


Express

LINK
NEWSLETTER



February 1996 - No. 10

Ahhhhhhh, That's More Like It !



Above: Jerry Sjostrand's N-360EZ

EDI Files Chapter 7 - or: Here We Go Again ... !!

For the second time in its career on the kit plane market the *EXPRESS* has become an orphan. On or about January 6th, without notice and surprising most *EXPRESS* owner/builders, Express Design disconnected their phone, locked the doors and concurrently filed for bankruptcy under Chapter 7. It is our understanding that Chapter 7 filing provides for liquidation of the Company assets by a court appointed referee or trustee. An initial creditors' meeting scheduled for February 6th was canceled, and rescheduled for the 23rd or the 26th of February. The anticipated action(s) are entirely different from the Wheeler pro-

ceeding in that instead of a list of many creditors, this time, without knowing the status of material suppliers, the list of creditors will be very short with the major player being Ralph Kenner.

In discussions with Mr. Kenner subsequent to the factory closure, he has indicated that he will make every effort to keep the *EXPRESS* a viable product.

To that end CBROS has heard several rumors regarding interest in putting the project back on its feet once the "dust has settled". It is too early to predict the outcome, but *EXPRESS LINK* will try to keep readers abreast of events as we learn of them.

Sjostrand's Success:

On the front page of the last issue we brought you a picture of a Wheeler *EXPRESS* that had fallen on hard times. This issue we bring you the same *EXPRESS*, but which now, more properly, stands proudly on the ramp at LVK completely restored to its original glory and flying like an eagle. To Jerry Sjostrand who allowed us to share his pain hoping we would learn from it, we say thanks, and well done for, as pictured here we think Jerry's *EXPRESS* is one of the finest (if not the finest) examples of the type.

Jerry has also shared with us that he has traded off his C-182 on which he had lavished so much care and attention, because he is so satisfied with the performance of his *EXPRESS*.

As you can see by the picture at the left, the airplane is now complete,

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Take a peek at:

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Strings Too Short To Save:

Visitors from afar, and not so afar. In the past several months CBROS has enjoyed visits from several *EXPRESS* Builders. Most recently **Jim and Irita Warner** have played "tour guide" for such travelers as **Dick and Jane Waters** who came from New York and **Nev Curry** who visited from Coolangatta, Australia. Other visitors included **Reinhart Metz** from Wheaton, IL, "**Bennie**" **Thordarson (and Crew)** from Luxembourg and **Bob Hockett** from Pine Mountain Lake, CA in his Brand X (Glassair) transportation, not to mention **Jerry Sjostrand**. It's amazing how much you can learn from such visits.

Ken Boling, a builder from Chico, CA has borrowed the Larry Olsen fabricated IO-540 exhaust system from CBROS and should have flown his *EXPRESS* by the time you read this. Interesting sidelight here is that Ken has already sold the airplane (assuming a successful test flight series we suppose).

Dave Smith and Dick Clayton have definitely committed to finishing their *EXPRESS* with conventional gear (I hate the term "taildragger"). We understand that they are trying to fabricate their own tail wheel strut in local machine shops with only mixed success to date.

Also, by the time you read this we expect that **Joe Polsgrove**, down in Lexington, KY should have flown his *EXPRESS* for the first time. Last we heard he was only waiting on the weather to warm up above freezing and get the snow off the runway (just kidding about the snow). Joe apparently had a considerable amount of trouble rigging his aileron system while keeping the counterweights inside the wing, and set up a simple test system to study the geometry as shown in the picture below. According to Joe, once he could "see" the problem it was a simple step to correct. See article on page XX. If any

builders out there run into a similar problem, we are sure Joe will be glad to discuss his solution with you. Call him at (606)293-5071.

Welcome to new Builders/ Subscribers:

Ray Poyner, Arizona City, AZ who is building a cruciform model; **Sven Erickson**, Siljansnas, Sweden, who by the way is in the market for kits 4 and 5 for either the cruciform or Series 90 Models; **John Boubelik**, El Dorado, AR who is building an S-90 Model (he thinks the last one out of EDI) and advises he is planning to be at Sun and Fun looking for an engine; **Bill Raymer**, Costa Mesa, CA; **John Harlow**, Hobe Sound, FL; **Bruce Hitchens**, Lewisville, TX; **Theron Honeycutt**, Sparks, NV; **Mike Johnson**, Cordova, TN; **John Kee**, Rock Hills, SC; **Bob Wallace**, Mc Allen, TX and **Jim Ward**, Wawa PA. If you would like addresses and or telephone numbers for any of the above, just call CBROS at (510)455-1036.

Bob Gisborne has already flown his *EXPRESS* from Phoenix to the Chicago area and back. Funny thing, while the airplane was there, the above mentioned Reinhart Metz happened to notice it and mentioned the fact to CBROS before we found out from Bob. Watch your step, our spies are everywhere! CBROS is planning to visit with Bob and the people at Phoenix Composites the last weekend in March for the Phoenix Air Show and Races.

Bob Kazmierczak has come through again. Every once in a while you builders out there find ways to remind my brother John and I why we do whatever we can to help anyone that asks. Back in 1990, out of the clear blue sky comes a package containing a beautiful 18x24 color poster of N-300EX from a picture taken at Sun 'N Fun. All we had to do was frame it and it has hung in our shop since. It is referred to often as what

Sjostrand (Continued from page 1) including the nose gear fairing (which Jerry says added as much as 15 MPH to the cruise speed) and lacks only some trim stripes to be really "finished".

Although Jerry seems to be leaning toward the minimum embellishment, if you look closely at the picture, you will find the Wheeler *EXPRESS* logo on the side near the corner of the windshield. We are certain Ken Wheeler will smile at this.

Jerry has promised to supply performance figures for his *EXPRESS* for a future *EXPRESS LINK* article and we will hold him to that promise.

Speaking of "logos" we mentioned that Jerry traded off his C-182 and you will no doubt be as surprised as we were to find that he traded the airplane for a working sign shop located in Oakhurst.

He is now engrossed in seeing that the shop is "properly" set up and, using that as an excuse, is learning how to cut computerized plastic and vinyl signs, labels and decorative gadgets of all sorts. His shop even has the capability to produce trim graphics which could be applied to an airplane, but don't tell him we told you.

we expect our *EXPRESS* to look like when we finish.

Today comes along a strange, unexpected package that, when opened, was found to contain the parts of a molded, fiberglass representation of an *EXPRESS* with a wingspan of about 56 inches and a length of about 30 inches.

This package also came from Kazmierczak.

We are not sure just why we deserve such a prize, but we will be delighted to assemble and paint this little gem and mount it for all to see.

We will take pictures of the "kit" before and after assembly and share them with our readers in a future issue. Perhaps the "*MYTLE EXPRESS*" will be made available to all builders. We will find out and let you know!

THANKS BOB !
you made our day again !

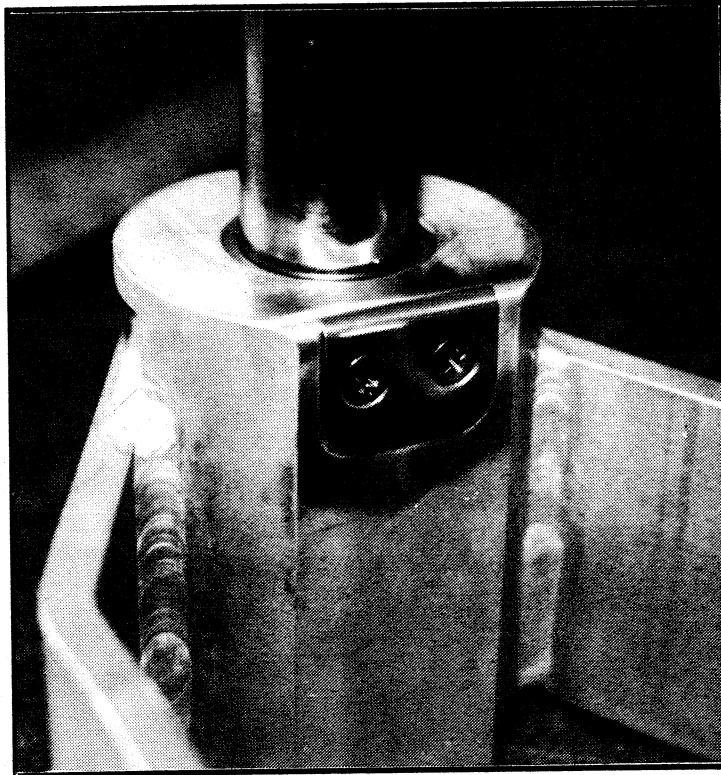
Nose Gear Fork Re-enforcement

Based on reports from builders of flying *EXPRESSES* CBROS has modified the aft side of the nose gear boss to forestall excessive, early wear which has been noticed on the aluminum boss where it is contacted by the steel weldment installed above the boss and designed to limit the travel of the nose gear fork. As shown in the photos below, a local mechanist was recruited to make and install a steel insert to act as a wearing surface as the nose wheel is rotated to the stop in either direction.

The insert was secured with two flush head 1/4-28 machine screws which will be punched at their outer edges to eliminate the possibility of their backing out. To facilitate future maintenance/replacement, an additional insert was completed and will be included in the A/C tool kit for future use if required.

Looking back it would seem just as easy to mill the back of the boss deep enough to accommodate the insert thickness, but extending the entire width of the boss.

Below: Steel insert shown installed in nose gear boss



Fresh Air Ventilation System

After considering many alternate schemes, CBROS opted to install the cabin fresh air system in a more or less standard configuration which is fed by a NACA duct installed between the firewall and cabin door on either side of the fuselage.

Three variations were constructed to optimize the system for various seating arrangements.

First, having flown in several *EXPRESSES* and finding that outside air outlets that exhaust at the knee level were less than satisfactory, it was decided that eyeball vents at about chest level in the instrument panel were more effective. It happens that the panel we have chosen has a canted section on each side which will place the eyeballs at the right height and angle to direct the incoming air at about the center of the chest of the pilot and co-pilot so that all that was required was a transition from the inlet duct to the panel.

Second, we opted to continue the fresh air duct from the NACA duct inlet through bulkhead 162. Obviously the

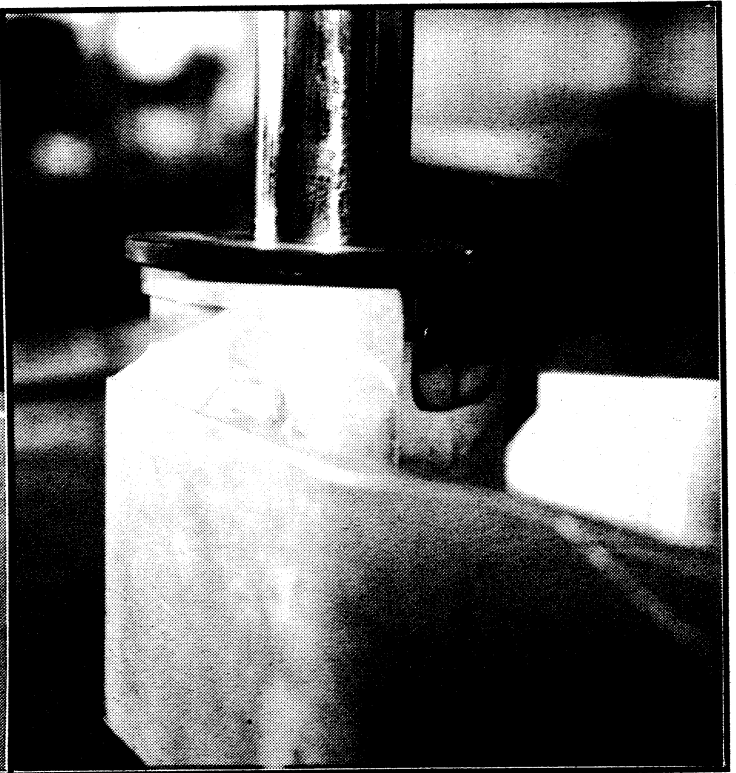
duct will not be needed for cabin air past a forward facing rear seat outlet, but the duct was continued past that point to act as a conduit for wiring and antenna leads originating aft of bulkhead 162 and running forward to the front seat or through the firewall.

Third, in planning for proper ventilation for the reversible left rear seat in either position, it was not possible to optimize the location of a single "eyeball" to serve both positions, so an eyeball vent was installed to serve the seat in either the forward facing or aft facing position.

Pictured is the NACA duct with the forward portion of the duct system attached and ready for installation. The outlet for the transition to the panel mounted "eyeball" vent was made by shaping a piece of 1.5 inch, 90 degree elbow, PVC pipe to fit the duct and glassing it in place. This seems to work very well if the PVC is well scuffed. Also shown in place is a 0.50 inch, 90 degree PVC ell just forward of the 1.5 inch out-

(Continued on page 4)

Below: Steel insert installed with weldment in place



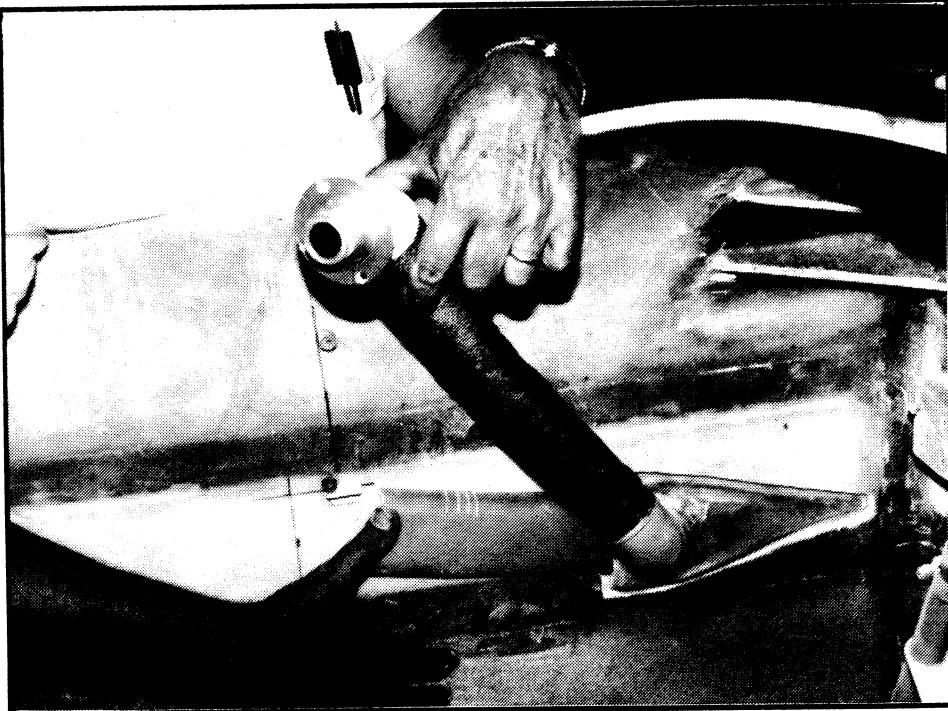


Fresh Air Ventilation System

(Continued from page 3)

let, which faces forward. This is intended to allow the exit of the wire(s) and antenna leads which will extend through the firewall. The completed NACA duct and fresh air duct is shown in the picture at the right.

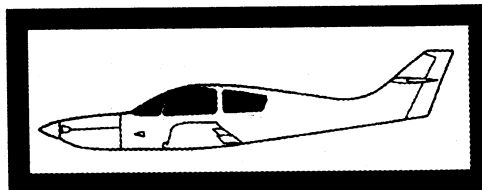
The balance of the fresh air duct is essentially a single piece of fiberglass channel cast to the same dimension as the cable tunnel material furnished with the kit, with the exception of two transition sections (see picture below) on the left side and one transition section on the right side. These transition sections were made necessary by the use of larger, airline style "eyeball" vents which were such a bargain we could not pass them up. Makes the system look kind of like a python which has had lunch. The flexible tube which feeds the instrument panel vents is aluminized heater duct as used on VW and like vehicles and is available at your local auto supply. The tube is very light but stiff enough to do the job. We have not yet installed a flap valve or screen or filter in the system at this point, but feel that we may find both of these accessories necessary in the future. In addition, our plan is to seal the aft end of the fresh air channel behind bulkhead 162 after the wires and antenna leads have been installed. To make



Above: NACA duct and forward end of fresh air distribution system,

certain that the ventilation system will effectively circulate fresh air, a dedicated exhaust air vent will be installed in the floor aft of bulkhead 162 and a screened opening will be installed in the lower portion of bulkhead 162.

Since we are planning to install the main battery aft of 162, we expect to enclose the battery in a relatively air tight box and vent the enclosure overboard to preclude fumes from entering the cabin.



Above: Transition section mold ready for fiberglass

In The Next Issue :

- IO-540 Turbo charged **EXPRESS**
- Adding area to the Horizontal Stabilizer
- Thick aileron edges = lighter control
- News from Sun 'N Fun
- New take offs
- Forward console
- MORE

Builder Alert(s)

RUDDER LOCK SYNDROME

Ralph Kenner has passed along a builder alert for those who are flying, as well as those who are still building - particularly the rudder.

According to Ralph's note which accompanied the picture below, after N-540ED-CT had been tied down outside during cold, windy weather, a walk around inspection revealed that apparently the cold and wind combined to allow the leading edge of the rudder to overlap the aft edge of the vertical stab to the extent that would have locked the rudder in the full right position during flight. Ralph speculates that the very cold weather may have introduced some creep in the unsupported, curved portion of the rudder forward of the shear web, which, combined with a gust of wind, allowed the control surface to lock in the fully deflected position. Needless to say, this is altogether undesirable and should receive early attention. CBROS is adding two additional layers of BID to the curved portion of both sides of the rudder, ahead of the shear web, running the entire length of the opening required for the elevator actuating rod. This procedure stiffens the curved portion considerably and should forestall any control sur-

face interference problem in that area no matter the temperature or sudden full rudder deflection. Thanks, Ralph.

CONTROL SURFACE STOPS

The above piece brings to mind the need for positive stops installed on or as close as possible to each control surface having movement to both sides of neutral. Specifically included are the ailerons, elevators and rudder. Being fully balanced, these surfaces pick up a lot of momentum when swung from stop to stop and could conceivably extend actuating devices (particularly cables) past their intended limits and cause a catastrophic system failure. Positive mechanical stops, preferably adjustable, which limit control surface travel without placing strain on the control actuating system, should be installed.

We know of some, but think that the subject is important enough to warrant the greatest possible input. If you have installed or planned the installation of mechanical control surface stops on your *EXPRESS*, please send a picture, draw a sketch or describe in detail what you have done and we will include the information we receive in a future issue.

SUBSTITUTE PARTS

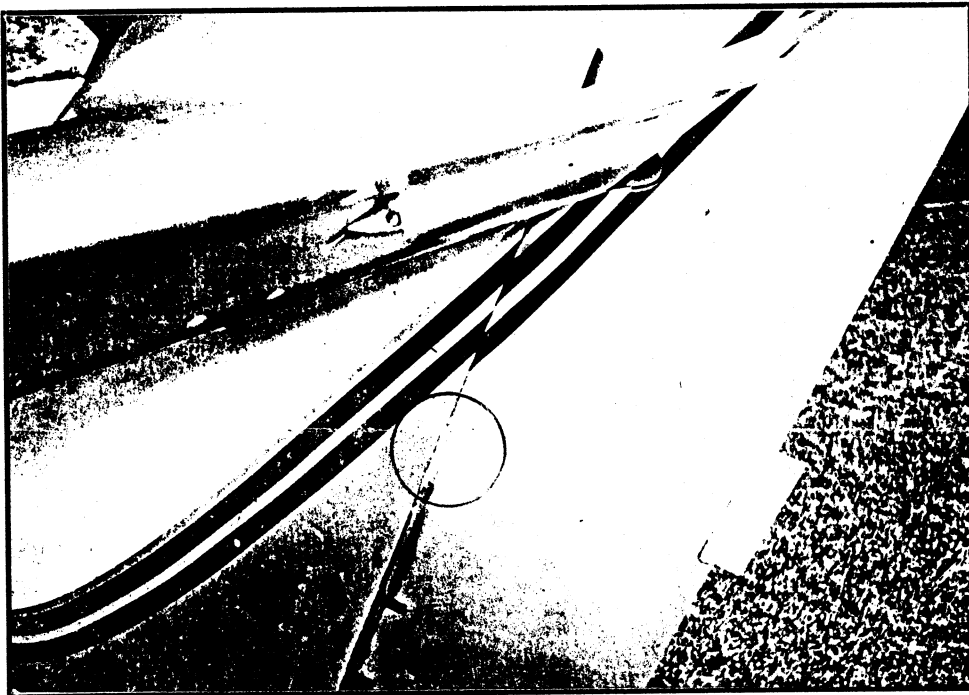
Since the *EXPRESS* Community is once again on its own (hopefully temporarily) the need to share information on sources of languishing kits, surplus parts, substitute parts or engineering documentation has become important. If each builder who may have surplus kits or parts, factory engineering information, sources for "standard" parts intrinsic to the *EXPRESS*, or drawings of substitute parts which have worked for you, please make a list of what you have available or what you need, and fax it to *EXPRESS LINK* and we will periodically publish an updated list of whatever is available, together with a reference to the owner so that you can negotiate directly.

To start the ball rolling, CBROS has available the following:

- Factory drawing of **aileron counter weight arm**.
- Factory documentation for construction of the **conventional gear version**.
- Factory drawings of all parts required for **manufacture of the tail wheel**.
- Substitute **Elevator hinge system** sketches for S-90 tail per John Boubelik, El Dorado, AR.
- **Flap Position Indicator** per Joseph Polsgrove, Lexington, KY - See article this issue.
- **Folding Front Seat system** Sketches per Joe Biggs, Punta Gorda, FL
- **Mechanical Parking Brake system** sketches per Joe Biggs, Punta Gorda, FL.
- **Front Seat Headrest** installation sketches per Joe Biggs, Punta Gorda, FL.
- **S-90 Tail Assembly** builder documentation per Bob Gisburn, Phoenix, AZ.
- **Shock Mounted Instrument Panel** installation per Steve Backe, Reno, NV.

The above list does not include information contained in earlier issues of *EXPRESS LINK*.

We showed you ours, now, how about showing us yours?



Lighted, Flap Position Indicator

Submitted by: Joseph Polsgrove

Here is the info on my flap indicator; it may be too simple for some of the technocrats out there, but it satisfies the FISDO people here. Personally, I would prefer to merely look out the window for the flap position.

I made my own PC board from Express scraps and laminated brass shim stock to the main board as shown on the print. Do not use vinyl-ester resin as it does not bond well to brass or copper. I used Loctite epoxy, which is readily available from most local industrial supply stores. The holes are then drilled into the PCB edge, as shown, with a #58 bit and the diodes and wires inserted from the bottom and soldered on the top side. I showed the diodes outboard for clarity; they actually are snugged under the bottom and the wires are fed forward to clear the flap torque tube bellcranks. I bonded a small fiberglass rib to the bottom of the assembly with mill fiber to prevent warpage and deflection from the contact slider. This PCB assembly is then clamped to the barrel of the flap actuator with two steel screw-type hose clamps as shown in the picture; no class here, but it works!

The contact slider is attached to the bottom of the flap actuator traveling bar with two 6-32 screws and lockwashers; the bar has to be drilled and tapped to accept same. One of the screws has a ground wire attached with a ring terminal. This serves to provide a solid ground for the slider and has the added bonus of grounding the flap torque tubes to prevent static electricity buildup in flight. There are ten or so slits in the bottom of the slider to ensure good electrical contact - what we really want is a homemade metal brush.

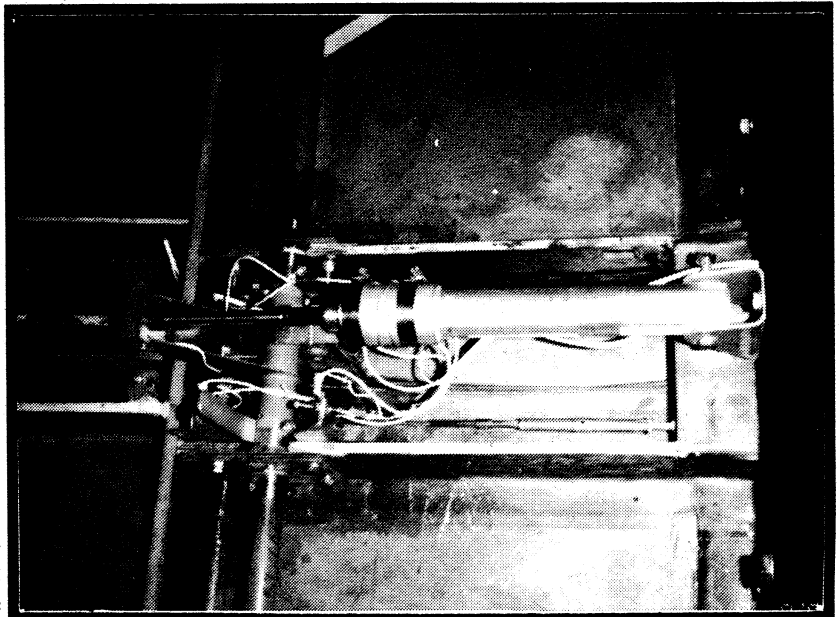
The LED indicators came from the scrap box, but Radio Shack or most any radio supply store can supply 1/4 inch LED's in whatever color is desired; mine are red. They are mounted above the flap switch and the fuel selector in the floor console, which also contains my fuel gauges.

As wired, all LED's are lit in the 40 degree position. If the diodes are omitted from the PCB, only the single LED will light in their respective positions. Power for the LED's is provided by the same supply as the actuator motor, after all, if the motor doesn't work, we don't need an indicator!

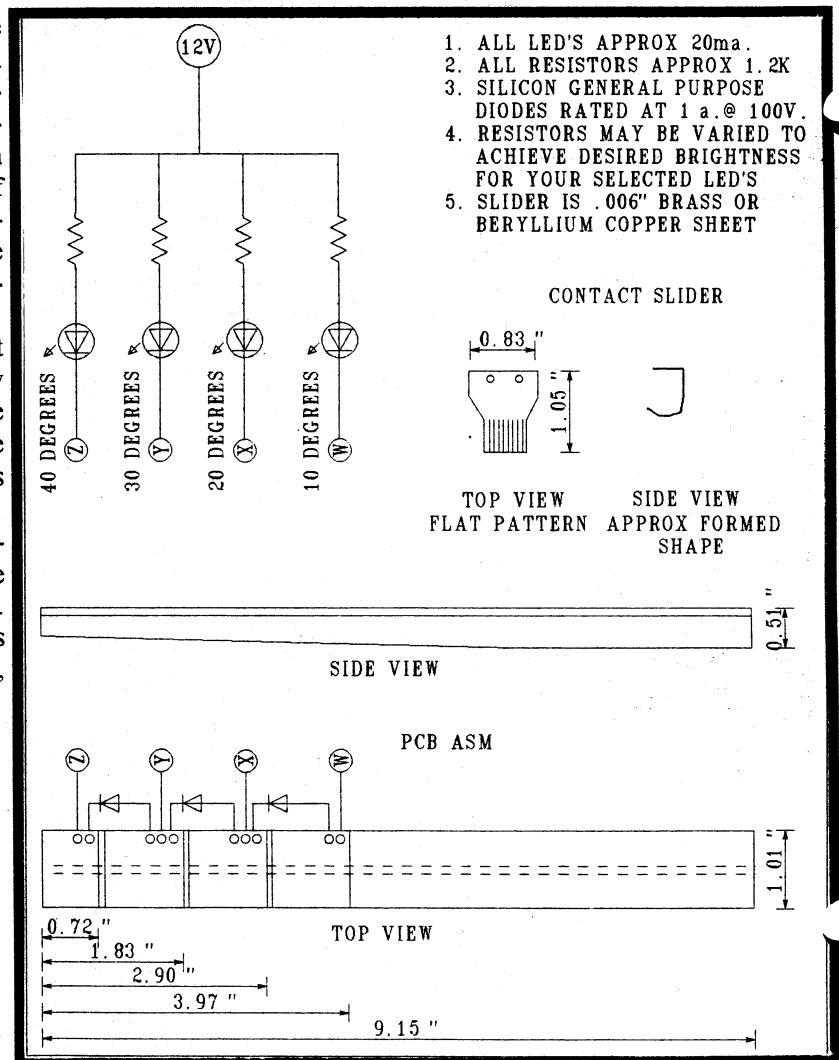
Ed Note: Joe Polsgrove has essentially completed his *EXPRESS* as this is written, and probably has flown the airplane by the time you are reading this. Joe can be reached at 1700 Old Paris Pike, Lexington, KY 40505. Telephone (606)293-5071.

Our thanks to Joe for this informative article.

Right: Construction and wiring diagram



Above: Lighted flap position indicator as installed





EXPRESS BUILDER UPDATE:

In an effort to get a handle on what is actually going on with builders and other interested parties, the following questionnaire is intended to be as simple as possible, but provide enough information to allow your editors to acquire and present the most interesting and timely articles we can. It will also help CBROS answer builders questions with greater accuracy. It will be greatly appreciated if you would take a few minutes to complete the form (suggest not removing it from the publication), make a copy and mail it to: **EXPRESS LINK** editor, 4863 Primrose Lane, Livermore, CA 94550.

TYPE: CT SERIES 90

ENGINE TYPE: _____ INSTALLED TO BE ACQUIRED

PROPELLER: _____ **NO. BLADES** ____ **DIA.** ____ **IN.** INSTALLED TBA

TURBO CHARGED YES NO

FLYING YES - **NO. OF HOURS** _____ NO **PROJECTED COMPLETE DATE:** _____

COMPLETED EMPTY WEIGHT: _____ **LBS.** **NUMBER N-** _____

CONSTRUCTION: What airframe components have you completed? All Please complete **Empennage**

Wings: Closed

Landing gear legs installed

Wing tips

Fairings: Wing

Landing Gear

Flaps

Ailerons

Landing lights

Lower Fuselage:

Seats

Control System

Pedals

Brakes

Fuel System

Nose Gear

Flap Actuating System

Fresh Air System

Firewall Including FiberFrax

Engine Mount

Lower Cowling

Forward Console

Empennage: All

Constructed Separate on Lower Fuselage

Lower Quads Squished Upper Quads Squished

Control Deflections - degrees Rudder ___ left ___ right Elevators: ___ up ___ down

Elevator Trim Tab: No. ___ Dimension(s) ___ x ___ In. Deflection: ___ up ___ down (from elevator)

Rudder Trim Tab: Dimension ___ x ___ In Deflection ___ left ___ right

Elevator Counter Weight ___ lbs ea. Rudder Counter Weight ___ lbs.

Upper Fuselage : All

Door w/window

Door Latching system

Glare Shield

Instrument Panel Mounted Complete w/instruments

Windows

Windshield

Upper Cowling

Other:



Subscription Information: Subscription to the *Express LINK* will be based on a 6 issue volume for the subscription price of \$36.00. Subscriptions entered during each volume will entitle the subscriber to all back issues of the current volume. There are 8 issues in Vol. 1, dating back to July '92. Back issues from the earlier volume may be obtained upon request for \$3.00 each which includes shipping and handling.

Documentation: CBROS, Inc has retained an extensive file of patterns and templates for all procedures through flap and aileron construction. We will be happy to share them with any builder for the cost of copying them. If you have a particular need, give us a call at (510) 455-1036.

Materials/supplies available: CBROS, Inc. can furnish vacuum bag material, 7781 fiberglass cloth, and self stick window covering, for use on your *EXPRESS*. If you are interested in any of the above, call John or Bill at CBROS, Inc. for prices.

Component construction: CBROS, Inc is prepared 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 costs and scheduling.

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