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19 April 1955

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MEMORANDUM FOR: THE RECORD

SUBJECT: Progress Report on [redacted] with Contoura and BOOWU Flash Copy Stands

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*p 7 156 and 157*

The following is based on a discussion between [redacted] of [redacted] on 15 April 1955.

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1. Contoura: [redacted] has constructed a working test model of the Contoura and demonstrated same to the undersigned. The following features require attention:

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a. Contrast Range: [redacted] ran several tests on the contrast range of three different kinds of copy paper under four different lighting conditions. The Contoura paper on the Contoura printer was used as a reference standard. Kodagraph paper was found to have better contrast than the Contoura paper both with electronic flash and on the Contoura printer. The latitude of the Kodagraph paper is somewhat less, however. Both the latitude and the contrast range of the Kodagraph paper could be increased by introducing a colored filter between the flash light source and the paper. The colored filters, however, cut out a great deal of useable light. Of the three colored filters tried, the difference of effect on contrast between them being small, the one causing the least loss of light was selected as the most effective. The loss of light represented by this yellow filter amounts to 1/4 the light available from the flash light source.

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With the yellow filter the energy required for satisfactory exposure is 100 watt-seconds. Without the filter only 25 watt-seconds are required. On battery operation this difference is quite significant insofar as the number of flashes per battery is concerned. On AC operation this difference is not very significant. The question was raised as to type of battery required and number of flashes per battery needed.

Further questions raised were: Is the performance of the Contoura paper on the standard Contoura printer a suitable standard for comparison purposes? Can the prints be made from the negatives at leisure under ideal conditions or must they be made with the same machine?

b. Uniformity of Illumination:

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b. **Uniformity of Illumination:** The five flash tubes in the test model were arranged in such a way that the illumination over the printing surface was very non-uniform. [redacted] had prepared a neutral mask to counteract this for the demonstration. He is well aware of this shortcoming and is planning to install longer tubes and arrange them in such a way as to achieve satisfactory uniformity. 50X1

c. **Power Supply:** The test model contained a built-in AC power supply plus a space for a 500 volt dry battery. This particular AC supply required a 20 second recharge time. This will be reduced to 5 seconds in successive models. The question was raised whether a standard Megalume II power unit could be used with the new printer as a head attachment, in which case the copy equipment would consist of two separate units, that is, the copy head and the power unit. The possibility of constructing an AC power supply which would fit into the battery compartment in place of the battery was discussed. If practical, this is ideal. The practicality is being investigated.

d. **Battery:** Three kinds of batteries are available which could be suitable for this unit. The most compact one is a single 500 volt unit with limited current capabilities. This would be heavily taxed if required to drive a 100 watt-second flash. An overly bulky pair of 225 volt batteries are capable of the best performance. The third and in the undersigned's opinion the most practical consists of a small pair of 240 volt batteries. These two batteries will fit into a hole 2 3/4 inches square. It is conceivable that a practical AC power supply could be constructed to fit in this cross section. At 25 watt-seconds this battery is probably capable of an excess of 1000 flashes.

e. **Dimensions:** The box is no more than 5" deep and roughly 15" long. These dimensions will have to be changed if the interchangeable AC power supply and battery pack combination are to be used. [redacted] is investigating the possibilities and retaining the requirement that it fit into a briefcase. 50X1

## 2. BOOWU:

a. The test results appear excellent. The uniformity of illumination is perfect over the two closest positions and the corner drop-off in illumination on the farthest position is negligible although noticeable.

b. A battery consisting of two 240 volt units can be used and the possibility of constructing an AC power unit that can be inserted in place of the batteries is being investigated. An alternative to this is the construction of a separate base each for AC and battery operation.

c. A light stand

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c. A light stand with internal wiring was demonstrated. The plug-in connector at the base was loose but gave adequate support and positioning. A retaining ring can be screwed down to form a rigid mechanical support.

d. The positioning of the various components of the copy equipment can be designated by markings on a large sheet of paper. This piece of paper can be laid down on the desk on which the work is to be done and the various components placed on it in the positions marked on the piece of paper.

3. Consideration of questions raised: The following decisions were made in a discussion between the undersigned and [redacted] after the undersigned's visit to [redacted]

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a. Both the BOOWU and the Contoura must be capable of operation on both battery and AC power. Maximum battery performance within reasonable dimensions is desirable. An indicator of some description to show battery condition would be necessary.

b. The standard Contoura printer is entirely adequate in copy performance for any work with which we are concerned. Therefore, the yellow filter with added contrast and latitude and associated power of 100 watt-seconds is not necessary. A small loss of contrast in the flash model to conserve batteries is permissible. Although if the unit can be constructed with these features without increasing bulk or reducing battery life below 500 flashes, then their incorporation is preferred.

c. Developing and printing will be carried out in the lab under ideal conditions.

d. The advantages of an entirely self-contained unit in the Contoura printer far outweigh the advantages of using the standard Megalume power unit. The entire printer must fit into a briefcase.

e. [redacted] was informed of these decisions by telephone, 18 April 1955.

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TSS/APD

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- Orig. - P-156 ✓
- 1 - P-157
- 1 - HP
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