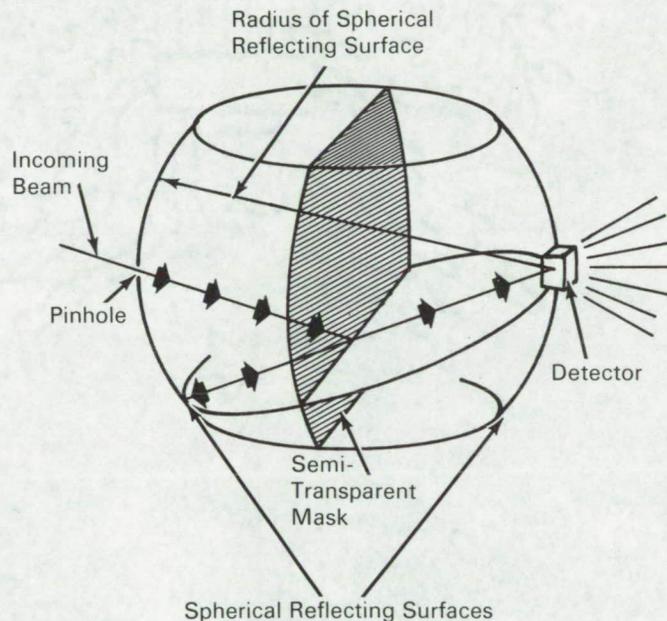


# NASA TECH BRIEF



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## Optical Device Enables Small Detector to See Large Field of View



### The problem:

Make a device that images the sun on a mask that transmits it or prevents its transmission to a photo-detector behind the mask depending upon image position on the mask. A resolution of  $0.5^\circ$  or less over a  $60^\circ$  field of view is required.

### The solution:

A device using a pinhole as the image former to provide a large field of view and diffraction limited resolution.

### How it's done:

Detector and pinhole lie at the center of curvature of a spherical reflector and the path between them is

intersected by a mask having a semitransparent reflective coating. When sunlight passes through the pinhole, part of it is reflected from the mask to the left-hand spherical reflecting surface where it is reflected back through the mask and illuminates the detector positioned along the system axis at the right-hand spherical reflecting surface.

### Notes:

1. This device could be used as the detector in a servo system to prevent a sensitive optical or photographic instrument from pointing directly toward the sun.

(continued overleaf)

2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Western Operations Office  
150 Pico Boulevard  
Santa Monica, California 90406  
Reference: B66-10263

**Patent status:**

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: J. H. Arndt  
of TRW Space Technology Laboratories Inc.  
under contract to  
Western Operations Office  
(WOO-253)