Break-in oil

When Continental installed new IO-550 engines on my Baron, the experts at the factory service center in Fairhope, Alabama, offered me the choice of breaking in the engines with straight mineral oil or Phillips 20W-50 X/C AD oil. Continental has had success with both oils, but some pilots feel strongly that only straight mineral oil will properly seat new piston rings. It was an easy choice for me—pour in the Phillips X/C.

I have been using Phillips X/C multi-weight oil since the late 1970s when the company developed it, initially for Cessna to use as a fly away oil in new airplanes. It was the first multi-weight oil approved for airplane piston engines. Cessna's problem was that airplanes built in August may not leave the factory until December. The straight 50 weight oil that went in when the airplane was built in the summer wouldn't flow in the winter. X/C solved that problem by behaving as a 20 weight when cold but functioning as a 50 weight at high temperature.

The multi-weight capability of X/C did the same for all of us who travel, particularly during the winter months. Before X/C you had to use 20 weight up north, but the oil was as thin as water by the time you reached the warm latitudes.

The reason that X/C can be used for engine break-in is that it is made entirely from mineral oil. Other multi-weights contain some portion of synthetic oil. During engine break-in you want the piston rings and cylinder walls to wear a little so that the surfaces work themselves into a good fit. Synthetic oil could retard this process and cause the cylinder walls to "glaze" over so that the rings and cylinder never achieve an ideal fit.

The primary benefit of breaking in with X/C is that it is ashless dispersent (AD), meaning that it suspends dirt and debris to be filtered out or drained away. Straight mineral oil lacks the AD additive so it is important to change from the mineral oil to an AD oil as soon as oil consumption is stable. With X/C there was no need to change until the normal 50-hour interval had been flown.

How did it work? The new engines showed stable oil consumption from the first hour. In the 47.8 hours I flew them to the first oil change each engine used two quarts of oil. Who could ask for more? □