July 1974

B74-10042

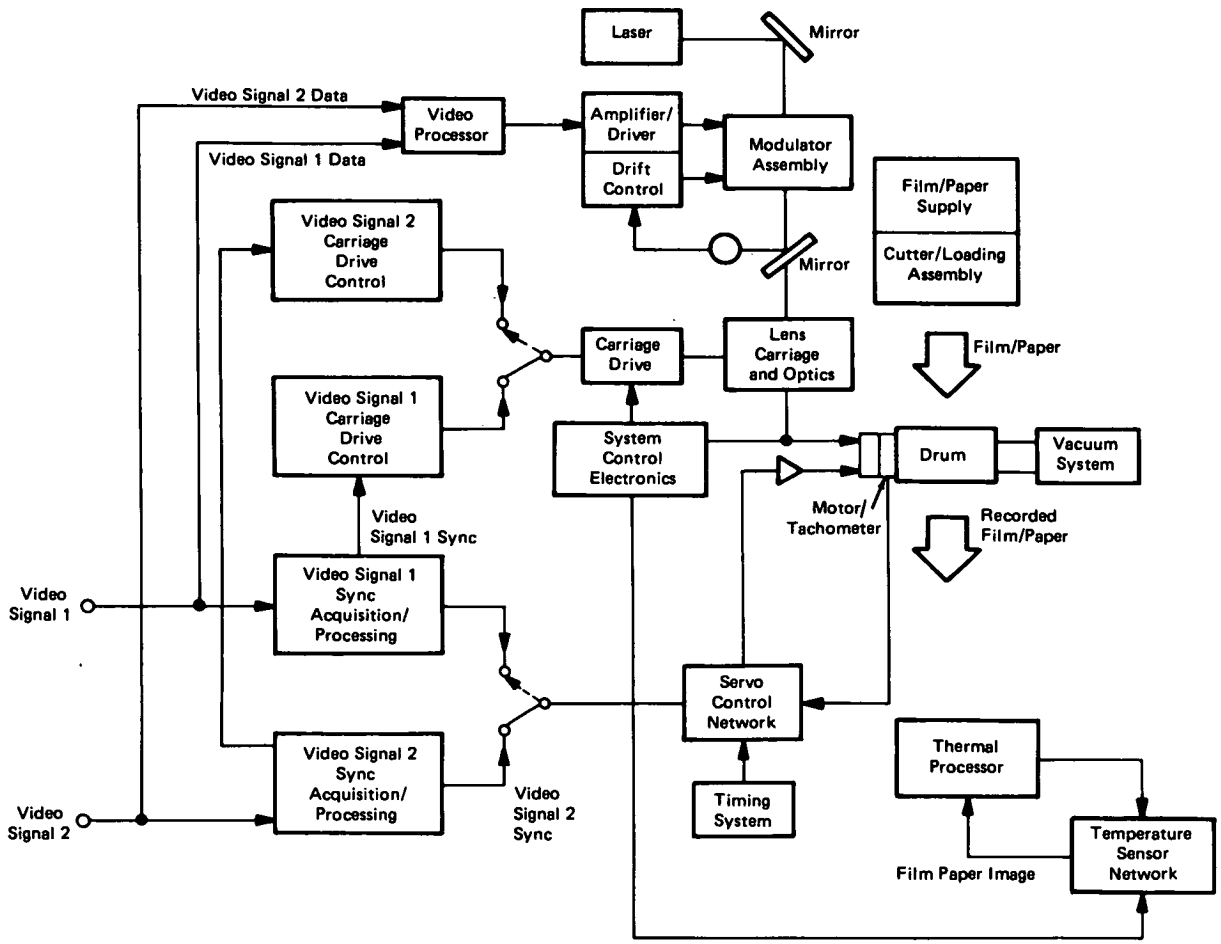
NASA TECH BRIEF

Goddard Space Flight Center

Recorder/Processor Apparatus

The problem:

Present image-recording systems used for the recording of latent images are not capable of producing actual images at their outputs. Normally, the media containing these latent images are removed from these systems and are processed separately in photolaboratories with either wet or dry processing methods. As a result, there are unnecessary time delays between the recording of and the production of actual images.



Recorder/Processor Block Diagram

(continued overleaf)

The solution:

A new image-recording apparatus contains a thermal-processing subsystem which automatically develops the latent images, eliminating the unnecessary time delay.

How it's done:

The apparatus includes a laser beam which is intensity modulated in response to incoming video signals. The latent image is recorded on a rotating drum which generates a raster in conjunction with an incrementally-driven lens carriage. Once recorded, the latent image is fed automatically to a thermal processor. The actual image then is developed by the controlled application of heat onto the medium containing the latent image.

As shown in the figure, the apparatus receives and selects one of the two incoming video signals. The signals are fed to a conventional video processor normally utilized in facsimile devices for reproducing continuous tone material. The processor provides positive and negative selection and gamma compensation for any nonlinear response of the storage medium. It also includes an enhancement amplification network to enhance either a black or a white detail, to emphasize the desired detail in a contrasting background.

The output of the video processor network is supplied to an amplifier/driver network which drives a conventional electro-optic modulator assembly. The modulator operates with a conventional argon laser. A conventional drift control network is used also to compensate for any modulator drift that may result from temperature variations.

The intensity-modulated laser beam output of the modulator assembly is supplied to a lens carriage having a focusing lens. The lens focuses the intensity-modulated laser output to form a recording spot. The spot is focused on a recording drum supporting an image-recording storage medium, held on the outer surface of the drum by a conventional vacuum system. The focused recording spot is utilized to generate a raster scan line on the storage medium located on the drum. The point of focus of the spot is advanced parallel to the drum axis of rotation, forming a multitude of scan lines to generate the raster.

The drum is automatically loaded with the storage medium from a film/paper supply and is automatically unloaded to a thermal processor upon completion of recording. The latent image then is processed by the controlled application of heat to produce an actual displayable image at the output of the apparatus.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Goddard Space Flight Center
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Greenbelt, Maryland 20771
Reference: TSP74-10042

Patent status:

This invention has been patented by NASA (U.S. Patent No. 3,781,902). Inquiries concerning nonexclusive or exclusive license for its commercial development should be addressed to:

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Image Information, Inc.
under contract to
Goddard Space Flight Center
(GSC-11553)