

# Rotax & VW Questions

## Help from the experts

### Proper Fuel Pressure

**Q.** In a previous issue of *EAA Sport Pilot*, Phillip Lockwood stated that fuel pressure for the 912 series engine is okay from 2.2 to 5.8 pounds per square inch.

Bing says maximum pressure is 2.9; surely the carb maker knows best?

David Sayer • *Via e-mail*

**A.** Rotax has been consistent with its requirement that the fuel system pressure on the non-turbocharged 9 series engines remain between 2.2 and 5.8 pounds per square inch (psi). During my 15 years of experience with these engines, I have not seen a problem with these settings. All of the certified engines are also required to operate within this range.

This information is in the operator's and installation manuals. If you look on page 14-2 of the installation manual, you can see more on Rotax's recommendations for the fuel specifications. I am not aware that Bing recommends a maximum pressure for the model 64 carb, as configured for the 9 series Rotax engines.

Phillip Lockwood

### Checking Magnetos

**Q.** During my trike training, I always checked both mags (on a Rotax 503 or 582 engine). I was told that it would be risky to fly if only one mag was working properly 'cause there'd be no backup.

I understand this, but what about the 447? It has only a single-ignition source, and no backup. Why? Can you clear this up for me?

TMC • *Via e-mail*

**A.** That's a good question. The 447 cylinder head is smaller than the 503, and too much cooling fin area would have to be removed to accommodate and give access to an additional spark plug. Testing showed the smaller 447 head, derived from what was originally the 377 engine, would overheat with two plugs.

Operating a dual-ignition engine with one ignition inoperative means accepting avoidable risk, plus there is a power loss because neither plug is located in the ideal location for single-plug operation. The 447 has a centrally located plug; that's why it can be operated with no backup.

Phillip Lockwood

### About Ethanol

**Q.** Many automotive gasoline distributors are beginning to add ethanol to their gas supplies to reduce emissions (E10). I understand that many of the engines made by Rotax operate preferably on automotive gasoline (mogas), but cannot use gasoline containing ethanol.

Is Rotax concerned about the growing use of ethanol in automotive gasoline, and how it may affect the sale of Rotax engines? Are any measures being taken to anticipate or accommodate the growing use of ethanol? Is Rotax looking into alternative fuels such as diesel and/or others?

Nicholas Noel IV • *Via e-mail*

**A.** Rotax allows the use of fuels with up to 5 percent ethanol. Some have used fuel with as much as 10 percent ethanol, known as E10, without apparent problems, but we have no definitive test data on this. Please see the article on E10 ethanol in the June issue of this magazine,

if you haven't already read it.

Gas aircraft engines cannot be practically converted to operate on diesel fuel. Diesel engines are too heavy for LSA.

Lockwood Tech Support

### A Full VW Question

**Q.** I checked the oil flow in the case of my new 2180 engine kit by hooking the pump in my wash tank to the cooler port. I got a great flow out of main bearing ports 2, 3, and 4, but only a dribble out of the number 1 port. There appears to be a plug inserted into the gallery that almost totally blocks the oil flow. However, the oil hole in the number 1 bearing is so small (0.090) that it might not make much difference. This is a dual-relief case. I checked an older single-relief case, and it has the same plug in it and the flow is also restricted.

Is this restrictor a design item or a screw up?

Bill Hebestreit • *Via e-mail*

**A.** Did you check the route from the front bypass? When I built my engine, I don't remember any problem with the oil galleries. I did drill out the driven-in factory caps (replacing them with threaded plugs), as the block was secondhand and needed a clean-out and careful inspection. The route to the front bearing turned out to be plugged with sludge.

If you can get to a dune buggy shop, take a look at another block to make sure you do not have one with a defect. I learned the engine building trade from an old Bavarian master, and he insisted on checking the details. After 10 years, my engine still runs great.

Bill Bronson