

# SSTD Incoming Inspection Report

Spacecraft/Project    **HERSCHEL / SPIRE**

Document Number    **SPIRE-RAL-REP- 003079**

Issue    **1**

Sub System    **DPU**

Date    **26-Mar-08**

Model    **AVM 2**

## INCOMING INSPECTION REPORT

FROM
<p><b>ASTRIUM F</b>                      EADS Astrium GmbH,                      Anlieferstelle :                      Halle 6052/Aloys Weber,                      Claude-Dornier-Strasse,                      D-88090 Immenstaad,                      Germany</p>

TO
<p><b>SPIRE Project</b>                      Rutherford Appleton Laboratory                      Space Science and Technology Department                      Chilton                      DIDCOT                      OXON                      OX11 0QX</p>

Applicable sections	
Containers	Yes
External Visual Inspection	Yes
External Connector	Yes
Documentation	Yes
Verification of Interfaces	No
Extra Comments Sheets	Yes

Drawings / Documents Attached
Photos

**INSPECTION CONDUCTED BY**

**WITNESS BY**

NAME
Eric Clark (PA)

DATE
26/03/2008

NAME
Dion Dawson (PA)

DATE
26/03/2008

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Model

## CONTAINER INSPECTION

TRANSPORT CONTAINERS EXTERNAL CONDITION	REMARKS	Status
Mechanical damage to container fasteners, locks, clips or handling provisions		None
Security / Locking Fitted	Nylon straps fitted and in tact	See Remarks
Markings for destination and description		Checked
Warning labels relating to handling lifting and stacking limits		Checked
Any additional Comments	One shock indicator fitted 10G - triggered in transet.	See Remarks

TRANSPORT CONTAINERS INTERNAL CONDITION	REMARKS	Status
Check Mounting fixtures fitted internal packaging		N/A
Internal padding / packaging required		Checked
Mounting provisions secure		N/A
Any additional Comments		None

ENVIROMENTAL MONITORS						
<b>Temp Monitors</b>		<b>Humidity Monitors</b>		<b>Shock Sensors Triggerd Information</b>		
Fitted:	<input type="text" value="Yes"/>	Fitted:	<input type="text" value="Yes"/>	5g	10g	15g
Condition:	<input type="text" value="Satisfactory"/>	Condition:	<input type="text" value="Satisfactory"/>	25g	50g	
				X Axis	Y Axis	Z Axis
				Both		

# SSTD Incoming Inspection Report

Spacecraft/Project    HERSCHEL / SPIRE

Document Number    SPIRE-RAL-REP-003079

Issue    1

Sub System    DPU

Date    26-Mar-08

Model    AVM 2

## INSTRUMENT VISUAL INSPECTION

CHECK LIST	REMARKS	RESULTS
Contents against shipping list	Not checked during this inspection	See Remarks
Instrument label		Acceptable
Note status of external contamination	Clean room standards not required for this non flight unit	See Remarks
Degradation of paintwork or Coating?		N/A
Fasteners correctly locked?		N/A
Check protective covers are correctly labelled and fitted?	Not all covers fitted (see attached photos)	See Remarks
Additional Comments		N/A

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**INSPECTION OF ALL CONNECTORS**

CHECK LIST	REMARKS (LIST CONNECTOR NUMBERS)	RESULTS
Pin Alignment		Pass
Damaged Sockets		Pass
Internal Debris	Clean room standards not required (no check for debris)	See remark
Connector Covers fitted	Three fitted - see photos attached	See remark
Connector Savers Fitted	Savers fitted to all connectors see photos attached	See remark
EMC Covers Fitted		N/A
RED Tag Item / Green Tag Items fitted		N/A
Additional Comments	6 connector savers supplied in separate bag	See remark

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<b>Sub System</b>	DPU	<b>Date</b>	26-Mar-08	<b>Model</b>	AVM 2

## DOCUMENTATION CHECK LIST

Check	REMARKS	RESULTS
End Item Data Pack	None available during inspection	No
Transportaion Documents	None available during inspection	No
Packing un- Packing instructions	None available during inspection	No
Additional Comments		None

## Verification of Interfaces

**Mechanical interface:** dimensions specified in the interface control documents such as mass, flatness of surfaces, location of fixing holes and overall dimensions should be measured accurately and recorded. Record Test Report Number, or confirm that measurement result is included in delivery documentation, (EIDP).

<b>INSPECTION / TEST REPORT NUMBER</b>	N/A	<b>CHECKED</b>	N/A for this inspection
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**Electrical interfaces:** verifying the location and types of connectors against interface control document is normally carried as part of mechanical verification, confirm this has been done. Functional testing: final functional test report number should be noted.

<b>INSPECTION / TEST REPORT NUMBER</b>	N/A	<b>CHECKED</b>	N/A for this inspection
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# SSTD Incoming Inspection Report

Spacecraft/Project	HERSCHEL / SPIRE
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Document Number	SPIRE-RAL-REP-003079
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Issue	1
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Sub System	DPU
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Date	26-Mar-08
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Model	AVM 2
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EXTRA COMMENT SHEET
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The unit was supplied in a transportation box, wrapped in a single plastic bag, with foam and polystyrene packing to protect. A separate bag containing 6 savers and securing boats were also supplied.

Note - this is not a flight item and clean room cleanliness is not required.

The 10G shock indicator had been activated, but the unit showed no obvious visual signs of drop damage. No bent pins were found during examination of the connectors.

**The DPU did not work when tested Report Attached**

# SPIRE-RAL-REP-003079 AVM2 DPU Incoming Inspection Report Functional Test

**The Following E mail Report records the details of the incoming functional tests and the results obtained concluding that the instrument is not functioning correctly.**

**From:** Sidher, SD (Sunil)  
**Sent:** 27 March 2008 10:51  
**To:** 'Sergio Molinari'  
**Cc:** 'Liu Scigè John'; King, KJ (Ken); Sawyer, EC (Eric); Griffin, DK (Doug); Swinyard, BM (Bruce); Dowell, A (Allan)  
**Subject:** AVM-2 DPU

Hi Sergio,

As you may know we are required by ESA to deliver the SPIRE AVM to Alenia/Turin for Herschel satellite tests to be run in parallel to the FM IST campaign. To prepare for the delivery we have just received the AVM-2 DPU from Astrium/Friedrichshafen. When I switched it on yesterday I got EEPROM memory check TM(5,4) error reports from the BSW at 10 second intervals. Here I show the dump of the first two packets:

```
0000: 0D00 C000 020D 0005 0400 8000 0000 0000 8003 00FF 0000 0000 0000
0000 0000 ABAB
0020: CDCD AAAA C0F6 00FE 00FD 00FC 00FB 00FA 00F9 00F8 00F7 00F6 00F2
00F1 00F0 00EF
0040: 00EE 00ED 00EC 00EB 00EA 00E9 00E8 00E7 00E6 00E5 00E4 00E3 00E2
00E1 00E0 00DF
0060: 00DE 00DD 00DC 00DB 00DA 00D9 00D8 00D7 00D6 00D5 00D4 00D3 00D2
00D1 00D0 00CF
0080: 00CE 00CD 00CC 00CB 00CA 00C9 00C8 00C7 00C6 00C5 00C4 00C3 00C2
00C1 00C0 00BF
00A0: 00BE 00BD 00BC 00BB 00BA 00B9 00B8 00B7 00B6 00B5 00B4 00B3 00B2
00B1 00B0 00AF
00C0: 00AE 00AD 00AC 00AB 00AA 00A9 00A8 00A7 00A6 00A5 00A4 00A3 00A2
00A1 00A0 009F
00E0: 009E 009D 009C 009B 009A 0099 0098 0097 0096 0095 0094 0093 0092
0091 0090 008F
0100: 008E 008B 008A 0089 0088 0087 0086 0085 0084 0083 0082 0081 0080
007F 007E 007D
0120: 007C 007B 007A 0079 0078 0077 0076 0075 0074 0071 0070 006F 006E
006D 006C 006B
0140: 006A 0069 0068 0067 0066 0065 0064 0063 0062 0061 0060 005F 005E
005D 005C 005B
0160: 005A 0059 0058 0057 0056 0055 0054 0053 0052 0051 0050 004F 004E
004D 004C 004B
0180: 004A 0049 0048 0047 0046 0045 0044 0043 0042 0041 0040 003F 003E
003D 003C 003B
01A0: 003A 0039 0038 0037 0036 0035 0034 0033 0032 0031 0030 002F 002E
002D 002C 002B
01C0: 002A 0029 0028 0027 0026 0025 0024 0023 0022 0021 0020 001F 001E
001D 001C 001B
01E0: 001A 0019 0018 0017 0016 0015 0014 0013 0012 0011 0010 000F 000E
000D 0009 0008
0200: 0007 0006 0005 0004 0003 0002 0001 00FF 0000 73C1
```

# SPIRE-RAL-REP-003079 AVM2 DPU Incoming Inspection Report

## Functional Test

```
0000: 0D00 C001 020D 0005 0400 8000 0000 0000 8003 00FF 0000 0000 0000
0000 0001 ABAB
0020: CDCD AAAA C0F6 00FE 00FD 00FC 00FB 00FA 00F9 00F8 00F7 00F6 00F2
00F1 00F0 00EF
0040: 00EE 00ED 00EC 00EB 00EA 00E9 00E8 00E7 00E6 00E5 00E4 00E3 00E2
00E1 00E0 00DF
0060: 00DE 00DD 00DC 00DB 00DA 00D9 00D8 00D7 00D6 00D5 00D4 00D3 00D2
00D1 00D0 00CF
0080: 00CE 00CD 00CC 00CB 00CA 00C9 00C8 00C7 00C6 00C5 00C4 00C3 00C2
00C1 00C0 00BF
00A0: 00BE 00BD 00BC 00BB 00BA 00B9 00B8 00B7 00B6 00B5 00B4 00B3 00B2
00B1 00B0 00AF
00C0: 00AE 00AD 00AC 00AB 00AA 00A9 00A8 00A7 00A6 00A5 00A4 00A3 00A2
00A1 00A0 009F
00E0: 009E 009D 009C 009B 009A 0099 0098 0097 0096 0095 0094 0093 0092
0091 0090 008F
0100: 008E 008B 008A 0089 0088 0087 0086 0085 0084 0083 0082 0081 0080
007F 007E 007D
0120: 007C 007B 007A 0079 0078 0077 0076 0075 0074 0071 0070 006F 006E
006D 006C 006B
0140: 006A 0069 0068 0067 0066 0065 0064 0063 0062 0061 0060 005F 005E
005D 005C 005B
0160: 005A 0059 0058 0057 0056 0055 0054 0053 0052 0051 0050 004F 004E
004D 004C 004B
0180: 004A 0049 0048 0047 0046 0045 0044 0043 0042 0041 0040 003F 003E
003D 003C 003B
01A0: 003A 0039 0038 0037 0036 0035 0034 0033 0032 0031 0030 002F 002E
002D 002C 002B
01C0: 002A 0029 0028 0027 0026 0025 0024 0023 0022 0021 0020 001F 001E
001D 001C 001B
01E0: 001A 0019 0018 0017 0016 0015 0014 0013 0012 0011 0010 000F 000E
000D 0009 0008
0200: 0007 0006 0005 0004 0003 0002 0001 00FF 0000 2357
```

Rather optimistically I tried to send the FORCE\_BOOT\_PRIMARY TC but got a EEPROM to PM loading TM(5,4) report:

```
0000: 0D00 C01F 0023 0005 0400 8000 0000 0000 8005 0001 0000 0000 0000
0000 001E ABAB
0020: CDCD AAAA C001 1400 F999
```

After power cycling the DPU I again saw the EEPROM memory check TM(5,4) error reports as above. At this point I decided to upload OBS 2.2.H which worked OK. But the write to EEPROM failed and I saw the following TM(1,8) report:

```
0000: 0D00 C908 001B 0001 0800 5E7C FF2A 3266 1D00 C509 0812 0015 0F08
0400 E275 0004
0020: 8C32
```

So now I'm not sure about how to proceed. Could you please advise ASAP. Let me know if you require any additional information.

Thanks,  
Sunil



**Shipping/storage case**



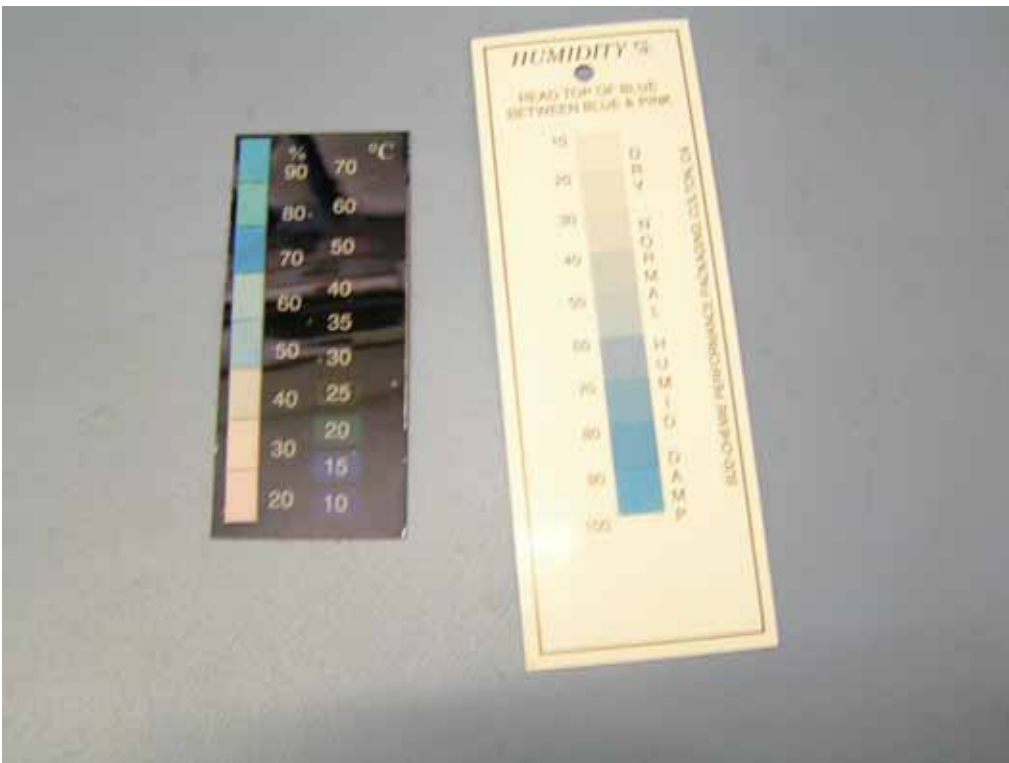
**10g Shock monitor tripped in both “+” & “-“**



**Container Lid opened and packing removed**



**Humidity and Temp Sensors from inside container**



**DPU removed from Container showing Pack of Connector Savers attached**



**Six Connector Savers removed from Bag all OK**



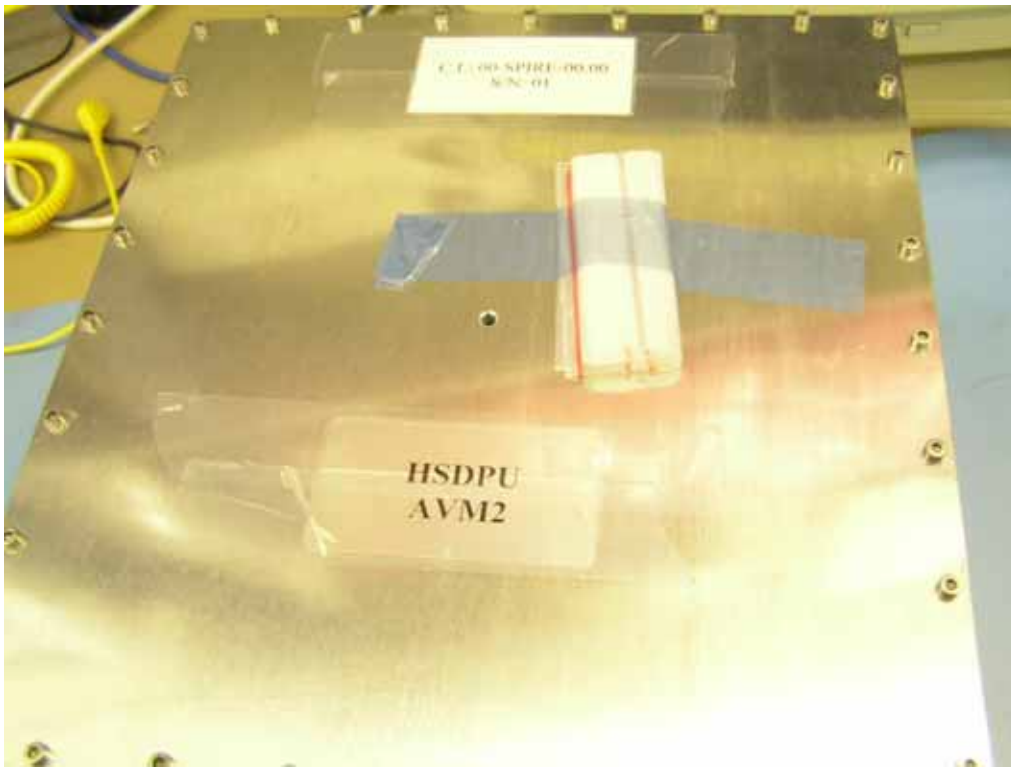
**DPU still wrapped in Pink antistatic (not allowed in SSTD clean rooms)**



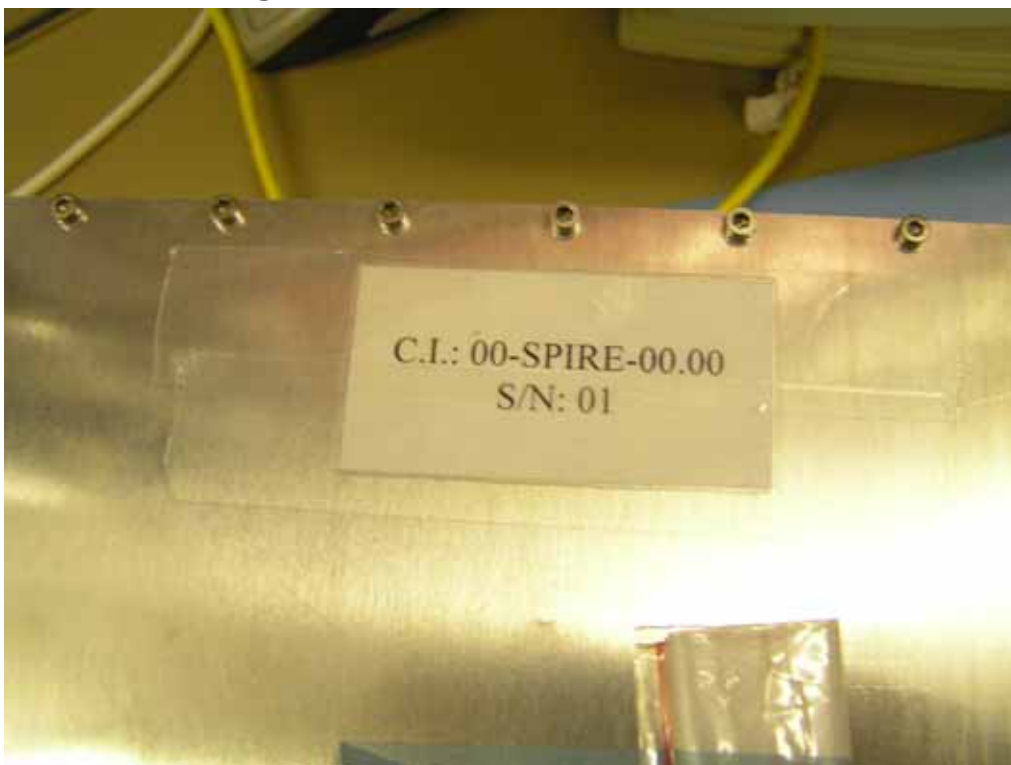
**View of connectors before removing Pink Plastic bagging**



Top of DPU showing Label 1



Top of DPU showing Label 2



**Side View showing some scuff marks scratches etc**



**Back View showing some scuff marks scratches etc**



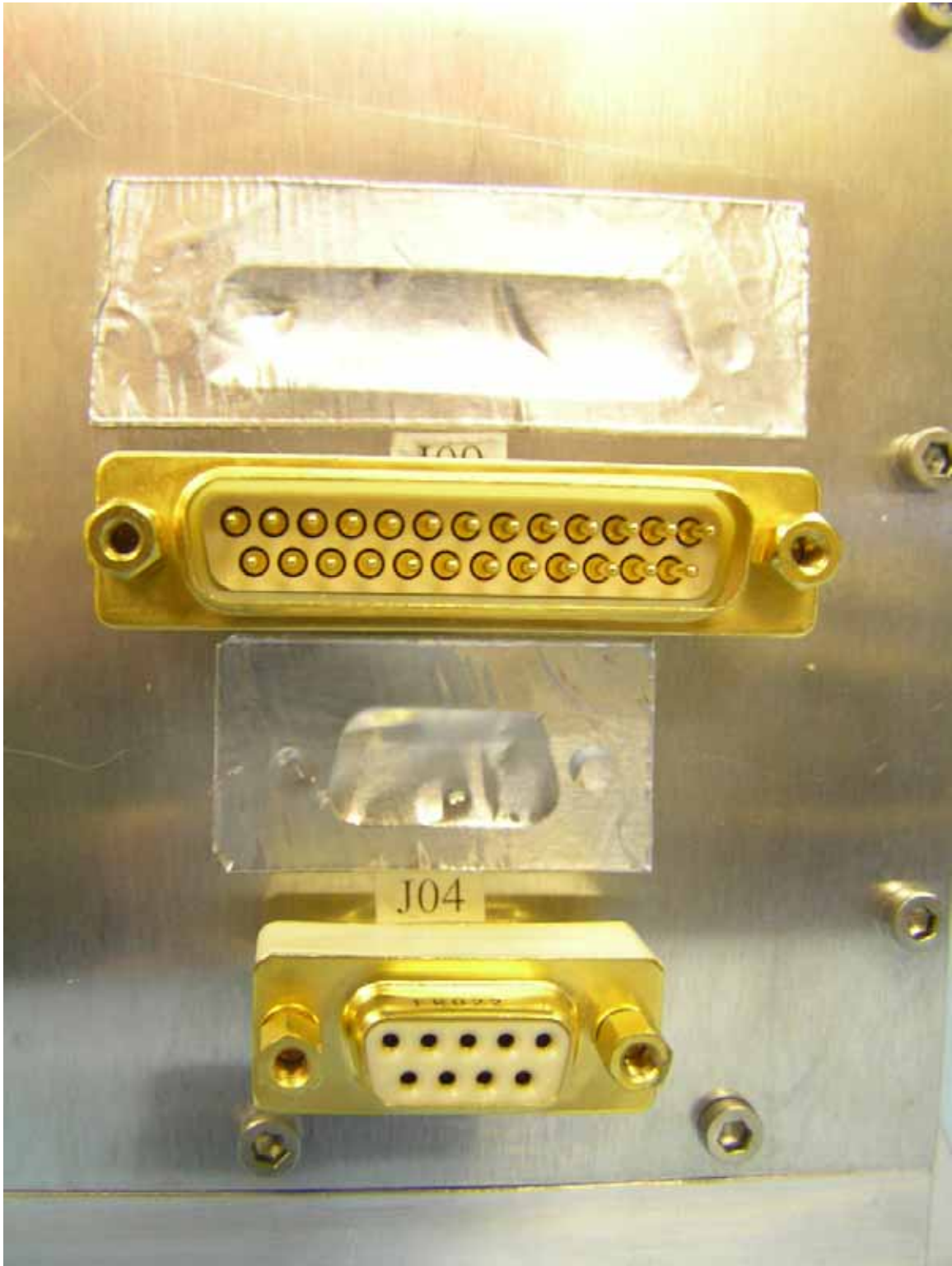
**Other Side View showing some minor scuff marks scratches etc**



**Front View showing connector savers fitted and 3 ESD covers fitted**



Close up of Connectors J04 & J09 with J09 ESD cover removed





Close up of Connectors J03 & J08 with J08 ESD cover removed



Close up of Connectors J01 & J07 with J07 ESD cover removed

