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BOMBARDIER AEROSPACE PROCESS SPECIFICATION

BAPS 700-002

REV. E

INTERIOR AIRCRAFT BONDING USING CONTACT ADHESIVES

APPROVED – Global 5000/ 6000	APPROVED – Global 7000/ 8000
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REVISION HISTORY

LTR	DATE	REVISED BY	APPROVED BY	PAGES AFFECTED
NC	2004-09-20	Suzie Ferland	Gail Stephen	All pages
A	2004-12-17	Gail Stephen	Suzie Ferland	All pages
B	2005-11-28	Nicolas Belley	Suzie Ferland	4, 5, 6, 10 & 11
C	2006-03-08	K. Nguyen	Suzie Ferland	6,9
D	2015-01-27	Surinder Singh Bharaj	P. Allard / R. Hartner	All pages
E	2016-03-16	Emilie Charette	M-T. Nguyen/P. Barsalou	5,6,7,8,10

Comments: **Rev E**

-Section 1.1
Removed ‘’*Per MMM-A-121 or BAMS 540-005 Type II Class 1 adhesive*’’
Removed ‘’*upholstery bonding*’’ and the note associated to it.

-Section 2.1.1
Removed BAMS 540-005

-Section 2.2 removed completely

-Sections 6.1 & 6.2
Restructuration of the sections

-Section 9.5.2
Removed completely

-Removed 2nd paragraph of former section 9.5.3 (now section 9.5.2)

Ref. ERD# 165324

DISPOSITION OF STOCK:

MATERIALS: ***Use***
PARTS PROCESSED: ***Use as is***

INTERIOR AIRCRAFT BONDING USING CONTACT ADHESIVES

LIST OF FIGURES AND TABLES

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INTERIOR AIRCRAFT BONDING USING CONTACT ADHESIVES

1 SCOPE

This specification establishes the requirements, materials and procedures to be used in the process control of the application of contact adhesives intended for non-structural purposes where the mating surfaces can be directly positioned to their final location and cannot be relocated after contact has been made.

This specification is applicable when called for by Engineering Drawings, Process or Finish Specifications for Interior Aircraft only.

1.1 CLASSIFICATION

The processes qualified to this specification shall be classified using the following criteria:

Type 1: High strength general purpose adhesive

Type 2: For bonding wood veneers or laminate to composite panels.

Type 3: Carpet edges sealing

Type 4: Bond foam to foam

Type 5: Bond Nomex felt insulation to cabinet panel and aircraft interior finishing panel and general purpose adhesive.

Type of Adhesive shall be specified on Engineering Drawing. **To maintain flammability certification (FAR 25.853 & FAR 25.856) the type of adhesive specified on Engineering Drawing shall be respected**.

2 APPLICABLE DOCUMENTS

Except where a specific issue is indicated, the issue of the following documents in effect at the time of manufacture shall form a part of this specification to the extent indicated herein.

2.1 BOMBARDIER AEROSPACE DOCUMENTS

BT0213-01	Request for Deviation Form

2.1.1 Bombardier Aerospace Specifications

BAPS 700-001	Surface Preparation for Interior Aircraft Adhesives Bonding

2.1.2 Bombardier Aerospace Manuals

BAASL	Bombardier Aerospace Approved Supplier List
BAEMM-001	Bombardier Aerospace Engineering Materials Manual – Interior Aircraft Finishing
BAEPM-001	Bombardier Aerospace Engineering Process Manual

2.2 MISCELLANEOUS SPECIFICATIONS

FAR 25.853	Flammability Requirements Airworthiness Standards Transport Category Airplanes
FAR 25.856	Flammability Requirements of Thermal/Acoustic Insulation Materials

3 DEFINITIONS

Not applicable.

4 FACILITIES AND EQUIPMENT

4.1 FACILITIES

No special facilities requirements apply.

4.2 EQUIPMENT

No special equipment requirements apply.

5 FACILITY APPROVAL

A facilities survey may be carried out in conjunction with a survey conducted on a Bombardier Aerospace Process Specification that is referenced in BAEPM-001

6 MATERIALS

6.1 AIRCRAFT AND PROCESS MATERIALS

All aircraft materials and process materials listed in this section shall be controlled in accordance with BAEMM-001.

Type 1:	EC-1357
Type 2:	EC-1357
Type 3:	Fastbond 30NF
A-A-59107	Toluene, Technical

6.2 MISCELLANEOUS MATERIALS

Material listed in this section shall meet only those requirements stated specifically against them in this section. BAEMM-001 is not applicable.

Type 4:	Simalfa 309	Alfa Adhesive Inc. 15 Lincoln St. Hawthorne, NJ US, 07506-1423
Type 5:	Bostik 1531AC	Bostik Inc. 211 Boston Street, Middleton, MA, 01949, USA

Lacquer thinner, 3642SC	Axalta Coatings Systems 408 Fairall Street Ajax, ON, L1S 1R6

7 HEALTH AND SAFETY

Some of the materials used in this Specification may be toxic, flammable and/or irritating to the skin.

At Bombardier, consult Health and Safety Department for specific handling precautions.

Outside Bombardier, the user is solely responsible to consult with the appropriate health and safety authority for specific requirements related to facilities, equipment, ventilation and handling precautions.

8 PROCESS QUALIFICATION

Bombardier sites and subcontractors shall process in strict accordance with this specification and all sub-tier specifications, modified if necessary only by change formally approved by Bombardier Aerospace Materials and Processes Global Completion Center (BA M&P GCC) in response to requests for deviation using form BT0213-01.

Approved subcontractors shall be listed in the Bombardier Aerospace Approved Supplier List (BAASL).

Qualification of a process is site and line specific and is not transferable under any circumstances.

Once the process is qualified, no change shall be made to any of the processing conditions used to perform and control the process, without written agreement of BA M&P GCC.

9 PROCESS

9.1 GENERAL

Thinning of adhesives is not allowed.

Do not use undated or outdated materials.

9.2 PREPARATION OF FAYING SURFACES

Faying surfaces shall be prepared in accordance with BAPS 700-001.

9.3 APPLICATION PROCEDURES – TYPE 1

9.3.1 Application of Adhesive

Perform bonding according to the following method:

- Agitate or stir the adhesive before using.
- Apply uniform coats of adhesive on both faying surfaces.
- Wait for adhesive to dry before applying subsequent coat or assembly of faying surfaces. Verify with the back of the hand that the adhesive is still tacky when touched and does not transfer. If adhesive becomes non-tacky, apply the Re-Activation procedure in 9.3.2.
- Maximum drying time = 30 minutes [**1**].
- Total weight of dry adhesive coats should be approximately 2.5 – 3.5 g/ft2 on each faying surface [**2**].
- Join parts together and roll or press firmly together to ensure intimate contact over the full bonding surface.

Notes

1: Adhesive drying time can vary depending on ambient temperature and humidity.

2: Porous surfaces may require two or three coats of adhesive to ensure that sufficient adhesive remains on the surface. Total weight of dry adhesive coats should be approximately 3.5 – 4.5 g/ft2.

9.3.2 Re-Activation Procedure

The adhesive re-activation procedure can be used when the adhesive is too dry, i.e. non-tacky.

The procedure can also be used when two impervious surfaces require bonding and where it is practical to apply the adhesive well in advance of assembly.

Re-activate the dry adhesive coating using either one of the following methods:

- Wipe lacquer thinner or Toluene (A-A-59107) with a clean cloth dampened on the less porous surface. The re-activated surface should immediately become tacky or sticky to the touch.
- Apply a thin coat of adhesive on the surface to be bonded. The surface is ready to be bonded when adhesive becomes tacky and does not transfer.

Note

Uncontaminated EC-1357 film may be re-activated up to one month after application.

9.3.3 Curing

The adhesive dries sufficiently in 30 minutes for ordinary handling at 77 ± 18 °F (25 ± 10 °C) and relative humidity between 20 and 80 %. High humidity will slow the drying, high temperature will speed the drying.

Allow the bond to cure at room temperature (75 ± 10 °F or 24 ± 5 °C) for at least 12 hours before further working the assembly or prior testing of bond strength.

9.4 APPLICATION PROCEDURE – TYPE 2

As per Section 9.3

9.5 APPLICATION PROCEDURE – TYPE 3

9.5.1 Application of adhesive for carpet sealing

Apply a uniform coat of adhesive on carpet edges with a brush.

Very porous material may require more than one coat. Allow adhesive to dry completely between coats.

One coat is usually sufficient. Dull spots when dry indicate insufficient adhesive. A uniform, glossy film indicates sufficient adhesive.

9.5.2 Curing

The adhesive dries sufficiently in 30 minutes for ordinary handling at 77 ± 18 °F (25 ± 10 °C) and relative humidity between 20 and 80 %. High humidity will slow the drying, high temperature will speed the drying.

9.6 APPLICATION PROCEDURE – TYPE 4

9.6.1 Application of Adhesive

Never mix or agitate before using.

Apply adhesive to both surfaces using spray gun. Place the substrates together within 20 minutes after spraying. Pressure may be applied via manual or mechanical methods to enhance the initial bonding.

Total weight of dry adhesive should be approximately 2.5 – 3.5 g/ft2 on each faying surface.

9.6.2 Curing

The adhesive dries sufficiently for ordinary handling in 30 minutes at 77 ± 18 °F (25 ± 10 °C) and relative humidity between 20 and 80 %. High humidity will slow the drying, high temperature will speed the drying.

Allow the bond to cure at room temperature (75 ± 10 °F or 24 ± 5 °C) for at least 24 hours before further working the assembly (i.e.: machining) or prior testing of bond strength.

9.7 APPLICATION PROCEDURE - TYPE 5

9.7.1 Application of adhesive

Mix before use.

Apply adhesive using spray gun. Once applied, air or oven dry and mate substrates only when substrates are fully dry. Apply high levels of even pressure to maximize bonds.

Alternately, open time procedure described in Section 9.3.1 can be used.

9.7.2 Curing

Allow the bond to cure at room temperature (75 +/- 10°F or 24 +/- 5°C) for at least 24 hours before further working the assembly or installing it in the aircraft.

10 QUALIFICATION REQUIREMENTS

No process qualification is required for Bombardier sites and subcontractor facilities that will perform processing in accordance with the procedures shown in this specification.

11 REPRODUCIBILITY CONTROL

Reproducibility control in the form of Technique Sheets or equivalent is not required.

12 PROCESS CONTROL

12.1 GENERAL REQUIREMENTS

The Quality Department shall ensure that all requirements of this specification and applicable approved deviations are met, through process monitoring and examining end items with established Quality Instructions.

12.2 PROCESS CONTROL MONITORING

There shall be no evidence of delamination around the perimeter of the bonded details.

There shall be no detectable voids, blistering in the bond area. Pinholes and voids in the extruded contact adhesive along the bond line edge are not cause for rejection.

13 PERSONNEL CERTIFICATION / QUALIFICATION

A period of on the job training under an experienced operator/instructor is required for personnel engaged in Interior Aircraft Bonding Using Contact Adhesives. Qualification or certification is not required.