



EAA 172 **ELECTION MEETING**  
November 11, 2017 12:30 pm  
Pea Patch Aerodrome (61GA), Blythe, Georgia

EAA 172 **Christmas Party**  
December 9, 2017 12:30 pm  
Pea Patch Aerodrome (61GA), Blythe, Georgia

*Birthday*

Timothy RISCBIETER	11-02	Cathy MULHERIN	11-04
Roy WICKER	11-02	Joyce JAMES	11-05
Bruce CAMERON, Jr.	11-03	Cindy BRITT	11-06
Nandi SHETTY	11-12	Valerie BELL	11-08
David DENT	11-20	Shirley McBURNEY	11-29

*Anniversaries*

Richard & Valerie	BELL	11-01
Gene & Janeen	MOHR	11-14
Mark & Rhonda	SLONE	11-17

## EAA 172 Night Out

Thursday, November 23: EAA 172 monthly "get-together" -- Social Meeting 6:30 PM -- This is a monthly non-business social gathering held on the fourth Thursday. Because of all the holiday happenings this month (Today is Thanksgiving!) and next month, there will be no EAA 172 social "get together" this month. The next one will be January 25, 2018, when Virginia Bush will be handling the details. For questions contact Virginia Bush 706-554-5618 e-mail: [donr.bush@yahoo.com](mailto:donr.bush@yahoo.com).

### AVIATION QUESTION OF THE MONTH

**Answer to last month's question:** To maintain instrument currency, is an instrument-rated helicopter and airplane pilot required to complete all of the needed approaches in both a helicopter and an airplane?

**According to the FAA:** Yes. According to [14 CFR 61.57\(c\)\(1\)](#), the currency tasks must have been completed "in an airplane, powered-lift, helicopter, or airship, as appropriate, for the instrument rating privileges to be maintained." This requirement means that pilots who are instrument rated in both helicopters and airplanes must maintain currency in both separately in order to act as pilot in command in instrument meteorological conditions or when flying under instrument flight rules.

**This Month's Question:** You're considering growing a beard. Because much of your flying is at higher altitudes in unpressurized aircraft, which necessitates the use of oxygen, you're concerned that your newly grown facial hair would have an impact on the seal and effectiveness of your oxygen mask. Where can you find information on this topic?



# LIGHT MAINTENANCE FOR HOMEBUILT AIRCRAFT PILOTS

## Changing Your Spark plugs

Dave Dent



Dave Dent is now the EAA 172 Technical Counselor. When Dave was Tech Counselor (and also Vice-President) for EAA 663 in Livermore, California, he gave many presentations about aircraft issues. From his presentations about aviation engines/spark plugs he wrote an article about changing spark plugs which he has passed on to us. Here is some information and some excerpts from the presentation about changing aircraft spark plugs. A link to the text of the [complete](#) presentation is at the end.

“To some changing your spark plugs in your aircraft engine can be a no brainer and to some very daunting. There are a number of factors that come into play when working with an aircraft engine versus an automobile.”

However, often you can't get just the correct spark plugs locally; you might have to order them on-line. Dave indicates that you must get the exact plug for your engine, identical to those already on it. If you don't you could damage your engine – the piston could strike the end of an incorrect plug or the threads are not the same and you damage the spark plug threads on the cylinder head or the spark plug “boot” won't exactly fit over the plug. Some autos have the same problems. Both with automobile and aircraft engines, having the spark plug boot fly off the spark plug because the plug is not compatible with the boot is definitely a problem. With the car, you just pull over to the side of the road. With the plane, there's no “side of the road” on which to pull over. He writes “The issue is, getting the right length for your engine is why it's important to check with your manual on your engine what plugs your engine requires. There are so many out there.” You do have a manual, don't you? Also it is important to have all the tools you might need. Click [Necessary Tools](#) to see what is needed to correctly work on your aircraft engine's spark plugs.



We now are at the point of removing the spark plugs from the engine. Just as with working with an automobile, one has to mark which plug comes from which hole. Using a Sharpie marker will work very well. Also, some have found that where the metal surface is dark, using the brush from a bottle of correction fluid (like the kind used for covering up incorrect printing on a page) does work OK. Note, that for aircraft engines with magnetos, the switches need to be in the “off” position to keep the engine from running (and cutting off your hand or head) if you need to turn the prop. Lycoming, Continental, as well as Rotax, VW, and auto engines have a cylinder numbering indicated in their respective manuals but rarely on the engines, but don't assume anything or rely on your memory. MARK, with a number, the location and also the plug itself. The spark plug will tell much about how the engine is firing in that cylinder. Take notes. You don't need to buy a plug rack to hold the spark plugs. Make one, even a simple one with a small cardboard box with numbered holes. Then you need to use various wrenches from the tool assortment to take the plugs out. Often you will need extensions, offset wrenches, etc. so that you can use enough torque to unscrew the plugs without breaking them. Depending on the engine, this can take some time. Dave also writes that if you drop a plug it's DEAD – no good. He writes “**If you drop it, drop it again** -- once on the floor, the next into the trash.” The ceramic insulator in the plug most probably has been damaged.

Inspection of the plugs is next. Take notes about oil and other fouling such as carbon and compare them to what is shown in your engine manual. Dave writes “If the oil and carbon issues are not there, then check the plug for deposits of lead that mainly on low compression engines build up in the plug. Don't try and clean this out by bead blasting the plug. Use the dental pick to remove the lead.” “By using your plug cleaner or a bead blaster to remove the lead you do more damage and can build up cleaning materials between the center electrode and the insulator material, so doing this builds up more resistance in the plug and shortens the life of the plug.”

The next step is to check the spark plug gap with the gap checker. The gap between the center electrode and the ground should be .016” and no greater than .018”. Then, using your multimeter, you need to do a resistance check of the plugs. Many don't do this but as plugs age the resistance between the top terminal and the gap of the spark plug can increase, at times enough to cause misfires. If you have a magneto, a high spark plug resistance can even cause destruction of the points in the magneto. Check the resistance even of new spark plugs because Dave has found that some Champion brand plugs have been found at times to be defective. If a spark plug reads more than 5000 ohms it should be discarded. Dave does give an elaborate description of how to check to resistance of the spark plugs. The Champion Spark Plug Company's Engineering Manual gives the nominal value for their resistor type of aviation spark plugs as 1000 - 1500 ohms. The same would hold true for resistor type automobile spark plugs.

The final step is to put the spark plugs back into the engine. Use a small wire brush on the spark plug threads, put on a new washer, and place a small dab of anti-seize on the threads. Then place the plugs in their respective holes. First snug them up with your fingers, then use the appropriate spark plug socket and the same various extensions, etc. used to take them out and torque them down. Dave found that 30 ft. lbs. is satisfactory for any engine. Then carefully place the leads and boots back on the spark plugs. At the end of his detailed 12 page spark plug changing exposition, Dave writes that he hopes that now “you can do this plug changing with more confidence.”

( Information adapted from Dave Dent's article→[Changing your spark plugs](#), YouTube→[Tempest resistance checker](#) )