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Television Camera as a Scientific Instrument

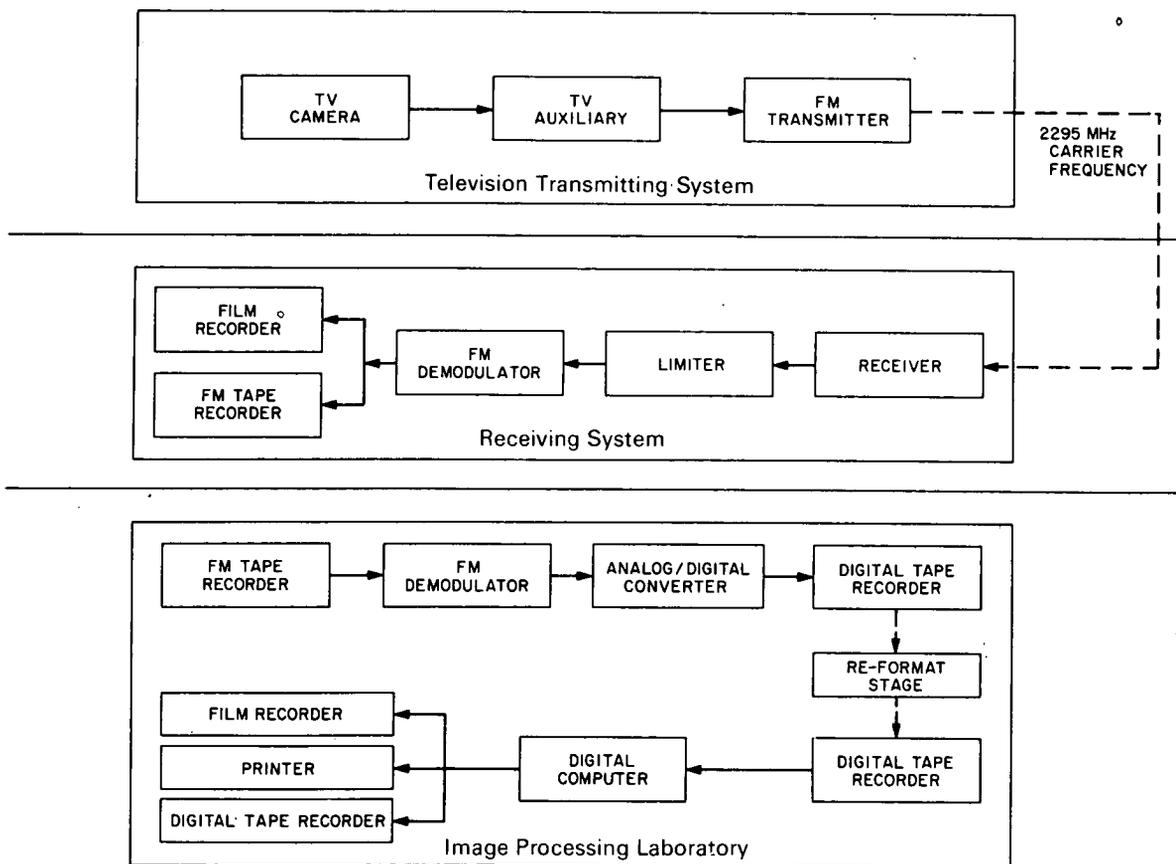


Figure 1. Diagram of Television System

Surveyor's television camera was intended initially to function as a qualitative viewing device that would support engineering investigations. However, the Surveyor science program required that the camera be used as a scientific instrument to determine optical and other physical properties of the lunar surface. The quality of the camera's design and the

design characteristics of the television system (including spacecraft and ground equipment) were conducive to transformation of the camera into a scientific instrument (see Figure 1).

The camera was converted to a quantitative measuring instrument by a rigorous calibration program (Figure 2), coupled with a sophisticated data-process-

(continued overleaf)

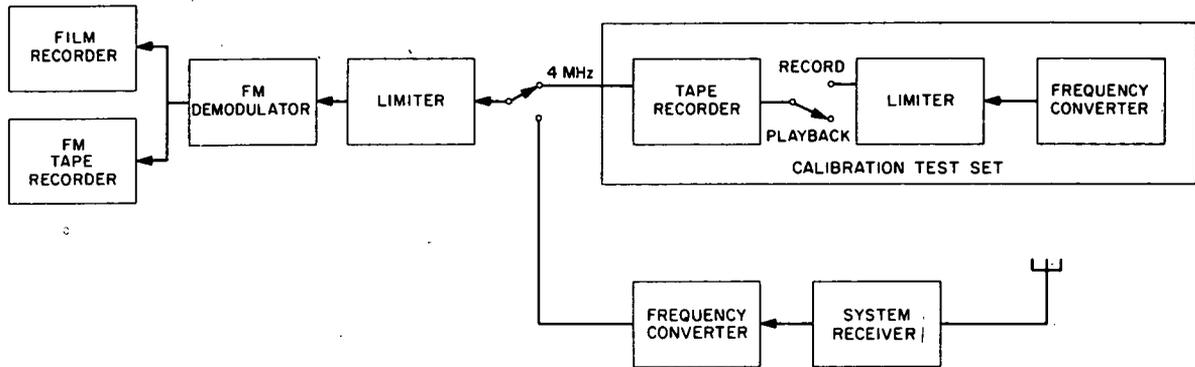
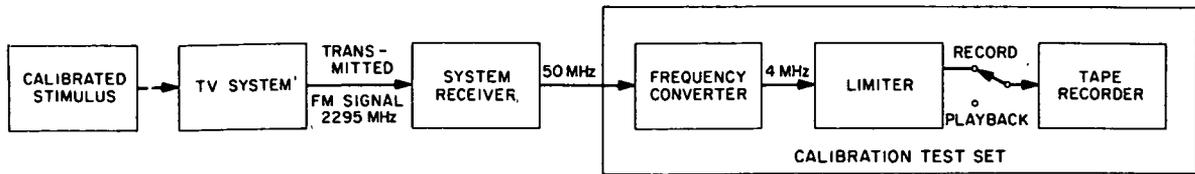


Figure 2. Diagram of Calibration System

ing program that introduced compensation for the television system's response to correct photometry, geometric linearity, and resolution. The output data, in the forms of both numeric printout records and photographs, could then be used for determination of optical and other physical properties of the lunar environment. This procedure exemplifies and serves as a guide for realization of a television camera, with its vast data-gathering potential, as a scientific instrument.

Details of design, calibration, and performance of the modified system are discussed, and should interest personnel in the electronics industry.

Note:

Requests for further information may be directed to:
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No patent action is contemplated by NASA.

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