ENGINE OPERATIONAL GUIDELINES

If the aircraft is equipped with cowl flaps, shown in Figure 4-4, they should be open during ground operations because takeoff and climb are the most difficult cooling situations for the engine. For this reason, runups should be done into the wind to maximize cooling airflow through the cowling. Always keep runups as brief as possible, using a full-rich mixture and the appropriate RPM (revolutions per minute). If you have a constant-speed prop, make sure to exercise it as outlined in the POH; this is especially important during the winter.

Don't Baby Your Engine

I have talked with far too many aircraft owners over the years who believe that if you have a long runway there's no reason to use maximum power on takeoff. They feel they are "babying" their engine and extending its life by taking off at lower power settings. Not only is that incorrect; it will actually result in a shorter TBO. Always follow the manufacturer's takeoff checklist!

In general, use full-rich mixture unless a high-density altitude exists. In that case, lean to recover power lost from an overly rich mixture. But don't baby your engine! Normally aspirated engines have been designed to use full-rated power on takeoff. Taking off with less than rated power will lead to shorter TBOs. In some aircraft, such as the Cessna 172Q, the recommendation is to maintain full power throughout the climb, while in others

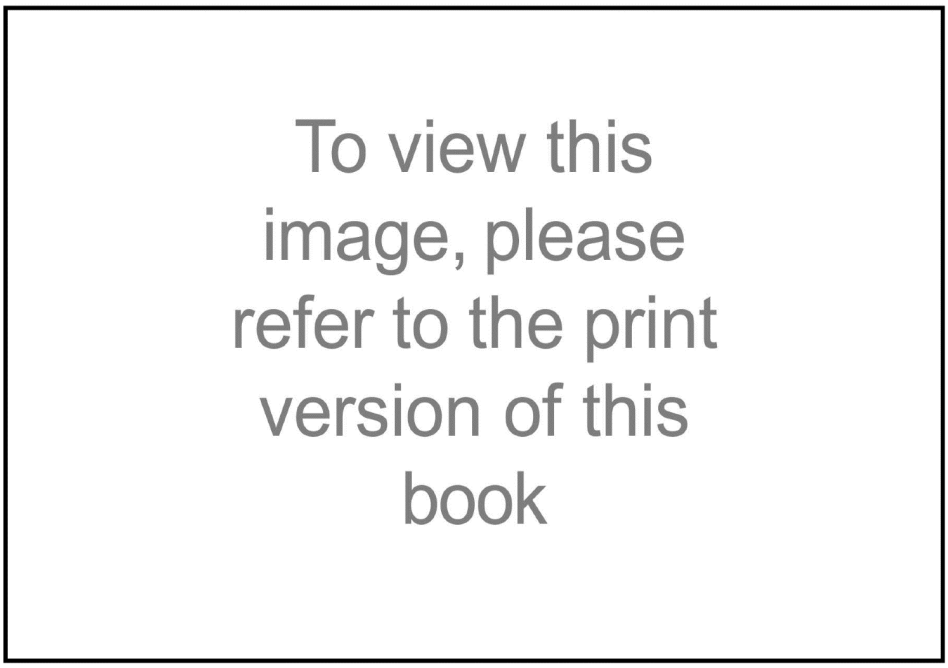

Fig. 4-4. *Cowl flap.* (Photo by author, courtesy of Frasca Air Services)