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PAR 202

1 June 64

SUBJECT: Briefing Print Enlarger

TASK/PROBLEM

1. To design and build a prototype enlarger for exposing high-quality briefing prints in formats up to and including 20 x 24 inches in size. Magnification to be in the 10 - 60 diameter range. The enlarger will be able to produce both black-and-white and color prints. Changing from one capability to the other should be made with a minimum of effort.

DISCUSSION *

2. On 7 April 64 the contractor was authorized to proceed with Phase I, i.e., to provide preliminary design, final specification and optical design. Design studies applicable to this project and to PAR 224 were started early in April. Manpower in the design group responsible for these projects is being increased as engineers are available and as they can be used efficiently. Design studies started during the quarter are:

a. Mechanical design of the negative transport system. These studies include loops of film with a metered scale coupled to film driven metering rolls to measure; (1) along-frame coordinate and (2) frame number.

b. Possible enlarger arrangement to provide a horizontal print stock plates surface and a convenient fixed position for the vertical gate negative handling system by folding "the optical path". No successful arrangement was found. The primary problem is the required size of the mirror -- about 20 x 30 inches. The problems in fabrication mounting and maintenance of such a mirror would exceed gain in operational convenience. It is recommended that a horizontal axis optical system without a mirror be used.

c. As part of the enlarger arrangement study, we have proposed design parameters for a set of three objective lenses. These lenses will operate at overall conjugate lengths of 50 to 80 inches

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with optimum image quality at 61.5 inches. The longest focal length lens of the set (EF = 4.7 inches) provides 8.6X to 15X magnification and is the same as the shortest focal length lens of the set of the three lenses proposed for PAR 224, 3-15X Fluid Gate Enlarger. A single lens design specification (see Appendix I, PAR 224, Specification 469-319 in this report) has been written for a "family" of six lenses serving the requirements of both PAR 202 and PAR 224 for color blind print stock.

PLANNED ACTIVITY

3. During the next quarter:

a. Contracts will be let for design of the family lenses for color blind print stock.

b. Specification will be completed and contracts will be let for the family of color corrected lenses.

c. Fabrication will begin on the breadboard model of the negative transport system.

d. Design studies will be made on the platen and lens focusing system.

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