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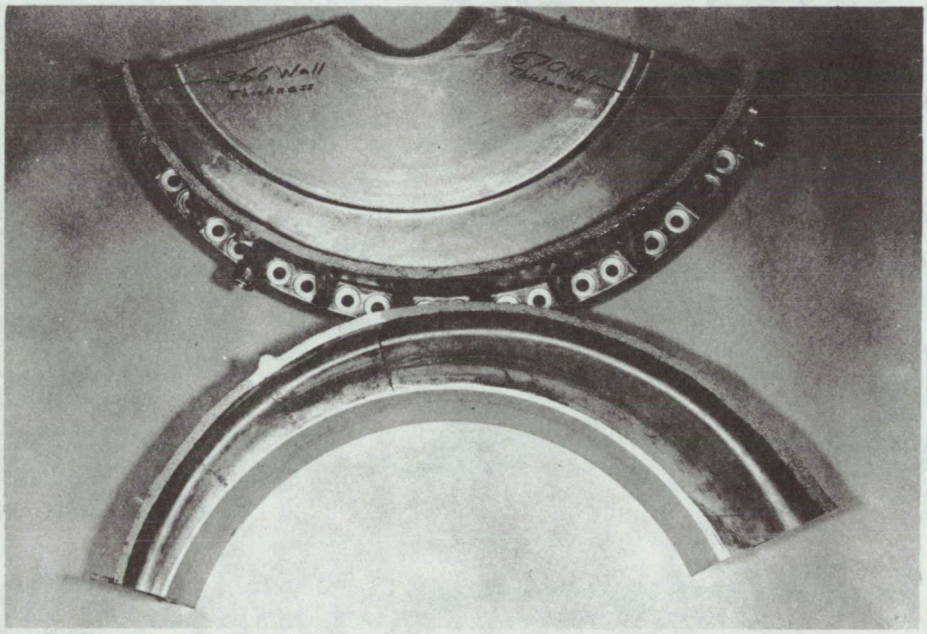
Brief 70-10121

NASA TECH BRIEF

A Method for Obtaining High Ductility in Critical Areas of Aluminum Castings



During proof-pressure testing of aluminum castings, cracks have appeared in areas where the wall thickness did not meet minimum requirements. The discrepancy in wall thickness is clearly shown in the illustration. It is thought that the variations occur during closing of the mold. A method has been developed for salvaging the material and reducing costs.

Wrought aluminum alloys are more ductile than cast aluminum alloys and provide a desirable, high-strength substitute in the damaged area. The brittle area is removed by machining and replaced by an identical section machined from wrought aluminum.

The wrought segment can be either welded to the cast alloy in the conventional manner, or built in with a heat-treatable welding rod. After this operation, the entire casting is heat treated again to the required condition.

Notes:

1. This information should be of interest to personnel in the aircraft, transportation, petroleum, and chemical industries.
2. Requests for further information may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama 35812
   Reference: B70-10121

(continued overleaf)

Patent status:

No patent action is contemplated by NASA.

Source: Romeo A. Zuech and
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North American Rockwell Corp.
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