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RM TURBOCHARGES MILITARY MODERNIZATION

A whopping \$130 billion will be spent in the next 7-8 years on domestic manufacturing of complex defence platforms

India is at last putting its money where her mouth is. At Aero India 2021, Raksha Mantri (RM) Rajnath Singh unveiled a mammoth spending projection to address India's defence needs. This spending seeks to address the imbalance in war-fighting capabilities thrown up by a belligerent China and a hostile Pakistan and to meet the Indo-Pacific geopolitical ambitions. Singh said that India plans to spend \$130 billion on military modernisation in the next 7-8 years. "We have taken steps to strengthen our security apparatus. Domestic manufacturing of bigger and complex defence platforms has now become focus of our policy under 'Aatmanirbhar Bharat Abhiyan'," he said.

The twin announcements underlined the enthusiasm of vendors at the mega air show. With greater defence spending India will be able to put long-term funds behind its ambitious 'Make in India' programme. The 15th Finance Commission had recommended the constitution of a dedicated non-lapsable modernisation fund for defence and internal security (MFDIS) and its acceptance in the latest 2021 budget is an important step to ensure long-term commitment of funds for projects such as HAL's LCA and acquisitions such as the Rafale.

Hersh Pant, Professor at Centre for War Studies, King's College London put the \$130 billion announcement in perspective when he pointed out, "The announcement at Aero India is very important as it underwrites an actual monetary commitment to



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RAJNATH SINGH, Raksha Mantri

back up the ambition targets of 'Make in India'. With this kind of money strengthening of the local ecosystem for defence can be undertaken with a long-term perspective. The key need is to generate domestic capacities through awarding research and development projects as well as out sourcing eight or ten select programmes. Being selective in our choice of developing air force projects for example will be the key for the success of 'Aatmanirbhar Bharat'."

Indeed, the air defence forces today flew the Aatmanirbhar Formation Flight consisting of LCA trainer, HTT-40, IJT, Advanced Hawk Mk 132 and Dornier-228. Every single aircraft in the formation was either made in India or

licenced manufactured in India. Interestingly 65 per cent of the work was done right here in Karnataka. With additional funding expect more of the 'Make in India' in defence.

Air Marshall (Retd) S J Nanodkar told Geopolitics, "Aero India 2021 is the turning point for 'Make in India' defence. The Defence Minister's articulation of long-term defence spending marries resources to ambition. Now, it's critical to identify and develop key technologies and then farm these out over time to the private sector through HAL and other vendors. The three challenges are: radar, electronic warfare and weapon systems. The long-term test of is developing an aircraft engine. Finally, the integration of all these

systems into workable platforms is the task. With money now earmarked and a national will behind Aatmanirbhar Bharat these are achievable targets."

The signing of the ₹46,000 crore (\$6.5 bn) project at Aero India for 83 HAL manufactured Light Combat Aircraft is the big bang for creating an ecosystem of weapon manufacturing in India. HAL has to use this as a stepping stone for future aircraft, especially the fifth-generation aircraft which is India's long-term goal. How HAL delivers on this programme – within budget and what new technological spin offs it achieves – will set the tone for the future of Indian defence manufacturing.

To sum up, at Aero India, it can be concluded that a confident take-off through massive monetary support indicates happy — and challenging — days for Indian defence manufacturing in the coming decade

— Ninad D Sheth

PBS INDIA: SOLUTIONS FOR AEROSPACE

PBS INDIA is Indian designer and manufacturer of aircraft engines, auxiliary power units (APU), environmental control systems (ECS), specific custom-made aircraft solutions, cryogenics and investment casting products. PBS INDIA is a part of PBS GROUP, a Czech engineering manufacturer that operates globally in aerospace, precision casting, precision engineering, cryogenics and energy. With more than 200 years of history, it belongs to the oldest engineering brands in the world.

The ability to design, construct, manufacture and test the entire product is a significant competitive advantage, as is the ability to adapt products to specific customer requirements. Complete in-house production is a guarantee of the highest quality and reliability of its products.

PBS has been developing and supplying small turbine drive units for the aerospace industry for half a century. The company celebrated the 20th anniversary of cooperation with the manufacturers of Mil helicopters. PBS mainly supplies the Safir 5K/G MI auxiliary power unit (APU), which triggers the main engines of a significant number of Mi-17 helicopters. PBS continually works on modifications of existing products, but the company also develops other devices for new types of helicopters as well as jet aircraft and UAVs.

20 years of cooperation with Mil
PBS has implemented thousands of APUs in total. Last year, the company celebrated the 20th anniversary of cooperation with the manufacturers of Mil helicopters for which it developed the Safir 5K/G MI APU. This APU has been designed for Russian Mi-8, Mi-17 and Mi-171 helicopters, which are among the most successful helicopters in the world in terms of both the number of units sold and the number of countries in which they fly. You can find the Mi-17 in more than 60 countries, including the

Indian Air Force.

Products for helicopters and jet aircraft

PBS APUs are especially suitable for civil and military helicopters, training and light combat planes, and business jet planes. Applications in ground military forces or marine applications are also feasible. They are incorporated into various configurations not only in several types of helicopters, but also in training and combat planes. Currently, PBS is following up on previous cooperation with the development and supply of several systems for the new generation

of PBS jet engines are reflected in the fact they have been installed in over instruments, the EMG-200 starter generator, and other devices.



VISIT AT HALL C1.5



of this aircraft, designated for example as Czech aircraft as L-39NG, L-159 and others. This includes the environmental control system, some fuel system

Turbine engines

PBS corporation is the world's well-known turbojet engine supplier. The very high quality and reliability

1,300 aircraft worldwide. With certification to the European Aviation Safety Agency (EASA) standards, their quality makes them stand out from competing engines in their category. Due to their reliability and weight-to-thrust ratio are suitable for use in the military industry and any UAV and UCAS projects. The worldwide recognised turbojet engine PBS TJ100 belongs to the 4th generation of this type of engine and PBS INDIA supplies the complete range of these engines throughout India.

Development and innovations

PBS continuously invests in development and has high-quality technical support and development and testing

capacities available. The latest addition to the PBS turbojet engine family is TJ100P - an oil-free version of the famous PBS TJ100 engine. The company continually extends the time limits of overhauls for the Safir 5K/G MI, thus increasing its competitiveness.

The Mil Mi-171A2 has attained certification in India of the type for civilian use issued by the Civil Aviation Authority of India and PBS CS-MIV environmental control system for the new type of Mi-171A2 helicopter is another example of successful development. This system can heat and cool simultaneously, not only in the cockpit, but also in the cargo space of the helicopter.

Cryogenics and investment casting

PBS investment casting foundry with more than 50 years' experience focuses mainly on blades and segments of stationary gas turbines, turbocharger wheels for automotive, impellers and guide wheels for aircraft engines, spinner discs for the glass industry and femoral components for the healthcare sector.

PBS is also a reliable supplier of compressors, pumps and helium expansion turbines for the cryogenic industry and very low temperatures from 4 to 150K.

Learn more about PBS INDIA products and solutions on www.pbsindia.com.

Rolls-Royce reaffirms Indian commitment at Aero India

VISIT AT CHALET-29

Rolls-Royce is exhibiting its technology prowess and steadfast commitment to an 'Atmanirbhar Bharat' at the aerospace and defence exhibition, Aero India-2021 in Bengaluru (India). The Aero India show this year is seeing Rolls-Royce familiarising customers and potential partners with its advanced technology offerings in naval and aerospace defence, as well as exploring opportunities to expand its 'Make in India' footprint.

In focus will be the mighty Rolls-Royce MT30, the world's most power-dense marine gas turbine for naval vessels in service today. With a history of pioneering high-end technology solutions, Rolls-Royce's prowess in naval defence solutions dates back over 80 years. The MT30 offers unique capabilities of a 21st century machine derived from the Aero Trent engine family. Offering a superior power-to-weight ratio and generating up to 40MW from a 30-tonne packaged unit, including most of the auxiliary systems, the MT30 gives navies more power in less machinery space than alternative engine types.

Kishore Jayaraman, President, Rolls-Royce India & South Asia said: "Rolls-

Royce has been a strong partner in the mission readiness of India's defence forces and are proud of our shared legacy of over eight decades. Aero India-2021 will be an important platform for Rolls-Royce to explore opportunities to further collaborate, cocreate and co-manufacture in India with a view to support and enable the government's 'Atmanirbhar Bharat' vision. We are also excited to discuss how our naval defence offerings such as the MT30 gas turbine can propel the Indian Navy's modernisation programme by providing integrated power and propulsion solutions. We believe the future will be led by meaningful partnerships to 'Create in India' customised technology solutions that will pave the way for a stronger ecosystem to make in India, for India and for the world."

Alex Zino, Executive Vice President – Business Development & Future Programmes (Defence), Rolls-Royce said: "We recognise that India's defence requirements are evolving, making indigenous development of modern defence hardware and technology a top priority for the Indian government. We also understand what it takes to build future-ready defence capabilities,

and have been working closely with our Indian partners to strengthen the entire ecosystem including supply chain, sourcing, service and repairs, research and development and manufacturing capabilities. We remain firmly committed to building on Rolls-Royce's rich heritage of partnership with the Indian defence forces with codeveloped and customised advanced technology products that can best serve the nation's power needs. Invested in building a strong ecosystem for manufacturing in the country, Rolls-Royce is well-positioned to explore opportunities to 'Create in India' and to achieve India's goals of self-reliance in the defence sector."

Rolls-Royce has been manufacturing in India for over 60 years in partnership with Hindustan Aeronautics Limited (HAL) and other Indian supply chain partners, and remains keen to partner on the co-development programme of an indigenous engine for the Advanced Medium Combat Aircraft (AMCA).

MT30 engine- Powering the future

Proven at sea, the Rolls-Royce MT30 can deliver its full power of up to 40MW (depending on application) in ambient temperatures up to 38 degrees Celsius,

without any power degradation through life of ship allowing the ship to operate anywhere in the world without loss of performance or power. In just over a decade, the MT30 is operating or has been



selected for all conceivable propulsion arrangements across seven ship types in twelve naval programmes around the world. This includes mechanical, hybrid and fully integrated-electric, with power delivered to waterjets, controllable and fixed-pitch propellers, depending on application. It gives navies more power in less machinery space than alternative engine types and offers ship designers much more options and flexibility in designing the naval vessels of tomorrow.