

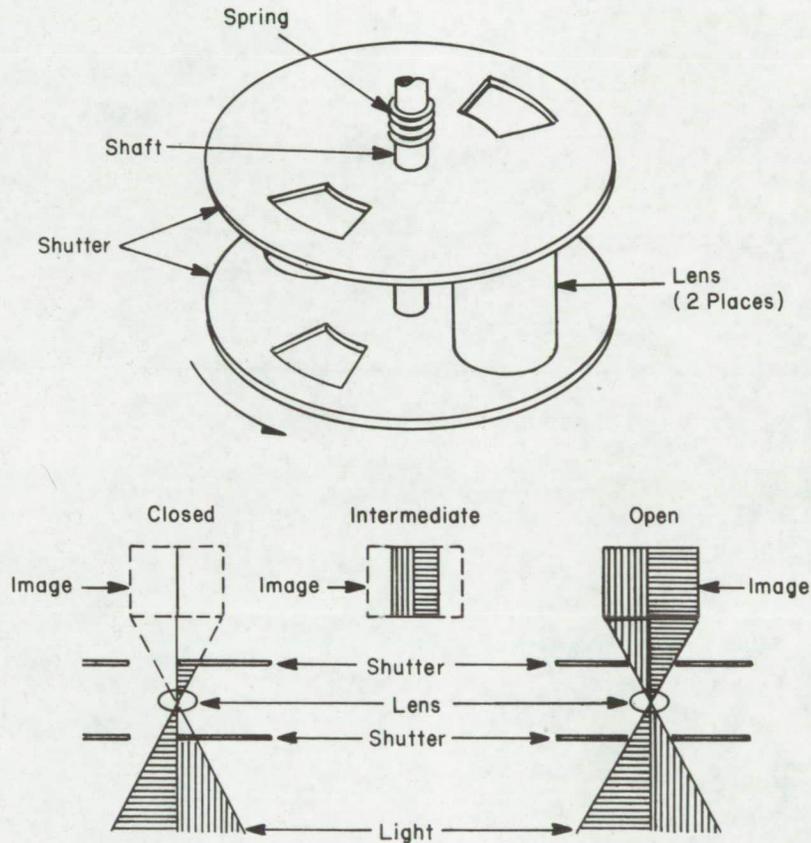
# NASA TECH BRIEF

## Manned Spacecraft Center



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### Shutter Design for Stereoscopic Camera



A new shutter design consists of two axially mounted spring-driven rotating blades. Each blade is a round, flat disc with two wedge-shaped apertures  $180^\circ$  apart. The blades are mounted on a common shaft with the openings in one blade mounted directly in line with the openings in the other. Two lenses are mounted between the blades.

When the shutter rotates, the leading edges of the blade openings simultaneously intersect the axis of the lens. At this point (see figure) the lens is still optically closed. Each blade blocks half the incoming light rays since the half transmitted through the first opening inverts in the lens and is blocked by the leading edge of the second blade. As the openings proceed across the

(continued overleaf)

lens, the lens is in effect uncovered from the center with a guillotine type action as illustrated in the figure. The two exposures are equal and simultaneous for the two lenses. Exposure time is controlled by the spring tension and the size of the openings in the discs.

Excellent repeatability is achieved because the shutter drive spring can be rewound after each exposure. Additional features such as flash synchronization and mechanical or electromechanical shutter release can be built in. Finally, the design permits packaging in a relatively small volume and appears to be most beneficial where focal distance, magnification, and exposure time are fixed.

**Note:**

Requests for further information may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center, Code JM7  
Houston, Texas 77058  
Reference: TSP71-10506

**Patent status:**

No patent action is contemplated by NASA.

Source: Eastman Kodak Company  
under contract to  
Manned Spacecraft Center  
(MSC-13613)