

NASA TECH BRIEF

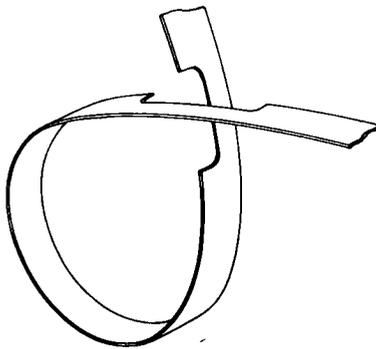
NASA Pasadena Office



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Flat-Band Assembly for Toroidal Transformer Cores

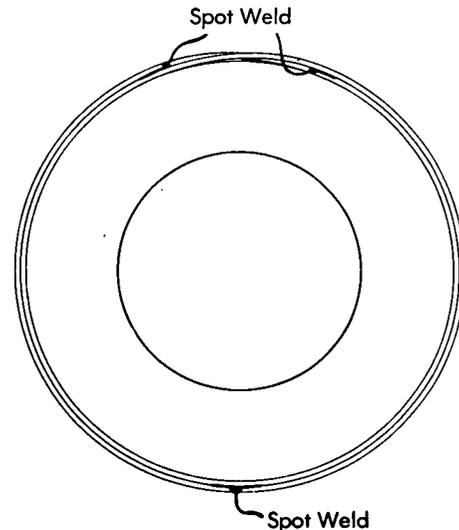
The cut halves of toroidal transformer cores are often banded together by means of a strap and securing buckle; however, the buckle produces a large bump and has sharp edges which could cut into the



winding that is subsequently placed on the assembled core. Additionally, since conventional strapping tools permit only coarse tightening of the straps, there can be wide variations in the force applied during assembly of cores and, therefore, optimum tensioning in terms of a proper B-H loop for each core is difficult to attain reproducibly.

The strap shown in the diagram minimizes protruberances on the assembled core because the notches permit overlapping to form a smooth periphery over the core; the strap is secured by spot welds. Proper tension is obtained by use of a special fixture in conjunction with a winding of wire which is placed

temporarily on the core; the winding is excited by a dc current to hold the core halves together magnetically during alignment. Subsequently, the temporary winding is excited by an ac current so that the B-H



loop may be observed on an oscilloscope as the tension of the band is adjusted.

The special fixture has a nest for supporting the core halves; two pivoted arms, also on the fixture, each have a friction arrangement for holding one end of the strap. A torque wrench is used to apply tension to each strap by rotation of the pivoted arms; after being established empirically by observation of several core B-H loops on the oscilloscope, the torque-wrench values are used for guides when tightening bands during the assembly of other cores. Final adjustment of strap tension is made while observing the B-H loop on an oscilloscope as more or less torque is

(continued overleaf)

applied with the wrench. If too much torque is applied, the ends of the core halves will distort, and there will be an increase in magnetizing current; if too little torque is applied, the air gap will be large, and a larger magnetizing current will be required. After the strap has been tightened properly, the notched band at the points of overlap and at the strap ends are spot welded, as indicated in the diagram.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
NASA Pasadena Office
4800 Oak Grove Drive
Pasadena, California 91103
Reference: TSP 73-10391

Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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