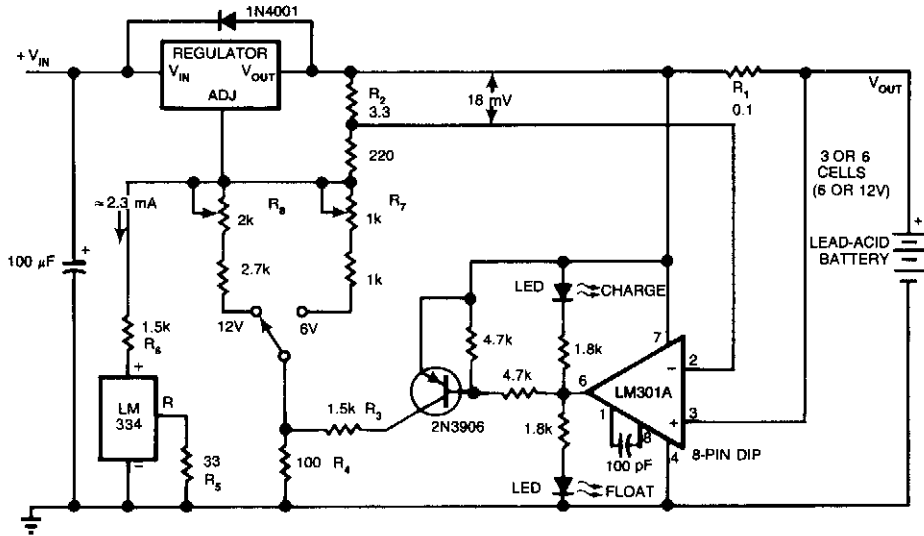


CHARGER EXTENDS LEAD-ACID BATTERY LIFE



EDN

Fig. 13-6

The circuit furnishes an initial charging voltage of 2.5 V per cell at 25°C to rapidly charge a battery. The charging current decreases as the battery charges, and when the current drops to 180 mA, the charging circuit reduces the output voltage to 2.35 V per cell, floating the battery in a fully charged state. This lower voltage prevents the battery from overcharging, which would shorten its life. The LM301A compares the voltage drop across R_1 with an 18-mV reference set by R_2 . The comparator's output controls the voltage regulator, forcing it to produce the lower float voltage when the battery-charging current passing through R_1 drops below 180 mA. The 150-mV difference between the charge and float voltages is set by the ratio of R_3 to R_4 . The LEDs show the state of the circuit.