



DE HAVILLAND AIRCRAFT
OF CANADA LIMITED

BOMBARDIER
Toronto Site

PPS 13.26 - GENERAL SUBCONTRACTOR PROVISIONS

- Issue 15 - This standard supersedes PPS 13.26, Issue 14.
- Extensive changes and/or deletions have been made at this issue and, therefore, detail changes have not been noted.
 - Direct PPS related questions to PPS.Group@dehavilland.com or (416) 375-7641.
 - This PPS is effective as of the distribution date.

THIS PPS IS CO-OWNED BY DE HAVILLAND AIRCRAFT OF CANADA LIMITED AND BOMBARDIER INC.

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Issue 15 - Summary of Changes (over the previous issue)

The following summaries are not detailed and are intended only to assist in alerting PPS users to changes which may affect them; refer to the applicable sections of this PPS for detailed procedure and requirements.

- Specified this is a jointly owned PPS by both De Havilland Aircraft of Canada Limited and Bombardier Inc.
- Specified that subcontractors should also specify the program applicability when submitting an RFD request.
- Specified that for DASH 8 design, only the specified revision of an applicable BAPS is considered equivalent to the respective PPS (see [Table I](#)).
- Specified use of all other Bombardier documents on the DASH 8 programs are at frozen revisions (i.e., BAERD GEN, BAMS, etc.) as that stated on June 1, 2019.
- Specified that unless a specific issue or revision is indicated on any references in a PPS, the issue of the reference documents specified in a PPS in effect at the time of manufacture shall form a part of that PPS to the extent indicated with the applicable PPS.



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1 SCOPE

- 1.1 This Production Process Standard (PPS) is co-owned by De Havilland Aircraft of Canada Limited (DHC) and Bombardier Inc. (BA) due to its applicability for both the DASH 8 and Lear 45 programs. Therefore, deviation to this PPS shall be jointly approved by both companies.
- 1.2 This PPS specifies general subcontractor provisions. For the purposes of this PPS only, the term subcontractor also includes other Bombardier sites and risk sharing partners.

2 REFERENCES

- 2.1 BA-ASL - Bombardier Aerospace Approved Supplier List.
- 2.2 DHC-ASL - De Havilland Aircraft of Canada Limited Approved Supplier List.
- 2.3 BAERD GEN-018 - Engineering Requirements for Laboratories.
- 2.4 [PPS 13.39](#) - Bombardier Toronto Engineering Process Manual.
- 2.5 QD 4.6-40 - Requirements for Suppliers.

3 SUBCONTRACTOR PROVISIONS

- 3.1 Subcontractors processing work according to a referencing PPS (i.e., a PPS which references this PPS for subcontractor provisions) shall comply with the procedure and requirements specified therein. In case of conflict between a referencing PPS and this PPS, the referencing PPS shall take precedence.
 - 3.1.1 Refer to [PPS 13.39](#) for the PPS's that have been categorized as a "Critical or Special" process. [PPS 13.39](#) defines BA and DHC Engineering requirements for obtaining approval to process parts according to PPS's categorized as "Critical or Special".



- 3.2 Except as specified in [paragraph 3.2.1](#), all deviations by subcontractors from the materials, equipment, procedures or requirements specified in a referencing PPS shall be authorized by a BA/DHC Process Standard Deviation (PSD). A dispositioned BA/DHC Request For Deviation (RFD) is not authority to deviate from a PPS. When requesting deviations, subcontractors shall include the following information, as applicable:
- The program applicability (i.e., DASH 8 and/or Lear 45).
 - A description of the specific nature and extent of the deviation requested, substantiated by supporting data.
 - Process qualification and historical control data for the previous 2 years, if available.
 - One set of test samples and associated test results determined by a laboratory accredited according to BAERD GEN-018.
 - A second set of test samples to be tested by the Bombardier Toronto Materials Laboratory, complete with all process parameter documentation, as applicable (e.g., work orders, process cards, cure cycle charts, etc.).
 - Material technical data sheets.
 - Equipment specifications.
 - Relevant process/material specifications.
- 3.2.1 Where the engineering drawing or referencing PPS specifies manufacture to a pre-approved controlled document (e.g., Process Control Document (PCD), Composite Component Fabrication Specification (CCFS), etc.), the controlled document shall be approved according to [paragraph 3.3](#) or the referencing PPS before the PSD as specified in [paragraph 3.2](#) can be issued.
- 3.2.2 PSD's are applicable to the subcontractor specified on the PSD only. PSD's will only be issued to BA and/or approved subcontractors who are included on the BA-ASL and/or DHC-ASL (see [paragraph 2.1](#) and [paragraph 2.2](#)).
- 3.2.3 Specific deviation requests will be considered, but blanket approval of subcontractor process specifications will not be granted.
- 3.3 If the engineering drawing or referencing PPS specifies use of a Process Control Document (PCD), such a document shall be developed and maintained by the subcontractor. Record the optimum technique, once established, on a PCD. Once established and approved as specified herein, the PCD shall be adhered to. The PCD shall have a unique number relating to the specific part being manufactured and carry an issue/revision status. The PCD shall be facility specific and shall not be transferred to another facility without BA or DHC approval (program dependent). The PCD shall be signed by the subcontractor, BA and/or DHC Engineering and Quality and shall not be changed without prior written approval. The process may require re-qualification if there is any technical changes (e.g., processing parameter, material, etc.) made to the approved PCD. If unclear whether the change in question is technical in nature, contact BA and/or DHC prior to implementing such change on production parts.



- 3.3.1 All specifications and test procedures employed during the process shall be listed and issue/date controlled on the PCD. All recorded data shall be traceable to a batch/lot of material. The PCD and all production data shall be available to any BA or DHC auditors when requested.
- 3.4 Unless as specified in [paragraph 3.4.1](#), when use of a PPS is specified, procedure or requirements specified in a Bombardier BAPS, MPS, LES or P. Spec. do not supersede the procedure or requirements specified in that PPS.
- 3.4.1 If a PPS specifies that a BAPS may be used as an alternative to that PPS (see [Table I](#) for a list of applicable PPS's), the following statements apply:
- See the equivalent PPS for any limitations and restrictions to using the BAPS as an alternative.
 - Unless otherwise specified by the PPS, the applicable process or operation shall be performed according to the procedure and requirements of either the BAPS or the PPS in their entirety; a piecemeal approach utilizing selected sections or portions of the BAPS and the PPS is not acceptable.
 - Unless otherwise specified by the PPS, subcontractor facilities which have been approved by Bombardier to perform the applicable process or operation according to that BAPS are considered approved to perform the applicable process or operation according to the PPS without further approval needed.
 - PPS PSD's are not applicable to BAPS.
 - When processing parts according to a BAPS as an alternative to processing parts according to a PPS, deviations allowed by an approved RFD against that BAPS may be used unless a specific limitation regarding program applicability is specified by the RFD comments/restrictions.
- 3.4.2 Only if allowed in PPS's or PSD's, use of all Bombardier documents on the DASH 8 programs are at frozen revisions (i.e., BAERD GEN, BAMS, etc.) as that stated on June 1, 2019.
- 3.5 With the exception of that specified in [paragraph 3.4.2](#), unless a specific issue or revision is indicated on any references in a PPS, the issue of the reference documents specified in a PPS in effect at the time of manufacture shall form a part of that PPS to the extent indicated with the applicable PPS.



TABLE I - PPS WITH EQUIVALENT BAPS ALTERNATIVE

PPS	BAPS (NOTE 1)	PPS TITLE
17.03	185-002, Rev. C	Saturation Shot Peening
17.04	185-003, Rev. A	Shot Peen Forming
20.01	176-004, Rev. D	Magnetic Particle Inspection
20.03	176-002, Rev. E	Fluorescent Penetrant Inspection
20.10	176-017, Rev. A	Radiographic Inspection
30.01	168-007, Rev. H	Heat Treatment of Aluminum and Aluminum Alloys
31.05	180-015, Rev. B	Surface Treatment of Corrosion Resistant Steel (C9)
32.01	160-020, Rev. B	Chemical Conversion Coating of Aluminum and Titanium Alloys by Immersion (C1)
32.02	160-020, Rev. B	Manual Application of C1 Chemical Conversion Coatings
32.03	160-010, Rev. E	Chromic Acid Anodizing (A1)
32.05	160-032, Rev. C	Colour or Colourless Anodizing - Sulphuric Acid Process (A3)
Note 1. For DASH 8 parts, only the specified "frozen" revision of the BAPS is determined to be equivalent to the respective PPS. For Lear 45 parts, use current active revision of the equivalent BAPS.		

- 3.6 BA and/or DHC internal operating procedures specified in a PPS (e.g., Quality Departmental Instructions (QDI's), Quality Assurance Process Instruction (QAPI's), Operational Guide (OG's), DH forms, de Havilland Laboratory Procedure Manual (DHLPM), etc.) are intended for BA and DHC internal use only. In place of the BA and/or DHC internal operating procedures specified or referenced, subcontractors shall use their own internal operating procedures, as applicable to the work being performed, which meet the requirements of QD 4.6-40. It is the responsibility of all subcontractors to prepare and maintain their own internal procedures (including quality, training, lab procedures, etc.).
- 3.6.1 LAB drawings, as specified in the PPS's, are applicable to subcontractors. Use of alternative test specimens is only acceptable if specified in the relevant PPS or allowed by a PSD.
- 3.7 The safety precautions specified in a referencing PPS are specific to meet Canadian Federal and Provincial government environmental, health and safety regulations. It is strongly recommended that subcontractors consider these safety precautions. However, subcontractors are responsible for ensuring that their own environmental, health and safety precautions satisfy the appropriate local government regulations.



- 3.8 If a PPS specifies that **equivalent** material or equipment may be used (i.e., *Encapsulating Coating - Hysol PC28, Humiseal 1A33, or equivalent*) it should not be assumed that unlimited substitution is acceptable. Approval of **equivalent** materials or equipment shall be authorized by a PPS change or PSD. If an **example** of the material or equipment required is given in brackets (i.e., *Neoprene gloves (e.g., DSC422-5)*) it is acceptable to use an alternative material or equipment with similar characteristics and capabilities without a PPS change or PSD.
- 3.9 Sufficient inspection operations shall be implemented by subcontractors, subject to review by BA and/or DHC, to ensure that all of the requirements, including process verification requirements, specified in any referenced PPS have been met.
- 3.10 All materials and equipment referenced in a PPS may not be needed by every subcontractor, depending upon the scope of work involved.
- 3.11 Unless otherwise specified, evaluation of test samples shall be performed by a laboratory accredited according to BAERD GEN-018 (e.g., Bombardier Toronto Materials Laboratory). This shall apply to where a PPS specifies that test samples shall be submitted to “the de Havilland Materials Laboratory”, “a government approved laboratory”, “an approved laboratory” or simply “the Materials Laboratory”. For the purposes of this PPS, the term “test sample” is intended to also include test pieces, test specimens and bath samples. For a listing of BA or DHC approved laboratories, refer to the BA-ASL or DHC-ASL. Application to be included on the ASL should be directed to BA or DHC Quality, program dependent.