

# Assembly Parts

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# Assembly Parts Consist of...



- 1431 Modular Coil Interface Parts Procurements
- 1204 VV System Procurements
- 1805 FPA Fixture Procurements

# **I43I Mod Coil Interface Parts**

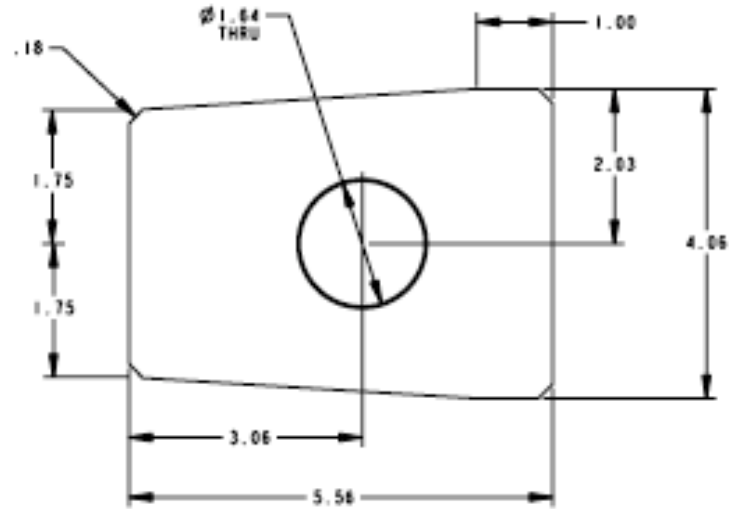
# I43 I Scope

- Stud Kits
  - ▶ Washers
  - ▶ Sphercial Sets
  - ▶ Nuts
  - ▶ G- I I Bushing
- Shim Blocks
- Supernuts
- Bladders Estimate



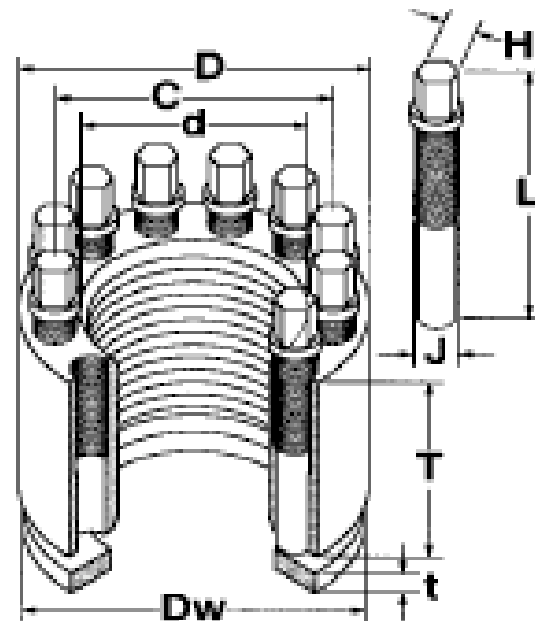
# Shims

- Estimate based on 1/2" thick SS shim, waterjet cut to size
- Ground Flat
- Alumina Coated both sides for insulation and friction
- Quantities based on having a variety of thicknesses on hand to select from



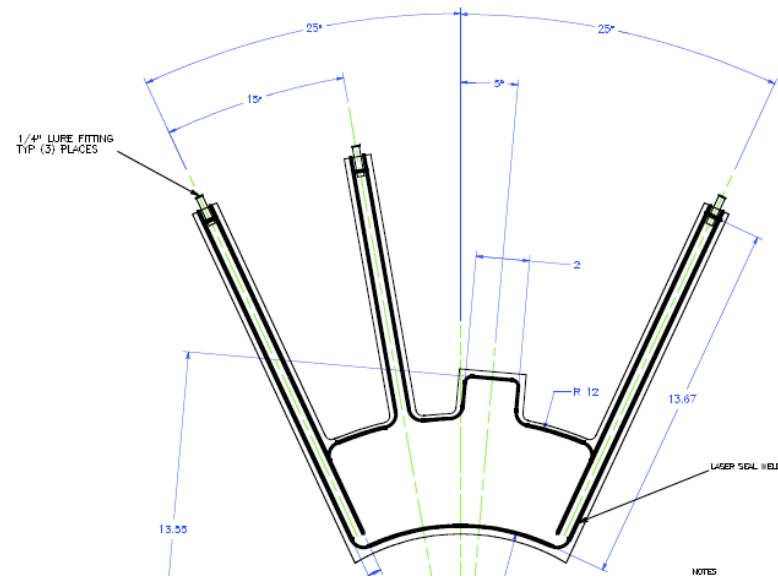
# Supernuts

- Used on Modular Coil to coil joint
- Parts have been selected and an order placed for procurement of 500 parts
- Expected delivery Early June



# Bladders

- Based on 50 bladders required for shimming between coils
- Based on vendor quote for similar sized bag
- Design was bench tested successfully
- Procurement in progress





# Estimate

Item	M&S	Labor
Shim Blocks	\$144K	
G-I I Bushings	\$6K	406.5
Stud Kits	\$428K	
Bladders	\$10K	
Supernuts	\$112K	
<b>TOTAL</b>	<b>\$700K</b>	<b>406.5</b>

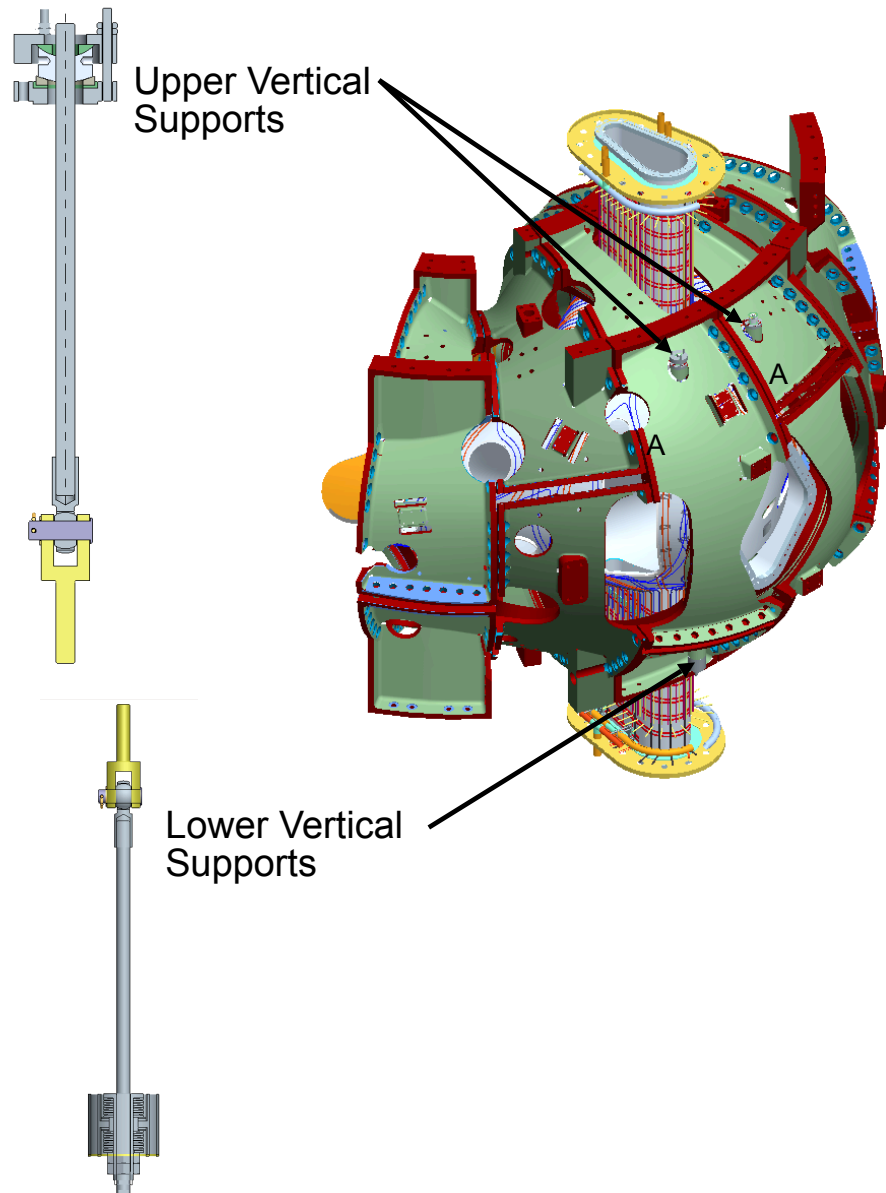
# I204 VV System Procurements

# I204 Scope

- VV Vertical Supports
- VV Personnel Access Port & Lateral Supports
- Insulation Boots
- Pourable Insulation - Aerogel granular Insulation
- Port Thermal Insulation - Batt Insulation
- VV Local I&C-Thermocouples
- Heater Tapes for Port Stubs- Identical to items already procured
- VV Interface Hardware
  - ▶ T/C and Heater Tape Leads
  - ▶ Flux Loops Junction Boxes

# Vertical Supports

- Vertical Supports are the hangers that support the VV off of the coil castings
- Drawings for these parts were completed over year ago
- Parts have been ordered (outside vendor parts are in house)
- Some remaining parts being fabbed here are outstanding

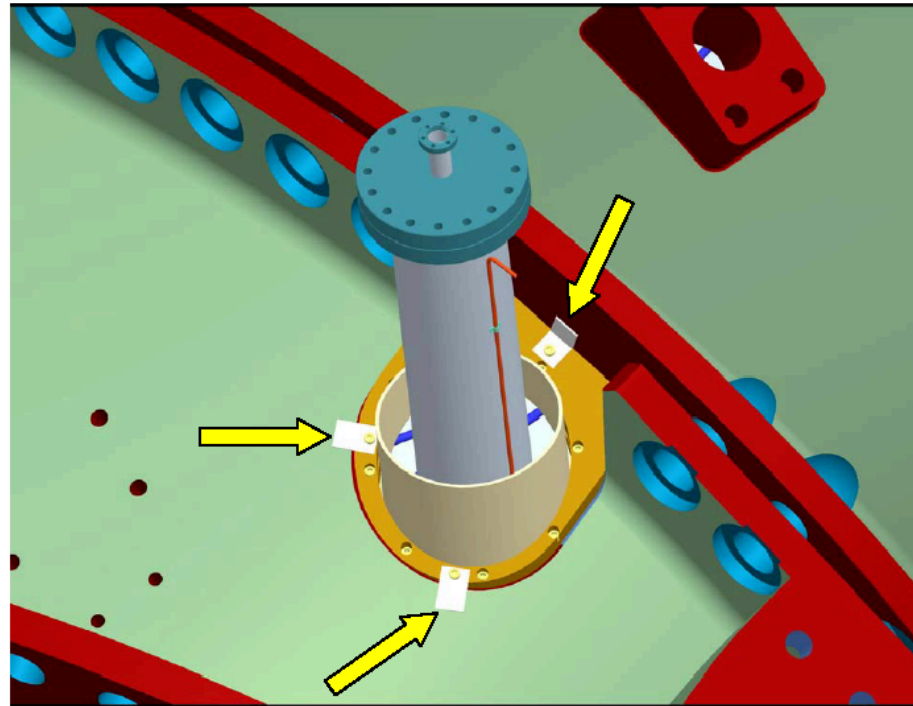


# VV Personal Access & Lateral Supports

Simplified Duct	Cost
Duct Material/fab(1625)	3,478
22 inch port flange	1,950
22 inch blankoff Flange	2,850
Lateral supports	5,000
NB duct flg rework	1,800
Assy fab	2,640
Bolt kit/o-ring	255
<b>SUBTOTAL (Each FPA)</b>	<b>17,973</b>

# Boots

- Provide a seal between the VV and Modular Coils to hold the granular Aerogel insulation inside
- Drawings are complete
- Procurement is in the process of being prepared



# I 204 Estimate

Item	M&S	Labor
Vertical Supports		768 hrs
VV Personnel Access Port	\$54.0K	
Boots	\$55.8K	
Pourable Insulation	\$80.0K	
Heater Tapes - Port Stubs	\$15.4K	
TC & Heater Tape Leads	\$29.3K	
Flux Loop J-Boxes	\$7.1K	
<b>TOTAL</b>	<b>\$241.6K</b>	<b>768 hrs</b>

# 1805 FPA Fixture Procurements



# Scope

- Station 3: Screens and Lift Fixture
- Station 5: TF Coil FPA Station 5

# Estimate

Item	M&S
Station 3	\$44.5K
Station 5	\$35.96K
TOTAL	\$80.45K

# Contingency

## Product Maturity

**High**  
 Conceptual design point. Assembly concepts

**Medium**  
 Preliminary design point. Assembly prototyping and/or prototyping underway

**Low**  
 Final design point. Assembly drawings issued, Procedures drafted. Production/fabrication underway

[WBS 61, 63] [WBS 2] [WBS 16] [WBS 13 PF & trim coils]	[WBS 64] [WBS 17 Cryostat] [WBS 62]	[WBS 18 Job1810] [WBS 7] [WBS 18 Job 1803 & 1805]
[WBS 4] [WBS 31] [WBS 36] [WBS 5] [WBS 14 Job 1431] [WBS 172]	[WBS 823,824] [WBS 38*] [WBS 19] [WBS 15]	[WBS 825] [WBS 181]
[WBS 81, 821, 822, 826] [WBS 39] [WBS 18 Job 1802] [WBS 12 Job 1204] [WBS 13 Job 1361 TF coil fabr]	[WBS 85]	[WBS 14 Job 1451 & 1459]

### Low

Good experience bases. Does not require metrology. Prior experience using standard techniques and operations.

### Medium

Critical assembly sequences. No specific metrology equipment required. Limited experience with similar tasks.

### High

Challenging tolerances requiring use of metrology equipment and "back-office" staff. Little experience base to draw from.

## Complexity