Aero India 2011 Draws Record Attendance

by Jean Mozolic

Aero India, a biennial event, has gained recognition as one of the largest aerospace exhibitions in the Asian Region. First launched in 1995, this year's event held at Yelahanka Air Force Base in Bengaluru from February 9 - 13 attracted visitors and exhibitors from 675 companies and 30 countries with over 300,000 attendees. The air show was spectacular with F-16’s and F-18’s sharing the skies with the Russian MiG-35; Dassault Rafale, EADS Eurofighter Typhoon; and SAAB Gripen.

Each day brought headline news of deals inked such as: “Northrop Grumman, Pipavav Shipyard sign MOU at Aero India 2011”; “General Dynamics Transfers Intellectual Property of Hawk Support to HAL (Hindustan Aeronautics, Ltd)”; “Sukhoi, Rosoboronexport, HAL to Jointly Develop Multi-role Fighter Jet”; “Eurofighter Offers Technology Transfer; U.K. Rejects Naval Eurofighter Variant in Favor of F-35 JSF”; and, “Gripen for Air Force MMRCA - Sweden Promises Full, True Tech Transfer”.

The big news at the show was that the Indian Air Force is undertaking a major upgrade of its fleet. This brought suitors from around the world including Boeing, Lockheed Martin, SAAB, Dassault, EADS and the Russian MiG. A major point of discussion was India's prestigious $11 billion
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Medium Multi-Role Combat Aircraft (MMRCA) deal for which many of these companies have already submitted bids. Indian Defense Minister AK Anthony announced that the bid process is well underway and that he expects to announce the winner by July 2011.

In a massive multi-billion dollar acquisition program, the Indian Armed Forces (IAF) plan to purchase more than 1,000 indigenous and foreign helicopters for attack, transport and utility operations by the end of this decade. The purchase plan includes 450 light utility, 12 VVIP, over 200 attack, 139 Mi-17 transport and 15 heavy-lift helicopters and over 50 multi-role helicopters.

Another 187 similar choppers would be produced locally by Hindustan Aeronautics Limited (HAL) and its design has already been completed. The Navy is also planning to procure more than 60 twin-engine choppers to replace its vintage Cheetah and Chetak helicopters and has already initiated the acquisition process for this purpose.

To strengthen its fleet of Russian Mi-35 and Mi-25 combat helicopters, the IAF is planning to acquire 22 attack helicopters for which Boeing’s Apache 64-D and Russian Mi-28 are the contenders. By mid-2011, India will also start taking delivery of 139 Mi-17 helicopters from Russia. This acquisition will be completed between 2013 and 2014. The IAF is also in final stages of trials for procuring 15 heavy-lift helicopters to replace the fleet of Russian-origin Mi-26. Russian Mi-26 and the Boeing twin-rotor Chinook 470 are in the race for the tender.

The trials to procure 16 Multirole Helicopters (MRH) for the Navy are also expected to begin in April-May this year and the Sikorsky-70B and European NH-90 are the contenders for this contract.

Aerospace – Commercial

Defense is not the only sector of interest and growth. It is projected that India’s commercial aviation requirement alone is valued at $130 billion over the next 20 years representing a purchase of 1,150 jets in that time period. Dinesh Keskar, President, Boeing India said, “We are very optimistic about Indian aviation market. In defense alone we are working on deals worth $30 billion.” In 2006, Boeing and Air India signed an order agreement for 68 Boeing commercial jets, the single largest commercial airplane order in India’s civil aviation history, with a value of more than $11 billion USD. In 2010, Boeing and SpiceJet announced an order for 30 Boeing Next-Generation 737-800 with winglets valued at about $2.3 billion USD.

The civil aviation sector in India is growing rapidly. It has recorded annual growth of over 41% in passenger traffic during the last two years. The rapid growth of civil aviation has resulted in the modernization of airports, communications, navigation and surveillance systems for air traffic management, radars and facilities for Maintenance Repair and Overhaul (MRO) of aircraft and sub systems.

There are opportunities for collaboration and creation of joint ventures for establishing MRO facilities for civil and military aircraft, overhaul and maintenance of aero engines and production of avionics, components and accessories both in the civil and military aviation sectors. Several of the larger Indian Airlines such as Kingfisher Air, Air India, Jet Airways have their own maintenance centers within India however IAF Helicopter.

much of the engine and component overhaul goes offshore primarily to Singapore and China. The global aerospace community recognizes that India is fast emerging as a center for aerospace engineering and design services. Many partnerships and JVs are underway as a result.
Aerospace Parks

There are numerous projects throughout India to establish aerospace parks. The concept is to provide one-stop shopping for a variety of manufacturing, maintenance and overhaul services for the aerospace sector. Because of foreign investment restrictions on defense related activities (currently capped at 26% vs. 100% for commercial) many companies are segregating these activities in order to attract foreign investors. Most of these parks are adjacent to major public airports even though there are projects underway at private airstrips.

Two of the more notable projects are:

- GMR Aerospace Park, Rajiv Gandhi International Airport, Hyderabad
  - 250 Acre Special Economic Zone
  - Indian Rotorcraft will commence helicopter assembly and flight testing in 2012
  - CFM Aircraft Engine Support South Asia Private, Ltd. – regional engine maintenance training center for CFM-56-5B and -7B engines

- Bangalore Aerospace Park, Denavahalli International Airport
  - 1000 acre site of which 250 acres are earmarked as a Special Economic Zone.
  - Bangalore is unofficially recognized as the aerospace capitol of India. Boeing, Airbus, SNECMA, RR, Honeywell and BAE Systems are located here.
  - HAL, Jupiter Aviation, Tyco, Wipro, Dynamatics and Mistral have already commenced with their investment plans.
  - The aerospace division of Thyssen Krupp (Germany) plans to set up a component manufacturing unit, with an investment of $11 million USD in the first phase. The company will take up around 10 acres for this project.
  - GE’s John Welch Technology Center is located in Bangalore.

Surface Technology Opportunities

The surface technology industry in India is small and fragmented. Most of the thermal spray shops are ISO certified however few are AS or NADCAP certified. Major aerospace companies already have a strong presence in India. The primary engine manufacturers such as GE, Pratt & Whitney and Rolls Royce have active programs to enhance the special process capabilities in India of which thermal spray is key along with conventional plating, CVD, PVD, laser cladding, welding and brazing.

Most of the thermal spray companies in India have been focused on non-aerospace applications such as automotive, steel, paper and industrial. However with the projected growth in both the military and commercial aerospace sectors many have undertaken programs to be qualified and prepared to participate in this growth. Partnerships, JVs and investments with foreign nationals are being pursued.

With an educated and skilled work force; growing middle class; projected GDP growth rate of 8+% for the next two years; tax and legal reform underway; and the largest English speaking democracy in the world, India is increasingly being recognized as a viable global player.

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Certified Thermal Spray Operator (CTSO™)

ASM International and the Thermal Spray Society developed this certification program for the thermal spray community to:

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of lifeboat. Perryfields Limited has been working with Supacat for many years and has thermal sprayed the chassis of the new L&RS with zinc to protect it from corrosion. Supacat is an innovative engineering and design company that produces and supports high mobility, all terrain vehicles.

The new L&RS is the first of its kind for the RNLI and incorporates several unique and innovative features. The L&RS has a permanent software controlled four-track-drive system, which gives exceptional mobility in all beach conditions. The cradle, the main interface with the boat, rotates through 360°, which enables a ‘Bow First’ launch and recovery. This unique facility meets the RNLI’s requirements for rapid turnaround from recovery to relaunch.

The L&RS will be consistently exposed to harsh seawater environments and therefore needs to be protected from corrosion. Supacat specified metal spraying with zinc as the most effective corrosion protection and commissioned Perryfields to complete the project. Supacat has specified that the front and rear chassis, two sections of the engine bay, cradle and main trailer structure be thermal sprayed with Zinc.

Due to the many difficult to access areas of the large L&RS, Perryfields used the 11.81 in. (300mm) extension. This flexibility enables the extension unit to be sprayed directly forward or at a deflected angle, ranging from 0° to 90° by varying the deflector air pressure. The deflection nozzle can be rotated through 180° in both directions allowing for a full 360° of movement around the arc. This ability makes it very easy to apply high quality coating in the recessed areas of the chassis.

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A video showing the L&RS being thermal sprayed can be seen on the Metallisation website www.metallisation.com

Thermal spraying a zinc coating is a process in which molten particles of zinc are applied by impact onto a substrate. The zinc spray is then applied to the substrate within hours of it being cleaned using grit blasting, a process to prepare the substrate to enable the adhesion of the zinc. The zinc is normally 99.9% pure and is not contaminated in the spraying process, or suspended in organic compounds, ensuring maximum cathodic corrosion protection similar to galvanizing.

Flame spray coatings form a dense, strongly adherent coating suitable for corrosion protection. Major advantages of the flame spray process are that the coatings are available for almost instant use, with no drying or curing times. In addition, there is no risk of damage from heat distortion that can sometimes happen during galvanizing.

Julian Langrish, Managing Director at Perryfields Limited, says: “This is a really exciting project for us. The new Launch and Recovery System is a pre-production system that is being used by Supacat to prove various upgrades to the previous prototype vehicle. This is in preparation for the production build, which is due to begin towards the end of 2011. We have been using thermal spray for many years. The new Metallisation extension is a great addition to our equipment. It is really easy to use and allows us to get into all the difficult to reach areas, making sure the Launch and Recovery Equipment is fully protected from corrosion. The Metallisation Team has been really supportive and I would definitely recommend them.”

For more information, contact Stuart Milton, Sales and Marketing Manager, +44 (0) 1384 252 466 or visit www.metallisation.com

Notes: The RNLI is the charity that saves lives at sea. Its volunteers provide a 24-hour search and rescue service around the United Kingdom and Republic of Ireland coasts. The RNLI operates over 230 lifeboat stations in the UK and Ireland and has more than 150 lifeguard units on beaches around the UK. The RNLI is independent of the Coastguard and the government and depends on voluntary donations and legacies to maintain its rescue service. Since the RNLI was founded in 1824 its lifeboat crews and lifeguards have saved over 139,000 lives.
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