

Standard: PS 500

Title: Master, Subject & Correlation Index

Approvals:

| Issue | Compiled | Date | M&P Eng. | QA | Approved | EO |
|-----------|---------------|-----------------|---------------|------------------|------------------|------------------|
| 54 | S Ford | 20140226 | S Ford | P Fenton | R Duckett | EWA001234 |
| 55 | S Ford | 20140911 | S Ford | P Fenton | B Roberts | EWA001411 |
| 56 | S Ford | 20150806 | S Ford | P Fenton | B Roberts | EWA001981 |
| 57 | S Ford | 20151020 | S Ford | P Fenton | B Roberts | EWA002172 |
| 58 | S Ford | 20170615 | S Ford | P Dolphin | B Roberts | EWA002763 |

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1.0 EQUIVALENCY STATEMENT

- 1.1 The correlation index starting on page 14 of this specification shall be used to determine the appropriate substitute Moog Wolverhampton (MWL) specification when a Rotol / Dowty Aerospace Gloucester (DAG) specification is called up on a drawing. For the purposes of this substitution the acceptable alternative is given in Column A and the Rotol / DAG specification is given in column B.
- 1.2 Example 1, for a part with a drawing note calling for "Vapour Degrease to DAG PS 203" it is acceptable for this part to be processed to PS 78.
- 1.3 Example 2, for a part with a drawing note calling for "Nitride to DAG PS 302" it is acceptable for this part to be processed to MSPS200.HT.003.
- 1.4 The following restrictions apply:-
- The substitution ONLY applies in the stated direction, i.e. for the example given above, processing to DAG PS 302 is not an acceptable substitute when a drawing note calls for "Nitride to PS 27"
 - This substitution ONLY applies to drawings which were Dowty Aerospace Gloucester design, but had the design authority transferred to Smiths Wolverhampton (now Moog Wolverhampton), i.e. part numbers belonging to the following contracts and having the associated series of part numbers given:-
- | | | | |
|----------------------|--|---------------------|-----------------|
| A330/340 high lift | p/n 697 xxx xxx | F50 flap | p/n 678 xxx xxx |
| BAE 146 high lift | p/n 676 xxx xxx | F50 door | p/n 668 xxx xxx |
| CASA CN235 high lift | p/n 677 xxx xxx | SAAB gearbox | p/n 677 014 xxx |
| EFA gearbox | p/n DBEF xxxx | SAAB manacle clamps | p/n 602 1xx xxx |
| V22 Solenoid | p/n 114197xxx, 114242xxx, 114424xxx, 114346xxx | | |
| Other | Gxxxxx, 601 0xx xxx | | |
- 1.5 This substitution applies to parts manufactured in house and by approved suppliers to MWL and only effects the above series of part numbers and associated sub-assemblies.
- Note:** Suppliers will normally ONLY be issued copies of specifications controlled by MWL. DAG process specifications WILL NOT normally be issued to suppliers.
- 1.6 All DAG specifications that have no substitute under the MWL series of specifications, as given by the correlation index, shall be referred to Moog Wolverhampton Materials Engineering.
- 1.6.1 There are no established equivalents for DAG PS 900 "Manufacturing Standards, General" and DAG PS 1000 "Use of Specifications in Manufacturing" within the MWL series of specifications. When updating drawings that have these references it is accepted that these references are not replaced with a note referring to a Moog Wolverhampton document. This is because under the MWL system of controlling specifications this kind of general information would be covered in process specific documents or is the kind this is accepted as industry-wide understanding of engineering drawings.

2.0 NOTE TO SUPPLIERS

- 2.1 Approved suppliers to Moog Wolverhampton shall request copies of procedures as required for parts manufacture or dissemination to sub tier suppliers via Moog Wolverhampton Purchasing Department.

3.0 PROCESS SPECIFICATION (PS) MASTER INDEX

- 3.1 In the section, specifications marked with an asterisk (*) are considered "NOT ACTIVE" and as such will not be audited or reissued.
- 3.2 All specifications that were the responsibility of Precision Handling (now Parkburn) or Fabrications Department are now cancelled

| PS | Issue | Date | Title |
|------|-------|----------------|--|
| 500 | 58 | see front page | Master, Subject & Correlation Index |
| 1 | 12 | Jul-14 | Dry Lubricant, Anti-Friction Coatings |
| 2 | - | - | CANCELLED (in house use PCD 2, supplier base use MSPS100.CP.007) |
| 3 | - | - | CANCELLED |
| 4 | - | - | CANCELLED (in house use PCD 4, supplier base use MSPS100.CP.002) |
| 5 | 3 | 3/91 | Cleaning of Hydraulic Pipes |
| 6 | 7 | May-10 | Surface Sealing of Magnesium Castings |
| 7 | - | - | CANCELLED |
| 8 | 14 | 20131002 | Cleaning and Surface Preparation of Metallic Materials |
| 9 | - | - | CANCELLED (use PS 174) |
| 10 | 5 | Mar-11 | Dalic Electroplating Process |
| 11 | 6 | 1/97 | Salt Bath Nitrocarburising - SURSULF and TUFFTRIDING |
| 12 | - | - | CANCELLED (in house use PCD 12, supplier base use MSPS100.CP.003) |
| 13 | - | - | CANCELLED (use PS 69) |
| 14 | - | - | CANCELLED (in house use PCD 14, supplier base use MSPS100.CP.004) |
| 15 | - | - | CANCELLED (use PS 14) |
| 16 | 5 | Nov-05 | Hard Chromium Plating of Aluminium Alloys |
| 17 | - | - | CANCELLED (in house use PCD 17, supplier base use MSPS100.CP.009) |
| 18 | 8 | Jun-14 | Chromate Treatment of Magnesium Alloys |
| 19 | 16 | 20170110 | Contamination Levels for Hydraulic Fluids |
| 20 | - | - | CANCELLED |
| 21 | 2 | 3/91 | Tin Plating |
| 22 | 1 | 5/75 | Treatment for Solenoid Coil Assemblies |
| 23 | 1 | 5/75 | Fitting Shrink-on Plastic Sleeving and Boots |
| 24 | 6 | 11/78 | Packing of Hydraulic Assemblies for Storage |
| 25 | 2 | 5/78 | Packing of Electrical Components and Assemblies |
| 26 | 5 | 3/99 | Paint Removers |
| 27 | - | - | CANCELLED (in house use PCD 27, supplier base use MSPS200.HT.003) |
| 28 | 10 | Mar-15 | Araldite Epoxy Resin Adhesives |
| 29 | - | - | CANCELLED (in house use PCD 29, supplier base use MSPS300.NDT.001) |
| 30 | - | - | CANCELLED (use PS 1) |
| 31 | 2 | 10/74 | Impregnation of Coil Windings |
| 32 | 10 | 20161222 | Induction Brazing (see also PS 119) |
| 33 | 11 | Aug-10 | LOCTITE Sealants and Adhesives |
| 34 | - | - | CANCELLED (in house use PCD 34, supplier base use MSPS100.CP.008) |
| 35 | - | - | CANCELLED |
| 36 | - | - | CANCELLED (in house use PCD 36, supplier base use MSPS100.CP.006) |
| 37* | 2 | 11/74 | Nickel Plating |
| 38 | 3 | Jan-07 | Silver Plating |
| 39 | - | - | CANCELLED (supplier base use MSPS400.MISC.001) |
| 40 | 3 | 8/76 | Adhesive Fixing of Labels (SILASTIC 738 RTV) |
| 41 | 5 | 2/94 | Plugging of Hydraulic Components with Lee Plugs (Existing Civil Contracts ONLY), (see also PS 57) |
| 42 | 6 | 4/96 | Silver Brazing |
| 43 * | 2 | 5/75 | Reclamation of Steel Components by Heavy Nickel Plating |
| 44 | 3 | 12/99 | Secondary Staking of Lee Plugs |
| 45 | 8 | May-11 | Temporary Protection Against Corrosion |
| 46 | 1 | 11/72 | Removal of Copper Plugs from Rotary Valve Sleeves |
| 47 | - | - | CANCELLED |
| 48 | - | - | CANCELLED |
| 49 | 4 | Aug-06 | Low Hydrogen Embrittlement (LHE) Cadmium Plating of Ultra-high Strength Steel (UTS <2140MPa or 310ksi) |

| PS | Issue | Date | Title |
|------|-------|--------|---|
| 50 * | 1 | 7/74 | Chemical cleanliness of steels (sulphur prints) |
| 51 | 1 | 3/72 | Pre-Treatment and Surface Coating of PTFE Insulated Cables prior to Potting |
| 52 | - | - | CANCELLED (in house use PCD 52, supplier base use MSPS100.CP.005) |
| 53 | - | - | CANCELLED (use PS 118) |
| 54 | 2 | 5/77 | Plugging of Hydraulic Components (other than Lee Plugs) |
| 55 * | 1 | 5/71 | Bolt etching process (forged heads) |
| 56 | 1 | 8/71 | Manipulation of Cold set preformed Rigid Pipes |
| 57 | 10 | Jul-12 | Plugging of Hydraulic Components with Lee Plugs (see also PS 41) |
| 58 | 1 | 3/72 | Reclamation of Cast Iron Components by Powder Welding |
| 59 | - | - | CANCELLED (use PS 174) |
| 60 | 1 | 12/73 | Undercutting of screw threads |
| 61 | - | - | CANCELLED |
| 62 | - | - | CANCELLED (use PS 11) |
| 63 * | 3 | 8/82 | Photographic examination of hard chrome plated cylinder bores |
| 64 | - | - | CANCELLED (use Design Standard 53) |
| 65 | - | - | CANCELLED (use PS 179) |
| 66 | 4 | 3/99 | Crimped Cable Connections |
| 67 | 1 | 4/74 | Removal of excess Copper braze from Bushes |
| 68 | - | - | CANCELLED |
| 69 | - | - | CANCELLED (in house use PCD 69, supplier base use MSPS100.CP.001) |
| 70 | - | - | CANCELLED |
| 71 | - | - | CANCELLED (in house use PCD 71, supplier base use MSPS400.MISC.002) |
| 72 | - | - | CANCELLED |
| 73 | - | - | CANCELLED (in house use PCD 73, supplier base use MSPS200.HT.002) |
| 74 | 25 | Apr-15 | Magnetic Particle Inspection |
| 75 | - | - | CANCELLED (use PS 28) |
| 76 | 1 | 12/74 | Procedure for potting Concorde Linear Transducers |
| 77 | 15 | Aug-14 | Jointing and Sealing Compounds |
| 78 | 9 | Nov-15 | Trichloroethylene Vapour Degreasing |
| 79 | 26 | Apr-15 | Fluorescent Penetrant Inspection |
| 80 | - | - | CANCELLED |
| 81 | - | - | CANCELLED |
| 82 | - | - | CANCELLED (use PS 174) |
| 83 | - | - | CANCELLED (use PS 1) |
| 84 | - | - | CANCELLED |
| 85 | - | - | CANCELLED |
| 86 | 2 | 10/76 | Brazing Technique for Transducer type P297 45 0060 |
| 87* | 1 | 6/76 | General requirements for spot welding sheet assemblies |
| 88 | 3 | 7/76 | Assembly of KEELARING Couplings |
| 89 | 1 | 10/75 | General Riveting Process |
| 90 | 2 | 10/76 | Cryogenic Jointing |
| 91 | - | - | CANCELLED |
| 92* | 4 | 3/84 | Printed wiring board manufacture |
| 93 | - | - | CANCELLED |
| 94 | - | - | CANCELLED (supplier base use MSPS100.CP.001) |
| 95 | 1 | 9/76 | Glass Bead Peening |
| 96 | 7 | Jan-07 | RILSAN Nylon Coatings |
| 97 | - | - | CANCELLED |
| 98 | 1 | 9/78 | Grinding of Titanium Alloys |
| 99 | - | - | CANCELLED |

| PS | Issue | Date | Title |
|-------|-------|----------|--|
| 100 | 1 | 3/77 | Application of Extrude-Hone Process for Surface Finish Improvement |
| 101 | 2 | 11/82 | Application of two Package RTV 88 Silicone for Potting Purposes |
| 102 * | 1 | 10/78 | NDT Ultrasonic Inspection of Aluminium Alloys |
| 103 | - | - | CANCELLED |
| 104 * | 1 | 7/77 | Impregnation of Oilite Porous Bronze Bearings |
| 105 | - | - | CANCELLED (use PS 28) |
| 106 * | 1 | 10/77 | Black oxide treatment of steels |
| 107 | - | - | CANCELLED (use PS 33) |
| 108 | - | - | CANCELLED (see PS 13 or PS 69) |
| 109 * | 1 | 6/78 | Assembly and protection of printed wiring boards |
| 110 | 2 | 5/85 | Hydraulic Pipe Identification (<12mm) |
| 111 | 17 | Apr-15 | Hardness Testing of Metallic Materials |
| 112 | - | - | CANCELLED |
| 113 | 1 | 11/78 | Dow Corning 3400A Bonded Lubricant |
| 114 * | 1 | 2/79 | Hard Chromium Plating of Copper Alloys |
| 115 | - | - | CANCELLED |
| 116 * | 1 | 2/79 | Cadmium Plating of Cuprous Alloys |
| 117 | - | - | CANCELLED |
| 118 | 17 | Apr-15 | Heat Treatment of Alloy Steels |
| 119 | 2 | 11/97 | Induction Hardening (see also PS 32) |
| 120 | 1 | 10/82 | Crystal clear Silicon Potting Compound |
| 121 | 3 | Apr-13 | Pickling of S145 Forgings |
| 122 | - | - | CANCELLED (use PS 28) |
| 123 * | 1 | 3/80 | Sealing of pipe/coupling ends with Heat Shrinkable Sleeving |
| 124 * | 1 | 7/80 | Use of Waylock S-17163 Adhesive |
| 125 | 1 | 3/80 | Swaging of Metric pipe Couplings |
| 126 | 1 | 9/80 | Tube/pipe Bending |
| 127 | 1 | 7/80 | Routing and Installation of non-lofted Hydraulic Pipes |
| 128 | - | - | CANCELLED |
| 129 | - | - | CANCELLED |
| 130 | - | - | CANCELLED |
| 131 | - | - | CANCELLED |
| 132 | 1 | 11/81 | Thread Rolling of Special Applications |
| 133 | 1 | 9/82 | Application of Dow Corning 3145 RTV Adhesive Sealant |
| 134 | - | - | CANCELLED (use PS 118) |
| 135 | 1 | 11/82 | Electron Beam Welding of 4340 ESR |
| 136 | 2 | 6/90 | Vacuum deposited Cadmium Plating on ultra high Strength Steels |
| 137 | - | - | CANCELLED |
| 138 | 3 | Feb-10 | Special Machining Techniques for ultra high Strength Steels |
| 139 | 5 | Mar-12 | Protective Treatment against Corrosion – MASTINOX |
| 140 | - | - | CANCELLED |
| 141 | - | - | CANCELLED |
| 142 | 3 | Oct-10 | Ultrasonic Cleaning and suitable Cleaning Solutions |
| 143 | 10 | 20161014 | Abrasive Blasting of Metallic Materials |
| 144 | - | - | CANCELLED (use PS 74) |
| 145 | - | - | CANCELLED |
| 146 | - | - | CANCELLED |
| 147 | 1 | 7/87 | Laminated Servo Valve - Epoxy Bonding Procedure |
| 148 | - | - | CANCELLED |
| 149 | - | - | CANCELLED (supplier base use MSPS100.CP.001) |

| PS | Issue | Date | Title |
|-----|-------|----------|--|
| 150 | - | - | CANCELLED (use PS 118) |
| 151 | 4 | Feb-11 | Plasma (Ion) Nitriding |
| 152 | - | - | CANCELLED |
| 153 | - | - | CANCELLED |
| 154 | - | - | CANCELLED (use PS 73) |
| 155 | 1 | 4/91 | Hot Isostatic Pressing of Investment Castings |
| 156 | 11 | 20161222 | Part Marking |
| 157 | 2 | 12/99 | MJ Threads modified for critical Load Applications |
| 158 | 2 | 12/99 | U NJ Threads modified for critical load Applications |
| 159 | 1 | 4/91 | Helical Compression Springs for critical Load Applications |
| 160 | 2 | 5/93 | NITROTEC (Nitrocarburising) Surface Treatment |
| 161 | 4 | 20160411 | Use and Control of Cleaning Fluids |
| 162 | 2 | 2/94 | IVD Aluminium on Steel |
| 163 | - | - | CANCELLED |
| 164 | 1 | 7/92 | Electropolishing of Investment Castings |
| 165 | 1 | 5/93 | Nickel Sulphamate Plating |
| 166 | 2 | 7/95 | Requirements for Electron beam Welding of B777 Ball ramp Assembly |
| 167 | 2 | 6/00 | Grinding and Inspection of Chromium plated parts |
| 168 | 2 | 1/02 | Requirements for Hot Form Swaging |
| 169 | 1 | 4/93 | Laser Cutting of Metals |
| 170 | 1 | 5/93 | Assembly and installation of Magnetic seals |
| 171 | 2 | 7/97 | Aircraft Hydraulic/Mechanical Assemblies - Storage and Preservation Information |
| 172 | 2 | 11/95 | Assembly Procedure for Flareless fittings |
| 173 | 3 | Aug-10 | Requirements for Electron beam Welding SAAB JAS 39 IDG and Breather Gears |
| 174 | 16 | Jun-15 | Paint Schemes |
| 175 | 3 | 3/00 | Controlling Document for the manufacture of A330/340 Composite Transmission Shafts |
| 176 | - | - | CANCELLED |
| 177 | 2 | Mar-12 | Staking of Spherical Bearings |
| 178 | - | - | CANCELLED – see PS 1 Appendix 6 |
| 179 | 11 | 20170303 | Thermal Sprayed Tungsten Carbide Coatings |
| 180 | 4 | 20160404 | Nodular Thin Dense Chromium (NTDC) Plating |
| 181 | 4 | Jul-13 | Welding of Hydraulic Pipe Assemblies |
| 182 | 2 | Nov-11 | Fitting of seals without Lead groove Locations |
| 183 | 1 | 9/95 | Control of Shelf Life Limited Items |
| 184 | 1 | 6/96 | JAS 39 Gearbox Housing Casting Inspection Technique |
| 185 | 1 | 7/96 | Radiographic Acceptance Standards for Castings |
| 186 | 1 | 7/97 | Manufacture of Bevel Gears |
| 187 | 1 | 10/96 | Electrochemical Deburring (ECD) and Machining (ECM) |
| 188 | 1 | 2/98 | Termination Requirements for Chromium plated surfaces |
| 189 | draft | | Torque Loads to be applied to Union Fittings |
| 190 | draft | | Unit Assembly Label fixing using Cable Ties |
| 191 | 1 | 6/00 | TRIBOMETT104CS Coatings |
| 192 | 5 | Mar-11 | Salt Spray Testing |
| 193 | 1 | 7/00 | Air Cleanliness of shop floor Compressed Air Lines |
| 194 | 3 | Apr-06 | APTICOTE 400 and 450 Coatings |
| 195 | 3 | Feb-13 | TECH 12 Chrome Plate Impregnation and Densification |
| 196 | 2 | Mar-07 | Plunge Grinding |
| 197 | 4 | Feb-13 | Visual Inspection |
| 198 | 3 | Sep-08 | Assembly of Bushes with wet Primer |
| 199 | 3 | Sep-13 | JSF Titanium Material and Casting Requirements |

| PS | Issue | Date | Title |
|-----|-------|-----------|--|
| 200 | 2 | Mar-09 | Physical Vapour Deposition (PVD) of an Amorphous Carbon Coating |
| 201 | 3 | as PS 500 | KERONITE Coatings for Ti, Al & Mg Alloys |
| 202 | 3 | Apr-12 | Tungsten Disulphide (WS2) Thin, dry film Lubricant |
| 203 | 1 | 8/03 | Procedure for installation of Imperial thin wall Inserts |
| 204 | 1 | 11/03 | Barrel deburring for Non-ferrous loads <200g |
| 205 | 3 | Dec-04 | Thermal Stabilisation of Servo Valves |
| 206 | draft | | Scragging of shaft Assemblies |
| 207 | 2 | Nov-09 | Electron Beam Welding Flap System Shafts for A380 |
| 208 | 3 | Feb-14 | Titanium Nitride Coatings |
| 209 | 1 | Apr-06 | 787 Aluminium material Procurement & Casting Inspection Requirements for Casting Housing, P677A0160-00 |
| 210 | 8 | 20160909 | Mechanical Property Sampling of Oversized Aluminium Billets |
| 211 | 4 | Feb-14 | Requirements for Electron beam welding of 787 diaphragm sub-Assembly |
| 212 | 1 | Sep-07 | Control of Metal Working Fluids |
| 213 | 1 | Nov-07 | Installation procedure for Tyco standard Solder Sleeve Shield Terminators |
| 214 | 2 | Jan-08 | Controlled glass bead blasting – Diaphragm Coupling |
| 215 | 3 | Apr-15 | Aqueous Cleaning |
| 216 | 1 | Oct-13 | Balinit DLC (Star) Coating |
| 217 | 1 | Apr-14 | Furnace Copper Brazing |
| 218 | 2 | 20160229 | Inner Armor™ Sliding Wear Coating |
| 219 | 1 | 20160204 | Nitron MC WC-C Coating |

4.0 MOOG SUPPLIER PROCESS SPECIFICATIONS (MSPS)

4.1 The following documents are for use within Moog Wolverhampton supplier base.

| Document # | Issue | Date | Process # | Process Name |
|--------------|-------|--------|------------------|--|
| MSPS100.CP | 4 | Aug-15 | MSPS100.CP.001 | Anodising of Aluminium & Aluminium Alloys |
| | | | MSPS100.CP.002 | Chemical Conversion Coatings on Aluminium & Aluminium Alloys |
| | | | MSPS100.CP.003 | Hard Chromium Plating |
| | | | MSPS100.CP.004 | Cadmium Plating |
| | | | MSPS100.CP.005 | Passivation of Corrosion Resistant Steel |
| | | | MSPS100.CP.006 | Copper Plating |
| | | | MSPS100.CP.007 | Bronze Plating for Nitriding Stop Off Purposes |
| | | | MSPS100.CP.008 | Electroless Nickel Plating |
| | | | MSPS100.CP.009 | Manganese Phosphate Treatment of Steel |
| MSPS200.HT | 2 | Jan-13 | MSPS200.HT.001 | Furnace Control & Calibration (Pyrometry) |
| | | | MSPS200.HT.002 | Carburising of Steel Parts |
| | | | MSPS200.HT.003 | Gas Nitriding of Low Alloy Steel Parts |
| MSPS300.NDT | 3 | Nov-12 | MSPS300.NDT.001 | Etch Inspection of High Strength Steel Parts |
| MSPS400.MISC | 1 | Oct-08 | MSPS400.MISC.001 | Shot Peening |
| | | | MSPS400.MISC.002 | Electro Discharge Machining, EDM |

5.0 PROCESS CONTROL DOCUMENTS (PCD)

- 5.1 The following documents are for use at Moog Wolverhampton in-house treatments department ONLY.
These documents are not to be distributed externally.

| PCD | Issue | Date | Title |
|-----|-------|----------|--|
| 2 | 4 | 20160330 | Bronze Plating |
| 3 | 9 | 20161222 | Furnace Operating Procedures |
| 4 | 4 | Apr-13 | Protective Treatment of Aluminium using Alocrom 1200 Process |
| 7 | 9 | Apr-15 | Metallography |
| 12 | 4 | Nov-10 | Hard Chromium Plating of Steels |
| 14 | 4 | Mar-11 | Cadmium Plating |
| 17 | 3 | 20160330 | Phosphate Treatment of Steel |
| 27 | 5 | 20161014 | Gas Nitriding of Steel Components |
| 29 | 6 | 20151001 | Etch Inspection of Steel Components |
| 34 | 5 | Mar-11 | Electroless Nickel Plating |
| 36 | 5 | 20160330 | Copper Plating |
| 52 | 4 | 20161222 | Passivation of Corrosion Resistant Steels |
| 69 | 4 | Nov-10 | Chromic Acid Anodising |
| 71 | 2 | May-09 | Electrical Discharge Machining (EDM) |
| 73 | 5 | Apr-15 | Gas Carburising of Steel Components |
| 149 | 3 | Nov-10 | Sulphuric Acid Anodising of Aluminium and Titanium alloys |

6.0 DAG PROCESS SPECIFICATIONS TRANSFERRED TO MOOG - WOLVERHAMPTON

- 6.1 The following are process specifications which were originally issued by Dowty Aerospace Gloucester (now GE Aviation Systems Ltd of Cheltenham), but are now controlled by MWL as they represent work that is now the technical and manufacturing responsibility of MWL (see part number groups listed in paragraph 1.2)

| PS | Issue | Date | Title |
|------------|-------|-------|---|
| DAG PS 121 | 3 | 12/70 | Protection of Engine Accessory Magnesium Alloy Castings Against Corrosion |
| DAG PS 505 | 4 | 1/93 | Requirements for Electron Beam Welding of A330/340 Flap System Shafts |

Note: The two process specifications listed above are given the prefix DAG to distinguish them from process specifications with origins at MWL.

7.0 MATERIAL SPECIFICATIONS (MAT)

- 7.1 The following are MWL controlled material specifications (some originally Dowty Boulton Paul - DBP) which have been raised on very few specific occasions - it being MWL policy to use material from a nationally recognized standard

| PS | Issue | Date | Title |
|---------|-------|--------|--|
| MAT 100 | 4 | 9/93 | Additional Requirements for Tool and Die Steel to BS 4659:1989, Grade BO-1 |
| MAT 101 | 3 | 9/93 | Requirements for Valve spring Steel wire to AS 33A |
| MAT 102 | 2 | 9/93 | Requirements for Aluminium plate to 7075-T7351 with thickness >75mm |
| MAT 103 | 1 | 4/03 | Additional Requirements for phosphor bronze bar to DTD 265A |
| MAT 104 | 2 | Oct-05 | Copper-Beryllium Alloy UNS C17200 |
| MAT 138 | 2 | 2/93 | Corrosion resisting 17-4PH Steel Tube |
| MAT 601 | 4 | Jun-15 | Grease/oil mixture for Flap system Gearboxes |
| MAT 602 | 4 | Jun-15 | Low viscosity Grease/oil mixture for Gearbox |

8.0 PROCESS SPECIFICATION (PS) SUBJECT INDEX**Note:** Only current documents are given in the following listing**8.1** Plating / Passivation

| | |
|------------------|---|
| PS 194 | Apticote 400 and 450 Coatings |
| PS 106 | Black Oxide Treatment for Steels |
| PCD 2 § | Bronze Plating |
| MSPS100.CP.007 ‡ | Bronze Plating for Nitriding Stop Off Purposes |
| PS 18 | Chromate Treatment of Magnesium Alloy |
| PCD 14 § | Cadmium Plating |
| MSPS100.CP.004 ‡ | Cadmium Plating |
| PS 49 | Cadmium Plating of UHT Steels |
| PS 116 | Cadmium Plating of UHT Cuprous Alloys |
| PS 136 | Cadmium Plating of UHT Steels by Vacuum Deposition |
| PCD 36 § | Copper Plating |
| MSPS100.CP.006 ‡ | Copper Plating |
| PS 10 | Dalic Electro Plating Process |
| PCD 34 § | Electroless Nickel Plating |
| MSPS100.CP.008 ‡ | Electroless Nickel Plating |
| PCD 12 § | Hard Chromium Plating on Steels |
| MSPS100.CP.003 ‡ | Hard Chromium Plating |
| PS 16 | Hard Chromium Plating of Aluminium Alloys |
| PS 114 | Hard Chromium Plating of Copper Alloys |
| PS 162 | Ion Vapour Deposition (IVD) of Aluminium on Steel |
| MSPS100.CP.009 ‡ | Manganese Phosphate Treatment of Steel |
| PS 180 | Nodular Thin Dense Chromium (NTDC) Plating |
| PS 37 | Nickel Plating |
| PS 165 | Nickel Sulphamate Plating |
| PCD 52 § | Passivation of Corrosion Resistant Steel |
| MSPS100.CP.005 ‡ | Passivation of Corrosion Resistant Steel |
| PCD 17 § | Phosphate Treatment of Steels |
| PS 43 | Reclamation of Steel Components by Heavy Nickel Plating |
| PS 38 | Silver Plating |
| PS 188 | Termination Requirements of Chrome Plated Surfaces |
| PS 21 | Tin Plating |

8.2 Painting & Coatings

| | |
|--------|---|
| PS 174 | Paint Schemes for use at Smiths Wolverhampton |
| PS 26 | Paint Removers |
| PS 1 | Dry Lubricant, Anti-Friction Coatings |
| PS 113 | Dow Corning 3400A Bonded Lubricant |
| PS 178 | Molykote P37 Thread Paste (Solid Lubricant) |
| PS 96 | Rilsan Nylon Coating |
| PS 179 | Thermal Sprayed Tungsten Carbide Coatings |
| PS 191 | TribometT104CS Coating |
| PS 195 | Tech-12 Chromium Plate Impregnation and Densification |
| PS 200 | Physical Vapour Deposition (PVD) of an amorphous Carbon Coating |
| PS 201 | Tungsten Disulphide (WS ₂) Thin, Dry Film Lubricant |
| PS 202 | Keronite Coatings for Titanium, Aluminium and Magnesium Alloys |
| PS 208 | Titanium Nitride coatings |

8.3 Surface Treatments (including machining)

| | |
|--------------------|--|
| PS 8 | Cleaning and Surface Preparation of Metallic Materials |
| PS 121 | Pickling of S145 Forgings |
| PS 143 | Abrasive Blasting of Metallic Materials |
| MSPS400.MISC.001 ‡ | Shot Peening |
| PS 95 | Glass Bead Peening |
| PS 100 | Application of Extrude Hone Process for Surface Finish Improvement |
| PS 138 | Special Machining Techniques for UHT Steels |
| PS 187 | Electrochemical Deburring (ECD) and Machining (EDM) |
| PCD 71 § | Electro Discharge Machining (EDM) |
| MSPS400.MISC.002 ‡ | Electro Discharge Machining, EDM |
| PS 98 | Grinding of Titanium Alloys |
| PS 167 | Grinding and Inspection of Chromium Plated Parts |
| PS 125 | Swaging of Metric Pipe Couplings |
| PS 132 | Thread Rolling of Special Applications |
| PS 164 | Electropolishing of Investment Castings |
| PS 169 | Laser Cutting of Metals |
| PS 196 | Plunge Grinding |

8.4 Anodising and Surface Oxidation of Light Alloys

| | |
|------------------|--|
| PCD 4 § | Alocrom 1200 Process |
| MSPS100.CP.002 ‡ | Chemical Conversion Coatings on Aluminium & Aluminium Alloys |
| PCD 69 § | Chromic Acid Anodising |
| PCD 149 § | Sulphuric Acid Anodising of Aluminium and Titanium Alloys |
| MSPS100.CP.001 ‡ | Anodising of Aluminium and Aluminium Alloys |

Note: MSPS100.CP.001 covers chromic acid anodising, sulphuric acid anodising and hard anodising

8.5 Heat Treatment

| | |
|------------------|--|
| PS 118 | Heat Treatment of Alloy Steels |
| PS 119 | Induction Hardening |
| PCD 73 § | Gas Carburising |
| MSPS200.HT.002 ‡ | Gas Carburising / Case Hardening of Steel Parts |
| PCD 27 § | Nitriding of Steel Components |
| MSPS200.HT.003 ‡ | Gas Nitriding of Low Alloy Steel Parts |
| PS 151 | Plasma (Ion) Nitriding |
| PS 11 | Salt Bath Nitrocarburising - Sursulf and Tufftriding |
| PS 160 | Nitrotec (Nitrocarburising) Surface Treatment |
| PS 155 | Hot Isostatic Pressing (HIP) of Investment Castings |
| PS 168 | Requirements for Hot Form Swaging |

8.6 Joining (including adhesives, mechanical and thermal processes)

| | |
|----------|---|
| PS 89 | General Riveting Process |
| PS 90 | Cryogenic Jointing |
| PS 28 | Araldite Epoxy Resin Adhesives |
| PS 147 | Epoxy Bonding Procedure of Laminated Servo Valve |
| PS 33 | Loctite Sealants and Adhesives |
| PS 77 | Jointing and Sealing Compounds |
| PS 133 | Application of Dow Corning 3145 RTV Adhesive Sealant |
| PS 124 | Use of Waylock S-17163 Adhesive |
| PS 42 | Silver Brazing |
| PS 32 | Induction Brazing |
| PS 67 | Removal of Excess Copper Braze from Bushes |
| PS 86 | Brazing Technique for Transducer Type P297-45-0060 |
| PS 58 | Reclamation of Cast Iron components by Powder Welding |
| PS 87 | General Requirements for Spot Welding Sheet Assemblies |
| PS 181 | Welding Hydraulic Pipes and End Fittings |
| PS 135 | Electron Beam Welding of 4340 ESR |
| PS 166 | Electron Beam Welding of B777 Ball Ramp Assembly |
| PS 173 | Electron Beam Welding of JAS 39 Engine Accessory Gearbox IDG and Breather Gears |
| PS 505 † | Electron Beam Welding of A330/340 Flap System Shafts |
| PS 207 | Electron Beam Welding of Flap System Shafts for A380 |
| PS 211 | Requirements for Electron Beam Welding of 787 Diaphragm Sub-Assembly |
| PS 217 | Furnace Copper Brazing |

8.7 Assembly and Fitting

| | |
|--------|--|
| PS 126 | Tube/Pipe Bending |
| PS 56 | Manipulation of Cold Set Performed Rigid Pipes |
| PS 127 | Routing and Installation of Non-Lofted Hydraulic Pipes |
| PS 88 | Assembly of Keelaring Couplings |
| PS 23 | Fitting Heat Shrink on Plastic Sleeving and Boots |
| PS 123 | Sealing of Pipe/Coupling Ends with Heat Shrinkable Sleeving |
| PS 41 | Plugging of Hydraulic Components with Lee Plugs (existing Civil Contracts only) |
| PS 57 | Plugging of Hydraulic Components with Lee Plugs (all current and future contracts) |
| PS 44 | Secondary Staking of Lee Plugs |

| | |
|--------|--|
| PS 54 | Plugging of Hydraulic Components (other than Lee Plugs) |
| PS 46 | Removal of Copper Plugs from Rotary Valve Sleeves |
| PS 66 | Crimped Cable Connectors |
| PS 60 | Undercutting of Screw Threads |
| PS 157 | MJ Threads Modified for Critical Load Applications |
| PS 158 | UNJ Threads Modified for Critical Load Applications |
| PS 92 | Printed Wiring Board Manufacture |
| PS 109 | Assembly and Protection of Printed Wiring Boards |
| PS 159 | Helical Compression Springs for Aerospace Applications |
| PS 170 | Assembly and Installation of Magnetic Seals |
| PS 172 | Assembly Procedure for Flareless Fittings |
| PS 182 | Fitting of Seals without Lead Groove Locations |
| PS 189 | Torque Loads to be Applied to Union Fittings |
| PS 198 | Assembly of Bushes with Wet Primer |
| PS 203 | Procedure for Installation of Imperial Thin Wall Inserts |
| PS 205 | Thermal Stabilisation of Servo Valves |

8.8 Contamination and Cleaning

| | |
|--------|---|
| PS 19 | Contamination Levels in Hydraulic Fluid |
| PS 20 | Sampling of Fluids for Contamination Checks |
| PS 5 | Cleaning of Hydraulic Pipes |
| PS 78 | Trichloroethylene Vapour Degreasing |
| PS 215 | Aqueous Cleaning |
| PS 142 | Ultrasonic Cleaning and Suitable Aqueous Cleaning Solutions |
| PS 50 | Chemical Cleaning of Steels (Sulphur Prints) |
| PS 161 | Use and Control of Cleaning Fluids |
| PS 193 | Air Cleanliness of Shop Floor Compressed Air Lines |

8.9 Protection and Storage

| | |
|----------|---|
| PS 45 | Temporary Protection against Corrosion |
| PS 121 † | Protection of Engine Accessory Magnesium Alloy Castings against Corrosion |
| PS 24 | Packaging of Hydraulic Assemblies for Storage |
| PS 25 | Packaging of Electrical Components and Assemblies |
| PS 139 | Protective Treatment against Galvanic Corrosion - Mastinox |
| PS 171 | Aircraft Hydraulic/Mechanical Assemblies Storage and Preservation Information |
| PS 183 | Control of Shelf Life Limited Items |

8.10 NDT and other Inspection Techniques

| | |
|-------------------|---|
| PCD 29 § | Etch Inspection of Steel Components |
| MSPS300.NDT.001 ‡ | Etch Inspection of High Strength Steel Parts |
| PS 55 | Bolt Etching Process (Forged Heads) |
| PS 111 | Hardness Inspection of Metallic Materials |
| PS 74 | Magnetic Particle Inspection |
| PS 79 | Fluorescent Penetrant Inspection |
| PS 167 | Grinding and Inspection of Chromium Plated Parts |
| PS 102 | Ultrasonic Inspection of Aluminium Alloys |
| PS 63 | Photographic Examination of Hard Chrome Plated Cylinder Bores |
| PS 185 | Radiographic Acceptance Standards for Castings |
| PS 192 | Salt Spray Testing to ASTM B117 |
| PS 197 | Visual Inspection |

8.11 Component Identification

| | |
|--------|--|
| PS 156 | Part Marking |
| PS 110 | Hydraulic Pipe Identification (<12mm) |
| PS 40 | Adhesive Fixing of Labels (Silastic 738 RTV) |
| PS 190 | Unit Assembly Label Fixing using Cable Ties |

8.12 Potting Techniques

| | |
|--------|--|
| PS 51 | Pretreatment and Surface Coating of PTFE Insulated Cables Prior to Potting |
| PS 101 | Application of two Package RTV 88 Silicone for Potting Purposes |
| PS 76 | Procedure for Potting Concorde Linear Transducers |
| PS 120 | Crystal clear Silicon Potting Compound |

8.13 Miscellaneous

| | |
|--------|--|
| PS 31 | Impregnation of Coil Windings |
| PS 104 | Impregnation of Oilite Porous Bronze Bearings |
| PS 22 | Treatment for Solenoid Coil Assemblies |
| PS 6 | Surface Sealing of Magnesium Alloys |
| PS 175 | Manufacture of A330/340 Composite Transmission Shafts |
| PS 186 | Manufacture of Bevel Gears |
| PS 199 | JSF Titanium Material Procurement & Casting Inspection Requirements |
| PS 204 | Barrel De-Burring for Non-Ferrous Loads Under 200g |
| PS 210 | Mechanical Property Sampling of Oversized Aluminium Billets |
| PS 209 | 787 Aluminium Material Procurement & Casting Inspection Requirements for Casting Housing, P677AO160-00 |

8.14 Material Specifications (MAT)

| | |
|-----------|---|
| MAT 100 | Additional Requirements for Tool and Die Steel to BS 4659 |
| MAT 101 | Requirements for Valve Spring Steel Wire to AS 33A |
| MAT 102 | Requirements for Aluminium Plate to 7075-T7351 with Thickness >75mm |
| MAT 103 | Additional requirements for Phosphor Bronze Bar to DTD 265A |
| MAT 104 | Copper-Beryllium Alloy UNS C17200 |
| MAT 138 ✕ | Corrosion Resisting 17-4PH Steel Tube |
| MAT 601 ✕ | Grease/Oil Mixture for Flap System Gearboxes |
| MAT 602 ✕ | Low Viscosity Grease/Oil Mixture for Flap System Gearboxes |

8.15 Relevant Quality Control Instructions (QCI) or Business Procedures (BP) or Moog Aircraft Group Quality Procedures

| | |
|------------------|---|
| QCI 001 | Explanatory Notes |
| 7400-002-090 § | Pyrometry |
| MSPS200.HT.001 ‡ | Furnace Control & Calibration (Pyrometry) |
| QCI 124 | Acceptance Sampling Plans |
| QCI 126 | Classification of Parts |
| 7100-003-090 | Control of NDT Operations and Approval of NDT Personnel |
| QCI 216 | Recommended and Cancelled Metallic Material Specifications for Aerospace Applications |
| QCI 311 | Test Pieces for Heat Treatment and Process |
| 7100-002-090 | Inspection Records and Inspection Cards |
| 7100-001-090 | Special Processes Procedures |

Key to Symbols used in section 8

| | |
|---|--|
| † | see section 5.1 |
| ✕ | see section 6.2 |
| § | for in-house use at MWL only (see section 5.0) |
| ‡ | for use within MWL supplier base (see section 4.0) |

9.0 CORRELATION INDEX

9.1 See Following tables and symbols below:-

** An alternative specification for MWL approved suppliers (see each PS for specific limitations/requirements)

* Originally a Cheltenham specification now under MWL control

Note: In this section some specifications which are superseded (e.g. PS 2 Bronze Plating) are given for reference. See section 2.0 – Master Index – for the issue status of specifications.

9.2 Column C in the following tables represents the internal instruction or procedure to be used when a corresponding customer specification is called for on the Moog Wolverhampton job documentation (Layout Sheet). This applies to processing in house at Moog Wolverhampton only.

| | Wolver- hampton (Col A) | Rotol / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|--|-------------------------------|---------------------------|--------------------------------|--------------------|-----------------------|----------------------|--------------------|------------------------|-------|---------------------------------|
| Plating / Passivation | | | | | | | | | | |
| Bronze Plating | MSPS100. CP.007 | PS 111 | PCD 2 | PS 111 | | | | 438 | | |
| Cadmium Plating | MSPS100. CP.004 | PS 100 | PCD 14 | PCS 2102 | 03-19 (RS 116B) | 5701 QQ-P- 416 | 4-3000 | 170 | | |
| Cadmium Plating of Cuprous Alloys | PS 116 | | n/a | PCS 2102 | | | | | | |
| Cadmium Plating of UHT Steel | PS 49 | PS 131 | n/a | PCS 2100 | | 5718 | | | | |
| Cadmium Plating of UHT Steels by Vacuum Deposition | PS 136 | | n/a | - | 03-28 | | | | | |
| Hard Chromium Plating on Steel | MSPS100. CP.003 | PS 101 | PCD 12 | PCS 2110 | 03-14 | 5709 | 4- 3200/1/2/4/5 | 130 | | |
| Hard Chromium Plating of Light Alloys | PS 16 | PS 119 | n/a | PS 119 | | | | | | |
| Hard Chromium Plating of Copper Based Alloys | PS 114 | PS 116 | n/a | - | | | | | | |
| Nodular Thin Dense Chromium (NTDC) Plating | PS 180 | PS 135 | n/a | - | | 5709 | | | | |
| Copper Plating | MSPS100. CP.006 | PS 106 | PCD 36 | PS 106 | | 5722 | | 297 | | |
| Nickel Plating | PS 37 | PS 107 | n/a | PS 107 | 03-10 | 5746 | | | | |
| Nickel Sulphamate Plating | PS 165 | | n/a | - | 03-27 | | | | | |
| Electroless Nickel Plating | MSPS100. CP.008 | | PCD 34 | - | 03-5 | 5728 | 4-4300 | | | |
| Reclamation of Steel Components by Heavy Nickel Plating | PS 43 | | n/a | - | | | | | | |
| Silver Plating | PS 38 | | n/a | - | 03-9 | 5715 | | 168 | | |
| Tin Plating | PS 21 | | n/a | - | 03-8 | 5717 | | 497 | | |
| Dalic Electroplating Process | PS 10 | PS 118 PS 137 | PS 10 | PS 118 PCS 2141 | | 5849 | | | | |
| Passivation of Corrosion Resistant Steel | MSPS100. CP.005 | PS 124 | PCD 52 | PS124 | | 5625 | 4-1201 | | 6616F | |
| Phosphate Treatment of Steel | MSPS100. CP.009 | PS 108 | PCD 17 | PS 108 | 03-11 | 5810 | 4-1002 | 6 | | |
| Black Oxide Treatment for Steels | PS 106 | PS 132 | n/a | PCS 2200 | | | | | | |
| Chromate Treatment of Magnesium Alloys | PS 18 | PS 103 | PS 18 | PS 103 | DTD 911 | | | 22 | | |
| Ion Vapour Deposition (IVD) of Aluminium on Steel | PS 162 | | n/a | - | 03-28 | 5315 | | | | |
| Apticote 400 & 450 Coating/Niflor Low Friction Coating | PS 194 | PS 129 | n/a | - | | | | | | |
| Termination Requirements of Chrome Plated Surfaces | PS 188 | PS 1031 | PS 188 | M-DLPS1031 | | | | | | |

| | Wolver- hampton (Col A) | Rotol / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|---|-------------------------------|---------------------------|--------------------------------|---------------|------------------|---------------|----------------------|------------------------|-------|---------------------------------|
| Anodising | | | | | | | | | | |
| Alocrom 1200 Process | MSPS100. CP.002 | PS 114 | PCD 4 | PCS 2220 | | 5719 | 4-2004 | | 6618F | |
| Chromic Acid Anodising | MSPS100. CP.001 | PS 102 | PCD 69 | PS 102 | 03-24 RS 116D | 5019 | 4-2103 | 54/3 | | |
| Sulphuric Acid Anodising of Aluminium and Titanium Alloys | MSPS100. CP.001 | PS 102 | PCD 149 | PS 102 | 03-25 | 5022 | 4-2001/2/3 4-2500 | 54/4 | 6603F | |
| Hard Anodising of Aluminium Alloys | MSPS100. CP.001 | | n/a | - | 03-26 | 5821 | 4-2200 | | 6617F | |
| Painting / Coatings | | | | | | | | | | |
| Paint Schemes | PS 174 | various | PS 174 | various | | 5736 | 4-5314/6 | | | |
| Use of Paint Remover | PS 26 | PS 211 | PS 26 | PCS 2700 | | | | | | |
| Dry Lubricant, Anti-Friction Coatings | PS 1 | | PS 1 | PS 117 | | | 4-5906 | 661/10 | | |
| Dow Corning 3400A Bonded Lubricant | PS 113 | | PS 113 | - | | | | | | |
| Rilsan Nylon Coating | PS 96 | PS 133 | PS 96 | PS 133 | | | | | | |
| Metal/Ceramic Coating | PS 65 | | PS 65 | - | | | | | | |
| Thermal Sprayed Tungsten Carbide Coatings | PS 179 | | n/a | - | | 5851 | | | | AMS 2447 (HVOF only) |
| Tribomet T104CS Coating | PS 191 | | n/a | - | | | | | | |
| Tech 12 Chromium Plate Impregnations and Densification | PS 195 | | n/a | - | | | | | | |
| Physical Vapour Deposition (PVD) of an amorphous Carbon Coating | PS 200 | | n/a | - | | | 4-4202 | | | |
| Tungsten Disulphide (WS2) thin, Dry Film Lubricant | PS 201 | | | - | | | | | | |
| Keronite Coatings for Titanium, Aluminium and Magnesium Alloys | PS 202 | | n/a | - | | | | | | |
| Titanium Nitride Coatings | PS 208 | | n/a | - | | | | | | |

| | Wolver- hampton (Col A) | Rotol / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|--|-------------------------------|---------------------------|--------------------------------|------------------|---------|---------------|------------------|------------------------|------|---------------------------------|
| Surface Treatments (incl. machining) | | | | | | | | | | |
| Pickling of 5145 Forgings | PS 121 | | n/a | - | | | | | | |
| Cleaning and Surface Preparation of Metallic Materials | PS 8 | PS 207 | PS 8 | PS 207 | 03-4 | 5751 | | | | |
| Shot Peening | MSPS400. MISC.001 | PS 123 | n/a | PS 123 | | 5730 | | | | |
| Abrasive Blasting of Metallic Materials | PS 143 | PS 200 PS 201 | PS 143 | PCS 2610 | | | | 386 | | |
| Application of Extrude Hone Process for Surface Finish Improvement | PS 100 | | PS 100 | | | | | | | |
| Glass Bead Peening | PS 95 | PS 134 | n/a | PS 134 PS 139 | | 5951 | | | | |
| Special Machining Techniques for UHT Steels | PS 138 | PS 1004 | PS 138 | M-DLPS1004 | | | | | | |
| Electrical Discharge Machining (EDM) | MSPS400. MISC.002 | PS 504 | PCD 71 | PS 504 | | 5969 | | 418 | | |
| Electrochemical Deburring (ECD) and Machining (ECM) | PS 187 | | PS 187 | - | | | 4-0034 | | | |
| Grinding of Titanium and Titanium Alloys | PS 98 | PS 935 | PS 98 | PS 935 | | 5492 | 2-0004 | | | |
| Grinding of Inspection of Chromium Plated Parts | PS 167 | NDT 3 | PS 167 | M-DLNDT3 | | 5032 | | | | |
| Swaging of Metric Pipe Couplings | PS 125 | | PS 125 | - | | | | | | |
| Thread Rolling of Special Applications | PS 132 | PS 138 | PS 132 | PS 138 | | | | | | |
| Electropolishing of Investment Castings | PS 164 | PS 128 | n/a | PS 128 | | 5622 | 7-5008 4-0034 | | | |
| Laser Cutting of Metals | PS 169 | | n/a | - | | 5982 | | | | |
| Plunge Grinding | PS 196 | PS 1004-1 | PS 196 | M-DLPS1004 | | | | | | |

| | Wolver- hampton (Col A) | Rotol / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|---|-------------------------------|---------------------------|--------------------------------|---------------|---------|---------------|------------------|------------------------|------|---------------------------------|
| Heat Treatment | | | | | | | | | | |
| Heat Treatment of Alloy Steels | PS 118 | PS 319 | PS 118 | PS 319 | | 5619 | 3-0XXX 4-4202 | | | various |
| Induction Hardening | PS 119 | | n/a | - | | 5616 | | | | |
| Gas Carburising | MSPS200. HT.002 | PS 312 | PCD 73 | PS 312 | | 5641 | 3-0121 | 371 | | |
| Gas Nitriding of Steel Components | MSPS200. HT.003 | PS 302 | PCD 27 | PS 302 | | 5640 | 3-1004/9 | 135 | | |
| Plasma (Ion) Nitriding | PS 151 | | n/a | - | | | | | | |
| Salt Bath Nitrocarburising - Sursself and Tufftriding | PS 11 | | n/a | - | | | | | | |
| Nitrotec (Nitrocarburising) Surface Treatment | PS 160 | | n/a | - | | | | | | |
| Hot Isostatic Pressure (HIP) of Investment Castings | PS 155 | | n/a | - | | | | | | |
| Requirements for Hot Form Swaging | PS 168 | PS 321 | n/a | PS 321 | | | | | | |
| Equipment Calibration/Heat Treatment Control | MSPS200. HT.001 | | 7400-002- 090 | PS 311 | | 5621 | | 953 | | |
| Sub zero treatment of MAT 119 (440C) | PS 118 App C13 | PS 306-2 | PS 118 App C13 | - | | | | | | |

Contamination and Cleaning

| | | | | | | | | | | |
|---|--------|--------|--------|-----------|------|------|--|-----|--|--|
| Contamination Levels for Hydraulic Fluids | PS 19 | PS 910 | PS 19 | M-DLPS910 | | | | | | |
| Cleaning of Hydraulic Pipes | PS 5 | | PS 5 | - | | | | | | |
| Trichloroethylene Vapour Degreasing | PS 78 | PS 203 | PS 78 | PCS 2620 | | 5408 | | 128 | | |
| Aqueous Cleaning | PS 215 | | PS 215 | | | | | | | |
| Ultrasonic Cleaning and Suitable Aqueous Cleaning Solutions | PS 142 | PS 204 | PS 142 | PCS 3213 | | | | 498 | | |
| Chemical Cleaning of Steels (Sulphur Prints) | PS 50 | | n/a | - | | | | | | |
| Use and Control of Cleaning Fluids | PS 161 | | PS 161 | - | | | | | | |
| Air Cleanliness of Shop Floor Compressed Air Lines | PS 193 | | PS 193 | - | | 7217 | | | | |
| Cleaning and Surface Preparation of Metallic Materials | PS 8 | PS 207 | PS 8 | PS 207 | 03-4 | 5751 | | | | |

| | Wolver- hampton (Col A) | Roto / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|--|-------------------------------|--------------------------|--------------------------------|---------------|---------|---------------|------------------|------------------------|------|---------------------------------|
| Joining (adhesives, mechanical & thermal processes) | | | | | | | | | | |
| General Riveting Process | PS 89 | | n/a | - | | | | | | |
| Cryogenic Jointing | PS 90 | | n/a | - | | | | | | |
| Araldite Epoxy Resin Adhesives | PS 28 | PS 707/805 | PS 28 | M-DLPS709 | | | | | | |
| Epoxy Bonding Procedure of Laminated Servo Valve | PS 147 | | PS 147 | - | | | | | | |
| Loctite Sealants and Adhesives | PS 33 | PS 709 | PS 33 | M-DLPS709 | | | 6-0112 | | | |
| Jointing and Sealing Compounds | PS 77 | PS 709 | PS 77 | M-DLPS709 | | | 6-0112 4-5802 | 638 | | |
| Application of Dow Corning 3145 RTV Adhesive Sealant | PS 133 | | PS 133 | - | | | | | | |
| Use of Waylock S-17163 Adhesive | PS 124 | | PS 124 | - | | | | | | |
| Silver Brazing | PS 42 | PS 303 | PS 42 | PS 303 | | 5940 | | | | |
| Induction Brazing | PS 32 | | PS 32 | - | | | | | | |
| Removal of Excess Copper Braze from Bushes | PS 67 | | PS 67 | - | | | | | | |
| Brazing Technique for Transducer Type P297-45-0060 | PS 86 | | PS 86 | - | | | | | | |
| Reclamation of Cast Iron Components by Powder Welding | PS 58 | | PS 58 | - | | | | | | |
| General Requirements for Spot Welding Sheet Assemblies | PS 87 | | PS 87 | - | | | | | | |
| Welded Hydraulic Pipes and End Fittings | PS 181 | | PS 181 | - | | | | | | |
| EB Welding of ESR 4340 | PS 135 | | n/a | - | | | | | | |
| EB Welding of B777 Ball Ramp Assembly | PS 166 | | n/a | - | | | | | | |
| EB Welding of JAS 39 EAG Gear Couplets | PS 173 | | n/a | - | | | | | | |
| EB Welding of A330/340 Flap System Shafts | | PS 505* | n/a | - | | | | | | |
| EB Welding of Flap System Shafts for A380 | PS 207 | | n/a | - | | | | | | |
| Furnace Copper Brazing | PS 217 | PS 304 | n/a | - | | | | | | |

| | Wolver- hampton (Col A) | Roto / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|--|-------------------------------|--------------------------|--------------------------------|---------------|---------|---------------|-----------------|------------------------|------|---------------------------------|
| Assembly and Fitting | | | | | | | | | | |
| Tube/Pipe Bending | PS 126 | | PS 126 | - | | | | | | |
| Manipulation of Cold Set Preformed Rigid Pipes | PS 56 | | PS 56 | - | | | | | | |
| Routing and Installation of Non-Lofted Hydraulic Pipes | PS 127 | | PS 127 | - | | | | | | |
| Assembly of Keelaring Couplings | PS 88 | | PS 88 | - | | | | | | |
| Fitting Heat Shrink on Plastic Sleeving and Boots | PS 23 | PS 821 | PS 23 | M-DLPS821 | | | | | | |
| Sealing of Pipe/Coupling Ends with Heat Shrinkable Sleeving | PS 123 | PS 820 | PS 123 | M-DLPS802 | | | | | | |
| Plugging of Hydraulic Components - Lee Plugs (Civil Contracts only) | PS 41 | PS 1009 | PS 41 | PS 1009 | | | | | | |
| Plugging of Hydraulic Components (other than Lee Plugs) | PS 54 | | PS 54 | PS 1009 | | | | | | |
| Plugging of Hydraulic Components - Lee Plugs (Military Contracts only) | PS 57 | PS 1009 | PS 57 | PS 1009 | | | | | | |
| Secondary Staking of Lee Plugs | PS 44 | | PS 44 | PS 1009 | | | | | | |
| Removal of Copper Plugs from Rotary Valve Sleeves | PS 46 | | PS 46 | - | | | | | | |
| Crimped Cable Connectors | PS 66 | PS 902 | PS 66 | PS 902 | | | | | | |
| Undercutting of Screw Threads | PS 60 | | PS 60 | - | | | | | | |
| MJ Threads Modified for Critical Load Applications | PS 157 | | PS 157 | - | | | | | | |
| UNJ Threads Modified for Critical Load Applications | PS 158 | | PS 158 | - | | | | | | |
| Printed Wiring Board Manufacture | PS 92 | | PS 92 | - | | | | | | |
| Assembly and Protection of Printed Wiring Boards | PS 109 | | PS 109 | - | | | | | | |
| Helical Compression Springs for Aerospace Applications | PS 159 | | PS 159 | - | | | | | | |
| Assembly and Installation of Magnetic Seals | PS 170 | | PS 170 | - | | | | | | |
| Assembly and Procedure for Flareless Fittings | PS 172 | | PS 172 | - | | | | | | |
| Assembly of Wet Bushes with Wet Primer | PS 198 | PS 1011-14 | PS 198 | M-DLPS1011-14 | | | | | | |
| Procedure for Installation of Imperial Thin Wall Inserts | PS 203 | | PS 203 | | | | | | | |
| Thermal Stabilisation of Servo Valves | PS 205 | | PS 205 | | | | | | | |

| | Wolver- hampton (Col A) | Roto / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|---|-------------------------------|--------------------------|--------------------------------|---------------|---------|---------------|-----------------|------------------------|------|---------------------------------|
| Protection and Storage | | | | | | | | | | |
| Temporary Protection Against Corrosion | PS 45 | PS 202 | PS 45 | PCS 2800 | | | 4-5802/704 | 367 | | |
| Protection of Engine Accessory Magnesium Alloy Castings Against Corrosion | | PS 121* | PS 121* | - | | | | | | |
| Packaging of Hydraulic Assemblies for Storage | PS 24 | | PS 24 | - | | | | | | |
| Packaging of Electrical Components and Assemblies | PS 25 | | PS 25 | - | | | | | | |
| Protective Treatment against Galvanic Corrosion - Mastinox | PS 139 | PS 709 | PS 139 | M-DLPS709 | | | 4-5802 | | | |
| Aircraft Hydraulic/Mechanical Assemblies - Storage and Preservation Information | PS 171 | PS 1016 | PS 171 | M-DLPS1016 | | | | 259 | | |
| Control of Shelf Limited Items | PS 183 | PS 909 | PS 183 | PS 909 | | | | | | |

Potting Techniques

| | | | | | | | | | | |
|--|--------|--------|--------|--|--|--|--|--|--|--|
| Pre-treatment and Surface Coating of PTFE Insulated Cables | PS 51 | PS 812 | PS 51 | | | | | | | |
| Potting Application of Two Package RTV 88 Silicone Rubber | PS 101 | | PS 101 | | | | | | | |
| Crystal Clear Silicone Potting Compound | PS 120 | | PS 120 | | | | | | | |

Component Identification

| | | | | | | | | | | |
|--|--------|--------|--------|--------|--|------|--------|-----|--|--|
| Part Marking | PS 156 | PS 405 | PS 156 | PS 405 | | 5307 | 0-0016 | 753 | | |
| Hydraulic Pipe Identification (12mm and less) for MCMV | PS 110 | | PS 110 | - | | | | | | |
| Adhesive Fixing of Labels using Silastic 738 RTV | PS 40 | PS 727 | PS 40 | PS 727 | | | | | | |
| Unit Assembly Label Fixing using Cable Ties | PS 190 | | PS 190 | - | | | 0-0379 | | | |

| | Wolver- hampton (Col A) | Rotol / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|---|-------------------------------|---------------------------|--------------------------------|---------------|---------|---------------|-----------------|------------------------|-------|---------------------------------|
| NDT & other Inspection Techniques | | | | | | | | | | |
| Etch Inspection of Steel Components | MSPS300. NDT.001 | NDT 6 | PCD 29 | PCS 3600 | | 5436 | | 147 | | AMS 2649 |
| Bolt Etching Process (Forged Heads) | PS 55 | NDT 6 | n/a | PCS 3600 | | | | | | |
| Hardness Inspection of Metallic Materials | PS 111 | | PS 111 | - | | | | MSRR 9969 | | |
| Magnetic Particle Inspection | PS 74 | NDT 2&3 PS 400 | PS 74 | PCS 3100 | | 5424 7040 | 7-4900 | 700 | 9400F | ASTM E1444 |
| Fluorescent Penetrant Inspection | PS 79 | NDT 3&8 PS 404 | PS 79 | NDT 8 | | 5423 7039 | 7-4910 | 702 | 9300F | ASTM E1417 |
| Ultrasonic Inspection of Aluminium Alloys | PS 102 | NDT 16 | n/a | NDT 16 | | 5439 | | | | |
| Photographic Examination of Hard Chrome Plated Cylinders | PS 63 | | n/a | - | | | | | | |
| Radiographic Acceptance Standards for Castings | PS 185 | NDT 14 | n/a | QCI 521 | PS 507 | | PS 507 | | | |
| Salt Spray Testing | PS 192 | | PS 192 | | | | | | | |
| Visual Inspection | PS 197 | | PS 197 | - | | | | 709 | | |
| Control of NDT Operations and Approval of NDT Personnel | 7100-003- 090 | NDT 10 | 7100-003- 090 | M-DLNDT10 | | 7698 | | 906/908 | | NAS 410 prEN 4179 |

| | Wolver- hampton (Col A) | Roto / DAG (Col B) | MWL in- house PS (Col C) | Messier Dowty | Def Std | Boeing BAC | Liebherr LAT | Rolls- Royce RPS | Avio | International Alternative ** |
|--|-------------------------------|---------------------------------|--------------------------------|---------------------------------|---------|---------------|-----------------|------------------------|------|---------------------------------|
| Miscellaneous | | | | | | | | | | |
| Impregnation of Coil Windings | PS 31 | PS 802 | PS 31 | - | | | | | | |
| Loctite Sealants &Adhesives | PS 33 | | PS 33 | - | | | 2-3200 | | | |
| Secondary Staking of Lee Plugs | PS 44 | | PS 44 | - | | | 0-0192 | | | |
| Plugging of Hydraulic Components with Lee Plugs | PS 57 | | PS 57 | - | | | 0-0192 | | | |
| MJ Threads Modified for Critical Load Applications | PS 157 | | PS 157 | - | | | 2-1901 | | | |
| UNJ Threads Modified for Critical Load Applications | PS 158 | | PS 158 | - | | | 2-1901 | | | |
| Impregnation of Oilite Porous Bronze Bearings | PS 104 | | PS 104 | - | | | | | | |
| Treatment of Solenoid Coil Assemblies | PS 22 | | PS 22 | - | | | | | | |
| Surface Sealing of Magnesium Alloys | PS 6 | PS 619 | PS 6 | PS 619 | DTD 935 | | | 367 | | |
| Manufacture of A330/340 Composite Transmission Shafts | PS 175 | | n/a | - | | | | | | |
| Manufacture of Bevel Gears | PS 186 | | PS 186 | - | | | | | | |
| Termination Requirements of Chrome Plated Surfaces | PS 188 | PS 1031 | PS 188 | M-DLPS1031 | | | | | | |
| Jointing & Sealing compounds | PS 77 | | PS 77 | - | | | 4-5802 | | | |
| JSF Titanium Material Procurement & Casting Inspection Requirements | PS 199 | | n/a | - | | | | MSRR 8670 | | |
| Barrel de-burring for non-ferrous loads under 200 grams | PS 204 | | PS 204 | - | | | | 251 | | |
| Mechanical Property Sampling of Oversized Aluminium Billets | PS 210 | | PS 210 | - | | | | | | |
| 787 Aluminium Material Procurement & Casting Inspection Requirements for Casting Housing, P677A0160-00 | PS 209 | | PS 209 | - | | | | | | |
| Recommended and Cancelled Metallic Materials Specification for Aerospace Applications | QCI 216 | PS 1001/ MAT 905/ MAT 909 | n/a | M-DLPS1001 MAT 905 MAT909 | | | | | | |
| Test Pieces for Heat Treatment and Process | QCI 311 | MAT 902 | n/a | | | | | | | |
| Special Processes Procedures | 7100-001- 090 | | n/a | | | | | | | |
| Inspection Records and Inspection Cards | 7100-002- 090 | | n/a | | | | | | | |