

Next WingNuts Chapter Meeting: **Sat. Nov 12, 2022 12:00 PM – Hunter International Air-Field**

Next VMC Club Meeting: **Tues. Nov 22, 2022 6:00 PM - Hunter International Air-Field**



Chapter 1321 / South Middle Tennessee

Our Chapter Home Page: <https://chapters.eaa.org/ea1321>

A Veterans Day Tribute to all our Veterans



Have a Great Turkey Day to Everyone



Editor's Question?? Did anyone besides Bob Hoover fly a hijacked German Airplane home after being Shot down???? Read on for the answer later in the Newsletter!!!!!!

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FAA dot GOV

If you haven't been on the FAA's Website lately you may not be aware they have relocated a lot of their information into a new location. If you are looking for anything Regulatory related (Such as Airworthiness Directives) you will be redirected to the Dynamic Regulatory System (DRS).



ATTENTION: The Regulatory and Guidance Library (RGL) was decommissioned and is no longer available as of September 30, 2022.

The Dynamic Regulatory System (DRS) replaces it. Please update your bookmarks and links.

Please use <https://drs.faa.gov> to access DRS.

PRESIDENTS CORNER:

Happy Thanksgiving everyone,

Wow Thanksgiving already, well that means Christmas is just around the corner.

That means we will be making our plans for the Christmas Banquet at this month's meeting. This year we will be using my hanger. We will discuss what to bring and who to contact at this month's meeting.

So, see you all this Saturday at Hunter Field. Remember the meeting starts at 12:00.

Glen Smith

President

Secretary's October Meeting Minutes

Instead of our normal meeting for October, we held a Chili Cookoff in Glen's Hangar.

A Big Thanks to Glen and to those that helped set up and tear down!!!

**Also many kudos to those that brought Chili, the Fixins, Desserts, etc
Everyone's offerings were Delicious !!!!!!!**



Many members and their families enjoyed the afternoon get together!!!



Congratulations, to Paul Reding for his first place award winning entry, Cha Cha Chili!!!!!!



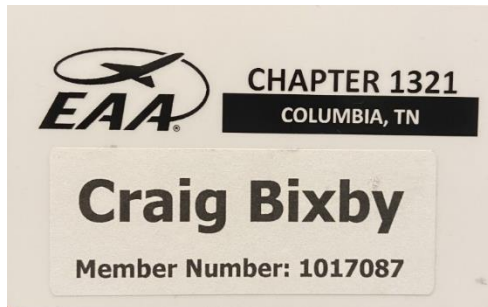
Upcoming Chapter Schedule

Chapter Meeting will be held Nov 12th at 12 PM

VMC Club will meet Tuesday Nov 22th at 6 PM

Christmas Party in Glen's Hangar, held in lieu of our December Meeting on the 12/10.

Reminder about Chapter Name Tags



To receive yours,

Email Craig Bixby at n3165e@hotmail.com with your name and EAA Member Number.

He will print up your Name Label

Pay your 5 dollars to Jim Tjossem



Columbia, TN EAA Chapter 1321

<https://www.facebook.com/groups/822162418913584>

Editor Note: It is that time of year again to consider your “Cold Weather Plan.” Following is a discussion concerning the age-old debate about Preheating Your Engine. Should you leave heat on 24/7 or Not



PILOT'S TIP OF THE WEEK

Leaving Preheat On All The Time

Subscriber question:

"Our Wisconsin-based club keeps our airplane engine heater plugged in all winter when it's not flying. Someone who just joined says this is a bad idea and we should only preheat before each flight. What's best?" — Scott L.

Jeff:

"There's some debate about whether it's OK to leave the engine plugged in all the time.

Continental Motors warns against it, citing corrosion issues. The thinking is that warmer air in the engine compartment could hold more moisture, which would condense whenever the engine cools. This could happen if the ambient (outside) air temperature dropped quickly and the heater couldn't keep up.

Tanis (one of the big players in aircraft engine heaters) says that its preheat systems can be left plugged in all the time, as long as the ambient temperature remains below 100°F. Because all the vulnerable metal parts will stay well above the dewpoint, condensation is impossible. In fact, Tanis advises against cycling the

engine compartment warm and cold regularly if you can avoid it because the temperature could transition through the dewpoint in the process.



For what it's worth, the clubs and groups I've been associated with here in Maine are all in the 'plug it in all the time' category. None of us have had corrosion issues. Your mileage may vary.

I will say that if you plug it in all the time, it's best to combine that with a cowl blanket or other method to keep the temperature in the engine compartment higher as a hedge against condensation.

If you go with the 'plug it in before flight' system, remember it can take a good preheat system two hours to raise the engine temperature 50°F. Preheat isn't just about warming the oil so it's easier to start. You must warm the actual metal of the engine to reduce the serious wear-and-tear of a cold start."

From “Savvy Maintenance”

Cold starts are a culprit in engine damage

Plug in 24/7?

I’m frequently asked whether it’s OK to leave an engine-mounted electric preheater plugged in continuously. Both Continental and Shell have published warnings against leaving such preheaters on for more than 24 hours prior to flight. Their concern is that heating the oil pan will cause moisture to evaporate from the oil sump and then condense on cool engine components such as the camshaft, crankshaft, or cylinder walls, resulting in accelerated corrosion of those parts. In Continental engines, the starter drive adapter is particularly vulnerable.

Tanis did a study on this some years back, and published a white paper that said, in essence, it’s OK to run an electric preheater 24/7 provided the engine is hooked up to an electric dehydrator system (e.g., Engine Saver, Black Max, EICU), but that if the crankcase contains moist air then it’s best not to plug in the preheater until six hours or so before you plan to go flying.

Use the link to the full article

<https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.aopa.org%2Fnews-and-media%2Fall-news%2F2019%2Fapril%2Fpilot%2Fsavvy-maintenance-crimes-and-misdemeanors&data=05%7C01%7C%7C4c51a454b1fe4ff3c5e208dac259c0b7%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638035987975877472%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ikl1haWwiLCJXVCi6Mn0%3D%7C3000%7C%7C%7C&sdata=n5zstqnNQXtd7fP3%2FWjpwpbz5HH1iopFdVgbj0WICv8%3D&reserved=0>

The Whys and Hows of Preheating

Leave it on all the time?

There has been considerable controversy about whether or not it's a good idea to leave an electric preheating system plugged in continuously when the airplane isn't flying. Both TCM and Shell have published warnings against leaving engine-mounted electric preheaters on for more than 24 hours prior to flight. However, these cautions are really applicable primarily to single-point heaters such as oil pan heaters.

The concern of TCM and Shell is that heating the oil pan will cause moisture to evaporate from the oil sump and then condense on cool engine components such as the camshaft, crankshaft or cylinder walls, resulting in accelerated corrosion of those parts. However, if the entire engine is heated uniformly by means of a multipoint heating system, or because the engine and propeller are covered with insulated engine and prop covers, such condensation is very unlikely to occur.

In fact, using an insulated cover and a multipoint preheating system that is plugged in continuously is one of the most effective methods of eliminating internal engine corrosion, particularly if the aircraft is kept in an unheated hangar rather than outdoors. If the entire engine is maintained above the dewpoint, condensation simply cannot occur.

Use the link to the full article

<https://nam12.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.reiffpreheat.com%2FArticle-Busch.htm&data=05%7C01%7C%7Caaa0aad991b84c31529c08dac25a3654%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638035989951483004%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=qtvouVbuQfYwDsXBwO3A6flPD%2BtF8xjXmkDFjCktrY%3D&reserved=0>

PILOT'S TIP OF THE WEEK

Priming for a Cold Start

Featuring Wally Moran

Subscriber question:

"I know I need more prime to start in cold weather, but how do I know how much more?" — Cassie C.

Wally:

“As winter has arrived here at my home airport, I’m hearing lots of airplane starters grinding over and over, with no results.

In the colder denser air, airplanes need more fuel and less air to start. That means if your carbureted airplane engine usually needs two or three strokes of prime in the summer, it needs more: maybe three, four, or even five strokes before starting when the air and engine are really cold.

If your engine is fuel injected and normally primes by using the fuel boost pump and full rich on the mixture control, try leaving the mixture control in and pump on for one, two, or three seconds longer than you would in the summer.

If the engine fires but only runs a second or two, it’s telling you it needs more fuel. So give it more on the next try by using the primer, or fuel boost pump, as appropriate.

Avoid slowly advancing the throttle while cranking as well. Doing this only adds more air to the mixture, which makes it more difficult to start. Most pilot operating handbooks advise opening the throttle only ¼- to ½-inch for starting. That’s not much. Now don’t confuse ¼- to ½-inch with ¼- to ½ throttle opening.

Of course, too much prime can flood the engine. If you smell fuel or see it dripping from the lower cowling, let the airplane sit until those symptoms disappear, and then try the POH recommended flooded start procedure.

Here's one more tip and maybe the most useful of all: If possible, simply avoid starting a cold-soaked engine by getting a pre-heat or installing an engine preheater.

Starting an airplane during cold conditions is often more of an art than procedure. Know your POH recommendations, pre-heat if possible, and don't be bashful. Ask local CFIs or an aviation mechanic if they have any good techniques for your specific airplane and climate."



When the 'Spruce Goose' Took Flight

Howard Hughes' giant wooden seaplane took its first flight 75 years ago.



November 2, 2022, marked the 75th anniversary of the one and only flight of the Hughes Flying Boat, the so-called Spruce Goose. The massive machine is the crown jewel of the Evergreen Aviation & Space Museum in McMinnville, Oregon.

The one-of-a-kind aircraft is the centerpiece of the museum in a building that was—quite literally—designed around it. And you better believe the museum is celebrating the 75th anniversary.

The Hughes Flying Boat

The aircraft was first conceived during World War II, when there was a growing need to get men and supplies over to England and Allied ships were being sunk at an alarming rate by German submarines.

In 1942, Henry Kaiser—a steel magnate and shipbuilder—came up with the concept of a giant seaplane to transport men and supplies. He enlisted the help of Hollywood producer and aircraft designer Howard Hughes. At the time, aluminum and steel were considered strategic materials needed for the war effort, so this aircraft had to be designed from non-strategic materials, such as wood.

It was constructed of Duramold, a composite material made of birch and resin, which is then laminated together.

The aircraft was originally designated as the HK-1, but when Kaiser dropped out of the project in 1944 due to frustration over construction delays, the behemoth aircraft was re-named the H-4 Hercules.

Delays would continue and the aircraft was not completed until 1946 after the war had ended. The aircraft cost \$23 million to build, or about \$352 million in 2022 dollars.

The name Spruce Goose was a pejorative nickname given to the project by Hughes' critics. It was said that Hughes hated the name, as he thought of the aircraft as an engineering marvel, not to mention the aircraft was not constructed from spruce.

(Historians would later note that some of the men who worked on the airplane allegedly referred to it as The Birch Bitch, so perhaps Hughes accepted the lesser of two evils.)

The size of the price tag, not to mention the size of the airplane itself, raised eyebrows in Congress, as lawmakers who had allocated the funds for the airplane demanded proof that it could actually fly. The first step was to conduct taxi tests for the mammoth seaplane.

Thousands of people and scores of journalists turned out to watch the flight on November 2, 1947. Hughes was at the controls as he took the H-4 from its berth in Long Beach into the harbor. On board were dozens of crew members, along with a

significant number of journalists from both radio and newspapers. Many more stood on the shore watching the spectacle.

Hughes made two taxi passes, keeping the aircraft below its 95 mph lift-off speed. On the third pass, he accelerated, allowing the aircraft to lift off.



<https://youtu.be/e5EgnoKb5Eo>

Hughes made two taxi passes, keeping the aircraft below its 95 mph lift-off speed. On the third pass, he accelerated, allowing the aircraft to lift off.

“Two hundred tons are airborne!” crowed the newsreel announcer as the aircraft in the flickering black and white footage cruises over the water.

The aircraft flew for approximately one mile at an altitude of approximately 70 feet over the water. When Hughes was asked if the 30-second flight was intentional, he replied, “Certainly. I like to make surprises.”

After the Flight

The H-4, however, never entered production and never flew again.

Hughes had the aircraft moved into a climate-controlled hangar in Long Beach Harbor. It was off limits to the public. Despite this, until the end of his life, Hughes had standing orders that the aircraft was to be kept “one phone call away” from flight.

The annual cost to mothball the airplane was \$1 million, which included the salaries of the people whose job it was to keep the aircraft ready to fly. There were people who spent their whole career caring for an aircraft that never left the ground.

After Hughes' death in 1976, the lease on the hangar expired and plans were made to dismantle the aircraft. Summa Corporation, Hughes' holding company, wanted the aircraft to be divided up so components of it could be sent for display in several aviation museums.

The [Aero Club of Southern California](#) and the [Wrather Corporation](#), which managed outdoor exhibits in Long Beach, California, such as the *Queen Mary*, stepped in to thwart the plan.

The H-4 was removed from the hangar and transported by barge to Long Beach, where it was placed under a large shell and became a tourist attraction next to the *Queen Mary*.

As the 1980s drew to a close, the *Spruce Goose* as it was now known had been sold to the Disney Corporation and was now in need of a permanent home.

In 1992, Michael King Smith and his father Delford M. Smith, founder of Evergreen Aviation, founded the Evergreen Air & Space Museum and submitted the winning proposal to provide a home for the *Spruce Goose*. Both father and son were accomplished pilots and wanted to preserve the iconic airplane.

Years in the salt air under the shell had taken their toll. Smith's plan called for the aircraft to be relocated to McMinnville, Oregon, where Evergreen Aviation was located. The *Spruce Goose* would become the centerpiece of an aviation museum.

The Big Move

The aircraft was disassembled, and the fuselage, control surfaces, wings, horizontal stabilizers and vertical tail were carefully shrink-wrapped to protect them. The disassembly took six weeks and left the airplane in 38 pieces.

A hole had to be cut in the shell so that the rest of the aircraft could be loaded onto barges for its journey up the West Coast. It would travel up the Columbia and Willamette Rivers to Portland, Oregon. From there, it would be trucked to McMinnville some 50 miles away.



Disassembly of the *Spruce Goose* took six weeks and left it in 38 pieces. [Courtesy: Evergreen Aviation and Space Museum]

The last part of the journey was well documented, as people lined the streets. The pace was slow and methodical. In certain places street signs and telephone poles and wires had to be removed so the trucks with their bulky cargo could make it safely down the road. The entire trip took 138 days.

Restoration Begins

The first stage of restoration was accomplished over several months in a temporary facility at Evergreen Aviation at McMinnville Airport (KMMV). While the aircraft was restored, the museum, located about 800 feet away across the road, began to take shape.

On September 16, 2000, the aircraft—still under restoration—was painstakingly and slowly moved across the road to the museum. The work on the aircraft continued as paint was stripped, the skin re-sanded and the control surfaces reskinned.

When the museum officially opened on June 6, 2001, the *Spruce Goose* was in the center of the building, but not completely together. Its flight control surfaces were still undergoing restoration. The final assembly was completed on December 7, 2001.

The Spruce Goose Reigns Supreme

Today the Spruce Goose is one of 108 aircraft on display at the museum. It sits in the center of the building, **its keel countersunk about seven feet into the floor.**



Visiting the Evergreen Museum to see the Spruce Goose qualifies as a “Bucket List” place to go!!!!!!

The airplane is so large, many of the museums’ other aircraft are displayed under its wings!!!



“The cargo hold is available to enter and view with general admission to the museum, and visitors can take a guided tour of the flight deck with an additional ticket,”

The museum staff are careful to protect the integrity of the artifact, as it is sensitive to climate conditions and external contaminants. Of particular concern is sun exposure, which degrades the composition of Duramold, as well as humidity, and extreme temperature fluctuation. The museum’s mission is to keep the airframe healthy enough to keep it on display.

Dispelling Rumors

There are some wild stories out there about the *Spruce Goose*, among them that the *Spruce Goose* has termites (not true), that the engines are fired up annually (not true), or that there is more than one *Spruce Goose* (so not true).

None of that is true, the termite reference was someone’s idea of an April Fool’s joke online that went viral. Termites are not an issue because the combination of preservation practices and the aircraft’s Duramold construction, which is essentially a chemically processed wood product, make the *Spruce Goose* unappetizing to the insects.

Hughes, who was renowned for his eccentricities, was also known for his engineering skills. As part of its collection, the museum is in possession of the technical data for the *Spruce Goose*. The material came to the museum “with more than a million pieces of paper about the fabrication and construction of the airplane,”

The Movie Connection

In 2003, when the Hughes’ biopic, *The Aviator*, was in production, movie production staff visited the museum several times as they worked to design and build sets for the all-important *Spruce Goose* flying scene.

The museum staff worked with set designers that built the full mockup of the flight deck, which required the recreation of the flight stations down to the levers and dials.

“The movie costume crew also visited the museum for information about the types of clothing worn by the workers who constructed the Flying Boat,” Heins said. “The color historic film footage also came from the museum’s collection.”

After the release, the miniatures that were used in the production of the movie were donated to the museum and are currently on display.

Editors Note: Here is another entry from the “Wings and Wheels” Website. Like the other articles I have shared, the insights are valid no matter what type of flying you do!

In the Soaring World, landing somewhere other than an airport is an accepted possibility during every cross-country flight. So, they have insights, experiences, and do training that us power pilots may not. Here are some “Landing Out” tips that may be useful in the event of an Emergency Landing!!!



Outlandings:

By Adam Woolley

In the event of an outlanding the pilot must be able to identify suitable landing areas while height remains to allow sufficient time to perform a safe approach and landing and have the ability to make consistently accurate landings.

It is important to thoroughly understand the techniques of planning an off-field landing and to be prepared for the occurrence at any time.

During an off airport landing, an extra measure of care must be undertaken to achieve a safe outcome. The most common off-field landing planning failure is denial.

The basic ingredients for a successful off-field landing can be summarized as follows:

- Recognizing the possibility of an imminent off-field landing.
- Selecting a suitable area, then select a suitable landing field within that area.
- Planning the approach with wind, obstacles, and local terrain in mind.
- Executing the approach, land, and then stopping as soon as possible.

There may be a strong temptation during the off-field landing process to select a landing location based primarily on easy retrieval the aircraft. Always elect the landing site with safety as the highest priority.

Following are some general principles to consider when the time comes to landing off-field

A pilot should make his Off Airport Landing decisions in steps based on specific Decision Heights.

Note: The altimeter reading may not be correct for that particular area, and you won't know the actual height above sea level of the ground

So, heights should be judged by angle/distance relationships especially during the circuit and landing, (See June 2022 Newsletter).

Preparation for an Outlanding (or an off-field landing as others would call it)



Should be an ongoing consideration throughout the flight.

It starts with simply observing available landable terrain along your route of flight.

Always, have a landing area selected in the event of an Emergency

Beware of Serious Hazards along with Color of the Field when choosing a landing spot

Serious Hazards

Wires



Fences



Slopes



Field Selection: Size and Color

- Size
 - Best – Large field with no obstructions on the approach end
- Color
 - Best – Evenly colored brown field
 - Next – Light green
 - AVOID – Bright yellow and light green
 - Straight lines or break in color may indicate a fence or ditch
 - Uneven colors – Uneven, rolling terrain

Selecting a usable Landout Field is based on several factors. Use the Letters SSSSW as a guide.

Surface - Sufficiently Smooth



Generally, a cultivated field is better than a stubble field (Pasture) as the later may have deep hoof marks from feeding cattle or erosion has created ruts in the field.

Use of cultivated fields for hay and/or grain crops will vary based on the Time of the Year

It helps to be knowledgeable of local vegetation and crops. Knowing the colors of local seasonal vegetation will help identify crops and other vegetation from the air.

Winter/Early Spring –



Will Still have stubble from Fall Harvesting

OK for Landing



Hay Fields generally will be **OK for Landing**

But, be alert for fields with last years bales still in them

Spring -



Farmers are plowing, cultivating the ground, getting ready for planting, resulting in Rough, Furrowed, Soft Earth

MAY NOT BE OK for Landing

Considerations:

If the only choice and field surface is deeply furrowed, the aircraft must be landed parallel to the furrows, even if it means a downwind landing



Once a Field is Tilled and Planted the field will be smooth

OK for Landing

Considerations: Earth may still be Soft

Summer/Early Fall -

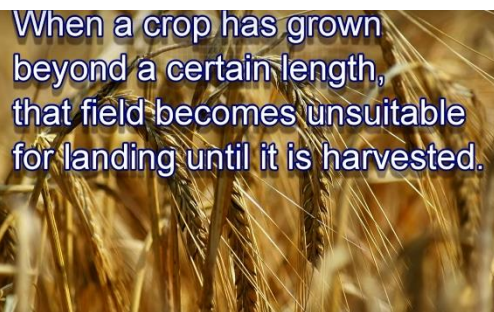


Hay Fields will be cut and baled several times. Bales may be laying in the fields creating obstacles

MAY NOT BE OK for Landing



As crops grow, they remain landable while they are short



Tall crops are generally more dangerous to land in than short crops.



Mature Crops, especially Heavy standing crops like corn can cause damage to the aircraft

Are NOT considered Landable and should be avoided.

Fall -



Once Crops are harvested Fields will be Landable



Beware, some farmers may begin tilling their fields in the fall

SO, they may be unusable

Other Considerations:

Depressions in the ground, deep enough to hold water may appear as various grades of color and shading.

In a cultivated field, you can more easily identify obstacles, like telephone wires, electric wires, poles and rocky outcrops by the different colors of vegetation changes resulting from areas that weren't cultivated

Always assume a road has wire lines running along it

Identify fences based on subtle color differences between fields, drinking troughs, and small access driveways into the field that tend to be at a corner

A stony field is almost impossible to spot, if grassed or in stubble.

Be cautious that a bright green field is not a swamp.

Beware of obstacles created by Irrigation equipment

Land parallel to Tractor and Irrigation tracks, not across



On no account must a field cultivated for cotton be chosen as the furrows formed to flood irrigate the crop are far too deep for a safe landing.

Grazing fields must be considered carefully



They may have hidden obstacles
stumps, logs, gullies.



Avoid farm animals

Especially, cattle for they are
extremely curious and you must
guard the plane otherwise they
will destroy it

Horses and sheep are easily
spooked

If a Grazing Field is the only resort try to select a field without animals

Size

Evaluating size

- Narrow looks long – long looks narrow
- Wide looks short – short looks wide
- Must have some idea about local fields
- Relative size of trees, power poles, buildings, etc.

Select a field of adequate length
and, if possible, one with no visible
slope.

In general, the larger the better.

Assess field size using the scale of familiar features such as farm houses and other buildings

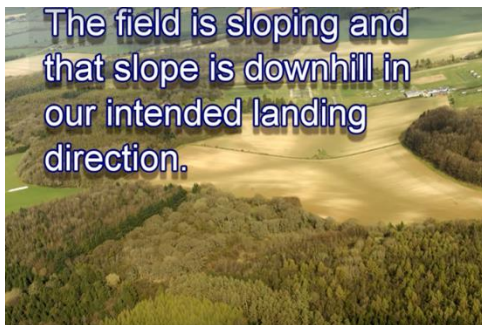
Identify obstacles on the approach and their impact on the effective size of the field (e.g. an approach over trees reduces the usable length of the field by 8x the height of the obstacle)

A long narrow field would be OK if into wind

But a square shape has more advantages
More options for landing into the wind
Parallel to the side fence
Diagonally across the field

If an unobserved obstruction becomes evident once a pilot is committed to the field, a large and square shaped field provides better possibilities for taking evasive action.

Slope



Sloping Fields are difficult to detect from the air, especially if directly above the field

It easier to identify a sloping field from the side

Darker colors in a field or nearby streams may indicate lower areas.

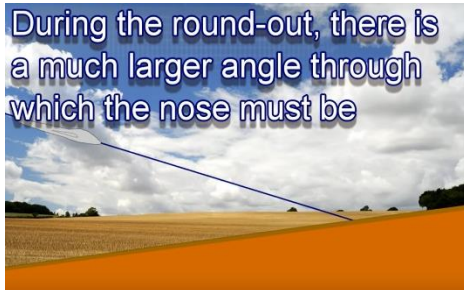
NOTE: Any slope that is visible from the air is likely to be too steep.

If flying in a generally hilly area, remember fields near the bottom of the valley are most likely to be the more level; so a field near a stream should be chosen and the slope assumed to be down to the stream.

If you must land in a sloping field, you should land up the slope, regardless of wind

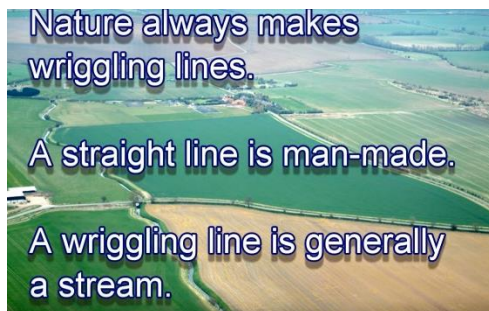
Uphill Landings

Require A higher approach speed and the flare/round-out needs to start earlier



While it is possible to land across a gentle slope, avoid attempting to land down a slope.

Surroundings

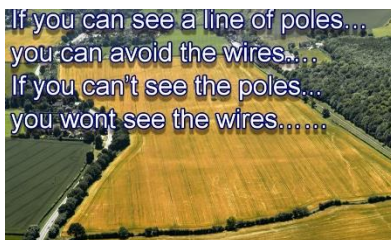


Look for power lines, telephone lines, high trees in the field and along approach path.

NOTE: If you have to remain high on the approach path to clear an obstacle a smaller field may not have enough effective length.

Beware of discontinuities in color, texture, etc. that may indicate the existence of a fence, ditch, irrigation pipe, or some other obstacle is present.

Without exception, discontinuities should be avoided



Power and telephone lines are more likely to be present if the field is adjacent to a road or house.

In some cases, their presence may be undetectable by a pilot.

Wires may be supported by trees and hard to see
and

The normal line of regularly spaced poles may inhibit the pilot
from detecting wires

If you suspect wires are present based on the above signs, Plan the approach to
overfly the wires, even if you cannot see them.

Trees and buildings are easy to spot, but may create turbulence depending on wind
gradient



Fences around the chosen field may pose a
hazard in the event of overrunning the
landing

The more visible the landing area is during the approach, the fewer unpleasant
surprises there are likely to be.

Wind



Wind awareness, knowing wind
direction and intensity, is key
to planning the orientation and
direction of the landing approach.

The pilot should be constantly checking the wind direction throughout the cross
country flight

Smoke or dust, or a windmill as a pointer.

Wave motion across standing crops and grass

The upwind end of water holes or dams has a smooth surface.

Movement of trees, bushes, tall grass etc.

Visualize the wind flowing over and around the intended landing area.

Remember that the area downwind of hills, buildings, and other obstructions will probably be turbulent at low altitude.

Note these effects Wind has on the approach

If landing into a strong headwind, the approach angle is steep.

If headwind is light or nonexistent, the approach angle is shallower unless landing over an obstacle.

When landing with a tailwind (due to slope or one-way entry into the selected field due to terrain or obstacles), the angle is shallower.

As, you can see there are many things to be taken into account for choosing your Landing Field. So, Time and Height are the keys to thoroughly checking out your field selections

Next month we'll discuss the process for:

Evaluating your field selections as you descend

Planning for the pattern and landing

Aircraft Preventive Maintenance

Editors Note: As discussed in last month's Newsletter we are allowed to perform some specific Preventive Maintenance Items on our aircraft.

We also learned that when doing that maintenance, we must meet the same Performance Rules as an A&P Mechanic.

With that in mind, there may be more to performing these tasks than meets the eye.

With that in mind, below is a discussion concerning the procedures and steps to be considered when performing the first item on the list.....

Remove, Install, and Repair Landing Gear Tires

Notice the Topic is pretty general “remove, install, and repair Tires”. But, is it that simple??

Take a look at how many other tasks are involved when performing this seemingly simple task

- Disconnecting the Brake Caliper

- Removing, disassembling, inspecting, the Wheel

- Proper aligning of the Tube in the Tire

- Reassembling the Tire on the Wheel

- Repacking the Wheel Bearings

- Installing the Wheel and Tire Assembly on the aircraft

- Reconnecting the Brake Caliper

To meet the requirements of the FAA, each and every one of the above items must also be accomplished following the requirements in Part 43

Click the Link to a very good description of Wheel and Tire Removal and Installation. Based on a Cessna 172 but most aircraft would be very similar

[Doug's Domain :: C172 DIY Tire Replacement \(dvatp.com\)](http://dougdomain.com/C172-DIY-Tire-Replacement-dvatp.com)

Click the Link to a good Video on how to perform PM on Wheel and Tires

[Change a tire and tube and clean and pack bearings - YouTube](#)

As most know, General Aviation aircraft wheels are designed in two halves held together by bolts

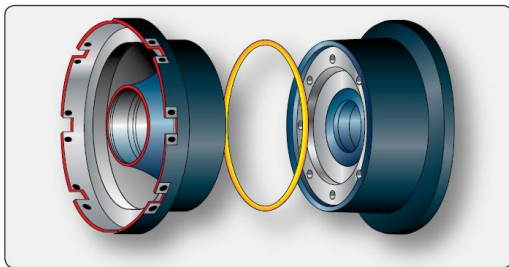


Figure 13-58. Two-piece split-wheel aircraft wheels found on modern light aircraft.

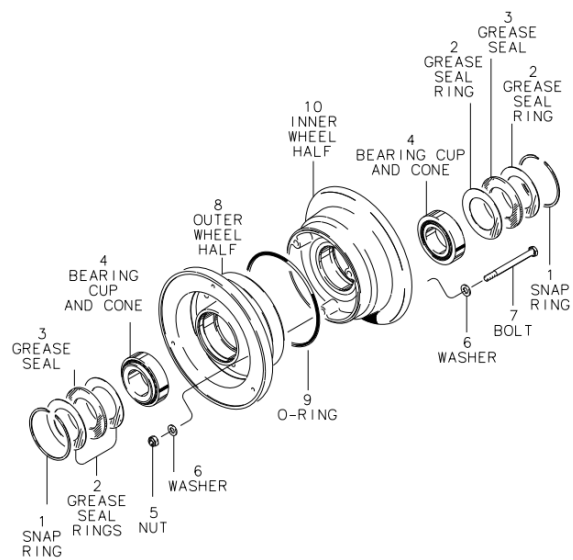


Figure 3 - Typical Nose/Tail Wheel Assembly

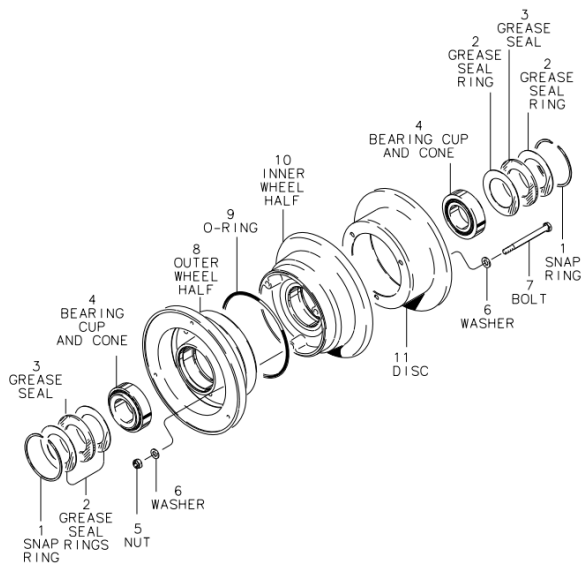


Figure 4 - Typical Main Wheel Assembly

Before, Removing the Wheel



Disconnect the outer brake pad from the caliper by removing two bolts on the front, inboard side of the caliper

Loosen and remove the Axle Nut



Slide Wheel Assembly off the Axle - being careful not to scrape the bearing races

Once the wheel is removed from the axle you must



DEFLATE THE TIRE BEFORE YOU LOOSEN THE BOLTS!

Remove the Wheel Through Bolts

Disassemble the brake rotor from the inner wheel half

Break the Wheel Beads



Split the wheel halves



Figure 13-74. The bead seat areas of a light aircraft wheel set. Eddy current testing for cracks in the bead seat area is common.

Note: Wheel Halves have light and heavy spots

It is good idea to Mark the wheel halves to note relationship to each other before splitting them.

The marks will be used to align the halves for reassembly

Discard the old tire and tube

Remove, clean, and protect the inner and outer bearings from Dirt etc





Inspect the Wheels



Figure 13-74. The bead seat areas of a light aircraft wheel set. Eddy current testing for cracks in the bead seat area is common.

Follow the manufacturer's instructions when inspecting wheels to ensure it is serviceable.

Ensure that the bead seating area of the wheel is clean and uncontaminated.

Mating surfaces of the wheel halves should be free of nicks, burrs, small dents, or other damage that could prevent the surfaces from properly mating or sealing.

O-Ring grooves in the wheel halves should be checked for damage or other debris that would prevent the O-Ring from properly seating.

O-Rings themselves must be of the proper material, as specified by the wheel manufacturer

Inspect O-Rings for cracking, cuts, or other damage. Proper sealing of the wheel halves is critical in providing trouble-free service.

Installing the Tube into the Tire

The tube and tire must be properly aligned to minimize any imbalance



A red triangle on the tire marks the light part of the tire



A yellow dot on the tube marks the heavy part of the tube

When installing the tube into the tire
The valve should face the serial numbered side of the tire

The yellow dot on the tube should be orientated directly across from the red triangle

NOTE: In the absence of a balance mark on the tube, align the valve stem with the red dot.

This matches the heaviest part of the tube with the lightest part of the tire and makes it much easier to balance.



Lightly talc the inside of the tire and the outside of the tube

It helps ensure easy mounting and free movement between the tube and tire as they inflate

Inflate the tube so that it just takes shape with minimal pressure.

Install the tube inside the tire



Mount the tire to the outboard wheel half so the tire serial number on the side wall facing outboard

Place the outboard wheel half into the Tire Assembly so the valve stem of the tube passes through the valve stem opening.

Assemble the two wheel halves

When aligning the wheel halves, be careful not to damage the O-Ring in the wheel base, which seals the wheel halves.



The O-ring should be lubricated and in good condition to ensure it seals the wheel for the entire life of the tire.

Mate the inboard wheel half to it, being careful not to pinch the tube between the wheel rims. Install the tie bolts, tighten, and torque as specified.

Aligning the Tire/Wheel for best Balance

Tire orientation and the balance marks must be aligned when the wheel halves and tires are ready to be mounted

Note: Match the marks you made on wheel halves when you split them

Many wheel manufacturers today identify either the light spot or heavy spot of the wheel with markings in the flange area.

The marks indicating the light portion of each wheel half should be opposite each other

Be sure to align the tire's light spot 180 degrees from the wheel's light spot
or

Directly in line with the wheel's heavy spot.

The mark indicating the heavy spot of the wheel assembly should be mounted aligned with the **light spot on the tire, which is indicated by a red mark.**

In the absence of specific wheel markings, align the tire's red balance mark with the wheel inflation valve.

When assembling the wheel halves



Don't forget to reattach the Brake Rotor

Be sure that nuts, washers, and bolts are installed in proper order and that the bearing surfaces of these parts are properly lubricated as required.

F. Wheel Assembly Torque Values

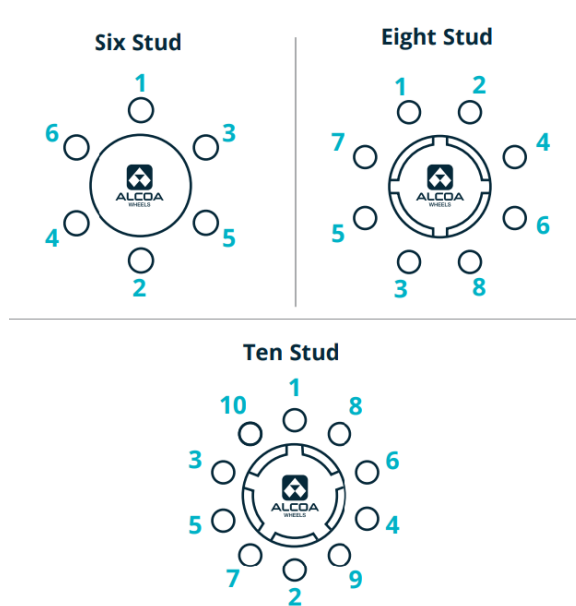
All wheel assembly tie bolt and nut torque values listed are to be applied to the nut only. A "D" shown adjacent to the torque value indicates the value to be a "Dry" torque only. An "L" shown adjacent to the torque value indicates the value to be a "Lubtork" value. "Lubtork" requires the application of an antiseize compound conforming the MIL-T-5544 to all friction surfaces, prior to torquing.

Tighten to manufacturer's recommended torque values.\

CAUTION: Do not "Lubtork" any bolt and nut combinations that are specified as a "Dry" torque value. If there is any conflict or question regarding dry torque, Lubtork or torque value on your assembly, please contact Cleveland Customer Support for resolution.

Wheel Assembly	Bolt Torque	
	in-lb	N·m
27-100D (40-1)	90 D	10.2
21-100D (40-2)	90 D	10.2
3080A (40-3)	90 D	10.2
3080B (40-4)	90 D	10.2
3070 (40-5)	90 D	10.2
3040 (40-6)	90 D	10.2
3050 (40-7)	90 D	10.2
3050A (40-7A)	90 D	10.2
38501 (40-8)	90 D	10.2
40-12	90 D	10.2
40-12A	90 D	10.2
40-18	90 D	10.2
40-19	90 D	10.2
40-19A	90 D	10.2
40-21	90 D	10.2
40-24	90 D	10.2
40-28	90 D	10.2
40-28D	90 D	10.2
40-30A	90 D	10.2

Wheel Assembly	Bolt Torque	
	in-lb	N·m
40-59D	150 D	16.9
40-59E	150 D	16.9
40-60	90 D	10.2
40-60A	90 D	10.2
40-61	90 D	10.2
40-66	90 D	10.2
40-67	90 D	10.2
40-74	90 D	10.2
40-74A	90 D	10.2
40-74B	90 D	10.2
40-75B	150 D	16.9
40-75D	150 D	16.9
40-75E	150 D	16.9
40-75F	150 D	16.9
40-75G	150 D	16.9
40-75H	150 D	16.9
40-75J	150 D	16.9
40-75S	150 D	16.9
40-75T	150 D	16.9



Follow manufacturer's instructions for

Tie bolt tightening sequences and torque specification

Use a calibrated hand torque wrench

Never use an impact wrench on an aircraft tire assembly.

Each bolt should be torqued in sequence In steps

First to 80 inch pounds

Then to 100

Finally, to Final Torque Value

Over-tightening the nuts and bolts can lead to cracking the wheel

Once the wheel and tire is assembled, Safely inflate the Tire

General Procedure To Properly Seat Tube-Type Tires

Remove the valve stem and inflate and deflate the tube two or three times - Helps

Prevent the tube from being trapped under a bead

Remove any wrinkles

Evens how the tube lays within the wheel

Seats the tire beads properly on the wheel

Finally, slowly reinflate tire to the correct pressure

Allow the assembly to remain with no load for 12-hours.

This allows any wrinkles in the tube to smooth out

The Wheel and Tire is Assembled, but it isn't ready to be installed on the Axle

Next month we'll discuss "Servicing the Wheel Bearings" which is another Preventative Maintenance Item and Reinstalling the Wheel Assembly on the axle



Until Now, that is!!!!!!



No Reflection on any of our Chili!!!!

**Speaking of Owner Performed Maintenance
Done Improperly.....**



Can you spot the mistake?

AVIATION LEGENDS

Some feats of Aviation Legend, just remain little known footnotes Here is one example!!!

Bruce Carr Was Shot Down Behind Enemy Lines and Flew Back In a Stolen Aircraft



<https://www.msn.com/en-us/news/us/bruce-carr-was-shot-down-behind-enemy-lines-and-flew-back-in-a-stolen-aircraft/ss-AA11jMGm?ocid=ACERDHP17&li=BBnb7Kz#image=5>

There were many astounding feats accomplished by flying aces throughout the course of the Second World War. Earning the title of "flying ace" is itself an impressive accolade, let alone the other feats these pilots achieved.

One man, however, stands out for his odd, yet impressive distinction.

Bruce Carr, born in New York, was only 15 when the Second World War broke out in 1939. It was that year that he decided to learn how to fly, and three years later, on September 3, 1942, he enlisted in the US Army Air Forces. Given his prior training,

he joined the service's accelerated training program, where he flew the Curtiss P-40 Warhawk.

By August 30, 1943, Carr was promoted to flight officer after accumulating an impressive 240 flight hours. He also completed special training, which qualified him to fly the North American P-51 Mustang and A-36 Apache.



Carr had never flown above 10,000 feet, but when he took the P-51 to an altitude of 30,000 feet, he was duly impressed and named his plane "Angel's Playmate."

He was deployed to England in 1944, where he joined the 380th Fighter Squadron, 363rd Fighter Group, Ninth Air Force at RAF Rivenhall.

On an early mission, Carr chased a German Me109 to within a few feet off the ground, firing his guns the whole time. Only one bullet hit the enemy plane, and the pilot bailed out far too close to the ground and crashed. Carr said he scared the German pilot to death and caused him to kill himself

He wasn't credited for the kill, however, as he hadn't technically shot it down. And, it was considered "overaggressive" by Carr's commanders and earned him a reputation for being that kind of pilot. Ultimately, it led to his transfer to the 353rd Squadron, 354th Fighter Group at RAF Lashenden.

On September 12, Second Lieutenant Carr's flight strafed several Junkers Ju-88 bombers on an airfield in Germany. Later in that same mission, the flight spotted over 30 Fw190s approximately 2,000 feet below them. Carr personally shot three from the sky before escorting a fellow pilot, whose aircraft was badly damaged, back to base. Carr was awarded the Silver Star for his actions that day.

In October 1944 Colonel Bruce Carr of the USAAF took off on a mission in a 354th Fighter Group P-51D, and was shot down by flak while strafing ground targets over Czechoslovakia. He landed near a Luftwaffe field with the intent of surrendering to the Luftwaffe troops since they were generally much more friendly to U.S. aircrew

than were the soldiers of the German army, but it was becoming dark just as he got there.



From the trees he watched two mechanics fuel up and then run up a FW 190A-8 and shut it back down again.

He decided well, that seemed to be a perfectly good airplane, why not give it a try.

Near dawn he snuck out and jumped in the cockpit, and having no knowledge of it he went with the theory that if he kept flipping switches and moving controls to the opposite position of where they currently were, he'd find the starter somehow

And damned if he didn't, and luckily the FW 190A series included the most advanced throttle system for a WW2 aircraft called the Kommandogerat, where boost pressure, fuel flow, mixture setting, and prop were all controlled with a single lever, making it about the only plane in WW2 that an enemy pilot could steal and manage to get going down a runway with less than 30 minutes of experimentation.

Leaving German territory was the easy part, as his aircraft had German markings.

It was returning to Allied airspace in France that proved to be difficult. Inevitably, he was shot at the moment he came back into his own airspace. In the hopes of making it back to base, Carr decided to fly as low as he could, as quickly as possible.

This worked well enough, except by the time he arrived, he had no working radio. Making a grand entrance, Carr landed on the field at the base, without lowering his landing gears, and slid to a stop. Some sources say he chose not to deploy them, while others claim he simply didn't know how.

It didn't take long for people to try dragging Carr, who was presumed to be a hostile German pilot, out of the cockpit. However, he was still strapped into his seat.

According to him, "I started throwing some good Anglo-Saxon swear words at them, and they let loose while I tried to get the seat belt undone. But my hands wouldn't

work and I couldn't do it. Then they started pulling on me again because they still weren't convinced I was an American. I was yelling and hollering.

Then, suddenly, they let go, and a face drops down into the cockpit in front of mine. It was my Group Commander: George R. Bickel."

Bickel had a simple question for his pilot, asking only, "Carr, where in the hell have you been, and what have you been doing now?"

This daring escape didn't stop Carr from continuing to fly, and he served the rest of the war. By the end, he'd earned the distinction of triple ace and was given credit for 15 aerial victories over 172 combat missions.

On April 2, 1945, First Lieutenant Carr was leading three other aircraft on a reconnaissance mission near Schweinfurt, Germany, when he spotted 60 German fighters flying above them. Despite the enemy having an altitude advantage and outnumbering them, Carr led his flight in an attack and the pilots downed a total of 15 aircraft. Carr personally shot down two Fw190s, three Me109s and damaged a sixth fighter. This feat made Carr the last ace in a day in the European Theater during the war and he was awarded the Distinguished Service Cross for his actions



Acrojets Lockheed F-80 Shooting Star

After World War II came to an end, Bruce Carr remained with the US Army Air Forces as it became the US Air Force.

Initially, he was assigned to fly the Lockheed F-80 Shooting Star as part of the Acrojets, America's first jet-powered aerobatic demonstration team. They were stationed out of Williams Air Force Base, Arizona.

During the Korean War, the now-Maj. Carr flew with the 336th Fighter-Interceptor Squadron on an impressive 57 missions, before taking over as the commanding officer of the squadron between January 1955 and August 1956.

Promoted yet again, Col. Carr later served in the Vietnam War, where he flew with the 31st Tactical Fighter Wing out of the Tuy Hoa Air Base. He primarily flew on close air support missions in the North American F-100 Super Sabre, racking up a whopping 286 combat missions during his deployment.

Editor Contact info is:

Cell: 317-523-3824

Email: n3165e@hotmail.com

Plane Dealing (Want-Ads, Lost & Found & Notices)

Interesting and Useful Websites:

NOTE: You may have to copy and paste the address into your browser if the link doesn't work

If anyone knows of other interesting websites let me know and I will add them to the list

Our Chapter Home Page: <https://chapters.eaa.org/ea1321>



FAA Safety Team
FAASTeam

<http://www.eaa.org/ea>
<https://www.faasafety.gov/>



[FAA Safety Briefing Magazine | Federal Aviation Administration](#)

Weather and Flight Planning Sites:



<https://www.lmfsweb.afss.com/Website/home#!/>



[FltPlan.com Free Services](http://www.fltplan.com)



www.avweather.com



www.skyvector.com



www.airnav.com



www.flightaware.com

Miscellaneous Links To Check Out:



<http://www.avweb.com/>



<http://aero-news.net/>



<http://tailwheelersjournal.com/>



www.whywefly.org



www.barnstormers.com

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<http://www.socialflight.com/search.php>

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