

OPERATIONAL EXPERIENCE WITH NSTX DEMOUNTABLE TF JOINT*

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The National Spherical Torus Experiment (NSTX) uses a demountable joint which connects the central inner leg bundle of the toroidal field (TF) coil to the outer legs. This allows the central bundle to be removed for maintenance. Furthermore, the joint is located all the way inboard at the radius of the central TF bundle, which allows for the removal of the coaxial ohmic heating (OH) solenoid for maintenance. The deployment of the joint at this radius has presented significant challenge due to the large fields, forces, and current density. Several iterations in the design and fabrication have been necessary to achieve the desired performance.

This paper describes the design, analysis, fabrication, and performance of the joint with emphasis on field measurements which have been made to assess performance and adjust analytic models and protection algorithms.

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