



**Fig. 8-1.** *Electrical circuits showing primary bus and circuit breakers.*

## **SOURCES OF ELECTRICAL POWER**

Aircraft have very limited choices with respect to a ready supply of electricity. Light, general-aviation aircraft do not have the luxury of onboard auxiliary power units like most turbine engine aircraft. In the early days of aviation, aircraft did not have storage batteries to run a starter, so the pilot had to turn the propeller by hand to get the engine to start. Then, as now, the independent magneto system was geared to the engine, so “propping” the engine would cause the magneto to turn, with a resulting timed spark to the cylinders. Today’s high-compression engines make propping next to impossible and certainly an unsafe practice.

We now have three possible sources of electricity available to light aircraft. At most airports we have access to a ground power unit (GPU). Onboard the aircraft, we have a storage battery and alternator.

## **THE GROUND POWER UNIT**

The ground-based source of power to an aircraft is the ground power unit (GPU). It is often incorrectly referred to as an APU, but the difference is not academic. The GPU is exactly what its name implies—a ground power unit. It is usually mounted on wheels and is often operated by a flight line attendant. The APU (auxiliary power unit) is an additional small engine, usually a turbojet whose sole purpose is to supply auxiliary power (electric and often pneumatic) to run aircraft systems on the ground when the engines are shut down and to aid engine start-up. APUs, which are permanently installed onboard, are found on large aircraft.