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PROGRESS REPORT

For

VERSATILE, HIGH PRECISION STEREO

POINT TRANSFER DEVICE

Period Covered:	July 1966
Dated:	25 August 1966
Job No.:	#552, #552A
Document No.:	OD-299

[redacted]

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Progress Report 552, 552A for July 1966

The following has been the work on these systems:

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Trips to installation site have been made to evaluate and correct measurement errors and laser random firing. Work on either of these problems has not been completed, although data from measurements and experiments has brought conclusions for solutions that remain to be proven in August.

In the work to improve measurement errors, way straightness was analyzed first because nominal lead screw variations could account for a small part of errors seen. Collimator monitoring confirmed errors in guiding means had a similar profile as did linear measurements. An attempt to reduce errors by shimming ways was commenced, but because of the small degree of adjustment needed far from ideal correction was made. From this result, ways and their supports would have to be reworked for desired accuracy goals. Study with remaining 552A system at [redacted] is being used to seek reliable monitoring and correction means. STAT

The study of laser misfiring has produced suggestions of laser pump lamp breakdown and/or transients in high voltage that is continuously applied across pump lamp. We have purchased components and test equipment to filter transients, replace lamp and monitor transients in high voltage circuit. A visit in August will be made to complete work on this problem.

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552A #104

Principal work on this system has been to complete electrical debugging, start scanning drive electrical alignments. One scanning drive motor was returned from inspection and repair at manufacturer after discovery of what appeared to be an internal interference between armature and stator. Dirt was claimed to be the cause here. Because of the study of problems on 552 above, this system was partially disassembled, however, few alignments are expected to be disturbed.

Work on the retrofits has advanced to completion of design, detailing and electrical circuit development for image alternator and layout of film drive. Long delivery items for image alternator have been received. Motors and controls for film drive have yet to be selected because development of circuit is not completed.

Image alternator now consists of two (2) rotary shutters driven from a common single revolution clutch that will stop shutters at their open position. The rotary shutter design approach was adopted over the reciprocating design advanced in the proposal because of its improved balance properties. The control will consist of a single knob on right side of eyepiece assembly that will first turn "on" motor then clutch. Further knob rotation will increase motor speed with shutter rate varying approximately 2 to 10 cycles per second after clutch is operating. Shutter mechanism and controls with motor and clutch circuits and mounted separately in existing space in eyepiece assembly.

Film drive remains as proposed except load sensing scheme has been changed to the photoelectric arrangement developed for some of our film viewing tables. Compact electromagnetic tooth clutches have been selected to transmit motor and operators power,

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in turn, to film. In the present configuration, motors are in line at writing at top rear keeping obstacles for operator's knees to a minimum. Details of motor and electronic mounting are now being developed with a conclusion seen late August or early September.

Retrofits, final debugging and adjustment work should be completed in October 1966.

552A #103

This viewer was shipped July 18, 1966 with installation following that week. Because of our vacation schedule being July 25 to August 8, work at customer's plant was completed in August.

Enclosure

1) Financial Report