

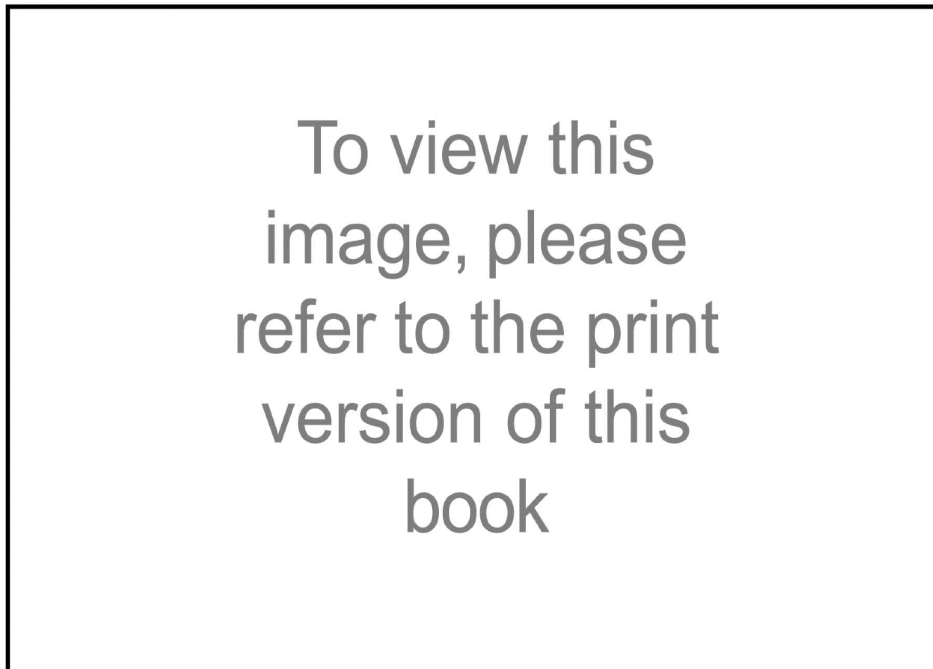
## Chapter Four

### Cylinder Head Temperature Gauge

The CHT gauge, such as the twin-engine version shown in Figure 4-15, is an excellent indicator of how hot the piston, cylinder, and rings are operating. It indicates the actual temperature of what the manufacturer considers to be the engine's hottest cylinder head. A major concern for any pilot is overheating these parts, which will shorten their lives and may cause catastrophic failure. Operation at high indicated engine temperatures should be avoided because the hottest cylinder, which will vary with conditions and altitude, may not be the cylinder actually displayed. Excessively high CHT can cause detonation, engine damage, and failure. Low CHT, coupled with high power, may lead to damaged rings, pistons, and scuffed cylinder walls.

Causes for excessively high temperature include too lean a mixture, dirty fuel-injector nozzles, an induction-system leak, taxiing with cowl flaps closed, extended high-power climbs (especially at low speeds), climbs during hot ambient temperatures, idling engine with excessively flat prop pitch, and blocked cooling-air pathway or missing/broken cooling baffles.

Of the two types of CHT probes, spark plug gasket and bayonet (the element is embedded into a special well in the cylinder head), the latter is the more accurate. The CHT gauge actually is a milliammeter with a scale typically calibrated from  $-50$  degrees to  $+300$  degrees Celsius.



**Fig. 4-15.** *Twin-engine cylinder-head temperature gauge.* (Courtesy of Alcor, Inc.)