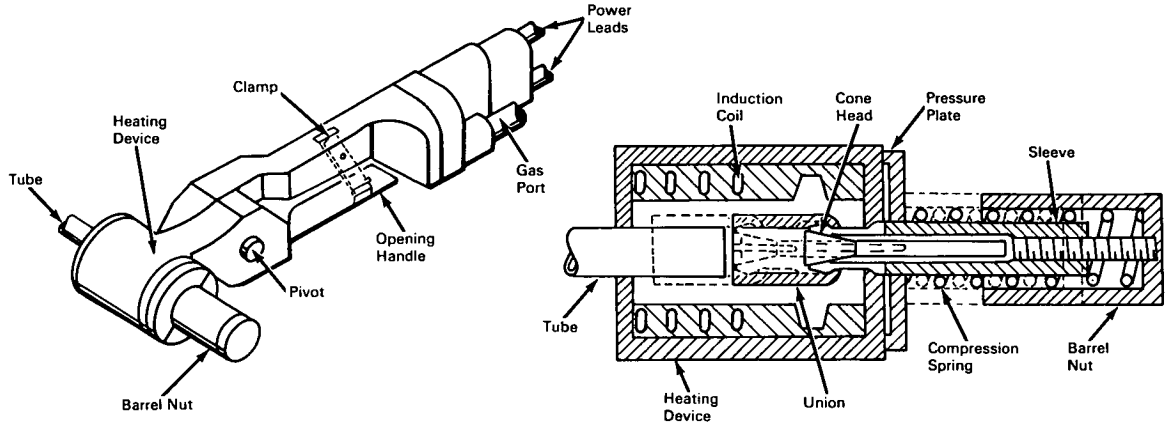
NASA TECH BRIEF

Improved Tool Easily Removes Brazed Tube Connectors



HEATING DEVICE DETAILS

The problem: To quickly and cleanly remove brazed connectors from system tubes. Prior tools have produced undesirable oxidation on tube surfaces and have proved difficult to use in cramped areas. They also have short service life due to using the heating unit to exert the necessary separating force.

The solution: A portable, compact tool that uses an induction coil to melt the braze and a compression spring to automatically separate the connection. An inert gas, such as argon, is force-fed about the heated area to prevent oxidation of the tube.

How it's done: The connector is first cut, preferably with a tool that will crimp its walls inwardly to form a rough internal ridge or burr. The pulling device is then inserted into the connector until the cone head on the sleeve is past the burred part. The barrel nut is rotated counterclockwise as the sleeve is held and this causes the cone head to expand outwardly and grip the connector ridge from within. The pressure plate is forced over the sleeve and pressed against the barrel nut thus compressing the spring, and the heating device is placed over the connector and clamped shut. High-frequency current is applied to the induction coil in the heating device through the leads in the end of the handle and argon gas is applied to the induction coil area through the gas port in the handle. As the braze melts, the force of the compression spring backs the connector off of the tube. Current is removed and the argon gas is allowed to flow until danger of oxidation is past.

Patent status: Title to this invention 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.

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