

This modification has been successfully employed with the Gilson Medical Electronics Model VL Linear Fraction Collector. The time-delay relay used was a Bliss-Eagle CG10AG DPDT* unit with a 0.06–10 sec time delay. The installation is shown in the simplified schematic (Fig. 1). With the circuit illustrated, the emptying

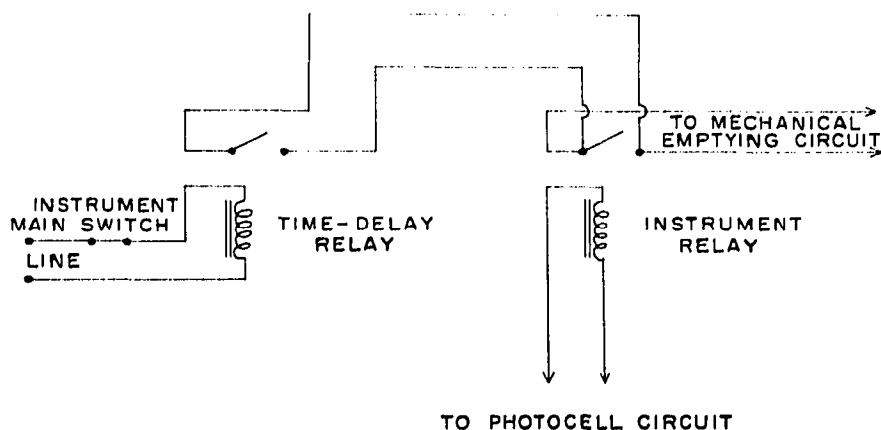


Fig. 1. Schematic diagram showing position of time-delay relay in fraction collector circuit. Shown in power-on position. Time-delay setting of relay 1.0 sec.

mechanism is activated: (i) when the photocell circuit is activated at the moment the correct volume has been collected, or (ii) whenever the power is returned to the main circuit. The operation of the instrument with this adaptation insures that collection after the power returns is started with an empty volumetric device. If power interruptions are extensive then many fractions will be lost. However, this modification will guard against the loss of any more fractions after the power returns.

A similar modification should be possible on most fraction collectors which do not have a similar device already built-in.

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Modification of the controls of the Beckman amino acid analyzer*

Two simple modifications to the Beckman 120C amino acid analyzer were of considerable value in this laboratory. The first of these allowed the analyzer to make both buffer changes automatically during analyses of physiological fluids. The second

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modification allowed any or all of the buffer pumps to be run independently of the automatic controls of the analyzer.

Analysis of basic amino acids by the MOORE AND STEIN procedure requires a buffer change in order to elute arginine¹. Although the Beckman Model 120C amino acid analyzer* used in this laboratory is capable of making a buffer change during either the acidic or the basic analysis, it cannot make both buffer changes automatically. Since a large number of physiological samples are assayed in the laboratory, a means was devised which allowed the changes to be made automatically. The cam and pivot arm were removed from the "Motovalve" (Fig. 1). A new pivot arm,

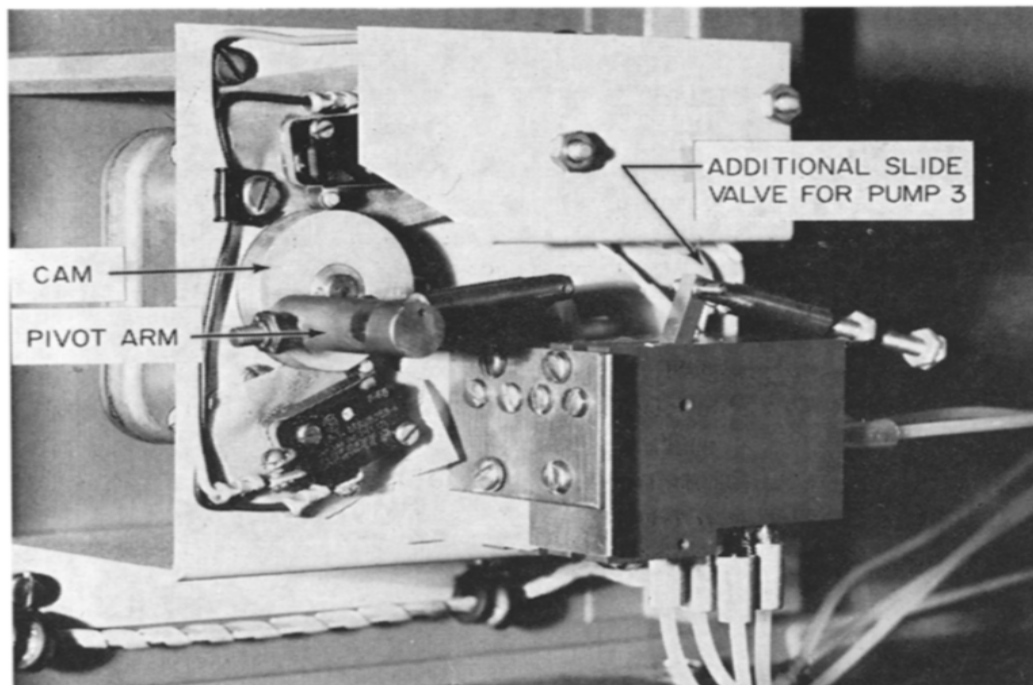


Fig. 1. Photograph of modified "Motovalve" assembly.

machined to the dimension given in Fig. 2, was connected to the cam and the cam and pivot arm assembly were reinstalled. The support bracket was extended with a brass plate to hold a second slide valve for pump 3. Being secured in the slotted position on the pivot arm allows the valve actuator to be disconnected during column 3 analyses, which would otherwise interfere with the regeneration of column 4 (for neutral and acidic amino acids).

The addition of an interval time for the control of pumps 2, 3, and 4 and switches to allow selection of any one or all pumps permits their operation independent of the analyzer controls. This modification is useful for regeneration of column(s) during an analysis with automatic shutdown of the pump; it also allows the pumps to be used for other purposes. The standard controls of the Beckman 120C amino acid analyzer do not permit the automatic control of pumps not used during the analysis.

* Mention of commercial products herein does not constitute endorsement by the Department of the Navy.

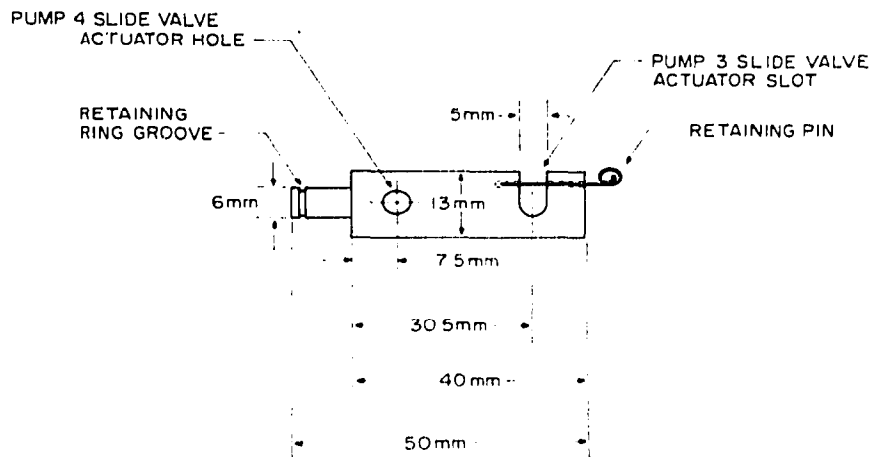


Fig. 2. Pivot arm assembly. The dimensions given are approximate and should be determined for each instrument.

The electrical schematic for the control device is shown in Fig. 3. It is connected to the analyzer circuitry at the points indicated with reference to the manufacturer's instruction manual. Switches SW-2, 3, and 4 select the corresponding pumps whose operation is to be timed by the interval selected on the timer T, with a range up to 3 h.

The modifications, described above, allow complete automatic analyses of both basic and acidic ninhydrin positive compounds and the operation of pumps 2, 3, and 4 independently of the analyzer controls. Both changes should be generally applicable for use with similar instruments.

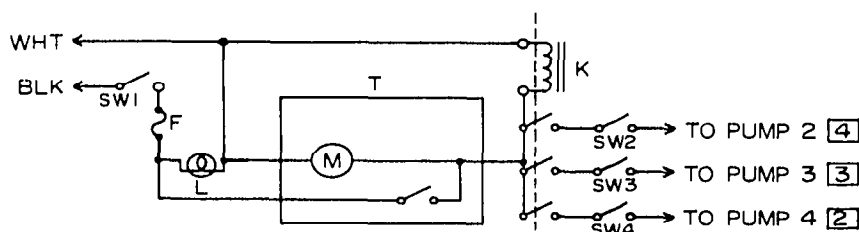


Fig. 3. Electrical scheme for control device. Arrows refer to points where connections are made into the Beckman circuit. Manual A-TB-029, June, 1966. L = indicator light, T = interval timer, 0-3 h (industrial timer Mod. PBM-3H), K = relay, 3 pst, 115 V a.c., F = fuse, 5 A, SW₁, SW₂, SW₃, SW₄ = switch SPST toggle.

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