



# EAA Chapter 100 January 2022 Newsletter

<http://eaa100.org>

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EAA Chapter 100 is a nonprofit association involved in the promotion of aviation through adult and youth education, hands-on training, building and maintenance of experimental aircraft, and through community awareness programs.

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Reader submissions and comments are strongly encouraged.

## January Meeting

– Dwayne Hora

Our next meeting is Friday evening, 7 pm, at the Dodge Center Airport Admin Building.

The proposed agenda is:

- Approval of Ken Chase for EAA Chapter 100 Vice President
- 2022 Chapter goals/activities
  - ◊ Young Eagles
  - ◊ Pancake Breakfast
- Round table discussion

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## ***VOR closings -- does anyone care? Except for when GPS goes down***

– Dick Fetcher

## **Very High Frequency Omnidirectional Range (VOR) Minimum Operational Network (MON) Program Update**

Presented at: Aeronautical Charting Meeting (ACM)

By: Ernesto Etienne, VOR MON Lead Engineer

Date: October 28, 2020

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## A Note from the Treasurer

-- Chris Budahn

**Editor:** No input this month. Chris has been very busy.

I suggest the following:

- Please get your dues updated
- There will be a cutoff coming for not getting this newsletter if your dues are not paid by a certain date. Date is to be determined at a future EAA Chapter 100 meeting.
- Dues are \$10.00.
- Dues can be mailed to Chris Budahn at the following address or presented in person at the chapter meetings:

Chris Budahn  
 6525 County 30 BLVD  
 Kenyon, MN 55946

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## Tips for safe winter flying

-- General Aviation News Staff

**Editor:** This is from the General Aviation News Staff dated February 18, 2016. The news article is still good in 2022. URL: <https://generalaviationnews.com/2016/02/18/tips-for-safe-winter-flying/>

Recently published by [AOPA Insurance](#) were several tips to help pilots get into air during the coldest time of the year: Winter.

“Pilots who enjoy winter flying acknowledge that while your preflight might be a shiver-inducing experience, you will likely not face thunderstorms, one of warmer weather’s traditional hazards,” the report begins. “The cold air also provides increased visibility to enhance your flight.”

(Continued on page 5)

## Starter Problem

-- Dick Fetcher

**Editor:** This is from an e-mail Dick sent some time ago. The information is still current! **However**, the pictures attached to the e-mail are no longer available.

I'll attach several emails that probably came from the Lycoming forum site. Because you are very familiar with Mags, I'll let you decide what parts to use to teach their trouble shooting.

On 1/12/2020 9:14 PM, 'Del Schier' [cozypi-lot@comcast.net](mailto:cozypi-lot@comcast.net) [lycoming] wrote:

Today I went to take a new LongEZ owner for some right seat familiarization time in my Cozy. On start it sounded like it backfired once and then on second try the starter spun but did not turn over the engine.

It is a Kelly Aerospace MagnaFlite MZ-6222 probably as old as my IO-360 C1E6.

The problem appears to be obvious: a spiral roll pin sheared when the engine backfired. See attached.....

I had to unjam the Bendix gear and a small part, like spring loaded index device fell out. I think it goes where I pointed to in the picture but I don't understand what it does or even how it could work there. It appears if I install it there it would jam the Bendix.

I would like to repair it as I cannot find a replacement at any price that has the same part number or looks the same. I am sure there are many 12 V starters that would fit on my engine but I am not sure how many days I would have to spend to make new baffles and intake system. I would really like an exact replacement or fix the one I have.

Any help finding or fixing the one I have would be appreciated. \_.\_.\_.\_

Lycoming Service Bulletin 559 says this about the starter drive for the Kelly Aerospace MZ-6222:

(Continued on page 3)

# Secretary Comments

-- Jeff Hanson

## EAA Chapter 100

### Chapter 100 meetings

#### Chapter business meeting 12-10-21

Meeting canceled due to snow storm.

Respectfully submitted,

Jeff Hanson

Chapter Secretary

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*(Continued from page 2) – Starter Problem*

*"The bendix assembly cannot be field repaired. The starter bendix should be replaced with a factory reconditioned or factory new unit."*

<https://www.lycoming.com/sites/default/files/Reprint%20of%20Kelly%20Aerospace%20Power%20Systems%20Service%20Bulletin%20No.%20A-112%20Rev.%20A.pdf>

Jerry King

### **This is the best part.....**

Hey Group - Regarding that starter shear pin business, something else to consider..

A while back an engineer friend of mine told me about the problem solving method used at Toyota, called "5 Why".. It means simply, asking why 5 times before you attack a problem.

Its intent is to prevent the recurrence of problems by addressing the true root cause. It seems that it's human nature to address only surface causes instead of attacking both the surface cause and the true root cause. Let's try 5 Why here...

1. Why is the airplane broken?

The starter shear pin failed.

2. Why did the shear pin fail?

The engine kicked back and overstressed it.

3. Why did the engine kick back?

...At about the 3rd why, the questions get more difficult to answer..

In this case, I'm guessing there's an ignition problem that needs to be addressed. During start, ignition should occur well after TDC if the impulse coupling/retard breaker system is working properly and there is no other wiring/connection issue that could allow the non-retard mag to be hot...

So I guess the answer to the 3rd why is there must be a mag issue to get a kick back. It seems you can't have a kick back unless ignition occurs before TDC..

4. So why is there a mag issue?

Something got out of whack and was not discovered before this start.?.

5. Why wasn't the mag issue discovered before the kickback?

Can't answer that but none of our maintenance is perfect, especially mine, but regularly checking mag wiring/connections to ensure they go cold when turned off is important. And if you use retard breaker mags, checking operation of the retard system regularly is important.

So it looks like this aircraft potentially has a mag issue in addition to the broken starter. And 5 Why indicates that fixing only the starter may lead to another kickback and broken starter.

Hope this helps and doesn't sound too know-it-all or uppity..

Please let the group know if you find a mag issue. I'm curious as to why this happened.

Regards -

John McClanahan

Atlanta

Del, do both of your magnetos have impulse couplings?

*(Continued on page 4)*

(Continued from page 3) — Starter Problem

If only one magneto has an impulse coupling, the other mag is supposed to be grounded out during start to prevent kickback - usually by a jumper wire on the ignition switch.

Jerry King

Hi Gary,

Thanks for the input!

I have EI and an impulse mag. Thinking about it, it might be safer if I didn't start on both. The EI should always start it well unless the battery is very low.. The impulse mag could have killed the starter motor.

Del

impulse kick from an impulse coupling.

If you have impulse couplings on both mags, then both mags should be hot during start.

I don't know about electronic ignition but unless it's got something to retard the spark during start, logically it must be off when cranking otherwise ignition will occur at 20-25 degrees before TDC and that would be bad.

Here's a short article on impulse couplings..

[The Oft' Misunderstood Impulse Coupling | Tennessee Aircraft Services, Inc.](#)

Hope this helps -

John McClanahan

Atlanta

(Continued from page 1) — VOR closings -- does anyone care? Except for when GPS goes down

**From:** [lycoming@yahoogroups.com](mailto:lycoming@yahoogroups.com)  
<[lycoming@yahoogroups.com](mailto:lycoming@yahoogroups.com)>  
**Sent:** Tuesday, January 14, 2020 07:15  
**To:** [lycoming@yahoogroups.com](mailto:lycoming@yahoogroups.com)  
**Subject:** Re: [lycoming] My starter died, where do these parts go?

Just to be clear, the way this is supposed to work is -

The impulse coupling retards the spark during start to prevent kickbacks (in addition to kicking the mag to create the spark).. If you have an impulse coupling on only one mag (most commonly the left), then the right mag must be cold with the ignition switch in the start position. If for some reason the right mag wire is loose or the ignition switch isn't wired correctly or etc, the mag can stay hot and cause a kick back during start but not every time because the mag barely has enough energy to create a spark at cranking speed without the

## Program Objectives

- Support the National Airspace System (NAS) transition from VOR to Performance Based Navigation (PBN) consistent with NAS modernization goals.
- Enable pilots in the contiguous 48 states (CONUS) to revert from PBN to conventional navigation in the event of a Global Positioning System (GPS) outage. Pilots will be able to:
  - Tune and identify a VOR at and above 5,000 feet above ground level (AGL),
    - Coverage will exist but may not be continuous at lower altitudes
  - Navigate to a MON airport within 100 nautical miles to fly a Localizer (LOC), Instrument Landing System (ILS) or VOR instrument approach

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# Newsletter Editor

-- Art Howard

(Continued from page 4) — VOR closings -- does anyone care? Except for when GPS goes down

without Distance Measuring Equipment (DME), Automatic Direction Finder (ADF), surveillance, or GPS where the capability currently exists and

–Navigate along VOR Airways especially in mountainous terrain where surveillance services are not available and Minimum En Route Altitudes (MEAs) offer lower altitude selection for options in icing conditions.

• Discontinue approximately 34% (307) of VORs in the CONUS by FY30

–The discontinuance process is governed by FAA Order 7400.2.

**Editor:** I have uploaded the complete presentation to EAA100.org: <https://eaa100.samanaketch.com/power-point/20201028-VOR-MON-Program-ACM-as-of-20201020.pptx>

A special thanks to Dick Fetcher for keeping our pilot population updated on FAA Safety and changes.

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(Continued from page 2) - Tips for safe winter flying

Another positive aspect of winter flying is air density. Cold air is denser, so engines produce more thrust and wings generate more lift causing an airplane to take off shorter and climb faster in the winter.



Winter flying, though, requires some extra caution:

**Don't forget a thorough preflight.** It may have been a

while since you've last flown, so now's an important time to complete a full preflight inspection. Check everything as if you are demonstrating for an examiner. Remember that tires may lose pressure when the temperature drops; all frost or snow needs to be removed; and small animals want out of the cold too, so they may have made a home in an engine cowling.

(Continued on page 6)

Happy New Year everyone! I am looking forward to a great 2022 since I now have a new Lycoming Factory Rebuilt engine in the Cherokee. More on this later but first my computer.

I have had a bit of a challenge with my computer. The SSD (Solid State Drive) was filling up with the Microsoft Operating System updates so I needed to replace it. I purchased a 1 TB (Terra Byte) SSD and installed it. That caused me to have to reimage which brought it back to the original purchase software. Lots of updates and reinstalling all the software, including Office 365, which I use to produce this newsletter. Thus, no e-mail for about a week in the days before Christmas. Still digging out from that episode!

Back to the engine. I am working on breaking in the new engine. I in-stalled a JPI 930 Engine Monitor in 2021. A great investment as I now know when a cylinder is getting too hot. I keep seeing 450 F plus CHT (Cylinder Head Temperature) on climb out so have to reduce the power to keep from getting too hot. I have broken in two other field rebuilds with new cylinders and never knew things were getting so hot!

After a few cross country flights I am beginning to see Cylinder highs in the low 400's F CHT during cruise. I even saw high 390's F CHT after Christmas on a flight to Little Falls, MN with OAT at 1 C. There are now 20 hours on the engine. Oil consumption seems very good. Glad to be breaking in this engine with colder winter temperatures rather than extra hot summer weather.

I will miss a couple of Chapter meetings as we are leaving for warmer climates. First stop is Tennessee to see my daughter's family and possible skiing with grandkids in North Carolina. Looking forward to that. Then off to Florida and the boat. It will be a short season of boating and then back to Minnesota in March.

Stay safe if you are flying in this cold weather. Spring is on the way!

See you around the patch in a couple of months.

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## Items for Sale

*Editor:* Please send me a description and photo, if you have one, and I will place your for sale item here.

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*(Continued from page 5) — Tips for safe winter flying*

**Avoid fuel contamination.** Fuel contamination can happen anytime, in any climate, and even at FBOs with the best fuel-pumping equipment. If an airplane has been flown and parked in a hangar while it is still warm, those half-empty tanks can produce condensation, which can contaminate your aircraft's fuel with water.

**Be careful when preheating your airplane.** The danger here is fire. The process works better when your airplane starts out in a heated hangar. If you are going to preheat your airplane, make sure the heater and cords are in good condition.

**Never fuel the airplane while the heater is in use.** Other commonsense suggestions include not leaving your airplane unattended during the preheating process. Take care that the heat ducting is not blowing on flammable parts of the airplane such as upholstery, canvas engine covers, and flexible fuel, oil, and hydraulic lines. Truly careful pilots will have a fire extinguisher at the ready during the preheating process.

**Take extra caution when planning a daylight flight.** You should become night current if you are flying in the winter. With winter days so much shorter than those in the summer, you can easily find yourself departing in the afternoon, only to be caught short of daylight. Sunsets and darkness come early in the winter, so make sure you are thoroughly prepared for night operations prior to taking a cross-country flight.

**Protect your deicing equipment.** Visually inspect your deicing boots for cracks and cuts. Some aircraft owners recommend applying a compound such as Age Master No. 1 to the boots to protect the rubber and slow the aging process. In addition, an ice-shedding product such as ICEX will help keep your boots clear of ice accumulation by reducing the ability of ice to stick to the boots.

**Prepare for an emergency situation.** A successful off-field landing in July means you sit around until help ar-

## EAA Young Eagles Pilot Requirements

-- EAA

*Editor:* This is from the EAA Young Eagles **Pilot Guidelines** brochure: **Pilot Requirements**

The Young Eagles pilot requirements are basic, but **MUST** be followed.

- ◆ Be a current EAA® member and hold an appropriate airman's certificate (sport pilot or greater)
- ◆ Possess a current medical certificate (if applicable)
- ◆ Be current to carry passengers in the aircraft you plan to use
- ◆ Have a current flight review
- ◆ Complete the Young Eagles registration form before the flight, including parent or legal guardian signature, and pilot signature
- ◆ Conduct flights in an aircraft that is in airworthy condition
- ◆ Have aircraft passenger liability insurance for the aircraft used (owned, rented, or borrowed)
- ◆ Adhere to all applicable Federal Air Rules (FARs)
- ◆ Complete both the online training and basic background check as a part of EAA's Youth Protection Policy. For more information, visit [EAA.org/YouthProtection](http://EAA.org/YouthProtection).

*Editor:* Make sure you are current to fly Young Eagles at the EAA Chapter 100 Young Eagles events. September was canceled. Hopefully, this event will occur next year.

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rives. On a pleasant summer day, your worst case-scenario may be hunger, thirst, or sunburn. Not so in the winter. The jacket that was warm enough for a flight is no match for an unheated airplane in a snowy field over several hours or more. Consider, too, that in less-populated areas, roads that are clear and accessible most of the year may be left unplowed in the winter, and help may take a long time to arrive. Emergencies happen, even to the most cautious pilot, so be prepared with survival equipment, including a fully charged cell-phone and fresh batteries for your flashlight.

For additional information, check out the [FAA's Tips on Winter Flying](http://FAA's Tips on Winter Flying).

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