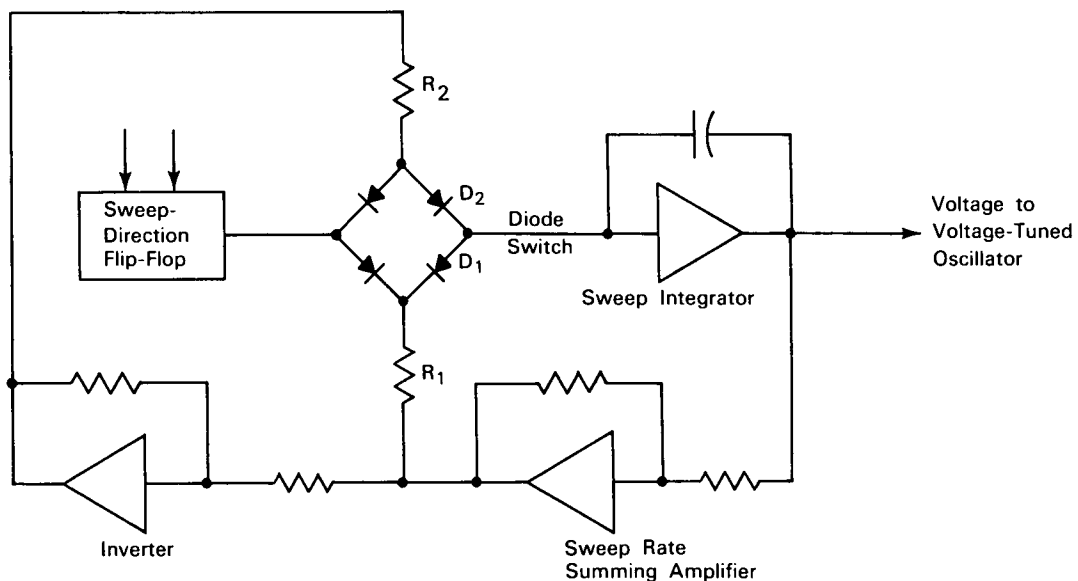


NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the space program.

Voltage Generator Sweeps Oscillator Frequency Linearly with Time



The problem: To sweep linearly with time, the output signal frequency of frequency-modulated oscillator circuits, in particular, voltage-tuned oscillator circuits, has required relatively costly and complex circuitry.

The solution: A circuit that generates a voltage exponentially varying with time. When applied to a voltage-tuned oscillator, the output of which varies logarithmically with applied voltage, the resultant output is a linear frequency variation with respect to time.

How it's done: Assuming that the sweep-direction flip-flop is in the upward position, the diode switches are biased so that the output of the sweep-rate summing amplifier is connected directly to the sweep integrator through diode D₁ and resistor R₁. The sweep-rate summing amplifier is driven by a

signal proportional to the sweep-integrator output voltage. The sweep-direction flip-flop is reversed at the end of each sweep by a pulse generator or other device (not shown). With the sweep direction reversed, the sweep integrator is connected via diode D₂ and resistor R₂ to the inverter whose voltage is the negative of that from the summing amplifier, thus the sign of proportionality is reversed.

Note: Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama, 35812
Reference: B64-10320

(continued overleaf)

Patent status: NASA encourages the immediate commercial use of this invention. Inquires about obtaining rights for its commercial use may be made to NASA Headquarters, Washington, D.C., 20546.

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