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THE UPM MARKET INFORMER



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Paris Air show: India Centre Stage As Another Big Jet Deal Lands

India dominated the Paris Airshow for a second day on Tuesday, as Air India finalised a huge order for 470 planes from Airbus (AIR.PA) and Boeing (BA.N).

The agreement, when sketched out in February, was the largest ever plane deal by number of aircraft. But it was surpassed on day one of the Paris show by Indian rival IndiGo's (INGL.NS) order for 500 Airbus narrowbody jets. Finalizing the deal puts it in the aerospace industry's order backlogs as firm orders. Until now, it was only a preliminary deal. Air India said it was worth \$70 billion at list prices, though airlines typically get discounts on big orders worth at least half the headline price, analysts say.

Efforts by Indian airlines to keep pace with the world's fastest-growing aviation market, serving the largest population, have sent industry records tumbling even though manufacturers are struggling to meet output goals due to supply chain snags. But some analysts have expressed concern that airlines could be over-ordering jets in pursuit of the same passengers.

Air India's deal includes 250 planes from Airbus and 220 from Boeing. The Airbus part comprises 210 A320neo and A321neo narrowbody jets and 40 A350 widebodies. Boeing's deal is for 190 narrowbody 737 MAXs, plus 20 787 Dreamliner and 10 777X widebodies. "Our ambitious fleet renewal and expansion programme will see Air India operate the most advanced and fuel-efficient aircraft across our route network within five years," Air India Chief Executive Campbell Wilson said in a statement.

The buying spree by Indian airlines adds to signs of strong global demand for civilian aircraft as travel rebounds from the pandemic and airlines look to reduce their environmental impact with more fuel-efficient new models. Demand has been hottest for short and medium-haul narrowbody jets, but engine maker Rolls-Royce (RR.L) said on Tuesday the market for long-haul widebodies was also coming back strongly. However, planemakers and their suppliers remain concerned about their ability to meet bulging order books amid rising costs, parts shortages and a scarcity of skilled workers. Lars Wagner, CEO of MTU Aero Engines, said on Tuesday labour shortages and problems with the production of castings were the biggest strains in the engine supply chain.

Air India, with its maharajah mascot, was once known for its lavishly decorated planes and stellar service, but its reputation declined in the mid-2000s as financial troubles mounted. Its renaissance under the Tata conglomerate aims to capitalise on India's growing base of fliers and large diaspora, currently mostly served by foreign rivals such as Emirates.

The mega-order will also put Air India on a stronger footing to compete with budget rival IndiGo, which has a majority share of the Indian market and a strong position in regional flights.

Elsewhere at the show on Tuesday, Ethiopian Airlines said it expected to announce an order for about 130 Airbus and Boeing planes shortly after the event. Leasing company Avolon finalised an order for 40 Boeing 737 MAX 8 planes, while Philippine Airlines firmed up an order for nine Airbus A350-1000 widebody jets and Qantas finalised a deal for nine Airbus A220-300s, confirming a Reuters report. Read the article [here](#).

Nickel/Cobalt & Stainless-Steel Flat Rolled Surcharges



	Apr	May	June	July	Aug	Sept
15-5	1.12194	1.1235	1.1052	1.0380	*	*
17-4	1.1359	1.1396	1.1212	1.0536	*	*
17-7	1.2054	1.2296	1.2207	1.1300	*	*
201	.8985	0.9302	0.8428	0.7891	*	*
301 7.0%	1.1756	1.2011	1.1929	1.1045	*	*
302/304/304L	1.2970	1.3216	1.3123	1.2146	*	*
304-8.5%	1.3517	1.3746	1.3647	1.2621	*	*
305	1.7408	1.7525	1.7384	1.6026	*	*
309	1.7830	1.8042	1.7901	1.6553	*	*
310	2.5730	2.5748	2.5525	2.3514	*	*
316/316L	2.2319	1.9784	1.9254	1.8298	*	*
321	1.3997	1.4196	1.4076	1.2984	*	*
347	1.7033	1.7217	1.7111	1.6038	*	*
409/409 Mod	0.3387	0.3734	0.3722	0.3474	*	*
410/410S	0.3432	0.3789	0.3789	0.3557	*	*
430	0.3975	0.4453	0.4453	0.4233	*	*
439	0.4166	0.4691	0.4673	0.4433	*	*
263	13.2813	12.3785	11.6182	10.2646	9.6772	8.9444
276	13.5698	14.5412	14.9952	12.6782	10.9707	10.7136
A286	4.0143	4.0365	3.8984	3.4292	3.3624	3.1591
600	10.2636	10.0981	9.4687	8.1466	8.3296	7.7083
601	8.3839	8.2504	7.7529	6.7394	6.8854	6.3922
617	13.1396	12.9453	12.5807	10.8897	10.0656	9.4894
625	13.0263	13.4647	13.444	11.7114	10.8917	10.4959
718	11.0007	11.0906	10.8266	9.6864	9.4656	9.0635
X-750	10.4613	10.3044	9.706	8.4810	8.6586	8.0609
800	4.5042	4.4588	4.2056	3.7000	3.7774	3.5221
825	6.7372	6.8800	6.7479	5.8487	5.5654	5.2746
HX	9.6011	10.0649	10.1612	8.6280	7.7294	7.4375
188	14.9566	12.1294	10.4308	10.1272	10.0419	9.0778
L-605	15.5962	12.1584	10.2033	10.0991	9.9560	8.8933

*Surcharge currently not available

Nickel/Cobalt & Stainless-Steel Bar Surcharges



	Feb	Mar	Apr	May	June	July
316LS/316LVM	3.74	3.77	3.35	3.01	2.94	2.85
Custom 455	2.02	1.94	1.80	1.87	1.80	1.68
Custom 465	2.91	2.88	2.63	2.59	2.52	2.37
Custom 630	1.43	1.38	1.33	1.36	1.30	1.23
CCM	14.34	12.34	12.61	11.18	9.06	10.23
625	14.37	14.45	12.67	11.62	11.21	10.96
718	10.87	10.71	9.48	9.24	8.80	8.58
718CR	10.87	10.71	9.48	9.24	8.80	8.58
A286	5.45	5.30	4.73	4.71	4.50	4.25
A2861	5.45	5.30	4.73	4.71	4.50	4.25
A2862	5.45	5.30	4.73	4.71	4.50	4.25
A2867	5.45	5.30	4.73	4.71	4.50	4.25
A286R1	5.45	5.30	4.73	4.71	4.50	4.25
A286SH	5.45	5.30	4.73	4.71	4.50	4.25
Alloy X	11.95	12.04	10.58	9.49	9.16	8.91
Wasp6	13.56	12.82	11.53	11.04	10.15	10.01
L605	13.81	12.10	12.41	11.87	10.22	11.01
321	2.35	2.25	2.06	2.11	2.00	1.88
347	2.35	2.24	2.05	2.10	1.99	1.88
Greek Ascology	1.47	1.49	1.49	1.50	1.51	1.45

*Surcharge currently not available

Titanium Surcharges



Form	Grade	Q1 Surcharge	Q2 Surcharge
TISH	6AL4V	5.56	8.80
TIPL	6AL4V	3.71	5.87
TIPL	6AL4VE	4.08	6.45
TIBR	6AL4V	7.50	6.88
TIBR	6AL4VE	4.45	4.45
TICO	GR 2	8.33	8.69
TICO	GR 3	8.33	8.69
TICO	GR 4	8.33	8.69
TISH	GR 2	8.33	8.69
TISH	GR 3	8.33	8.69
TISH	GR 4	8.33	8.69

Paragon Medical Celebrates New Additive Manufacturing Facility Grand Opening



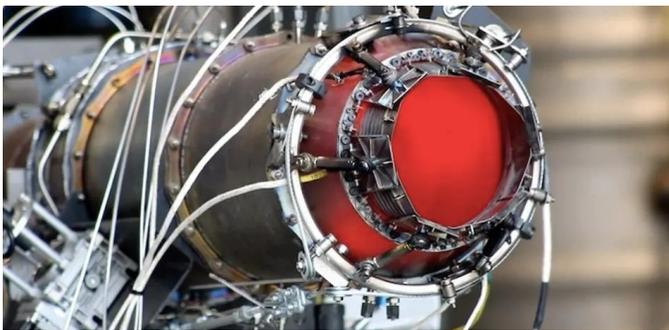
Paragon Medical, a global industry leader in medical device manufacturing, celebrated the ribbon cutting ceremony of its new additive manufacturing facility located on its existing campus in Pierceton, IN. The state-of-the-art facility offers 34,000 square feet of manufacturing and operational space dedicated to 3D printing. Local dignitaries were in attendance including members of the Indiana Economic Development Corporation, Kosciusko Chamber of Commerce, Kosciusko Economic Development Corporation, and town and county council.

The new additive manufacturing facility is supported by an initial investment of \$16 million with an additional anticipated investment of \$19 million over the next five years. With existing Additive Manufacturing design and production capabilities at Paragon Medical's Innovation Center in Warsaw, Indiana, this new investment demonstrates Paragon Medical's continued commitment to innovation in design and manufacturing, while enabling the medical device community to commercialize with excellence.

Dan Blum, VP and General Manager of the Pierceton, IN campus shared, "Today's event is more than a celebration, it's a testimonial to the vision and passion of the Paragon Medical team, who work relentlessly to provide world class services and product to enhance the quality of life of others. Paragon Medical's investment in this facility and technology, continues to affirm our industry leading position, supporting our clients for many years to come."

"With the healthcare additive manufacturing market anticipated to be \$8 Billion by 2030, our investment demonstrates a continued commitment to innovation in design and manufacturing in this rapidly growing space," said Wil Boren, CEO of Paragon Medical. "Our new additive manufacturing capability is serving our local medical device community as well as making a global impact."

Paragon Medical serves as a trusted partner in Additive Manufacturing. Its 3D printing capabilities can reduce lead time, cost, and supply chain complexity across product lines in the medical device industry. With historically high on-time delivery rates, operations and engineering expertise, and strategic partnerships, Paragon Medical serves as the extension of medical device teams to streamline product launch and ongoing commercial supply, enabling continuous delivery of best-in-class product to customers. Read the full article [here](#).



A Small Ohio Startup Is Testing Something Big: A Small Hypersonic Engine

Air-breathing hypersonic powerplants are typically fighter-jet engine-sized. But Velontra has just test-run an 11-inch diameter, 5-foot-long turbojet that will be the core of its Bronco hypersonic propulsion system.

The Ohio-based company was launched in 2021 with a goal of one day producing a low earth orbit spaceplane to serve the satellite launch market. Like every other would-be hypersonic transport/launch developer, it will pursue government and defense technology contracts on the way there.

The small size of the Bronco propulsion system makes Velontra stand out. A ready-made hypersonic engine for smaller drones and other air vehicles is of obvious interest to a variety of national defense and commercial organizations, particularly if it can be delivered cost-effectively.

Velontra leaves little doubt on that point, claiming that the unit cost for Bronco will be "less than \$200,000." The company was started with cost and rapid development firmly in mind taking inspiration from SpaceX says Velontra CTO, Joel Darin.

"We don't want to just ask investors to trust us with a ton of money and ten years later see if our idea works or not. We want to produce actual products at each stage that develop the technology we'll eventually need. This small application lets us develop a product at a fraction of the cost [of full scale hypersonics] that people will buy."

According to Darin, large hypersonic propulsion system testing in full-scale wind tunnel facilities can cost up to \$50,000 per hour. "We're paying \$300,000 to get two to three months of testing," he says. "The development is much cheaper but the lessons we learn are scale-able to bigger applications."

Applications, particularly drone and test vehicle roles, are something Velontra expects to rapidly move its small hypersonic propulsion system into. The company has already taken the first step in doing so in signing a contract with hypersonic transport developer, Venus Aerospace to provide four Bronco propulsion systems to power a small-scale near-hypersonic UAV which Venus will use to test its own hypersonic propulsion technology.

A successful flight test and program with Venus would logically be watched by DoD's science and technology community. Darin told me that Velontra has four Phase 1 research contracts with the Air Force's AFWERX innovation hub although the organization confirmed only two Small Business Technology Transfer (STTR) projects.

Nevertheless, compact hypersonic propulsion systems will be avidly sought by the defense community which has repeatedly expressed its desire for a quick expansion of hypersonic development test resources. The Pentagon's National Security Innovation Capital (NSIC) organization has already demonstrated such appetite, laying out \$1.5 million in development funding earlier this year for a 3D-printed hypersonic rocket engine called "Mjölmir" from Seattle-based [New Frontier Aerospace](#) (NFA). Read the full article [here](#).

Pratt & Whitney Racks Up the Most Engine Deals in Paris



The Paris Airshow has not just seen deals for aircraft, but also for engine makers. Pratt & Whitney, CFM, General Electric, and Rolls-Royce all announced engine orders and service agreements during the week. A recap.

GE Aerospace announced a firm contract with Riyadh Air for ninety GENx-1B engines that will power the start-up's Boeing 787-9 fleet. The first of 39 aircraft on firm order is to be delivered in 2025. The selection of the GENx makes perfect sense from a commonality point of view, as the engines also power Saudia's Dreamliner fleet. While two different airlines, there could be synergies in what Saudia and Riyadh Air do operationally.

A release with the announcement was issued late afternoon on Wednesday, only to be revoked a few minutes later and re-issued again with some minor changes 37 minutes later. Also on Wednesday was the order from Republic Airways for 37 more CF-34-8E engines that power 214 of their Embraer E170s and E175s. This includes spares and the TrueChoice services agreement.

CFM International got an order from UK leisure airline Jet2 on Monday to power 71 Airbus A320neo family aircraft with the LEAP-1A. This includes spare engines and long-term service agreements. Deliveries start in 2028. On Wednesday, the engine maker signed a contract with lessor Avolon to power the forty Boeing MAX 8s that were ordered a day earlier. Deliveries of the eighty LEAP-1B engines is scheduled between 2027 and 2030. The order brings the number of aircraft with CFM engines to which Avolon is committed to over 400.

Rolls-Royce welcomed Air Niugini as a new customer for the Trent 1000 after the airline announced an order for two Boeing 787-9's in May. The contract includes Total Care long-term service agreement for the four engines.

Rolls signed two more Total Care service agreements in Paris. On Monday, it extended existing contracts with Egyptair and Tunis Air for the Trent 700 engines that power the two airlines' Airbus A330s.

The UK engine maker welcomed the Memorandum of Understanding of lessor Avolon for twenty Airbus A330-900s. These are powered by the Trent 7000. The agreement will be finalized at a later date.

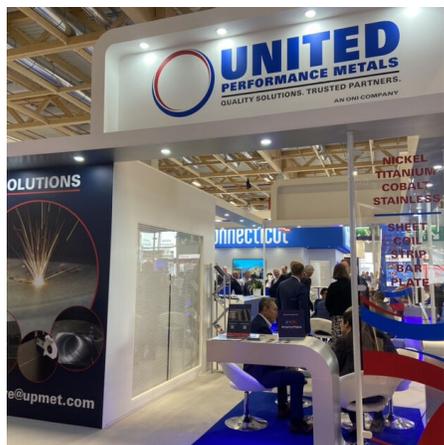
Pratt & Whitney reported the most and biggest engine deals during the week, which it kicked off on Sunday. It signed United Airlines for seventy Airbus A321neo's and fifty A321XLRs that the airline ordered last year. With the first deliveries scheduled for later this year, the contract must have been concluded some time ago but has only been revealed now.

On Monday, Mexico's Volaris signed a contract for Geared Turbofan engines to power 64 Airbus A321neo's that also covers EngineWise service agreements. Volaris now has commitments for 217 GTF-powered Airbus aircraft.

Croatia Airlines finalized the purchase and aftermarket EngineWise service agreement for the six Airbus A220s it will purchase, plus another nine that the carrier will lease from Air Lease Corporation. The airline will take delivery of the first A220 in Q2 2024.

On Wednesday, P&W concluded an EngineWise contract with German leisure airline Condor (main picture) for thirteen Airbus A320neo's and eighteen A321neo's. The news was followed the same day by an MoU with Hong Kong-based lessor CALC for engines and service contracts for ten Airbus A320neo family aircraft plus options on another fifty. Pratt & Whitney said on Wednesday that it has secured orders for 800 GTF engines since the start of 2023. Read the full article [here](#).

UPM Focus: International Paris Air Show 2023



This June, the first Paris Air Show since the COVID-19 pandemic was held in Paris, France, and United Performance Metals had the privilege to exhibit. The show ran from June 19, 2023—June 25, 2023 and featured a plethora of major players in the aerospace and space industry. Innovators such as Boeing, Airbus, Embraer, and Archer put their aircraft on display to make showgoers' jaws drop. UPM showcased our products and services in the U.S. Pavilion, Hall 3, booth C-174 and in the Northern Ireland Pavilion, Hall 2B, booth G-172.

Patrick Sprague, UPM's Director of Emerging Markets, attended the show for the first time this year and was amazed with everything it had to offer. "The Paris Air Show is the premier aviation event in the world. There were over 300,000 attendees, over 138 aircraft on display, and many exciting air shows," said Sprague.

Sprague went on to say that the show was a huge success for UPM saying, "We were able to meet with several key players in the aerospace industry, deepen our understanding of emerging trends within that field and generate buzz about our numerous value-added solutions." Some key takeaways from the show that Sprague noticed is that the global demand for aircraft, specifically in China and India, is creating a lot of growth for global supply chains.

Chris Prue, one of the leaders of UPM Additive Solutions, was also in attendance at the Paris Air Show this year. According to Prue, "The Paris Air Show continues to showcase the significant advancements in aviation and technology. To see first hand the value that we, United Performance Metals, are providing within the market and to now launch UPM Additive Solutions, is just amazing to see. To continue to grow that value is truly exciting. That aspect of the show, combined with all of the flight demonstrations and displays, made for a solid 4 days of productivity and fun."

Overall, the consensus from the UPM Paris Air Show team was that the show provided a fantastic opportunity to witness the aerospace industry in action and better understand the needs of its key players. With all of the meetings had and connections made, UPM certainly achieved success while in Paris this summer. The company is poised to examine the key learnings from this exhibition and put them into action as it surges into the latter of the 2023. If you would like to learn more about UPM and the products and services we offer, visit our website [here](#).