

<b>HM Dunn AeroSystems</b>	<b>DPD Audit Checklist</b>	
<b>Audit Type:</b> Supplier	<b>Audited Company:</b>	<b>Standard:</b> D6-51991

**Instructions:** Valued Supplier; if your facility is DPD/MBD Approved by an OEM or a Tier One Customer to an OEM, check the “Yes” box, sign and date below, return this questionnaire uncompleted and supply proof of certification. If you are not currently approved, or cannot provide proof of certification, check the box “No”, complete the questionnaire, sign, date and return completed questionnaire to the HM Dunn/AEI Division that sent you the questionnaire. If your company cannot comply with or chooses not to comply with any section required to meet DPD/MBD requirements, check the box “Decline” and return signed and dated questionnaire.

**Questionnaire Completion Instructions:** In the status column, place an “A” for Approved, “D” for Rejected, or “N/A” if not applicable. If “D” is entered, document an NCR number in the NCR column. Supply corrective action evidence with the completed questionnaire.

Yes    No   Signature: \_\_\_\_\_ Date: \_\_\_\_\_    Declined

Description	Response	Comments
<b>Digital Product Definition (DPD)</b>		
<p>1.Are there DPD documented processes or procedures that address all sections of D6-51991? Requirement: D6-51991-1.0 &amp; AS9100-4.2, 7.5.1 <b>Look For</b> a) Documented processes that control Boeing release authority dataset and other DPD/MBD derivatives (i.e. NC programs, Inspection plans, Tooling, etc.) from the point when the Boeing authority dataset is received, through derivate creation, performed programming, manufacturing planning (visual aids, in-process inspection, final inspection), first article inspection and any other process that is applicable. b) There must be a process to ensure the original authority datasets are secure, backed up and cannot be altered, and only the appropriate people have write access to part programs and inspection datasets. c) Must have trained system administrator(s) with sole access to retrieve and store incoming customer datasets. d) A process for the supplier to check dataset integrity upon receipt. e) Segregation of datasets by status (e.g., release, in-work and obsolete are minimum requirements) f) Security (Password and access protection, regular back up for disaster recovery and archive storage). g) Documented processes that address all sections of the D6-51991.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>2.Is there a flow diagram or relational diagram of the complete documented DPD processes? Requirement: D6-51991-1.2 <b>Look For</b> a) There must be a flow diagram that documents the complete DPD processes and identifies the applicable procedure references. b) Flow chart should include reference to affected organizations such as (engineering, manufacturing planning, tooling, inspection and procurement). In lieu of flow diagram, supplier may provide a complete relational diagram of their internal procedures to the requirements of this document.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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Description	Response	Comments
<p>3.Are documented DPD processes implemented with defined authority for change control &amp; maintenance? Requirement: D6-51991-1.3 <b>Look For</b> a) Look for approval or signature page and a document control procedure. b) Notification to affected personnel and sub-tier suppliers when changes occur. c) Processes should be under document control. d) Definition in the procedure as to who is responsible for this document. (Maintenance along with ownership)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>4.Is there a requirement in the suppliers documented processes to notify customer within 30 days of any changes or at a minimum annually if no changes occur. Requirement: D6-51991-1.3.1 <b>Look For</b> a) The supplier must have a process that notifies the customer when changes are incorporated into their DPD process and impacts the customer (simple typographic errors need not apply) b) The process should include notification DPD Rep within 30 days of any change along with an annual notification regardless of changes. c) The future process will require suppliers to update their profile online.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>5.Is there a process to ensure integrity and security of data-sets from receipt throughout the manufacturing and acceptance processes? Requirement: D6-51991-2.1 <b>Look For</b> a) Storage of Boeing provided DPD and supplier created derivatives b) Archiving old revisions c) Encryption during send/receive d) Backup system with including remote storage and disaster recovery e) Access control with permission and/or password protection (read/write) to ensure Boeing provided datasets will not be inadvertently modified.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>6.Does the supplier have a process to control configuration of dataset derivative media? Requirement: D6-51991-2.2, 2.2.1 &amp; AS9100-7.1.3 <b>Look For</b> a) The derivatives/media must have a revision level process to keep the derivatives/media current with authority dataset revisions that affects its configuration. As an example look for these indicators: - Creator/Date - Sketch Revision Level - Authority Dataset(s) Name, Location, Revision Level - Other Derivative Dataset(s) Name, Location, Revision Level - Feature Requirement(s) Identifier (e.g., GDT frame ID) - Product identification Note: Derivatives are modified copies or extracted data from the original authority dataset. NC/CNC type programs and the geometry used to create them, visual aids, Mylars, digital tool designs and tools, inspection datasets, FAI datasets, etc.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>7.Are dataset derivatives traceable back to the current authority dataset? Requirement: D6-51991-2.2.2, 2.2.3 &amp; AS9100-7.5.3 <b>Look For</b> a) Traceability is looking at whether or not the derivative can be clearly identified and tied back to its Authority dataset, such as when visual aids or screen-prints are being used, they need to be traceable back to the current Authority dataset. b) Make sure you can trace all derivative back to the authority data. This may be by revision letter, number or even date and time stamps for N/C processed data. c) All must include reference to the Digital data nomenclature. Look for some sort of history of change. d) Make sure that this traceability covers SCDs when suppliers create designs.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>8.Does the planning package identify traceability to the current authority dataset? Requirement: D6-51991-2.2.2 &amp; AS9100-7.5.1 <b>Look For</b> a) The supplier needs to have a documented process to ensure the planning is traceable to the correct authority dataset. b) Planning used for route sheets, travelers, work instructions, NC programs, inspection, etc. will be traceable to the authority dataset that controls the configuration being built. Any items used in FAI, Tool buyoff or conformity shall be traceable.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>9.Does the supplier have a change control process for dataset derivative media? Requirement: D6-51991-2.2.4 &amp; AS9100-7.1.3 <b>Look For</b> a) Verify there is a change control process that updates all derivative dataset elements when the authority dataset is revised. b) Change control process includes review for: - Tooling - NC and CMM program - Sketches, inspection plans, or 2-D drawings - FAI documentation / Delta FAI or Tool inspection - Sub-tier supplier notification</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>10.Does the supplier have a process that includes control of non-current (obsolete) authority datasets and dataset derivatives? Requirement: D6-51991-2.2.5 &amp; AS9100-4.2.3 <b>Look For</b> a) Segregation and clear identification of current and past revision level datasets in suppliers directories. b) Ensure compliance to contract data retention requirements c) Look for separate files that are accessible to production d) Archive process</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>11.If providing Type Design or Tool Design to Boeing, does the supplier have a documented process for design and development? Requirement: D6-51991-2.3 &amp; AS9100-7.3 <b>Look For</b> a) The supplier shall describe a documented process for design and development to ensure compliance to customer requirements. Compliance to Boeing Drafting Standards and Tool Design standards. b) Designs will have traceability to engineering definition. c) Supplier's released design shall be reviewed for program requirements, the design will provide the data required to allow the product to be: - Identified - Manufactured - Inspected - All designs will include the part lists and specifications necessary to define the product or tool (e.g. material, process, features, annotation, specification, notes, and manufacturing and assembly data needed to ensure conformity of the product or tool). d) Must include a reference for customer approval when required.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>12.Does internal quality audits procedure include auditing or reviewing all internal and sub-tier operations for DPD data and related documentation? Requirement: D6-51991-4.0 &amp; AS9100-7.4 <b>Look For</b> a) Internal audit procedures identify DPD processes for review. b) Review audit checklist for compliance. Supplier checklist should address and be applicable to their processes. c) Review internal audit records for evidence of having a completed internal audit for DPD processes. d) Internal audit plan shall include provisions for audit of sub-tier supplier oversight e) Review procurement process for flow down and an established ASL for sub tiers approved to D6-51991 or its equivalent.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>13.Does the supplier have a process to assess, monitor and control sub-tier compliance with DPD requirements? Requirement: D6-51991-5.1 &amp; AS9100-7.4 <b>Look For</b> a) Flow down of D6-51991 (or comparable) requirements to sub tiers (PO Note) b) Look for a process for control of the suppliers i.e. what does it take to approve and disapprove them? c) Supplier has performed assessment for sub-tiers and ensures the proper capabilities to manage and use the Boeing DPD/MBD datasets being provided. d) Supplier maintains records of sub-tier DPD capabilities (equipment and process) e) Supplier has documented process to ensure sub-tier supplier's inspection planning is compliant when used to accept Boeing product. f) Supplier documented processes ensure sub-tier datasets are verified when translations occur. g) Supplier performs periodic review on their DPD/MBD sub-tier supplier to ensure they are in compliance to DPD requirements, Boeing ITAR, EAR and contract requirements. h) Supplier encryption protection for sending/receiving of electronically transmitted data. Example of supplier purchase order clause. Use Boeing PO clause as example, (includes ITAR &amp; EAR) Note; encryption required for electronically transmitted data.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>14. Does supplier QA organization have responsibility for approval of all inspection media? Requirement: D6-51991-7.1 &amp; AS9100-7.3.1</p> <p><b>Look For</b></p> <p>a) Inspection media (paper inspection plans, inspection datasets, CMM programs, Mylars, media of inspection (MOI) tools, etc) needs to be traceable to the authority dataset.</p> <p>b) If the inspection media is created by an organization other than supplier Quality Assurance, there needs to be a documented and audited process approved by QA.</p> <p>c) Describe Inspection Media and method that will ensure that all product features are planned for inspection.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>15. Does the supplier have a documented process to create inspection media from a 3D model in addition to the 2D drawing? Requirement: D6-51991-7.2, 7.3 &amp; AS9100-7.1, 7.5.1, 7.5.1.1, 8.1</p> <p><b>Look For</b></p> <p>a) A process to assure accuracy of derivative media (e.g. Mylars, tools, CMS programs, NC programs) from authority datasets.</p> <p>b) Plotted Mylar media should be validated at each point of use.</p> <p>c) Inspection media is independently derived from and traceable to the authority dataset.</p> <p>d) Media must be under configuration control.</p> <p>e) Media contains graphics and text sufficient to illustrate inspection operations, traceability and QA verification</p> <p>f) Review process (checker, checklist, or peer/team review)</p> <p>g) Media is created by qualified personnel.</p> <p>h) Digital inspection operations are performed by qualified personnel.</p> <p>i) Documentation of the coordinate system, datum targets, and datum features.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>16. Is there a process in place to document FAI's for product produced from authority datasets? Verify example FAI package using 2D drawing &amp; 3D model to assure supplier has extracted views/screen shots and accounted for all explicit &amp; implicit requirements. Requirement: D6-51991-7.6 &amp; AS9100-7.5.1.1</p> <p><b>Look For</b></p> <p>a) This question applies to 2D drawings that are not fully dimensioned or partially dimensioned and requires a dataset for manufacturing and inspection. Customer provided drawings which have contoured surfaces shall be specifically called out on the drawings, flag notes or notes list.</p> <p>b) Process for reduced dimension drawings (RDD), minimal dimensioned drawings (MDD), simplified drawings (SD) etc. requires supplier to ensure all dimensioned, un-dimensioned features and general flag note requirements are planned for verification.</p> <p>c) Unique identification of each feature is required. Various acceptable methods are available to manage this data (e.g. screen prints supplier drawings &amp; sketches etc.)</p> <p>d) Digital measurement must have guidelines to ensure the appropriate quantity of individual measurements are taken on the feature being measured (i.e., quantity of surface points for measurement, CMM hits).</p> <p>e) Supplier responsible to verify 100% of all the feature when using customer drawing and or datasets.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>17.Does the supplier document the current level of hardware configuration, software, software revisions and other digital system information (e.g. PTF(s), project files) required to maintain compatibility with Boeing supplied datasets and/or data exchange formats per applicable Boeing system(s) requirement documents? Requirement: D6-51991-8.1 <b>Look For</b> a) Determine which Boeing sites send or will send datasets to the supplier. Note: The site specific data exchange requirements will determine the method of how you audit. b) Supplier data exchange software compliant to Boeing site requirements (e.g. encryption, file transfer protocol (FTP), web connection, etc&amp;) c) Ensure software levels and equipment matches DPD Capability questionnaire. d) See matrix at end of this Guide for site-specific data exchange requirements. e) If system is not compatible, there must be documented process to verify Boeing received authority data is acceptable before release.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>18.Does the supplier verify all dataset translations when a supplier exports Boeing CATIA, NX or CREO authority datasets from their as received format to a neutral format (STEP)? Requirement: D6-51991-8.2 &amp; AS9100-7.5.3 Note: Suppliers receiving Boeing authority STEP format datasets supplemented with a 2D DWG, 3D-PDF or SUPPAR STEP formats throughout their product realization and inspection processes are not required to perform data translation validation. It is strongly recommended data translation validation remain a best practice to mitigate potential errors. <b>Look For</b> a) When translations of digital datasets occur between Native CAD systems or digital equipment, a process must be in place to verify data. Examples of how this can be accomplished are using third party compare software's, point cloud method or other software validation processes. b) See matrix at end of this Guide for site-specific data exchange requirements.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>19.Does the supplier have a documented process to ensure release, acceptance, identification, security, access and change control for: - Tool design datasets - Tool Inspection datasets Requirement: D6-51991-9.1 &amp; AS9100-7.3.1 <b>Look For</b> a) There must be a documented process to review, revise and control tooling when authority dataset changes affect tooling configuration. b) There must be a documented release process and secure storage of released tool design datasets. c) Digital definition of physical tooling (including templates, check fixtures) must conform to digital engineering definition or approved tool design. d) Tools and tool design/inspection datasets must be traceable to the authority dataset and the affected revision.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>20. Does the supplier ensure that when Tool Design responsibility is flowed down to sub tier suppliers that the sub tier supplier is approved by the supplier? Requirement: D6-51991-9.1.2 AS9100-7.4 <b>Look For</b></p> <ul style="list-style-type: none"> <li>a) Locate several designed Special Tools.</li> <li>b) The tool identification bears a Supplier and/or Boeing Tooling Acceptance Stamp. (A Boeing stamp may or may not be required depending upon ST Category).</li> <li>c) Authority Design information is identified on the tool and is legible or is available in Supplier records system.</li> <li>d) Supplier has contractual notes that flow Boeing DPD/MBD requirements to all their approved sub-tier suppliers.</li> <li>e) Compare list of suppliers receiving datasets to list of suppliers approved to receive datasets.</li> <li>f) When controlled datasets are provided to sub-tier suppliers, the supplier ensures sub-tier supplier is in compliance to Boeing ITAR, EAR and contract requirements prior to approval and release of DPD/MBD datasets.</li> <li>g) Supplier has assessed sub-tiers and ensures the proper capabilities to manage and use the Boeing DPD/MBD datasets being provided.</li> <li>h) ASL that shows an approval for controlling Tool Design.</li> <li>i) Process for approval for Tool Design (Questionnaire with tool design questions).</li> <li>j) Contract language or PO note that flows down requirements from customer.</li> <li>k) Supplier performance Metrics for the approved suppliers (What does it take to disapprove the supplier?).</li> <li>l) Is there a process for protecting Boeing data when it is transferred to sub-tier to suppliers (secure transfer).</li> <li>m) Where a Boeing provided dataset is provided to a sub-tier supplier, the dataset transfer must be encrypted.</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>21. Are digitally defined special tools and physical inspection media (check fixtures, templates, etc.) identified and traceable to the authority tool design dataset? Requirement: D6-51991-9.2 <b>Look For</b></p> <ul style="list-style-type: none"> <li>a) Special Tooling must contain at a minimum, Tool Identification and the authority design information.</li> <li>b) Non-Design Special Tooling - The revision level(s) of the Engineering Drawing/Dataset(s) used to fabricate the tool.</li> <li>c) Designed Special Tooling - The revision level(s) of the Tool Engineering Drawing/Dataset(s) used to fabricate the tool.</li> <li>d) Ideally, tools should be identified with Authority Design information somewhere on the tool. Either stamped directly on the tool or on a tag. (Ref UT6907). However, Authority Design information may also be contained within Supplier records.</li> <li>e) Authority Design information is identified on the tool and is legible or is available in Supplier records system.</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	



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<p>22.Are special tools and tooling media accepted and periodically validated to the authority design at a frequency determined to ensure accuracy and repeatability? Requirement: D6-51991-9.3 &amp; AS9100-7.6 <b>Look For</b> Special Tooling must periodically be revalidated to its Authority Design requirements. This revalidation may be known as a PTI. It generally reviews several areas include but are not limited to: a) Comparison of As Designed configuration to As Built configuration. b) Visual Inspection for wear/damage c) Dimensional Validation d) Randomly sample some Special Tooling that bears Indication of Inspection Status (Sticker).Check to assure that the due date is somewhere after today. e) Check due date back to Suppliers Inventory and Recall system for due date agreement. f) Observe tool for obvious damage, nicks or de laminations, worn edges, etc. g) A verification plan should be created for each tool or Supplier should have documentation that describes how verification is performed and what is validated.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>23.Does the supplier define training requirements that: - Assure competence and maintain employee training records, including on-the-job-training, for all DPD system users. - Respond to changes to the DPD process, equipment, or software? - Does supplier have OJT or other training relative to GD&amp;T standards? Requirement: D6-51991-10.0 &amp; AS9100-6.2.2 <b>Look For</b> a) This can be a spreadsheet with a listing of personnel or job title that is cross referenced with the defined training. b) Ensures the appropriate quality assurance and other affected personnel responsible for product acceptance have proper training to use DPD/MBD/Product Acceptance Software for inspection planning, measuring and product/tool acceptance. c) The supplier must have a documented process that ensures other affected personnel responsible have proper training to use DPD/MBD when it directly affects their job function. d) The training must be formally documented and kept on file. This includes OJT when used as a training tool. e) Look for changes to the training program in response to changes to the DPD process, equipment, or software.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	



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<b>Model Based Definition (MBD)</b>		
<b>Description</b>	<b>Response</b>	<b>Comments</b>
<p>24. Does the supplier's CAD system have the ability to view annotation based on Boeing site-specific requirements? Requirement: D6-51991-8.1</p> <p><b>Look For</b></p> <p>a) Determine which Boeing sites send or will send datasets to the supplier. Note: The site specific data exchange requirements will determine the method of how you audit.</p> <p>b) Supplier data exchange software compliant to Boeing site requirements (e.g. encryption, file transfer protocol (FTP), web connection, etc.) For Boeing Commercial Airplanes divisions (BCA) see D6-56199 Hardware and software compatibility requirements for supplier's use of BCA CATIA native datasets as authority for design, manufacturing and inspection.</p> <p>c) Ensure software levels and equipment matches DPD Capability questionnaire</p> <p>d) Compatibility requirements may involve CAD systems or data exchange software.</p> <p>e) Suppliers need the same Boeing CAD native software version or have the Boeing approved LEV to view the annotation.</p> <p>f) See matrix at end of this Guide for site specific data exchange requirements. If site is not listed in matrix, contact Procurement Agent for specific requirements.</p> <p>g) This is CAD Code 6 where the model carries 100 percent authority.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>25. Does the supplier have a documented process to create inspection media from a 3D MBD model? Requirement: D6-51991-7.2</p> <p><b>Look For</b></p> <p>a) Process to determine when manufacturing and/or inspection views/sketches are needed to supplement authority dataset.</p> <p>b) Obtain measurement values of all product features from the Authority Model.</p> <p>c) Supplier should assure only qualified personnel perform digital inspection.</p> <p>d) Process to identify/segregate pre-release or reference datasets.</p> <p>e) Note: Is supplier utilizing equipment capability (CAD, LEV, and CMS) to minimize/automate creation of inspection views? Preferred method is to utilize digital methods vs. creation of 2D media.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>26.Does the supplier have a process to ensure verification of all design requirements of the authority dataset? (e.g., all defined by feature control frames, annotation, specifications, notes and other specified requirements in the authority DPD dataset and associated parts list including dimensional and other properties) Requirement: D6-51991-7.5 &amp; AS9100-8.0</p> <p><b>Look For</b></p> <p>a) When planning measurements for product acceptance, the suppliers QA must verify that all design requirements are identified and planned for inspection. Note: Compliance for this process is best verified by reviewing FAI documentation for a specific product.</p> <p>b) Measurement process must have guidelines to ensure the appropriate quantity of individual measurements are taken on the feature being measured (i.e., quantity of surface points for measurement, CMM hits).</p> <p>c) Process to ensure Key Characteristics identified on authority datasets are measured and the results are recorded for every unit.</p> <p>d) This should use AS9102 or equivalent as a guideline for product.</p> <p>e) Note: Is supplier utilizing equipment capability (CAD, LEV, and CMS) to minimize/automate creation of inspection views? Preferred method is to utilize digital methods vs. creation of 2D media.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>27.Is there a process in place to document FAI_s for product produced from MBD datasets? Requirement: D6-51991-7.5, 7.6 &amp; AS9100-7.1, 7.2.4, 7.5.1.1</p> <p><b>Look For</b></p> <p>a) Process for reduced content datasets (MBD, RDD, SD, etc.) to ensure all dimensioned, un-dimensioned features and general / flag note requirements are planned for verification.</p> <p>b) Unique identification of each feature is required. Various acceptable methods are available to manage this data (e.g. 3D model, screen prints, sketches etc.) .</p> <p>c) Measurement planning must have guidelines to ensure the appropriate quantity of individual measurements are taken on the feature being measured (i.e., quantity of surface points for measurement, CMM hits).</p> <p>d) Use AS9102 as a guideline for product. Note: Compliance for this process is best verified by reviewing FAI documentation for a specific product or concurrently validating process.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>28.Does the supplier have a process to assure sub-tier suppliers ability to work with MBD information? Requirement: D6-51991-5.1 &amp; AS9100-7.4</p> <p><b>Look For</b></p> <p>a) Supplier has assessed sub tiers onsite and ensures the proper capabilities to manage and use the Boeing DPD/MBD datasets being provided.</p> <p>b) Supplier maintains records of sub tier MBD capabilities (equipment and process).</p> <p>c) Supplier has documented process to ensure sub tier suppliers inspection planning is compliant when used to accept Boeing product.</p> <p>d) Supplier documented processes ensure sub tier CAD systems/format are verified when dataset translation occurs.</p> <p>e) Must control sub tier DPD/MBD suppliers to the same standard as prime supplier.</p> <p>f) Utilize the same Boeing DPD/MBD Checklist requirements.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>29.Has the supplier identified specific training requirements for all functions associated with use and control of MBD datasets? (e.g. planning, purchasing, contract review and Mfg.?) Requirement: D6-51991-10.0 &amp; AS9100-6.2.2 <b>Look For</b> a) This can be a spreadsheet or training Matrix with a listing of personnel or job title that is cross referenced with the defined training that is required for DPD. b) The supplier must have a documented process that ensures the appropriate quality assurance and other affected. personnel responsible for product acceptance have proper training to use MBD for inspection planning, measuring and product/tool acceptance. c) The supplier must have a documented process that ensures other affected personnel responsible have proper training to use MBD when it directly affects their job function. d) The training must be formally documented and kept of file. This includes OJT when used as a training tool. There must be a formal quality system training process. e) Look for changes to the training program in response to changes to the DPD/MBD process, equipment, or software. f) Process to ensure quality assurance or other persons responsible for product acceptance been brought into the digital measurement and measurement planning process. g) Process to train and document tasks when product acceptance or media generation is performed by non QA personnel. h) Process to encouraged and documented OJT. i) Process to provide training for users of CAD, NC, CMS equipment. j) Process to provide training when software changes are implemented.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<b>Coordinate Measurement Systems (CMS)</b>		
<p>30.Does the supplier use CMS equipment for Tooling and/or Product acceptance? (Check all that apply): Requirement: D6-51991-6.2 <b>Look For</b> Articulating Arm Nadcap Articulating Arm Digital Theodolite Fixed Coordinate Measurement Machine Nadcap Fixed Coordinate Measurement Machine Fixed Scanning Coordinate Measurement Machine Indoor Global Positioning System Laser Projectors - Optical Layout Template Laser Radar Laser Scanner Laser Tracker Nadcap Laser Tracker Numerical Control Machine Inspection using probes or scanners Photo or Video-grammetry Other</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

<b>HM Dunn AeroSystems</b>	<b>DPD Audit Checklist</b>	
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Description	Response	Comments
<p>31.Does the supplier require Nadcap M&amp;I accreditation at this time?  Note: Add Nadcap supplier code to each CMS approval in the comment field.  Requirement: D6-51991-6.2.1  <b>Look For</b>  Certification if applicable</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>32.Does the supplier have a process to control critical functions of the CMS? N/A if Nadcap approved.  Requirement: D6-51991-6.2, 6.2.2  <b>Look For</b>  a) Purpose / Scope Overview or statement of specific equipment and its intended use.  b) Calibration Supplier shall define calibration intervals and maintain a system for periodic maintenance of measurement equipment. The supplier must document inventory of all specific components used for CMS and OLT measurement that could affect the integrity of data collection.. This inventory should include and not be limited to target accessories (e.g. bushings, adapters, sphere mounts, bar/rod, probing, drift nest, supports, etc.), all reflector types, and weather station equipment.  c) Product Acceptance Software Supplier shall perform Product Acceptance Software testing per section 3.0.  d) Field Checks / Set up Establish criteria for field checks / set up to ensure data and system accuracy prior to collecting measurement data.  e) Drift Points / Stability When environmental conditions, vibration, or stability of the product being measured could affect measurement data, drift point analysis is required. A record of drift points measured and acceptance tolerance used, before and after measurements is required as objective evidence.  f) Temperature Compensation / Scale Factors When products are measured in an uncontrolled environment a documented process to compensate for thermal effects on the objects being measured is required. Verify compensation using a scale bar of like (product) material before and after measurements. A record of scale bars measured and acceptance tolerance used is required as objective evidence. The product dimensional characteristics being verified must meet the engineering definition requirements as defined in ANSI/ASME Y14.5, ANSI B89.6.2.1993.  g) Establish Coordinate System Establish criteria for changing the coordinate system from a local coordinate system to a part or tool coordinate system. (e.g. tolerances, datum targets, datum features, tooling holes, tool enhanced reference system or best fit). Establishment of coordinate systems shall be in accordance with customer engineering definition and ANSI/ASME Y14.5 as applicable.  h) Multiple Station Set-up Criteria When moving CMS equipment from one location to another, or combining CMS equipment during a survey, supplier shall document their process and acceptance tolerance. A minimum of seven adequately distributed common points used as reference for repositioning/adding the CMS equipment during a survey shall be verified and recorded as objective evidence.  i) Data Collection Parameters Establish measurement guidelines and specific collection parameters for the CMS equipment prior to collecting measurement data.(e.g. point density, time/distance separation parameters, apex angles, distance limitations).  j) Data Analysis Establish guidelines for the evaluation of 3D point data to tool engineering, engineering datasets, or drawings.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<p>k) Reports Establish standard process for CMS reports (e.g. job information, coordinate system establishment, object temperature, scale bars, drift points, data analysis and measured results). Reports shall be in English and in inches unless directed otherwise by customer contract.</p> <p>l) Record Retention Establish standard process for all inspection and test records to be archived and retained per customer contract requirements and provided to the customer upon request.</p> <p>m) Training Suppliers shall define training requirements to assure competence and maintain employee training records, including on-the-job-training, for all CMS users per section 11.0. Note: Is supplier utilizing equipment capability (CAD, LEV, and CMS) to minimize/automate creation of inspection views? Preferred method is to utilize digital methods vs. creation of 2D media.</p> <p>Does the supplier require Nadcap M&amp;I accreditation at this time? Note: Add Nadcap supplier code to each CMS approval in the DAR comment field.</p>		
<p>33. Does the supplier maintain certification/calibration for equipment used for inspection, including: N/A if Nadcap approved</p> <ul style="list-style-type: none"> <li>- CMS equipment (Fixed and Portable):</li> <li>- NC equipment with inspection probe capability used for product acceptance</li> <li>- OLT's</li> <li>- Ply Cutters</li> <li>- Other equipment used to accept part attributes (Scale bar, adaptive tooling, ball bars, etc.)</li> </ul> <p>Requirement: D6-51991-6.1 &amp; AS9100-7.6</p> <p><b>Look For</b></p> <ul style="list-style-type: none"> <li>a) Tractability to Calibration records must be maintained for all CMS equipment &amp; special target adapters</li> <li>b) CMS equipment must be calibrated at periodic intervals</li> <li>c) Calibration process must meet NIST or equivalent standards.</li> <li>d) Measuring equipment will be physically identified in accordance with certification records</li> <li>e) Process will provide records of date of acceptance/rejection and next maintenance due date</li> <li>f) There must be a process to validate probes for CMM prior to use at each probe angle. This will be performed before each probe is used base on a certified monument (ball).</li> <li>g) N/A if Nadcap approved</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>34. Is there a process in place to validate Product Acceptance Software (PAS) independent of the software developer? N/A if Nadcap approved</p> <p>Requirement: D6-51991-3.1 &amp; AS9100-7.6</p> <p><b>Look For</b></p> <p>Suppliers procedures must include:</p> <ul style="list-style-type: none"> <li>- Supplier PAS must be verified prior to product acceptance use.</li> <li>- The supplier will establish and maintain a procedure independent of the software developer</li> <li>- Determine that the software, and subsequent revisions, accomplishes its intended function.</li> <li>- A means of identifying approved PAS software.</li> <li>- Software Security and Storage</li> <li>- N/A if Nadcap approved</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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Description	Response	Comments
<p>35.Does the supplier develop software for inspection and acceptance of product? N/A if Nadcap approved  - Is there a documented process to require creation of plans and instructions for the building, configuration management, loading and testing of Supplier developed product acceptance software?  Requirement: D6-51991-3.2, 3.3  <b>Look For</b>  There must be a documented process for:  - Control of the build/creation of the CMS software  - Approval and certification testing to assure the software meets industry standards accuracies  - Configuration management  - Problem and Trouble Shooting  - Manuals and documentation for the Supplier Developed CMS Software</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>36.Does the supplier define training requirements that: N/A if Nadcap approved  - Assure competence and maintain employee training records, including on-the-job-training, for all CMS system users.  - Respond to changes to the CMS process, equipment, or software?  Requirement: D6-51991-10.1 &amp; AS9100-6.2.2  <b>Look For</b>  a) There must be specific training requirements that assure operators and inspectors have been trained on all functions associated with use and control of the CMS.  b) The training process must have instruction to assure training is provided when changes to processes, equipment or software occur.  c) Supplier shall demonstrate CMS capability and compliance to Boeing approved CMS procedures.  d) If supplier receives authority dataset to measure product and tooling they must be DPD approved.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	

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<b>Plotter</b>		
<b>Description</b>	<b>Response</b>	<b>Comments</b>
<p>37. Does the supplier receive Boeing PDT's used for manufacturing and inspection? Requirement: D6-51991-7.7 <b>Look For</b></p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>38. Does the supplier have a documented process for creating plots for product acceptance use or as media of inspection? Those procedures shall include at a minimum the following:</p> <ul style="list-style-type: none"> <li>- Plotter Calibration</li> <li>- Plotting Environment</li> <li>- Verification of engineering definition</li> <li>- Plotted media material</li> <li>- Part number Identification &amp; revision</li> <li>- Verification of plotted media</li> <li>- Quality acceptance stamping</li> <li>- Accuracy of plots used for inspection</li> </ul> <p>Requirement: D6-51991-7.8 &amp; AS9100-7.6 <b>Look For</b></p> <p>a) Plotter Calibration</p> <ul style="list-style-type: none"> <li>- Plotting equipment should be located in a temperature and humidity controlled environment.</li> <li>- Typically plotters come with calibration software, this software should be run and used to adjust the plotter.</li> <li>- A Circle, Diamond, Square pattern is preferred as a independent for validation of proper calibration</li> <li>- After the plotter has been calibrated then it should be identified with a calibration sticker and put a scheduled calibration cycle</li> <li>- Plotting environment should be 68 degrees +/- 2 degrees</li> <li>- Record of certification test and frequency any adjustments made and result after adjustment. This is done daily</li> </ul> <p>b) Verification of engineering definition</p> <ul style="list-style-type: none"> <li>- Plotted media should be under Configuration control and be traceable to authority dataset</li> <li>- A process to verify flat patterns</li> <li>- Derivative media (Model) shall include gridlines or plot points used for verification.</li> <li>- Plots are not permitted to be used for engineering tolerances &lt; .030 inches</li> </ul> <p>c) Verification of plot accuracy</p> <ul style="list-style-type: none"> <li>- Process to validate plots at time of creation</li> <li>- Grid lines or plot points should be +/- .010 across the length of the plot</li> <li>- Record temp and humidity at the time of plot</li> </ul> <p>d) Quality Acceptance Stamp</p> <ul style="list-style-type: none"> <li>- Quality should verify the calibration, temp, humidity, and verification of plot accuracy</li> <li>- Quality should stamp and date and approve the plot for inspection use</li> </ul> <p>e) Verify accuracy prior to use</p> <ul style="list-style-type: none"> <li>- Plots should be verified prior to each use Sec 8.6</li> <li>- Temperature compensation (Ref D1-8110-9)</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	



<b>HM Dunn AeroSystems</b>	<b>DPD Audit Checklist</b>	
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<b>Description</b>	<b>Response</b>	<b>Comments</b>
<p>39. Does supplier have a documented process for validation of plot accuracy prior to use, environmental controls, handling &amp; storage and Destruction of Obsolete/Unusable? Requirement: D6-51991-7.8.1, 7.8.3 &amp; 7.8.4 <b>Look For</b> a) Verify accuracy prior to use - Plots should be verified prior to each use Sec 8.6 - Temperature compensation</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<p>40. Does the supplier define training requirements that: - Assure competence and maintain employee training records, including on-the-job-training, for all system users. - Respond to changes to the Plotter process, equipment, or software? Requirement: D6-51991-10.1 &amp; AS9100-6.2.2 <b>Look For</b> a) There must be specific training requirements that assure operators and inspectors have been trained on all functions associated with use and control of the plotter. b) The training process must have instruction to assure training is provided when changes to processes, equipment or software occur. c) Supplier shall demonstrate compliance to Boeing approved plotter procedures. d) If supplier receives authority dataset to create plotted media must be DPD approved.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
<b>Note</b>		
<p>41. The expectation that performing reps load a minimum level of checklist content into their DAR (DPD Profile Checklist). Latest procedure numbers/names and rev levels, specific notes (CMS, software versions and Loads) etc.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	