

DEDICATED TO PROVIDING TECHNICAL INFORMATION OF INTEREST TO EXPRESS BUILDERS AND ENTHREASTS

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 Lists New OEM Sources

From EXPRESS Factory Sources Rochester, WA- March 1, 1999

We are pleased to list here the manufacturers who have approved EXPRESS Aircraft, LLC as OEM distributors.

This means that EXPRESS builders may now purchase products of these manufacturers direct from EXPRESS Aircraft and receive the best possible pricing.

As each one of these suppliers have detailed information on their products, you can now call the factory for information on any products from the following manufacturers:

NOTE: Some of the items will require certified installation which may add additional expense. Call the factory for details.

II Morrow
Bendix/King
RC Allen (instruments)
Avidyne (multi function displays)
BF Goodrich (Stormscopes and Skywatch TCAS)

Davtron

Electronics International (engine monitoring systems)

Eventide (Argus series of moving maps)

Flightcom

JP Instruments (engine monitors, digital gauges)

Mountain High (oxygen systems)

Northstar (GPS)

PS Engineering (audio panels, intercoms)

Ryan TCAD

Sandel (electronic HSI system)

Shadin (fuel computer systems)

S-TEC (autopilots)

Century Flight Systems (autopilots)

UMA Instruments

Vision Microsystems (engine monitor systems)

Sigma Tek (instruments)

Horizon Instruments (digital engine instruments)

Insight (graphic engine monitor systems)

Proprietary Software Systems (AOA, annunciator systems)

Lycoming engines

TCM/Continental engines

Hartzell Propellers

MT Propellers

We are still negotiating with several other companies, and they will be added as we complete agreements with them.

We believe that builders will find that prices for equipment purchased through EXPRESS Aircraft from any of these companies will be very attractive. Some equipment will be configured specifically for your EXPRESS.

Bill Of Sale?

Questions Posted On EXPRESS Web Pages Are Answered

From EXPRESS Factory Sources Rochester, WA- March 1, 1999

Reliable sources at EXPRESS Aircraft report that they have confirmed directly with the FAA that you will be asked for a bill of sale when you apply to register your aircraft. This request can be satisfied in one of three ways: 1) If you have a bill of sale from WTI or EDI you may use either; 2) If your kit was manufactured by either WTI or EDI and you do not have a bill of sale, you must prepare and sign an affidavit stating that you purchased your kit from WTI or EDI and include the original date of purchase, and that WTI and/or EDI are no longer in business, so a regular bill of sale is not available (Ed note: Wouldn't hurt to have the affidavit notarized when you sign it); 3) If your kit was purchased from EXPRESS Aircraft Company you may acquire a bill of sale directly from Ex-PRESS Aircraft.

Builder Assist Program Still On Schedule

From EXPRESS Factory Sources Rochester, WA- March 1, 1999

"The Builder Assist Program is meeting our original projections in terms of construction time" according to Operations Manager, Larry Olsen. "We are satisfied that the program will meet our goal of completing construction of the airframe within the three, two week building periods which we envisioned". Both builders currently enrolled in the program have expressed satisfaction with the progress of their construction so far, and are looking forward to completion of their projects on schedule.

Both builders have opted to have some additional work completed by EXPRESS Aircraft and other sub contractors while their projects are at the factory. At least one of them will feature the Continental IO-550 power plant with an MT four blade propeller.

The No. 1 project will not make Sun N Fun due to the late delivery of the engine, but both the No. 1 and No. 2 projects should make Oshkosh this year.

Contact The Factory:

All factory administrative, engineering and manufacturing activities are now consolidated in Rochester, WA.

The factory address is: Mail - P.O. Box 236, Olympia, WA 98507-0236

Shipping - 5845 193rd Ave., Bldg. 4 Rochester, WA 98579

Telephone: (360)273-8907 Fax: (360)273-9780

E-mail: information@express-aircraft.com Web page: www.express-aircraft.com

Larry Olsen - Operations Manager Frank Martin - Mechanical

Replacement Flap Actuator Now Available from Factory

From EXPRESS Factory Sources Rochester, WA- March 1, 1999

In answer to concerns expressed by builders who have installed or planned to install flap actuators furnished by EDI, EXPRESS Aircraft can furnish a replacement unit that resembles the original actuator furnished by Wheeler Technology.

The good news is that the new unit produces 600 lbs of thrust - more than twice the force of the original unit -and has a stroke of 5.91 inches, limited by built in internal stops. The unit operates on 12 volts and produces 3.5 inches per second of travel under no load conditions.

Builders wishing to purchase one of the new units for \$315, plus shipping, should contact the factory, as they have bought a quantity of these units and are quoting a lower price than would be available by purchasing a single unit. Purchasing from the factory will also protect continued availability of these units.

If you have not already found the "EXPRESS BUILDERS HELP PAGE" on the internet visit the URL:

http://www.sierratel.com/jerico/ Jerry Sjostrand has installed a web page specifically for EXPRESS builders. Jerry's E-mail address is:

jerico@sierratel.com.

Strings Too Short To Save!

...real and unconfirmed news and rumors of interest to EXPRESS voyeurs!

... Henry Walser sent your Editor a letter and photographs of his project from his shop in France. Included were details of his forward console, which is covered on page 5 of this issue. He also noted two additional bits of information, which you will find interesting. 1) He, Werner Maag and Andre Goepfert found that the original flap actuators furnished in WTI kits are manufactured by the LINAK Company in Denmark. The original unit, Model No. LA.25.115-5-12 has been measured to have a max force of 245 lbs. These units are considered to have marginal power which somewhat limits the flap extension speed. The French/Swiss connection has found that LINAK also offers their Model LA-28 that produces a force of 674 lbs. - a much stronger unit. To our knowledge none of the LINAK units have failed in service, but some might be more comfortable with the extra power. 2) During the static load testing of Werner Maag's wing(s) the aeronautical engineer from RSR (Swiss EAA) noted that the NLF (1)-0215F airfoil, as used on the EXPRESS wing, has a Center of lift that progresses from 53% of the chord at the root to about 69% in the area of the aileron. According to the engineer, "this explains the stiffness of the ailerons at high speed". (Ed note: this could also explain the tendency of both ailerons to rise during cruise flight) Just thought you would like to know. If you want more info on the above you can fax Henry at: 33-385-706645

...During a recent visit to the CBROS hangar by **Reinhart Metz** he noted that he had recently completed a 700-mile trip in his IO-360 powered example with one PAX and absolutely NO squawks. He did say that he is being bothered by some oil appearing on the bottom of the fuselage from the breather tube. He had not originally installed an air/oil separator, but plans to do so in the near future.

... A call from Lazlo Zamoli confirmed that he had indeed managed to transport

(Continued on page 4)



Heads Up! Possible Rudder Cable Interference

Getting into the details of "final" assembly we have found that there are many small items to be fully completed. Many systems which have been "completed" have some tweaking to be done after subsystems have been attached or added.

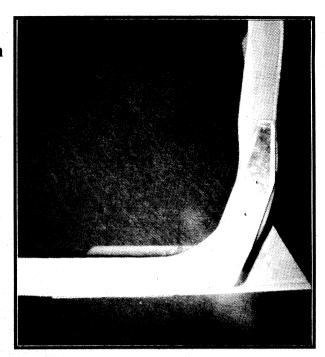
We were in the process of completing the rudder cable system when Jerry Sjostrand asked if we had noticed that, without some modification, the rudder cables, when under tension, will rub on the aileron cross tube which is just aft of the front shear tie. We had not noticed this problem, but upon careful inspection we found that there was indeed interference.

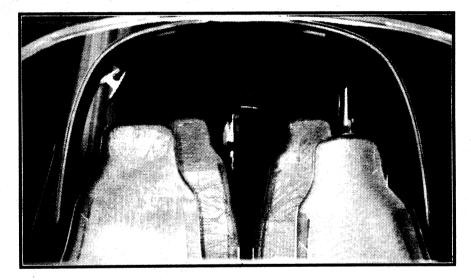
After weighing several obvious solutions, we decided to fabricate a fairlead block to be mounted about three inches forward of the forward shear tie. We used an available scrap of Delron, but suggest that Nylon would work just as well. Holes just slightly larger than the diameter of the rudder cable(s) were drilled in the fore/aft direction and two holes, to allow the use of 3/16-inch bolts, were drilled in the vertical direction. Excess material was left on the bottom of the block so that it could be carefully removed to provide the required clearance from the tube. Inserts were potted in the floor to secure the block in its final location. We found that there is not a lot of room to "wiggle" vertically, but there is room if one proceeds carefully. Our Delron block is shown in Photo No. 1 unassembled, and in Photo No. 2, in place. The dimensions of the assembled fairlead are 2.25"L X 0.75"WX 1.0"H.

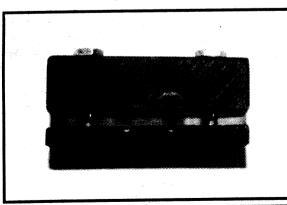
Folding Seats - A Correction, And An Addition

Your Editor discovered after Issue 18 was printed that I had inadvertently failed to include the picture of the Velocity seat forms. So to correct that detail, below is the referenced picture. According to the Kelly's the molded seat forms are \$195 the pair, including hinges.

As a bonus for your patience, I have included an additional photo, right, showing the Velocity hinge overlaid on an EXPRESS front seat form.

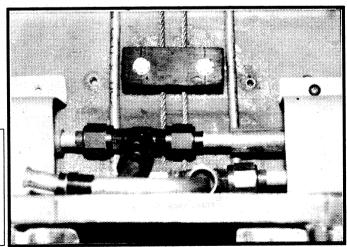






Left: Photo No.
1 showing the
unassembled
fairlead block

Right: Photo No.2 showing the assembled block in place just ahead of the forward shear tie.





Finishing And Painting Cook Book

More From The Shop Of Reinhart Metz

Finishing/Paint Technique

I spent days and weeks making choices, trying different things, baffled with endless alternatives in technique and materials, until I arrived at what I believe works well for a paint/finish sequence. If you'd like a cook-book approach, here's mine:

- 1) Use Evercoat 100838, Chrome-a-Lite, for rough surface fills, Evercoat 100400, Polyester Glazing Putty, for fine finish fill
- 2) For all final sanding use No.320 grit with random orbital or by hand, dry, not wet, wet makes the finish too smooth for good paint adhesion.
- 3) I used Spies/Hecker, catalyzed, Urethane paint. It is fabulous material, but a little like being on drugs - so nice, but Soooooo Expensive! Vario 8590 primer, sanded at 320. Fix any revealed defects

Note - A respirator, fresh air fed mask is mandatory if you want to live to finish the rest of the job!

- 4) Finish coat (again, I used Spies/Hecker Permacron Series 257 in white), spray one extremely thin tack layer, let almost dry about 20 minutes, followed by two full wet coats separated by about twenty minutes. The idea is to get chemical adhesion, but as late as possible to avoid runs.
- 5) When the finish coat is hard, but not ancient (between 36 hours and 1/2 year), wet sand with 1200 grit using 3M 01318 adhesive backed resin coated disks . Precede this with a thin layer of "guide coat", which is a lacquer, like red or black primer, that is sprayed on top of your finish coat, that will be sanded away. It will quickly show any surface irregularities or places you missed with the following sanding step. Use the 1200 step to get rid of all orange peel and minor defects. Anything major will require re-painting. During the 1200 step, keep a small trickle of water flowing (Ed Note: The use of a spray bottle works well and makes less mess), use good lighting, and squeegee dry periodically to monitor

progress and the disappearance of the guide coat. I can't emphasize enough the importance of the guide coating technique - it works wonders for ensuring completeness of the sanding step! Do be careful not to sand through the paint and stay about 1/4 inch away from the edges. This also means you need to tape-mask the edges and details, such as countersunk screw holes before you guide-coat, as you will not be able to sand the stuff off in those areas.

- 6) Follow with 1500 grit 3M, hookbacked resin discs on the random orbital wet sander, with a foam inter-pad. With care, this combination can be used out to the edges.
- 7) Hand wet sand with 2000 grade paper. I found this step essential for the final polishing stage to be able to reach the highest degree of luster.
- 8) Finish with 3M Finesse 05928 polishing compound. This stuff is miraculous! Polish according to the 3M instructions, and watch a mirror finish appear! Just be careful not to burn the paint: Use very light pressure at the end of the process. You can let steps 5-8 lap onto the plexiglass windows, as the Finesse will bring them right back up to optical quality.



Strings Too Short To Save!

(Continued from page 2)

the former Hockett kit from Southern CA to his home in Bath, PA (tele: 610-746-2618). He reported that it was more of an effort than he had anticipated, but he made it. He is currently sorting out parts and plans a visit to CBROS on March 23-25 to get a "jump start" on building techniques and systems options. Builders close to his home may want to touch base with him.

...Shawn and Nadine Kelly are having trouble finding suitable door hinges for their Series 90 Model, two door upper. Any Series 90 or Auriga builders able to help? Give them a call at: 408-264-3129 or E-mail at: sechadog2@aol.com

...An addition to an earlier article - The SOSS hinges, which we used for the baggage door, are model no. 204C. They are products of Universal Industrial Products Co., Tele: 419-737-2324 for the dealer nearest you.

... Another addition to an earlier article. In issue 18 we showed you some of the various solutions to fuel system plumbing. Included was a casual reference to the CBROS solution. We alluded to the fact that the lines come together in the center console, etc., etc. Well, what I forgot is the fact that we installed check valves in each of the lines just outboard of the Console and in front of the forward shear web with the thought being, now that I think about it, that we didn't want the tanks to cross feed. (though thinking about it as this is written I am wondering if, as one outboard tank empties, will the other one take over, or will the system suck air from the empty tank?) Perhaps the head pressure from the opposite tank will keep the check valve closed. Any thoughts out there? ...Garlin Gentry, EXPRESS builder from Sanger, CA has written to tell us that his son is now interested in building an εα-PRESS and is looking for parts - particularly major kit parts. Let Garlin know what you have at: 209-875-8395

Forward Console Treatment

Readers Respond

In issue 18 we asked for reader input on just how the space forward of the front seats, between the pilots and co-pilots legs, from the forward shear tie to the nose gear support was being utilized (or not).

We have included with reference to Issue No. 18 (page 7), four different approaches to this freewheeling engineering opportunity. Two examples provide for throttle, prop and mixture control quadrants (one also includes a flap handle) and the other two basically allow for location of fuel system control valves and storage. With thanks to the builders who responded, here's how they work.

- 1) In Issue No. 18, on page 7 you will find a picture and description of the console in John Harlow's project. The configuration appears to be straightforward, looks like 1/4 inch, 2core2 sides, glassed permanently in place at about the height of the forward shear tie between the seat rails. Use of the console appears to be limited to the fuel system control valves, the aft valve being the selector and the forward valve is a shutoff. It does not appear that, with a cover in place, that there will be any added use made of the console.
- Henri Walser sent photo No. 1 to us from his shop in France. As can be seen Henri has his console mock up complete with the throttle, prop and mixture control quadrants, as well as the flap-actuating handle in place. Henri writes, "...the same arrangement as on the big birds where I have worked for the past 30 years. (DC-4's to 747's) Henri's console also includes a glove box in the rear section, which appears to work as an armrest as well. For any builders who may wish to construct a similar set up, Henri generously forwarded a complete set of drawings for the quadrant set up and a wiring diagram for the flap position switches, which we will not reproduce here, but is available from CBROS for any interested builder for the price of repro-

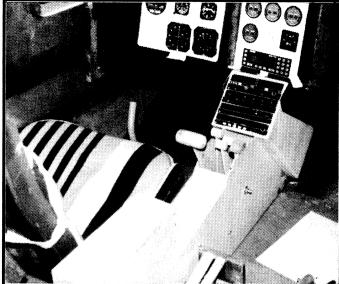


Photo No.1 Walser console, overview

duction and postage. Photo No. 2 is a close up of the quadrant mockup. The flap handle can be seen on the right side in the 20deg, detent.

Photo No. 3 (see page 6) comes from the shop of Shawn and Nadine Kelly of San Jose, CA. The Kelley's also decided that, since they have a Series 90 model with two cabin doors, they would use the subject space to install their console with the throttle, prop, and mixture controls as shown. The Kelley's

"shopped" for their quadrant hardware at a local aircraft salvage shop, and wound up with a Piper Saratoga unit. Their reasoning for the console configuration was similar to Henri's - that they were "used to flying aircraft with similar engine control layout". In the picture it can be seen that the console framework is welded aluminum angle stock, extends several inches above the top of the forward shear tie, and well up on the nose gear support (to

a location where it may eventually tie directly into the instrument panel?). The Kelly's have not vet completed planning for the remaining space in their console, but there appears to be ample room for fuel system plumbing.(and a wet bar - just kidding, you guys) 4) Photo No. 4 (see page 6) shows the CBROS console, which is built upfrom circuit board material and aluminum angle stock. The unit provides for the

fuel select/shutoff valves and has enough room in the forward part to accommodate charts. The unit is the height of the forward shear tie and is held in place by 6, 10-32 washer

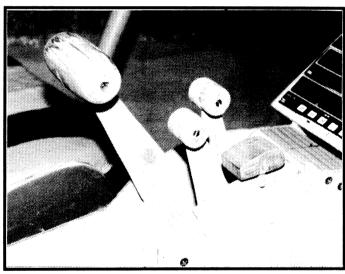


Photo No. 2 Walser console, close up

head screws.

These examples should give builders a variety of ideas to consider. There are many more out there such as Sjostrand's left-hand cabin wall mounted engine control quadrants with center stick control to no console at all. Here is a place where you can let your creativity loose without worrying about incurring a major weight penalty.







Photo No. 3 Kelley's console frame, with engine control quadrant

Photo No. 4 CBROS console, w/o cover showing fuel control valves

Thanks to the readers who furnished the console information!

Next issue: Send us your solution to: Cabin Ventilation

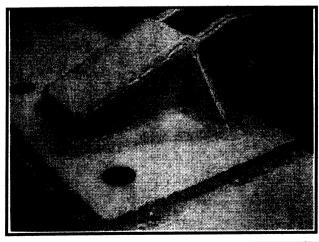
Another Solution To The Inboard Landing Gear Problem

Submitted by Jack Volkamer

After closely following the seemingly endless saga of the inboard landing gear bracket failures, I decided to make my own effort at fabricating a bracket that would be less likely to fail in the conventional mode and hopefully not at all.

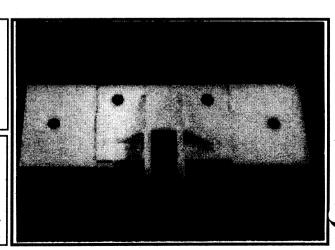
As can be seen in the photos the standard factory bracket was modified by: 1) Completing the welds along the insides of both "ears"; 2) Welding a "cap" which fills the space between the "ears"; 3) Welding triangular gussets which support both sides of the "ears"; and 4) Welding the entire original bracket to a much larger piece of 1/4 inch 4130, drilling two new holes in rib J, but retaining two of the original holes in the original bracket. Following fabrical to the new part was heat-treated and stress relieved.

If you have any questions or comments call: Jack Volkamer at: (501)443-9191



Left: Modified bracket showing "cap" between the "ears" and the triangular gussets on the outside of both "ears".

Right: Modified bracket showing the addition of the extra length plate. Note that the two center holes are in their original position.





EXPRESS STUFF FOR SALE:

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.

The only significant modification to the original kit design was to include extra reinforcing layers of fiberglass on the leading edges and aft shear webs of the wings. All structural components, including control surfaces are complete, with the exception that the rudder has not been closed. Doors and windows have not been installed, but are included in their original packaging. No instrument panel installation has been planned, and no engine or engine mount is included. Also missing is a flap actuator and door hinges, both of which are easy to come by.

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 Tele:(W)(619)291-7311, x1887 (H)(619)277-8818 FAX(619)277-9748

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

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

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 Olsen at **EXPRESS** Aircraft Technology about two years ago.

The engine is available separately, including engine mount, log books and all accessories for \$24,000.

The airframe, which is essentially complete except for the installation of the windows, features good, quality workmanship.

Construction of the wings features the two tank per side option, two wiring conduits per side, capacitance probe type fuel level sensors in the outboard tanks, standard float level senders in the inboard tanks, reinforced main landing gear attachment scheme with steel gear legs, and integral jack points. The engine has been mated with the fuselage, but the firewall is otherwise blank. The nose gear leg features a spindle reinforced by Express Aircraft Technology and has a "shock" system installed. The cowling modifications to allow for the turbo engine have been started.

Miscellaneous additional parts, besides the complete Wheeler hardware and composite part package include a 5 way fuel valve, audio panel and a Rocky Mountain Encoder.

Asking \$50, 000 for the complete kit, as is, where is, or \$28,000 for the airframe with all accessories except engine and engine mount.

If the buyer happens to live in close proximity to Morgan Hill, CA, it may be possible to work out an arrangement to use Doug's shop to complete this project.

For additional details contact CBROS Inc, directly at (925)455-1036

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

From Denise Waters

EXPRESS items:

- Set of steel main landing gear
- 4- way, 5 port, fuel valve
- CT empennage construction towers
- Wing tip strobes
- Rochester fuel senders and fuel drains (2ea.)
- Door hinges

Avionics:

- Bose, Series I headset
- PM2000 stereo intercom
- Electronics International EC-1 (EGT/CHT/OAT) with RS-1 remote switch for 4 cylinders.

Call Denise at: (315)699-7826

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:

Need an exhaust system for a Lycoming, IO-360. Stainless steel preferred. Call Jack Volkamer at: (501)443-9191

WANTED:

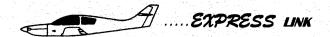
EXPRESS builder Don Adamson (501)676-7529 needs an engine mount and exhaust system for an IO-360 CONTINENTAL. He is also is looking for a set of windows for his EXPRESS CT. If you have what he needs, call Don at the above number and let him know.

FOR SALE

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

FOR SALE

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



Subscription Information: Subscriptions to the EXPRESS LINK are based on an 8-issue volume for the subscription price of \$36.00. (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.

Materials/Supplies /Tools Available: CBROS, Inc. can furnish vacuum bag release film, 7781 fiberglass cloth, and self stick window covering, for use on your *EXPRESS* project. We also offer a limited selection of air tools such as angle grinders, together with support supplies which we use. If you are interested in any of the above, call John or Bill at CBROS, Inc. for prices.

Component Construction: CBROS, Inc. is prepared, on a limited basis, to assist other builders with their projects. It is not our intention to build complete airplanes, but to assist with component construction of parts such as wings, lower fuselage/firewall, empennage, and control surfaces. Our plan is to parallel the Factory "quick build" program, but on a more customer controlled basis. As each project is unique, if you are interested in speeding up your EXPRESS project, call CBROS, Inc. to discuss rates and scheduling.

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