

# THE CANARD PUSHER

No. 80

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

VariViggen (1st Edition), newsletters 1 to 80.

VariViggen (2nd Edition), newsletters 18 to 80.

VariEze (1st Edition), newsletters 10 thru 80.

VariEze (2nd Edition), newsletters 16 thru 80.

Long-EZ, newsletters 24 through 80.

Solitaire, newsletters 37 through 80.

Defiant, newsletters 41 through 80.

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: RUTAN AIRCRAFT IS OPEN TUESDAY ONLY FROM 8:00 TO 4:00.** When you call on Tuesdays, 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.

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

## TWENTIETH ANNIVERSARY

Oshkosh 1995 will mark twenty years since Dick Rutan flew Burt's tiny proof-of-concept, VW powered VariEze to the EAA convention in 1975. Dick set out to fly non-stop, non-refueled from Mojave to Oshkosh. A broken oil cooler at Mojave and high oil temperature caused him to make a precautionary landing at Worthington, Minnesota. Dick did not refuel but did top off the very low oil and completed the flight the next morning, non-refueled.

Those of us fortunate enough to be there will remember the incredible excitement as the little glass canard was walked to its reserved parking space. Nothing like this flying machine had ever been seen at Oshkosh and it was totally surrounded by huge crowds every minute of the daylight hours that it was on the flight line. There is an excellent article in the October 1975 *Sport Aviation*, by Jack Cox, that describes in detail the two record attempts flown by Dick during the week of the convention.

The second attempt was successful and N7EZ set a new world record flying 9 laps between Oshkosh and Menominee, Michigan, a total distance of 1638 miles in 13 hours, 8 minutes and 45 seconds, an average speed of 125.5mph, using only 40.2 gallons of fuel. This is an average fuel consumption of only 3.1 gallons per hours!

This is all the more amazing when you consider that construction on this aircraft only began in January of 1975 and the first flight, by Burt, was accomplished on May 21, 1975! Actually less than 5 calendar months from start to first flight! Wow.

If you have the *Sport Aviation*, by all means read Jack's article, it really is exciting. If you don't have access to it and would like to read it, send a self-addressed, stamped envelope and we will send you a copy.

It is only fitting that this anniversary be recognized and if Paul Adrian, Norm Howell and a few others have their way, it certainly will be!

## GLASS OVERCAST 1995

To All Rutan Canard and Canard-Type Pilots Everywhere

It's a little hard to believe, but 1995 will be the 20th anniversary of the first VariEze to appear at EAA Oshkosh. To commemorate this event and to properly recognize the effect of Burt Rutan's designs on our sport aviation hobby, the following events are being coordinated by the Central States Association and the Experimental Aircraft Association:

**A mass arrival of Rutan Canards at Oshkosh starting at 1000, Thursday, July 27th, 1995. The aircraft will stage from Racine Airport, fly a special arrival procedure, be announced to the audience at Oshkosh, and taxi to a specially designated area on the grounds.**

**A mass fly-by of Rutan Canards will also take place at this year's EAA Oshkosh convention during the Saturday and/or Sunday airshow, similar to what we have seen the T-34's and T-6's do.**

Other events and recognition are to be determined, but you won't want to miss Oshkosh this year if you fly a "glass-backward". The sight of a mass formation fly-by is unlike any other in aviation. And aviation history will have *never* seen a fly-by quite like this one. We will need between 44 and 60 canard types to make it happen. You are invited to be a part, but:

*To participate in the mass fly-by will require commitment and time on your part. Most EZ/canard drivers have not had the extensive formation instruction the warbird people have. There will be periodic and regular "Glass Overcast Formation Schools" held around the country by Central States Association regional coordinators, and you will be required to attend and be certified in a position by the coordinator.*

Regional groups will get together for mass practices at airshows like Sun 'n' Fun, Arlington, the various RACE events, and so on. The first "dress rehearsal" will be at this year's CSA National Fly-In, the "Okie GIG", on June 9-11th at Page Airport near Oklahoma City. The second

will be at Jackpot, Nevada, over the July 4th weekend.

Please take the time to consider this. Your participation in the "Glass Overcast" will be a memorable chapter in your enjoyment of these wonderful airplanes.

For more information, Contact:

Steven Sorenson, Glass Overcast Central Coordinator  
11133 Glade Drive  
Reston, VA 22091  
703-860-2321

Terry Schubert, President and Newsletter Editor, Central States Association  
9283 Lindbergh Blvd.  
Olmstead Falls, OH 44138

## FIFTH ANNUAL GATHERING FOR CANARD-TYPE AIRPLANES

June 9, 10, 11, 1995

This year this popular fly-in is moving from Kansas City to the Clarence Page Municipal Airport (F29), Oklahoma City, Oklahoma.

Try not to miss this one, there will be social events, seminars, prizes and bull sessions and, possibly, formation practice for the Glass Overcast at Oshkosh, 1995.

Contact: Pete Peterson  
4429 NW 48th  
Oklahoma City, OK 73112  
405-946-5003

## A LONG TRIP IN A LONG-EZ

Andre De Berdt, from Sao Paulo, Brazil, flew his 0-235 powered Long-EZ from Sao Paulo to Oshkosh last year, a distance of more than 5000 nautical miles. Andre flew almost continuously for 4 days, much of it at night, using 170 gallons of fuel for an average of 29.5 nautical miles to the gallon (nearly 34 mpg!). His route took him around the coast of Brazil to Trinidad, over the West Indies to Florida, then on up to Oshkosh. Take a look at a globe - that is one serious cross-country!

As if that were not enough, Andre tells us he intends to fly to Europe this summer and, weather permitting, will return to Brazil via the North Atlantic to Iceland, over the North Pole to Alaska, then down through the USA and back from Florida to Sao Paulo! Wow, what a trip. Hopefully, we can persuade him to take photos and write an article for the CP. Long-EZ's are for traveling pilots!

#### MAGNA LISET - May 1935 - February 1994

We were very sad to hear from Magna's wife, Jean, that Magna was killed in his Long-EZ when he flew into power lines on Feb. 12, 1994. Magna was a gung-ho builder and flyer and we enjoyed him and Jean immensely when they visited California several years ago. As reported in the *Canard Pusher*, Magna achieved great things in his Long-Ez doing very well in the race around Australia, and set records flying coast-to-coast non-stop, in both directions, as well as from Australia to New Zealand.

We will miss Magna, he never took "no" for an answer and spent a tremendous amount of energy battling the Australian equivalent of our FAA over licensing his Long-EZ in the configuration he wanted. He got it done - he was quite a guy!

(I shall especially miss his midnight phone calls - ED.)

JOHN HAYES - Lost on October 9, 1994 while flying home from the Rough River Fly-In in Kentucky.

John was flying his Long-EZ, N33EZ, with Jack Fehling who was in his VariEze, N444EZ. About 15 miles northeast of Gadsen, Alabama, they encountered rain and Jack lost sight of John. He called John suggesting they land at Gadsen, but there was no response. John has never been heard from again.

The Civil Air Patrol initiated a search the following day and many friends participated. No ELT signal was received, even from the satellites, and no radar information was available. The area is heavily forested with pine and hardwood trees as tall as 60-80 feet. There are many ridges as tall as 2900 feet in the vicinity. The weather was 500' overcast with rain showers.

A rather massive search, both ground and from the air, failed to turn up anything and the CAP search and rescue was called off the first of November, 1994.

Our thoughts and prayers go out to John's wife and family members.

#### LETTERS

Dear RAF,

I am the Vice President of EAA Chapter 238 here in New Jersey and have served as Technical Counselor for almost 20 years. Over the last few years, I have become increasingly preoccupied with finding a better way of providing builders with faster and broader access to technical support. With that purpose in mind, eighteen months ago, I started an Electronic Bulletin Board specifically for sport aviation enthusiast across the United States.

Without having spoken to you previously about this technology, I am uncertain as to how much depth I should go in describing it to you. Stated simply, the *North American Sport Aircraft BBS* provides builders and Technical Counselors with a 24 hour on-line service. It is a dedicated interactive computer environment within which to communicate questions or problems related to building an aircraft and get them answered from a national pool of experienced people, not just local ones. There are no subscription fees or access charges. The service is free. To date, the board has attracted calls from every major country in Western Europe including Scandinavia as well as from North American builders. It was this broad acceptance that prompted the recent improvements in software. It is becoming increasingly likely that the BBS will become a node on at least one international message network by January of '95.

Presently, there are 19 special conferences on this BBS:

1. Safety: Items of urgency
2. General Purpose
3. Composite Construction
4. Monocoque Construction
5. Tube & Fabric Construction
6. Ultralight Aircraft
7. Help! (Requests for support)

8. Swap-N-Sell
9. Education: Books, Forums, seminars
10. Fuel Systems
11. Engines
12. Ignition Systems
13. Paint & Upholstery
14. Landing Gear: (Incl. floats & skis)
15. Avionics: (Incl. instruments & wiring)
16. Resources: (alternate suppliers)
17. EAA Technical Counselor (private)
18. Government Activity: Fed, State, Muni.
19. Calendar of Events

Others will be added as demand warrants it. In addition, there are 7 file areas which contain files that can be down-loaded to the caller's computer and which will also accept uploaded files.

1. Flight Planning & Pilot Proficiency
2. Building Tips & Techniques
3. Aeronautical Design & Analysis
4. Newsletters
5. Disk Utilities
6. Manufacturers
7. Special Interest Groups

Recently, the system underwent a major change in software so as to make the environment easier for me to manage and to provide a greater scope of services for builders and pilots. I have also gone to great lengths to maintain an environment that is free of computer jargon and user friendly so that those not yet comfortable with this technology will find it easy and beneficial to use. An invitation is being extended to all known manufacturers and designers of sport aircraft to use the board as a fast means of contacting their building groups and end users, something obviously not possible with the typical monthly or quarterly newsletter.

I would appreciate your extending my invitation to EAA chapters and urge them to call the BBS and leave information regarding their chapter activities. Ben Owen is aware of the BBS as is Jack Cox. There is hope that a complete national listing of Technical Counselors will be made available on disk media for posting so that builders will make better use of the TC programs.

I invite you to log on as well to see how it might support the EAA Chapter Office. The *North*

*American Sport Aircraft BBS* can be reached by dialing 908-755-5371 any time, day or night with whatever personal computer you may wish. The BBS currently supports any modem from 1200 baud and up and uses an ANSI screen environment.

If you wish to explore other applications, please call me by voice line (908-755-9573). I'll try to give you whatever assistance I can that will further the support of homebuilders and their projects.

Sincerely,  
Art Bianconi

This is a great idea and should be extremely helpful for builders. Many thanks for all the hard work, Art. ED.

### ACCIDENTS AND INCIDENTS

A Cleveland, Ohio, Long-EZ pilot walked away from a crash which occurred shortly after take-off from the Cleveland Hopkins airport. The pilot did not build the airplane but reportedly had flown more than 400 hours in the airplane. Apparently, he had some sort of control system problem but the pilot said he did not know what had caused him to lose control and crash. The aircraft was severely damaged and the pilot was very fortunate to escape with minor bumps and bruises.

We are attempting to obtain more information on this accident but it does bring to mind the subject of loose objects in the rear seat. When flying solo, your preflight must include a thorough check of the rear cockpit for loose objects that may jam the control stick. It could be something as unlikely as lipstick or a pencil falling from the baggage strakes. This could have very serious consequences should the controls become jammed - preflight your airplane thoroughly!

### SKY RANCH ENGINEERING MANUAL (SECOND EDITION) BY JOHN SCHWANER

This is quite simply the best book on the subject of air cooled aircraft engines that we have ever read. Covering a variety of subjects including engine inspection, engine performance, cylinder

repairs, lubricants and wear, hose assemblies, trouble shooting, performance limits, vibration and balance, and an excellent section on fatigue analysis, this book is easy to read and understand. It contains valuable "gems" of information derived from a lifetime of overhauling engines and a hobby of studying failures. It is an absolute must for anyone interested in operating and maintaining a Lycoming aircraft engine. There is a complete list of all Lycoming engines in the Lycoming engine specification chapter.

There are many operational techniques described from how to start the engine through proper leaning, to taxiing and shutdown techniques, oil and grease specification and uses, etc., etc. We highly recommend John's book.

Call: Sacramento Sky Ranch  
916-421-7672

### STATIC FUEL FLOW TESTING

In CP79, we reported the results of a thorough static fuel flow test conducted on Mike and Sally's Long-EZ, N26MS. This test was conducted at two fuel levels, tanks with half fuel and tanks almost empty. This was checked with the boost pump running as well as with the boost pump turned off.

The results have been questioned by several builders who generally agreed on the flow with the electric boost pump running but who could not achieve any flow at all with the pump turned off, even with a full tank of fuel!

Well, it turns out that there may be a plausible explanation. We have published static fuel flow results over the years from the prototype Long-EZ, N79RA; from Burt's Defiant, N78RA and from Mike's, N26MS. All of these aircraft had used engines in them which also had used, and probably quite old, mechanical fuel pumps installed on them. All of these pumps were manufactured before 1988. In 1988, Lycoming began manufacturing the AC mechanical fuel pump themselves. All of these pumps have 4 ounce springs installed at both the inlet and outlet of each pump. It takes about 1 psi to open one of these spring-loaded valves. In order to accomplish this, the fuel head would have to be at

least two feet above the mechanical fuel pump. Actually, even with full tanks, we only have a little more than one foot of head on a Long-EZ.

AC mechanical fuel pumps manufactured prior to 1988 had only 1 ounce springs installed at the inlet and outlet valves. One ounce springs at the valves will allow about 5 gallons per hour of static flow. We believe this solves the mystery of why some builders have easily achieved the fuel flows called out in the CP and others could not achieve any flow (pump off).

Mike is close to a major overhaul on his engine and will conduct these tests, once again, with 4 ounce springs in the mechanical fuel pump and we will report the results here in the CP. With your boost pump turned on, you should have at least 20 gallons per hour of flow, even if you have the new mechanical fuel pump.

The electric boost pump (Facet Square pump) allows fuel to flow through it even when it is not running, the problem is in the newer AC mechanical fuel pumps. It may be possible to design a fuel system that by-passes the mechanical fuel pump, but keep in mind, that a system like this requires a check valve in the system and check valves, themselves, have spring-loaded valves that require some pressure to open so you may not gain any redundancy. You can take some solace from the fact that every low wing aircraft (Cherokee, Grumman Tigers, Cheetah, Mooney, etc.) suffer from the same situation and we are not aware of any of these aircraft having engine failures due to a double failure (both fuel pumps fail at the same time). We welcome any feedback on this subject. As long as one, or both, fuel pumps are functioning, the engine will run to its maximum power capacity.

### ENGINE MOUNT CRACKING

Reports of cracked Dynafocal engine mounts continue to come in - not a lot, but enough to cause concern.

A little history may be in order, to put things in perspective. The original VariEze, N4EZ, was powered by a Continental O-200. The engine mount and the interface between the steel tube weldment and the fuselage was designed to handle

up to the Continental 0-200. Later, several builders began to install the Lycoming 0-235 on the VariEze. A group of VariEze builders on the east coast did the first installation and structural analysis. Burt later checked out their work and approved this engine installation and, in fact, the Lycoming engine installation instructions were produced by this group, not by RAF.

When the Long-EZ was designed, the VariEze Lycoming 0-235 installation plans were used as the basis for the Long-EZ engine installation. There were no modifications to the steel weldment (mount) or to the interface to the fuselage (aluminum extrusions). The plans-built Long-EZ, including the prototype, N79RA, have exactly the same engine mount as the VariEze (which was originally designed for the Continental 0-200 which weighed only 190 lbs.)

Many builder/flyers have seen fit to install larger engines than authorized by the plans. These builders must realize that they have now taken on the responsibility of designing their own engine installation. RAF has not designed the Long-EZ engine mount to handle any engine larger than the Lycoming 0-235 or the Rolls Royce Continental 0-240.

Simply bolting a larger engine onto the 0-235 engine mount is asking for trouble. The extra weight and, more importantly, the extra vibrating mass of the engine/prop extension/prop may eventually result in cracks in the tubular engine mount.

By all accounts, the first indication is what feels, to the pilot, like a rough running engine. Should you notice a sudden, unexplained roughness or harshness from the engine compartment, land as soon as possible, remove the cowling and conduct a thorough examination of every tube and weld in the engine mount weldment using a strong light. If any cracks are found, do not fly again until this problem has been repaired.

What to do about this? Unfortunately, RAF is no longer in a position to be able to design and test a new engine mount so, it really is up to each builder/flyer. At the very least, a few well-designed gussets, strategically placed, or even a six point mount, may be required - are there any

mechanical engineers out there willing to take on this task?

In the meantime, inspect your mount often and please report all incidents of cracking to RAF.

#### PLANS CHANGES AND OTHER IMPORTANT MAINTENANCE INFORMATION

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#### LONG-EZ ALERT

Conduct a thorough inspection of your welded steel tube engine mount before next flight.

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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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#### 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

FeatherLite  
PO Box 781  
Boonville, CA 95415  
707-895-2718

Brock Mfg.  
11852 Western Ave.  
Stanton, CA 90680  
714-898-4366

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

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RAF recommends the following prop manufacturers:

Bruce Tift  
B&T Props  
75872 Mosby Creek Rd.  
Cottage Grove, OR 97424  
503-942-7068

Ted Hendrickson  
600 Superior St.  
Concrete, WA  
98237  
206-853-8947

## SHOPPING

### MOLDED VORTEX GENERATORS

CCI is pleased to announce the availability of pre-molded generators. Specially engineered for aircraft application, the 1" long by 0.40 high device is injection molded from U/V resistant polycarbonate material.

The design has been engineered so the "sail" is stiff enough to impart the desired energy into the boundary layer but flexible enough to resist breakage from "hangar rash" and the curious. Because they are molded from light weight polycarbonates rather than cut from extruded aluminum, these pieces are less likely to cause injury, chip paint or cause propeller ingestion damage on pusher aircraft. Available in white, they can also be custom molded in quantity to match specific paint colors for aircraft manufacturers and OEM suppliers. Coloring does not compromise their ability to withstand harmful ultra-violet radiation.

The gluing surface of each generator is flexible and slightly concave to facilitate adhesion to either cambered or flat surfaces. The perimeter of each base is feathered to blend seamlessly onto the surface to which it is attached. After installation, the sail appears to be molded an integral part, rather than an "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.

Effective may 15, 1994, 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 607  
Plainfield, NJ 07061-2318

Please allow 2-3 weeks for delivery, Sorry, no COD's. For more information 6:00-10:00pm EST, Mon.-Fri. 908-757-9573  
908-755-9639 FAX

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

### 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.

Contact: Bill Butters  
Advanced Aircraft Electronics  
PO Box 4111  
Florissant, MO 63032  
1-800-758-8632

### LONG-EZ PARTS PRICE LIST FROM FEATHER LITE

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 ex-RAF employees and EZ builders and flyers) at:  
 Feather Lite, Inc.  
 PO Box 781  
 Boonville, CA 95415  
 707-895-2718

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**NEW FOUR PIPE EXHAUST SYSTEM**

Nat Puffer has designed and tested a new exhaust system for his Cozy. He tells us it will fit any pusher, including a VariEze or Long-EZ. There are slip joints at the flanges to prevent cracking and stainless springs are included to retain the exhaust headers into the short slip joints. These exhaust systems can be ordered directly from the manufacturer: Custom Aircraft Supply  
 1318 Gertrude Street  
 San Diego, CA 92110  
 619-276-6954

\$500.00 includes shipping, handling and packaging.

Nat has had good luck with a heat muff wrapped around both #2 and #4 exhaust headers. There may, or may not, be enough room in an EZ cowl to do this.

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**RAF "GOODIES" AVAILABLE**

Charms-Long-EZ/VariEze (gold or silver)	6.50
Name patch	1.50
Silhouette patch (no Defiant or Long-EZ)	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
Night photo by Jim Sugar	5.00
Videos - Building the Rutan Composite	25.00
Go-A-Long-EZ	25.00

**FOR SALE**

TWO HENDRICKSON PROPS - never used - one is Maple, the other is Birch. Suitable for Long-EZ or VariEze with Lyc )-235, 108-118hp. Drilled to

fit SAE-1 hubs, 3/8" dia. holes on a 4-3/8" bolt circle. These are beautiful props.  
 Call: Gerry Greer  
 206-364-4313 (Seattle area)

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**TITANIUM ACCESSORIES AVAILABLE!**

Custom anodized in 15 different colors,  
 Rudder and aileron gust locks - \$20.00-30.00.  
 GU canard full span vortex generators with layout template - \$170.00. These are hot looking !  
 Contact: Mike Rhodes  
 PO Box 1052  
 Grover Beach, CA 93483-1052  
 805-489-8155

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**F-16 DEEP STALL INCIDENT VIDEO**

Gives a pilot's-eye view of a deep stall which almost doesn't recover. Includes a letter describing what the important learning points are from the video, especially as they apply to EZ pilots who are unfamiliar with deep stall, as well as a transcript of the audio portion (for clarity).  
 Price - \$13.00.  
 Contact: Charlie Precourt  
 7015 Little Redwood Dr.  
 Pasadena, TX 77505-4433

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**NOSE GEAR RATCHET**

Dr. Curtis Smith's nose gear crank ratchet is still available at \$38.00 which includes postage and packaging. No need to call, just send check or money order. This little device should be considered a "must" by all Long-EZ and VariEze builder/flyers. Once you have flown with it you will wonder how you ever did without it.  
 Contact: Curtis Smith  
 1846 Sextant Dr.  
 Worden, IL 62097  
 618-656-5120

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**SIGHT GAUGES**

New, improved fuel sight gauges. Use with auto fuel or Avgas. Clear bubble with white background. Retrofit for Long-EZ and VariEze. \$35.00 per set.  
 Contact: Vance Atkinson  
 3604 Willomet Court  
 Bedford, TX 76021-2431  
 817-354-8064



**NOSE WHEEL SHIMMY DAMPER**

Bob Davenport tells us that he can still supply this excellent damper. Unfortunately he gets very few orders nowadays but can sell them even if he gets only one order. Including the set up charge, the cost is \$236.00 delivered in the USA.

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

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**NEW STARTER FOR 0-200 CONTINENTALS**

B&C Specialty 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

PS If you did not see this jewel at Oshkosh 1994, you should try to see one soon. They are really objects 'd art! ED.

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0-235-C1 w/accessory case. Slick mags, starter, alt., fuel pump, vac. pump, carb AD'd, no prop strike, 1800 TT logs. Light rust found in cylinders. Needs TOH. \$2200.00

62x66 B&T prop (60 hrs.).

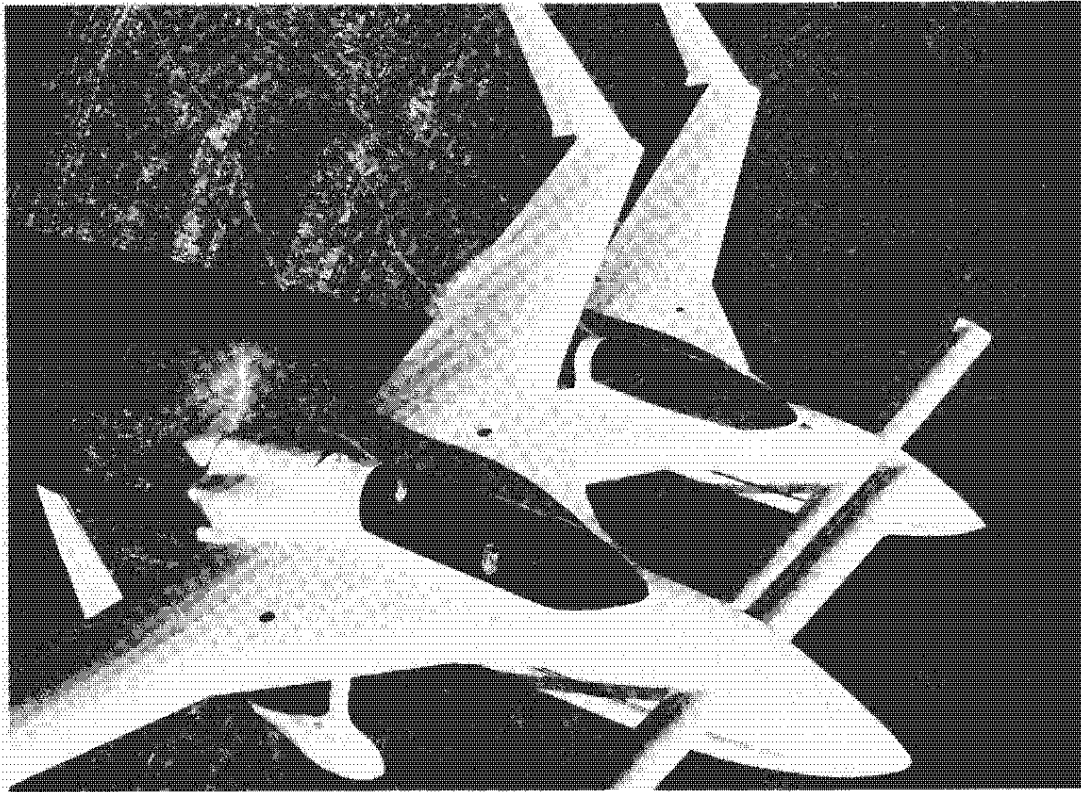
3" extension.

Brock exhaust.

Air valve and intake elbow.

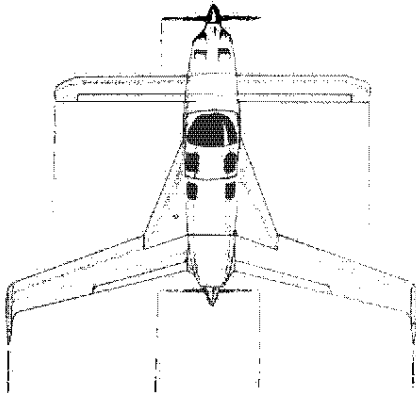
Call for prices on above items.

Contact: Francois Choquette  
187 W Plumtree Ln. #61  
Midvale, UT 84047  
801-566-6102 (H)  
801-565-4674 (W)



Doug Shane and Mike Melvill in close formation - a beautiful shot by Jim Sugar

**RUTAN AIRCRAFT FACTORY**  
**1654 Flight Line**  
**Mojave, CA 93501**



**JAN.: 95**

The line which appears above your name lets you know through which *Cunard Pusher* you are paid. If your label says **LAST ISSUE CP80**, then this is your last issue, and you need to renew.

**CP 80**