



Illinois Valley Beacon

March 2012

Chapter 563 Chartered in 1976

Volume 19 Issue 03

The **First Breakfast** will be held on the **First Saturday, March 3rd**, in the EAA Hangar from 8:00 to 10:00.

The **Regular Meeting** will be held on the **Second Thursday, March 8th**, in the EAA Hangar.

The **Second Breakfast** will be held on the **Third Saturday, March 17th**, in the EAA Hangar from 8:00 to 10:00

The **Directors Meeting** will be held on the **Third Thursday, March 15th**, in the EAA Hangar starting at 7:00 pm. All members are welcome to attend.

Just a Reminder Membership Dues are Due

You won't get a self addressed envelope and a membership form in the mail this year. Instead, the Directors had me mail an application to over 200 area National EAA members, that are not Chapter 563 members. We have received seven or eight new members from this mailing, but I have to rely on you who were members last year to take it upon yourselves to mail your 2012 dues, which have been raised to \$30.00, to me or Al Phipps, whose addresses are listed on page three of this newsletter.

The membership application is located on the web page. Please copy it and mail it along with your check. If none of your information has changed there is no need to fill out the whole form.

I hope you read this and act.

Aviation Explorers

At the regular meeting last month our speaker, Alison Oaks, did an excellent job explaining the purpose and goals of today's Explorer groups. Chapter 563 was been requested to sponsor an Explorer Post centered around careers in aviation. The members are co-ed, aged from 15 to 20, and effectively manage their own activities.

A vote of the membership supported the idea and several members indicated an interest in being one of the coordinators required to advise the young members of the Post.

Those of you that would like to be involved are required to have some training, which will be provided by the W.D. Boyce Council after breakfast this Saturday.

A training session is scheduled to take place after the first breakfast in March and will last about one hour. The cost is \$10.00 to those that want to participate.

EAA Chapter 563
February 9th, 2012 Chapter Meeting Minutes

President Bob Young called the meeting to order at 7:00pm.

The minutes from the previous board meeting was read and approved by voice vote.

Al Phipps provided a treasures report.

Rob Meyer introduced Alison Oaks an Exploring Executive with the W.D. Boyce Council as our first speaker for the evening.

Alison talked about what Explorer programs are about and why they exist. These are programs to provided exposure to different industries and associations for kids between the ages of 15 and 20 years of age. There are currently 25 different explorer programs in place with aviation being one of them. For example there are Explorer Posts sponsored by the police and fire departments locally as well as some by different industries. These programs are designed to give these young adults some idea what careers are available that they may want to pursue. EAA and the Boy Scouts have been working on how to put together a program that goes beyond Young Eagles and how the local chapters could become involved in an Explore Post program with continued support from both the Boy Scouts and EAA. Alison has asked our chapter if we would be willing to sponsor an Aviation Explorer Post. This requires a minimum of 5 individuals to commit to be involved and go thru the training provided by Alison. A show of hands was asked for of those that might be interested in be involved in one way or another. There seemed to be sufficient interest for the Board to make a recommendation to form the Post.

Our second speaker was Ron Wright, the builder of 14 airplanes. He must be related to the Wright brothers. Ron gave a little back ground on the Pasmay airplane he found and is in process of restoring. This plane is the prototype with serial #1 that an aerospace engineer with the name of Pasmay designed and built and took to the EAA annual convention in the seventies and won the award for

best design. Ron expects to complete the restoration in time to take to Oshkosh in 2013. He has secured three industry sponsors and EAA would like to do an article on the find and restoration in their magazine. Ron indicated that he could make the restoration available for the Explorers to work on if we would like. Also Chapter members could also become involved with the restoration if they would like.

Greg Lepine stated the he and Ron also have a Tiger Cub project they found in Texas that is ready to assemble. This project could also be made available for the Explorers to work on.

Meeting adjourned at 7:55

Respectively Submitted;
Your Secretary Donald Wolcott

Annual Inspections vs. 100-Hr Inspections

What's the Difference

Norm Clark
A&P-IA
ATP-AMEL
COM-ASEL, RCH, INSTRUMENT
CFII-ASMEL
CFI-RCH
CGI-AI

Third Edition

May 13, 2011

Several years ago, an acquaintance of mine was bemoaning the fact that he had just failed an Airplane Flight Instructor Rating test because he did not know the difference between an "Annual Inspection" and a "100-Hour Inspection." However, there may have been more to that story that I'm not privy to.....

Nonetheless, it got me to wondering if this is a common issue amongst pilot and flight instructor

candidates. Based on the hundreds and hundreds of Annual Inspections, Biennial Flight Reviews and aircraft checkouts that I've conducted, I've come to the conclusion that the flight instructor community, as a whole, was/is not thoroughly instructing their students in regards to the airworthiness responsibilities that the FAA places on pilots, owners and/or operators, nor do they brief them on the "privileges" allowed them under 14 CFR Part 43, Appendix A, Paragraph C: Preventive Maintenance.

This subject was addressed recently by the Examiner Panel at the last Flight Instructor Renewal Clinic that I attended. It was brought to our attention that many applicants for pilot certificates and ratings are deficient in their working knowledge of the Federal Aviation Regulations, particularly the following sections of Title 14 CFR Part 43:

§ 43.3 [Persons authorized to perform maintenance, preventive maintenance, rebuilding, and alterations.](#)

§ 43.5 [Approval for return to service after maintenance, preventive maintenance, rebuilding, or alteration.](#)

§ 43.7 Persons authorized to approve aircraft, airframes, aircraft engines, propellers, appliances, or component parts for return to service after [maintenance, preventive maintenance, rebuilding, or alteration.](#)

§ 43.9 [Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records \(except inspections performed in accordance with part 91, part 125, §135.411 \(a\) \(1\), and §135.419 of this chapter\).](#)

§ 43.13 [Performance rules \(general\).](#)

Appendix A to Part 43—[Major Alterations, Major Repairs, and Preventive Maintenance](#)

Appendix D to Part 43—Scope and Detail of Items (as Applicable to the Particular Aircraft) To Be Included in Annual and 100-Hour Inspections

And the following sections of Title 14 of the CFR Part 91:

Subpart C—Equipment, Instrument, and Certificate Requirements and

Subpart E—Maintenance, [Preventive Maintenance, and Alterations](#) regarding aircraft maintenance issues.

This really doesn't surprise me. Most Flight Instructors are not certificated aircraft mechanics and therefore, they probably haven't availed themselves to the monotonous and boring maintenance regulations that we certificated mechanics are supposed to know.

I didn't know too much about maintenance regulations either until I began studying to become a certificated aviation mechanic. Not one of my flight instructors up through my ATP or CFI training ever briefed me on the maintenance related regulations contained in the FARs other than to ensure that the aircraft I was operating had a current Annual Inspection and a current 100-Hour Inspection if it was operated "For Hire." I was somewhat aware of other regulations regarding maintenance but I was not too motivated to read them myself because I was not a mechanic and didn't realize there was/is a great deal of information in those regulations pertinent to pilots and aircraft owners.

As mentioned before, the FAA places a great deal of responsibility on airmen, whether they are pilots, flight instructors, or owner/operators, to determine that an aircraft meets its type design and is in a condition for safe flight before operating it. It seems to me then, that being familiar with, and having a working knowledge of the aforementioned FARs is a responsible thing to do.

In order to correctly answer the question posed on the title page, one must be thoroughly familiar with Federal Aviation Regulations. Let's begin with the following particular regulation, CFR Title 14: Aeronautics and Space, Part 43 Appendix D, which contains the checklist of items that must be inspected during an annual or a 100-hour inspection:



E-CFR Data is current as of March 31, 2011

Title 14: Aeronautics and Space

PART 43—MAINTENANCE, PREVENTIVE MAINTENANCE, REBUILDING, AND ALTERATION

Appendix D to Part 43—Scope and Detail of Items (as Applicable to the Particular Aircraft) To Be Included in Annual and 100-Hour Inspections

(a) Each person performing an annual or 100-hour inspection shall, before that inspection, remove or open all necessary inspection plates, access doors, fairing, and cowling. He shall thoroughly clean the aircraft and aircraft engine.

(b) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the fuselage and hull group:

- (1) Fabric and skin—for deterioration, distortion, other evidence of failure, and defective or insecure attachment of fittings.
- (2) Systems and components—for improper installation, apparent defects, and unsatisfactory operation.
- (3) Envelope, gas bags, ballast tanks, and related parts—for poor condition.

(c) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the cabin and cockpit group:

- (1) Generally—for uncleanliness and loose equipment that might foul the controls.
- (2) Seats and safety belts—for poor condition and apparent defects
- (3) Windows and windshields—for deterioration and breakage.
- (4) Instruments—for poor condition, mounting, marking, and (where practicable) improper operation.
- (5) Flight and engine controls—for improper installation and improper operation.
- (6) Batteries—for improper installation and improper charge.
- (7) All systems—for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment.

(d) Each person performing an annual or 100-hour inspection shall inspect (where applicable) components of the engine and nacelle group as follows:

- (1) Engine section—for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks.
- (2) Studs and nuts—for improper torquing and obvious defects.
- (3) Internal engine—for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances.
- (4) Engine mount—for cracks, looseness of mounting, and looseness of engine to mount.
- (5) Flexible vibration dampeners—for poor condition and deterioration.
- (6) Engine controls—for defects, improper travel, and improper safetying.
- (7) Lines, hoses, and clamps—for leaks, improper condition and looseness.
- (8) Exhaust stacks—for cracks, defects, and improper attachment.
- (9) Accessories—for apparent defects in security of mounting.
- (10) All systems—for improper installation, poor general condition, defects, and insecure attachment.
- (11) Cowling—for cracks, and defects.

(e) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the landing gear group:

- (1) All units—for poor condition and insecurity of attachment.
- (2) Shock absorbing devices—for improper oleo fluid level.
- (3) Linkages, trusses, and members—for undue or excessive wear fatigue, and distortion.
- (4) Retracting and locking mechanism—for improper operation.

- (5) Hydraulic lines—for leakage.
- (6) Electrical system—for chafing and improper operation of switches.
- (7) Wheels—for cracks, defects, and condition of bearings.
- (8) Tires—for wear and cuts.
- (9) Brakes—for improper adjustment.
- (10) Floats and skis—for insecure attachment and obvious or apparent defects.
- (f) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components of the wing and center section assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, and insecurity of attachment.**
- (g) Each person performing an annual or 100-hour inspection shall inspect (where applicable) all components and systems that make up the complete empennage assembly for poor general condition, fabric or skin deterioration, distortion, evidence of failure, insecure attachment, improper component installation, and improper component operation.**
- (h) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the propeller group:**
 - (1) Propeller assembly—for cracks, nicks, binds, and oil leakage.
 - (2) Bolts—for improper torquing and lack of safetying.
 - (3) Anti-icing devices—for improper operations and obvious defects.
 - (4) Control mechanisms—for improper operation, insecure mounting, and restricted travel.
- (i) Each person performing an annual or 100-hour inspection shall inspect (where applicable) the following components of the radio group:**
 - (1) Radio and electronic equipment—for improper installation and insecure mounting.
 - (2) Wiring and conduits—for improper routing, insecure mounting, and obvious defects.
 - (3) Bonding and shielding—for improper installation and poor condition.
 - (4) Antenna including trailing antenna—for poor condition, insecure mounting, and improper operation.
- (j) Each person performing an annual or 100-hour inspection shall inspect (where applicable) each installed miscellaneous item that is not otherwise covered by this listing for improper installation and improper operation.**

-----END Appendix D-----

You will notice that Appendix D makes no differentiation between the scope and detail of an Annual Inspection and a 100-Hour Inspection! The inspections in and of themselves are identical!

So if the scope and detail of the two inspections are the same, what is the difference, if any? For the “rest of the story,” we also must visit 14 CFR Part 65, Sections 65.81, 65.85 and 65.87, and 65.95 listed below:

Title 14: Aeronautics and Space

PART 65—CERTIFICATION: AIRMEN OTHER THAN FLIGHT CREWMEMBERS

Subpart D—Mechanics

§ 65.81 General privileges and limitations.

(a) A certificated mechanic may perform or supervise the maintenance, preventive maintenance or alteration of an aircraft or appliance, or a part thereof, for which he **is rated (but excluding major repairs to, and major alterations of, propellers, and any repair to, or alteration of, instruments)**, and may perform additional duties in accordance with §§65.85, 65.87, and 65.95. **However, he may not supervise the maintenance, preventive maintenance, or alteration of, or approve and return to service, any aircraft or appliance, or part thereof, for which he is rated unless he has satisfactorily performed the work concerned at an earlier date.** If he has not so performed that work at an earlier date, he may show his ability to do it by performing it to the satisfaction of the Administrator or under the direct supervision of a certificated and appropriately rated mechanic, or a certificated repairman, who has had previous experience in the specific operation concerned.

(b) **A certificated mechanic may not exercise the privileges of his certificate and rating unless he understands the current instructions of the manufacturer, and the maintenance manuals, for the specific operation concerned.**

§ 65.85 Airframe rating; additional privileges.

(a) Except as provided in paragraph (b) of this section, a certificated mechanic with an airframe rating may approve and return to service an airframe, or any related part or appliance, after he has performed, supervised, or inspected its maintenance or alteration (excluding major repairs and major alterations). **In addition, he may perform the 100-hour inspection** required by part 91 of this chapter on an **airframe**, or any related part or appliance, and approve and return it to service.

§ 65.87 Power plant rating; additional privileges.

(a) Except as provided in paragraph (b) of this section, a certificated mechanic with a powerplant rating may approve and return to service a powerplant or propeller or any related part or appliance, after he has performed, supervised, or inspected its maintenance or alteration (excluding major repairs and major alterations). **In addition, he may perform the 100-hour inspection** required by part 91 of this chapter on a **powerplant or propeller**, or any part thereof, and approve and return it to service.

§ 65.95 Inspection authorization: Privileges and limitations.

(a) **The holder of an inspection authorization may—**

(1) **Inspect and approve for return to service any aircraft or related part or appliance** (except any aircraft maintained in accordance with a continuous airworthiness program under part 121 of this chapter) **after a major repair or major alteration to it in accordance with part 43 [New] of this chapter, if the work was done in accordance with technical data approved by the Administrator; and**

(2) **Perform an annual, or perform or supervise a progressive inspection according to §§43.13 and 43.15 of this chapter.**

The complete answer, therefore, is that even though there is absolutely **no difference** between the scope and detail of an Annual Inspection and a 100-Hour Inspection, there is a significant difference as to who is authorized to perform an Annual Inspection and approve an aircraft for return to service after an Annual Inspection or major repairs and alterations.

Aviation mechanics that do not hold Inspection Authorization may not perform an Annual Inspection or approve an aircraft for return to service after an Annual Inspection.

So, look for that “A&P/IA” designation in the aircraft maintenance records after an Annual Inspection has been performed on the aircraft you intend to operate.

Now you know the rest of the story!

As always, feel free to contact me if you have any questions or comments.

Dear Newsletter Readers,

I'm sitting here tonight, drinking a sour red wine (the bottle was open and you can't throw it away) to tell you that I will be giving up the privilege of writing this newsletter every month. There comes a time when an editor should go to file 13.

This will be number 135 since I started in 2001. Dennis Mellon did the same thing for about the same amount of time before me. It's not a thankless job if you enjoy writing. But for personal reasons I will not be able to devote the time necessary to do this every month.

Your Chapter officers are recruiting new people to keep the information flowing and I am confident they will give you a fresh new view of the newsletter and web site.

Thank you for the support and articles you have given me and please continue to support the new editor.

My wife has been my proof reader for all these years and the first time she wasn't available to do it, I got in trouble. She had a serious surgery last month and will require my complete attention when she is able to come home.

The Chapter is a great group of people. If you have any interest in aviation at all, these are the folks you want to associate with. Regardless of your involvement in aviation; owner, pilot, student, or

fence hanger, you won't meet a nicer group of folks that share your interests. I encourage you to get involved, volunteer, be an active member. You won't be disappointed.

Your Newsletter Editor

Origin Of The Flight Checklist

On October 30, 1935, at Wright Air Field in Dayton, Ohio, the U.S. Army Air Corps held a flight competition for airplane manufacturers vying to build its next-generation long-range bomber. It wasn't supposed to be much of a competition. In early evaluations, the Boeing Corporation's gleaming aluminum-alloy Model 299 had trounced the designs of Martin and Douglas. Boeing's plane could carry five times as many bombs as the Army had requested; it could fly faster than previous bombers, and almost twice as far.

A Seattle newspaperman who had glimpsed the plane called it the "flying fortress," and the name stuck. The flight "competition," according to the military historian Phillip Meilinger, was regarded as a mere formality. The Army planned to order at least sixty-five of the aircraft.

Continued on next page.



Boeing B-17G

A small crowd of Army brass and manufacturing executives watched as the Model 299 test plane taxied onto the runway. It was sleek and impressive, with a one-hundred-and-three-foot wingspan and four engines jutting out from the wings, rather than the usual two. The plane roared down the tarmac, lifted off smoothly and climbed sharply to three hundred feet. Then it stalled, turned on one wing and crashed in a fiery explosion. Two of the five crew members died, including the pilot, Major Ployer P. Hill (thus Hill AFB, Ogden, UT).



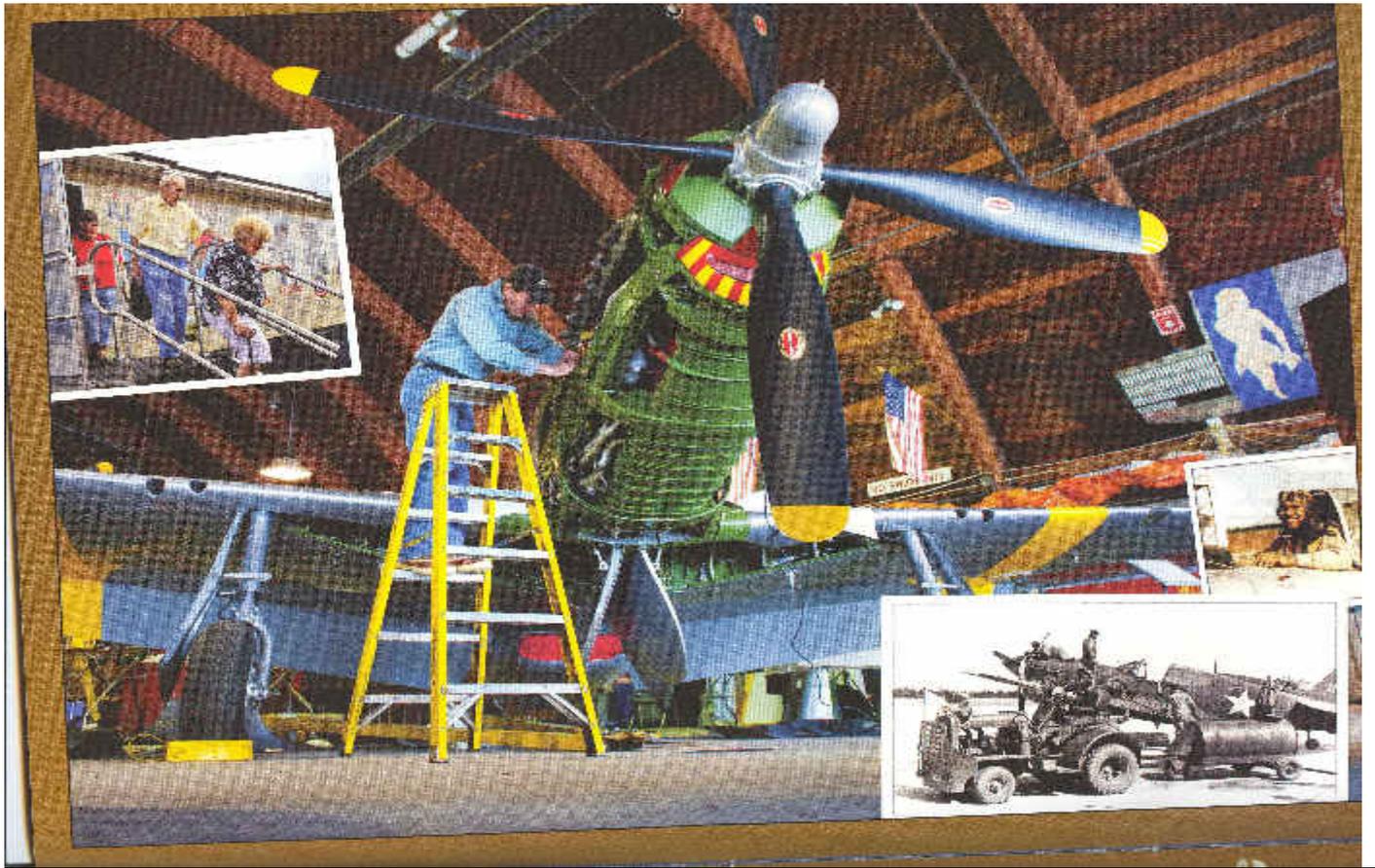
An investigation revealed that nothing mechanical had gone wrong. The crash had been due to "pilot error," the report said. Substantially more complex than previous aircraft, the new plane required the pilot to attend to the four engines, a retractable landing gear, new wing flaps, electric trim tabs that needed adjustment to maintain control at different airspeeds, and constant-speed propellers whose pitch had to be regulated with hydraulic controls, among other features.

While doing all this, Hill had forgotten to release

a new locking mechanism on the elevator and rudder controls. The Boeing model was deemed, as a newspaper put it, "too much airplane for one man to fly." The Army Air Corps declared Douglas's smaller design the winner. Boeing nearly went bankrupt. Still, the Army purchased a few aircraft from Boeing as test planes, and some insiders remained convinced that the aircraft was flyable. So a group of test pilots got together and considered what to do. They could have required Model 299 pilots to undergo more training. But it was hard to imagine having more experience and expertise than Major Hill, who had been the U.S. Army Air Corps' Chief of Flight Testing. Instead, they came up with an ingeniously simple approach: they created a pilot's checklist, with step-by-step checks for takeoff, flight, landing, and taxiing. Its mere existence indicated how far aeronautics had advanced.

In the early years of flight, getting an aircraft into the air might have been nerve-racking, but it was hardly complex. Using a checklist for takeoff would no more have occurred to a pilot than to a driver backing a car out of the garage... But this new plane was too complicated to be left to the memory of any pilot, however expert.

With the checklist in hand, the pilots went on to fly the Model 299 a total of 18 million miles without one accident. The Army ultimately ordered almost thirteen thousand of the aircraft, which it dubbed the B-17. And, because flying the behemoth was now possible, the Army gained a decisive air advantage in the Second World War which enabled its devastating bombing campaign across Nazi Germany.



| M A R C H | | | | | | |
|--------------------------------------|--------|---------------------------|-----------|----------------------------|--------|---|
| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
| | | | | 1 | 2 | 3 First Breakfast |
| 4 | 5 | 6 | 7 | 8 Regular Meeting | 9 | 10 |
| 11 Daylight Saving Time begins | 12 | 13 | 14 | 15 Directors Meeting | 16 | 17 Thanksgiving Second Breakfast |
| 18 | 19 | 20 First Day of Spring | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 |

The Regular Chapter 563 meetings will be held at the Chapter Hangar at 7:00pm on the second Thursday of each month.

All Chapter 563 breakfasts will be held at the Chapter Hangar from 8:00 am to 10:00 am on the first and third Saturday mornings.

The Chapter 563 Directors meetings will be held at the Chapter Hangar on the third Thursday of each month at 7:00pm.