



## SILK ENGINEERING CUSTOM DESIGN

### REACTOR COOLING PUMP REFURBISHMENT

A major project was taken on by Silk Engineering to design and manufacture a range of machines to refurbish reactor coolant pumps in place. The development called for remote controlled operations to sever, face, drill, and tap. With use of special camera's and vacuum set up to collect swarf the following equipment was put to the test.

The pump refurbishment called for the replacement of a vane support tube inside the primary coolant pump. The project produced four machines in one to carry out the removal of the old support tube.

The first machine severed the old tube by milling through the wall, then rotating around the diameter (fig. 1, 2). The upper part of the support was then lifted out of the pump (fig. 3).



Figure 1



Figure 2

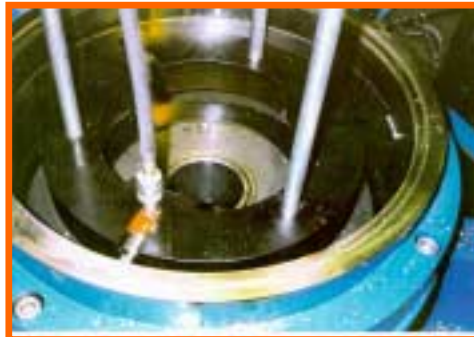


Figure 3





## Reactor Coolant Pump



Figure 4

The second machine drilled out the retaining capscrews (fig. 4) which held the remnant of the tube in place. The remnant was then also lifted out of the pump.



Figure 6

The third machine re - tapped the retaining capscrew holes, this would allow the new support tube to be bolted down (fig. 6).





## Reactor Coolant Pump

The fourth machine refaced the pump body seat, giving the new vane support tube a good mounting location (fig. 6).



Figure 6

Facing attachment for recessed seat.

The work environment was highly radioactive, so all operations had to be carried out from a staging platform 8 ft. above the area. A shield was in place restricting the view of the machining area so cameras were fitted into the pump, as well as on some of the machines, allowing the operators to see. All tooling also had to be capable of being changed from the staging platform.

The design, manufacture and testing of all four machines and their accessories took Silk Engineering only 16 weeks to complete, ensuring the refurbishment was carried out on time.

For more information on this or other Silk product, contact Global Machine Technology.

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