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It may interest you to know that Lycoming has issued more than 200 Service Bulletins, Service Letters, and Service Instructions against the O-320/IO-320 series since your plane was built, which means that if your engines are truly original, they are probably in need of considerable updating. Just how original your engines are will be apparent when you take the rocker covers off. Look to see whether you've got half-inch valves. (This refers to the diameter of the *exhaust* valve stem.) Lycoming didn't switch to half-inch valves for all -320 models until 1967. If your engines contain 7/16-in. valves, we'd urge you not to attempt to bust TBO; in fact, we'd urge you to stop now and do the overhauls. The only circumstance under which you should continue your engines past TBO is if they contain half-inch valves, all A.D. notes are current (including the 1975 A.D. on Woodruff-drive oil pumps and A.D. 81-18-08 on sintered-iron oil pump impellers), and a good number of the more important service bulletins and instructions have been worked off. In particular, this means compliance with S.B. 388A (on valve/guide running clearance) and S.B. 404 (on exhaust valve erosion) within the last 300 hours. If either of these bulletins hasn't been done in the last 300 hours, stop and do them now.

Your mechanic is probably right: Your engine doesn't have wide-deck cylinders, doweled thru-studs, late-model oil pump impellers, integral-gear camshaft, and many other improvements that have come down the line in 23 years of production. This doesn't necessarily mean that you *can't* economically field-overhaul your engines and reuse the same cam, crank, etc. But if you should discover that you need a new cam, for example, or another part that has undergone significant production changes, you could quickly find yourself spending big money on what started out to be a low-budget overhaul. Also bear in mind that Bendix fuel injectors have undergone many changes over the years, and a thorough rebuild of an RSA-5AD1 is not



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I have a Lycoming O-235-L2C with 1,800 TT and 300 STOH, installed in a Long-EZ. The engine has been perfect the past three years; however, the plane (which is tied down all year) doesn't fly much in the cold Chicago winters. I would like to be able to protect the engine during the winter, yet still fly without a lot of prep work. On that basis, I bought a can of Outboard Marine Corporation's "Storage Fogging Oil" rust preventative. It contains "basic calcium sulfonate and petroleum distillates," and it is sprayed into boat engines prior to winter storage. In phoning OMC's customer service department, I was told I had their blessing in using the product on my Lycoming, but before I actually spray anything I'd like your opinion. Is this the EZ way out?—B.T., IL

"Basic" (as opposed to acidic) calcium sulfonate is a commonly used automotive-oil detergent which tends to restrain oxidation, inhibit rust formation, decompose peroxides, and neutralize oxidation acids. If you spray this in your cylinders through the spark-plug holes, it will no doubt inhibit rusting of the cylinder walls and rings. Spraying it into the crankcase would be of possible benefit to cam lobes and lifters, as well. It would be desirable to flush out the fogging oil residue before flying the plane again, since there is some chance that the calcium sulfonate will form ash in the combustion chamber. (Calcium compounds are not used in aviation oils for exactly this reason.) This product may or may not meet your goal of an easy pickling procedure requiring little prep work before flight, since it'll at least be necessary to drain the cylinder wall runoff out of the bottom spark plug holes (and change the oil in the sump) before flying again. A good way to test the efficacy of the product would be to monitor (with oil analysis) the Fe (iron) concentration of the oil after a winter *without* OMC's preservative, then check the Fe concentration of your oil after a winter *with* rust preventative. In a chromed engine, it shouldn't make much difference, but with steel or nitrided jugs, you probably will benefit from the use of a fogger. Just don't get too carried away with the stuff; remember, it contains a potent ash-forming additive which, used in large enough concentration, will cause preignition in an aircraft engine.

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