

INTERFACE CONTROL DOCUMENT TITLE AND APPROVAL PAGE

(Page 1)

ICD Number: ICD-19-3-0001

Primary Author: B. Nelson

Impacted WBS Elements: WBS-3 to WBS-19

Type of Interface: Mechanical/Envelope Interface

Description of Interface:

The vacuum vessel ports are oriented toward the magnetic axis. This ICD describes the magnetic axis geometry that will be used for the port orientation. The axis to be used is an axis that is midway between the M50_E04 curve and the S1, S2, and S5 group of curves. By doing this, a port axis would never miss the magnetic axis by more than 2-3 cm (less in most cases).

Physics has been requested to review and confirm this model.

Record of Revisions

Revision Number	Description	Date
0	Initial Issue	January 20, 2004

Approvals

WBS Manager:	WBS Manager:
Project Engineer:	Project Engineer:
Project Physics Head	
Systems Engineering Support Manager:	

ICD DETAIL SHEET

ICD-14-310-0003

(Page 2)

(Use Continuation Sheets as Necessary to Include the Following Applicable Information)

Scope of Interface:

This interface impacts the design and fabrication of the Stellarator Core (WBS1) and diagnostics (WBS3).

Equipment and Responsibility List:

Stellarator Core (WBS 19): Nelson

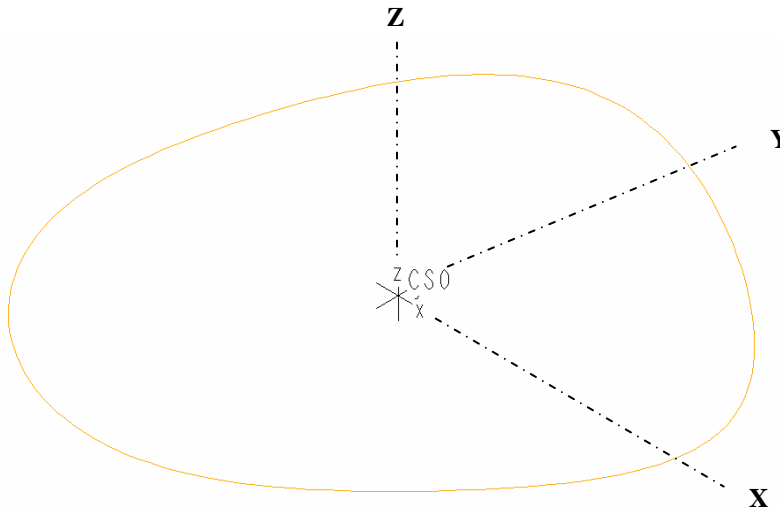
Diagnostics (WBS 3): Johnson

Related ICDs:

Notes and Abbreviations:

Interface Block Diagrams:

Magnetic axis with respect to coordinate system:



Installation Information:

N/A

Other Pertinent Information:

The cartesian coordinates of points defining the magnetic axis are listed below in inches:

	<u>X</u>	<u>Y</u>	<u>Z</u>
1	6.30456E+01	0.00000E+00	0.00000E+00
2	6.29864E+01	2.06196E+00	2.57374E-01
3	6.28089E+01	4.11671E+00	5.11969E-01
4	6.25139E+01	6.15708E+00	7.60972E-01
5	6.21030E+01	8.17601E+00	1.00153E+00
6	6.15785E+01	1.01666E+01	1.23076E+00
7	6.09441E+01	1.21225E+01	1.44579E+00
8	6.02047E+01	1.40378E+01	1.64389E+00
9	5.93667E+01	1.59073E+01	1.82250E+00
10	5.84377E+01	1.77269E+01	1.97941E+00

11	5.74260E+01	1.94935E+01	2.11278E+00
12	5.63410E+01	2.12052E+01	2.22125E+00
13	5.51916E+01	2.28611E+01	2.30394E+00
14	5.39869E+01	2.44612E+01	2.36048E+00
15	5.27353E+01	2.60062E+01	2.39080E+00
16	5.14441E+01	2.74974E+01	2.39556E+00
17	5.01199E+01	2.89367E+01	2.37573E+00
18	4.87682E+01	3.03261E+01	2.33253E+00
19	4.73940E+01	3.16676E+01	2.26746E+00
20	4.60009E+01	3.29638E+01	2.18222E+00
21	4.45924E+01	3.42170E+01	2.07865E+00
22	4.31712E+01	3.54297E+01	1.95866E+00
23	4.17395E+01	3.66046E+01	1.82411E+00
24	4.02989E+01	3.77440E+01	1.67678E+00
25	3.88505E+01	3.88505E+01	1.51830E+00
26	3.73949E+01	3.99261E+01	1.35011E+00
27	3.59322E+01	4.09728E+01	1.17348E+00
28	3.44620E+01	4.19920E+01	9.89577E-01
29	3.29835E+01	4.29849E+01	7.99473E-01
30	3.14958E+01	4.39524E+01	6.04266E-01
31	2.99979E+01	4.48950E+01	4.05109E-01
32	2.84885E+01	4.58132E+01	2.03244E-01
33	2.69666E+01	4.67075E+01	0.00000E+00
34	2.54312E+01	4.75783E+01	-2.03244E-01
35	2.38813E+01	4.84264E+01	-4.05109E-01
36	2.23160E+01	4.92524E+01	-6.04266E-01
37	2.07343E+01	5.00570E+01	-7.99473E-01
38	1.91352E+01	5.08409E+01	-9.89577E-01
39	1.75174E+01	5.16046E+01	-1.17348E+00
40	1.58796E+01	5.23480E+01	-1.35011E+00
41	1.42203E+01	5.30708E+01	-1.51830E+00
42	1.25379E+01	5.37719E+01	-1.67678E+00
43	1.08307E+01	5.44498E+01	-1.82411E+00
44	9.09742E+00	5.51023E+01	-1.95866E+00
45	7.33655E+00	5.57267E+01	-2.07865E+00
46	5.54702E+00	5.63198E+01	-2.18222E+00
47	3.72799E+00	5.68782E+01	-2.26746E+00
48	1.87900E+00	5.73976E+01	-2.33253E+00
49	3.54518E-15	5.78734E+01	-2.37573E+00
50	-1.90856E+00	5.83006E+01	-2.39556E+00
51	-3.84564E+00	5.86732E+01	-2.39080E+00
52	-5.80948E+00	5.89846E+01	-2.36048E+00
53	-7.79750E+00	5.92279E+01	-2.30394E+00
54	-9.80621E+00	5.93953E+01	-2.22125E+00
55	-1.18311E+01	5.94792E+01	-2.11278E+00
56	-1.38669E+01	5.94719E+01	-1.97941E+00
57	-1.59073E+01	5.93667E+01	-1.82250E+00
58	-1.79453E+01	5.91577E+01	-1.64389E+00
59	-1.99736E+01	5.88404E+01	-1.44579E+00
60	-2.19847E+01	5.84119E+01	-1.23076E+00
61	-2.39708E+01	5.78708E+01	-1.00153E+00
62	-2.59248E+01	5.72172E+01	-7.60972E-01
63	-2.78393E+01	5.64524E+01	-5.11969E-01
64	-2.97075E+01	5.55788E+01	-2.57374E-01
65	-3.15228E+01	5.45991E+01	0.00000E+00
66	-3.32789E+01	5.35168E+01	2.57374E-01

67	-3.49696E+01	5.23357E+01	5.11969E-01
68	-3.65892E+01	5.10601E+01	7.60972E-01
69	-3.81321E+01	4.96947E+01	1.00153E+00
70	-3.95938E+01	4.82452E+01	1.23076E+00
71	-4.09704E+01	4.67178E+01	1.44579E+00
72	-4.22594E+01	4.51199E+01	1.64389E+00
73	-4.34594E+01	4.34594E+01	1.82250E+00
74	-4.45707E+01	4.17451E+01	1.97941E+00
75	-4.55949E+01	3.99856E+01	2.11278E+00
76	-4.65348E+01	3.81901E+01	2.22125E+00
77	-4.73941E+01	3.63668E+01	2.30394E+00
78	-4.81775E+01	3.45235E+01	2.36048E+00
79	-4.88896E+01	3.26670E+01	2.39080E+00
80	-4.95355E+01	3.08032E+01	2.39556E+00
81	-5.01199E+01	2.89367E+01	2.37573E+00
82	-5.06473E+01	2.70715E+01	2.33253E+00
83	-5.11219E+01	2.52106E+01	2.26746E+00
84	-5.15479E+01	2.33561E+01	2.18222E+00
85	-5.19290E+01	2.15097E+01	2.07865E+00
86	-5.22687E+01	1.96725E+01	1.95866E+00
87	-5.25702E+01	1.78452E+01	1.82411E+00
88	-5.28367E+01	1.60278E+01	1.67678E+00
89	-5.30708E+01	1.42203E+01	1.51830E+00
90	-5.32745E+01	1.24219E+01	1.35011E+00
91	-5.34496E+01	1.06318E+01	1.17348E+00
92	-5.35971E+01	8.84892E+00	9.89577E-01
93	-5.37178E+01	7.07208E+00	7.99473E-01
94	-5.38118E+01	5.30000E+00	6.04266E-01
95	-5.38791E+01	3.53143E+00	4.05109E-01
96	-5.39196E+01	1.76515E+00	2.03244E-01
97	-5.39332E+01	6.60761E-15	0.00000E+00
98	-5.39196E+01	-1.76515E+00	-2.03244E-01
99	-5.38791E+01	-3.53143E+00	-4.05109E-01
100	-5.38118E+01	-5.30000E+00	-6.04266E-01
101	-5.37178E+01	-7.07208E+00	-7.99473E-01
102	-5.35971E+01	-8.84892E+00	-9.89577E-01
103	-5.34496E+01	-1.06318E+01	-1.17348E+00
104	-5.32745E+01	-1.24219E+01	-1.35011E+00
105	-5.30708E+01	-1.42203E+01	-1.51830E+00
106	-5.28367E+01	-1.60278E+01	-1.67678E+00
107	-5.25702E+01	-1.78452E+01	-1.82411E+00
108	-5.22687E+01	-1.96725E+01	-1.95866E+00
109	-5.19290E+01	-2.15097E+01	-2.07865E+00
110	-5.15479E+01	-2.33561E+01	-2.18222E+00
111	-5.11219E+01	-2.52106E+01	-2.26746E+00
112	-5.06473E+01	-2.70715E+01	-2.33253E+00
113	-5.01199E+01	-2.89367E+01	-2.37573E+00
114	-4.95355E+01	-3.08032E+01	-2.39556E+00
115	-4.88896E+01	-3.26670E+01	-2.39080E+00
116	-4.81775E+01	-3.45235E+01	-2.36048E+00
117	-4.73941E+01	-3.63668E+01	-2.30394E+00
118	-4.65348E+01	-3.81901E+01	-2.22125E+00
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120	-4.45707E+01	-4.17451E+01	-1.97941E+00
121	-4.34594E+01	-4.34594E+01	-1.82250E+00
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123	-4.09704E+01	-4.67178E+01	-1.44579E+00
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125	-3.81321E+01	-4.96947E+01	-1.00153E+00
126	-3.65892E+01	-5.10601E+01	-7.60972E-01
127	-3.49696E+01	-5.23357E+01	-5.11969E-01
128	-3.32789E+01	-5.35168E+01	-2.57374E-01
129	-3.15228E+01	-5.45991E+01	0.00000E+00
130	-2.97075E+01	-5.55788E+01	2.57374E-01
131	-2.78393E+01	-5.64524E+01	5.11969E-01
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149	7.33655E+00	-5.57267E+01	2.07865E+00
150	9.09742E+00	-5.51023E+01	1.95866E+00
151	1.08307E+01	-5.44498E+01	1.82411E+00
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161	2.69666E+01	-4.67075E+01	0.00000E+00
162	2.84885E+01	-4.58132E+01	-2.03244E-01
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165	3.29835E+01	-4.29849E+01	-7.99473E-01
166	3.44620E+01	-4.19920E+01	-9.89577E-01
167	3.59322E+01	-4.09728E+01	-1.17348E+00
168	3.73949E+01	-3.99261E+01	-1.35011E+00
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181	5.51916E+01	-2.28611E+01	-2.30394E+00
182	5.63410E+01	-2.12052E+01	-2.22125E+00
183	5.74260E+01	-1.94935E+01	-2.11278E+00
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188	6.15785E+01	-1.01666E+01	-1.23076E+00
189	6.21030E+01	-8.17601E+00	-1.00153E+00
190	6.25139E+01	-6.15708E+00	-7.60972E-01
191	6.28089E+01	-4.11671E+00	-5.11969E-01
192	6.29864E+01	-2.06196E+00	-2.57374E-01
193	6.30456E+01	0.00000E+00	0.00000E+00