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# NASA TECH BRIEF



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## Signal Generator Converts Direct Current to Multiphase Supplies

### The problem:

Multiphase wave generators have been difficult to control in the past because the phases have been so closely interrelated that adjustment of the circuitry of one phase causes undesired changes in the other phases.

### The solution:

A multiphase wave generator that uses multivibrators in a feedback control mode that produces output signal pairs that are impressed on the primary windings of inverter transformers sequentially with a 120° phase shift from each other.

### How it's done:

The wave generator consists of a source of periodically varying control signals plus a set of multistable devices functioning as wave-generating elements switchable between two conductive conditions in response to predetermined gating signals that result from combined feedback signals of the multistable devices and periodically varying control signals. Sequentially correct gating to obtain the desired phase relation is dependent on the state of two phases relative to each other or with respect to the third and is not a function of the ring circuit type of connection as previously

used. Proper gating of the multistable devices is accomplished without the use of capacitors, reactors, or transformers.

### Notes:

1. Output transformers are used for phase isolation, load voltage increase, wave form shaping, and to provide a load related base current for the output transistors.
2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
Houston, Texas 77058  
Reference: B67-10368

### Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: John Baude  
of Allis-Chalmers Manufacturing Company  
under contract to  
Manned Spacecraft Center  
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Category 01