

Aerospace Manufacturing Industry Bulletin

February 2020

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Aerospace Manufacturing Industry Market Report

As an investment banking firm covering the aerospace, defense and industrial manufacturing industry, Cronus Partners has for many years assisted clients involved in, or entering the aerospace manufacturing supply chain marketplace. To this end, the firm has researched various factors that have influenced capital market conditions within the sector. One of the largest developments has been the grounding of the Boeing 737 MAX Passenger airliner. We invited Peter Zimm, Principal at Charles Edwards Management Consulting, to analyze the market impact of Boeing's recent troubles with the 737 Max.

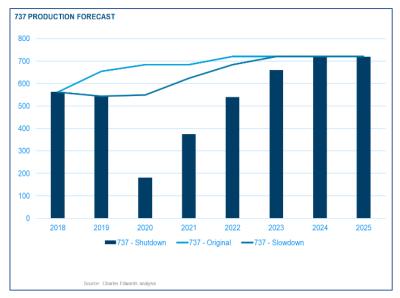
More MAX Turbulence By Peter Zimm, Charles Edwards Management Consulting

The 737 MAX is once again in the news, only this time not for what it isn't doing. On December 23rd of last year, the same day Dennis Muilenberg resigned, Boeing announced it would shut down production of the 737MAX in January and told suppliers to stop parts shipments for a month. On January 10th of this year, Spirit Aerosystems, manufacturer of MAX fuselages announced it would lay off 2,800 workers – about a quarter of its Wichita work force (half of Spirit's revenues come from the 737). Since then, sub-tier suppliers in the U.S. and particularly Seattle and Wichita have also begun laying off workers. Boeing, however, is not laying off any workers but is redeploying them, choosing to retain valuable assembly workers for the future restart of production. Boeing announced on January 21st that it expects the MAX will be returned to service in the "middle of 2020". Furthermore, in comments the following day, new CEO Dave Calhoun said it plans to restart MAX production "months before" the aircraft is recertified. His comments suggest production will be paused until March before restarting.

To be clear, "return to service" means the aircraft has been recertified by the regulators and can be flown safely. It also means that Boeing will be able to resume shipping aircraft. However, that does not mean that the aircraft already built will be flying right away. That will only happen once the aircraft already built (whether delivered to customers or not) have undergone the prescribed fixes (e.g., software updates), pilots complete training (recall that MAX simulators are in short supply), and the airlines induct them into their flight schedules. For additional clarity, "production" in the rest of this piece refers to MAX aircraft completed by Boeing; delivery refers to MAX aircraft delivered to its customers.

Revised Production Outlook

Piecing together the latest news with our understanding of what it will take to realign the supply chain to resume production, our revised build forecast is shown in the chart below. Our understanding is MAX production is coming to a full stop no later than the end of January. We see production by Boeing resuming in April (supply of components would be started earlier than this) at an initial rate of 20-25 aircraft per month and continuing at that rate through the 2020. Thereafter, end of we estimate production will rise in 7.5 aircraft per month increments every six months until the rate reaches ~42/month in early 2022. At that point, production increase increments slow to 5/month every six months, until production rises to 60/month starting in early 2024.



Revised Production Outlook – Cont'd

Note that MAX <u>deliveries</u> will exceed MAX <u>production</u> because Boeing has 400 aircraft already built. Timing for recertification, fixes to existing aircraft, pilot training, and deliveries to customers all are unknown at this time.

What is the risk the MAX does not return to service by the "middle" of the year?

Low. Strictly speaking, middle of the year is June 30/July 1; however, middle of the year can plausibly be expanded to include anytime in June or July. August is stretching it; September is out of bounds. Given that fixes have been submitted, and even accounting for additional regulatory scrutiny, it seems likely the aircraft will be cleared to return to service by the end of July, if not sooner. Furthermore, the longer it takes to recertify, the more likely it will be a joint FAA-EASA recertification, reopening the majority of the regions taking delivery of the airplane.

What is the risk MAX production cannot start at the level or rise at the rate we've assumed?

Low for Boeing but rising to moderate for its major aerostructures sub-tier, Spirit Aerosystems, and the rest of the sub-tier supply base.

Boeing has had a supply pipeline feeding a 42/month rate (actual achieved rate was probably 39/month) after the MAX rate reduction, so there is material in the pipeline to support a 20-25 aircraft per month restart. Furthermore, it is not furloughing its workers so it will retain more of them for the restart.

By contrast, Spirit's position is very different. Spirit had been producing 737MAX fuselages ahead of Boeing's 42/month rate (nominally at 52/month but actually slightly lower) and it stated it has over 100 fuselages ready to ship. So, Spirit has even more inventory from which it can ship to Boeing. Furthermore, its layoff indicates it is expecting a pause (or a significant rate reduction) to last greater than two months for its production. We don't think it can afford to pause altogether without having significant supply chain disruptions in the future so have assumed it will reduce fuselage production to Boeing's 20-25/month rate but will continue to build at that lower rate for longer, supplying the difference between that rate and the rising Boeing rate in future years from its inventory of completed fuselages. At the 737MAX build rates we forecast, its backlog of fuselages will be consumed by mid-late 2021 so it will have to ramp up fuselage production in mid-2021. The 2,800 employees that are being laid off will need to find

other jobs. Considering the number of aerospace-related layoffs in Wichita, this is likely to take a number of them to work outside the aerospace industry and the region between now and the middle of 2021. In fact, Spirit is hosting job fairs to help its laid off employees find new employment. Spirit will face a challenge hiring and training a significant portion of the workforce needed to support 2022 and beyond build rates. There's definitely opportunity for schedule slips in this context.



Tier 2 and 3 manufacturers also face challenges. Many suppliers added significant resources to grow their MAX-related operations to keep pace with ~50 per month and largely kept them engaged at the 40-50 range throughout 2019. However, as devastating as Spirit's reduction in force is for that Tier 1 (15% of total workers), a rate cut to half the pre-shutdown rate is going to put a significant strain on some key sub-tier suppliers who do not have the same scale to absorb the loss in revenue. Many of them are highly dependent on Boeing programs, whether they are selling to Boeing, Spirit, or other suppliers. Many of them have discounted their prices in response to Boeing's Partnership for Success program and don't have the means to keep people on the payroll throughout the pause. As we've said above, we think the Spirit rate reduction will be significant and last 12-15 months before they ramp up supply again, so many of their sub-tier suppliers will have to lay off people. This will expand the rehire and retrain challenge we noted above. Furthermore, some of the sub-tier suppliers will ask themselves why endure the rate reduction only to face future cost reduction pressures when high rates resume? The current crisis may be the trigger for some firms to exit aerospace altogether.

The story for engines may be more muted. Based on the above 737MAX build rates, CFM56 and LEAP production drops should mirror that of the MAX production curve. However, the initial reaction of the engine maker is far less severe than that of aerostructures suppliers. In response to the Boeing shutdown announcement, GE Aviation announced on January 13th that is would reduce 70 temporary jobs at a plant in Canada that makes LEAP 1B as well as other engines. A small cut in contrast to Spirit's 2,800 worker layoff. One reason for this is the similar LEAP 1A powers the A320 and it is still ramping. Secondly, unlike Spirit, GE is not starting with a substantial inventory of engines built ahead of the aircraft. Indeed, LEAP engine production has probably paced growth of the overall MAX production rate. Falling MAX rates are partially offset by growing A320 rates, and GE may be able to softly adjust production labor through actions like not replacing workers who leave. However, stumbles in other parts of the supply chain could impact aircraft realized production rates and therefore impact the engine maker as well.

Conclusions

We expect the impact to be different for different suppliers, but particularly hard on aerostructures sub-tiers. They will have short-term challenges to adjust to what we project will be sharply lower MAX production rates. This, in turn, will challenge the ability of the supply chain to resume build rates at the 40-50 aircraft per month level down the road.

Peter Zimm is a Principal with aerospace-focused management consulting firm Charles Edwards. The firm helps aerospace companies around the globe understand their markets, become more efficient, and strategically position their businesses. Peter leads strategy, market positioning, and operations improvement consulting projects for aerospace companies. He has delivered scores of projects for OEMs, Tier 1s, sub-tier suppliers, and raw materials companies across the world. Peter is an internationally recognized market expert in aerospace raw materials, aircraft components, manufacturing process technologies, and aircraft emissions. Prior to joining Charles Edwards, he was a Principal at ICF Aviation's Aerospace & MRO practice. Peter began his career at Timken Aerospace where he held various business development, marketing, and sales management positions and co-architected the company's aftermarket entry strategy.

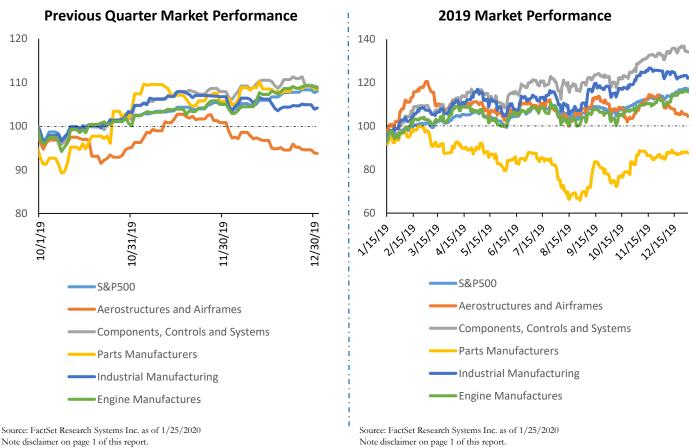
PLEASE CONTACT CRONUS PARTNERS FOR YOUR INVESTMENT BANKING NEEDS:

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Aerospace and Defense Public Market Trading Performance



Source: Capital IQ Data Set & Chart Builder as of 1/25/2020 Note disclaimer on page 1 of this report.



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Aerospace and Defense Valuation Factors

EBITDA Margin by Market Cap Comparison



Source: Capital IQ Data Set; Aerospace and Defense Key Stats and Ratios - Aggregate Financials are calculated by Capital IQ based upon the ~ 200 constituents of the Watch List Note disclaimer on page 1 of this report.

25% Industrial -Engine Manufacturing 20% Manufacturers **Median EBITDA Margin** 15% Components, Controls and 10% Systems Parts Manufacturers Aerostructures & Airframes 5% 0% 9.00x 6.00x 7.00x 8.00x 10.00x 11.00x 12.00x 13.00x Median EBITDA Multiple

EBITDA Margin vs. EBITDA Multiple (LTM) ⁽¹⁾⁽²⁾

⁽¹⁾Balloon size represents Total Enterprise Value ⁽²⁾ Outliers removed and not considered in analysis Source: FactSet Research Systems Inc. as of 1/25/2020; Note disclaimer on page 1 of this report.

Aerostructures and Airframes

In *§* millions except per share

		Share	Market	Enterprise	LΊ	ſM	2020 E	xpected
Company	Ticker	Price	Cap	Value (EV)	EV/Revenue	EV / EBITDA	EV/Revenue	EV / EBITDA
The Boeing Co.	BA-US	\$323.05	\$181,810	\$197,085	2.3 x	29.3 x	1.9 x	15.4 x
Airbus SE	AIR-FR	\$153.25	\$120,019	\$125,785	1.6 x	16.2 x	1.2 x	8.7 x
Textron, Inc.	TXT-US	\$44.70	\$10,203	\$13,607	1.0 x	8.9 x	0.9 x	7.8 x
Spirit AeroSystems Holdings, Inc.	SPR-US	\$70.45	\$7,293	\$8,035	1.0 x	6.9 x	1.4 x	13.6 x
Hexcel Corp.	HXL-US	\$74.22	\$6,189	\$7,322	3.1 x	12.6 x	2.9 x	11.7 x
Embraer SA	EMBR3-BR	\$4.43	\$3,284	\$2,649	0.5 x	7.2 x	0.7 x	7.8 x
Bombardier, Inc.	BBD.B-CA	\$0.93	\$2,263	\$12,384	0.8 x	11.0 x	0.5 x	5.9 x
Kaman Corp.	KAMN-US	\$64.59	\$1,800	\$1,495	0.8 x	9.1 x	n/a	n/a
Triumph Group, Inc.	TGI	\$22.08	\$1,106	\$2,630	0.8 x	11.2 x	0.9 x	6.7 x
Magellan Aerospace Corp.	MAL-CA	\$10.81	\$630	\$681	0.9 x	5.7 x	n/a	n/a
Ducommun, Inc.	DCO-US	\$42.20	\$488	\$726	1.0 x	9.2 x	1.0 x	7.3 x
CPI Aerostructures, Inc.	CVU-US	\$6.51	\$77	\$111	1.1 x	9.7 x	0.9 x	6.8 x
				1				
Median					1.0 x	9.5 x	0.9 x	7.8 x

Source: FactSet Research Systems Inc. as of 1/25/2020 Note disclaimer on page 1 of this report.

Components, Controls and Systems

In *§* millions except per share

		Share	Market	Enterprise	L	TM	2020 E	Expected
Company	Ticker	Price	Cap	Value (EV)	EV/Revenue	EV / EBITDA	EV/Revenue	EV / EBITDA
							1 - - - -	
Honeywell International, Inc.	HON-US	\$177.13	\$126,565	\$133,727	n/a	n/a	3.5 x	14.1 x
Eaton Corp. Plc	ETN-US	\$96.84	\$40,034	\$47,734	1.3 x	5.7 x	2.3 x	11.8 x
TransDigm Group, Inc.	TDG-US	\$656.73	\$35,167	\$50,608	9.7 x	22.6 x	7.5 x	16.1 x
Parker-Hannifin Corp.	PH-US	\$198.28	\$25,472	\$30,808	2.2 x	12.2 x	2.0 x	10.7 x
AMETEK, Inc.	AME-US	\$99.57	\$22,761	\$24,635	4.8 x	17.8 x	4.5 x	16.3 x
Teledyne Technologies, Inc.	TDY-US	\$361.87	\$13,197	\$14,136	4.5 x	-	3.6 x	18.3 x
Woodward, Inc.	WWD-US	\$119.40	\$7,426	\$8,412	2.9 x	19.0 x	2.4 x	11.7 x
Curtiss-Wright Corp.	CW-US	\$147.49	\$6,296	\$6,876	2.8 x	13.8 x	2.4 x	11.6 x
Crane Co.	CR-US	\$85.52	\$5,129	\$5,793	1.8 x	9.7 x	1.6 x	8.0 x
The Timken Co.	TKR-US	\$55.71	\$4,196	\$5,838	1.5 x	8.3 x	1.5 x	7.7 x
Cobham Plc	COB-GB	\$2.15	\$3,919	\$5,307	2.1 x	15.3 x	n/a	n/a
Moog, Inc.	MOG.A-US	\$90.20	\$3,287	\$4,028	1.4 x	10.5 x	1.2 x	8.8 x
CIRCOR International, Inc.	CIR-US	\$44.33	\$883	\$1,473	1.3 x	12.0 x	n/a	n/a
Astronics Corp.	ATRO-US	\$28.05	\$866	\$1,054	1.4 x	11.6 x	1.4 x	12.2 x
Innovative Solutions & Support, Inc.	ISSC-US	\$5.77	\$98	\$75	4.3 x	n/a	n/a	n/a
Median				\$6,876	2.1 x	12.1 x	2.3 x	11.7 x

Source: FactSet Research Systems Inc. as of 1/25/2020 Note disclaimer on page 1 of this report.

Parts Manufacturers

In *§* millions except per share

<i>" T T</i>		Share	Market	Enterprise	LTM		2020 Expe	cted
Company	Ticker	Price	Cap	Value (EV)	EV / Revenue EV	/ EBITDA	EV / Revenue EV	/ EBITDA
Barnes Group, Inc.	B-US	\$64.62	\$3,277	\$4,106	2.7 x	12.0 x	2.6 x	11.1 x
Alcoa Corp.	AA-US	\$15.51	\$2,878	\$5,785	0.6 x	3.6 x	0.3 x	2.2 x
Allegheny Technologies, Inc.	ATI-US	\$18.16	\$2,290	\$3,444	0.8 x	7.1 x	0.8 x	6.3 x
Senior Plc	SNR-GB	\$2.14	\$898	\$1,239	0.8 x	7.0 x	0.9 x	6.9 x
SIFCO Industries, Inc.	SIF-US	\$4.40	\$25	\$48	0.4 x	n/a	n/a	n/a
Median					0.8 x	7.1 x	0.8 x	6.6 x
Source: FactSet Research Systems I Note disclaimer on page 1 of this re		0						

Note disclaimer on page 1 of this report.

Engine Manufacturers

	Share	Market	Enterprise	LTM		2020 Ex	pected
Ticker	Price	Cap	Value (EV)	EV / Revenue EV	/ EBITDA	EV / Revenue	EV / EBITDA
UTX-US	\$153.19	\$132,218	\$174,59 0	1.5 x	11.1 x	2.1 х	11.3 x
GE-US	\$11.71	\$102,270	\$172,507	1.4 x	11.1 x	1.4 x	10.6 x
SAF-FR	\$162.07	\$64,917	\$69,619	0.9 x	5.6 x	2.5 x	12.1 x
RR-GB	\$8.60	\$16,604	\$19,573	0.7 x	3.9 x	0.8 x	6.6 x
				1.2 x	8.4 x	1.7 x	11.0 x
	UTX-US GE-US SAF-FR	Ticker Price UTX-US \$153.19 GE-US \$11.71 SAF-FR \$162.07	Ticker Price Cap UTX-US \$153.19 \$132,218 GE-US \$11.71 \$102,270 SAF-FR \$162.07 \$64,917	Ticker Price Cap Value (EV) UTX-US \$153.19 \$132,218 \$174,590 GE-US \$11.71 \$102,270 \$172,507 SAF-FR \$162.07 \$64,917 \$69,619	Ticker Price Cap Value (EV) EV / Revenue EV UTX-US \$153.19 \$132,218 \$174,590 1.5 x GE-US \$11.71 \$102,270 \$172,507 1.4 x SAF-FR \$162.07 \$64,917 \$69,619 0.9 x RR-GB \$8.60 \$16,604 \$19,573 0.7 x	Ticker Price Cap Value (EV) EV / Revenue EV / EBITDA UTX-US \$153.19 \$132,218 \$174,590 1.5 x 11.1 x GE-US \$11.71 \$102,270 \$172,507 1.4 x 11.1 x SAF-FR \$162.07 \$64,917 \$69,619 0.9 x 5.6 x RR-GB \$8.60 \$16,604 \$19,573 0.7 x 3.9 x	Ticker Price Cap Value (EV) EV / Revenue EV / EBITDA EV / Revenue I UTX-US \$153.19 \$132,218 \$174,590 1.5 x 11.1 x 2.1 x GE-US \$11.71 \$102,270 \$172,507 1.4 x 11.1 x 1.4 x SAF-FR \$162.07 \$64,917 \$69,619 0.9 x 5.6 x 2.5 x RR-GB \$8.60 \$16,604 \$19,573 0.7 x 3.9 x 0.8 x

Note disclaimer on page 1 of this report.

Industrial Manufacturing

In *§* millions except per share

				!		!	
	Share	Market	Enterprise	L'	ГМ	2020 E	xpected
Ticker	Price	Cap	Value (EV)	EV / Revenue	EV / EBITDA	EV / Revenue	EV / EBITDA
FAST-US	\$35.52	\$20,393	\$20,887	3.9 x	17.3 x	3.4 x	15.1 x
GWW-US	\$329.00	\$17,722	\$20,038	1.8 x	11.4 x	1.6 x	11.3 x
IEX-US	\$172.14	\$13,093	\$13,493	5.4 x	n/a	5.2 x	18.8 x
GGG-US	\$51.98	\$8,669	\$8,721	5.3 x	n/a	5.3 x	n/a
TKR-US	\$55.71	\$4,196	\$5,838	1.5 x	8.3 x	1.5 x	7.7 x
KMT-US	\$34.40	\$2,850	\$3,416	1.5 x	8.5 x	1.5 x	7.9 x
BMI-US	\$62.38	\$1,816	\$1,792	4.3 x	n/a	4.0 x	19.4 x
GRC-US	\$37.66	\$984	\$900	2.2 x	15.4 x	n/a	n/a
				3.1 x	11.4 x	3.4 x	13.2 x
	FAST-US GWW-US IEX-US GGG-US TKR-US KMT-US BMI-US	Ticker Price FAST-US \$35.52 GWW-US \$329.00 IEX-US \$172.14 GGG-US \$51.98 TKR-US \$55.71 KMT-US \$34.40 BMI-US \$62.38	Ticker Price Cap FAST-US \$35.52 \$20,393 GWW-US \$329.00 \$17,722 IEX-US \$172.14 \$13,093 GGG-US \$51.98 \$8,669 TKR-US \$55.71 \$4,196 KMT-US \$34.40 \$2,850 BMI-US \$62.38 \$1,816	Ticker Price Cap Value (EV) FAST-US \$35.52 \$20,393 \$20,887 GWW-US \$329.00 \$17,722 \$20,038 IEX-US \$172.14 \$13,093 \$13,493 GGG-US \$51.98 \$8,669 \$8,721 TKR-US \$55.71 \$4,196 \$5,838 KMT-US \$34.40 \$2,850 \$3,416 BMI-US \$62.38 \$1,816 \$1,792	TickerPriceCapValue (EV)EV / RevenueFAST-US\$35.52\$20,393\$20,8873.9 xGWW-US\$329.00\$17,722\$20,0381.8 xIEX-US\$172.14\$13,093\$13,4935.4 xGGG-US\$51.98\$8,669\$8,7215.3 xTKR-US\$55.71\$4,196\$5,8381.5 xKMT-US\$34.40\$2,850\$3,4161.5 xBMI-US\$62.38\$1,816\$1,7924.3 xGRC-US\$37.66\$984\$9002.2 x	Ticker Price Cap Value (EV) EV / Revenue EV / EBITDA FAST-US \$35.52 \$20,393 \$20,887 3.9 x 17.3 x GWW-US \$329.00 \$17,722 \$20,038 1.8 x 11.4 x IEX-US \$172.14 \$13,093 \$13,493 5.4 x n/a GGG-US \$51.98 \$8,669 \$8,721 5.3 x n/a TKR-US \$55.71 \$4,196 \$5,838 1.5 x 8.3 x KMT-US \$34.40 \$2,850 \$3,416 1.5 x 8.5 x BMI-US \$62.38 \$1,816 \$1,792 4.3 x n/a GRC-US \$37.66 \$984 \$900 2.2 x 15.4 x	Ticker Price Cap Value (EV) EV / Revenue EV / EBITDA EV / Revenue FAST-US \$35.52 \$20,393 \$20,887 3.9 x 17.3 x 3.4 x GWW-US \$329.00 \$17,722 \$20,038 1.8 x 11.4 x 1.6 x IEX-US \$172.14 \$13,093 \$13,493 5.4 x n/a 5.2 x GGG-US \$51.98 \$8,669 \$8,721 5.3 x n/a 5.3 x TKR-US \$55.71 \$4,196 \$5,838 1.5 x 8.3 x 1.5 x KMT-US \$34.40 \$2,850 \$3,416 1.5 x 8.5 x 1.5 x BMI-US \$62.38 \$1,816 \$1,792 4.3 x n/a 4.0 x GRC-US \$37.66 \$984 \$900 2.2 x 15.4 x n/a

Source: FactSet Research Systems Inc. as of 1/25/2020Note disclaimer on page 1 of this report.

Select Aerospace and Defense Mergers & Acquisitions Activity

Date	Target	Acquirer	Target Description
Jan 20	Collins Aerospace /Military GPS Business/	BAE Systems Plc	Manufactures military navigation products
Jan 20	World Aviation Corporation	Precision Aviation Group, GenNx360 Capital Partners	Specializes in the rewind and repair of rotary and static electrical (air and oil-cooled) generators and motor sub-components
Jan 20	Wesco Aircraft	Pattonair, Platinum Equity	Leading distributor and provider of comprehensive supply chain management services to the global aerospace industry
Jan 20	J&E Precision Tool	LFM Capital	Precision manufacturer of components for the aerospace and defense industry
Jan 20	Aero 3 (AeroRepair)	Weinberg Capital Group	Repair station specializing in the reapir and overhaul of brake assemblies, wheel assemblies and landing gear for regional airlines, corporate airlines, and military aircraft
Jan 20	Novaria Group	KKR	Independent supplier of engineered components and specialty processes for the aerospace and defense industry
Jan 20	Quality Aircraft Accessories	Tradewind Technologies	Aftermarket stocking distributor for many general aviation accessory manufacturers
Dec 19	AeroRepair Corp.	GenNx360 Capital Partners	Provides wheel and brake maintenance, repair and overhaul services to the commercial, corporate and general aviation industry
Dec 19	AerSale, Inc.	Monocle Acquisition Corp.	Provides flight equipment leasing and spares support services
Dec 19	Mattco Forge Inc	Blue Point Capital Partners	Manufactures forged metal products primarily for the aerospace and defense industry
Nov 19	Excelitas Technologies Corp. /Aerospace & Defense Business/	TT Electronics Plc	Designs and manufactures power supplies for defense and aerospace markets
Nov 19	Numet Machining Techniques	Bromford Industries	Manufactures jet engine components
Nov 19	Bal Seal Engineering	Kaman Corp. & Bloomfield Aero	Manufactures custom-engineered sealing, connecting, and conducting solutions for the aerospace industry
Nov 19	Western Jet Aviation	Fletch Equity	Largest independently owned business jet maintenance facility specializing in Gulfstream type aircraft
Oct 19	Bombardier, Inc. /Aerostructure Business/	Spirit AeroSystems Holdings, Inc.	Designs and manufactures aerostructures
Oct 19	Aircastle Ltd.	Marubeni Corp.; Mizuho Leasing Co., Ltd.; Aircastle Ltd.	Owns and leases commercial aircraft
Oct 19	Multax Corp.	Whitcraft Group	Supplier of quality products to the aerospace, power generation and mining equipment industries
Sep 19	Global Aviation Services LLC	PrimeFlight Aviation Services, Inc.	Provides aircraft maintenance
Sep 19	Precise Metal Products	Staple Street Capital	Manufactures metal assemblies for the aerospace and defense sector
Jul 19	Ontic Engineering & Manufacturing, Inc.	CVC Advisers Ltd.	Provides engineering services for the aviation industry
Jul 19	American Panel Corp. (Georgia)	Mercury Systems, Inc.	Provides flat panel displays for aerospace, maritime and C4ISR & land systems applications
Jul 19	Exotic Metals Forming Co. LLC	Parker-Hannifin Corp.	Manufactures aircraft parts and equipment
Jul 19	Orizon Aerostructures LLC	Lazard Asset Management LLC; Edgewater Services LLC	Manufactures and distributes complex structural components and commercial airplane assemblies
Source:	FactSet Research Systems Inc. as of 1/2	25/2020	

Source: FactSet Research Systems Inc. as of 1/25/2020 Note disclaimer on page 1 of this report.

Select Aerospace and Defense Mergers & Acquisitions Activity (cont'd)

Date	Target	Acquirer	Target Description
Jul 19	Cobham Plc	Advent International Corp.	Designs and manufactures civil and military aerospace equipment and specialized systems and components
Jul 19	Arca Aerospace	Novaria Group, Rosewood Private Investments	Designs, develops, and manufactures high-quality complex aerospace engine parts
Jun 19	Latécoère SA	Searchlight Capital Partners LLC	Manufactures aeronautic equipment, including fuselage parts, wing components, nacelle components, electrical fittings, on-board cabling and ground equipment
Jun 19	Siemens AG /eAircraft Bus/	Rolls-Royce Holdings Plc	Provides propulsion solutions for aircraft
Jun 19	AIM Aerospace, Inc.	Sekisui Chemical Co., Ltd.	Manufactures composite products for the aerospace industry
Jun 19	Industría de Turbo Propulsores SA	Indra Sistemas SA	Provides products and service for aeronautical and industrial engine market
Jun 19	Pulse Aerospace LLC	AeroVironment, Inc.	Develops and supplies aircraft technology systems
Jun 19	EDAC Technologies Corp.	Hanwha Aerospace Co., Ltd.	Provides designing and precision manufacturing services for special tools, equipment, gauges and components used for jet engines
Jun 19	Alta Precision, Inc.	Héroux-Devtek, Inc.	Manufactures landing gear and gearboxes/engine components for the aerospace industry
Jun 19	Raytheon Co.	United Technologies Corp.	Develops and manufactures engineering technology for government and commercial use in the areas of defense, government electronics and information technology
Jun 19	Systron Donner Inertial, Inc.	EMCORE Corp.	Designs aircraft fire detection systems
Jun 19	Bombardier, Inc. /CRJ Regional Jet Business/	Mitsubishi Heavy Industries, Ltd.	Manufactures and markets aircraft
May 19	Formecal SL	Amper SA	Provides assembling services of industrial and aircraft parts and engines
Apr 19	Chemring Military Products, Inc.	Global Ordnance LLC	Manufactures weapons, destructive devices and explosives
Apr 19	Latécoère SA	Searchlight Capital Partners LLC	Manufactures aeronautic equipment, including fuselage parts, wing components, nacelle components, electrical fittings, on-board cabling and ground equipment
Mar 19	Midwest Precision Holdings Inc.	Tribus Aerospace	Specializes in precision manufacturing of complex components for aerospace, defense, energy and engineered products markets
Mar 19	DART Aerospace Ltd.	First Aviation Services, Inc.; Greenbriar Equity Group LLC; Dart Aerospace Ltd.	Operates aerospace company which designs, manufactures and sells parts and systems for helicopters and commercial airliners
Mar 19	SA Belge De Constructions Aéronautiques	Dassault Belgique Aviation SA	Supplies commercial and military aircraft assemblies and components
Jan 19	Aeryon Labs, Inc.	FLIR Systems, Inc.	Develops and manufactures small unmanned aerial systems
Jan 19	TomTom Telematics BV	Bridgestone Europe NV/SA	Provides fleet management services
Jan 19	LEKTRO, Inc.	John Bean Technologies Corp.	Manufactures and distributes aircraft push back tractors
Jan 19	1st Choice Aerospace, Inc.	VSE Aviation, Inc.	Engages in repair of crew seat and other equipment
Dec 18	Aerospace Industrial Maintenance Norway SF	Kongsberg Gruppen ASA; Patria Oyj; Aerospace Industrial Maintenance Norway SF	Provides maintenance, repair and modification services for aircrafts and helicopters
Dec 18	Sparton Corp.	Cerberus Capital Management LP	Manufactures and supplies electromechanical devices for aerospace, government and security systems
Source:	FactSet Research Systems Inc. as of 1/	25/2020	

Source: FactSet Research Systems Inc. as of 1/25/2020 Note disclaimer on page 1 of this report.

Select Aerospace and Defense Mergers & Acquisitions Activity (cont'd)

Date	Target	Acquirer	Target Description
Dec 18	Mecanizaciones Aeronáuticas SA	ProA Capital de Inversiones SGEIC SA	Manufactures airspace components
Nov 18	Avborne Accessory Group, Inc.	AerSale, Inc.	Supplies aircraft repair and overhaul services and related parts
Nov 18	American Fuel Cell & Coated Fabrics Co.	LB Amfuel LLC	Provides aircraft parts and auxiliary equipment
Nov 18	Bombardier Business Aircraft	CAE, Inc.	Manufactures and wholesales aircrafts and related parts
Nov 18	Bombardier, Inc. /Q Series Turbo-Prop Airliner Program/	Viking Air Ltd.	Manufactures and repairs aircrafts
Oct 18	Aeroepoxy Composites Andalucia SL	Innovative Industries International 21 SL	Designs and manufactures fiberglass components for the aviation sector
Oct 18	Esterline Technologies Corp.	TransDigm, Inc.	Manufactures aircraft parts and components, automated drilling products and machine tool systems
Oct 18	L3 Technologies	Harris	Supplier of command and control, communications, intelligence, surveillance, and aerospace products
Sep 18	Ascent Aerosystems	Universal mCloud Corp.	Designs and manufactures aerial vehicles
Sep 18	Firstmark Corp.	Ontic Engineering & Manufacturing, Inc.	Manufactures components and sub-assemblies for aerospace and defense applications
Sep 18	MRA Systems LLC	Vision Technologies Aerospace, Inc.	Manufactures of thrust reversers and other aircraft products
Sep 18	Esterline	TransDigm	Supplier of products to the global aerospace and defense industry
Jul 18	Addaero Manufacturing LLC	Allegheny Technologies, Inc.	Manufactures aerospace and defense additives
Jul 18	Skandia, Inc.	TransDigm Group, Inc.	Provides aircraft interiors
Jul 18	Rolls-Royce Holdings Plc /Commercial Marine Division/	Kongsberg Gruppen ASA; Government of Norway; Kongsberg Maritime AS	Manufactures combat jets, power systems and aero engines
Jul 18	CAD Enterprises, Inc.	Hickok, Inc.	Manufactures precision aerospace products
Jun 18	Northern Aerospace Ltd.	Gardner Aerospace Holdings Ltd.; Ligeance Investments Ltd.	Manufactures and supplies aerospace finished components and precision machined parts
Jun 18	Pankl Racing Systems AG	Pierer Industrie AG	Manufactures components for the motor racing and aerospace industry including pistons
May 18	KLX, Inc.	The Boeing Co.	Provides distribution, logistics and technical services in the aerospace and oil and gas market
Apr 18	Worthington Aviation Parts, Inc.	Air T, Inc.	Operates, distributes and sells airplane and aviation parts along with repair services
Mar 18	Welding Metallurgy, Inc.	CPI Aerostructures, Inc.	Manufactures aircraft components and assemblies
Mar 18	Esterline Technologies Corp. /Kirkhill elastomers business/	TransDigm Group, Inc.	Supplies engineered aerospace elastomers
Feb 18	Constellium NV /Sierre Plant Manufacturing Assets/	Novelis, Inc.	Manufactures aluminum products used in aerospace, defense and transportation industry
Feb 18	FMH Aerospace Corp.	AMETEK, Inc.	Manufactures engineered components and assemblies for commercial aerospace, defense, space, and industrial sectors
Feb 18	Cobham Plc /AvComm & Wireless Test & Measurement businesses/	Viavi Solutions, Inc.	Designs and manufactures civil and military aerospace equipment and specialized systems and components
Source:	FactSet Research Systems Inc. as of 1/2	5/2020	

Note disclaimer on page 1 of this report.



Advising on mergers, acquisitions, divestitures, sales, and private placement financings, Cronus is an independent investment banking firm that provides financial advisory and other investment banking services. Winner of the New York Association for Corporate Growth's Boutique Investment Bank of the Year Award, the firm has significant experience in advising both public and private companies that can benefit from middle-market transactions. Cronus serves industrial-based sectors including aerospace and defense, environmental services, specialty manufacturing and business-to-business services.



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Jeffrey Rubin leads the firm in its aerospace, manufacturing and B2B services with an extensive background in heavy industry.

Cronus Partners Sector Coverage:

- Aerospace & Defense
- Industrial Manufacturing
- Industrial Services
- Equipment Design and Manufacturers
- Environmental Equipment and Services
- Maritime
- Alternative Energy

KELLY AEROSPACE









Highlighted Transactions

Cronus Partners acted as financial advisor to the owners of Kelly Aerospace, an MRO/PMA business, in its acquisition of 100% of the stock of Aerokool Aviation Corporation, an MRO manufacturing center.

Target Profile

Aerokool Aviation is a global MRO leader in the repair and overhaul of airframe environmental control systems, heat transfer, and oil and fuel pumping system components across most military, commercial, regional, transport, business and rotorcraft platforms.

Acquirer Profile

Kelly Aerospace manufactures and overhauls aircraft ignition systems, ignition leads, harnesses, and replacement parts for general aviation and military customers.

Cronus Partners acted as financial advisor to Evolution Aero, LLC, a manufacturer of parts and assemblies for the aerospace and power generation industries, in the sale of substantially all the assets of EvoAero, Inc. in Windsor CT and Condor Industries, LLC in Fort Lauderdale FL to Whitcraft Group, an Eastford CT-based aeroparts manufacturer.

Target Profile

Evolution Aero manufactures parts and assemblies for the aerospace and power generation industries, providing customers with the finest in precision machining and design services.

Acquirer Profile

Whitcraft Group is a leading manufacturer of highly engineered, precision formed, precision machined, and fabricated products with a blue-chip customer base including every major aeroengine OEM and Tier I supplier, with content on over 100 distinct turbine engines/platforms, and is a manufacturing partner for Pratt & Whitney, GE Aviation, Honeywell, Collins Aerospace, Sikorsky, Safran, Rolls-Royce, and the U.S. Government.

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