Valley People, Inc.
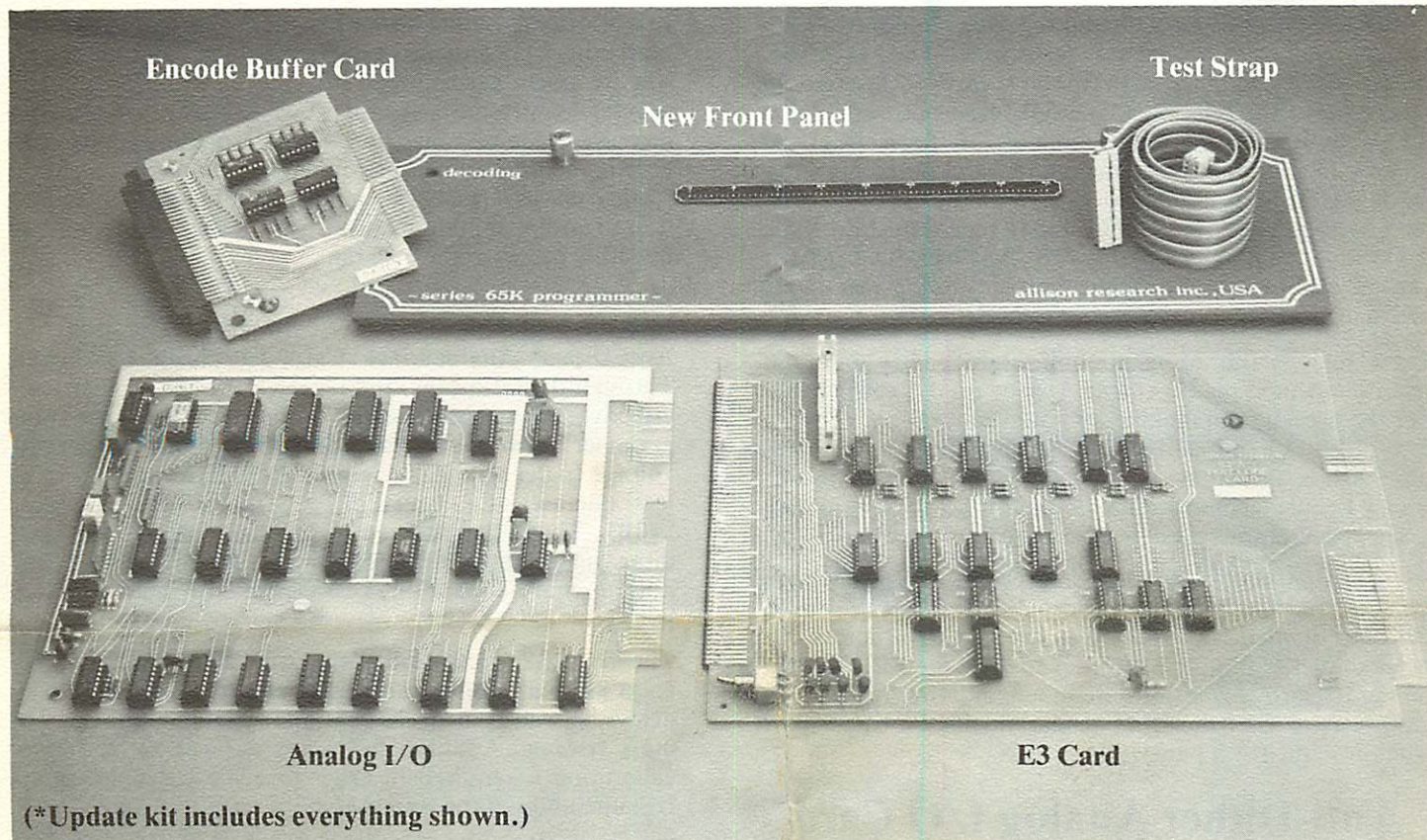## Presents the Allison

65K PROGRAMMER UPDATE

E3 Test Card and Anti-Dither Analog I/O Card*

Encode Buffer Card — decoding — New Front Panel — ~ series 65K programmer ~ — allison research inc., USA — Test Strap

Analog I/O — E3 Card

(*Update kit includes everything shown.)

E3 Test and Calibrate Card

The E3 Test and Calibrate Card extends the usefulness of the Valley People (Allison) 65K series of automation programmers. It is recommended for owners of existing programmers, as a plug-in retrofit, to allow ready verification of proper operation, as well as to facilitate easy and accurate calibration of the analog portions of the 65K.

The E3 card is now offered as standard equipment on new programmers.

The E3 card contains two basic sections: a digital "test code" section, including a priority monitoring display, and an analog "staircase" generator with electronic recirculation switching.

DIGITAL DISPLAY SECTION. A 64-element LED display, visible from the front of the 65K programmer, indicates the order in which information from the various console channels is exiting the 65K Decoder. It allows the operator or technician to observe the overall scanning action, and to ascertain the proper operation of the priority determining circuitry, as well as to pin point any channels which might be "dithering" or otherwise deviating from proper operation. The display serves as a ready monitor to proper system operation, which the mixing engineer will quickly learn to interpret in the same manner as he does with other performance monitors, such as VU meters, etc.

DIGITAL TEST CODE SECTION. In addition to visually monitoring the normal operation of the programmer, the E3 card provides a digital test code (switch selectable), which allows the technician to verify proper operation of the programmer, independent of the audio console. In this manner, the programmer can be separately tested, without additional equipment, to verify whether a suspected problem resides in the programmer itself, or in the console
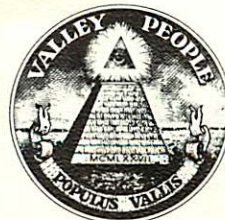
portions of the overall system. In a situation where a fault is evident in the programmer, the results of the visual operation of the E3 card may be telephonically relayed to the Valley People staff, as an adjunct to determining what remedial steps might be necessary to correct the defect.

ANALOG TEST AND CALIBRATE SECTION. The analog sections of the E3 card contain a 16-channel multiplexed analog staircase, as well as CMOS switching which simulates automatic Write (establish levels) and Read (recirculate levels), independent of any connection to the console. In using this portion of the E3 card, the cable which normally connects a MUX 65K card to 16 channels of the console is unplugged, and replaced temporarily with a cable from the E3 card analog section. (The MUX 65K Buffer Card supplied with the E3 card is inserted in tandem with the selected MUX 65K card position.) Once this is done, the E3 card simulates 16 fader positions ranging from minimum to maximum, and performs automatic establish/recirculate modes. With the aid of an ordinary oscilloscope, the technician may then adjust the three calibration trim pots on the 65K Analog I/O card for correct calibration, independent of any effects or faults which might be present in the console itself.

These analog calibrations are quite stable, and should not require repeated readjustment. Use of the E3 card should only be necessary in making an initial calibration, or when a problem or miscalibration is suspected. Again, the observed results may be telephonically relayed to the Valley People technical staff, as an adjunct to determining proper programmer/system operation.

All 65K programmers have a wired position into which the E3 test card may be inserted without further modification. On older models, however, it is necessary to remove the programmer front panel in order to view the LED display on the E3 card. Provisions are made on newer model programmers to view the LED display through a translucent window in the front panel.

Anti-Dither Analog I/O Card

The Anti-Dither Analog I/O card (standard equipment on new 65K programmers) is available as a recommended plug-in replacement card for existing programmers.

In a system like the 65 K programmer, where a dc control voltage is digitized, there are positions on the control where the dc voltage *falls near the borderline between one digital step and the next*. When a control is placed exactly on this borderline, an indecision results in the analog to digital converter, as to which digital increment, or "step", it should select. This, in itself, does not pose a significant problem, as this effect occurs only when the dc control is exactly in the very narrow "border region". However, the presence of small amounts of noise or hum on the dc control lines can serve to broaden the area of indecision, and can lead to "dithering", or a random back and forth selection of alternate digital steps, even though the dc control (fader) is in a stationary position.

In a priority detecting device like the 65K programmer, this "dithering" is construed as a moving control, thus priorities are given, even though the control is stationary. The general manifestation of such a "dithering" error is an increase in the response time of the programmer, particularly if several channels are dithering. This error condition further places stringent demands upon the system calibration, to insure minimum processing delays after multiple updating passes of the program.

In order to counteract these potential problems, and to ease the requirement for very stringent calibration, the Anti-Dither Analog I/O Card has been developed. Through digital means, the replacement card achieves an effective "hysterisis" action which prevents the programmer from making a step change unless a control voltage (fader voltage) changes by an amount equal to at least one half of a normal digital step (changes by at least ¼dB). Thus, the problem is virtually eliminated, and dithering is impossible unless abnormally large amounts of noise or hum appear on the fader control lines, through poor grounding or defective reference power supplies.

The results of retrofitting the Anti-Dither Analog I/O Card are manifest in a general decrease in programming delays, as well as in an elimination of "null light flicker" in most systems. Additionally, a less stringent programmer calibration is required in order to achieve proper, error-free operation of the system.
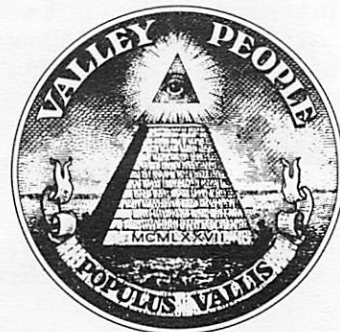
The Anti-Dither Analog I/O Card is a direct plug-in replacement for all existing 65K programmers, and its retrofit requires no alterations other than a routine recalibration of the offset voltage trimmer, to compensate for any ground differences between the console and the 65K programmer.

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