NASA TECH BRIEF

Manned Spacecraft Center

Portable Electron Beam Weld Chamber

The problem:

Conventional electron beam welding requires enclosing the electron beam gun and the object to be welded in a vacuum chamber. This procedure limits the size of the object to be welded.

The solution:

A small portable vacuum chamber design for skate type electron beam welding has been proposed. It incorporates unique drive tracks and seals to provide adequate vacuum for continuous welding while traveling along the weld path on large parts or structures.

How it's done:

The track driven vacuum chamber and sealing detail as shown in Figures 1 and 2 will mount an electron beam weld head, a television monitor, a miniature wire feed, and a paper tape sealing device. The elastomer tracks, rolls and end seals, along with the hood type inner vacuum chamber, will provide an adequate vacuum in the weld area for present production type electron beam welders. Vacuum connections are provided to both inner and outer chambers.

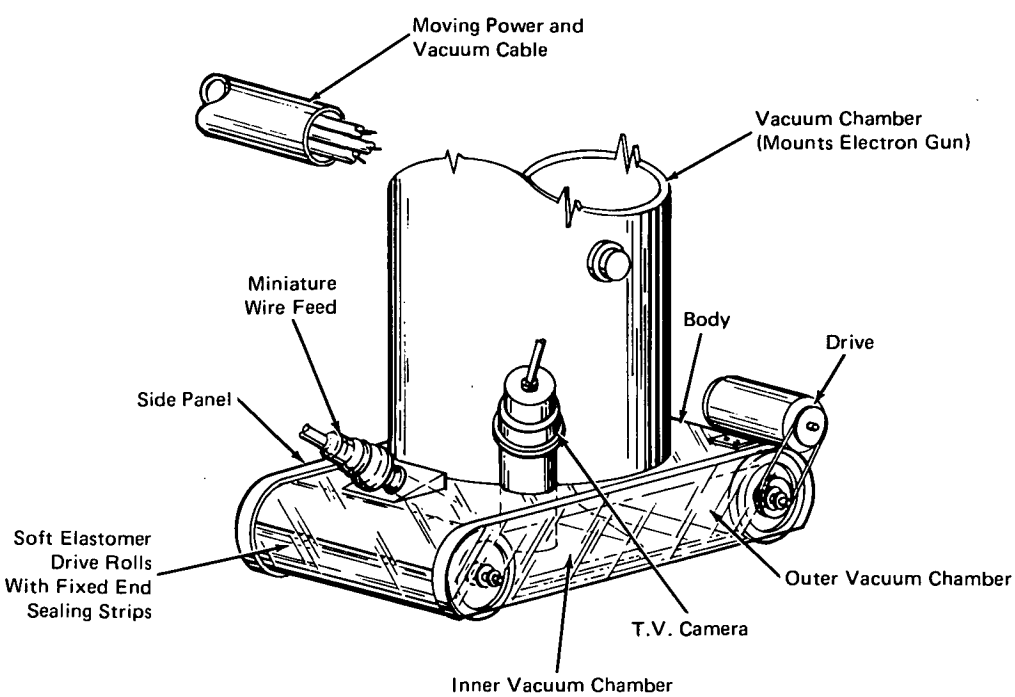

Figure 1.

(continued overleaf)

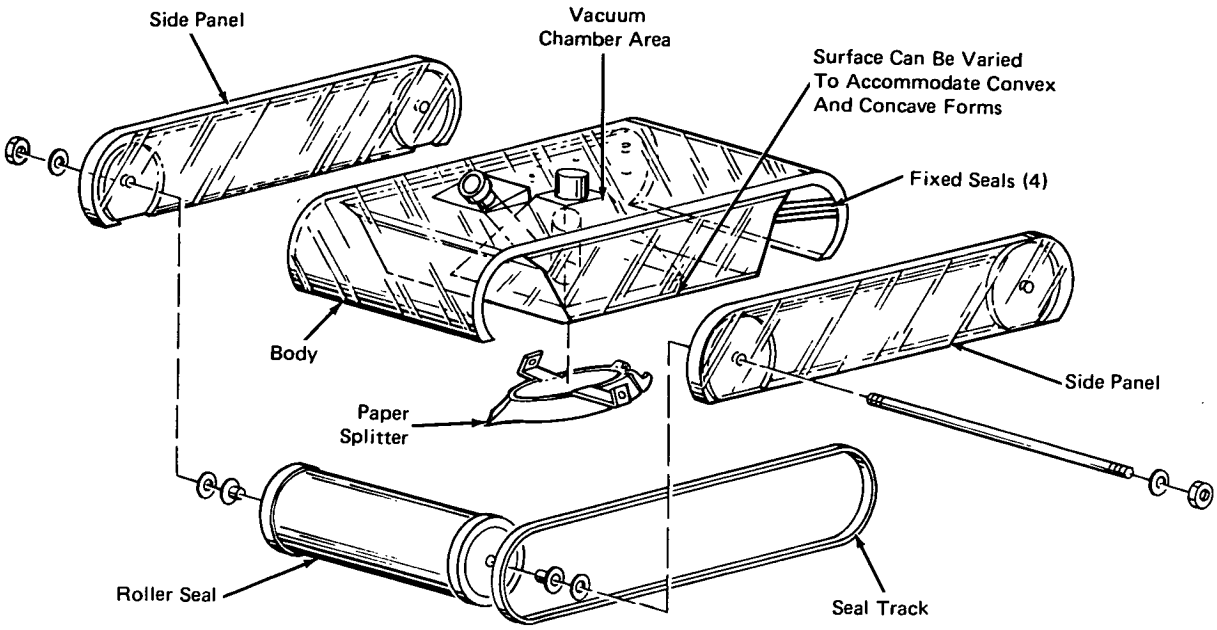

Figure 2.

Note:

Requests for further information may be directed to:
Technology Utilization Officer
Manned Spacecraft Center
Code JM7
Houston, Texas 77058
Reference: TSP72-10338

Patent status:

NASA has decided not to apply for a patent.

Source: Jack R. Lewis and James M. Dimino of
North American Rockwell Corp.
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(MSC-17738)