)

Activities: Saturday, entertainment. Sunday, race, awards banquet buffet in the Cobb Room.

#### HIGH POINTS AWARDS BANQUET & KILO TRIALS

Chandler, Arizona

Nov. 30 and 31

Chandler Inn - 602-963-6361 (reserve early)

#### "EaZter" FLYIN - COTTAGE GROVE, OR

"A short report on the first ever Oregon "EaZter Fly-In". The "great spirit" of the sky smiled fondly upon us by providing gorgeous weather for our get-together. Although the group was fairly small, the "tall tales" were every bit as large as those told at the bigger fly-ins.

We had 8 EZs proudly displayed at the Cottage Grove Airport. Several builders drove in to get "reinvigorated" to get busy and finish their flying machines. Rides were given to the builders which is also a definite incentive to finish and fly EZ.

The weekend consisted of lots of hangar chatter; looking over innovative ideas on different airplanes; colored eggs; rides in a beautiful old antique Ford auto; watching a great video of a gorgeous house in Hawaii constructed by John Totah; and lots of eating. It was exciting for us to

show off our bit of Oregon, and we're so grateful the weather cooperated.

We had several states represented--California, Nevada, Washington, and, yes, even Hawaii (these folks did travel via the big commercial bird). Attendees: Leonard Troutman, Dave & Liz Jones, Bill Therringer, Dwight DeBoer & Tsuruko (alias Suzi), Gus Sabo, Wayne Johnson, Phil Supan, Wes Lorier, Ed Hanley, John Totah, Bromwyn, Billie, Binky, & Chansel Denis.

It was a great mix of people and planes, and we thoroughly enjoyed hosting such a super group. Thanks guys! We also had several really nice telephone calls from EZ friends that couldn't make it to Oregon for the weekend. We appreciate the calls from Al & Mabel Coha, Al & Karen Dierksen, Wes & Millie Gardner, Jim & June Heitkotter, Mike & Sally Melvill, and Donald & Bernadette Shupe. We missed ya'll

This was a great kick-off for us for the '91 flying season, and we look forward to lots more fun get-togethers this summer."

Bruce and Bonnie Tift

#### LETTER FROM VARIEZE FLYER

"Dear RAF;

I recently installed a set of Liset vortex generators on the canard of my VE N02GR and have experienced good luck with the modification. During normal no-rain days the a/c flies as before with no noticeable change in any flight situation. The big step is with the rain...works great! I did get a very obvious pitch change during wet conditions and now have none. Guess this speaks for itself. For all the VariEze drivers, I think it is a good mod. Hats off to Liset.

Regarding the aging VE, I am the builder of my first VariEze which I later sold. My second EZ was Ken Forrest's which I flew of 300 hours (after Ken had put over 650 hours on it.) I presently own the VariEze that Robbie Grove built. It has over 700 hours now. I have installed my own engine and panel, vortex generators, etc. It was painted with Ditzler Durathane. The paint has held up very well with some chipping on the leading edge (due mostly to rain) and some

cracking at points of 90° angles such as the NACA scoop to fuselage points. She is always hangared, but after 10 years of flying still looks great. I like this paint as it sprays like lacquer and touches up easily. I fly an O-200 with Lord mounts and must change mounting rubber every couple of years as the sag drops the whole engine alignment up to 2 degrees putting the exhaust pipes into the lower cowl, etc. I installed a small NACA scoop just to the right of center in the canopy frame next to where the normally plan-fitted scoop would be. This keeps the rain out of my eyes and the bugs off of my teeth, plus blows all air over my right shoulder to the backseater. With a ball vent valve, it makes a great source of air and is right where you can get your hands on it.

My prop is a Ted's built originally for Ken Forrest. This prop has over 1400 hours on it. I had Ted install the urethane leading edge on it a couple of years ago and now experience only a little paint loss during rain.

I find that I must check my tire pressure very often to insure the proper inflation is held. I removed the small aluminum plate off my nose wheel years ago and use my nose wheel/gear strut as a speed brake putting it down at 140 knots, thus keeping the engine rpm a bit higher during fast let downs. I continue to be amazed how difficult the VE is for others to see even when they know exactly where to look. Just always figure they do not see you...fly defensively.

I have a Long-EZ type landing light which I use for landing and taxi. It is a 100 watt lamp and has worked fine during my many hours of night flying. I find that the ability to angle the light between the full up and full down position allows me to pick up the runway better.

I have had one of my fuel caps come off twice and both times when I depended on someone else to secure them...while I watched. Just a lesson for us all. Don't trust anyone else with your safety. Fortunately, I have always had all caps safety wired with stainless chain (normally used for holding big game fishing hooks...very strong and available at any salt water tackle shop) and have never lost one through the prop.

Two years ago, I did a top overhaul on my 0-200 and had the new Cermichrome cylinders installed. It costs a bit more but has greatly reduced my oil usage. Recent pressure tests show 78 over 80 on all cylinders after 230 hours of use. I use platinum plugs which has reduced plug fouling to a forgotten subject...starts so easy too.

I have been flying for over 32 years in everything from Piper Cubs to F48 Phantoms and this little VariEze has to be the finest plane of the bunch when everything is taken into consideration. Thanks, Burt, for such a fine design.

Keep lots of runway in front of you and altitude below ya. Just fly EZ.

God bless,"  
Ralph Gaither

### CONTROLS - RIGGING

Both control sticks should be rigged approximately  $10^{\circ}$  left of being vertical. A side stick should not be rigged vertical with ailerons at neutral. The  $10^{\circ}$ , however, is not critical. You should sit in your airplane and place your hand on the stick in a relaxed condition, such as you might experience while on a long cross country. You will find that the most comfortable position for your hand is a little left of the vertical. Clamp your stick in this position and check that the CS-124 belhorn is now vertical or exactly as shown on page 16-5 of the plans.

Now, rig your ailerons to fair with the wings (neutral roll). Adjust the CS-126 and CS-129 push rods to position the ailerons at neutral with the angle between the CS-128 belcrank and the CS-129 push rod at  $90^{\circ}$  (see pages 19-5 and 19-6 of the plans). This is very important, do not omit this step.

Now, install the stop bolt shown on pages 19-5 and 19-6 of the plans to allow approximately  $20^{\circ}$  of rotation of the CS-128 belcrank but, more importantly, to move each aileron up 2.1" as measured at the inboard trailing edge of each aileron relative to the wing trailing edge. Theoretically, the aileron should travel up and down equally but may not due to individual

tolerances. Do your best to set each aileron travel equal at 2.1" in the aileron trailing edge up position and accept whatever you get in the down position. (Note: More than 2.1" travel will not give more roll authority due to flow separation on the ailerons {aileron stall}).

The stop bolt on the right side of the airplane (through the CS-127 brackets) should stop the right aileron at 2.1" trailing edge up. The stop bolt on the left side of the airplane should stop the left aileron at 2.1" trailing edge up. The sticks, however, should be able to travel further left and right than just to the point where the CS-128 belcranks strike against the stop bolts. It is very important that you can move the stick approximately  $10^{\circ}$  more in each direction than what it takes to strike the aileron stop bolts. This is because the air loads on the ailerons will cause some "wind up" of the roll control torque tube.

In order to have the maximum available roll authority, you must be able to displace the ailerons to their maximum deflections (i.e. 2.1" of travel) at speeds up to the maneuvering speed,  $V_a-120$  kts. Check to see that your hand wrapped around the stick does not strike the side of the fuselage when rolling right, and that the AN4-15A bolt and washer through the bottom of the front control stick does not strike the side of the fuselage when rolling left. See page 16-6, top left, of the plans and, if necessary, grind through the inside skin of the right side of the fuselage to allow over-travel of the stick (left roll) with full forward (as well as neutral and full aft) pitch control. If you are already flying your Long-EZ and do not have as good a roll rate as your buddy does, check the aileron throw and the ability of the forward stick to over-travel both left and right to assure that you can deflect the ailerons to their stops at up to 120 knots.

Carefully check that you have the correct elevator travel and that the stick does not limit your ability to reach the elevator deflections by prematurely striking the console or any cover you may have over or around the control sticks. If you have the original GU canard, you should have approximately  $22^{\circ}$  of nose up (elevator trailing edge down) and  $18^{\circ}$  to  $20^{\circ}$  nose down elevator travel. If you have the Roncz 1145MS canard, you

should have 30° nose up and 12° to 15° nose down. It is very important that you have pitch control stops set correctly to obtain maximum lift, and no more. (More travel gives less lift.)

Rudder travel is not as critical but, due to dihedral effect, the rudders on a Long-EZ add considerably to rate-of-roll. In order to obtain the maximum benefit from the rudders, do be sure that your rudder travel is set to the maximum recommended. (6" measured at the top of the rudder for the original plans-built rudders and for the new high performance rudders, 4-1/2" measured at the bottom of the rudder relative to the lower winglet trailing edge.)

Do not accept any friction in the pitch control system. If you have friction, do not fly until you have corrected this condition. Friction in the pitch control system of a canard-type such as a Long-EZ can make the airplane critically sensitive to fly. Friction in the roll control system greatly reduces the enjoyment of flying your Long-EZ and should be corrected. Work on every pivot and hinge point until the aileron control system is nice and free, with the minimum possible friction.

Your flight control system is absolutely critical to safe, controlled flight and, in this area more than any other, accepting less than perfection could be very hazardous to your health! Do not go flying until you are completely satisfied that you have done your very best to reach the above goals in the control system of your Long-EZ.

## CAUTION

### HAND PROPPING

"If your magnetos are not both impulse mags, be certain that you have the non-impulse mag turned off during hand propping. Lycomings usually have an impulse mag on the left and a non-impulse on the right. Small Continentals usually have two impulse mags. Check yours to be sure.

If you leave a non-impulse mag on while hand propping, it can result in a kick back with fingers in the way. I have personal experience with this. I had trouble starting one day so

decided to use both mags. The resulting kickback caused a broken thumb and badly bruised fingers! Be careful."

Chuck McCleod

ED - We know of at least three EZ flyers who broke their hands the same way. One spent over \$5000.00 in doctor bills getting his hand repaired! As Chuck says - be careful.

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### NOSE GEAR EXTENSION PROBLEM

"On my first flight, I left the nose gear down for the entire flight. When I attempted to retract the nose gear to park nose down, it retracted until the nose tire contacted the aft edge of the nose wheelwell then stopped moving! Turning the crank handle either way had no effect. On examination, I found that the AN-4 70AD4-10 rivets attaching NG60 to NG65 (worm gear to shaft) had sheared off! I am so happy I did not retract my nose gear on that first flight".

Jack Bennett

DeKalb, IL

Jack sent this note in because he was worried that the suggestion from Ken Clunis in CP66, Page 9, may cause more failures like he experienced. We print this information, like we do all of our hints and problems, in case they may help others. Let this serve as a warning to carefully check your rivets before next flight.

On the bright side, this is the first failure of this kind we have had reported. I checked on just our local fleet of EZs on the Mojave airport (at least 7 EZs as of April 1991!) with a collective total flight hours of 7668 hours! None of these have had this problem. Maybe Jack had some sharp edged holes or something - hopefully it won't become a common problem. Jack solved his problem by simply installing an AN-3 bolt in place of the rivets. An excellent fix if you find yours is loose.

Please report any failures like this to RAF so we can disseminate the information to the several thousand builders and flyers around the world.

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## EXHAUST SYSTEM CRACKS

We seem to be experiencing a rash of exhaust system cracks. After years of essentially no cracked weld or cracked pipes, suddenly, over the last year or so, we have received perhaps a half dozen reports - a couple in the last few weeks. A few have been Brock exhausts for Long-Ezs, but most have been Sport Flight (Herb Sanders) VariEze as well as Long-EZ exhausts. Steve Franseen, VariEze builder/flyer in Denver had what he termed a Big Time Emergency when the outboard section of a Sport Flight VariEze exhaust system came off in flight and split the prop to the hub. He would like to warn builder/flyers to check exhaust systems very carefully around the welds. This is a real important preflight check item. With a pusher, a broken exhaust will almost always result in a forced landing.

Steve has requested information from anyone who is operating Sheehan Engineering piston and rings in an O-200. His VariEze, N86EZ, has run without problems using these parts for over 2 years. He is interested in comparing information on higher time engines using this set up. Steve is also interested in sources for more of these high quality components. Anyone who would like to contact Steve can reach him at: Steve Franseen  
10196 W Keene Ct  
Denver, CO 80235  
303-987-1880 (H)

## FOR SALE

### LONG-EZ PARTS FOR SALE

Due to change in my flying priorities, I would like to sell all of the parts I have accumulated - new, never used - as a lot or on a part by part basis.

Contact: Allan Paige  
165 La Rose Ave. Apt. 915  
Weston, Ont. Canada M9P 3S9  
416-248-8261

## VARIIZE PROPELLER

Used, but in excellent condition - Hendrickson  
56 Dia. x 70 pitch - \$325.00

Slick magnetos (new) - model 4230 with impulses  
- \$425.00 each.

Contact: Don Bates  
2742 Swansboro Rd  
Placerville, CA 95667  
916-622-1886

## SHIMMY DAMPER

As noted in a previous CP, Bob will not be continuing to sell his shimmy dampers. He says he has 19 left of the final production run!

These are the best shimmy dampers available - price is \$71.48 per kit, delivered.

Contact: Bob Davenport  
PO Box 650581  
Vero Beach, FL 32965-0581  
407-567-1844

## SPRINGS FOR FLUSH BELHORNS NOTE NEW ADDRESS AND PHONE

Many builders have had difficulty locating the correct springs called out to be installed in the rudder cables when installing the flush rudder belhorn modification. The springs called out in the plans are available from Century Spring Corp. but this company has a \$25.00 minimum charge! Fortunately, John York, a Long-EZ builder who experienced the same problem, has informed us that he has a supply of these springs and is willing to keep them in stock for a year or two. He will sell the springs for \$1.50 each plus \$1.00 shipping. So send John a check or money order for \$4.00 and he will send you a pair of springs!

Contact: John York  
921 College Rd.  
Lebanon, IL 62254  
618-537-2142

NOSE GEAR CRANK RATCHET

NOTE NEW ADDRESS AND PHONE NUMBER

We cannot say enough about this truly clever device. Once you fly it, you will wonder how you ever did without it. It locks the gear in the up and locked position while in flight, and at the flip of a tiny lever, allows you to crank the gear down where the ratchet locks the gear into the down and locked, over-center position - no more chance of the nose gear vibrating out of the over-center position and stripping the worm gear. This gadget is simple, incredibly effective and easy to install.

Contact: Curt Smith  
1846 Sextant Dr.  
Worden, IL 62097  
618-656-5120

Send a check for \$34.95 to cover cost and shipping.

RUSTY FOSTER'S SPACE SAVER PANELS

The mold for the Space Saver panel is now at FeatherLite. Larry Lombard and Mike Dilley can supply a panel should you need one.

All of Rusty's face plates, switches, circuit breakers, wire, etc. were purchased by Gary Bryant of Bryant Avionics, 2500 1/2 E Graves Ln, Carson City, NV 89706, 702-885-9919. Gary is more than willing to help - give him a call.

REQUEST FOR INFO ON TOM BERKLEY'S HOT WIRE SAW

Per our request in CP66, we have had one response from John Di Milia who has purchased a 220 foot roll of the .041 diameter high temp, high tensile wire from the manufacturer.

The 220 feet was a minimum order and John is willing to sell his extra wire. He purchased his wire from The National Standard Co., Los Angeles Warehouse, 14700 S. Marquardt Ave., Santa Fe Springs, CA. 213-921-9683.

Contact: John Di Milia

92 Park Ave.  
West Caldwell, NJ 07006  
201-206-4282

WANTED

0-200 with fuel pump, key start, alternator, mags and carburetor. Can be run out.

Contact: Don Moses  
602-451-8880  
(Ask for Don or Carol)

Rusty Foster Space Saver Long-EZ Power Panel.

Contact: John or Sandy Bakken  
Rt 1 Box 85A  
Pocatello, ID 83202  
208-238-0754 (evenings)

FOR TRADE

Lycoming 0-320-H2AD (run out) for a Lycoming 0-235 with Dynafocal mount (can be run out).

Contact: Jacqué Elliott  
512-425-8913

SHOPPING

WICKS AIRCRAFT SUPPLY CO.

We have been asked us to let you know that they now carry in stock Real Gaskets, the 100% silicon rocker cover gaskets for Continentals and Lycomings. As we have said before, there is no better gasket and no better way to eliminate oil leaks at the rocker cover.

Also, Bud Meyers says they now carry the 5" axles (1-1/4" dia.) in a slightly longer version (6" instead of 5-3/4") to better fit the heavy duty Cleveland brake installation. They also have the wider spacer for the inboard side of the wheels to facilitate the use of the heavy duty brakes. These new axles have two cotter pin holes (at 90° to each other) drilled in the threaded end. (An excellent idea. ED)



Bud has researched the Snap Action fuses and circuit breakers as mentioned in CP66 and has decided to stock the Snap Action MB-1. It is smaller and weighs less than other circuit breakers and is less expensive. Contact Wicks for more information

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#### AILERON/RUDDER HINGE RETROFIT KIT

The purpose of this kit is to effectively prevent additional wear on the aircraft hinges and thereby circumnavigating a time consuming hinge repair down the road. The hinge kit will fit any MS20001-P3, '-P4, '-P5, or '-P6 extruded aluminum piano hinge that is specified for use on the Long-EZ, VariEze, Defiant, Cozy, Glasair ailerons and/or rudders. You will be supplied with enough Teflon spaghetti tubing and a special high grade stainless spring steel wire for all the hinges used in the ailerons and rudders.

This hinge kit will work in an already worn hinge, but just how worn out (larger I.D. of hinge hole) remains a questions we cannot answer. We believe the DuPont/Teflon tubing supplied in the kit will wear proportionally to the amount of space between the tube and the hinge. After more than four years there has not been any additional wear on any of the installed retrofit kits that we know of.

**INSTALLATION:** Mike Melvill and I found this retrofit to be a piece of cake, taking approximately 10 minutes for each wing. I enclose detailed instructions with each kit explaining several different installation methods used by various builders.

I really don't believe you will have any questions, but just in case, you can call me anytime 0800 through 1700 hours E.S.T., Monday through Friday at 305-974-6610. Please identify yourself as an experimental aircraft builder.

Please note: These kits cost \$21.00 US within the USA and Canada. Overseas, the cost is \$25.00 US. All orders shipped in the 48 continental United States will be UPS, the rest are shipped by mail. Please add \$2.00 US on Rutan Defiant Kits.

When ordering any of the kits, please supply the following information for purpose of giving you the proper kit supplies and providing emergency updates should that necessity arise. Shipping costs are included in the above prices.

1. Name and address. Kits cannot be delivered by UPS to a PO box. Address must be a physical structure. Please type or print clearly.
2. The serial number the kit designer has given you and your government supplied tail number, if you have them.
3. Phone numbers for both work and home, if that is as all possible or practical.
4. Type of aircraft, e.g., Glasair, Defiant, Long-EZ, etc.

Contact: Gary A. Hall  
851 SW 63 Ave.  
North Lauderdale, FL 33068  
305-971-9731 (home recorder)  
305-974-6610 (Parkson Corp)

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#### CANARD PUSHER DIGEST

Stet Elliott's *Canard Pusher Digest for the Long-EZ* is still available. He has just published the 2nd edition which includes all pertinent information for CPs 24-65. The 2nd edition has now grown to 654 pages and is professionally printed on double sided paper from a laser printed master.

Note that the Digest is for builders and flyers of the Long-EZ only. It does not support other RAF designs.

Quarterly updates to the Digest are also available. These updates provide additional information from newly published CPs to bring the Digest current. The updates are compatible with either Digest edition.

CP Digest for the Long-EZ.	\$67.00
Overseas orders add \$20.00	
for airmail, otherwise, it will	
be sent via surface vessel.	
Annual Update subscription.	\$25.00
(4 updates)	

Overseas orders add \$5.00 for postage  
Send payment to Stet's new address below:

Stet Elliott  
5322 W. Melric Dr.  
Santa Ana, CA 92704  
714-839-4156

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#### VARI-EZE INDEX

Lists all plans changes from CP10 through CP64 as well as all suggestions, problems, etc. For any VariEze builder, this is a must. Bill sells it a couple of different ways. You can buy just the printed book for \$20.00 or you can get the book plus a 5-1/4" IBM compatible floppy disc with a delimited ASCII listing of the data base (or optional PFS professional file data file). Specify which you would want, for \$24.00. This index will be updated annually.

Contact: Bill Greer  
222 McLennan Dr.  
Fayetteville, NY 13066  
315-637-3795

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#### RAF "GOODIES" AVAILABLE

Tie tacs-Long-EZ/VariEze (gold or silver)	6.50
Charms-Long-EZ/VariEze (gold or silver)	6.50
Name patch	1.50
Silhouette patch (no Defiant)	3.50
3-ship poster (17"x22")	3.75
2 Long-EZs in trail (11"x17")	3.00
Defiant on water (11"x17")	8.00
RAF Chronological poster	15.00
Long-EZ lithograph	10.00
Color photos (EZs, Solitaire, Defiant)	1.25

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#### CHECK YOUR BELHORN PLANS

Some of the flush rudder belhorn plans shipped from RAF did not contain page A5. Please check your set of plans and notify us so we may send you the required page of drawings. We apologize for this error.

#### RAF RECOMMENDED SUPPLIERS

Aircraft Spruce PO Box 424 Fullerton, CA 92632 714-870-7551	Wicks Aircraft 410 Pine Street Highland, IL 62249 618-654-7447
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FeatherLite PO Box 781 Boonville, CA 95415 707-895-2718	Brock Mfg. 11852 Western Ave. Stanton, CA 90680 714-898-4366
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These suppliers are still the only authorized RAF dealers for all your various aircraft materials and components.

#### PROPS FOR EZ'S AND DEFIANTS

RAF recommends the following prop manufacturers:

Bruce Tiffit B&T Props 75872 Mosby Creek Rd. Cottage Grove, OR 97424 503-942-7068
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Ted Hendrickson PO Box 824 Concrete, WA 98237 206-853-8947
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#### PLANS CHANGES AND OTHER IMPORTANT MAINTENANCE INFORMATION

VARI-VIGGEN ----- NO CHANGES TO ANY  
VARI-EZE ----- DESIGNS THIS NEWSLETTER  
DEFIANT  
SOLITAIRE  
LONG-EZ

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Since RAF is no longer active in the development of homebuilts, we are not likely to discover many new errors or omissions in the plans. For this reason, we need your help. Please submit any significant plans changes that you may come across as you go through the building process.

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## EDITOR'S NOTE

Bruce Tift tells us his prop making business is booming. He has found a new supplier who carries an even better quality wood than his usual high standard. The move to Oregon (along with an increase in customers) put him a little behind in filling orders, but he is diligently turning out props as fast as his quality control will allow. He asks your patience and, as always, will try to work with anyone who finds themselves in a hardship situation. B&T Props has always been one of RAF's recommended suppliers because of the Tift's personal integrity and the good workmanship that comes from that shop.

## NEWS OF A PROP SUPPLIER

We recently received several glowing reports from EZ and Defiant flyers about props they had purchased from Performance Propellers in Patagonia, Arizona. We wrote to Clark and Margaret Lydick, owners of this company and also Long-EZ builders and flyers. They used their Long-EZ as a flying test-bed for their props and have accumulated over 600 hours.

They make two and three-bladed props for VariEzes, Long-EZs and Defiants, for 0-200s, 0-235s, 0-320s and 0-360s. They have been making props for more than two years and their policy is to custom build the prop to suit your airplane. It is sent to you with no leading edge protection, just a coat of sealer. You then try the prop and determine the static and maximum RPM on your airplane. Send the prop back and they will fine-tune it to your desires, install a rain proof leading edge and finish the prop before sending it back to you. All of their props are done this way.

RAF has not had the opportunity to test one of these props and we recognize that we are not in a financial position to do so any more. We have, however, checked out this company to the best of our ability and have had several builder/flyers who had recommended Clark and Margaret - so we have included them in this newsletter. We solicit comments from flyers who may have tried these props or who have had any business dealings with

this company. Since Great American went out of business, and in spite of Bruce Tift's best efforts, there has been a very real problem getting quality props in a timely manner.

Anyone interested in more information contact:  
Clark or Margaret Lydick  
Performance Propellers  
PO Box 486  
Patagonia, AZ 85624  
602-394-2059

## AN INTERESTING OBSERVATION

"After flying my VariEze for over 400 hours with the small tires and no wheel pants, I changed to the Lamb tires, still with no wheel pants. Guess what? With small tires, it pitched slightly nose up in rain but with the larger Lamb tires, it now has a slight nose down pitch trim change in rain!

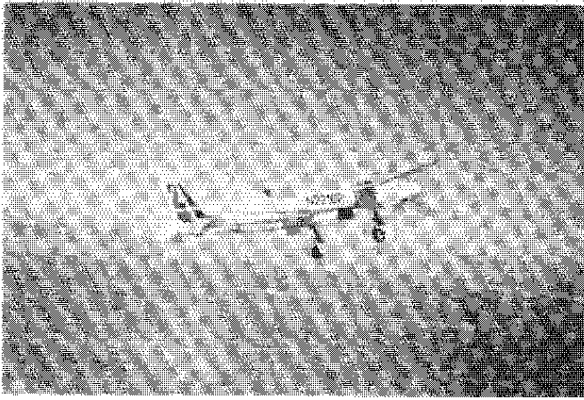
Gordon Hindle"

## OHL NO!!!

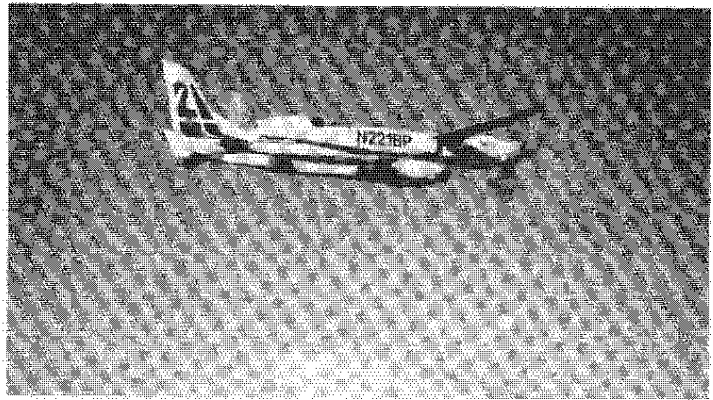
Just when we'd gotten used to seeing Scooter Pie with Jerry Sloan.....now, it's a Lop Eared Rabbit on a bean bag in the back of Clayton Kau's Long!!



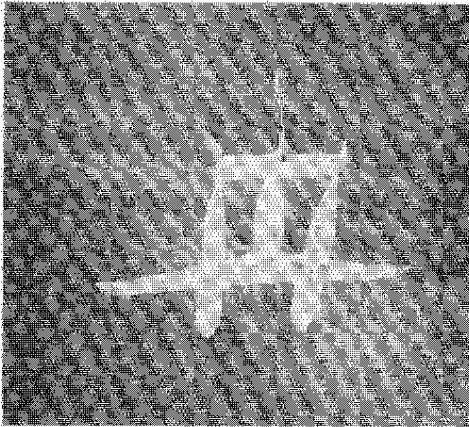
Burt Rutan - preflighting his latest acquisition, an Enstrom helicopter. Burt and Tonya picked it up in New Hampshire and flew it to Mojave.



First flight of the Pond Racer - March 22, 1991  
Dick Rutan, Pilot



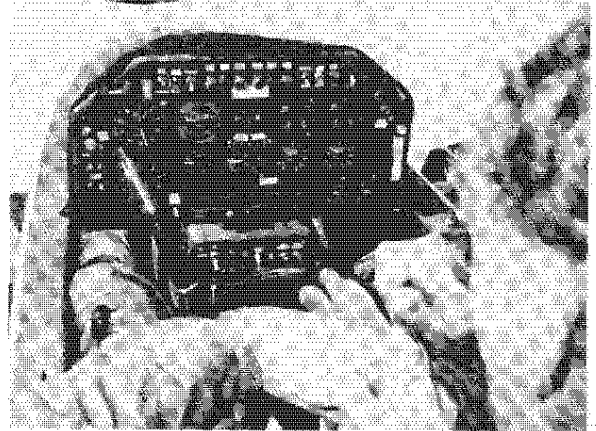
The first time the gear was retracted - Mike Melvill in his Long-EZ chasing Dick Rutan in the Pond Racer.



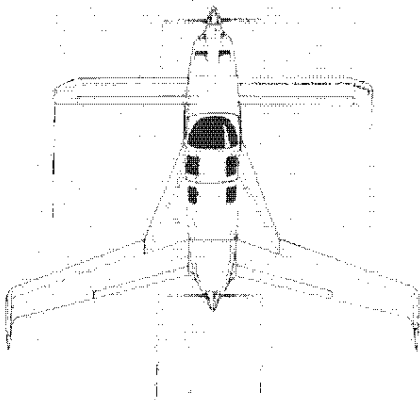
Pond Racer, seen from below.



Looking over Dick's shoulder at the Pond Racer's instrument panel. The racer weighs 4000 pounds, has 200 horsepower and approximately the same wing area as a VariEze!



**Rutan Aircraft Factory  
Building 13, Mojave Airport  
Mojave, CA 93501**



**TO:**

**April '91**

The line which appears above your name lets you know through which Canard Pusher you are paid. If your label says **LAST ISSUE CP 67** then this is your last issue, and you need to renew.

**CP 67**