Model K3-J Integrating Component

K3 COMPONENTS
The K3 series of Analog Computing Components is a modular family of operational blocks, linear and nonlinear. Each K3 Component is a self-contained operational unit, engineered for functional efficiency in a computing system. An easily removable (without tools) black steel case houses each Component uniformly, compactly, and durably. At the back, 5-pin input and output connectors supply power, and permit cable connections in cascade from one Component to the next. On the front, input and output jacks provide for computing signal connections via standard cables. An indicating dial on each Component serves for setting characteristics. For convenience, clearly visible lamps denote outputs in excess of 50 volts, although output limiting per se cannot harm these rugged Components. K3 Computing Components are characterized by increased convenience and stability over earlier models, and all zeroing adjustments are located on their front panels. For facility in (rarely needed) servicing, all operational amplifiers are easily removable plug-ins.

Model K3-J is an Integrating Component of tremendous flexibility for application to repetitive or real time computation or simulation. The "pancelerative" operation of the K3-J is achieved by a choice of fixed characteristic times ranging from 400 microseconds to 1 second. For systems which have not returned to zero at the end of the computing interval, a "clamp" gating voltage may be applied to the upper input which artificially restores the outputs to zero rapidly and automatically. Clamping may also be achieved manually by switching to an "infinity" position. With no input to the upper jack, the Component is normally unclamped. Outputs are available in both the positive and the negative sense.

The K3-J may be applied wherever integration with respect to time is required. Typical applications are in the solution of differential equations, simulation of dynamic processes, and measurement of energy.

Brief Specifications
Input Impedance (Main): 1 megohm
Range: 50 volts
Gate requirements (clamp): 50V 1/3 ma
(unclamped): 50V 1/3 ma
Time factors: 0.0004, 0.004, 0.04, 1, "90" seconds

Outputs (2) Impedance: Under 25 ohms
Range: 50 ohms

Operational Amplifiers: 3 Model K2-W
Additional tubes: 1 6AK5
Power requirements: 16 ma @ 300 vdc
Dimensions: 7 1/4"H x 4 1/4"W x 5 1/4"D
Shipping weight: 8 1/2 lbs.

Zeroing Procedure
1. With no input, and after sufficient warmup, with the dial set at 1), apply a Clamp gating voltage akin to that in Fig. (a).
2. Adjust A for zero slope, when either output is displayed on oscilloscope.
3. Adjust C for zero Negative output level.
4. Adjust B for zero Positive output level.

George A. Philbrick Researches, Inc.
230 Congress Street, Boston 10, Massachusetts