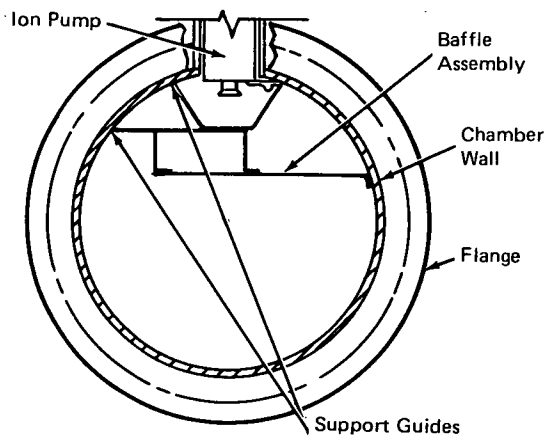
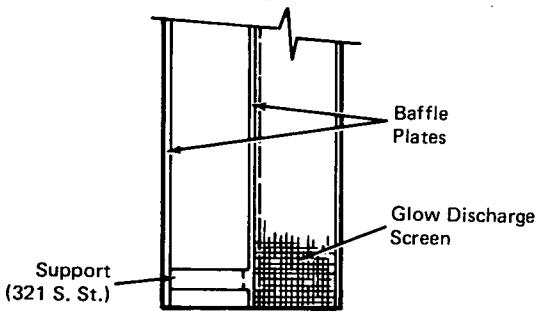
NASA TECH BRIEF

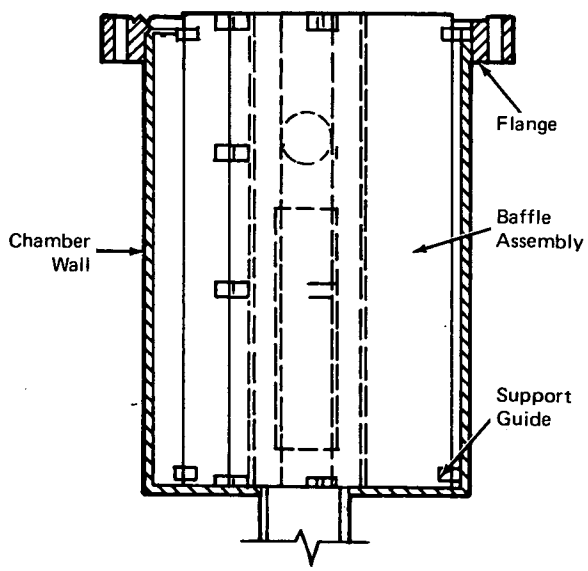
Marshall Space Flight Center

Baffle To Confine Glow Discharge In Ion Pump

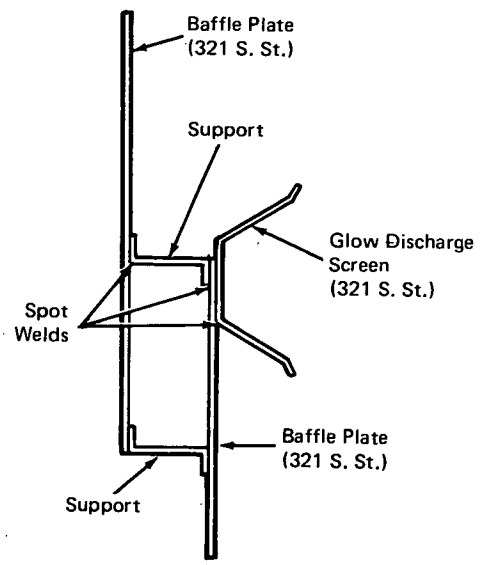




Side View



Installation View



Baffle Assembly End View

The problem:

In conventional ion pump installations, electrical glow discharge can enter the test chamber and disturb the test process.

The solution:

An electrically-grounded "optically tight" baffle installed downstream from the conventional metal screen prevents the discharge from entering the test chamber.

(continued overleaf)

How it's done:

In conventional ion pump installations, electrically grounded metal screens or louvered baffles are used to prevent electrical glow discharge from passing out of the pump and into the test zone where it may damage test articles. Screens, however, are inadequate for some cases, such as the ion pump shown in the illustration.

For this installation, an electrically-grounded "optically tight" baffle was devised, which, when installed over the glow discharge screen, prevents the glow discharge from entering the test zone. Such glow discharge originates in the pump when the pressure (such as during starting of the pump or due to heavy gas loads from the test article) is relatively high (approximately 10^{-3} Torr) and generally ceases at low pressures (10^{-5} to 10^{-6} Torr and lower). The baffle thus prevents the glow discharge from entering the test zone and prevents the damage to and excessive outgassing from certain test articles.

Notes:

1. Information concerning this innovation may be of interest to industries involved with high vacuum systems or companies utilizing high vacuum techniques in the manufacture of electronic components.
2. No additional information exists on this innovation, however, specific questions may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Code A&TS-TU
   Huntsville, Alabama 35812
   Reference: B72-10324

Patent status:

No patent action is contemplated by NASA.

Source: Emile S. J. Wang of
McDonnell Douglas Corp.
under contract to
Marshall Space Flight Center
(MFS-21575)