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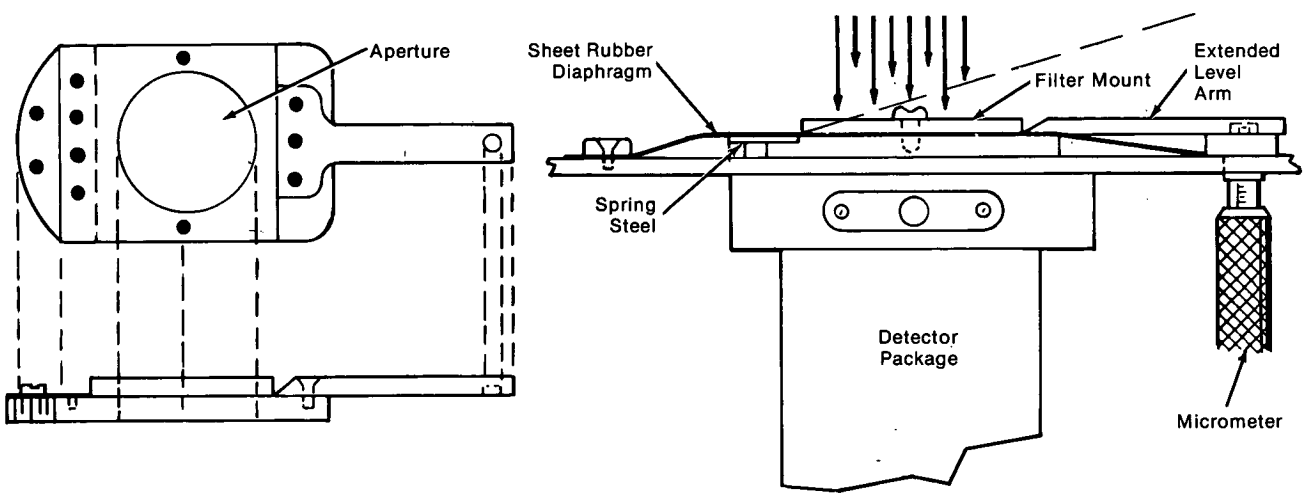
NASA TECH BRIEF

Langley Research Center

Angular Device for Optical Filters



Optical Filter Angular-Position Adjustment Device

An alinement device has been developed for use in Raman calibration detector units. It provides a means for precise angular adjustment of optical filters while also preventing stray light from entering the system. The use of this device provides a method of precisely alining filters, and the device has the capability of repeated alinements to predetermined angles.

The filter angular-position adjustment device (see illustration) is basically a square plate with a round aperture through it. The plate is fastened to the side of the detector package in such a position that the aperture in the plate matches the hole in the side of the detector. This is done by means of a piece of flat spring steel. This spring steel acts as a hinge, permitting the plate to be pushed away from the detector wall at the opposite end and thus forming an angle with the wall.

A piece of sheet rubber is cemented over the plate and is fastened to the wall of the detector package with a rectangular frame, to provide a lighttight seal except for a hole which matches the aperture in the plate. On top of this rubber diaphragm, an extended level arm is fastened to the unhinged end of the plate so that it extends to the end of the frame. A hole through the wall of the detector and the frame is provided for the insertion of a micrometer or adjustment screw. The micrometer or screw contacts the level arm and permits change of the angular position of the plate by changing the position of the micrometer or screw from outside the detector package. Screw holes, tapped into the plate, permit using existing filter holders to mount interference filters on top of the rubber diaphragm.

When thus assembled and with a filter mounted on top of the rubber diaphragm, the use of this device permits continuous adjustment of the angular position of the filter, from normal or zero position to the maximum angle allowed by the rubber diaphragm and the length of the micrometer or adjustment screw. This device, in use, has permitted angular adjustment in excess of 15° in a lighttight environment.

(continued overleaf)

Note:

No further documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
Langley Research Center
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Hampton, Virginia 23665
Reference: B75-10158

Patent status:

Inquiries concerning rights for the commercial use of this invention should be addressed to:

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Categories: 03 (Physical Sciences)
06 (Mechanics)