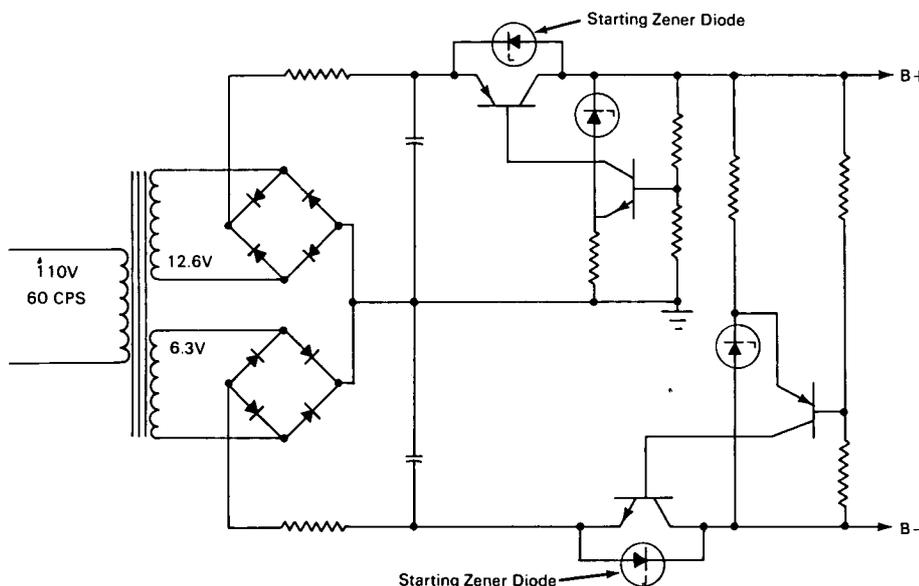


NASA TECH BRIEF



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Zener Diode Is Starter for Transistor-Regulated Power Supply



The problem: Power supplies using high-quality silicon transistors as variable impedance regulators require an initial starting current supply because these silicon transistors have exceedingly small leakage current. Previous starting techniques have been very complex and expensive.

The solution: A zener diode in parallel with the silicon transistor supplies the starting current.

How it's done: A zener diode of suitable voltage is connected in parallel with the silicon transistor used as the variable impedance in each leg of the regulation portion of the circuit. The voltage developed across the diode provides an initial current through the transistor, sufficient to turn it on. The diodes are selected

with zener voltage large enough to provide sufficient starting current but small enough to be effectively open-circuited with the transistor on.

Note: Inquiries concerning this innovation may be directed to:

NASA Space Nuclear Propulsion Office
Technology Utilization Branch
U.S. Atomic Energy Commission Bldg.
Germantown, Maryland
Reference: B65-10052

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: Westinghouse Electric Corporation
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