

DECLARED PROCESS LIST		ORIGINATOR: UK ATC	
SPACECRAFT / PROJECT:	Herschel	Doc. Number	SPIRE-ATC-PRJ-708
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SUB-SYSTEM:	BSM	Issue:	1.013
		Date:	12.Aug.04.Nov20.NOV.02

Process ID	Process	Specification (Incl. Issue)	Description / Identification	Use and Location	User Code	Associated DML Items	Criticality of Process	Approval / Status
1.	Adhesive bonding	<u>TBW</u> Author: <u>KWTBC</u>	Bonding of sensors into mounts and potting of wiring	Jiggle frame & structure & motor terminations	<u>TBC</u> <u>N/A</u>	<u>Eccobond 285 + catalyst 24LV</u> <u>Eccobond</u> , G-10,	medium	<u>Identical to ID#17</u>
2.	Adhesive bonding	<u>TBW</u> Author: <u>KW</u>	Bonding of flex-pivots into sleeves	Chop and Jiggle stage	<u>N/A</u> <u>BC</u>	inconel, <u>Eccobond 285 + catalyst 24LV</u> <u>Eccobond</u> , aluminium 6082	high	Confirmed by DM-1 warm shake
3.	Adhesive bonding	<u>N/A</u> Author: <u>TBW</u> <u>KWTBC</u>	Bonding of sleeves into housings	Chop and Jiggle stage	<u>N/A</u> <u>BC</u>	<u>N/A</u> <u>Eccobond 285 + catalyst 24LV</u> <u>Eccobond</u> , <u>aluminium 6082</u>	<u>N/A</u> high	NOT USED
4.	Adhesive bonding	<u>TBW</u> Author: <u>KWTBC</u>	Harness tie-down	(TBD if required)	<u>N/A</u> <u>BC</u>	<u>Eccobond 285 + catalyst 24LV</u> <u>Eccobond</u> , aluminium 6082	low	<u>Standard RAL practice.</u> <u>TBD</u> <u>Used on BSM STM</u>
5.	Adhesive bonding	<u>TBW</u> Author: <u>KWTBC</u>	fastener locking.	<u>applied in visible location, eg under heads</u> <u>Applied to exposed threads and M2.5 nut holding launch lock base(TBD if required)</u>	<u>N/A</u> <u>BC</u>	<u>Eccobond 285 + catalyst 24LV</u> <u>Eccobond</u> , aluminium 6082, stainless steel	medium	<u>Standard RAL practice.</u> <u>Used as repair scheme on STM chop mirror screw</u>
6.	Adhesive bonding	<u>TBW</u> Author: <u>KWTBC</u>	Bonding of magnets into pockets	Chop and Jiggle stage	<u>N/A</u> <u>BC</u>	<u>Eccobond</u> <u>Eccobond 285 + catalyst 24LV</u> , aluminium 6082/6061, magnet	medium	Confirmed by DM-1 warm shake
7.	Adhesive bonding	<u>TBW</u> Author: <u>KWTBC</u>	Bonding of sensor actuators into pockets	Chop and Jiggle stage	<u>N/A</u> <u>BC</u>	<u>Eccobond</u> , aluminium 6082/6061, soft iron	medium	<u>TBC. Similar process used on ISOPhot</u>

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8.	Thermal stabilization	SPI-BSM-NOT-003 <u>Author IP</u>	Mirror stability cycling	Chop stage	<u>N/A</u> <u>BC</u>	Aluminium 6061	high	<u>ATC standard, adopted from NASA practice.</u>
9.	Electro-forming copper	<u>Waveform Electroforming Ltd procedure EP/003-C iss2</u> <u>TBW</u> <u>Author: KW</u> <u>TBC</u>	Manufacturing technique (<u>sub-contract process</u>)	Motor thermal shields	<u>N/A</u> <u>BC</u>	Electro formed Copper	medium	-Confirmed by inspection and DM-1 warm shake
10.	Gold plating 2-10 um	<u>MOD DEF STAN 03-17/iss2</u> <u>5 um thick</u> <u>TBW</u> <u>Author: KW</u> <u>TBC</u>	Plating (<u>sub-contract process</u>)	thermal contact, Emmisivity control	<u>N/A</u> <u>BC</u>	Gold, copper, nickel plate	medium	<u>TBD</u> <u>TBC</u>
11.	Niobium plating	<u>TBC</u> <u>N/A</u>	Plating	Magnetic shielding	<u>N/A</u> <u>BC</u>	<u>N/A</u> <u>Not used</u>	<u>N/A</u> <u>medium</u>	Not used
12.	Alochrome	MOD DEF STAN: 03-18. <u>iss2</u> <u>To a light yellow appearance</u>	Alocrom 1200 AL Alloy Surface Conversion	Corrosion control	<u>N/A</u> <u>BC</u>	Aluminium <u>components alloys</u> <u>where specified</u>	low	<u>Accepted RAL and ESA process.</u>

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13.	Varnish application	TBCZeiss process	Coating	Insulation/ corrosion control	N/A+ BC	Not used	high	Zeiss motor coils have polyimide coating, but these are treated as bought-in components (see DCL)
14.	Soldering	TBC TBW Author BCG	Soldering	Connectors	N/A+ BC	Wiring, connectors, sensors, motors	high	ESA approved soldering practice
15.	Crimping	TBC Author BCG	Crimping	Connectors	N/A+ BC	Wiring, connectors	high	TBD if required
16.	Fastener Assembly	SPI-BSM-NOT-0018 V1.0 Author IP	Screw thread lubrication and torque control for BSM	BSM	N/A+ BC	Misc All bolted components	High	TORQUE LEVELS UNDER REVIEW. An alternate MSSL procedure using apeizon-100 is also being considered
17.	Bond Motors into housing	TBW: Author KWTBC	Potting / bonding	Motor coils and their wires into G10 and Al housing, and	N/A+ BC	Eccobond 285 + catalyst 24LV Wiring, Zeiss coils, Aluminium 6082, G-10	High	TBD
18.	Cleaning before assembly	TBC TBW: Author KW	Clean with ultrasound, IPA, tap water	After machining and before clean room acceptance	N/A+ BC	All	Medium	TBD Similar to RAL cleaning process

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18.19.	<u>Optical Surface cleaning</u>	<u>TBW</u> Author PTP	<u>Clean with 'opti-clene'</u>	<u>BSM mirror, if required</u>	<u>N/A</u>	<u>BSM mirror</u>	<u>High</u>	<u>TBD</u>
18.20.	<u>Optical Surface cleaning</u>	<u>TBW</u> Author PTP	<u>Clean with IPA or acetone</u>	<u>BSM mirror, if required</u>	<u>N/A</u>	<u>BSM mirror</u>	<u>High</u>	<u>TBD</u>
18.21.	<u>Optical Surface polishing</u>	<u>TBW</u> Author PTP	<u>Abrasive clean with fine diamond paste</u>	<u>BSM mirror, if required (repair technique)</u>	<u>N/A</u>	<u>BSM mirror</u>	<u>High</u>	<u>TBD</u>
18.22.	<u>Wiring routing</u>	<u>TBW, Author</u> BCG	<u>Wiring routing and tie down</u>	<u>BSM wiring harness</u>	<u>N/A</u>	<u>Wiring, connectors, P-Cips, lacing tape</u>	<u>Medium</u>	<u>TBD</u>
18.23.	<u>Annealing</u>	<u>TBW, author</u> TAP	<u>Annealing of Brass P-clips</u>	<u>BSM wiring harness</u>	<u>N/A</u>	<u>Wiring</u>	<u>Low</u>	<u>TBD</u>