HOST: Bombardier, Saint-Laurent, Montreal, QC, Canada

September, 15-17

DT&M Workshop Session: Bonded Repair (BR)

Mike Borgman Spirit AeroSystems, Inc. Wichita, KS, USA

Prologue

- Facts
 - ND bond strength validation methods do not exist
 - Bond problems occasionally observed in service
- Reaction
 - Must assume bond failure in sizing PSE repairs
 - Essentially means non-OEM entities cannot define PSE repair
- Meanwhile...
 - Shops with rigorous bond process controls have <u>many</u> repairs flying without incident

Can we level performance of bond shops to mitigate reason for fear and doubt in bonding?

CTDT&M WS Bonded Repair (BR) Session Objective

- Garner industry input on BR state-of-practice
 - 1. Strategies to minimize occurrence of weak-bond?
 - 2. Is fleet knowledge transfer sufficient to prevent misuse of BR?
 - 3. Strategies to mitigate risk of insufficient *PSE BR* substantiation?
 - a) Thoughts on current efforts and going-forward plans?
 - b) Does the effort seem prudent or pointless?

CTDT&M WS Bonded Repair (BR) Session Objective

- Garner industry input on BR related topics
 - 1. What are best strategies to minimize weak-bond occurrences?
 - a) Knowledge transfer and competency verification?
 - b) Technician certifications? What is feasible?
 - c) Service provider facilities certifications?
 - d) Service provider management certifications?
 - e) Right-process at right-time?
 - Unification of BR materials, processes and practices?
 - f) Other

BR Session Presentation Request (non-OEM)

- Objective it to explore the industry position on need for technician/engineer/management <u>training and certification</u>.
- WS discussion on the following subjects would be helpful.
 - History of robust bonded repair performance with worker credentials
 - Bonded repairs that performed poorly and had to be replaced
 - Examples of MRO's cutting corners to win work
 - Performance issues associated with plethora of repair materials and non-harmonized work instruction
 - Observed inconsistent BR performance and associated technician training and experience
 - Other perspectives to help bring forward consensus on the need, or lack thereof, training/certifications

CTDT&M WS Agenda Bonded Repair Sessions

2015 FAA/Bombardier/TCCA/EASA/Industry Composite Transport Damage Tolerance and Maintenance Workshop

	Tuesday (Sep. 15)		Wednesday (Sep. 16)		Thursday (Sep. 17)	
Regulatory Perspectives (FAA, EASA, TCCA)		Session 3: High Energy, Wide Area, Blunt Impact (HEWABI)		Session 6: Damage Tolerance (Special Subjects)		
8:30-9:00	"Welcome/Introduction/Workshop Objectives" - Bombardier and Larry Ilcewicz (FAA)	8:30-8:50	"HEWABI as Related to Safety and Certification" - Larry Ilcewicz (FAA)	8:30-9:00	"Composite Fatigue & Damage Tolerance Design & Service Experience" - Kevin Davis (Boeing)	
9:00-9:30	"FAA Composite Plan" - Cindy Ashforth (FAA)	8:50-9:20	"UCSD FAA Research" - Hyonny Kim (UCSD)	9:00-9:30	"Validation of Thermal Loads for Hybrid Structure" - Jean-Philippe (Bombardier)	
9:30-10:00	"EASA Composite Safety Issues" - Simon Waite (EASA)	9:20-9:40	"EASA Research" - Simon Waite (EASA)	9:30-9:45	"Thermal Loads of Horizontal Tail Plane Structure" - Jan Waleson (Fokker)	
10:00-10:30	"2015 Industry/Authorities FAA Composite Transport DT and Maintenance Workshop – TCCA Perspectives" - Maurizio Molinari (TCCA)	9:40-10:00	"Airline Experiences" - Eric Chesmar (United), Ray Kaiser (Delta)	9:30-9:45	"Perspectives on Damage Detection and Inspection" - Larry Ilcewicz and Rusty Jones (FAA)	
10:30-10:45	Break	10:00-10:30	HEWABI Recap Session	10:00-10:15	Break	
Session 1: Sandwich Disbond Assessments		10:30-10:45 Break		10:15-10:45	"Composite Damage Tolerance Speical Topics Recap" - Led by Larry Ilcewicz (FAA), D.M. Hoyt (NSE) and Waruna Seneviratne (WSU)	
10:45-11:30	"CMH-17 Honeycomb Sandwich Disbond Growth Team Status - Mid 2015" - Ralf Hilgers (Airbus) and Ronald Krueger (NIA)	Session 4A	A: Composite Fatigue and Damage Tolerance	Session 7A:	Smarter Damage Tolerance Testing	
11.30-11.45	"Sandwich Dishond Recap" - Led by Larry Ilcewicz and Ralf Hilgers (Airbus)	10:45-11:00	"introduction for Sessions 4 through 6" - Larry Ilcewicz (FAA) and D.M. Hoyt (NSE)	10:45-11:00	"Smarter DT Testing - Boeing Perspectives" - Kevin Davis (Boeing)	
Session 2	s: Bonded Repair 2A (Part 1)	11:00-11:15	"Perspectives on Fatigue and Damage Tolerance Standardization" - Mark Nienhaus (Textron Aviation)	11:00-11:15	"Smarter Testing - Airbus Approach" - J-l Leon Dufour, S. Rabois, and John van Doeselaar (Airbus)	
11:45-12:00	"Sessions 2A and 2B - Introduction and Objectives" - Michael Borgman (Spirit AeroSystems, Inc.)	11:15-11:30	"TBD" -Reserved for ATR, Dassault or Gulfstream	11:15-11:30	"Smart Testing - Bombardier Thoughts" - Salamon Haravan (Bombardier)	
12:00-12:30	"Operator Field Experiences" - Eric Chesmar (UAL)	11:30-12:00	"Boeing Composite Fatigue & Damage Tolerance Certification Experiences" - Allen Fawcett (Boeing)	11:30-11:45	"Smarter DT Testing - Summary" - Kevin Davis (Boeing)	
12:30-1:15	Lunch	12:00-12:30	"Airbus Composite Fatigue and Damage Tolerance Certification Experiences" - L. Ratier and C. Fualdes (Airbus)	11:45-12:30	Lunch	
Session 2A	Gession 2A: Bonded Repair 2A (Part 2)		12:30-1:15 Lunch		Session 7B: Use of Probabilistic Methods	
1:15-1:45	"Airbus Bonded Repair Applications to Pressurized Fuselage" - J. Charles and C. Fualdes (Airbus)	1:15-1:45 "Rear Pressure Bulkhead Large Damage Capability Demonstration" 12:30-1:30 Boeing thoughts Jean-Phillippe Marouze (Bombardier)			Intro (J. van Doeselaar Airbus) 5 min	
1:45-2:15	"Substantiation Approaches for Bonded Repairs" - Allen Fawcett (Boeing)			Bombardier thoughts - Salamon Haravan- 10 min with Q&A Boeing thoughts - Alan Fawcett-15 min with Q&A Airbus thoughts - Emilie Morteau; Chantal Fualdes-15 min with Q&A		
Session 2B: Bonded Repair 2B (Part 1)		1:45-2:15 "Aviation Rulemaking Advisory Committee (ARAC) Tasking on § 25.571" - Walt Sippel (FAA) and Mike Gruber (Boeing)			WS participant experiences/closing remarks + Q&A (Airbus led) - 15 min	
2:15-2:45	"Lessons Learned from CACRC Depot Bonded Repair Round Robin Exercise" - Dr John Tomblin & Lamia Salah (WSU)	2:15-2:45 "NIAR Research on Certification of Composite-Metal Hybrid Structures" - Dr. Waruna Seneviratne and Dr. John Tomblin (WSU)		Session 7C: Major Structural Modifications, Alterations & Repairs		
2:45-3:15	"Effect of Processing Parameters on Bonded Repair Quality and Strength" Dr. Pascal Hubert (McGill Univ.); Dr. Rushabh Kothari, David Wilson, Geoff Walsh (Bombardier)	2:45-3:15	"CMH-17 Durability & Damage Toleranc Roadmap" - D.M. Hoyt, Patrick Enjuto, and Tom Walker (NSE)	1:30-2:00	"Issues Associated with Modification and Repair of Primary Aircraft Composite Structures" - Steve Forness (Air Flight Technical)	
8:15-3:30	Break	3:15-3:30	Break	2:00-2:30	"Examples of Substantiation Testing and Documents to Support Large Areas of Composite Repair" - John Welch, Jim Epperson (Spirit Aerosystems)	
Session 2B: Bonded Repair 2B (Part 2)		Session 5: Damage Tolerance (Special Subjects)		2:30-2:45	Break	
B:30-4:00	"Bonded Repair Service Provider - Service History and Substantiation" - John Welch (Spirit Aero Systems)	3:30-4:00	"The Aging Composite Airframe" - John Halpin (Consutant)	2:45-3:45	"Near-Term Emerging Technology Recap" - Led by Boeing (TBD), Airbus (TBD), Bombardier (TBD) and Cindy Ashforth (FAA)	
4:00-4:30	"Composite Operational Issues" - Rusty Jones (FAA) and Simon Waite (EASA)	4:00-4:30	"Some Thoughts on Strategies for Building Block Approach Development" - Eric Pomerleau and Dr. Isabelle Paris (Bombardier)	3:45-4:00	Recap/Actions/Closure - Larry Ilcewicz (FAA)	
4:30-4:45	"Standards for Substantiation of Bonded Repairs" -Michael Borgman (Spirit Aero Systems)	4:30-5:30	"Composite Fatigue and Damage Tolerance Recap" - Led by Larry Ilcewicz (FAA), D.M. Hoyt (NSE) and Waruna Seneviratne (WSU)			
4:45-5:45	"Bonded Repair Recap" - Led by Larry Ilcewicz & Rusty Jones (FAA) and Mike Borgman (Spirit)					

CTDT&M WS: Bonded Repair Sessions

### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2B (Part 2) ### Session 2A: Bonded Re					11:30 11:45	- Led by Larry Ilcewicz and Ralf Hilgers (Airbus)				
Tuesday (Sep. 15) Regulatory Perspective (FA, CAS, TCCA) Session 3: High Energy 22:00-12:30 Session 3: High Energy 23:00-12:30 Session 3: High Energy 24:00-12:30 Session 4: Accompaniate 25:00-12:30 Session 3: High Energy 25:00-12:30 Session 3: High Energy 25:00-12:30 Session 3: High Energy 25:00-12:30 Session 4: Accompaniate 25:00-12:30 Session 4: Accompaniate 25:00-12:30 Session 3: High Energy 25:00-12:30 Session 4: Accompaniate 25:00-12:30 Session 4: Accompaniate 25:00-12:30 Session 4: Accompaniate 25:00-12:30 Session 5: Accompaniate 25:00-12:30 Session 5: Accompaniate 25:00-12:30 Session 6: Accompaniate 25:00-12:30 Session 7: Accompaniate 25:00-12:30 Session 8: High Energy 25:00-12:30 Session 7: Accompaniate 25:00-12:3					Specion 2/	A: Bonded Repair 2A (Part 1)				
Tuesday (Sep. 15)	O1F FAA/Dambardian/TCCA/FACA/Industry. Comb									
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	8:30-9	-9:00 - Bombardier and Larry Ilcewicz (FAA)	8:30-8:50	- Larry Ilcewic		- Enc Chesmar (UAL)				
### Session 1.5 Broad Repair 2A (Part 2) ### Session 1.5 Broad Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repair 2A (Part 2) ### Session 2A: Bonded Repair 2A (Part 1) ### Session 2A: Bonded Repa	9:00-9		8:50-9:20	"UCSD FAA Rese - Hyonny Kin	12:30-1:15	Lunch				
109-1030 worksport (Commerce Commerce C	9:30-1		9:20-9:40		e					
Session 1: Sandwich Disbond Assessments 1039-1045 Break 1:15-1:45 1:045-1139 1:041-17 Interpretab Sandwich Disbond Growth Team Status Session 4A: Composite 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130 1:045-1130	10:00		9:40-10:00	"Airline Experien - Eric Chesma	Session 2/	A: Bonded Repair 2A (Part 2)				
Session 1: Sandwich Disbond Assessments 10301045 Break 1135-1:45 -J. Charles and C. Fualdes (Airbus) Substantiation Approaches for Bonded Repairs" -Allen Fawcett (Boeing) Session 2A: Bonded Repair 2A (Part 1) 1145-120 Session 2A: Bonded Repair 2A (Part 1) 1145-120 Session 2A: Bonded Repair 2A (Part 1) 115-135 Session 2A: Bonded Repair 2A (Part 1) 115-135 Session 2A: Bonded Repair 2B (Part 1) 115-135 Session 2A: Bonded Repair 2B (Part 1) 115-135 Session 2B: Bonded Repair 2B (Part 2) 115-136 Session 2B: Bonded Repair 2B (Part 2) 115-137 Session 2B: Bonded Repair 2B (Part 2) 115-136 Session 2B: Bonded Repair 2B (Part 2) 115-137 Session 2B: Bonded Repair 2B (Part 2) 115-136 Session 2B: Bonded Repair 2B (Part 2) 115-137 Session 2B: Bonded Repair 2B (Part 2) 115-138 Session 2B: Bonded Repair 2B (Part 2) 115-139 Session 2B: Bonded Repair 2B (Part 2) Sessi	10:30	0-10:45 Break	10:00-10:30	HEWABI Recap	i	"Airbus Ronded Renair Applications to Pressurized Fuselage"				
Session 2A: Bonded Repair 2A (Part 1) Session 2A: Bonded Repair 2A (Part 1) 105-1100 Session 2A: Bonded Repair 2A (Part 2) 105-1100 Each Planary (IA) 105-1100 Session 2A: Bonded Repair 2A (Part 2) 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 Session 2B: Bonded Repair 2B (Part 1) 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-1100 105-110	Sessi	sion 1: Sandwich Disbond Assessments	10:30-10:45	Break	1:15-1:45					
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Session 2A: Bonded Repair 2A (Part 1) 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-1200 114-120	11.30	"Sandwich Disbond Recap" - Led by Larry Ilcewicz and Ralf Hilgers (Airbus)	10:45-11:00							
- Michael Bogman (Spirit AeroSystems, Inc.) 200-1230 "Operator Field Spreamer (Spirit AeroSystems, Inc.) 200-1230 "Spirit Processing Parameters on Bonded Repair Round Robin Exercise" - Dr. 210-1230 "Latter and 210-12	Sessi	sion 2A: Bonded Repair 2A (Part 1)	11:00-11:15	ectives or enh		2. D d - d D :- 2D / D t 4 \				
- Aller Favored 2 15-2:45 Lunch Session 2A: Bonded Repair Applications to Presurized Fuselage" - J. Charles and C. Fudices (Arbus) Lunch Lunch 2:45-3:15 Session 4B: Composite - J. Charles and C. Fudices (Arbus) Session 4B: Composite - J. Charles and C. Fudices (Arbus) Session 2B: Bonded Repair Applications to Pressurized Fuselage" - J. Charles and C. Fudices (Arbus) Session 2B: Bonded Repair 2B (Part 1) 2:45-2:45 Lunch Lunch Lunch 2:45-3:15 Substantiation Approaches for Bonded Repair (Devil Wilson, Geoff Wellsh (Bombardier) Life-14-5:215 Lunch	11:45		11:15	d for	Session 2	3: Bonded Kepair 2B (Part 1)				
Ession 2A: Bonded Repair 2A (Part 2) 1:15-1:45	12:00			- Allen Fawcet	2:15-2:45	·				
**Session 2B: Bonded Repair 2B (Part 1) **Session 2B: Bonded Repair 8 polications to Pressurized Fuselage" -1. Charles and C. Fualdes (Alphus) **Session 2B: Bonded Repair 2B (Part 1) **Session 2B: Bonded Repair 2B (Part 1) **Session 2B: Bonded Repair 2B (Part 2) **Session 2B: Bonded Repair Service Provider - Service History and Substantiation" - John Welch (Spirit Aero Systems) **Session 2B: Bonded Repair Service Provider - Service History and Substantiation" - John Welch (Spirit Aero Systems) **Session 2B: Substantiation of Bonded Repairs" - Substantiation of Bonded Repairs" - Substantiation of Bonded Repairs" - Substantiation of Bonded Repairs - Substantiation of Bonded Repairs - Lied by Larry **Somethoughts - Led by Larry **Somethoughts - Larry - Larry **Somethoughts - Larry - Larry - Larry - Larry - Larry - Larry -	12:30	0-1:15 Lunch	12:00-12:30			John Tomblin & Lamia Salah (WSU)				
-1.15-1.45 -1. Charles and C. Fualdes (Airbus) -1.45-2.15 -1. Charles and C. Fualdes (Airbus) -1.45-2.15 -1. Charles and C. Fualdes (Airbus) -1.45-2.15 -1. Charles and C. Fualdes (Airbus) -1. Charles and C. Fua	Sessi	' ', '	12:30-1:15	Lunch	2:45-3:15	-				
Allen Fawcett (Boeing) Fession 2B: Bonded Repair 2B (Part 1) Fession 2B: Bonded Repair 2B (Part 1) Fession 2B: Bonded Repair 2B (Part 1) Fession 2B: Bonded Repair 2B (Part 2) Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Provider - Service History and Substantiation - John Fession 2B: Bonded Repair Service Prov	1:15-1	- J. Charles and C. Fualdes (Airbus)	Session 4			biroda rada producti, biroda notali, bora man, don man pomonan				
- Walt Sippel is 1.45-2:45 "Lessons Learned from CACRC Depot Bonded Repair Round Robin Exercise" - Dr. John Tomblin & Lamia Salah (WSU) 2:45-3:15 "Effect of Processing Parameters on Bonded Repair Quality and Strength" - Dr. Waruna Seession 2B: Bonded Repair 2B (Part 2) 2:45-3:15 "Effect of Processing Parameters on Bonded Repair Quality and Strength" - Dr. Waruna Seession 2B: Bonded Repair Service Provider - Service History and Substantiation" - John Welch (Spirit Aero Systems) Session 2B: Bonded Repair 2B (Part 2) Session 2B: Bonded Repair 2B (Part 2) Session 5: Damage Tote Session 5: Damage Tote Session Seession 2B: Bonded Repair Service Provider - Service History and Substantiation" - John Welch (Spirit Aero Systems) 1:00-4:30 "Composite Operational Issues" - Rusty Jones (FAA) and Simon Waite (EASA) 1:00-4:30 "Composite Operational Issues" - Service Provider - Service History and Substantiation of Bonded Repairs" - Eric Pomeral 4:30-4:45 - Hichael Borgman (Spirit Aero Systems) 1:30-4:45 "Standards for Substantiation of Bonded Repairs" - Michael Borgman (Spirit Aero Systems) 1:45-5:45 "Bonded Repair Recap" - Led by Larry Under Sevice Roby Jones (FAA) and Mike Borgman (Spirit) 1:45-5:45 "Bonded Repair Recap" - Led by Larry Under Sevice Roby Jones (FAA) and Mike Borgman (Spirit) 1:45-5:45 "Bonded Repair Recap" - Led by Larry Under Sevice Roby Jones (FAA) and Mike Borgman (Spirit)	1:45-2		1:15-1:45	"Rear Pressure I Jean-Philippe M	3:15-3:30	Break				
2:15-2:45 John Tomblin & Lamia Salah (WSU) 2:45-3:15 "Effect of Processing Parameters on Bonded Repair Quality and Strength" Dr. Pascal Hubert (McGill Univ.); Dr. Rushabh Kothari, David Wilson, Geoff Walsh (Bombardier) 3:15-3:30 Break 3:30-4:00 Break 3:30-4:00 Break 3:30-4:00 "Bonded Repair Service Provider - Service History and Substantiation" - John Welch (Spirit Aero Systems) 3:30-4:00 "The Aging Comp. John Halpin Public Organization Processing Prameters on Bonded Repair Processing Prameters on Bonded Repair Processing Prameters on Bonded Repair Provider - Service History and Substantiation Processing Prameters on Bonded Repair Provider - Service History and Substantiation Processing Prameters Organization Provider - Service Provider - Service History and Substantiation Processing Prameters Organization Provider - Service Provider - Service History and Substantiation Provider - Service History and Substantiation Provider Provider - Service Provi	Sessi	sion 2B: Bonded Repair 2B (Part 1)	1:45-2:15		4					
Break 3:30 Break 3:30-4:00 Welch (Spirit Aero Systems) Session 2B: Bonded Repair Service Provider - Service History and Substantiation - John Welch (Spirit Aero Systems) Session 5: Damage Tote 3:30-4:00 "Bonded Repair Service Provider - Service History and Substantiation - John Welch (Spirit Aero Systems) Session 5: Damage Tote 3:30-4:00 "Bonded Repair Service Provider - Service History and Substantiation - John Welch (Spirit Aero Systems) Session 5: Damage Tote 3:30-4:00 "The Aging Comp. John Halpin - Rusty Jones (FAA) and Simon Waite (EASA) Some Thoughts - Eric Pomerle 4:30-4:45 "Standards for Substantiation of Bonded Repairs" - Michael Borgman (Spirit Aero Systems) Some Thoughts - Eric Pomerle 4:30-4:45 "Michael Borgman (Spirit Aero Systems) Some Thoughts - Eric Pomerle 4:30-4:45 - Michael Borgman (Spirit Aero Systems) Some Thoughts - Eric Pomerle 4:30-4:45 - Michael Borgman (Spirit Aero Systems) Standards for Substantiation of Bonded Repairs - Michael Borgman (Spirit Aero Systems) Some Thoughts - Eric Pomerle 4:30-4:45 - Michael Borgman (Spirit Aero Systems) Some Thoughts - Eric Pomerle 4:30-4:45 - Michael Borgman (Spirit Aero Systems) Standards for Substantiation of Bonded Repairs - Michael Borgman (Spirit Aero Systems)	2:15-2	John Tomblin & Lamia Salah (WSU)	2:15-2:45	- Dr. Waruna		3: Bonded Repair 2B (Part 2)				
Session 2B: Bonded Repair 2B (Part 2) Session 5: Damage Tote Composite Operational Issues - Rusty Jones (FAA) and Simon Waite (EASA) - Rusty Jones (FAA) and Simon Waite (EASA) Session 5: Damage Tote Composite Operational Issues - Rusty Jones (FAA) and Simon Waite (EASA) Session 5: Damage Tote Composite Operational Issues - Rusty Jones (FAA) and Simon Waite (EASA) Session 5: Damage Tote - Rusty Jones (FAA) and Simon Waite (EASA) Session 5: Damage Tote - Rusty Jones (FAA) and Simon Waite (EASA) - Rusty Jones (FAA) and Simon Waite (EASA) Session 5: Damage Tote - Rusty Jones (FAA) and Simon Waite (EASA) - Rusty Jones (FAA) and Simon Waite (EASA) - Standards for Substantiation of Bonded Repairs - Michael Borgman (Spirit Aero Systems)	2:45-3		2:45-3:15			"Bonded Repair Service Provider - Service History and Substantiation" - John				
## Aging Comp. ## Agi	8:15-3	-3:30 Break	3:15-3:30	Break	3:30-4:00	·				
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-Led by Larry Michael Borgman (Spirit Aero Systems)	4:00-4	- Rusty Jones (FAA) and Simon Waite (EASA)	4:00-4:30	- Eric Pomerle	4:30-4:45					
- Led by Larry Ilcewicz & Rusty Jones (FAA) and Mike Borgman (Spirit)	4:30-4		4:30-5:30			-Michael Borgman (Spirit Aero Systems)				
	4:45-5				4:45-5:45	"Bonded Repair Recap" - Led by Larry Ilcewicz & Rusty Jones (FAA) and Mike Borgman (Spirit)				

First Speaker Eric Chesmar (UAL)