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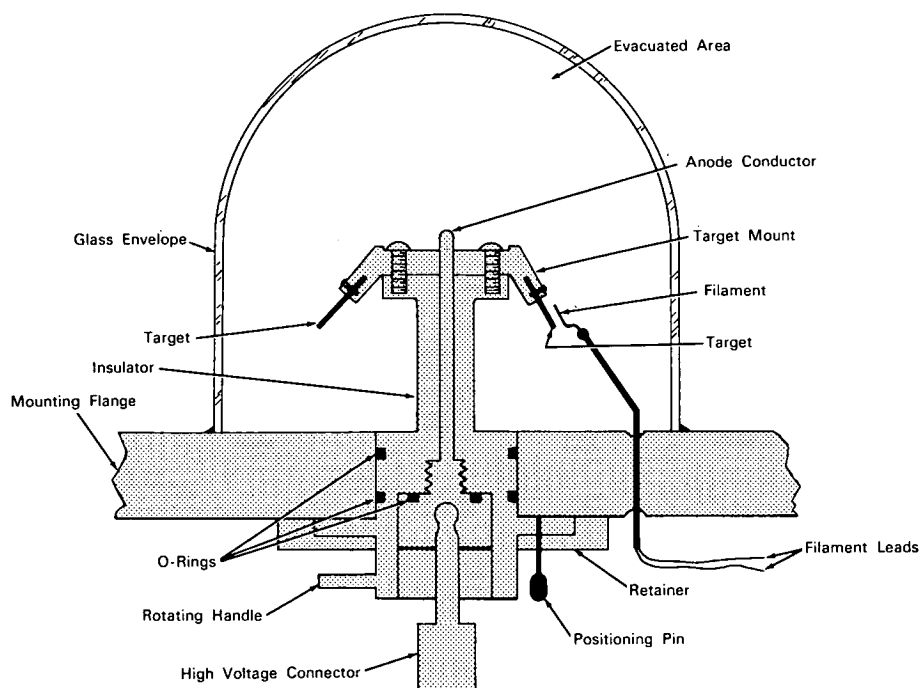
Brief 65-10082

NASA TECH BRIEF



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Multiple Element Soft X-Ray Source Produces Wide Range of Radiation



The problem: To produce a soft X-ray source that would provide a wide range of radiation characteristics with no need to break the vacuum seal for target replacement. The system should have high electron collection efficiency.

The solution: A rotating mount having six target elements, each of which can be positioned for independent electron bombardment.

How it's done: The target mount is electrically connected to the anode conductor. The entire assembly is free to rotate in the mounting flange and retainer, the vacuum being maintained by the action of

the O-rings. A positioning pin is used to ensure that the target under investigation is correctly positioned in relation to the filament which is in a fixed position. A positive potential is applied to the anode conductor. Beam current is independently controlled by a power supply (not shown) connected to the filament. Direct electron bombardment of the target element produces soft X-ray radiation characteristic of the target element under investigation. Due to the ability to exactly position the target element, the system has 100 percent electron collection efficiency. Targets can be mounted so that any takeoff angle of photons can be detected from 10 degrees to 90 degrees with respect to the normal.

(continued overleaf)

Notes:

1. The system can be used to calibrate soft X-ray instrumentation. It has been used to calibrate a soft X-ray flight spectrometer to study solar radiation from a space satellite.
2. The device can be used for measurement of mass absorption coefficients at discrete wavelengths.
3. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Goddard Space Flight Center
Greenbelt, Maryland, 20771
Reference: B65-10082

Patent status: NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA, Code AGP, Washington, 20546.

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