

# NASA TECH BRIEF

## *Lewis Research Center*



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### Computer Method for Identification of Boiler Transfer Functions

In order to establish dynamic system stability criteria, studies of the dynamic stability of single tube boilers have been conducted. These studies consist of measuring the frequency response of the system. As part of the analytical program, a method was developed to identify transfer functions from these measurements.

The frequency response data consist of the amplitude ratio and the phase angle difference of two parameters at various frequencies. The frequency response is considered to be identified if a transfer function that fits the frequency response data is obtained.

An iterative computer aided procedure has been developed which provides for the identification of boiler transfer functions using frequency response data. The method uses the frequency response data to obtain a satisfactory transfer function for both high and low vapor exit quality data.

#### Notes:

1. Although this method is not designed for any specific computer, it is recommended that a time-sharing system be used.

2. The following documentation may be obtained from:  
National Technical Information Service  
Springfield, Virginia 22151  
Single document price \$3.00  
(or microfiche \$0.95)

Reference: NASA-TM-X-2436 (N72-13917),  
Computer Method for Identification of Boiler  
Transfer Functions

3. Technical questions may be directed to:  
Technology Utilization Officer  
Lewis Research Center  
21000 Brookpark Road  
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Reference: B72-10582

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