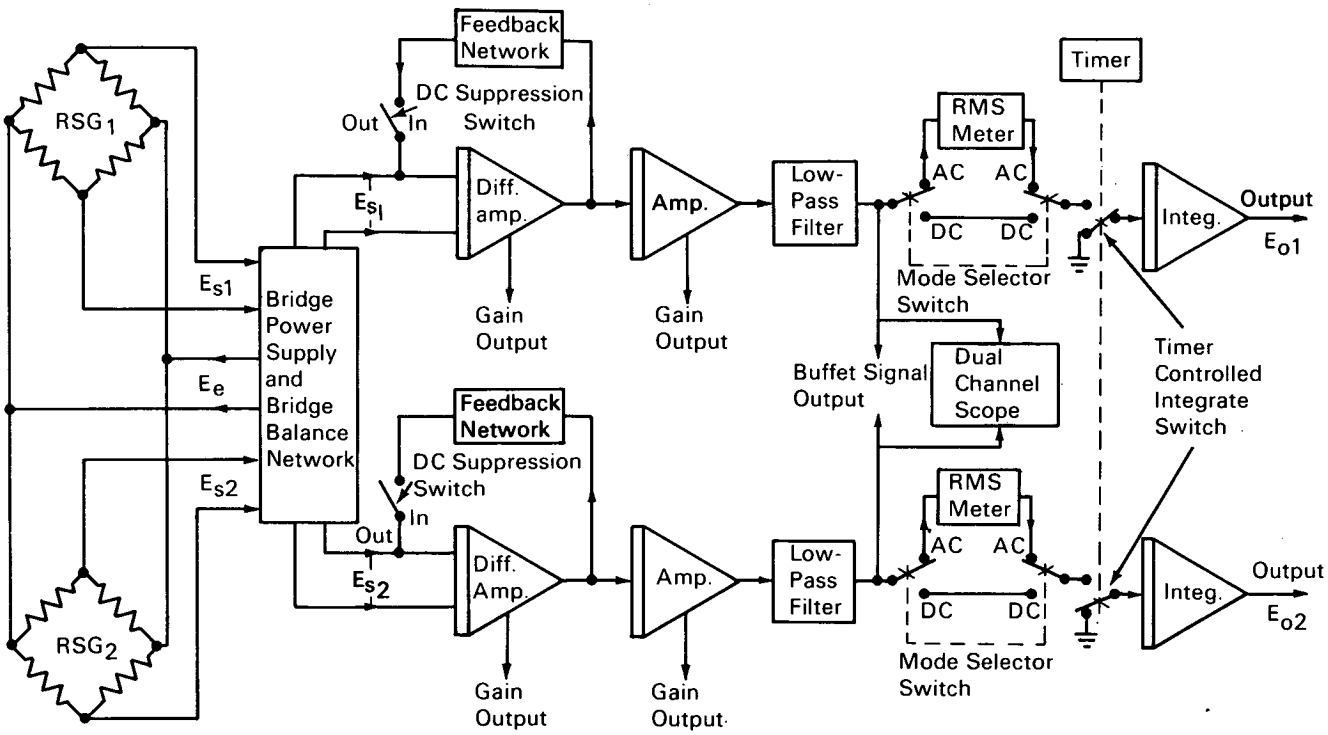
December 1970

Brief 70-10639

NASA TECH BRIEF

Integrator for On-Line Measurement of Buffet Signals



Dual Channel Buffet Data Acquisition System Block Diagram.

A novel device determines the average rms value of bending-moment (buffet) signals by integrating rms signals from strain gages for a preselected period of time. The device also suppresses dc voltages from the strain-gage bridge and provides automatic recording of the amplifier-gain settings. Previously, the average rms value was estimated from fluctuations observed on an rms voltmeter, and each data point and gain setting was manually recorded and plotted.

The new system (see fig.) incorporates several commercially available instruments: a dual-channel oscilloscope, two rms voltmeters, and a dual-output power supply. The balance of the equipment is fabricated from commercially available hardware and modular solid-state components. The system can be used to measure the average rms value of other transient data, and the upper fequency limit depends on the frequency response of the amplifiers.

Integration of the buffet signals eliminates the need for estimating their average rms value and increases the accuracy of that value. The automatic suppression of dc voltages resulting from static loads

(continued overleaf)

eliminates the possibility of amplifier saturation and subsequent loss of data. Operator time is saved by eliminating the manual bridge-balance procedures that were previously required for the data points and automatic recording of the amplifier-gain settings eliminates human error in reading and recording information, and saves operator time. The integrated output signal can be recorded by devices having only a dc response.

Note:

Requests for further information may be directed to:

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Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to:

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