

# **Appendix C**

## **Draft Materials Usage Agreement**

<b>ISS MATERIALS USAGE AGREEMENT</b>				USAGE AGREEMENT NO.  AG 577		REV.	PAGE 1 OF 2	
TITLE: Alpha Magnetic Spectrometer 02 (AMS-02)				CATEGORY: 2		EFFECTIVITY:		
TYPE OF DEVIATION:			REQUIREMENT DEVIATED:					
<input type="checkbox"/> MATERIAL <input checked="" type="checkbox"/> EQUIPMENT (NO. PER VEHICLE: 1)			<input type="checkbox"/> FLAMMABILITY <input type="checkbox"/> OFFGASSING		<input type="checkbox"/> TVS <input type="checkbox"/> O <sub>2</sub> COMPATIBILITY		<input checked="" type="checkbox"/> SCC <input type="checkbox"/> OTHER	
EQUIPMENT			PART NUMBER			MANUFACTURER		
MATERIAL		TRADE NAME		SPECIFICATION		MANUFACTURER		
See Table I of Attachment 1				See Table I of Attachment 1				
THICK (in.)	WEIGHT (lbs.)	AREA (in <sup>2</sup> )	LOCATION		ENVIRONMENT			
			<input type="checkbox"/> HABITABLE <input checked="" type="checkbox"/> NONHABITABLE		TEMPERATURE (°F)	PRESS (PSIA)	MEDIA	
					-58 F to +140 F	Space Vacuum	Vacuum	
<b>APPLICATION</b> (use second sheet if required)								
<p>The AMS-02 is an ISS experiment payload. It uses a large cryogenic superconducting magnet and several high energy particle detector systems to collect cosmic ray data. Its major subsystems include the Unique Support Structure (USS) with Vacuum Case, Synchrotron Radiation Detector (SRD), Transition Radiation Detector (TRD), Anti-Coincidence Counter (ACC), Time of Flight (TOF) Detector, Silicon Tracker, Cryogenic Superconducting Magnet, Ring Imaging Cherenkov Counter (RICH), and Electromagnetic Calorimeter (ECAL). The 7050-T7451 Al alloy is used in several structural components of the USS. The 7050-T73651 (or its equivalent 7050-T7451 designation) Al alloy is a Table II material with moderate resistance to SCC per MSFC-STD-3029, Guidelines for the Selection of Metallic Materials for Stress Corrosion Resistance in Sodium Chloride Environments. Other non-Table I materials per MSFC-STD-3029 (or non-"A" rated in SCC per Materials and</p>								
<b>RATIONALE</b> (use second sheet if required)								
<p>The rationale for the use of the non-"A" rated materials including the 7050-T7451 Al alloy in the AMS-02 payload is as follows:</p> <ul style="list-style-type: none"> <li>- low residual and assembly stresses</li> <li>- benign use environment (space vacuum)</li> <li>- adequate corrosion protection surface finish</li> <li>- controlled temperature and humidity environment for storage and shipping</li> <li>- low sustained tensile loading (less than the SCC threshold stresses of the corresponding materials)</li> </ul>								
<b>APPROVALS</b>								
ORIGINATOR/ORGANIZATION			DATE	JSC MATERIALS AND PROCESSES TECHNOLOGY BRANCH				DATE
PROJECT MANAGER			DATE	PROGRAM MANAGER				DATE

<p><b>ISS MATERIALS USAGE AGREEMENT</b></p>	<p>USAGE AGREEMENT NO.  AG577</p>	<p>REV.</p>	<p>PAGE 2 OF 2</p>
		<p> </p>	
<p><b>TITLE:</b> Alpha Magnetic Spectrometer 02 (AMS-02)</p>	<p><b>CATEGORY:</b> 2</p>	<p><b>EFFECTIVITY:</b></p>	
<p><b>APPLICATION (Cont.)</b> subsystems of the AMS-02 payload are listed in Table I of Attachment 1. This MUA provides the acceptance rationale for the use of these non-Table I materials in the AMS-02 payload.</p>			

## Attachment 1

Table I: Listing of SCC Susceptible Materials Used in Various Subsystems of AMS-02

Subsystem	Part Name/Part Number	Material	Specification	SCC Rating
USS	Outer Cylinder, Vacuum Case Assy/ SDG39135779	AL 7050-T7451	AMS 4108	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Lower Support Ring, Vacuum Case Assy/SDG39135785	AL 7050-T7451	AMS 4108	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Upper Support Ring, Vacuum Case Assy/ SDG39135784	AL 7050-T7451	AMS 4108	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Interface Plate Assy, Upper, VCA/ SDG39135788	AL 7050-T7451	AMS 4050	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Interface Plate Assy, Lower, VCA/ SDG39135789	AL 7050-T7451	AMS 4050	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Upper Vacuum Case Interface Joint Assy, Upper USS-02 Assy/ SDG39135727	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Sill Joint Assy, Upper USS-02 Assy/ SDG39135730	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Bridge Beam Elbow, Lower Trunnion/ SDG39135734	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Interface Joint Assy, Lower VC, Lower USS-02 Assy/ SDG39135737	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Bracket, Sill, Upper USS-02 Assy/ SDG39135738	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Diagonal Bracket, Sill, Upper USS-02 Assy/ SDG39135740	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Centerbody Box Joint Keel Interface Assy, Lower USS-02 Assy/ SDG39135759	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Centerbody Box Joint Assy, Lower USS-02 Assy/ SDG39135760	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Joint Assy, Lower USS to Upper USS, Lower USS-02 Assy/ SDG39135762	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	RICH Mounting Bracket, Lower USS-02 Assy/ SDG39135763	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	PAS RICH Bracket Assy, Lower USS-02 Assy/ SDG39135766	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029

USS	Lower Angle Beam Flange, Lower USS-02 Assy/ SDG39135767	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Keel Angle Joint, Keel Assy/ SDG39135769	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Keel Block Assy, Keel Assy/ SDG39135770	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	PAS Platform Assy, PAS Base Assy/ SDG39135817	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Bridge Assy, PAS Bridge Assy/ SDG39135837	AL 7050-T7451	BMS 7-323C	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	UMA Bracket/ SDG39135858	AL 7050-T7451	BMS 7-323C or AMS 4108	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	PVGF Bracket/ SDG39135860	AL 7050-T7451	BMS 7-323C or AMS 4108	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	FRGF Bracket/ SDG39135861	AL 7050-T7451	BMS 7-323C or AMS 4108	"U" per MAPTIS, Table II per MSFC-STD-3029
USS	Scuff Plate/ SDG39135867	AL 7050-T7451	BMS 7-323C or AMS 4108	"U" per MAPTIS, Table II per MSFC-STD-3029
RICH	Breather Valve, Aerogel Container/ RICH-C790RPVXX	AL 2011-T3	TBD	"C" per MAPTIS, Table III per MSFC-STD-3029
Cryomag	AMS-02 Helium Tank/ TBD	AL 5083-H111	TBD	"B" per MAPTIS, Table II per MSFC-STD-3029
Tracker	Ladder Feet and Inserts/ AMS1101 and AMSII-148	AL 7075-T6	TBD	"C" per MAPTIS, Table III per MSFC-STD-3029
Tracker	Thermal Bars and Bridge Bracketry/ AMSII-179, AMS2002	AL 5083-O	TBD	"B" per MAPTIS, Table II per MSFC-STD-3029

## Attachment 2

## STRESS CORROSION EVALUATION FORM Per MSFC-STD-3029, Section 5.4

1	
Part Number	SDG39135779
Part Name	Outer Cylinder, Vacuum Case Assy
Next Assembly Number	SEG39135777
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Rolled Ring Forging, forging OD = 109", ID = 105", L = 53"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Pressure Loads and Strap Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 (exterior) / Iridite LMA MP 30063 Ty 1 (interior)
Function of Part	Outer Surface of AMS-02 Dewar
Effect of Failure	Loss of Vacuum Leading to Thermal Breach of AMS-02 Dewar
Evaluation of Stress Corrosion Cracking	
Remarks	AMS 4108
2	
Part Number	SDG39135785
Part Name	Lower Support Ring, Vacuum Case Assy
Next Assembly Number	SEG39135799
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Rolled Ring Forging, forging OD = 110", ID = 98", L = 6.5"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Pressure Loads and Strap Loads

Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 (exterior) / Iridite LMA MP 30063 Ty 1 (interior) / Alodine per PRC-5005 (holes)
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	AMS 4108
3	
Part Number	SDG39135784
Part Name	Upper Support Ring, Vacuum Case Assy
Next Assembly Number	SEG39135798
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Rolled Ring Forging, forging OD = 110", ID = 98", L = 6.5"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Pressure Loads and Strap Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 (exterior) / Iridite LMA MP 30063 Ty 1 (interior) / Alodine per PRC-5005 (holes)
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	AMS 4108
4	
Part Number	SDG39135788
Part Name	Interface Plate Assembly, Upper, Vacuum Case Assy
Next Assembly Number	SEG39135777
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451

Size and Form	Plate, 10.5" x 8.0" x 2.5"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	None
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1
Function of Part	Primary structural interface between the VC and USS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	AMS 4050
5	
Part Number	SDG39135789
Part Name	Interface Plate Assembly, Lower, Vacuum Case Assy
Next Assembly Number	SEG39135777
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 11.0" x 8.0" x 2.75"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	None
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1
Function of Part	Primary structural interface between the VC and USS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	AMS 4050
6	
Part Number	SDG39135727
Part Name	Upper Vacuum Case Interface Joint Assy, Upper USS-02 Assy
Next Assembly Number	SEG39135726

Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 22" x 16" x 7"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads and Gravity Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
7	
Part Number	SDG39135730
Part Name	Sill Joint Assy, Upper USS-02 Assy
Next Assembly Number	SEG39135726
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 17" x 16" x 7"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads and Gravity Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	

Remarks	BMS 7-323C
8	
Part Number	SDG39135734
Part Name	Bridge Beam Elbow, Lower Trunnion
Next Assembly Number	SEG39135726
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 15" x 10" x 6"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads and Gravity Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
9	
Part Number	SDG39135737
Part Name	Interface Joint Assy, Lower VC, Lower USS-02 Assy
Next Assembly Number	SEG39135726
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 19" x 18" x 8"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads and Gravity Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space

Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
10	
Part Number	SDG39135738
Part Name	Bracket, Sill, Upper USS-02 Assy
Next Assembly Number	SEG39135726
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 9" x 6" x 6"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads and Gravity Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02 in Shuttle
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
11	
Part Number	SDG39135740
Part Name	Diagonal Bracket, Sill, Upper USS-02 Assy
Next Assembly Number	SEG39135726
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 24" x 11" x 6"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible

c. Design (Static) Contribution	TBD - Strap Loads and Gravity Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02 in Shuttle
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
12	
Part Number	SDG39135759
Part Name	Centerbody Box Joint Keel Interface Assy, Lower USS-02 Assy
Next Assembly Number	SEG39135758
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 15" x 15" x 6"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads, Gravity Loads, and CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02 in Shuttle
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
13	
Part Number	SDG39135760
Part Name	Centerbody Box Joint Assy, Lower USS-02 Assy
Next Assembly Number	SEG39135758
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050

Heat Treatment	T7451
Size and Form	Plate, 15" x 15" x 6"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads, Gravity Loads, and CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
14	
Part Number	SDG39135762
Part Name	Joint Assy, Lower USS to Upper USS, Lower USS-02 Assy
Next Assembly Number	SEG39135758
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 12" x 8" x 8"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads, Gravity Loads, and CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
15	

Part Number	SDG39135763
Part Name	RICH Mounting Bracket, Lower USS-02 Assy
Next Assembly Number	SEG39135758
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 7" x 4" x 4"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads, Gravity Loads, and CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Structural Support of RICH detector
Effect of Failure	Structural Failure of RICH
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
16	
Part Number	SDG39135766
Part Name	PAS RICH Bracket Assy, Lower USS-02 Assy
Next Assembly Number	SEG39135758
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 8" x 7" x 6"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads, Gravity Loads, and CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3

Function of Part	Primary Structural Support of AMS-02 on ISS
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
17	
Part Number	SDG39135767
Part Name	Lower Angle Beam Flange, Lower USS-02 Assy
Next Assembly Number	SEG39135758
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 8" x 8" x 7"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Strap Loads, Gravity Loads, and CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
18	
Part Number	SDG39135769
Part Name	Keel Angle Joint, Keel Assy
Next Assembly Number	SEG39135768
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 12" x 9" x 6"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Gravity Loads
Special Processing (to reduce tensile stresses)	

Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A / Alodine per PRC-5005, Class 3
Function of Part	Primary Structural Support of AMS-02 on Shuttle
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
19	
Part Number	SDG39135770
Part Name	Keel Block Assy, Keel Assy
Next Assembly Number	SEG39135768
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 21" x 7" x 5"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - Gravity Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1 / Alodine (holes) per PRC-5005, Class 1A
Function of Part	Primary Structural Support of AMS-02 on Shuttle
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
20	
Part Number	SDG39135817
Part Name	PAS Platform Assy, PAS Base Assy
Next Assembly Number	SEG39135816
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 45" x 45" x 3"

Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1
Function of Part	Primary Structural Support of AMS-02 on ISS
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
21	
Part Number	SDG39135837
Part Name	Bridge Assy, PAS Bridge Assy
Next Assembly Number	SEG39135836
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	Plate, 38" x 4" x 2"
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	TBD - CAS Loads
Special Processing (to reduce tensile stresses)	
Weldments	N/A
Environment	fab - controlled / shipping & storage - container, dessicant, etc / testing - controlled / pre-launch - controlled? / use - space
Protective Finish	Anodized per PRC-5006 Ty II, C1
Function of Part	Primary Structural Support of AMS-02 on ISS
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	BMS 7-323C
22	
Part Number	SDG39135858
Part Name	Not released - UMA Bracket
Next Assembly Number	
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)

Material	AL 7050
Heat Treatment	T7451
Size and Form	
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	None
Special Processing (to reduce tensile stresses)	
Weldments	
Environment	
Protective Finish	
Function of Part	Structural Support of UMA
Effect of Failure	Loss of UMA, leading to loss of power and C&DH
Evaluation of Stress Corrosion Cracking	
Remarks	
23	
Part Number	SDG39135860
Part Name	Not released - PVGF Bracket
Next Assembly Number	
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	None
Special Processing (to reduce tensile stresses)	
Weldments	
Environment	
Protective Finish	
Function of Part	Primary Structural Support of AMS-02 during transfer operations
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	
24	
Part Number	SDG39135861
Part Name	Not released - FRGF Bracket

Next Assembly Number	
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	None
Special Processing (to reduce tensile stresses)	
Weldments	
Environment	
Protective Finish	
Function of Part	Primary Structural Support of AMS-02 during transfer operations
Effect of Failure	Structural Failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	
25	
Part Number	SDG39135867
Part Name	Not released - Scuff Plate
Next Assembly Number	
Manufacturer's Name, Address, Phone Number	Johnson Space Center (Jacobs Sverdrup)
Material	AL 7050
Heat Treatment	T7451
Size and Form	
Sustained Tensile Stresses-	
a. Process Residual Contribution	Negligible
b. Assembly Contribution	Negligible
c. Design (Static) Contribution	None
Special Processing (to reduce tensile stresses)	
Weldments	
Environment	
Protective Finish	
Function of Part	Prevent contact between AMS-02 and Shuttle
Effect of Failure	Damage to Shuttle and/or AMS-02
Evaluation of Stress Corrosion Cracking	
Remarks	
26	

Part Number	RICH - C790RPVXX
Part Name	Breather Valve, Aerogel Container
Next Assembly Number	
Manufacturer's Name, Address, Phone Number	
Material	AL 2011
Heat Treatment	T3
Size and Form	
Sustained Tensile Stresses	
Special Processing	
Weldments	
Environment	
Protective Finish	Anodized per MIL-C-5541
Function of Part	Allow venting of RICH volume
Effect of Failure	RICH does not vent if both valves fail
Evaluation of Stress Corrosion Cracking	
Remarks	
27	
Part Number	AMS-02 Helium Tank
Part Name	AMS-02 Helium Tank
Next Assembly Number	
Manufacturer's Name, Address, Phone Number	Hans Bieri Engineering, Winterthur, Switzerland
Material	AL 5083
Heat Treatment	Annealed / H111
Size and Form	
Sustained Tensile Stresses	TBD- Magnet Operational Loads
Special Processing	
Weldments	
Environment	
Protective Finish	Anodized per NASA/JSC PRC-5006 Ty II, Class 1
Function of Part	Structural support of Cryomagnet
Effect of Failure	Structural failure of Payload
Evaluation of Stress Corrosion Cracking	
Remarks	
28	
Part Number	AMS Tracker - AMS1101, AMSII-148

Part Name	Ladder Feet and Inserts
Next Assembly Number	
Manufacturer's Name, Address, Phone Number	
Material	AL 7075
Heat Treatment	T6
Size and Form	
Sustained Tensile Stresses	None
Special Processing	
Weldments	
Environment	
Protective Finish	Alodine 1200S
Function of Part	Structural attachment of Ladder to Tracker Planes
Effect of Failure	Ladder disengages and TTCS for that plane stops working
Evaluation of Stress Corrosion Cracking	
Remarks	
29	
Part Number	AMS Tracker - AMSII-179, AMS2002
Part Name	Thermal Bars and Bridge Bracketry
Next Assembly Number	
Manufacturer's Name, Address, Phone Number	
Material	AL 5083
Heat Treatment	Annealed
Size and Form	
Sustained Tensile Stresses	
Special Processing	
Weldments	
Environment	
Protective Finish	Alodine 1200S
Function of Part	Structural attachment of thermal bars to Tracker Plane
Effect of Failure	Thermal bar disengages and TTCS for that ladder stops working
Evaluation of Stress Corrosion Cracking	
Remarks	