

The Apple IIe's power supply works by converting the AC line voltage to DC and using this DC voltage to power a variable-frequency oscillator. The oscillator drives a small transformer with many separate windings to produce the different voltages required. A circuit compares the voltage of the +5-volt supply with a reference voltage and feeds an error signal back to the oscillator circuit. The oscillator circuit uses the error signal to control the frequency of its oscillation and keep the output voltages in their normal ranges.

The power supply includes circuitry to protect itself and the other electronic parts of the Apple IIe by turning off all four supply voltages whenever it detects one of the following malfunctions:

- ☐ any supply voltage short-circuited to ground
- ☐ the power-supply cable disconnected
- ☐ any supply voltage outside the normal range

Any time one of these malfunctions occurs, the protection circuit stops the oscillator, and all the output voltages drop to zero. After about half a second, the oscillator starts up again. If the malfunction is still occurring, the protection circuit stops the oscillator again. The power supply will continue to start and stop this way until the malfunction is corrected or the power is turned off.

Warning

If you think the power supply is broken, do not attempt to repair it yourself. The power supply is in a sealed enclosure because some of its circuits are connected directly to the power line. Special equipment is needed to repair the power supply safely, so see your authorized Apple dealer for service.

The power connector

The cable from the power supply is connected to the main circuit board by a six-pin connector with a strain-relief catch. The connector pins are identified in Table 7-3 and Figure 7-15d (or Figure 7-16d for the extended keyboard IIe).

Table 7-3
Power connector signal specifications

Pin	Signal	Description
1,2	Ground	Common electrical ground
3	+5V	+5V from power supply
4	+12V	+12V from power supply
5	-12V	-12V from power supply
6	-5V	-5V from power supply