

KEN

STEVE

CAITHY

Express Press

January 1993
Vol. 1 No. 2



A Publication of *Express Design, Inc.* - P.O. Box 609 - Redmond, OR 97756 - Phone: (503) 548-2723 - FAX: (503) 548-2949

Completion Schedule For *Express* FT Documentation Manuals

All sections of the documentation manuals will complete shipping by March 12, 1993. Contact E.D.I. for information on obtaining the updated manuals.

Following is the release schedule for all sections of the documentation manuals. As stated in our December 1992 newsletter, the cost for each volume is \$100.00.

Volume 2A -

1.	Empennage	(Proc. 6.XXX)	Complete (now)
2.	Control Surfaces Ailerons & Flaps Rudder & Elevator	(Proc. 4.XXX)	Complete (now)
3.	Control Cable Assembly	(Proc. 6.XXX)	Complete (now)
4.	Wing Mating	(Proc. 8.XXX)	Complete 1-22-93
5.	Landing Gear	(Proc. 8.XXX)	Complete 1-22-93
6.	Wheel & Brake Assembly	(Proc. 8.XXX)	Complete 1-22-93
7.	Wing Fairing Top & Bottom	(Proc. 8.XXX)	Complete 1-22-93
8.	Window Installation	(Proc. 7.XXX)	Complete 1-22-93
9.	Wing Tip Installation	(Proc. 7.XXX)	Complete 1-22-93
10.	Rudder Pedals & Brake System	(Proc. 7.XXX)	Complete 1-22-93
11.	Door Hinge and Latch	(Proc. 7.XXX)	Complete 1-22-93

Volume 2B

1.	Flap System	(Proc. 7.XXX)	Complete 2-12-93
2.	Electrical	(Proc. 8.XXX)	Complete 2-12-93
3.	Instrument Panel Installation	(Proc. 7.XXX)	Complete 2-12-93
4.	Glare Shield	(Proc. 7.XXX)	Complete 2-12-93
5.	Cabin Environment Controls	(Proc. 8.XXX)	Complete 2-12-93
6.	Engine Mount	(Proc. 8.XXX)	Complete 3-12-93
7.	Engine Installation	(Proc. 8.XXX)	Complete 3-12-93
8.	Wheel Fairings	(Proc. 8.XXX)	Complete 3-12-93
9.	Cowling	(Proc. 8.XXX)	Complete 3-12-93
10.	Paint & Finishing	(Proc. 8.XXX)	Complete 3-12-93

CONTENTS:

Tech Notes.....	2
N210EX Accident....	3
Test Flight Caution.	6
Newsletter	
Subscription ...	4
Volunteers Help.....	5
Current Builder ID..	5
SpeedBrakes.....	5
Proprietary Data.....	6
Also Included:	
"Purchase Agreement"	

All sections of the documentation manuals will complete shipping by March 12, 1993. Contact E.D.I. for information on obtaining the updated manuals.

Notes From Our Tech Director

RG Model Program

After review of the previous engineering from Wheeler Technologies, we have determined that sufficient data exists to complete the retractable gear *Express* within a reasonable time - cost budget. As you may be aware, several different landing gear configurations were designed and some landing gear was actually fabricated and tested.

In early 1993 we will begin building the factory retractable gear demonstrator aircraft. From its concept, the *Express* has always been intended to be a practical utility sport aircraft, not a speed demon at any cost. With this in mind, I would hope that builders would not overpower the retractable version of the *Express* with high horsepower "heavy iron" engines. The next newsletter will give more detail on the RG model program.

Flap Actuator

Recently we have tested several electric flap actuators and the most promising unit is testing very well at this time. It is much smaller and much lighter and has considerably more thrust than the original flap actuator. Testing will continue through the first week of January with production units available shortly thereafter.

We realize that there is a large quantity of back orders for flap actuators and it is a high priority item for production. If you are not on the back order list for flap actuators, please FAX your order as soon as possible (503-548-2949) and get on the list.

Flap Position Indicator

In conjunction with the flap actuator testing, we are also considering several different position indicator systems. One of the most promising appears to be a small LED indicator which will digitally indicate flap position in degrees. The production version of the flap position indicator will be available shortly after the start of flap actuator shipments.

Rudder & Aileron Trim

In the course of constructing our new demonstration aircraft, we are installing an aileron and rudder trim system. This will be retrofittable to existing kits. These trim systems utilize electric actuators. However, no trim tabs are utilized. The trim systems will utilize a bungee type control system interface to give the needed trim forces. We will keep you informed on the trim system as the construction process of the new aircraft proceeds.

Front Seat Fore and Aft Adjustment

As you may know, the previous front seat adjustment mechanisms were bogus to

say the least. We are presently designing and installing a screw type adjustment for the front seats. Manual as well as electric screw mechanisms are under consideration for seat adjustment.

Exhaust Systems & Heat Muffs

We are presently evaluating several exhaust system configurations for the various engine installations in the *Express*. All of the exhaust systems in testing are equipped with heat muffs and utilize a dual slip joint design which in the past has proven to be very durable and extremely resistant to cracking.

All of the exhaust systems under consideration exit aft of the fire wall which should eliminate the carbon monoxide which has been noted to be a problem with the previous Wheeler Technologies design. At this time we are evaluating only stainless steel exhaust systems. If sufficient demand merits, mild steel exhaust systems would be considered. The next newsletter will contain information regarding the selected exhaust systems.

Motor Mount to Fire Wall Attach Fittings

We are presently analyzing the motor mount to fire wall attach points and methods of retrofitting additional attach points required to insure the integrity of the motor mount attach system. As mentioned in the previous newsletter, the new attach points will be field retrofittable and will vastly improve the integrity of the mount attach system. Fortunately, the fuselage and fire wall design lends itself nicely to the installation of additional attach points. We are presently completing the in-house finite element analysis of the structure utilizing composite analysis software. By the end of this month, we should have the final design requirements in hand and shortly thereafter the retrofit items will be available. All future motor mounts from *Express Design* will incorporate the necessary attach points required to assure motor mounting integrity.

Landing Light

I cry uncle on this one! Boy did I catch hell on this. In the last newsletter I mentioned that we were landing in the dark without landing lights on the *Express*. A builder called me on the carpet. Since the operation of 300 EX is a very sensitive matter, and I agree completely, perhaps I should revise my initial description and say that I was landing in less than light conditions (dusk). So I won't do it again, ok? (My face is red enough to light the runway now without a landing light).

At this time we are evaluating only stainless steel exhaust systems. If sufficient demand merits, mild steel exhaust systems would be considered.

SpeedBrakes

Mike McDaniel, our Technical Director, was a co-founder of Precise Flight of Bend, Oregon. Precise Flight is widely known for its SpeedBrake products such as the SpeedBrakes which are factory installed on the new Mooney Aircraft. Mike has designed, manufactured and FAA certified the Precise Flight SpeedBrakes for most high performance single engine aircraft as well as several light to medium twins. Its only natural that *Express Design* would utilize Precise Flight SpeedBrakes for use in the *Express* models.

Of all of the aircraft tested by Mike for SpeedBrake retrofit, the *Express* is by far the most in need of SpeedBrakes since it is a fixed gear aircraft with very little parasite drag. At mid to high speeds, even with appropriate power reduction, the *Express* does not slow down in a hurry. We feel that the *Express* utility and practicality will be greatly enhanced with the SpeedBrakes installed. The best news of all is that the Precise SpeedBrakes are very simple to install, even for the builders who have closed out the wings.

SpeedBrake testing will commence in January of 1993 and more information will be included in the next newsletter.

Identification Of Current Builders & Customers

Now that *Express Design, Inc.* is poised to start shipping parts to builders, we require that all builders identify themselves in relation to their customer number and/or any further information which establishes them as a valid owner/builder (previous builder, customer name/number, etc.). Please write in your customer number or other validating information on the Newsletter Subscription form and return to EDI @ P.O. Box 609, Redmond, OR 97756.

In regard to this subject, we have enclosed an *Express* purchase agreement which differs little from the original WTI agreement and which must be signed and returned before *Express Design, Inc.* ships any and all parts and/or kits to existing and new customers or builders.

In addition, the establishment of the validity of your owner/builder status entitles you to a free first year's subscription to our newsletter, the *Express Press*. You'll find more information on the newsletter elsewhere in this issue.

Signing and returning the enclosed Purchase Agreement entitles you to a free first year's subscription to the Express Press.

Volunteers Come Through

We have been host to some volunteers this past month that have really been a lot of help.

Lionel and Dave Holly traveled up from Fullerton, CA, managing to get through all the snow in Northern California, only to be dumped on when they arrived in Oregon. Despite the snowfall here in Redmond (Mt. Bachelor already has a 12 foot base), work continues at a good clip in the warm *Express* hangar. The Hollys' have been helping Dick with completing the tail feathers. The tail of the FT will be complete this week to include elevator and rudder.

Bob Hockett has also been working as a volunteer for the last week and will be spending another week or so working on the close-out of the RG wings.

Jay Villalva and his brother Bob were down over the New Years' holiday. With Bob's expertise in HVAC (he has his own heating business up in Seattle) and Jay's Navy experience with boilers, we were able to fire-up the oven and turn out a set of windows and a front windshield. Jay is moving down to Florida and will be going back to the Gulf on the Nimitz. Good luck Jay in swatting those flies down there (Kadafi and Saddam type that is!).

We sincerely appreciate the efforts of these volunteers who cheerfully give of their time and expenses to help give us a little boost. As we stated in our December newsletter, the skiing is terrific at Mt. Bachelor and if you'd like to pitch in and help Dick Lind get our new demo ready for "Sun 'N Fun", the welcome mat is out! Give us a call.

We sincerely appreciate the efforts of these volunteers who cheerfully give of their time to give us a little boost.

Word To The Wise

Now that we are "filling the pipeline" with missing parts and some builders are approaching the test flying stages, we strongly recommend that you read and understand FAA publication AC-90-89, ***Amateur Built Aircraft Flight Testing Handbook***. This is mandatory reading for your final stage of kit plane construction.

Further, if at all possible, we strongly recommend that you visit the factory and get some time in the demonstrator aircraft in order to become familiar with its operation and to acquaint yourself with appropriate safety concerns. If this is not possible, we suggest that you enlist the service of a professional pilot and/or flight instructor with experience in home built aircraft to accomplish the initial test flying of your aircraft.

Policy Regarding EDI Proprietary Data

Recently, some builders have requested that E.D.I. liaison with unapproved third party vendors on components purchased from those same third party vendors. In the recent past, trade secrets and proprietary engineering data was released to certain unscrupulous parties which in turn greatly harmed W.T.I. For this reason, E.D.I. is unwilling to release proprietary data to third party vendors and/or others whom would choose to do the same to E.D.I..

Next Month in *Express Press*
BIG NEWS about pre-wired, ready to install, complete instrumentation/avionics packages at very attractive prices available to *Express* builders, that should save 2+ months builder labor.

*The FAA publication, **Amateur Built Aircraft Flight Testing Handbook**, is mandatory reading for your final stage of kit plane construction.*

6

Express Design, Inc.

P.O. Box 609
Redmond, OR 97756

BULK RATE
U.S. POSTAGE
PAID
Redmond, OR 97756
Permit No. 51