

# NASA TECH BRIEF

## Marshall Space Flight Center



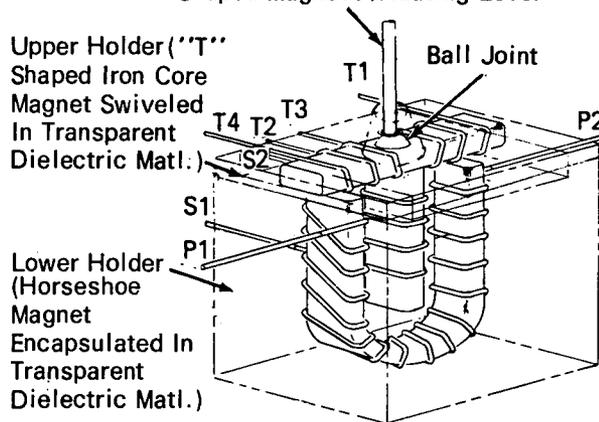
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### Small Size Transformer Provides High Power Regulation with Low Ripple and Maximum Control

**The problem:**

To devise a means of providing extremely high power regulation with low ripple and maximum control of linearity, without using the numerous electronic components, i.e., transformers, chokes, etc.,

**"T" Shaped Magnet Actuating Lever**



**τ Tau Upsilon Transformer**

now needed. The new technique should reduce the physical size of the drawer assembly, as well as its design and manufacturing cost.

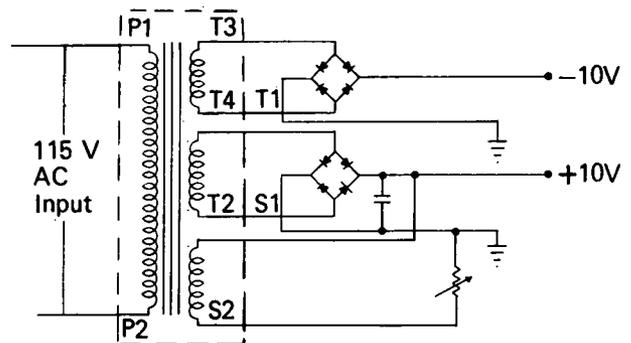
**The solution:**

A single, variable, transformer/choke device (see fig.) which does the work of several.

**How it's done:**

In the concept proposed, two electromagnets, one U-shaped and one T-shaped, would be arranged in a component holder such that transformer interaction occurs. The interaction is varied through the use of a level attached to the T section and swiveled in a ball joint. The copper wire is wound

around an iron core in both cases, with three coils of the T-shaped secondary interacting with the U-shaped primary. This device provides high regulation of power, voltage, current and impedance, while maintaining maximum control of linearity and



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ensuring extremely low ripple. Another important feature is that nulling can be controlled to a very fine degree. The device eliminates the use of multiple electronic components, allows reduction of transformer to micro-micro size, and has only two movable parts.

**Note:**

Requests for further information may be directed to:

Technology Utilization Officer  
Code A&TS-TU  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B71-10193

(continued overleaf)

**Patent status:**

No patent action is contemplated by NASA.

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