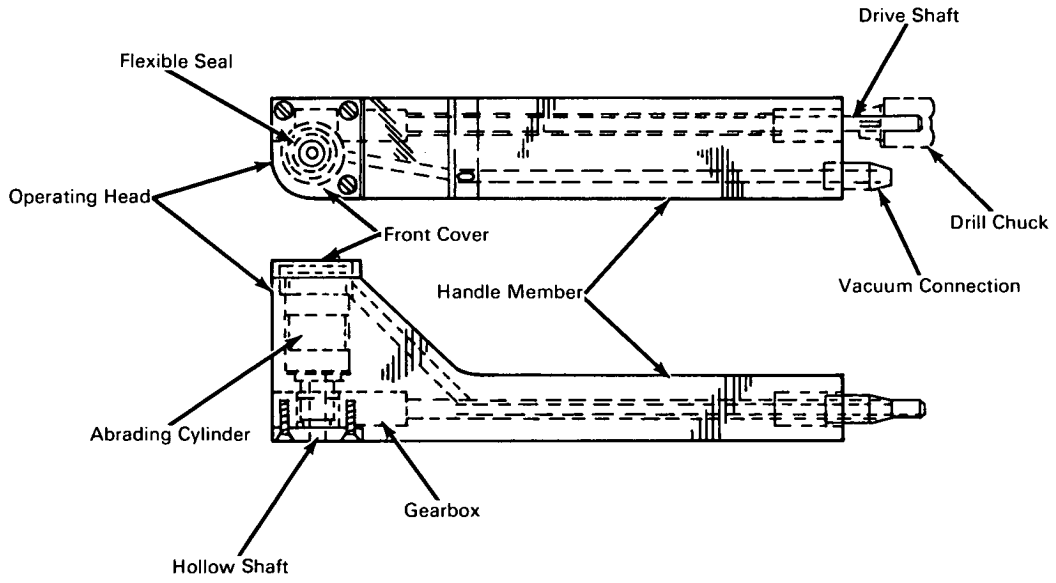
NASA TECH BRIEF

Portable Tool Cleans Pipes and Tubing



The problem: To clean and polish an external cylindrical surface such as the outer surface of a tube or pipe while keeping the interior of the pipe and adjacent areas free of loose particles or contaminants.

The solution: A portable tool driven by a standard electric drill and connected to a vacuum source that acts to remove any debris resulting from the cleaning and polishing action.

How it's done: The tool consists essentially of a handle member and an operating head. The handle member contains a driveshaft that extends out beyond the end of the handle so it can be engaged by the chuck of an electric drill to drive the operating head mechanism. A vacuum conduit in the handle member terminates in a connection for attachment to a vacuum source. The vacuum conduit extends into the operating head in such a way that the applied vacuum removes all debris and contaminants generated by the cleaning and polishing action. Gears in the operating head drive a hollow shaft on which an abrading cylinder is mounted to do the actual cleaning and polishing. The hollow shaft permits air to enter the work area within the abrading cylinder to enable the vacuum source to remove loose particles through the vacuum conduit. The operating head has a front cover that mounts a flexible circular seal through which the workpiece is fed into the abrading cylinder. This effectively seals the opening and assists the cleaning action of the vacuum system.

(continued overleaf)

In operation, the vacuum connection is made, the driving device (usually an electric drill, although a flexible shaft driven by any suitable source may be used) is applied to the driveshaft and the workpiece is inserted through the operating head seal into the abrading cylinder.

Notes:

1. This invention provides an excellent cleaning and polishing force for easy application in confined areas.
2. The abrading cylinder may be equipped with a variety of grits to accomplish a wide range of jobs. Cutting faces may be employed to achieve a reduction in outside diameter of a workpiece, if desired.

Patent status: Title to this invention, covered by U.S. Patent No. 3,137,975, has been waived under the provisions of the National Aeronautics and Space Act (42 U.S.C. 2457 (f)), to McDonnell Aircraft Corporation, Box 516, St. Louis, Missouri, 63166.

Source: Donald D. Jones, Roxanna Headley, and Charles A. Headley of McDonnell Aircraft Corporation under contract to Manned Spacecraft Center (MSC-238)