

Modular Coil Sys Requirements BSPEC-14-01-01

Mod Coil Design Description 2005 SDD-WBS14

Mod Coil Asm Specification CSPEC-142-05-01

Conductor Specification CSPEC-142-03-01

Coil Type-AB Winding Pack SE142A-019-R0

Coil Type-C Winding Pack SE142C-019-R1

Winding Form Specification CSPEC-141-03-13

Winding Form Asm Type-A SE141-101-R3C

Winding Form Asm Type-B SE141-102-R3C

Winding Form Asm Type-C SE141-103-R3C

Winding Form Type-A SE141-114-R9

Winding Form Type-B SE141-115-R10

Winding Form Type-C SE141-116-R9

Pol Break Shim Asm SE141-048-R3

Pol Break Shim Asm SE141-058-R3

Pol Break Shim Asm SE141-078-R2A

Type-A Short Bearing Plate SE141-141-R1

Type-B Short Bearing Plate SE141-139-R1

Type-C Short Bearing Plate SE141-137-R2A

Type-A Long Bearing Plate SE141-142-R1

Type-B Long Bearing Plate SE141-140-R1

Type-C Long Bearing Plate SE141-138-R2A

Stud, 1.38-Dia x 9.5 DS141-036-R2

Stud, 1.38-Dia x 9.5 DS141-036-R2

Stud, 1.38-Dia x 9.5 DS141-036-R2

Hex Nut, 1.38-Dia DS141-060-R1

Hex Nut, 1.38-Dia DS141-060-R1

Hex Nut, 1.38-Dia DS141-060-R1

Mod Coil Asm Type-A SE140-101-R0

Mod Coil Terminal Asm SE142C-050-R1

Jumpers Base Block SE142C-047-R1

Jumpers Ins Sheet SE142C-049-R0

Terminal Jumper #1 SE142C-051-R1

Type-A, Side-A Clad/Chill Pits SE142A-252-R1

Terminal Jumper #2 SE142C-052-R1

Terminal Jumper #3 SE142C-053-R1

Terminal Jumper #4 SE142C-054-R1

Type-A, Side-B Clad/Chill Pits SE142A-242-R1

Side-A Term Lug-Short SE142C-055-R1

Side-B Term Lug-Long SE142C-056-R1

Conductor Cable Connect SE142C-059-R2

Flux Loop Enclosure SE310-032-R0

Insul Sheet Detail SE142C-211-R1

Insulating Spacer SE142C-212-R1

Lead Block Thd Stud SE142C-220-R0

Type-A Leads Asm SE142A-080-R0

Terminal Ins Plate SE142C-254-R0

Leads Spacer Temporary SE142C-260-R0

Leads Connector SE142C-045-R0

Type-A Side-A Lower Block SE142A-134-R0

Type-A Side-A Upper Block SE142C-136-R0

Type-A Side-B Lower Block SE142C-135-R0

Poloidal Break Tube Insul Asm SE140-025-R0

Type-A Side-B Upper Block SE142A-137-R0

Lead Filler Strips SE142C-226-R0

Leads Area Chill Plate SE142A-183-R0

Clamp SE140-026-R0

Type-A Side-A Cover Plate SE142A-220-R0

Type-A Side-B Cover Plate SE142A-221-R0

Leads Enclosure Top Plate SE142A-184-R0

Tube Block Clamp Asm SE140-030-R0

Top Position Bushing SE142C-285-R0

Clamp Block SE140-027-R0

Mod Coil Asm Type-B SE140-102-R0

Mod Coil Terminal Asm SE142C-050-R1

Jumpers Base Block SE142C-047-R1

Jumpers Ins Sheet SE142C-049-R0

Terminal Jumper #1 SE142C-051-R1

Type-B, Side-A Clad/Chill Pits SE142B-252-R2

Terminal Jumper #2 SE142C-052-R1

Terminal Jumper #3 SE142C-053-R1

Terminal Jumper #4 SE142C-054-R1

Type-B, Side-B Clad/Chill Pits SE142B-242-R1A

Side-A Term Lug-Short SE142C-055-R1

Side-B Term Lug-Long SE142C-056-R1

Conductor Cable Connect SE142C-059-R2

Flux Loop Enclosure SE310-032-R0

Insul Sheet Detail SE142C-211-R1

Insulating Spacer SE142C-212-R1

Lead Block Thd Stud SE142C-220-R0

Type-B Leads Asm SE142B-080-R0

Terminal Ins Plate SE142C-254-R0

Leads Spacer Temporary SE142C-260-R0

Leads Connector SE142C-045-R0

Type-B Side-A Lower Block SE142B-134-R0

Type-B Side-A Upper Block SE142B-136-R0

Type-B Side-B Lower Block SE142B-135-R0

Poloidal Break Tube Insul Asm SE140-025-R0

Type-B Side-B Upper Block SE142B-137-R0

Lead Filler Strips SE142C-226-R0

Leads Area Chill Plate SE142B-183-R0

Clamp SE140-026-R0

Type-B Side-A Cover Plate SE142B-220-R0

Type-B Side-B Cover Plate SE142B-221-R0

Leads Enclosure Top Plate SE142B-184-R0

Tube Block Clamp Asm SE140-030-R0

Top Position Bushing SE142C-285-R0

Clamp Block SE140-027-R0

Mod Coil Asm Type-C SE140-103-R0

Mod Coil Terminal Asm SE142C-050-R1

Jumpers Base Block SE142C-047-R1

Jumpers Ins Sheet SE142C-049-R0

Terminal Jumper #1 SE142C-051-R1

Type-C, Side-A Sep Cladding SE142C-382-R1

Terminal Jumper #2 SE142C-052-R1

Terminal Jumper #3 SE142C-053-R1

Terminal Jumper #4 SE142C-054-R1

Type-C, Side-A Base Cladding SE142C-384-R1

Side-A Term Lug-Short SE142C-055-R1

Side-B Term Lug-Long SE142C-056-R1

Conductor Cable Connect SE142C-059-R2

Type-C, Side-A Top Chill Pits SE142C-386-R1

Insul Sheet Detail SE142C-211-R1

Insulating Spacer SE142C-212-R1

Lead Block Thd Stud SE142C-220-R0

Type-C, Side-A Side Chill Pits SE142C-388-R2A

Terminal Ins Plate SE142C-254-R0

Leads Spacer Temporary SE142C-260-R0

Leads Connector SE142C-045-R0

Type-C, Side-B Sep Cladding SE142C-482-R1

Type-C, Side-B Base Cladding SE142C-484-R1

Type-C, Side-B Top Chill Pits SE142C-486-R1

Type-C, Side-B Side Chill Pits SE142C-488-R2

Type-C Leads Asm SE142C-080-R1

Type-C Side-A Lower Block SE142C-134-R0

Type-C Side-A Upper Block SE142C-136-R0

Type-C Side-B Lower Block SE142C-135-R0

Flux Loop Enclosure SE310-032-R0

Type-C Side-B Upper Block SE142C-137-R0

Lead Filler Strips SE142C-226-R0

Leads Area Chill Plate SE142C-183-R0

Poloidal Break Tube Insul Asm SE140-025-R0

Type-C Side-A Cover Plate SE142C-220-R0

Type-C Side-B Cover Plate SE142C-221-R0

Leads Enclosure Top Plate SE142A-184-R0

Clamp SE140-026-R0

Top Position Bushing SE142C-285-R0

Special Chill Plates Asm SE142C-203-R1

Tube Block Clamp Asm SE140-030-R0

Clamp Block SE140-027-R0

Global Analysis

NCSX Magnets Technical Data
Mod Coil Shell Eddy Currents CALC-14-006-00
Mod Coil Failure Modes FMEA-14-002-00
NCSX Magnet Fault Loads CALC-TBD

EM/Structural Analysis

EM/Struct Analysis of Coil and Shell CALC-14-001-00
Leads EM/Struct Analysis CALC-TBD
Nonlinear Analysis Integrated Struct CALC-14-003-00
Mod Coil Interface Welded Joint CALC-14-005-00

Thermal Analysis

Mod Coil Cooling Thermal Analysis CALC-14-002-00
Mod Coil Cooling Thermal Network CALC-TBD
Mod Coil Sys Cooldown Issues CALC-TBD

Properties Testing

Mod Coil Interim Prop 031212-140-IJZ
Stellalloy Properties N/A
Casting Alloy CTE

Coil Testing

Test Report for UT Racetrack Coil N/A
Test Report for Twisted Racetrack N/A
Test Report for Mod Coil C1 TEST-14-001-00

Design Reviews

Modular Coil PDR (2003) N/A
Winding Forms FDR (2004)
Mod Coil Cladding FDR (2005)
Mod Coil Lead Blocks FDR (2005)
Mod Coil Winding/Clamps FDR (2005)
Mod Coil Asm FDR (2007)
Mod Coil Outboard Shims FDR (2007)
Mod Coil Bolted Joint FDR (2007)
Mod Coil AA/AB/BC Intf FDR (2007)
Mod Coil CC Interface FDR (2008)

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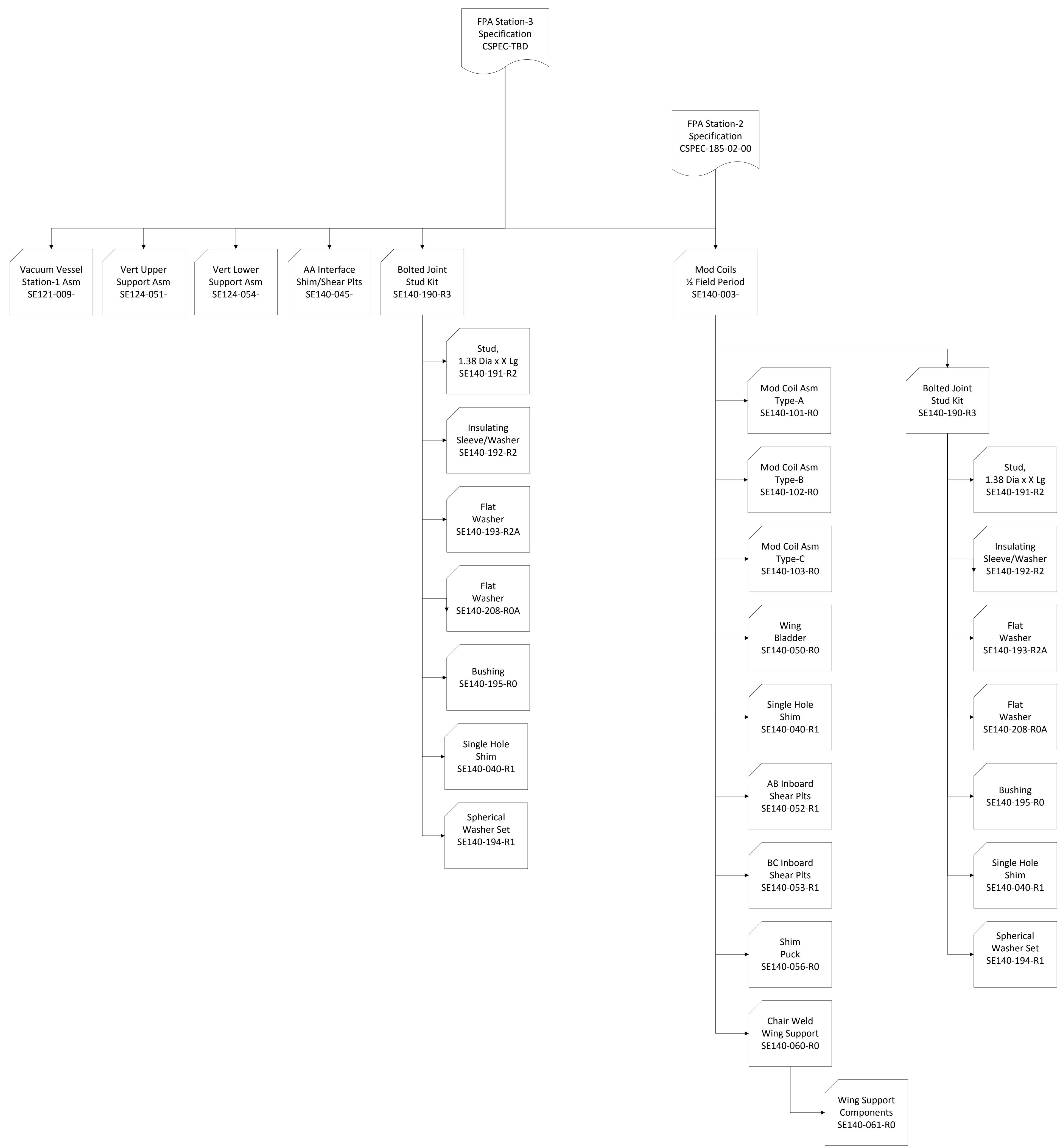
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SCALE NOTED

Table with columns for DES, CHK, SECT, DEPT, FE, CR, FJ, REQ, PPPL DRFT, and DATE.

UT-BATTELLE logo and project information: NATIONAL COMPACT STELLARATOR EXPERIMENT, MODULAR COIL TYPE-ABC DESIGN DOCUMENTATION, VERSION NO. 0+, PLANT X-10, BLDG 5700, FL 3, SHT 1 OF 1, TYPE U, CLASS U, WIP, SE140-230, REV 0.

Revision table with columns: REV, DESCRIPTION, BY, DATE, CHK, DEPT, DATE, PE, REQ, DATE, ORNL, DOE, DATE.



UT-BATTELLE		Oak Ridge National Laboratory managed for the DEPARTMENT OF ENERGY under U.S. GOVERNMENT contract DE-AC05-00OR22725 UT-BATTELLE, LLC, Oak Ridge, Tennessee					
PROJECT NAME NATIONAL COMPACT STELLARATOR EXPERIMENT							
MODULAR COIL TYPE-ABC DESIGN DOCUMENTATION							
VERSION NO. 0+	PLANT X-10	BLDG 5700	FL 3	SHT OF 2 2	TYPE S	CLASS U	
RELEASE LEVEL WIP		SE140-230				REV 0	

SE140-230