INTERFACE CONTROL DOCUMENT TITLE AND APPROVAL PAGE

(Page 1)

ICD Number: ICD-112-310-0000	**Primary Author:** B. Stratton
Impacted WBS Elements: WBS-31 to WBS-112	**Type of Interface:** Mechanical/Envelope Interface

Description of Interface:

The equilibrium magnetics diagnostics will include a set of probes mounted in the gap between the inside surface of the vacuum vessel and the back side of the internal liner. This ICD defines the requirements for mounting these probes in this gap.

Record of Revisions

Revision Number	Description	Date
0	Initial Issue	June 16, 2003

Approvals

WBS Manager: David Johnson Signature Not Verified Digitally signed by David Johnson DN: cn=David Johnson, c=US Date: 2003.06.27 15:50:31 -04'00'	**WBS Manager:** Paul L Goranson 2003.06.23 15:49:50 -04'00'
Project Engineer: Larry Dudek Signature Not Verified Digitally signed by Larry Dudek DN: cn=Larry Dudek, c=US Date: 2003.07.14 14:14:31 -04'00'	**Project Engineer:** Brad Nelson 2003.06.30 16:41:32 -04'00'
Systems Engineering Support Manager: Robert Simmons 2003.07.27 15:40:35 -04'00'	

ICD DETAIL SHEET

(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 vacuum vessel internal liner (WBS112) and the magnetics diagnostics (WBS310).

Equipment and Responsibility List:

Vacuum vessel internal liner (WBS 112): Goranson
Vacuum vessel (WBS12): Goranson
Magnetics Diagnostics (WBS 310): Johnson

Related ICDs:

Notes and Abbreviations:

Interface Block Diagrams:

Installation Information:

The number of magnetic probes will be determined by modeling but a preliminary estimate is that there will be 132 probes installed in one vacuum vessel period, with the possibility of 132 probes in another period. The probes will likely be made of small-diameter (40-61 mil) mineral-insulated cable wound on a ceramic winding form. They will be held in a sheet metal carrier that is welded to the inner surface of the vessel.

In order to make use of a single probe design for all of the probes, a minimum clearance between the inside surface of the vacuum vessel and the back side of the internal liner of 2 cm is required. If this is possible, WBS3 will be responsible for design, fabrication, and installation of a single probe design at the required locations on the inside surface of the vacuum vessel.

If it is not possible to have a 2 cm minimum clearance between the inside surface of the vacuum vessel and the back side of the internal liner, then WBS1 will be responsible for identifying these locations inside the vacuum vessel. WBS3 will be responsible for design, fabrication, and installation of two probe designs, one for use where the clearance is 2 cm or greater and one for use where it is less. If there are places where the vessel-liner gap is too small to accommodate a compact probe (value to be determined, but likely to be less than 1 cm), it will be necessary to provide a recess in the back of the liner (the side that faces the vacuum vessel) to accommodate the probes at these locations. If this is the case, WBS1 will be responsible for providing these recesses in the back of the liner at the required locations.

In both these scenarios, WBS3 will be responsible for routing and termination of the leads from the probes. If the vacuum vessel is fabricated with internal ribs to serve as attachment points for the liner when it is later installed, these ribs will be designed with gaps to allow the probe leads to be directly routed to the ports where they can be coupled to vacuum feedthroughs. The design of these gaps shall be the responsibility of WBS1 with input from WBS3. If the ribs are added later, after the probes have been installed, WBS1 shall be responsible for seeing that they are designed and installed in a way that does not disturb the probes. WBS1 will be responsible for making sure that the liner panels shall be removable to allow repair or replacement of the probes.

Other Pertinent Information: