



Fig. 4-16. *Tru-flow 1 fuel-flow indicator.* (Photo courtesy of Alcor, Inc.)

Engine instruments have one significant similarity to flight instruments; they should be looked at as a whole rather than individually. No one instrument gives a complete picture. A potentially dangerous indication on one can be evaluated intelligently only after checking the others.

PREFLIGHT

When conducting a preflight inspection, there are several engine considerations. The cooling air pathway should be checked carefully, including air inlet, air pathway under cowl, and the air exit area or, in some aircraft, the cowl flaps.

Oil quantity, of course, is an extremely important item on the preflight check. Pilots should check their aircraft POH to determine recommended oil levels, which might differ for cross-country and local flying. Don't forget that oil grade requirements can differ with the season.

In addition to using the proper oil in cold weather, it is a good idea to pull the prop through by hand at least six revolutions to loosen up the oil. When temperatures drop to less than 20 degrees F and the airplane is not kept in a heated hangar, preheating the engine may be necessary. Normal oil pressure should come up within 60 seconds after start. If pressure does come into the green arc but fluctuates, the oil is still too cold and causes cavitation of the oil pump. Shut down the engine and preheat before another start attempt.

While under the cowling, check general engine security. A visual inspection will turn up most oil and fuel leaks, while a tug at the engine mounts will attest to their integrity. If the airplane is a rental, take a look at the valve covers. Often the most recent compression check will be written in chalk there and is a good indication of the general health of the engine (more on compression checks later).