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Computerized Toroidal Transformer Design

Designers of power supplies or power conditioning equipment will be interested in an available computer program which designs toroidal transformers, the first in approximately 60 seconds and each subsequent one in about 45 seconds. This program can design up to 9999 transformers which have one primary (center tap permissible) and up to 20 untapped secondaries.

Input data such as primary voltage, secondary voltage and current core material information are required. Output data such as number of turns and wire size for the primary and number of turns and wire size for each secondary are computed. Transformers can be designed to handle up to 500 V across any one winding.

After the program reads in the necessary input data, the computer determines the total secondary power. With this value the computer obtains the product of window area and core cross-sectional area which it uses to determine the core type. The program computes the number of primary turns and then the number of secondary turns. Wire sizes for primary and

secondary windings are the next calculations. Through an iterative process of computing percent core window area used, a final core is selected.

The program prints out input and output data for each transformer. If designing a particular transformer is impossible for the program, it prints out a statement to this effect.

Notes:

1. The program is written in FORTRAN II for use on an IBM 1620.
2. Inquiries may be directed to:
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Reference: B70-10606

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