NCSX Assembly Issues

1. VV pre-assembly
2. Mod coil shell
3. TF/PF structure

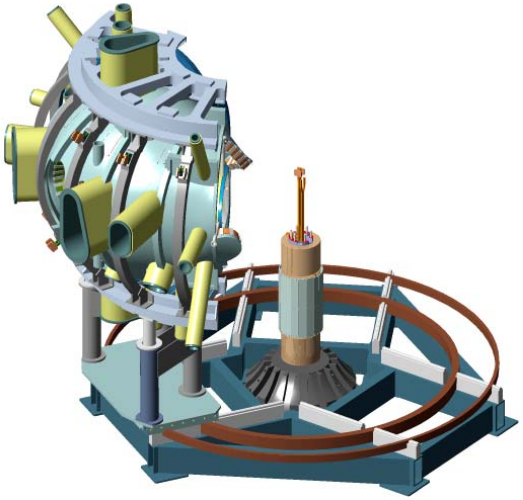
NCSX Project Meeting
November 27, 2002

Nagging assembly issues

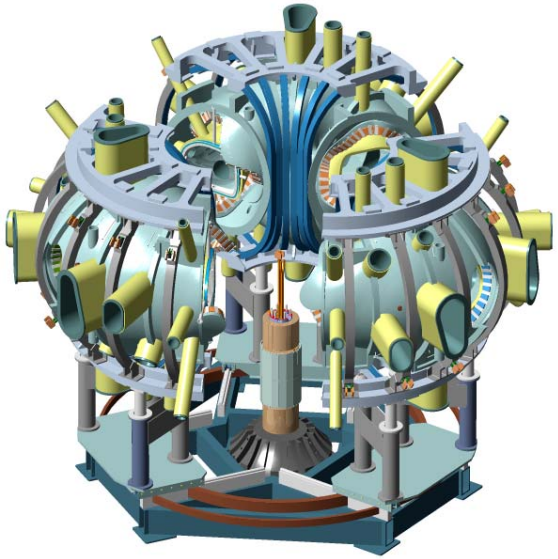
- **Vessel and mod coils interfere**
  - **Slanted assembly joint**
- **Coil 3 hits gravity support on one side**
  - **Support removed from top, temporary support used from bottom**
- **Three interfaces must be made: shell, VV, and TF structure**

Final machine assembly

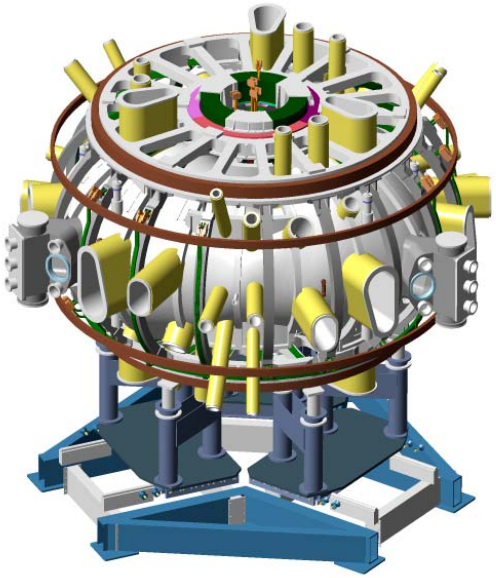
- **How do we make three interfaces at once? Sequentially**



One field period sub-assembly placed on support stand in retracted (~500 mm) position

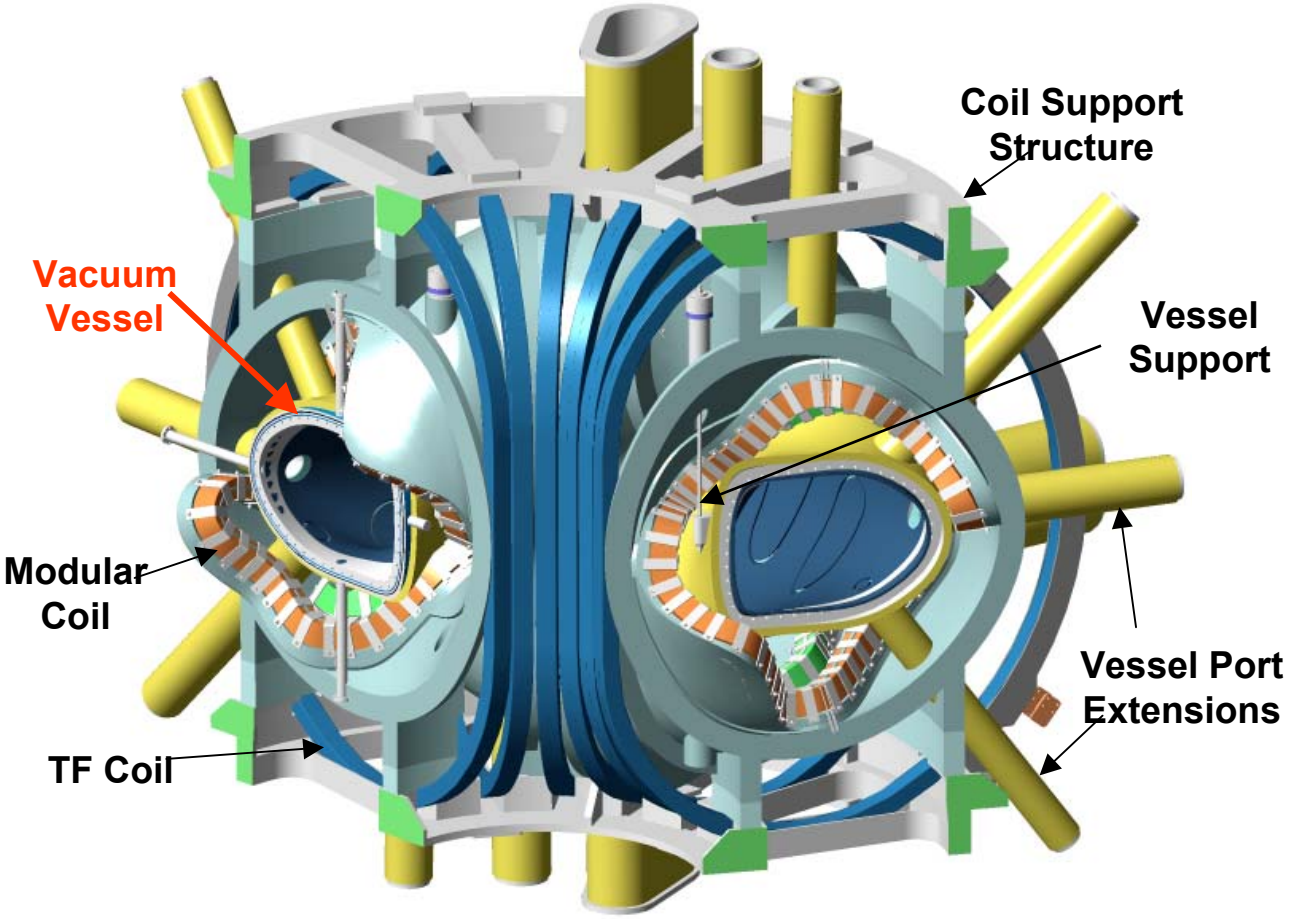


Three field period sub-assemblies in retracted positions



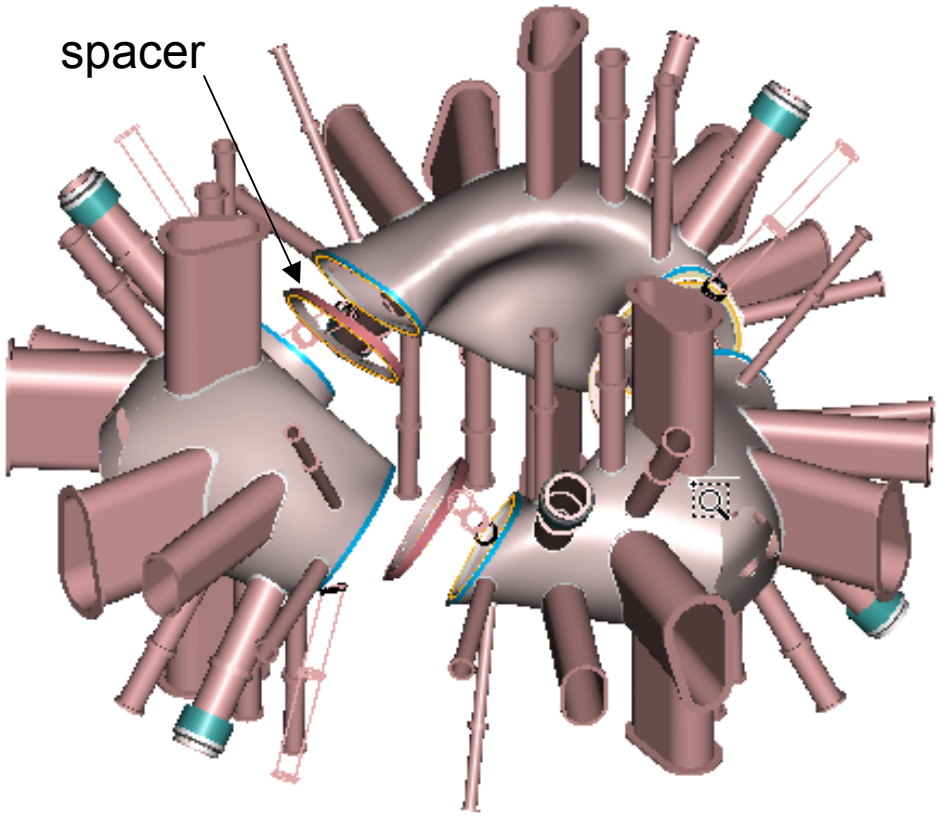
Field period sub-assemblies bolted together and PF coils installed in final position

Final machine assembly



VV final assembly is first assy oper.

- VV must be pre-fit to determine shim dimensions
- Base assembly has features for this operation already
- Proposal:
  - pre-fit of full field period assemblies in test cell without spacers
  - Measure and determine required spacer dimensions
  - Machine spacers
  - Complete assembly

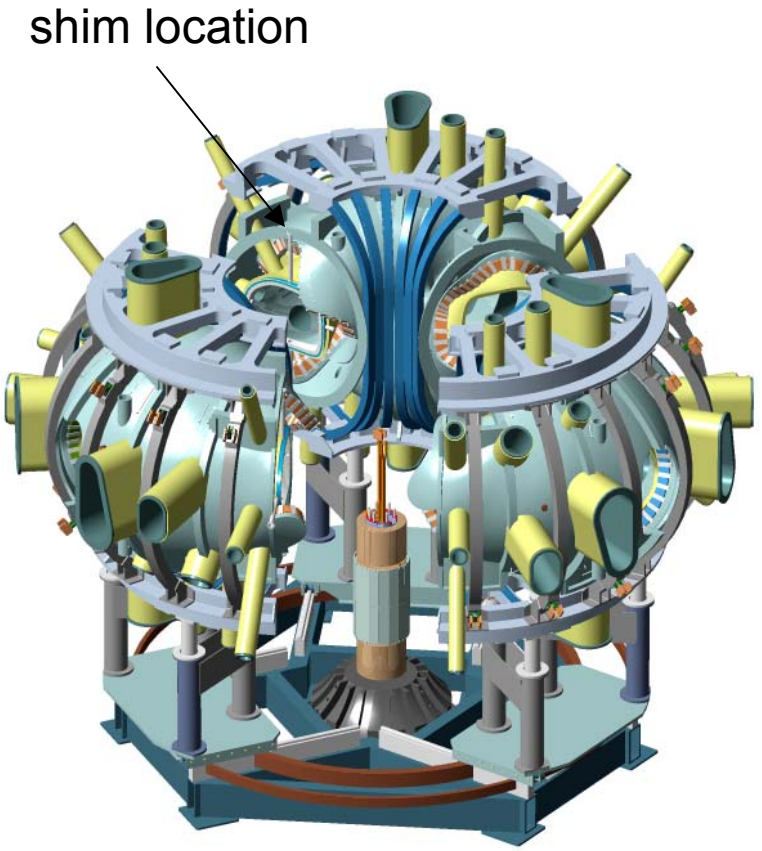


VV segments retracted

Mod coil assembly is second oper.

- **Mod coil shim must be determined from "best fit" location of Mod coil sectors**

- **Proposal:**
  - **pre-fit of full field period assemblies in test cell without shims**
  - **Measure and determine required shim dimensions**
  - **Machine shims**
  - **Complete assembly by simulaneously moving shell together while adjusting VV supports to accommodate relative radial motion,(may be similar to thermal motion during operation)**



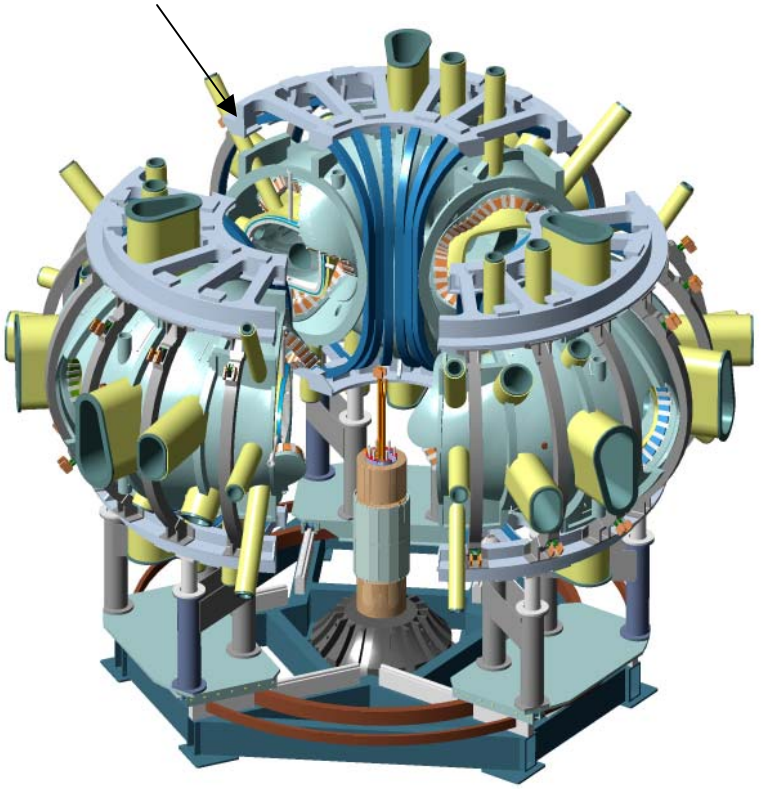
field period subassemblies retracted

TF/PF structure assembly is last oper.

- **Same idea as mod coil shim, but shim must have to be added after mod coil is assembled**

- **Proposal:**
  - **pre-fit of full field period assemblies in test cell without shims**
  - **Measure and determine required shim dimensions**
  - **Machine shims**
  - **Complete assembly by adding shims after slight retraction of TF/PF structure relative to mod coil structure**

shim location, typical on all interfaces



field period subassemblies retracted