April, 2021

UNITED PERFORMANCE METALS
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AN ONI COMPANY

The UPM Market Informer

Inside This Issue

WOW: 1 in 2 Converted Cargo 737s Are Now Flying for Amazon

It's no secret that Amazon has been scaling up rapidly over the last year. As one of the largest multinational technology corporations in the world with an undisputed stronghold in eCommerce, it has had to take on the right equipment as it continues to grow. As a result, Amazon Air now holds a third of the world's converted Boeing 737 Next Generation cargo aircraft.

According to Cargo Facts via Puget Sound Business Journal, over 60 737 NG freighter conversions and reconfigurations by four different businesses were tracked, and over 22 unites of these are now part of Amazon Air's fleet. This figure represents 35% of the global freighter fleet of the type. Notably, this number does not include a handful of planes that Cargo Facts believes to have been converted buy have yet to join cargo outfits.

Nonetheless, this grip on cargo 737s isn't a surprise to hear. Amazon Air has been showing its determination to ramp-up its efforts since the pandemic. The firm has taken on dozens of mew aircraft while adding several new site and staff to its operations. The eCommerce industry was already booming before the global health crisis, but the pandemic further catalyzed its success.

Moreover, it was revealed earlier this month that the firm made use of its options to purchase nearly 20% of freight operator Air Transport Services Group for $131 million. It even has additional warrants to acquire shares in Atlas Air and Sun Country Airlines, which are both operators of Amazon Air Planes.

With Amazon taking on aging 737-800s and modifying them for shipping services, Boeing has an alternative market to focus on while passenger activity remains low. The manufacturer has delivered over 50 737-800 converted freighters to more than 10 operators across the globe. It has also accumulated more than 150 orders and commitments for 737-800s.

These progressions have caused the company to add a second line to convert retired units of the narrow body into cargo jets at Guangzhou Aircraft Maintenance Engineering Company (GAMECO) in China, this year.

Overall, going by its past record, Amazon won't be looking to slow down its developments in this field. The company consistently uses its resources and presence to gain further ground in the markets that it operates in. With the whole world going through such a dramatic transformation over the last year, Amazon Air will be looking to become the major force in cargo services across the continents. *Source: Sumit Singh for Simple Flying*

Outokumpu Price Increase Announcement

Outokumpu made the following price announcement regarding their U.S. and Canada business. Effective with shipments beginning April 1, 2021 Outokumpu Stainless USA, LLC will implement the following price adjustments for all Non-Contract items.

- All 201 grade material will have its discount reduced by 4 points
- All 301 grade material will have its discount reduced by 2 points
- An Extra of $4/cwt will be applied to 201LN and 301LN grade material (refer to section 1-C in Extras Schedule)

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Surcharge Totals January - June 2021

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	Jan	Feb	Mar	Apr	May	June
15-5	0.5934	0.6546	0.6720	0.6913	*	
15-7	0.8202	0.9098	0.9716	0.9804	*	
17-4	0.5799	0.6393	0.6553	0.6795	*	
17-7	0.7428	0.8178	0.8472	0.8325	*	
201	0.5748	0.6366	0.6650	0.6660	*	
301 7.0%	0.7323	0.8063	0.8350	0.8214	*	
302/304/304L	0.8058	0.8842	0.9170	0.8974	*	
304-8.5%	0.8383	0.9189	0.9538	0.9315	*	
305	1.0703	1.1665	1.2156	1.1736	*	
309	1.0996	1.1956	1.2447	1.2016	*	
310	1.5721	1.6987	1.7765	1.6938	*	
316/316L	1.0648	1.1697	1.2459	1.2345	*	
316LS/316LVM	1.4400	1.6200	1.7600	*	*	
317L	1.2194	1.3374	1.4354	1.4271	*	
321	0.8622	0.9486	0.9868	0.9607	*	
347	1.1718	1.2543	1.2911	1.2661	*	
409/409 Mod	0.2240	0.2704	0.2716	0.2978	*	
410/410S	0.2305	0.2741	0.2741	0.3011	*	
430	0.2682	0.3115	0.3115	0.3372	*	
434	0.3228	0.3728	0.3860	0.4185	*	
439	0.2762	0.3242	0.3260	0.3496	*	
440A	0.2682	0.3115	0.3115	0.3372	*	
2205	0.8833	0.9757	1.0520	1.0744	*	
263	5.3020	5.4636	5.6679	5.9612	6.6693	7.9946
276	5.3060	5.4743	5.7359	6.1061	6.5901	7.1199
A286	1.6044	1.6546	1.7379	1.9045	2.1129	2.2187
330	2.1005	2.1668	2.2771	2.4934	2.7077	5.4791
400	3.9412	4.0608	4.3137	4.7668	5.1575	5.4791
Custom 455	0.8700	0.9500	1.0000	*	*	*
Custom 465	1.0500	1.2200	1.2900	*	*	*
600	4.1811	4.3195	4.5458	4.9519	5.3688	5.6497
601	3.5880	3.7014	3.8872	4.2284	4.5766	4.8061
617	5.2617	5.4271	5.6616	6.0103	6.5960	7.5248
625	5.8839	6.0267	6.2530	6.6094	7.0245	7.4154
Custom 630	0.6100	0.7200	0.7700	*	*	*
718	5.7691	5.8770	6.0513	6.3535	*	*
X-750	4.7254	4.8600	5.0801	5.4757	5.9189	6.1830
825	2.6628	2.7475	2.8876	3.1348	3.4186	3.6277
HX	3.5583	3.6791	3.8686	4.1640	4.5259	4.8964
188	7.0800	7.9400	10.0500	*	*	*
CCM	7.5600	9.5700	14.8400	*	*	*
L-605	7.8000	8.7700	11.4100	*	*	*

*Surcharge currently not available

Hold Me Back: Keeping A Leash On NASA's Powerful SLS Rocket

Collaboration with NASA and a key supplier helped Boeing engineers meet the challenge of restraining 2.7 million pounds of rocket hardware activated for liftoff by 1.6 million pounds (over 700,000 kilograms) of thrust.

As Boeing and NASA teams prepared for the second Space Launch System, or SLS, core stage hot fire test on March 18, final checks included the mechanism that kept the massive propulsion vehicle in its place as four RS-25 engines ignited to simulate launch.

"It was impressive to witness the application of millions of pounds of load in all three directions/axes simultaneously and watch the design properly function," said Jacob McGee, Boeing SLS structural engineer, referring to the first hot fire test in January. Boeing designed a three-axis system of restraints that leverages the B-2 test stand's strength in key areas to withstand the force of thrust, and prevent liftoff. "We developed the design, then pulled in one of our suppliers to build both a test rig and the actual tie-down structure," said Robert Chall, the Boeing Supply Chain manager responsible for coordinating project requirements.

Boeing partnered with D-J Engineering of Augusta, Kansas, to build the structure, and NASA worked with the Boeing team to modify the B-2 stand at Stennis Space Center for testing, incorporating the tie-down design.

Following Boeing computer-based load test verification and stress analysis, D-J Engineering developed and built a two-story test rig that could test pressure on all three axes at the same time. The rig includes eight two-foot (61-centimeter) wide, 5,000-pound (2,270-kilogram) I-beams of heavy steel, designed to take the load from three separate actuators. Read more on this story.
Source: Boeing, Photo: NASA

Siemens Energy to Supply Eight Topside Modules & Support for FPSO Vessel Offshore South America

Siemens Energy was awarded a topside EPC contract by MISC Berhad for eight complete topside modules that will provide sustainable, efficient, and environmentally friendly power generation, transmission, and distribution, as well as gas processing and compression aboard an FPSO that will operate offshore South America starting in 2024. MISC Berhad is building the FPSO to expand its fleet of 14 floating production systems. The FPSO is expected to have a processing capacity of 180,000 barrels of oil and 12 million cubic meters of gas per day.

"The order demonstrates our strengths and capabilities to transform FPSO operations to be more sustainable while fulfilling production requirements," said Thorbjoern Fors, Executive Vice President for Siemens Energy Industrial Applications.

The topside modules will be designed and manufactured across Asia, with main engineering and execution activities done through Singapore. Packaging for all the rotating equipment packages will occur at Siemens Energy's Santa Barbara d'Oeste facility in Brazil. The facility is also fully equipped to provide support and service to the FPSO's modules once it is deployed.

Siemens Energy's scope of supply includes the EPC work for all eight modules and several key components: two electric, low-pressure centrifugal compressors; two electric, CO2 compressors; three main injection compressors driven by Siemens Energy SGT-A35-GT62X gas turbines; four Siemens Energy SGT-A35-GT30 gas turbines for power generation; an E-house; plus all electricals including an electrical control and management system (ECMS).

The ECMS is being designed to provide monitoring and supervision for the power generation and distribution network for load management of the FPSO facility, including topside and marine. MISC Berhad and the FPSO operator can use the ECMS to monitor FPSO power, generate reports, and plan for future sustainability.

"Our mission is to help our partners in their energy transition by providing the equipment, infrastructure, and support to create thoughtful and sustainable change without compromising their ability to meet the world's growing energy needs," said Arja Talakar, Senior Vice President, Industrial Applications Products for Siemens Energy. *Source: World Oil*

First F-35A for Denmark Takes Flight for First Time

An El Monte-based aerospace parts manufacturer will be opening a satellite plant in Corona, bringing new jobs to Denmark is joining four other European nations who already operate the F-35: the UK, the Netherlands, Norway and Italy.

Like the F-16 before it, the F-35 is spearheading NATO's air power and ensuring strategic integration of allied combat airpower.

The vital interoperability of the fifth generation F-35 binds 13 allies and partners with the US in air dominance and enabling critical joint capabilities. The F-35 will serve as a force multiplier for Denmark, allowing the Royal Danish Air Force to train and fight alongside NATO allies and create a strong deterrent.

"Achieving the first flight of Denmark's first F-35 is a major milestone for the Denmark F-35 program and a testament to the outstanding abilities of our dedicated and highly trained joint industry and government team," said Bill Brotherton, acting F-35 vice president and general manager. "This team's focus on delivering the most effective, survivable and connected fighter in the world will ensure the sovereign protection of Denmark and strengthen allies and partners through the NATO F-35 coalition."

L-001 is scheduled to be delivered to the Royal Danish Air Force in April and will be flown to Luke Air Force Base, Arizona, later this year for pilot and maintainer training.

F-35s will arrive in Denmark in 2023 and be based at Royal Danish Air Force's Fighter Wing Skrydstrup where it will safeguard the skies over Denmark and its NATO allies. *Source: Michael Tyrrel for Aerospace Manufacturing*

GE Renewable Energy Expanding Workforce at French Manufacturing

GE Renewable Energy says its plans to recruit 300 employees at its LM Wind Power wind turbine blade manufacturing site in Cherbourg, France.

Every new hire will go through an intensive training program at the factory's "Center of Excellence" to learn wind turbine blade manufacturing processes. The expanded production workforce will allow LM Wind Power, a global designer and manufacturer of rotor blades for wind turbines, to meet the growing industry demand for offshore wind equipment.

The factory currently has more than 450 employees – 34% being women. It became the first wind turbine blade manufacturing site in France when it was opened almost three years ago in April 2018. The facility has produced the first offshore wind turbine blade longer than 100 meters, a 107-meter long blade that will be used in GE's Haliade-X offshore wind turbine. A second 107-meter blade manufacturing mold is currently being installed at the plant.

Continued on the next page.

Solar Industry Adds Record Capacity in 2020 in Spite of Pandemic

The U.S. solar industry installed a record 19.2 GWdc of photovoltaic (PV) capacity in 2020, a 43% increase from 2019, according to a report released by the Solar Energy Industries Association (SEIA) and Wood Mackenzie. The numbers are particularly impressive considering the world was dealing with unique challenges as a result of COVID-19.

"After a slowdown in Q2 due to the pandemic, the solar industry innovated and came roaring back to continue our trajectory as America's leading source of new energy," said SEIA President and CEO Abigail Ross Hopper. "The forecast shows that by 2030, the equivalent of one in eight American homes will have solar, but we still have a long way to go if we want to reach our goals in the Solar+ Decade."

Solar accounted for 43% of all electricity-generating capacity added in the U.S. in 2020, representing solar power's largest-ever share of new generating capacity and ranking first among all technologies for the second year in a row. And the trend is likely to continue—Wood Mackenzie is forecasting that the total operating solar fleet will more than quadruple by 2030.

"The recent two-year extension of the investment tax credit (ITC) will drive greater solar adoption through 2025," said Michelle Davis, senior analyst from Wood Mackenzie. "Compelling economics for distributed and utility-scale solar along with decarbonization commitments from numerous stakeholders will result in a landmark installation rate of over 50 GWdc by the end of the decade."

The ITC extension, which was passed in the final days of 2020, led Wood Mackenzie to increase its 2021–2025 solar deployment forecast by 17%. "This report makes it clear that smart policies work," said Hopper.

Fitch Ratings in a separate report issued on March 15 said solar projects outperformed wind projects throughout the world for the third straight year "with the global pandemic having little effect on the sector so far." The firm reported that electricity production from solar projects "continues to exceed initial estimates with many solar projects performing so well operationally that some ratings are equivalent to those of the off-taker." Conversely, wind projects are still largely underperforming against expectations, it said.

"The ongoing global pandemic has had a muted impact on this class of credits that are largely insulated from demand risk and have remained operationally stable," said Andrew Joynt, senior director with Fitch Ratings. Like Wood Mackenzie, Fitch Ratings suggested the shift to renewables will continue. "Ever-growing corporate sustainability goals should continue to fuel the growth of commercial and corporate [power purchase agreements]," the firm said. *Source: Aaron Larson for POWER Magazine*

GE Renewable Energy continued

"The arrival of the second mold within the factory marks an increased activity for LM Wind Power in Cherbourg," says Florence Martinez Flores, human resources director at LM Wind Power's Cherbourg manufacturing site. "We are happy to welcome a large wave of new employees, allowing us to participate in social development and create more jobs in the surrounding community but also to bring new skills to the region."

The Cherbourg team is mostly looking to expand its production workforce, with positions that are open to all profiles and backgrounds. Every new employee will be trained to manufacture wind turbine blades through LM Wind Power's "Center of Excellence" training program – a six-week theoretical and practical training course which develops the skills and technical expertise required to produce high-quality wind turbine blades. The site will also be looking for production supervisors, quality controllers and maintenance technicians.

Following the training, employees receive a Qualification Certificate for Metallurgy Operations.
Source: *Matthew Mercure for North American Windpower*