DESIGN OF THE INBOARD PASSIVE STABILIZER FOR TPX*

E. Hoffmann, C.B. Baxi, J. Bialek,† E. Chin, K. Redler, E.E. Reis
General Atomics, San Diego, California 92186-9784
†Princeton Plasma Physics Laboratory

The Inboard Passive Stabilizer (IPS) is part of the plasma stabilizing system built into the TPX. Its purpose is to provide passive stabilization of the plasma vertical instability on short time scales. With CFC armor tiles it serves as a startup limiter, protects the vacuum vessel from radiation heat load during steady-state operation and also functions as neutral beam armor. The Inboard Passive Stabilizer is a saddle coil constructed of a ring of copper plates, armored with carbon-carbon tiles, that surrounds the vacuum vessel center post at the midplane. The design of the plates, the support structure, cooling lines, CFC tiles, and tile attach methods is described. Tiles that see only the normal head load of 0.4 MW/m^2 are attached with mechanical fasteners. Tiles in the neutral beam shinethrough area can see as much as 1.7 MW/m^2 and are brazed to the IPS. Thermal and stress analyses are reviewed. Also shown and analyzed are the forces generated in the plates by the currents during a disruption as well as the thermal forces, generated during bakeout cycles. The plates are required to be fully remotely handled, including tile replacement, and the influence of this requirement on the design is discussed.

*Work supported by U.S. Department of Energy Contract S03756K.

ABSTRACT SUBMISSION FORM
16th IEEE/NPSS Symposium on Fusion Engineering

September 30 — October 5, 1995
Champaign, Illinois, USA

Paper Title: **Design of The Inboard Passive Stabilizer For TPX**

Technical Topic Number: **2**

Keywords:
(1)
(2)
(3)

- ❑ If an oral presentation is requested (rather than the standard poster presentation) indicate here
- ❑ Enter my paper in the "Distinguished Paper" competition. (Requires August 30 submission of full paper)

Submitted by:

Signature

Typed Name: E. Hoffmann

Institution/Company General Atomics

Address P.O. Box 85608

City, Province, State/Postal Code
San Diego, California 92186-9784

Country USA

Phone: (619) 455-2587

Fax: 619 455-2266

E-mail: hoffmanne@gav.gat.com