

EAA CHAPTER 104 NEWSLETTER

EAA CHAPTER 104 MONTHLY MEETING

Friendship & Flying – “For The Fun of It”

*Meetings are conducted in the EAA Chapter Room – Porter County Municipal Airport
4207 Murvihill Road, Valparaiso IN 46383*

MONTHLY CHAPTER MEETING TUESDAY- July 13, 2010

Socialize & Coffee-6:30 pm – Meeting: 7:00pm

CHAPTER WEBSITE: www.eaa104.org

**See you at the July 13th meeting. Bring a Friend!
We'll be discussing the AirVenture Food Booth**

Experimental Aircraft Association

Ed Hanson, Editor

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FIRST CLASS

EAA CHAPTER 104 MISSION STATEMENT

Foster, promote, and engage in aviation education.

Promote, encourage and facilitate membership
in the Experimental Aircraft Association.

Support and promote the mission, vision, goals
and objectives of the EAA.

President's Page

Ed Hanson

July 2010

I don't know who was responsible for the weather for our Pancakes and Airplanes breakfast and Young Eagle flights but thank you so much! After a week of lousy conditions, we had clear weather and our pilots were able to fly 27 Young Eagles. We had a good turnout of volunteers both for set up as well as the event and I'd really like to thank each and every volunteer for making it a smooth operation. A special thanks to **Dave Thomas** for camping out and watching over the setup Saturday night, and to **Rick Rozhon** for answering the call for help as wind attacked our tents.

We may wish to revisit the viability of scheduling this event on Father's Day as many individuals have voiced their concerns about having other commitments for that day. Several of our members were unable to attend citing other obligations. I think this pretty much applies to the general public as well. It's a good deal of work to conduct this event and we should strive for a bigger breakfast turnout. We will however compete with many other events and activities no matter which date we choose. Let's talk it over for a few months and see what we decide.

Last month I talked about hot air balloons and to further that I see this Friday July 9th at 6pm and 9am Saturday the Kentland Municipal Airport is hosting Midwest SkyFest where you can take that hot air balloon ride. The local EAA Chapter will be giving Young Eagle flights also. Visit www.midwestskyfest.com or call Cathy at 219.474.5100 for more information.

Eagle Aircraft has announced some new ground schools if you are interested in furthering your aviation knowledge.

Instrument Ground School Dates: July 12th – September 13th

Private Pilot Ground School Dates: August 23rd – December 18th

Sport/Private Ground School Dates: September 14th – October 21st

Call Eagle today if you have any questions or to reserve your spot in class
219-464-0132



Please work, play and build safely.
Ed Hanson

Congratulations are in order! Member **Rick Sirko** recently soloed at Donn Air and member **Larry V. Larmon** passed his private pilot check ride. Good work guys!

Thanks to member **Charles O'Bringer** who arranged a nice discount with a local merchant for the purchase of some new tables for the chapter. We appreciate it.

We have a new grill!



Gib Milkereit District Manager for AmeriGas recently donated a shiny new grill to the chapter. It came just in time to cook the sausages for the pancake breakfast. It has three main burners and a separate side burner. What a joy to use a grill that lights with a twist of a knob! This grill will get a workout at the AirVenture food booth later this month and will certainly be a welcome improvement over our old unit that is getting close to the end of its useful life.

We thank Gib, Liz and all the good folks at AmeriGas who make sure all our propane requirements are satisfied. Please support them with any referrals and business you can send their way.

EAA Enhances Young Eagle Experience

As you know, the Young Eagle flights we offer have been a great experience for our youth. For the last year, each participant received their own logbook complete with a computer key to access Sporty's online ground school course. Now, as a further enhancement to the experience, when a Young Eagle completes a specified section of the ground school course, EAA national will provide a means to pay for a first flight lesson! Think about it and add up the numbers: the cost to our volunteer pilots to fly their planes for the Young Eagle flight, the cost to purchase an online ground school, and now the cost for an hour of a rental trainer aircraft and an instructor. The Young Eagle flights are a huge deal. Please help spread the word. It is indeed rare to find an offer like this with no strings attached and can lead to life changing endeavors.

Where Do I Begin

A very informative article by Ron Alexander about building your airplane is included at the end of this month's *electronic* newsletter. We thank member **John Hack** for sending it for the newsletter. We also thank EAA Sport Aviation for the use of this material.

Is There A B-17 In Our Future? At the June meeting we discussed the possibility of hosting the EAA B-17 in the future. If you have any thoughts on this activity, please plan on attending the July chapter meeting and sharing these with fellow members.

AirVenture Food Booth

Once again this year we will be joining with the Porter County Pilots Association to staff the food booth. We will be setting up at 5pm on Thursday July 22nd. First day of operation will be Friday July 23rd with the booth running through Sunday August 1st with teardown at 5pm. The normal hours will be from 7am to 6pm utilizing two shifts with a lunchtime overlap. We will open an hour early for the first few days to accommodate early arrivals into OSH. We will have the sign up book at our July meeting or it will be available at the airport office at other times. We should have at least three volunteers per shift. The Collings Foundation Bombers will be on site July 26th, 27th, & 28th.



Some pictures from Pancakes and Airplanes



WE FLEW 27 YOUNG EAGLES ON JUNE 20th! Thanks to all that made this possible.

**EAA Chapter 104
Porter County Municipal Airport
Valparaiso, IN**

Minutes of Monthly Meeting, June 8, 2010

The meeting was called to order and The Pledge of Allegiance was led by President Ed Hansen at 7:00 PM

BUSINESS MEETING:

The minutes from the May meeting were approved by the members.

Old Business:

A newsletter from Jason Pratt (former Eagle Soars graduate) was passed around.

New Business:

Do we want to host the EAA B-17 again? Yes, Ed will send a letter to Oshkosh telling them yes. Dave Thomas will chair the visit.

The airport is going to erect a new electronic sign at the airport access road. We will be able to put messages on it.

Treasurers Report:

Treasurer's report was given by Rick Ray.

President's Report:

Please email Ed Hanson articles or thoughts for the newsletter hansoncp@netnitco.net

We have new Wicks Aircraft catalogs available for whoever wants one.

I have requested and received an aviation safety packet from the FAAST. We will incorporate the material into some future meetings.

We have flyers for the pancake breakfast. Please help spread the word.

I have obtained the insurance and executed the event agreement with the airport.

I have contacted the Times, Post, and Winfield American papers, KV REMC newsletter, the radio & TV stations, posted the event on the EAA calendar of events. I have emailed the flyer to the members as well as many other contacts I thought may be able to spread the word.

I will take care of the shopping for the supplies for the breakfast, I have ordered more YE supplies.

We need to discuss the following:

Contacting Amerigas for delivery of a 100# propane tank. And inquire about our new grill.

Making up a gas line connection with a regulator. Work with Amerigas? What about the regulator in our kitchen?

How to cook the sausages this year without Bruce's griddle.

Arranging for a porta potti.

We are still short 6 tables. They have not been on sale at Menards recently. The regular price is 49.99. Shall I try to negotiate a discount and pick them up? Ed and Charles will handle.

Final mixing of the batter outside at the grill.

Setup time on Saturday. I need to leave at noon to drive to Lafayette for a family wedding. It was decided that set up will start at 10AM.

Someone to come early Sunday about 5am to make the large pots of regular and decaf coffee.

Treasure to obtain change for the cashbox.

Shall we involve the CAP?

Sign up sheet for volunteers.

We had a refrigerator die on us. Thanks to Jim Haklin for mitigating the event! How shall we replace it?
Can Dan Thomas dispose of the old one?

Young Eagles Report:

Dennis is out of town on business tonight. First young Eagle rally of the year took place Saturday May 15th in conjunction with ILTFD. We flew 21 YE's.

Next event is June 20th along with the pancake breakfast. He had 3 pilots including himself as of last Friday. He will be calling other pilots.

We need someone to run the flight simulator as well as other volunteers. Bill Vogen volunteered to run the flight simulator.

Webmaster's Report:

A countdown timer has been added to the website for Pancakes and Airplanes. The flyer is being added also. We are still getting 400 – 500 hits per month.

Builder's Night and Project status:

Frank Ambrosic brought in his new fuel system components from Airflow Performance.

We have been meeting at Ed Hanson's shop and working on landing light lenses, wiring, and firewall forward items.

There will not be build night on June 15th so members can attend the FAA safety seminar. We will resume on June 22nd at Ed's.

Future Flyers Scholarship Fund (formerly named Eagle Soars):

All donations received will benefit a child to have their flight school training up to solo paid by EAA chapter 104.

We Care:

New member Doug Fogle's wife passed away in May. John Hack will be helping Doug learn the art of riveting as John has lots of experience working on his Mustang II.

Ed spoke with Bruce last night. He is nearing the end of his probationary period and is expecting an offer from his employer. Yesterday was his birthday and Sandi and he were going out to dinner with Dan Zanstra's daughter and friends from work. Bruce likes the work and has progressed to more interesting activities such as replacing APU's and hydraulic work. He's not crazy about his night shift. He is getting lot's of motorcycle time.

Two Month Look Ahead:

Lansing Chapter 260 pancake breakfast is next Sunday June 13th.

PCPA FAA safety seminar at Eagle Aircraft June 15th

Pancake breakfast and Young eagle Rally is Fathers day June 20th.

RZL EAA Chapter 828 Fly in July 10th.

Build night every Tuesday except meeting nights. No build night on June 15th.

Next meeting is July 13th.

Air Venture food booth will be starting in late Ju

The meeting was adjourned at 8:05.

Respectively submitted,

Pam Ray

Chapter Secretary



EAA Chapter 82's 4th ANNUAL

WINGS AND WHEELS

FLY-IN - Part Two

Sat & Sun, July 10 & 11, 2010

Barber Airport (2D1)

(Three miles north of Alliance, OH on Rt. 225)

Come and see aircraft flying with some of the best

automotive & alternative engines flying today...

the Corvair and Volkswagen

Pancake Breakfast... Sat & Sun... 7 - 11am

Lunch... Sat... Noon - 2pm

PUBLIC WELCOME !!!

On Display...

Homebuilt Aircraft, PRA #19 Rotorcraft, Vintage Corvair

Cars, Corvair engines & "Roy's Garage" Fifth Bearing

From EAA Sport Pilot

About the Author, Ron Alexander

This article was written by Ron Alexander of Alexander SportAir Workshops. Ron has been flying since the age of 16; he flew for the Air Force for five years (including one year in Vietnam) and started flying for Delta Airlines in 1969, where he now pilots the Boeing 767. He currently owns a J-3 Cub, C-3B Stearman, and a Beech 18. Ron started restoring antique airplanes in the early 1970's and could not find parts so he founded the Alexander Aeroplane Company which he operated for 17 years. He sold the company to Aircraft Spruce and Specialty in 1995 so that he could focus his efforts on providing education within the sport aviation industry.

Ron is currently president of Alexander SportAir Workshops, a series of "hands-on" workshops on building airplanes is presented throughout the country for education. For a schedule of locations and dates of upcoming workshops and information (prices, curriculum, etc.), call 800-967-5746 or visit their web site at www.sportair.com

This article was first published in EAA's Sport Aviation magazine.

Where Do I Begin?

By Ron Alexander

I have finally made the decision. I am going to build an airplane! Where do I begin? Do I have the skills necessary, the time, the money? Will my family support me? Can I do this? The answer is yes, I can do this successfully. Well, if so, where do I begin? The answer is found in preparation and planning. The beginning stage of building an airplane is crucial to assuring the final completion. You must be prepared for the undertaking and understand what lies ahead as much as possible. I firmly believe, based upon my experience, that the success rate (completion rate) of airplane builders can be much higher given proper preparation. Well, if all of this is true, how do I prepare myself for this major undertaking?

First of all I believe there are four major factors that influence the success or failure of constructing an airplane either from a set of plans or from a kit. Simple awareness of these problem areas will increase your probability for success. First of all, you must acquire the technical knowledge and develop the skills necessary to build an airplane. Failing to do so will result in a lack of confidence during the construction of the aircraft that often causes the project to be condemned to the basement or garage never to be completed. Secondly, family involvement is essential. You must involve your family with your project. A large number of airplane projects remain unfinished as a result of

family misunderstandings. The third major factor is the amount of time required to build an aircraft. This time is often underestimated and the result can be frustration which often in turn leads to termination of the project. The last factor for successful completion involves money. The financial requirements are often miscalculated as to the total amount required and also when the money will be needed. These four areas of concern certainly are not all-inclusive. There are a number of other factors that contribute to the overall successful completion of an airplane. However, I am convinced that these four are critical.

I will discuss with you how to properly prepare yourself for the experience of building an airplane. I will outline the different methods of airplane construction, the tools needed for each method, workshop requirements, time, how to involve the family, etc. All of the types of airplanes available to build, regardless of their method of construction, have certain things in common. One of these involves the requirements necessary to certify and operate an aircraft as an amateur-built. Last month, I discussed the Far of airplane building and how they apply to each phase of construction. In this article, I will discuss the initial preparation phase of building with emphasis on the specific requirements to license your airplane. Before you actually begin construction you should know what you are going to need to be prepared for the final inspection of your airplane by the FAA. I will develop a checklist to assist you with these items. What follows applies to both a plans and a kit built aircraft.

Once you have decided what type airplane you are going to build, you should contact your local FAA office. Each regional office should have available a packet of information that includes necessary forms, Advisory Circular 20-27D, a listing of eligible kits, and other information pertinent to amateur-built aircraft. Advisory Circular 20-27D is necessary. It contains most of the information you will need to properly prepare for the certification process of your aircraft. If you are purchasing a kit, you will want to ensure that it is listed on the FAA listing of Eligible Amateur Built Aircraft Kits. If it is not listed, you may have difficulty obtaining amateur-built certification.

Also provided with the information package is a listing of the names of Designated Airworthiness Representatives within your local area. A Designated Airworthiness Representative (DAR) has the authority under the Federal Aviation Regulations to act as an FAA representative to issue airworthiness certificates. These individuals are authorized to inspect an aircraft and issue the special airworthiness certificate under the experimental category. This certificate will usually be issued for the purpose of operating an amateur-built aircraft. DARs are not government employees, rather they usually have their own business. Therefore, they will charge for inspecting your aircraft and issuing the air-worthiness certificate. This charge is usually about \$300-\$400.

FAA Inspectors do not directly charge for this service since they are government employees.

You should decide in the beginning whether to use a DAR or an FAA Inspector to inspect your airplane when it is completed. When you begin the project, contact the person you have chosen and advise them that you are building an airplane. Start a relationship with the individual so you can ask questions and seek advice throughout the building process. They will be very beneficial in ensuring you are properly prepared for the final inspection of your airplane. Prior to 1983, the builder of an airplane was required to have an FAA inspection at several stages during construction. These inspections were commonly known as precover inspections. In 1983, the FAA decided to only inspect the aircraft one time just prior to the initial flight test. At that time the airworthiness certificate may be issued.

Common sense tells us we will want to have precover or in-process inspections of our project accomplished. These inspections should be performed by a person with proper qualifications. Several choices are available. You should be involved with your local EAA Chapter and find out if an EAA Technical Counselor is available. A Technical Counselor is a designated individual with a proven broad background who has been selected by his EAA Chapter as an advisor. Most Chapters have Technical Counselors who have building experience. If possible, select a person who has experience in building your particular airplane or at least with the same type of construction. If a counselor is not available, find someone else who has built a similar type airplane who would be willing to look over your shoulder and help you look for problem areas. Finally, a licensed mechanic (A&P) can be valuable in performing inspections. Preferably, the mechanic should have experience with experimental airplanes.

Having established contact with a DAR or FAA Inspector and after finding someone to inspect your aircraft throughout the building stages, you will want to prepare yourself to begin work. The first step is to thoroughly review the plans or assembly manual provided by the designer or manufacturer. Reading the plans and/or manual will save you countless problems later. You also should purchase several reference manuals such as AC43-13, which will assist you in obtaining answers to questions that will certainly arise. Hands-on workshops are also available through the EAA/SportAir workshop program that teach the technical skills needed to build an aircraft. You should acquire a working knowledge of the area of construction involved such as composites, welding, sheet metal, fabric covering, etc. Gaining this knowledge will give you the confidence necessary to begin the project in addition to preparing you for problem areas that will arise.

Finally we are ready to begin construction. Tools needed, workshop space, etc. will vary with the type of project you have selected. We will discuss those specific needs in subsequent articles. This discussion will pertain only to general issues. From the very beginning you will need a builder's log. This log will contain the history of your airplane during the construction phase. It will serve at least three purposes: (1) proof that you built at least 51% of the aircraft which will allow you to obtain amateur-built certification, (2) an account of the aircraft to establish a value for insurance purposes or for resale, (3) a personal journal to show other builders, etc.

There is no required format for a builder's log. I would recommend a large 3-ring binder that will allow space for a number of pictures, receipts and documents. Document every phase of construction with pictures of completed parts, receipts for materials used, samples of welds, glue joints, dates you worked, etc. A very important part of the log is the documentation of inspections. At the completion of each major phase of construction have a Technical Counselor or someone else that we previously discussed inspect your. Document the date of inspection, who inspected, what was inspected and the results. I recommend doing this regularly. You cannot have another set of eyes overlook your work too often. We can work on a project for months and continue to overlook a problem that someone else will spot immediately. In summary, the builder's log is very important. It is the history of the life of your airplane and the FAA inspector will review it thoroughly to be sure you have built the major portion of the aircraft, that the work was done properly, that the materials were adequate and that the aircraft is indeed safe for you to fly. You must be very diligent in keeping up with this log.

The next step in preparing for your certification is to obtain an N-number and to register your airplane with the FAA. You may make application for a specific number for your airplane. FAR 47.15 will give you the specifics. Basically, the number you request must not exceed five symbols following the letter N. These symbols may all be numbers or 1-4 numbers and one suffix letter or 1-3 numbers and two suffix letters. The letters "I" and "O" may not be used and any zero must be preceded by another number. To obtain a specific N-number, send to the FAA an Affidavit of Ownership for Amateur-Built Aircraft, Form 8050-88 along with the number you desire. If your aircraft is a kit, you must also send an Aircraft Bill of Sale, Form 8050-2 with the word "aircraft" crossed out and the word "kit" inserted in its place. After the FAA has received your request and if the number you requested is not in use on another aircraft, you will be sent a form letter giving the number assigned along with a blank Form 8050-1 which is an Aircraft Registration Application. You then fill out this form and return it (with your N-number) to the Aircraft Registry. The pink copy of this form will serve as your registration document until the

permanent Form 8050-3 is received. You must have your air plane registered before the FAA inspector or DAR can issue your airworthiness certificate. I recommend that you allow at least 90 days for this entire process. Some builders register their airplane when they begin while others will wait until a few months prior to final inspection. Often local property taxes are imposed when the aircraft is registered.

Several other items need to be completed during the building stage to prepare for the inspection. Your instruments should be properly marked with required markings such as the airspeed indicator for never exceed speed, etc., engine instruments for maximum and minimum safe operation, and any other pertinent markings. Baggage compartments should be properly marked with maximum weights. You may want to put "no-step" markings in certain places along with other warnings. Keep in mind the necessary instrumentation if you want to certify the airplane for instrument flying (IFR). FAR 91.205 can be referred to for the specific requirements. All controls should be labeled with their function and method of operation. You may also need to install an emergency locator transmitter (ELT). The requirements for this are found in FAR 91.207.

Other items are easily overlooked which are needed for certification of an experimental aircraft operated as an amateur-built. One of these is the experimental placard required by FAR 45.23. The word "EXPERIMENTAL" must be affixed to your aircraft on the exterior near each entrance to the cockpit or cabin. The letters must be at least 2" high (no larger than 6" high) and they must be legible and of a contrasting color. If you only have one entrance to the cockpit (such as a flipper canopy) only one side need be placarded. Without these letters on your amateur-built aircraft you will not get the airworthiness certificate.

Another item is the passenger warning placard. The following placard must be displayed in the cockpit or cabin at a location in full view of all passengers: "PASSENGER WARNING - THIS AIRCRAFT IS AMATEUR-BUILT AND DOES NOT COMPLY WITH FEDERAL SAFETY REGULATIONS FOR STANDARD AIRCRAFT." Of course, this always instills confidence in your passengers. And if that were not enough FAR 91.319 states that you must advise each person carried that your airplane is experimental. This must be done even though you have the passenger warning displayed.

An identification plate must also be placed on the exterior of your experimental airplane. FAR 45.11 and FAR 45.13 explain the details. This must be a fireproof plate which is secured to the aircraft fuselage exterior so that it is legible to a person on the ground. It must be either adjacent to and aft of the rear-most entrance or on the fuselage surface near the tail surfaces. The plate must contain the builder's name (your personal name), the model designation,

and the builder's serial number. You choose the serial number. This is a major requirement for certification.

Weight and balance data will be reviewed by the inspector. You are also required to carry a copy of the weight and balance with you in the airplane when you fly. Specifically, what do we need for weight and balance? You need to weigh your airplane empty without fuel, passengers, etc. You can often rent a set of scales from a local maintenance shop or often three bathroom scales will be sufficient. You need to include in your weight and balance data the following items:

1. Date calculated, name of plane, serial number and N-number
2. Empty weight and center of gravity
3. Maximum weight (obtained from manufacturer or designer)
4. Datum reference
5. Weight and balance arms
6. Most forward and most aft CG calculations
7. Center of gravity limits including most forward and most aft.

These items will be reviewed in detail during the final inspection of your airplane.

You will also need to place your N-number on your airplane prior to inspection. FAR 45.23, FAR 45.25 and FAR 45.29 state the requirements for these markings. In short, you must permanently attach your number either on the vertical tail surfaces or on the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer. This must be done on both sides of the airplane. If you have a twin-tailed airplane, both outside surfaces must display the numbers. If your maximum cruise speed does not exceed 180 knots, you may use three inch high numbers and letters. If your maximum cruise speed exceeds 180 knots the height must be 12". On certain older airplanes (30 years or more) two inch high markings are allowed. The details regarding this can be found in FAR 45.22.

A logbook will be required on the day of inspection. Ideally, three logbooks should be presented: (1) airframe, (2) engine, and (3) propeller. It is legal to have one logbook with an index for each of the above. I personally prefer to have the separate logbooks. The inspector will endorse the airframe logbook upon satisfactory completion of the inspection. You will want to record all of the significant details concerning inspections and maintenance. The logs must be maintained for the life of the aircraft. Brief entries of "in-process" inspections should be made in the logbook in addition to your builder's log. Remember, these are two entirely separate logs.

Finally, we are ready to have our airplane inspected and certified. Usually a call to a DAR is sufficient and you will be sent the necessary forms. FAA inspectors prefer to have a written request for inspection. A sample letter to the FAA inspector or DAR is contained in AC20-27D. It provides a quick glance of needed documents and it includes a copy of the letter you need to send to the inspector detailing where your airplane is located and the area over which the airplane will be test flown. Remember, when you choose the airport from which to test fly your airplane, be sure the runways are long enough, it is not located within a densely populated area, and that it meets your requirements to safely test your airplane. The test area will usually be within 25-50 statute miles of the airport you choose. Your airplane will only be inspected when it is ready to test fly. This is the day you have worked toward for several years. The airplane should be opened completely and all paperwork present (a list follows). The inspector should not request extensive disassembly of the aircraft provided you have documented evidence of in-process inspections. The only time they are authorized to request extensive disassembly is if they have a question of safety that would endanger the general public. You will find the majority of inspectors to be very cooperative provided you are properly prepared and provided your airplane is airworthy.

EAA Volunteers to Help You Begin

EAA Technical Counselors and Flight Advisors are important resources for anyone considering building an aircraft. These are individuals who assist other EAA members in providing advice for the construction and preparation for initial flight testing. Your local EAA Chapter most likely has at least one Technical Counselor and a Flight Advisor. If not, contact EAA Headquarters (414-426-4821) to get the name and phone number of a counselor or advisor in your area. Technical Counselors are experienced builders and/or mechanics who provide their expertise to others in overseeing a construction project and "coaching" an individual to prepare for the final inspection by the FAA inspector or DAR. A Flight Advisor is an experienced individual with flight test experience who can help you think through your decision on what aircraft to build ... the one that meets your expectations and capabilities as a pilot. A Flight Advisor will also help you go through a self evaluation of your current flying skills and proficiency to ensure that you are prepared for the initial flights and coach you through establishing a specific flight test plan. Don't overlook a chance to have your fellow Eaters be a resource in making the fulfillment of your dream a safe one.

After formally requesting an inspection as outlined above, you will need the following on the day of the inspection:

1. Application for Airworthiness (Form 8130-6)
2. Eligibility Statement (Form 8130-12). Note: This must be notarized.
3. Registration certificate (Form 8050-3)

4. Photo or 3-view drawing of your airplane as required by FAR 21.193
5. Your builder's log
6. Copy of the weight and balance data
7. Logbook for airframe, engine and propellers (or one indexed logbook)

Upon satisfactory completion of the inspection you will be issued three documents: (1) the airworthiness certificate, (2) Phase I operating limitations, and (3) Phase II operating limitations. The inspector is also authorized to issue further restrictions under FAR 91.319 (e) if necessary. An appropriate logbook entry will also be made in the airframe logbook. Occasionally, the inspector will issue only Phase I operating limitations. These limitations only apply to the test flying phase and they have a limited duration of one year. You may not fly your airplane under Phase I after you have completed the required flight test hours or after one year unless you have approval from the FAA. Another inspection is often necessary. Phase II operating limitations apply to the operation of the aircraft after the required test flying and exist for the life of the aircraft. Usually, the inspector will issue both Phase I and Phase II at the time of inspection. To legally fly your airplane under Phase II after it has been test flown, you must make the following entry in the aircraft logbook: "I certify that the prescribed flight test hours have been completed and this aircraft is controllable throughout its range of speeds and throughout all maneuvers to be executed, has no hazardous operating characteristics or design features, and is safe for operation." The number of flight test hours is 25 when a type certificate (FAA approved) engine/propeller combination is installed or 40 hours when a non-certificate engine and/or propeller is installed. Gliders and ultralights built from kits listed on the FAA Listing of Eligible Kits require only 10 hours and a minimum of five takeoffs and landings.

After successful completion of the required flight testing hours (completion of Phase 1), you should make application to the FAA for your repairman's certificate. Advisory Circular 65-23A outlines the procedure. This is done on a Form 8610-2. The repairman's certificate will permit you to inspect your aircraft annually (condition inspection) and make the necessary logbook entry. Now you are ready to enjoy your airplane, fly to airstrips, carry passengers, etc. All of your efforts have finally paid off. The sense of satisfaction in having successfully built your own airplane cannot be measured.

CHECKLIST

Initial Pre-Flight Checklist		
1	FAA or DAR	Contacted
2	FAA information packet	Secured

3	Construction manual or plans	Reviewed
4	EAA Technical Counselor	Contacted
5	AC20-27D	Reviewed
6	AC43-13 and other references	Purchased
Exterior/Interior Pre-Flight (Building Phase)		
1	Builder's log	Begun
2	Affidavit of Ownership	Completed
3	Bill of sale from kit manufacturer	Completed
4	Application for N-number	Mailed
5	N-number	Received
6	Application for registration (90 days prior to inspection)	Mailed
7	Certificate of Registration	Received
8	Instruments, controls, etc.	Marked and placarded
9	ELT	Installed
10	Passenger warning placard	Installed
11	Experimental lettering	Affixed
12	Identification plate	Attached
13	N-numbers	Affixed
14	Weight and balance	Complete
15	Logbook	Purchased
16	Letter requesting inspection	Mailed
Before Starting Engine Checklist (Day of Inspection)		
1	Airplane	Ready and opened up
2	FAA inspection	Complete
3	Airworthiness certificate	Received
4	Phase I and II Operating Limitations	Received

5	Logbook	Signed
Before Takeoff (Test Flight)		
1	EAA Flight Advisor	Contacted
2	AC90-89	Reviewed
3	Aircraft checklists	Completed
4	Required documents	On board
5	Test flight program	Compiled
6	Test flight hours	Safely completed
After Landing (Following Test Flight and Maintenance)		
1	Required logbook entry	Completed
2	Application for repairman's certificate	Completed

