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JUNE 2024

THE UPM MARKET INFORMER



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Boeing Promises Big Changes as the Plane Maker Looks to Rebuild Trust and Quality

Boeing is promising sweeping changes to its manufacturing operations as the troubled plane maker tries to rebuild trust with federal regulators, airlines and the flying public. It's been just over 90 days since the Federal Aviation Administration ordered Boeing to come up with a comprehensive plan to fix its quality control problems after a door plug panel blew off a new 737 Max jet in midair. Boeing leaders, including CEO Dave Calhoun, presented the final plan in a three-hour meeting with FAA officials in Washington on Thursday morning. After the meeting, federal regulators vowed to continue their enhanced oversight of the company for the foreseeable future.

"This plan does not mark the end of our increased oversight of Boeing and its suppliers, but the beginning of the next chapter," said FAA administrator Mike Whitaker. "Boeing has laid out their roadmap and now they need to execute." Boeing released an executive summary of the plan, promising to strengthen the company's safety management system, to train employees better, and to increase oversight of suppliers. No one was seriously injured in the midair blowout on Alaska Airlines Flight 1282 in January. But the incident renewed serious concerns about safety and quality control at Boeing after the deadly crashes of two 737 Max jets in 2018 and 2019 that killed a total of 346 people.

A preliminary investigation by the National Transportation Safety Board determined that four key bolts that were supposed to hold the door plug in place were missing when the plane left Boeing's factory. The incident prompted the FAA to undertake a six-week audit of Boeing's production lines. Regulators say they found quality control problems at Boeing and Spirit AeroSystems, one of its top suppliers, which builds the fuselage for the 737. Boeing also responded to the FAA audit's findings in the plan it delivered on Thursday. And the company laid out a list of metrics that regulators will use to track the company's progress. Whitaker promised that the FAA would be watching closely. He said the agency would continue to put more inspectors in Boeing's factories, as well as those of its suppliers, and that regulators would meet weekly with Boeing leaders to track their progress. Whitaker said the FAA would not lift its production cap on Boeing's 737 line until it's satisfied that the company is following through on its promises.

"We need to see a strong and unwavering commitment to safety and quality that endures over time," Whitaker said at a press conference Thursday. "This is about systemic change, and there's a lot of work to be done." The FAA did not put a timeline on when Boeing can begin to increase production of the 737. The company has slowed production to well below the FAA's cap of 38 planes per month as it works to improve quality. But Boeing has said it aims to ramp up that number in the second half of the year. Click [here](#) for the full article.

Nickel/Cobalt & Stainless-Steel Flat Rolled Surcharges



--	Jan '24	Feb '24	Mar '24	Apr '24	May '24	Jun '24
15-5	0.8828	0.8570	0.8493	0.8714	*	*
17-4	0.8957	0.8689	0.8610	0.8836	*	*
17-7	0.9085	0.8720	0.8644	0.9023	*	*
201	0.6608	0.6299	0.6262	0.6347	*	*
301 7.0%	0.8901	0.8536	0.8460	0.8815	*	*
302/304/304L	0.9701	0.9316	0.9234	0.9647	*	*
304-8.5%	1.0038	0.9647	0.9563	1.0044	*	*
305	1.2463	1.2031	1.1927	1.2696	*	*
309	1.2901	1.2437	1.2335	1.3112	*	*
310	1.7875	1.7319	1.7177	1.8533	*	*
316/316L	1.4247	1.4454	1.4281	1.5034	*	*
321	1.0245	0.9860	0.9772	1.0292	*	*
347	1.3339	1.2954	1.2867	1.3388	*	*
409/409 Mod	0.3390	0.3157	0.3118	0.2885	*	*
410/410S	0.3487	0.3248	0.3209	0.2977	*	*
430	0.4052	0.3769	0.3733	0.3513	*	*
439	0.4170	0.3879	0.3843	0.3628	*	*
263	8.7045	7.9101	7.5289	7.4378	7.1872	7.2037
276	9.8207	9.0944	8.2179	8.2185	8.3632	8.4690
A286	2.7438	2.5129	2.3167	2.2714	2.2421	2.2549
600	6.6048	6.0518	5.5351	5.2968	5.1756	5.2453
601	5.4831	5.0475	4.6399	4.4546	4.3571	4.4003
617	9.0559	8.1737	7.6002	7.5183	7.4124	7.4565
625	9.8207	8.9962	8.3243	8.2410	8.2697	8.3298
718	8.3341	7.8114	7.3599	7.2377	7.1970	7.2408
X-750	6.9845	6.4649	5.9800	5.7573	5.6430	5.7073
800	3.0082	2.7867	2.5825	2.4995	2.4442	2.4550
825	4.7352	4.3011	3.9414	3.8727	3.8560	3.8810
Alloy X	6.9550	6.2032	5.6145	5.5787	5.6251	5.6762
188	9.3558	8.8538	9.0730	8.8891	8.2433	8.2733
L-605	9.5253	9.0231	9.4004	9.2428	8.4775	8.4870

*Surcharge currently not available

Thin Gauge Stainless Steel and Nickel Alloy Surcharges



--	Jan '24	Feb '24	Mar '24	Apr '24	May '24	June '24
301 7%	1.0681	1.0243	1.0152	1.0578	*	*
302/304/304L	1.1642	1.1179	1.1081	1.1609	*	*
304 8.5%	1.2046	1.1577	1.1475	1.2053	*	*
305	1.4956	1.4437	1.4313	1.5235	*	*
316L	1.7096	1.7345	1.7137	1.8042	*	*
321	1.2294	1.1832	1.1727	1.2351	*	*
347	1.6006	1.5545	1.5441	1.6066	*	*
201	9.96	9.0716	8.2428	7.8586	7.6654	7.8060
600	7.93	7.2622	6.6421	6.3562	6.2108	6.2943
625	11.78	10.7954	9.9892	9.8893	9.9237	9.9958
625LCF	11.78	10.7954	9.9892	9.8893	9.9237	9.9958
718	10.00	9.3736	8.8320	8.6852	8.6365	8.6889
Alloy X	8.35	7.4439	6.7374	6.6944	6.7502	6.8115
X750	8.38	7.7578	7.1760	6.9087	6.7716	6.8487

*Surcharge currently not available

Nickel/Cobalt & Stainless-Steel Bar Surcharges



	Oct '23	Nov '23	Dec '23	Jan '24	Feb '24	Mar '24	Apr '24
316LS/316LVM	2.77	2.43	2.19	2.25	2.26	2.27	2.36
Custom 455	1.51	1.39	1.31	1.33	1.29	1.30	1.34
Custom 465	2.12	1.94	1.83	1.85	1.83	1.84	1.91
Custom 630	1.15	1.04	0.98	1.01	0.98	0.99	1.01
CCM	9.94	10.77	10.76	10.16	12.30	12.30	11.93
625	10.36	9.40	8.62	8.69	8.84	8.86	9.31
718	7.85	7.26	6.75	6.71	6.70	6.69	7.06
718CR	7.85	7.26	6.75	6.71	6.70	6.69	7.06
A286	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A2861	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A2862	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A2867	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A286R1	3.84	3.52	3.28	3.27	3.25	3.27	3.44
A286SH	3.84	3.52	3.28	3.27	3.25	3.27	3.44
Alloy X	8.50	7.66	7.00	7.11	7.32	7.37	7.70
Wasp6	9.37	8.89	8.33	8.16	8.58	8.64	8.98
L605	10.78	11.53	11.59	10.95	12.46	12.54	12.40
321	1.75	1.58	1.46	1.47	1.43	1.44	1.50
347	1.75	1.58	1.46	1.47	1.43	1.45	1.50
Greek Ascoloy	1.45	1.36	1.32	1.34	1.32	1.33	1.34

*Surcharge currently not available

Titanium Surcharges



Form	Grade	Q1 2024 Surcharge	Q2 2024 Surcharge
TI - SHEET	6AL4V	8.23	7.82
TI - PLATE	6AL4V	8.08	6.52
TI - PLATE	6AL4VE	7.28	4.18
TI - COIL	GR 2	8.70	8.92
TI - COIL	GR 3	8.70	8.92
TI - COIL	GR 4	8.70	8.92
TI - SHEET	GR 2	8.70	8.92
TI - SHEET	GR 3	8.70	8.92
TI - SHEET	GR 4	8.70	8.92
TI - BAR	6AL4V	5.45	6.02
TI - BAR	6AL4VE	5.45	6.02

Space-X Sets Early June Launch of Next Starship Test Flight



SpaceX has set a June 5 launch date for its next Starship integrated test flight, with a focus on demonstrating the ability to bring both stages of the vehicle back intact. SpaceX announced May 24 it planned a launch of Starship on its fourth integrated flight test, also known as IFT-4, as soon as June 5 pending receipt of an updated Federal Aviation Administration license. That launch, like the previous three, will be from the company's Starbase site in South Texas.

Having demonstrated that the Starship upper stage, launched by its Super Heavy booster, can reach space, the company now wants to show it can bring both the booster and the ship back intact.

"The fourth flight test turns our focus from achieving orbit to demonstrating the ability to return and reuse Starship and Super Heavy," the company stated. "The primary objectives will be executing a landing burn and soft splashdown in the Gulf of Mexico with the Super Heavy booster,

and achieving a controlled entry of Starship."

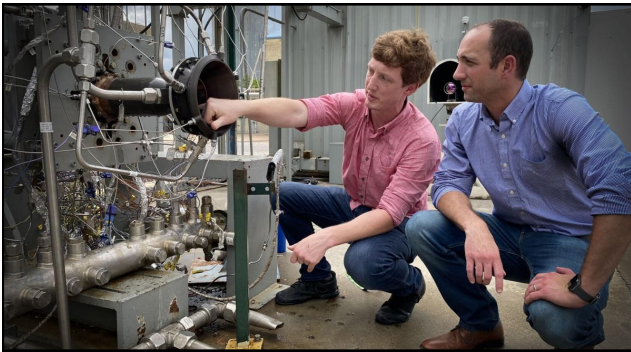
Unlike the third test flight in March, SpaceX doesn't plan any in-flight tests of Starship, such as opening the vehicle's payload bay door or transferring propellant. The vehicle will fly a similar trajectory with a splashdown of the ship in the Indian Ocean. "This flight path does not require a deorbit burn for reentry, maximizing public safety while still providing the opportunity to meet our primary objective of a controlled Starship reentry," the company stated. SpaceX has made several upgrades to Starship hardware and software from the March flight, incorporating lessons learned from that mission. One change the company called out was that it will jettison the special interstage section between the booster and ship, designed to enable "hot-staging" where the ship ignites its engines while still attached to the booster. Disposing of that interstage after Super Heavy's post-separation boost-back burn, SpaceX stated, will "reduce booster mass for the final phase of flight."

The company also released May 24 details about the issues it encountered on the third Starship flight. While Starship reached space, the vehicle was lost during reentry. The Super Heavy booster separately broke apart during the final phases of its descent over the Gulf of Mexico.

SpaceX said that Starship "began losing the ability to control its attitude" several minutes after engine shutdown, while coasting on a suborbital trajectory. Video of the flight showed the vehicle slowly rolling. That loss of attitude control led to an automated decision not to perform a planned engine relight.

"The lack of attitude control resulted in an off-nominal entry, with the ship seeing much larger than anticipated heating on both protected and unprotected areas," SpaceX stated, with telemetry lost at an altitude of 65 kilometers. The company believes the attitude control issue was caused by the clogging of valves in thrusters used for roll control. SpaceX has added more thrusters for redundancy while upgrading thruster hardware "for improved resilience to blockage." Read the full article [here](#).

NASA Licenses 3D-Printable Superalloy to Boost U.S. Economy



NASA's investment in a breakthrough superalloy developed for the extreme temperatures and harsh conditions of air and spaceflight is on the threshold of paying commercial dividends. The agency is licensing its invention, dubbed "GRX-810," to four American companies, a practice that benefits the United States economy as a return on investment of taxpayer dollars.

GRX-810 is a 3D-printable high-temperature material that will lead to stronger, more durable airplane and spacecraft parts that can withstand more punishment before reaching their breaking point. The co-exclusive license agreements will allow the companies to produce and

market GRX-810 to airplane and rocket equipment manufacturers as well as the entire supply chain.

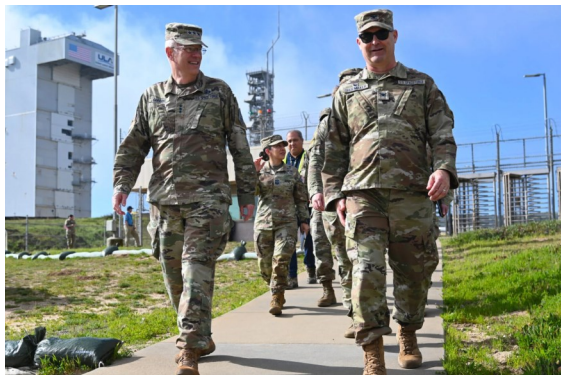
The four co-exclusive licensees are: Carpenter Technology Corporation of Reading, Pennsylvania, Elementum 3D, Inc. of Erie, Colorado, Linde Advanced Material Technologies, Inc. of Indianapolis, and Powder Alloy Corporation of Loveland, Ohio.

GRX-810 is one example of many new technologies NASA's Technology Transfer Program managers review and file for patent protection. The team also works with inventors to find partners interested in commercialization.

"NASA invests tax dollars into research that demonstrates direct benefit to the U.S. and transfers its technologies to industry by licensing its patents," Amy Hiltabidel, licensing manager at NASA's Glenn Research Center, said. NASA engineers designed GRX-810 for aerospace applications, including liquid rocket engine injectors, combustors, turbines, and hot-section components capable of enduring temperatures over 2,000 degrees Fahrenheit.

"GRX-810 represents a new alloy design space and manufacturing technique that was impossible a few years ago." Read the full article [here](#).

Space Force to Restructure All Missions Into 'Integrated' Units to Boost Readiness: Lt. Gen. Garrant



After seeing good results for force readiness from about nine months of experimenting with the Integrated Mission Delta (IMD) concept, the Space Force next intends to create two more units mixing acquisition and operational personnel — with the intent to eventually convert entirely to the new organizational structure, according to a senior service official.

“In the next few months, you can look for missile warning and space domain awareness as two mission areas [to be restructured], and then in the future satellite communications, for example, and then orbital warfare,” Lt. Gen. Philip Garrant, head of Space Systems Command, told the Mitchell Institute today.

“But the intent is for all mission areas to be in this Integrated Mission Delta approach,” he added.

The Space Force stood up two prototype IMDs, one for electronic warfare and one for positioning, navigation and timing (PNT) last September. Deltas are the Space Force equivalent of Air Force wing and group commands. The IMDs bring together under one commander operators-in-training at Space Operations Command (SpOC) and acquisition specialists for maintenance and sustainment for each mission formerly under Space Systems Command. The prototype IMDs also include cybersecurity and intelligence specialists.

Lt. Gen. David Miller, SpOC commander, in February said that he has seen measurable improvements in readiness from the IMD structure, and that in his mind most, if not all, of his operational units would “require” similar restructuring to provide “unity of command.”

SpOC’s organizational chart shows eight Deltas (not counting a provisional unit for training) each representing an operational mission area: Delta 2, Space Domain Awareness; Delta 3, Space Electronic Warfare; Delta 4, Missile Warning; Delta 5, Command and Control; Delta 6, Cyberspace Operations; Delta 7, Intelligence, Surveillance and Reconnaissance; Delta 8, Satellite Communications and Navigational Warfare; Delta 9, Orbital Warfare.

While Delta 3 became its own IMD, the PNT IMD was created by hiving off subunits under Delta 8. Garrant said that he and Miller now are working to finish a progress review on future IMD plans for Gen. Michael Guetlein, Space Force vice chief. Read the article [here](#).

UPM Focus: Tradeshow Season is Here!



With the heat of summer approaching quickly, United Performance Metals is gearing up not only for warmer weather, but for something we like to call “tradeshow season”! In the months of May-July, UPM and our lovely team members will be exhibiting at a number of tradeshows, hoping to provide you with a familiar, friendly face! To kick off our flurry of these events, several members of the UPM team attended the Space Tech USA 2024 show in Long Beach, California from May 13th - May 15th. Let’s hear what they had to say about the event!

Ron Muenchow, Territory Manager, was very pleased with the buzz of the event and enjoyed using the show as a means to train some UPM’s newer talent. “There was a sense of excitement about the show from when the doors opened until they closed, and I think it was a fantastic experience for our new teammate, Sandra; she learned a lot”.

Patrick Sprague, Director of Emerging Markets, felt Space Tech 2024 was an overwhelming success for UPM. When discussing the show, he said, “The space industry has continued to see radical growth in the last ten years alone, and the Space Tech show this year has only echoed that this growth is going to continue. This industry is going to be one of the most important as humanity looks to take to the stars, and the innovative companies here are some of the best in the world. UPM has a unique opportunity to serve the space industry”. Sprague’s encouraging comments were reinforced by none other than Lauren Scott, Business Development Manager— Space.

After the event, Scott said, “One of the panels I attended, Global Space Players on Optimizing Greater Efficiency, was particularly interesting. The speakers on this panel proclaimed that countries across the globe are waking up to the potential the space industry has and that we should see more countries collaborating on efforts to grow their space presence. We will see more launches in the coming future, which is very exciting to hear”.

Space Tech 2024 was a great success for UPM in many facets. We grew relationships, made new connections, and helped new team members get acquainted with one of our emerging markets. However, Space Tech is just one event. Please visit UPM at some of our upcoming shows! These include OMTEC in Chicago from 6/11-6/13, at booth #614, and Rapid + TCT in Los Angeles from 6/25-6/27, at booth #1024. These will be great chances to meet our Medical and Additive Manufacturing specialists and we hope to see you there!