

August 1969

Brief 69-10301

NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Semiautomatic Inspection of Microfilm Records

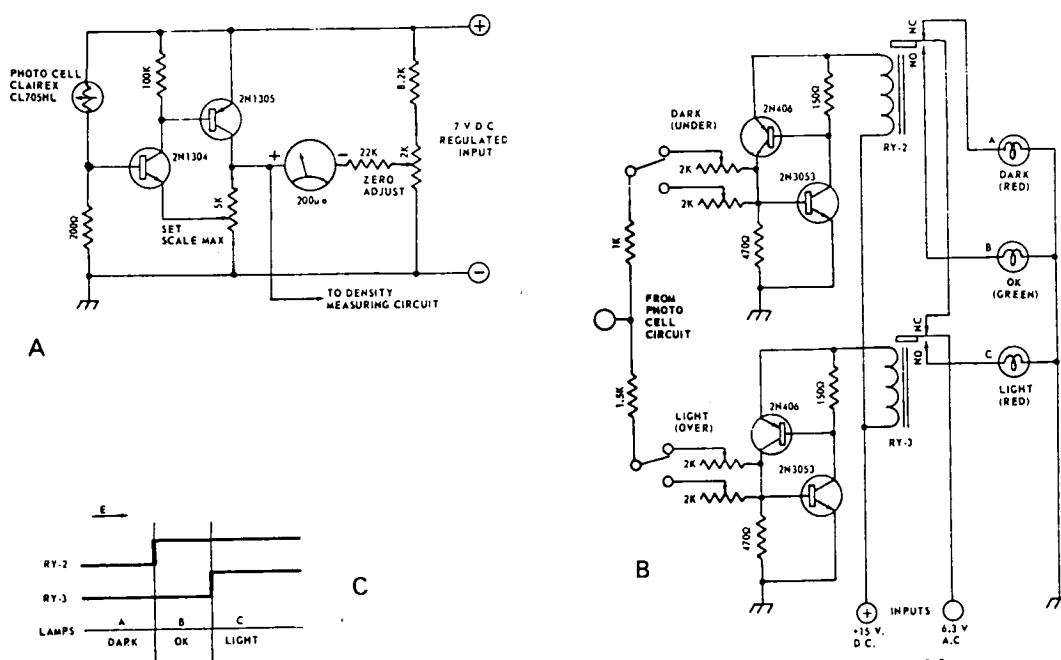


Fig. 1. MARK 1: Schematics of Photocell Circuit (A) and Density-Measuring Circuit (B), and Logic Diagram (C)

The problem:

Microfilm in a 35mm format is the industry standard for recording engineering data and other documentation for long-term storage and retrieval. Microfilm records used by the government are controlled by Specification MIL-STD-108. This specification prescribes image size and position tolerances, resolution requirements, and density restrictions.

Heretofore, microfilm inspection has been done manually, using an individual microscope, a densitometer, a light box, and hand-cranked reels. This method is not only time-consuming but it is some-

times of questionable quality since subjective judgment of the inspection personnel is a major factor.

The solution:

Inasmuch as deficiencies in microfilm quality are undetected by this nonuniformity of inspection apparatus it follows that these deficiencies can be alleviated by providing a semiautomatic-type inspection machine for this purpose. Accordingly, two working models were designed and constructed by the support contractor to the MSFC Management Services Office. Improvements in reliability and ease of operation

(continued overleaf)

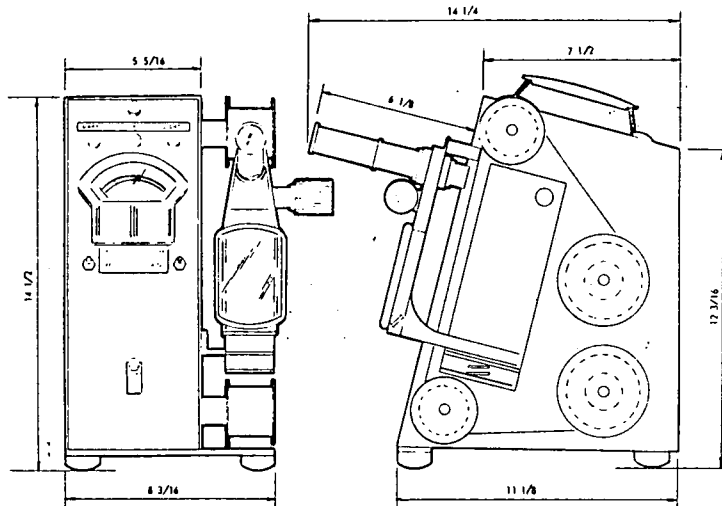


Fig. 2. Outlines of MARK II; Dimensions are in inches.

were made in the second prototype identified as MARK II.

How it's done:

The microfilm inspector utilizes motor-driven film reels with a means for precisely positioning the microfilm image for inspection. Film density is measured by means of a photoelectric cell and solid-state electronic circuit. Over and under tolerances are preset according to specification. As the film is inspected, go-no-go indicator lights advise the operator of the film status. In addition to the lights, a densitometer provides specific values for film density. These are recorded to back up the film-inspection report.

Resolution of the photographic image on the film is determined by a microscope which is an integral part of the machine. Image size and position are also determined by a built-in optical device.

Principal advantages of the microfilm inspector are:

1. Uniformity of inspection method.
2. Increased speed of inspection.

3. Improved quality through elimination of scratches, finger marks, etc.

Note:

Documentation is available from:

Clearinghouse for Federal Scientific
and Technical Information

Springfield, Virginia 22151

Price \$3.00

Reference: TSP69-10301

Patent status:

This invention is owned by NASA, and a patent application has been filed. Royalty-free, nonexclusive licenses for its commercial use will be granted by NASA. Inquiries concerning license rights should be made to NASA, Code GP, Washington, D.C. 20546

Source: E. L. Klein of
RCA Service Company

under contract to
Marshall Space Flight Center
(MFS-20240)