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Industry Collaboration Drives Production Development of New EMTEQ Interior Panels

Winnipeg, MB, Canada (August, 20, 2013) – On July 15th, Winnipeg-based EMTEQ Canada delivered its first set of composite interior panels to a major customer following four months of collaboration inside Manitoba's aerospace industry. EMTEQ joined forces with Composites Innovation Centre (CIC) and the Composites Research Network (CRN) to develop a manufacturing capability that demonstrates new technology.

EMTEQ Canada received approval on March 15th, 2013 from a major business aircraft customer to design an interior panel solution with goals of improving visual aesthetics and durability. EMTEQ went further by optimizing the design and process for lean manufacturing flow. "One of the ways that we can provide value to our customers is by eliminating waste in the process. To accomplish this, we develop unique fabrication technology that is married to our lean methodology," David Vanderzwaag, EMTEQ Composite Product Manager. To shorten the development timeline, Vanderzwaag worked with Manitoba's composites experts, starting with the CIC.

With technical advice and financial support from the National Research Council of Canada Industrial Research Assistance Program, EMTEQ began collaborating with CIC in early 2012, when the need for a composites capability was identified. The CIC helped EMTEQ understand the requirements, infrastructure, and systems necessary for composites manufacturing operations. CIC Principle Engineer, Steve Crouch, assisted in new technology development that began with manufacturing trials at the CIC. Crouch led CIC resources to support EMTEQ throughout development and right into production.

2012 also saw EMTEQ engage with engineers from the Composites Research Network. CRN supported EMTEQ with knowledge-based engineering solutions to streamline the creation of its new composite manufacturing capability. Göran Fernlund, CRN Technical Director, noted "EMTEQ, with its commitment to innovation, is a natural partner for us".

During production development, the team identified a gap in layup experience given the difficult product geometry. To remedy this, CIC's Aerospace Manager, Gene Manchur, initiated a "Complex

Layup and Bagging Workshop" to close the gap. Drawing on subject matter experts from Boeing Canada Operations - Winnipeg, EMTEQ, and CRN, the CIC led the interactive workshop on-site at EMTEQ. "We were immediately impressed with the collaborative stance that the management from each entity took," says Manchur. "It is a real testament to how Manitoba's aerospace composites industry can come together for mutual benefit." EMTEQ learned superior layup and bagging strategies, and Boeing experts Rudy Braun and Don Jennings were able to review EMTEQ's approach to tooling, out-of-autoclave (OOA) and lean production. CRN is capturing workshop content in their online Knowledge in Practice Centre, and the CIC plans to make the workshop results available to other clients.

The EMTEQ-led industry collaboration successfully demonstrated an OOA, heated tooling process for aircraft interior panels that enables one-piece manufacturing flow. EMTEQ secured an order for an 18 aircraft program, and has achieved tremendous growth internally with this capability. EMTEQ Canada started 2012 with 53 employees and now employs over 100 people. According to Udaya Silva, company's managing director in Canada, "this initial program is paving the way for EMTEQ in applying composite technology in aircraft interiors, particularly in business aviation, a market segment in which the company specializes. This is a perfect example of government, academic, and nonprofit collaborations elevating SMEs by leveraging regional strengths in technologies, in this case composites manufacturing".

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About EMTEQ and Its Partners

As a global aerospace company, EMTEQ's commitment to the collaborative advancement of aircraft products keeps our customers at the forefront of technology. EMTEQ offers an extensive selection of innovative, value add products and services for both retrofit and forward fit applications in the commercial and business aviation markets. Products range from cables to integrated installation kits; from cabin power to LED lighting; and from structures to exterior lighting. From multi-faceted, complex programs to production overload needs, EMTEQ complements our products with comprehensive program management and full engineering, design, and certification services. Employing more than 500 employees worldwide, offices and manufacturing facilities are located in New Berlin, WI; Miramar, Florida; Great Falls, MT; Winnipeg, Canada; Montreal, Canada; Taubaté, Brazil; São José dos Campos, Brazil; Bachenbülach, Switzerland. EMTEQ complies with EN/JSIQ/AS9100:2004, ISO9001:2008, or EN9100:2003 standards backed with FAA/EASA Part 145 Repair Stations and global technical support. Learn more about EMTEQ and its partners at www.EMTEQ.com.

Composites Innovation Centre

The Composites Innovation Centre Manitoba Inc. (CIC) is a not-for-profit corporation jointly sponsored by industry and government that commenced operations in October, 2003. Its mandate is to support and stimulate economic

growth through innovative research, development and application of composite materials and technologies for manufacturing industries and to be a catalyst for creating new business opportunities in Manitoba.

Specifically, the CIC is a technology solutions provider for the composites industry in Manitoba and Western Canada using targeted core technical capabilities and a large national and international network of research and commercialization organizations. Education and training activities are a key focus to ensure the development of critical skills and resources that are needed by this expanding industry sector.

Composites Research Network

Launched in 2012, the CRN (http://crn.ubc.ca) is a collaborative industry-university organization based in Western Canada focused on closing the innovation gap and reducing product, and process, development risk in composite design and manufacturing. Responding to drivers in the aerospace, automotive, civil infrastructure and consumer industries the CRN was developed by Anoush Poursartip, University of British Columbia Professor in Materials Engineering, based on three decades of experience with the UBC Composites Research Group and Convergent Manufacturing Technologies. The CRN is currently supported by a seed investment from the Canadian Government and has more recently engaged the Boeing Company as a founding Tier 1 member.

The CRN is engaged in numerous projects ranging from fundamental research, applied research and development while also providing direct support to industrial partners. In all cases the primary output of CRN projects is *knowledge in practice documents*, or *KPDs*. Knowledge in practice documents bring together the fundamental science and industrial wisdom in composite manufacturing by capturing open, correct and usable knowledge. To facilitate the use of these documents by industry practitioners, the CRN has developed an online knowledge management framework for its membership, called the Knowledge in Practice Centre.