

# EXPRESS LINK

NEWSLETTER



March, 2000 - No.22

**Ed note:** The editors have agreed to act as an "unofficial" factory newsletter until such time as there is sufficient staff time available to allow factory staff production. Articles submitted from factory sources will be identified with an "EXPRESS factory" byline.

## Factory Gets "51% Rule" Compliance OK For Builder Assist Program From FAA

Program To Proceed "Full Speed Ahead"

*From Express—Aircraft Factory Sources*

According to a reliable factory source the *EXPRESS* Builder Assist Program, which is one of the earliest and most comprehensive builder assist programs, has received FAA approval as meeting the 51% rule requirements for Homebuilt Aircraft certification. This means that the factory can now proceed with the Builder Assist Program and new kit sales, expecting builders to be eligible for their individual repairman certification. You may already have read about this milestone in the Factory on-line newsletter by this time.

Connected builders may have noticed the recent discussion on Tom Hutchison's web page regarding individual builders having problems getting parts and documentation to help them finish their projects. The factory response revealed that, due to the unexpected popularity of the Builder Assist Program and the re-engineering of many components, some slow response to requests for parts and materials has been unavoidable. According to Chris Michalak, the factory is "painfully aware of their inability to respond to such requests as quickly as they would like, but at the same time, they are unwilling to ship parts and documentation until each mod is fully tested in service." They hope that builders will agree with this

philosophy and will be as patient as possible while waiting for the proven parts. Chris says "selling parts is an important segment of our overall income stream, and we are as anxious to have parts available for distribution as builders are to get them."

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## EXPRESS Builder Featured In Custom Plane Magazine Edition

Jim Butler De-mystifies Computerized Dynamic Engine/Prop/Spinner Balance

If you don't subscribe to Custom Planes magazine, get on down to your best bookseller and get yourself a copy of the March issue. One of the feature articles is written by Jim Butler who, with his wife Kay, was in the first group of *EXPRESS* Aircraft Builder Assist Program participants. Among other things, Jim also operates a computerized program that analyzes the harmonic imbalance of an engine/prop/spinner combination, while the engine is actually running.

Jim got together with builder Reinhart Metz from Chicago and ran a complete balancing program on Reinhart's IO-360 powered, CT example.

Metz reports a marked difference in performance and vibration levels. The noise level in the cabin has also been substantially reduced.

The very well written article is documented with appropriate pictures of the actual test with Reinhart's CT (and Reinhart) prominently displayed.

The article is not only good press for *EXPRESS* Aircraft generally, it is well worth reading and considering for any experimental aircraft engine/prop/spinner combination.

In E-mail conversation with Jim, he advises also that he has authored a series of articles on the *EXPRESS* Builder Assist Program, for Kitplanes magazine, the first of which will appear in the July issue.

According to Jim, he and Kay will not make Sun 'N Fun in their new *EXPRESS* Millenium, but do plan on being at AirVenture 2000.

For Experimental builders who may want to avail themselves of Jim's services, the cost is \$150 per engine, plus expenses. For details contact Jim directly at 219-297-3567 or E-mail him at: James Butler<butler@ffni.com

VISIT THE *EXPRESS* FACTORY WEB SITE: [WWW.express-aircraft.com](http://WWW.express-aircraft.com)



### Factory Telephone And Fax Numbers

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**Web page:** [www.express-aircraft.com](http://www.express-aircraft.com)

**Larry Olson** - Operations Manager

**Chris Michalak** - Director of Marketing/ Avionics

**Frank Martin** - Mechanical

### Flap Drive Limit Switches

We spent a fair amount of time awhile back trying to work out a simple adjustable arm that could be attached to the flap torque tube system. We tried to emulate the ones used by Jim Warner - way back then - then turned to factory supplied drawings and made a couple of sets of those, but were not satisfied. The ones which were strong enough were not easily and accurately adjustable, and the ones which were easily adjustable were too flimsy and not accurate enough to provide repeatable results.

The picture below illustrates our final solution. All of us have stainless adjustable clamps somewhere in a drawer and can probably find some flat head No. 6 screws about an inch long and nylon insert nuts to fit.

Using a small piece of scrap fiberglass about 4 inches by 6 inches we mounted two micro switches facing each other on nearly the same plane horizontally.

To trip the switches at the appropriate time we found two stainless adjustable clamps which would fit the flap torque tube and drilled a hole to accommodate a No. 6 flathead screw in the solid part of the clamp. A screw of the approximate length was inserted into the clamp from the inside and secured with a nylon insert nut on the outside. After installing each prepared clamp the final length was determined and the excess removed with a Dremel fiberglass cut off wheel. The first time the new arms were tried, the levers on the micro switches tended to hang up in the exposed screw threads. After trying several methods of avoiding the hang up - including using a nut on the end of the screw - we finally came up with the idea of threading a short piece of clear plastic tubing on the end of the screw. End of the problem. The arms as shown are strong and easy to adjust accurately. Needless to say the flaps stop at the upper and lower limits exactly the same every time.

We liked the idea so much that we fabricated an additional one, which actuates a mode switch in our angle of attack indicator system.

**Right:** Flap drive limit switch installation - **left** side flap torque tube

### Strings Too Short To Save!

*...real and unconfirmed news and rumors which may possibly be of interest to EXPRESS voyeurs!*

...The CBROS hangar is now an "EXPRESS factory". Builders Shawn and Nadine Kelly and Jim Ward, all from San Jose, have recovered their kits from the real factory, where some builder assist procedures were completed, and set up next to the CBROS project. Both Kellys and Jim are working hard on their projects, hoping to finish them as quickly as possible.

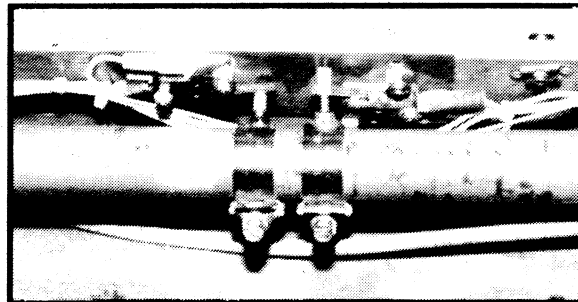


...Reinhart Metz, the Chicago based builder, managed to squeeze a visit to the CBROS hangar into a San Francisco business meeting schedule in February. He relates that, weather permitting, he is flying his CT example about three times a week with great success.



...Jerry Sjostrand has been in Arizona on a bus mans' holiday. He has spent some time getting Bob Gisburn's Series 90 back in the air after it was painted. (at last!) Jerry reports that Bob's "big engine" version really gets up and goes - especially on take off. Jerry also noted that Bob was experiencing some vibration of the main gear wheel fairings, apparently due to the flexibility of the plastic landing gear legs. A slightly stiffer bracket and tighter attachment of the fairing to the gear leg has apparently solved that problem. Jerry has also has been working with Mike Auclair and Frank Harris in the Tucson area.

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The "EXPRESS BUILDERS HELP PAGE" on the internet visit the URL: <http://www.sierratel.com/jerico> Jerry Sjostrand maintains this web page specifically for EXPRESS builders. A good place to find completed aircraft and major kit parts for sale, as well as some detailed technical building tips.

### CORRECTION

In the previous issue of the EXPRESS Link, the URL for the EXPRESS BUILDERS FORUM web page was incorrectly identified. The correct address is: <http://www.express-builder.com>

The "EXPRESS BUILDERS FORUM" the web site maintained by Tom Hutchison can be found at: <http://www.express-builder.com> This page is particularly useful for builders who have specific questions or needs. Not as much general technical information or detailed building tips as the "Help Page".

**VISIT THE EXPRESS FACTORY WEB SITE: [WWW.express-aircraft.com](http://WWW.express-aircraft.com)**



## Landing Gear/Wing Intersection Fairings - Part I

*Following a conversation with Reinhart Metz regarding the construction of a fairing to clean up the main landing gear/wing intersection, wherein Reinhart mentioned that he was satisfied that constructing such a fairing offered little reward for the effort involved, we promptly discarded his recommendation and proceeded to give it a try. We further decided to go the whole way and make a female mold. Using a method which was new to us, we bought a large block of modeling clay (which can be easily obtained from art supply stores) and became sculptors. The mold which will result from the following process will allow for an almost unlimited number of parts to be made from the same mold. For "one off" parts a simpler method can be employed.*

REMEMBER THAT MUCH OF THE FOLLOWING PROCESS WILL BE DONE UPSIDE DOWN, UNLESS YOU ARE SMART ENOUGH TO COMPLETE THIS PROCEDURE BEFORE YOU PIN THE WINGS ON!

### The Plug

The procedure we used started by filling the space around the gear leg in the lower wing skin with 1/4 inch foam, hot melt glued in place and applying clear release tape to a large area of the wing around the area of the landing gear and down the gear leg itself. Next, large slabs of clay about 1/2 in thick, 4 inches wide and about 15 inches long, were smooshed (technical term) into the corners of the intersection and wrapped around both the front and back of the gear leg. From that point smaller pieces were added as needed until enough clay had been applied to more than mold the finished shape. A word of caution here. The clay we used was black and tended to stick to everything - including our hands. We recommend that surgical gloves be worn at this stage. Also try to keep small pieces off the floor as they tend to be picked up by shoes. (The last thing you want is to track little pieces of sticky, oily clay onto your wife's carpet) We continued to add and remove clay as required and found a hard surface

roller of about a 1 1/2-inch diameter worked well. Also, while we didn't use any, acquiring some artists sculpting tools when you purchase the clay will probably make the job more accurate and easier.

All edges on the wing skin were tapered to a featheredge, but we remembered to leave the clay about 1/8th inch thick at the edges around the gear leg. This will allow for the three or four layers of glass to be applied to the female mold and still leave some clearance. You will find that the clay is "tender" as you get close to the final form, so you will have to work carefully. The finished clay form (plug) will remain soft even while the glass is being applied, so don't expect to stipple with your usual enthusiasm. Be certain at this stage to plan to make the part well past the dimension you expect for the final part so that the part can be trimmed back to "good glass".

Once satisfied with the shape and extent of the clay mold, a recommendation we found on the WWW suggested that the clay be coated with liquid PVA mold release agent. We did not use PVA, as we found the advice after we had completed our layups, but using it is probably worth a try.

### The "splash"

A "splash" is a term used in the fiberglass industry to describe a part pulled from a plug using previously existing parts.

To facilitate the application of the glass, we made some rather accurate paper patterns of the glass to be applied and labeled them inboard, outboard, fore and aft. The patterns were transferred to a relatively light bi-directional cloth, cut on the 45 degree bias. We used two layers, anticipating that the part we pulled would be reinforced with enough glass to make a stable female mold. If one was making a mold on the bench, the complete rough mold and its reinforcing can be layed up at the same time - but that's another story. We did not use peel ply at this stage.

After curing, the part was cut from the aft edge of the gear leg to the aft edge of the part, behind the gear leg to facilitate removal. In practice some of the clay

mold stuck to the part, but most stuck where it had been applied as a mold which, either way, is a non issue. In any case we were through with the mold, so its condition didn't matter at this juncture.

With an intact, but fairly flimsy, part in hand, we proceeded to instant glue the part back to one piece and clean off most of the clay, but were not picky as we would be working with the outside - where the clay wasn't.

### The mold

The next step was to attach the part to an emulation of the bottom wing skin in the area of the landing gear leg exit or, as we were able to do - find a vacant wing skin. It just so happened that the Kellys have their wings set up on the fixtures as they complete the internal stuff and they allowed us to slip the lower skins on and cover the area to be glassed with clear tape. After the tape was treated with a coat of wax, the part(s) were attached with hot melt glue (underneath only) in the appropriate position. Next we reinforced the flimsy part(s) with enough fiberglass to stabilize their shape and allow for finish filling and sanding on the female side. To further add reinforcement and a form which would hold the part(s) in a position to allow finishing and application of glass which would make up the final part, a particle board box, deep enough to clear the part and cut to match the contour of the wing skin, was nailed together.

Four layers of 7781 cloth was added to the original part(s) and was extended about 4 inches outside the tangent on all sides. The dimensions of the box (s) allowed approximately 1 inch of wet fiberglass to extend outside the box all around. This "flap" was then turned up, and attached to the sides of the box. We found that the outboard sides of both parts on the landing gear end, as they came off the clay mold, cleaned up about an inch shorter than the inboard side. The short sides were extended during the reinforcing process by using a foam plug, shaped like the landing gear leg but

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## Getting a Brake!

*For the builders out there who sometimes feel dumb and dumber, the following is offered as proof that you are not alone. We hereby sacrifice ourselves to the "whole truth" principle and relate, in agonizing detail, the aggregate of probably the worst set of problems that we have made for ourselves.*

One of the most frustrating system problems we have had to work out on our CT example has been the brake system. It took us an agonizingly long time to finally get the system purged and leak free. It all started when we decided that, in order to prepare to run the engine and taxi, we were going to need a reliable method of stopping. Going boldly to the heart of the problem we borrowed a pressure bleeding system from a neighbor builder and started to pump 5606 into the bleed valve of the right brake. We immediately discovered our first mistake:

Don't ever, ever leave a system "half installed". Whatever you do, **complete and test** whatever parts of any system you install before moving to another procedure, especially if parts are to be covered up.

We found several significant leaks in fittings that we could see, and some leaking fittings that we could not "see". After cleaning up about half a pint of 5606 from the floor of the airplane and the hangar floor, we attempted to eliminate further hemorrhaging by working on tightening all the fittings we could get to and making plans for how we would approach others.

To review: from earlier issues of the *EX* Link you may recall that our system uses the kit furnished Cleveland individual master cylinders, with a firewall mounted reservoir connected with Poly-Flow tubing to the master cylinders, 1/4 inch high pressure flexible hoses out of the M.C.'s to the dual shuttle valves, out of the shuttle valves to the base of the nose gear support in high pressure flexible hose, from the nose gear support to the fuselage side near the flap torque tube exit hole in 1/4 inch alum tubing, about a two foot piece of h.p. hose to the top of the landing gear leg, 1/4 inch aluminum down the back of the leg terminating in a 6 inch piece of h.p. stainless, braided hose. Brakes are kit-

furnished Matco.

Noting that one of the drips was coming from a fitting on one of the shuttle valves, we found that it was necessary to get to the shuttle valve, requiring the removal of the cover on which was mounted our Vision Micro System 800 engine monitoring CPU and other sundry electrical components - a major job. We had been previously warned by builder Jack Volkamer of the problem he had bleeding his system with shuttle valves so we became suspicious of the shuttle valve operation right away. With all the leaks sealed we again tried bleeding the right side and had no success in getting all the air out of the system. We tried bleeding from the bottom up and bleeding from the top down with no success.

To make a long story shorter we ended up removing both shuttle valves to check their operation (we now know that this can be done if necessary) - they seemed to be OK - and put new O rings in a couple of master cylinders (if you have tried to do this with the instrument panel in place, you can appreciate the difficulty of this procedure). We tightened all the fittings in the shuttle valves and tried the bleeding process again. Still no pedal. After purchasing another gallon of 5606 we took the bull by the horns. We connected the pressure pot to both left and right bleed valves at the same time and pumping up the pressure till we were afraid the pot would burst, we tried the bleeding procedure again. We finally found that by holding a finger on the reservoir inlet/outlet fitting and allowing the pressure to alternately build in the system and removing the finger to allow the built up air to escape, after about thirty minutes of this procedure, there was no more air in the system and we had brakes! It turned out that the shuttle valves and all master cylinders were working just fine. Except for the loose fitting in the shuttle valve we could have been successful if we had had no leaks and had used the final bleeding technique. This was a very educational process - which is part of the

romance of kit building, isn't it?

As builder Russ Porterfield continuously warned us, "don't install anything any place you can't easily maintain it!". We plan to keep that admonition in mind as we proceed.

## ...Strings Too Short To Save!

*(Continued from page 2)*

...Builder Denise Waters has contacted us to request a template for a baggage door installation. Denise says that she is back building after "real job" related delays. (Don't you hate it when work interferes with your *EXPRESS* construction?)



...Jim Lewis (VA) and Laslo Zamoli (PA) have been checking out a Florida

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## Normal Battery Life

During the continuing process of bringing all the electrical systems on line we have discovered that our main battery, while showing full charge, was actually supplying just over 10 volts to the system.

In discussing the problem, which we thought might be attributable to the line loss from the battery (located just behind Blkhd. 162) to the main bus, our electrical Guru, Gary VanRemortel, disagreed. His opinion was that all batteries have a useful "life" and should be replaced about every three years. We removed the battery and found that some curious bulging has occurred on all sides, obviously a casualty of the "electronic wars" of wiring and checking out all the electrical system(s). Since our battery is at least three years old, we will have to replace it before we attempt engine start.

By the way, for the best single source for parts, supplies and tools for the home builder, check out Gary's web page at: [www.sound.net/~hartmann/yelrpage.htm](http://www.sound.net/~hartmann/yelrpage.htm)

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### ...Strings Too Short To Save!

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builders suggestion that Chevrolet S-10 folding truck seats fit nicely into the **EXPRESS**. So far the main drawback is that the seats are estimated to weigh approximately 60 lbs. each - as compared to only 16+ lbs. for a standard **EXPRESS** upholstered front seat with temper foam. If the weight penalty can be mitigated, it sounds like a possible future article for the **EXPRESS Link**. (hint, hint, you guys!) Jim has been struggling to gather all the parts needed for him to proceed with his project, and already has a beautiful, reman IO-360 Lycoming in his shop, ready to go. (unless he decides to mount it over the fireplace in his living room). Jim reports that his wife, Nancy, is better at applying fiberglass than he is. So that's a news flash?



...By the time you read this Tom and Elizabeth Hutchison will have moved at least part of their Builder Assist Program S-90 to their home base in Pilot Rock, Oregon. If I have my facts straight, the Hutchison "airframe only" project is the first such Builder Assist Program project completed using the new jigs and the latest parts in close to the advertised time. It will be interesting to see what options the Hutchisons choose for systems, engine, avionics, finish, upholstery, etc.



...The **EXPRESS Link** welcomes some new subscribers including: Peter Zuber, 5862 Surrey Place, Norcross, GA 30093; Jeff Dingbaum, 320 Winslow Way, Lake In The Hills, IL 60102; Chuck Willis, 3021 River Park Drive, Wichita, KS 67203-2079; Mike Auclair, 1855 Kittyhawk Way, Tucson, AZ 85737; Dr Robert Henderson, 3680 Hipsley Mill Road, Woodbine, MD 21797-7612(early purchaser re-energized); Wayne Pearce, 1363 Thomas Mill Road, Easley, SC 29640;



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### ...Fairings

(Continued from page 3)

thicker, as discussed above during shaping of the mold. Once the reinforcing glass had cured and was permanently attached to the boxes, the rough mold was released from the wing and set aside for 24 hours to allow for a complete cure before the finishing steps were started. (the ambient temperature in the hangar during this period was only about 60 degrees F.)

### Finishing the Mold

When satisfied that the rough mold was stable, filler material such as Bondo (we used Rage) was applied to the entire female mold surface and block sanded to level all high and low places. Additional filler was also applied to the mold in the area of the landing gear leg exit to clean up the edge and achieve the final dimension to fit the leg after the application of the fiberglass required to make the final part. The finishing process is very important to the quality of the final part as any imperfections are translated directly to the part, so the application of filler and subsequent sanding should continue until one is convinced that the mold is true and without scratches or waves.

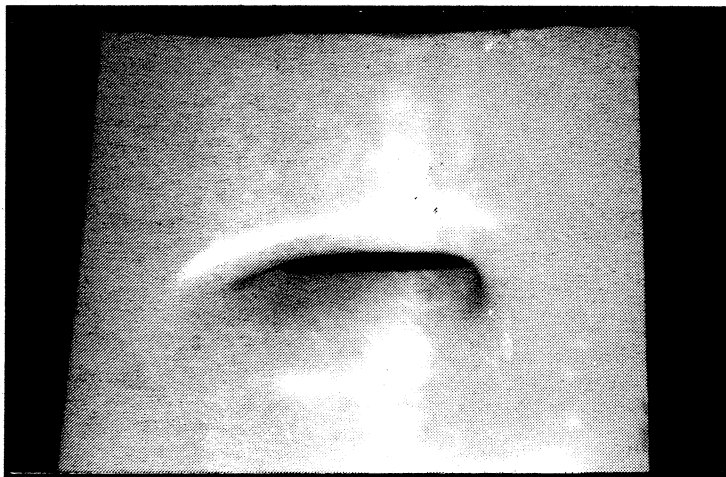
When satisfied with the contour and surface finish a quality filler primer such as Poly Primer(Pacific Coast Lacquer) is sprayed on the entire mold surface. Primer is applied as thickly as possible without incurring sags or runs. After the primer is well cured, the mold surface is

carefully sanded using a flexible block with 180 then 240 paper until smooth, or high spots begin to show through. Sanding without using some sort of block will not produce a "fair" surface as high and low areas will be sanded equally. This process is repeated until a smooth, fair surface is achieved. Final sanding is done wet, using 400 grit wet or dry paper.

The final step in preparing the mold before making the final part is waxing the surface to ensure a clean release. This step is very important so don't cut corners here. The wax (we used Meguiar's mold release wax, but any good carnuba based wax will work as well) is liberally applied to the entire mold surface. Try to do this step with the ambient temperature at 70 degrees or more, as this will facilitate the spreading and adhesion of the wax.

Working in small circular motions apply the first coat and allow to "cure" for about 30 minutes. Lightly buff the first coat using a soft, clean rag and immediately apply the second coat. Allow 6 to 8 hours for the second coat to "cure" and buff vigorously to a glossy shine. Apply a third and fourth coats using the same techniques as for the first two coats, except following the fourth coat, buff to a high gloss. The mold is now ready for the manufacture of the finished part(s).

The process of making the finished part, including gel coat, if desired, will be covered in the next issue of the **EXPRESS Link**.



Above: Mold for left side finished, waxed and ready for application of glass

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## About That Lead In Your Tail!

### CT Builders, Read on

Slowly, but surely, running out of things to finish (many of which we have put off because we weren't sure of the best answer or were avoiding getting dirty or standing on our head), we came at last to the final balancing of the elevators. We had known for some time that we were going to have to do one of two things to bring our elevators into a 100% static balance configuration as suggested in the construction documentation - after they had been painted.

The choices were fairly obvious: 1) remove weight behind the hinge line or; 2) add weight in front of the hinge line. The final solution turned out to be a combination of the two options.

After recovering all the parts for the trim tab system which had been set aside some time back, mounting a new variable speed MAC servo and installing the trim tab, we set to work removing as much weight as possible aft of the hinge line by sanding off as much primer and filler as we could from the elevators and trim tab. That done, we found that, even without the final paint, the elevators were still "tail heavy". Rough calculations showed that up to 1 lb. of additional weight added near the leading edge of the elevator balance area would be needed on each elevator. At this point it became apparent that major surgery would be required to add that much weight.

The best solution we could come up with that would allow the addition of the necessary weight, was to bond the "horn" at the end of the horizontal stabilizer to the leading edge of the elevators and cut the horn off as part of the elevators. With the old end of the horizontal stab now part of the elevator balance area, after chipping out the 40lb. foam rib we had installed to close out the aft edge of the original horizontal stab "horn", we then filled the available cavity with lead, which was molded to fit. The final amount of weight that we were able to add was just over one pound in each elevator tip. With the moment approximately 6 inches forward of the hinge line, we are satisfied that, after painting the elevators, we will achieve the required

balance. The final weights of our elevators w/o paint turned out to be 18 lbs. for the right and 19.25 lbs. for the left. (the one with the trim tab)

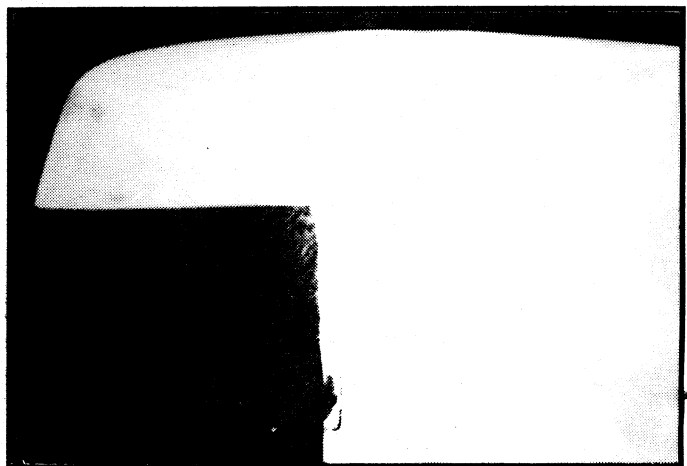
Jerry Sjostrand faced a similar problem and used a different solution. He added a lead block approximately 3/4 inch thick, and about 1 1/2 inches long with a profile of the elevator/horizontal stab at that point to the inboard edge of the elevator just behind the original leading edge and cut out an appropriate clearance area in the outboard rib area of the horizontal stab.

Reflecting back on our original construction, even though we added about 1 inch to the inboard edge of the original elevator balance area, it was not enough. Also, we could have built a lighter trim tab. Those builders who have not completed construction of their elevators would do well to: 1) add at least 1 1/2 inches to the elevator balance area; 2) leave the thickness of the horizontal stab and elevators at the outboard end of the horizontal stab somewhat thicker (which will require some build up of the spar squish in that area); 3) do whatever you can to keep the aft portions of the elevators as light as possible and; 4) make an extra effort to keep the trim tab construction as light as possible while maintaining structural integrity. *Note: We found it impossible to balance the trim tab.*

Also keep in mind that it is much more difficult to add weight than to remove it; however, as Jerry reminded us, lead is very difficult to drill or grind.

Jerry also has come up with an alternate method of fixing the elevator counter weights, while working with Frank Harris in Tucson, AZ, which we will document in the next issue.

Right: CBROS, CT elevator balance area after modification, but before final finish.



### ...Strings Too Short To Save!

(Continued from page 5)

...CBROS partner, Peter Becker, has sold his CT kit to partners Jeff Turner and Dr. Richard Herr, both of Modesto, CA. They have moved the entire kit to a hangar at the Modesto Airport and have plans to start work as soon as possible. Dr. Herr has had previous experience building what turned out to be an immaculate Pulsar.



... Hardy Huber, second builder to complete a CT example way back in 1994, checked in from his home base in Florida. He reports that motorbike sales are strong, but that he is his only employee, so far. Hardy attends many of the larger airshows, as well as boat and RV shows. Hardy says the show circuit is not as glamorous as it appears. His *EX-PRESS*, CT is going strong, but rarely gets out of Florida. He uses a carefully packed van for transportation to the various show venues.



... Also heard from Steve Backe, now based in Petaluma, CA. Steve reports that, what with the unsettled California weather and two deaths in his family, he has not been flying his CT. He has made plans for a serious test series following installation of wheel fairings.

MORE NEXT TIME!

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## **EXPRESS STUFF FOR SALE:**

**COMPLETE WHEELER EXPRESS CT KIT FEATURING TIO-540 LYCOMING WITH 3HRS SMOH ON A TEST STAND - MAJOR PART OF FIBERGLASS WORK COMPLETED**

Doug McMillan's partially complete CT **EXPRESS** is being offered for sale by his estate.

CBROS is familiar with this particular example, as we worked with Doug on the completion and installation of the empennage. We have made a short video tape of the aircraft in Doug's workshop and will loan either an 8mm or VHS copy to anyone seriously interested in purchasing this project.

One of the most unique features of this project is the adaptation of a turbo charged Lycoming 540 C1A, which was overhauled and test run by Larry Olson at **EXPRESS** Aircraft Technology. The engine is available separately, including engine mount, log books and all accessories.

**For details contact CBROS Inc, directly at:**

**(925)455-1036**  
**E-mail: [bnbent@pacbell.net](mailto:bnbent@pacbell.net)**  
**Fax: 925-606-7534**

**A STRUCTURALLY COMPLETE SERIES 90 EXPRESS ORIGINALLY INTENDED AS THE EDI, SERIES 90, TURBINE DEMONSTRATOR.**

*Owner/builder Ed Watson is unhappily offering his "extremely" fast build **EXPRESS** kit for sale. Constructed by Ed, under the watchful eye and with the help of **Dick Lind** of Complete Composites, this aircraft provides a new owner with a quick way to a flying, Series 90, **EXPRESS**.*

*Ed is asking \$40K, and actually has more than that invested in kit components, not including the investment of his time.*

*For more detailed information contact Ed directly at:*

7461 Batista Street, San Diego, CA 92111  
Tele: (W)(619)291-7311, x1887  
(H)(619)277-8818

### **FOR SALE**

Two wings. For Details call Dawson Burton @ 812-358-2453 or 812-523-2133

### **FOR SALE:**

IO-540 Engine mount. Manufactured by EDI. Will not fit certain IO-540 models. Call to find out if yours will fit.  
John Kee (803)328-3286

### **EXPRESS PARTS FOR SALE:**

Wheeler **EXPRESS** lower fuselage kit, complete and still in the original crate. This kit component, at the bargain price of \$3,500 F.O.B. Bentonville, AR can easily be combined with other kits to complete acquisition of all five component kits.

Talk to: Charlie Scott  
Days: (501)273-2471  
Eves: (501)273-1232  
E-mail: [exp159cs@nwa.quik.com](mailto:exp159cs@nwa.quik.com)

### **FOR SALE:**

Two each, Wheeler IO-360 (Lycoming) engine mounts. One is fabricated for use with the larger diameter pucks and one requires the use of the smaller pucks.

#### **Wanted:**

Engine mount to fit a Lycoming IO-540-C4B5  
Call Ralph Kenner at (509)838-6807

### **FOR SALE:**

All parts for CT kits 1 to 5. Wings 85% complete in the 92 gal configuration fitted with SkySport fuel monitoring system. Additional parts include Whelen Strobe kit, dual power supply, Nav/Com with Glide slope, marker beacon antenna kit. All manuals are up to date.

Asking \$25,000  
**Bob Rusteberg**  
153 Algonquin Road  
Barrington Hills, IL 60010  
Phone: (847)428-3630  
Fax: (847)427-3677

### **WANTED:**

Need an exhaust system for a Lycoming, IO-360. Stainless steel preferred. Call Jack Volkamer at:

### **FOR SALE**

Matched set of original Wheeler **EXPRESS** wings. The left is closed out, with complete documentation. The right is still in the crate.

I am unable to complete the project due to financial limitations. Asking \$7,500. Contact Jim Phelps (volunteer builder on Factory No. 3) 12015 246th Street N.E., Arlington, WA 98223.  
Call (360)435-6845

### **WANTED:**

**EXPRESS** builder Don Adamson needs an engine mount and exhaust system for an IO-360 CONTINENTAL. He is also looking for a set of windows for his **EXPRESS** CT.

If you have what he needs, call Don direct at: (501)676-7529

### **FOR SALE**

Two wings. For details contact Alan Cranmer, 525 El Camino, White Salmon, WA 98672, or E-mail to: [cranmer@george.net](mailto:cranmer@george.net)

### **FOR SALE**

Matched set of original Wheeler **EXPRESS** wings. Almost no work has been completed (less than 5%) on either wing. Asking \$5,000. Located in Edinburgh, Indiana.

Contact Dick Burton at: [dolphus@compugame.com](mailto:dolphus@compugame.com)  
Rt. 1, P.O. Box 210.A  
Edinburgh, IN 46124

### **NOTICE!**

*Unless otherwise noted CBROS, Inc. cannot verify the quality, usefulness or completeness of items offered for sale or trade.*

*With one exception, the McMillan kit, CBROS is not responsible for "brokering" any proposed sale or trade of any items listed, nor do we require any monetary reward for completed transactions. You are on your own.*

*Further, we reserve the right to print, or not print, and to edit submissions as we deem fit.*

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.....**EXPRESS LINK**

**Subscription Information:** Subscriptions to the **EXPRESS LINK** are based on an 8-issue volume for the subscription price of \$36.00. (Please make checks payable to Bill Copeland) Subscriptions entered during each volume will entitle the subscriber to all back issues of the current volume. Back issues from the earlier volumes may be obtained upon request for \$3.00 each, which includes postage and handling.

**Documentation:** CBROS, Inc. has retained an extensive file of patterns and templates for most procedures. We will be happy to share them with any builder for the cost of copying and postage. If you have a particular need, give us a call at (925) 455-1036 or Fax to (925) 606-7534. E-mail to [bnbent@pacbell.net](mailto:bnbent@pacbell.net).

Please be advised that all comments and data regarding the building of the **EXPRESS** kitplane, or any derivatives, presented herein are based upon our own personal experience and may or may not conform to building processes and recommendations provided by the factory. We'll endeavor to advise of any departures from factory recommended procedures, but make no guarantees that we'll get them all.

Any data contained herein is for educational, informational, and entertainment purposes only and not intended to be construed as a replacement for data provided in the factory manuals or drawings.

Usually, any departures from factory specified procedures have been cleared by the factory, but there is no guarantee that this will be the case 100% of the time.

If you have any questions or comments about what we're doing, we'll be pleased to respond to any and all email messages as time allows.

**EXPRESS LINK**  
4863 PRIMROSE LANE  
LIVERMORE, CA 94550



.....**EXPRESS LINK - No 22**