BARNES GROUP INC
Form 10-Q
April 27, 2018

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-Q
(Mark One)
x QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended March 31, 2018
OR
¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to

Commission file number 1-4801
BARNES GROUP INC.
(Exact name of registrant as specified in its charter)

Delaware	06-0247840
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
123 Main Street, Bristol, Connecticut	06010
(Address of Principal Executive Offices)	(Zip Code)

(860) 583-7070
Registrant's telephone number, including area code

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports); and (2) has been subject to such filing requirements for the past 90 days. Yes x No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer x	Accelerated filer ¨
Non-accelerated filer ¨	Smaller reporting company ¨
	Emerging growth company ¨

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.
¨

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).
Yes ¨ No x

The registrant had outstanding 52,591,284 shares of common stock as of April 25, 2018.

Barnes Group Inc.
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For the Quarterly Period Ended March 31, 2018

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This Quarterly Report on Form 10-Q contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. See “FORWARD-LOOKING STATEMENTS” under Part I - Item 2 “Management's Discussion and Analysis of Financial Condition and Results of Operations” of this Quarterly Report on Form 10-Q.

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

BARNES GROUP INC.
CONSOLIDATED STATEMENTS OF INCOME
(Dollars in thousands, except per share data)
(Unaudited)

	Three months ended March 31,	
	2018	2017
Net sales	$366,660	$341,802
Cost of sales	237,134	219,549
Selling and administrative expenses	72,893	65,975
	310,027	285,524
Operating income	56,633	56,278
Interest expense	3,892	3,349
Other expense (income), net	1,763	553
Income before income taxes	50,978	52,376
Income taxes	12,160	14,073
Net income	$38,818	$38,303
Per common share:		
Basic	$0.73	$0.71
Diluted	0.72	0.70
Dividends	0.14	0.13
Weighted average common shares outstanding:		
Basic	53,535,424	54,179,130
Diluted	54,089,327	54,651,835

See accompanying notes.

BARNES GROUP INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Dollars in thousands)
(Unaudited)

	Three months ended March 31,	
	2018	2017
Net income	$38,818	$38,303
Other comprehensive income, net of tax		
Unrealized gain on hedging activities, net of tax (1)	396	83
Foreign currency translation adjustments, net of tax (2)	26,953	18,609
Defined benefit pension and other postretirement benefits, net of tax (3)	3,164	1,265
Total other comprehensive income, net of tax	30,513	19,957
Total comprehensive income	$69,331	$58,260

(1) Net of tax of $148 and $38 for the three months ended March 31, 2018 and 2017, respectively.

(2) Net of tax of $162 and $67 for the three months ended March 31, 2018 and 2017, respectively.

(3) Net of tax of $1,257 and $901 for the three months ended March 31, 2018 and 2017, respectively.

See accompanying notes.

BARNES GROUP INC.
CONSOLIDATED BALANCE SHEETS
(Dollars in thousands, except per share data)
(Unaudited)

	March 31, 2018	December 31, 2017
Assets		
Current assets		
Cash and cash equivalents	$104,701	$145,290
Accounts receivable, less allowances (2018 - $5,589; 2017 - $5,143)	394,910	348,943
Inventories	250,217	241,962
Prepaid expenses and other current assets	54,544	32,526
Total current assets	804,372	768,721
Deferred income taxes	9,848	12,161
Property, plant and equipment	841,400	835,341
Less accumulated depreciation	(477,413)	(476,043)
	363,987	359,298
Goodwill	705,294	690,223
Other intangible assets, net	501,809	507,042
Other assets	30,886	28,271
Total assets	$2,416,196	$2,365,716
Liabilities and Stockholders' Equity		
Current liabilities		
Notes and overdrafts payable	$14,896	$5,669
Accounts payable	132,076	127,521
Accrued liabilities	204,820	181,241
Long-term debt - current	3,008	1,330
Total current liabilities	354,800	315,761
Long-term debt	503,180	525,597
Accrued retirement benefits	87,760	89,000
Deferred income taxes	75,192	73,505
Long-term tax liability	79,770	79,770
Other liabilities	19,908	21,762
Commitments and contingencies (Note 14)		
Stockholders' equity		
Common stock - par value $0.01 per share		
Authorized: 150,000,000 shares	631	630
Issued: at par value (2018 - 63,054,123 shares; 2017 - 63,034,240 shares)		
Additional paid-in capital	460,239	457,365
Treasury stock, at cost (2018 - 10,190,418 shares; 2017 - 9,656,369 shares)	(331,607)	(297,998)
Retained earnings	1,261,540	1,206,723
Accumulated other non-owner changes to equity	(95,217)	(106,399)
Total stockholders' equity	1,295,586	1,260,321

Total liabilities and stockholders' equity	$2,416,196	$2,365,716

See accompanying notes.

BARNES GROUP INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Dollars in thousands)
(Unaudited)

	Three months ended March 31,	
	2018	2017
Operating activities:		
Net income	$ 38,818	$ 38,303
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	23,677	21,366
Gain on disposition of property, plant and equipment	(158)	(46)
Stock compensation expense	2,501	2,490
Changes in assets and liabilities:		
Accounts receivable	(26,841)	(15,252)
Inventories	(13,920)	(7,329)
Prepaid expenses and other current assets	(6,028)	734
Accounts payable	4,488	8,064
Accrued liabilities	10,494	5,117
Deferred income taxes	(66)	(705)
Long-term retirement benefits	(2,213)	(1,812)
Other	(269)	906
Net cash provided by operating activities	30,483	51,836
Investing activities:		
Proceeds from disposition of property, plant and equipment	552	170
Capital expenditures	(11,210)	(11,727)
Other	(1,000)	—
Net cash used by investing activities	(11,658)	(11,557)
Financing activities:		
Net change in other borrowings	9,169	(24,947)
Payments on long-term debt	(111,845)	(24,768)

Proceeds from the issuance of long-term debt	87,500			47,550		
Proceeds from the issuance of common stock	317			379		
Common stock repurchases	(33,541		)	(5,383		)
Dividends paid	(7,453		)	(6,997		)
Withholding taxes paid on stock issuances	(68		)	(106		)
Other	(6,546		)	(5,828		)
Net cash used by financing activities	(62,467		)	(20,100		)
Effect of exchange rate changes on cash flows	3,053			1,657		
(Decrease) increase in cash and cash equivalents	(40,589		)	21,836		
Cash and cash equivalents at beginning of period	145,290			66,447		
Cash and cash equivalents at end of period	$	104,701		$	88,283	

See accompanying notes.

BARNES GROUP INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(All dollar amounts included in the notes are stated in thousands except per share data)
(Unaudited)

1. Basis of Presentation

The accompanying unaudited consolidated balance sheet and the related unaudited consolidated statements of income, comprehensive income and cash flows have been prepared in accordance with generally accepted accounting principles for interim financial information and with the instructions to Form 10-Q and Rule 10-01 of Regulation S-X. The consolidated financial statements do not include all information and notes required by accounting principles generally accepted in the United States of America for complete financial statements. The balance sheet as of December 31, 2017 has been derived from the 2017 financial statements of Barnes Group Inc. (the “Company”). For additional information, please refer to the consolidated financial statements and notes included in the Company's Annual Report on Form 10-K for the year ended December 31, 2017. In the opinion of management, all adjustments, including normal recurring accruals considered necessary for a fair statement of the results, have been included. Operating results for the three-month period ended March 31, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018. Certain reclassifications have been made to prior year amounts to conform to current year presentation. See Note 2 which discusses the Company's application of the amended guidance related to the classification of pension and other postretirement benefit costs.

2. Recent Accounting Standards

The Financial Accounting Standards Board ("FASB") establishes changes to accounting principles under U.S. GAAP through the use of Accounting Standards Updates ("ASUs") to the FASB's Accounting Standards Codification. The Company evaluates the applicability and potential impacts of recent ASUs on its Consolidated Financial Statements and related disclosures.

Recently Adopted Accounting Standards

In May 2014, the FASB amended its guidance related to revenue recognition. The amended guidance establishes a single comprehensive model for companies to use in accounting for revenue arising from contracts with customers and supersedes most of the existing revenue recognition guidance, including industry-specific guidance. The amended guidance clarifies that an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In applying the amended guidance, an entity (1) identifies the contract(s) with a customer; (2) identifies the performance obligations in the contract; (3) determines the transaction price; (4) allocates the transaction price to the contract’s performance obligations; and (5) recognizes revenue when (or as) the entity satisfies a performance obligation. The amended guidance applies to all contracts with customers except those that are within the scope of other topics in the FASB Accounting Standards Codification. Entities have the option of using either a full retrospective or modified retrospective approach to the amended guidance.

The Company adopted the amended guidance, Accounting Standard Codification 606, Revenue from Contracts with Customers (“ASC 606”), and all related amendments, using the modified retrospective approach on January 1, 2018, at which time it became effective for the Company. The Company recognized the cumulative effect of initially applying the new revenue standard to all contracts that were not completed on the date of adoption as an adjustment to the opening balance of retained earnings. The comparative information has not been restated and continues to be reported under the accounting standards in effect during those periods.

A majority of revenue continues to be recognized when products are shipped. Under the amended guidance, however, a certain portion of our businesses with customized products or contracts in which we perform work on customer-owned assets require the use of an "over time" recognition model as certain of these contracts meet one or more of the criteria established in the amended guidance. Revenue recognition on contracts requiring over time accounting recognition created unbilled receivables (contract assets) and reduced inventory on the Company’s Consolidated Balance Sheet. Adoption of the amended guidance also resulted in the recognition of customer advances for which the Company has received an unconditional right to payment. Since the related performance obligations have not been satisfied, however, the Company will recognize these customer advances as trade receivables, with a corresponding contract liability of equal amount. Under the previous guidance, the Company recognized customer advances when payment was received.

The cumulative effect of the changes made to the Consolidated Balance Sheet as of January 1, 2018 for the adoption of ASC 606 were as follows:

	Balance at December 31, 2017	Adjustments Due to ASC 606	Balance at January 1, 2018
Assets			
Accounts receivable, less allowances	$ 348,943	$ 13,536	$ 362,479
Inventories	241,962	(8,908)	233,054
Prepaid expenses and other current assets	32,526	14,579	47,105
Deferred income taxes	12,161	(990)	11,171
Liabilities			
Accrued liabilities	181,241	13,536	194,777
Deferred income taxes	73,505	386	73,891
Stockholders' equity			
Retained earnings	1,206,723	4,295	1,211,018

The impact of adoption on the Consolidated Statements of Income and Balance Sheets was as follows:

	March 31, 2018		
	As Reported	Balances Without Adoption of ASC 606	Effect of Change Higher/(Lower)
Consolidated Statement of Income			
Net sales	$ 366,660	$ 366,632	$ 28
Cost of sales	237,134	237,817	(683)
Operating income	56,633	55,922	711
Income before income taxes	50,978	50,267	711
Income taxes	12,160	11,982	178
Net income	38,818	38,285	533

	March 31, 2018		
	As Reported	Balances Without Adoption of ASC 606	Effect of Change Higher/(Lower)
Consolidated Balance Sheet			
Assets			
Accounts receivable, less allowances	$394,910	$370,327	$ 24,583
Inventories	250,217	258,440	(8,223)
Prepaid expenses and other current assets	54,544	39,745	14,799
Deferred income taxes	9,848	11,050	(1,202)
Liabilities			
Accrued liabilities	204,820	180,084	24,736
Deferred income taxes	75,192	74,855	337
Stockholders' equity			
Retained earnings	1,261,540	1,256,712	4,828
Accumulated other changes to equity	(95,217)	(95,273)	56

In July 2015, the FASB amended its guidance related to the measurement of inventory. The amended guidance requires inventory to be measured at the lower of cost and net realizable value and thereby simplifies the prior guidance of measuring inventory at the lower of cost or market. The amended guidance was effective prospectively for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2016. The Company adopted the guidance during the first quarter of 2017 and it did not have a material impact on its Consolidated Financial Statements.

In August 2016, the FASB amended its guidance related to the Statement of Cash Flows. The amended guidance clarifies how certain cash receipts and cash payments should be presented on the statement of cash flows. The guidance is effective for annual periods beginning after December 15, 2017 and interim periods within those fiscal years. The Company adopted the guidance during the first quarter of 2018 and the adoption did not have an impact on its Statement of Cash Flows.

In March 2017, the FASB amended its guidance related to the presentation of pension and other postretirement benefit costs. The amended guidance requires the bifurcation of net periodic benefit cost for pension and other postretirement plans. The service cost component of expense will be presented with other employee compensation costs in operating income, consistent with the current guidance.The other components of expense, however, will be reported separately outside of operating income. The amended guidance also allows only the service cost component of net benefit cost to be eligible for capitalization. The guidance is effective for annual periods beginning after December 15, 2017 and interim periods within that reporting period. The Company adopted the amended guidance during the first quarter of 2018. The amended guidance was applied retrospectively for the presentation of the service cost component and the other components of net periodic benefit cost in the Statements of Income. Additionally, the amended guidance was applied prospectively for the capitalization of the service cost component of net periodic benefit cost. The amended guidance allows for a practical expedient that permits the use of amounts previously disclosed in the pension and other postretirement benefit plan Note within the prior comparative periods as the estimation basis for applying the retrospective presentation requirements. The Company elected this practical expedient for prior period presentation. During the three month period ended March 31, 2017, the adoption of this amended guidance resulted in the reclassification of $530 of net periodic benefit cost from compensation costs (included in Cost of Sales and Selling

and Administrative expenses) to other expense (income), net on the Statements of Income. See Note 10 of the Consolidated Financial Statements.

In February 2018, the FASB issued guidance related to the impacts of the tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “Act”). The guidance permits the reclassification of certain income tax effects of the Act from Accumulated Other Comprehensive Income to Retained Earnings (stranded tax effects). The stranded tax effects resulted from the December 31, 2017 remeasurement of deferred income taxes that was recorded through the Consolidated Statements of Income, with no corresponding adjustment to Accumulated Other Comprehensive Income having been initially recognized. The guidance is effective for annual periods beginning after December 15, 2018, and interim periods within that reporting period. Early adoption is permitted. The Company elected to early adopt this amended guidance during the first quarter of 2018 using

specific identification and as a result reclassified $19,331 from Accumulated Other Comprehensive Income to Retained Earnings on the Consolidated Balance Sheets. This reclassification relates only to the change in the U.S. Corporate income tax rate.

Recently Issued Accounting Standards

In February 2016, the FASB amended its guidance related to lease accounting. The amended guidance requires lessees to recognize a majority of their leases on the balance sheet as a right-to-use asset. Lessees are permitted to make an accounting policy election to not recognize an asset and liability for leases with a term of twelve months or less. Lease expense will be recorded in a manner similar to current accounting. The guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018. Early adoption is permitted. The original guidance requires application on a modified retrospective basis based on the earliest period presented within the Consolidated Financial Statements. During March 2018, the FASB approved amendments that made available a transition method that will provide an option to use the effective date of the amended guidance as the date of initial application. The Company plans to elect this option. Based on the effective date, this amended guidance will apply to the Company, and it plans to adopt this guidance, beginning on January 1, 2019. The Company is currently evaluating the impact that the amended guidance will have on its Consolidated Financial Statements. The Company is assessing its leases and anticipates making certain changes to existing processes, policies and systems during implementation. The Company anticipates the amended guidance will have a material impact on its assets and liabilities due to the addition of right-of-use assets and lease liabilities to the balance sheet; however, it does not expect the amended guidance to have a material impact on its cash flows or results of operations.

In January 2017, the FASB amended its guidance related to goodwill impairment testing. The amended guidance simplifies the subsequent measurement of goodwill, eliminating Step 2 from the goodwill impairment test. Under the amended guidance, companies should perform their annual goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. Companies would recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value, assuming the loss recognized does not exceed the total amount of goodwill for the reporting unit. The amended guidance is effective for fiscal years beginning after December 15, 2019. Early adoption is permitted. The adoption of this amended guidance is not expected to have a material impact on the Company's Consolidated Financial Statements.

In August 2017, the FASB amended its guidance related to hedge accounting. The amended guidance makes more financial and nonfinancial hedging strategies eligible for hedge accounting, amends presentation and disclosure requirements and changes the assessment of effectiveness. The guidance also more closely aligns hedge accounting with management strategies, simplifies application and increases the transparency of hedging. The amended guidance is effective January 1, 2019, with early adoption permitted in any interim period. The Company is currently evaluating the impact that the guidance may have on its Consolidated Financial Statements, however the impact is not expected to be material.

3. Revenue

The Company is a global provider of highly engineered products, differentiated industrial technologies, and innovative solutions, serving a wide range of end markets and customers. Its specialized products and services are used in far-reaching applications including aerospace, transportation, manufacturing, healthcare, and packaging. The Company accounts for revenue in accordance with ASC 606, which it adopted on January 1, 2018, using the modified retrospective approach. Note 2 of the Consolidated Financial Statements further discusses this adoption.

Revenue is recognized by the Company when control of product or solution is transferred to the customer. Control is generally transferred when products are shipped or delivered to customers, title is transferred and the significant risks

and rewards of ownership have transferred, the Company has rights to payment and rewards of ownership pass to the customer. Customer acceptance may also be a factor in determining whether control of the product has transferred. Although revenue is generally transferred at a point in time, a certain portion of businesses with customized products or contracts in which the Company performs work on customer-owned assets requires the use of an over time recognition model as certain contracts meet one or more of the established criteria pursuant to ASC 606. Also, service revenue is recognized as control transfers, which is concurrent with the services being performed.

The following table presents the Company's revenue disaggregated by products and services, and geographic regions, by segment.

	For the period ended March 31, 2018		
	Industrial	Aerospace	Total Company
Product and Services			
Engineered Components Products	$92,013	$—	$92,013
Molding Solutions Products	119,099	—	119,099
Nitrogen Gas Products	34,849	—	34,849
Aerospace Original Equipment Manufacturer Products	—	80,695	80,695
Aerospace Aftermarket Product and Services	—	40,004	40,004
	$245,961	$120,699	$366,660
Geographic Regions [A]			
Americas	$96,527	$85,961	$182,488
Europe	94,140	24,675	118,815
Asia	54,380	8,913	63,293
Other	914	1,150	2,064
	$245,961	$120,699	$366,660

(A) Sales by geographic market are based on the location to which the product is shipped.

Revenue from goods and services transferred to customers at a point in time accounted for approximately 90 percent of revenue for the three-month period ended March 31, 2018. A majority of revenue within the Industrial segment and Aerospace OEM business is recognized at a point in time when the product or solution is shipped to the customer. A portion of revenue within the Aerospace Aftermarket business is also recognized when product is shipped.

Revenue from products and services transferred to customers over time accounted for approximately 10 percent of revenue for the three-month period ended March 31, 2018. The Company recognizes revenue over time in instances where a contract supports a continual transfer of control to the customer. Substantially all of our revenue in the Aerospace maintenance repair and overhaul business and a portion of the Engineered Components Products, Molding Solutions Products and Aerospace OEM Products is recognized over time. Within the Molding Solution businesses and Aerospace Aftermarket business, this continual transfer of control to the customer results from repair and refurbishment work performed on customer controlled assets. With other contracts, this continual transfer of control to the customer is supported by clauses in the contract where we deliver products that do not have an alternative use and requires an enforceable right to payment of costs incurred (plus a reasonable profit) or the Company has a contractual right to complete any work in process and receive full contract price.

Performance Obligations. A performance obligation represents a promise within a contract to provide a distinct good or service to the customer and is the unit of accounting pursuant to ASC 606. The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectibility of consideration is probable. Transaction price reflects the amount of consideration which the Company expects to be entitled in exchange for transferred goods or services. A contract’s transaction price is allocated to each distinct performance obligation and revenue is recognized as the performance obligation is satisfied. For many of our contracts, the Company may provide distinct goods or services in which case we separate the contract into more than one performance obligation (i.e. a good or service is individually listed in a contract or sold individually to a customer). In certain contracts, a product or service may be part of a fully integrated solution, in which case it is bundled into a single performance obligation. If a contract is separated into more than one performance obligation, the Company allocates the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling prices of the promised goods

or services underlying each performance obligation. The Company generally sells both standard and customized products with observable standalone selling prices.

The majority of our revenues are from contracts, as defined by ASC 606, that are less than one year, however certain Aerospace OEM business contracts extend beyond one year. In the Industrial segment, customers are typically with OEMs or suppliers to OEMs and in some businesses, with distributors. In the Aerospace segment, customers include commercial airlines, OEMs and other aircraft and military parts providers.

To determine the proper revenue recognition method for contracts, the Company uses judgment to evaluate whether two or more contracts should be combined and accounted for as one single contract and whether the combined or single contract should be accounted for as more than one performance obligation. Contracts within the Aerospace OEM and Engineered Components businesses typically have contracts that are combined as the customer may issue multiple purchase orders at or near the same point in time under the terms of a long term agreement. The decision to combine a group of contracts or separate the combined or single contract into multiple performance obligations involves judgment but does not typically impact the amount of revenue and profit recorded in a given period since our contract prices generally represent standalone selling prices. For many of our contracts, particularly within our Molding Solutions and Nitrogen Gas Products businesses, the Company may incorporate a set of tasks and components into a fully integrated system or solution.

Contracts may be modified to account for changes in contract specifications and requirements. The Company considers contract modifications to exist when the modification either creates new rights or changes the existing enforceable rights and obligations. Contract modifications within certain businesses typically relate to goods or services that are distinct from the existing contract and are accounted for as a new contract. Pricing changes, if included within a contract modification, are generally prospective. Contract modifications within Molding Solutions and a portion of the Nitrogen Gas Products business may impact the existing contract. Contract revenue at these businesses is generally recorded on a point in time basis, however, and therefore no cumulative sales adjustment is typically required.

Revenue is recognized in an over time model based on the extent of progress towards completion of the performance obligation. The selection of the method to measure progress towards completion requires judgment and is based on the nature of the products or services to be provided. The Company utilizes the cost-to-cost measure of progress for over time contracts as we believe this measure best depicts the transfer of control to the customer, which occurs as we incur costs on contracts. Under the cost-to-cost measure of progress, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues, including profits, are recorded proportionally as costs are incurred. Costs to fulfill include labor, materials, subcontractors' costs, and other direct and indirect costs.

Contract Estimates. Due to the nature of the work performed in completing certain performance obligations, the estimation of both total revenue and cost at completion (the process described above) includes a number of variables and requires significant judgment.

Estimating total contract revenue may require judgment as certain contracts contain pricing discount structures, rebates, early payment discounts, or other provisions that can impact transaction price. The Company generally estimates variable consideration utilizing the expected value methodology as multiple inputs are considered and weighed, such as customer history, customer forecast communications, economic outlooks, and industry data. In certain circumstances where a particular outcome is probable, we utilize the most likely amount to which we expect to be entitled. The Company includes estimated amounts in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. The Company has opted not to adjust the promised amount of consideration for the effects of a financing component as the period between when we transfer a promised good or service to a customer and when the customer pays for that good or service is generally one year or less.

Certain customers are eligible to earn rebates from product purchases. For certain of these rebates, the customer can earn prospectively higher rebates upon reaching predetermined sales volumes and in other cases, the customer can receive product by achieving predetermined sales volumes. These rebates are considered to be material rights as the customer, as part of their current contract, are purchasing an option that they would not have received without the contract to either purchase future product at a lower price or receive free product. When a contract contains a material

right, a portion of the transaction price is allocated to the material right for which revenue recognition is deferred until the customer exercises its option. The standalone selling price for a material right used to allocate the transaction price is determined at contract inception by calculating the portion of the option purchased relative to the estimated total amount of incremental value the customer will likely earn, based on historical data, customer forecast communications, current economic information, and industry trends. The standalone selling price of a material right is not adjusted prior to customer exercise or option expiration.

Estimating the total expected costs related to contracts also requires significant judgment. The Aerospace OEM business has an Estimate at Completion (EAC) process in which management reviews the progress and execution of our performance obligations for significant contracts with revenue recognized under an over time model. As part of this process, management reviews information including, but not limited to, performance under the contract, progress towards completion, identified risks and opportunities, sourcing determinations and related changes in estimates of costs to be incurred. These considerations include management's judgment about the ability and cost to achieve technical requirements and other contract requirements. Management makes assumptions and estimates regarding labor efficiency, the complexity of the work to be performed, the

availability of materials, the length of time to complete the performance obligation (e.g., to estimate increases in wages and prices for materials and related support cost allocations), execution by our subcontractors and overhead cost rates, among other variables.

The Company generally utilizes the portfolio approach, a practical expedient, to estimate the amount of revenue to recognize for certain other contracts which require over time revenue recognition. Such contracts are grouped together either by revenue stream, customer or product. Each portfolio of contracts is grouped together based on having similar characteristics. The portfolio approach is utilized only when the result of the accounting is not expected to be materially different than if applied to individual contracts. For each portfolio of contracts, the respective work in process and/or finished goods inventory balances are identified and the portfolio-specific margin is applied to estimate the pro-rata portion of revenue earned in relation to the costs incurred.

Adjustments to net sales, cost of sales and the related impact to operating income are recognized as necessary in the period they become known. The resultant impacts from these changes in estimates are recognized on a cumulative catch-up basis, which recognizes in the current period the cumulative effect of the changes on both current and prior periods. Revenue recognized from performance obligations satisfied in previous periods was estimated at $258 in the first three months of 2018, representing changes in total costs expected and changes in estimated variable consideration.

Contract Balances. The timing of revenue recognition, invoicing and cash collections affect accounts receivable, unbilled receivables (contract assets) and customer advances and deposits (contract liabilities) on the Consolidated Balance Sheets.

Unbilled Receivables (Contract Assets) - Pursuant to the over time revenue recognition model, revenue may be recognized prior to the customer being invoiced. An unbilled receivable is recorded to reflect revenue that is recognized when 1) the cost-to-cost method is applied and 2) such revenue exceeds the amount invoiced to the customer. Unbilled receivables are included within prepaid expenses and other current assets on the Consolidated Balance Sheet as of March 31, 2018.

Customer Advances and Deposits (Contract Liabilities) - The Company may receive a customer advance or deposit, or have an unconditional right to receive a customer advance, prior to revenue being recognized. Certain contracts within the Molding Solutions businesses, for example, may require such advances. Since the performance obligations related to such advances may not have been satisfied, a contract liability is established. An offsetting asset of equal amount is recorded as an account receivable until the advance is collected. Advances and deposits are included within accrued liabilities on the Consolidated Balance Sheets until the respective revenue is recognized. Advance payments are not considered a significant financing component as they are received less than one year before the customer solution is completed.

These assets and liabilities are reported on the Consolidated Balance Sheet on an individual contract basis at the end of each reporting period.

Net contract assets (liabilities) consisted of the following:

	March 31, 2018	January 1, 2018	$ Change	% Change
Unbilled receivables (contract assets)	$14,799	$14,579	$220	2 %
Contract liabilities	(71,423)	(54,007)	(17,416)	32 %
Net contract liabilities	$(56,624)	$(39,428)	$(17,196)	44 %

Contract liabilities balances at March 31, 2018 and January 1, 2018 include $24,646 and $13,536, respectively, of customer advances for which the Company has an unconditional right to collect payment. Accounts receivable, as presented on the Consolidated Balance Sheet and within Note 2, includes corresponding balances at March 31, 2018 and January 1, 2018, respectively.

Changes in the net contract asset (liability) balance during the three-month period ended March 31, 2018 were impacted by a $17,416 increase in contract liabilities, driven primarily by new customer advances and deposits, partially offset by revenue recognized in the current period. Partially offsetting this contract liability increase was a $220 increase in contract assets, driven primarily by contract progress (i.e.unbilled receivable), partially offset by earlier contract progress being invoiced to the customer.

Revenue recognized for the three-month period ended March 31, 2018 that was included in the contract liability balance at the beginning of the year was $17,525 and represented primarily revenue from the sale of molds and hot runners within the Molding Solutions business.

Contract Costs. The Company may incur costs to fulfill a contract. Costs are incurred to develop, design and manufacture tooling to produce a customer's customized product in conjunction with certain of its contracts, primarily in the Aerospace OEM business. For certain contracts, control related to this tooling remains with the Company. The tooling may be deemed recoverable over the life of the related customer contract (oftentimes a long-term agreement). The Company therefore capitalizes these tooling costs and amortizes them over the shorter of the tooling life or the duration of the long-term agreement. The Company may also incur costs related to the development of product designs (molds or hot runner systems) within its Molding Solutions businesses. Control of the design may be retained by the Company and deemed recoverable over the contract to build the systems or mold, therefore this design work cost is capitalized and amortized to cost of sales when the related revenue is recognized. Amortization related to these capitalized costs to fulfill a contract were $3,986 in the three month period ended March 31, 2018.

Capitalized costs, net of amortization, to fulfill a contract balances were as follows:

	March 31, 2018
Tooling	$3,937
Design costs	3,340
Other	93
	$7,370

In certain contracts, the Company facilitates shipping and handling activities after control has transferred to the customer. The Company has elected to record all shipping and handling activities as costs to fulfill a contract. In situations where the shipping and handling costs have not been incurred at the time revenue is recognized, the respective estimated shipping and handling costs are accrued.

Remaining Performance Obligations. The Company has elected the practical expedient which allows disclosure of remaining performance obligations only for contracts with an original duration of greater than one year. Such remaining performance obligations represent the transaction price of firm orders for which work has not been performed and excludes projections of components and assemblies that Aerospace OEM customers anticipate purchasing in the future under existing programs, which represent orders that are beyond lead time and do not represent performance obligations pursuant to ASC 606. As of March 31, 2018, the aggregate amount of the transaction price allocated to remaining performance obligations was $139,762. The Company expects to recognize revenue on approximately 75% of the remaining performance obligations over the next 12 months, with the remainder being recognized within 24 months.

4. Net Income Per Common Share

For the purpose of computing diluted net income per common share, the weighted-average number of common shares outstanding is increased for the potential dilutive effects of stock-based incentive plans. For the purpose of computing diluted net income per common share, the weighted-average number of common shares outstanding was increased by 553,903 and 472,705 for the three-month periods ended March 31, 2018 and 2017, respectively, to account for the potential dilutive effect of stock-based incentive plans. There were no adjustments to net income for the purposes of computing income available to common stockholders for the periods.

The calculation of weighted-average diluted shares outstanding excludes all shares that would have been anti-dilutive. During the three-month periods ended March 31, 2018 and 2017, the Company excluded 153,908 and 177,781 stock awards, respectively, from the calculation of weighted-average diluted shares outstanding as the stock awards were considered anti-dilutive.

The Company granted 102,400 stock options, 88,543 restricted stock unit awards and 70,005 performance share awards ("PSAs") in February 2018 as part of its annual grant awards. All of the stock options and the restricted stock unit awards vest upon meeting certain service conditions. The restricted stock unit awards are included in basic weighted-average common shares outstanding as they contain nonforfeitable rights to dividend payments. The PSAs are part of the long-term Performance Share Award Program (the "Awards Program") and are based on performance goals that are driven by a combination of independently measured metrics (depending on the grant year) with each metric being weighted equally. The metrics for awards

granted in 2018 include the Company's total shareholder return ("TSR"), return on invested capital ("ROIC") and operating income before depreciation and amortization growth ("EBITDA growth"). The TSR and EBITDA growth metrics are designed to assess the long-term Company performance relative to the performance of companies included in the Russell 2000 Index over a three-year performance period. ROIC is designed to assess the Company's performance compared to pre-established Company targets over a three-year performance period. The participants can earn from zero to 250% of the target award and the award includes a forfeitable right to dividend equivalents, which are not included in the aggregate target award numbers. The fair value of the TSR portion of the PSA was determined using a Monte Carlo valuation method as the award contains a market condition.

5. Inventories

The components of inventories consisted of:

	March 31, 2018	December 31, 2017
Finished goods	$75,503	$ 79,649
Work-in-process	107,500	97,276
Raw material and supplies	67,214	65,037
	$250,217	$ 241,962

6. Goodwill and Other Intangible Assets

Goodwill:
The following table sets forth the change in the carrying amount of goodwill for each reportable segment and for the Company as of and for the period ended March 31, 2018:

	Industrial	Aerospace	Total Company
January 1, 2018	$659,437	$ 30,786	$690,223
Foreign currency translation	15,071	—	15,071
March 31, 2018	$674,508	$ 30,786	$705,294

Other Intangible Assets:
Other intangible assets consisted of:

		March 31, 2018		December 31, 2017	
	Range of Life -Years	Gross Amount	Accumulated Amortization	Gross Amount	Accumulated Amortization
Amortized intangible assets:					
Revenue sharing programs (RSPs)	Up to 30	$293,700	$ (111,717)	$293,700	$ (108,075)
Component repair programs (CRPs)	Up to 30	111,839	(17,783)	111,839	(16,508)
Customer lists/relationships	10-16	215,966	(68,625)	215,966	(65,385)
Patents and technology	4-10	87,052	(50,838)	87,052	(48,083)
Trademarks/trade names	10-30	11,950	(10,446)	11,950	(10,349)
Other	Up to 15	20,551	(16,519)	20,551	(16,414)
		741,058	(275,928)	741,058	(264,814)
Unamortized intangible assets:					
Trade names		42,770	—	42,770	—
Foreign currency translation		(6,091)	—	(11,972)	—
Other intangible assets		$777,737	$ (275,928)	$771,856	$ (264,814)

Estimated amortization of intangible assets for future periods is as follows: 2018 - $41,000; 2019 - $41,000; 2020 - $37,000; 2021 - $37,000 and 2022 - $37,000.

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7. Debt

The Company's debt agreements contain financial covenants that require the maintenance of interest coverage and leverage ratios. The Company is in compliance with its financial covenants as of March 31, 2018, and continues to monitor its future compliance based on current and anticipated future economic conditions.

Long-term debt and notes and overdrafts payable at March 31, 2018 and December 31, 2017 consisted of:

	March 31, 2018		December 31, 2017	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Revolving credit agreement	$397,550	$401,436	$421,500	$424,818
3.97% Senior Notes	100,000	100,304	100,000	101,348
Borrowings under lines of credit and overdrafts	14,896	14,896	5,669	5,669
Capital leases	7,896	8,555	4,541	4,964
Other foreign bank borrowings	742	755	886	897
	521,084	525,946	532,596	537,696
Less current maturities	(17,904)		(6,999)	
Long-term debt	$503,180		$525,597	

In February 2017, the Company and certain of its subsidiaries entered into the fourth amendment of its fifth amended and restated revolving credit agreement (the “Amended Credit Agreement”) and retained Bank of America, N.A as the Administrative Agent for the lenders. The Amended Credit Agreement increased the facility from $750,000 to $850,000 and extended the maturity date from September 2018 to February 2022. The Amended Credit Agreement also increased the existing accordion feature from $250,000, allowing the Company to now request additional borrowings of up to $350,000. The Company may exercise the accordion feature upon request to the Administrative Agent as long as an event of default has not occurred or is not continuing. The borrowing availability of $850,000, pursuant to the terms of the Amended Credit Agreement, allows for multi-currency borrowing which includes euro, sterling or Swiss franc borrowing, up to $600,000. Depending on the Company’s consolidated leverage ratio, and at the election of the Company, borrowings under the Amended Credit Agreement will bear interest at either LIBOR plus a margin of between 1.10% and 1.70% or the base rate, as defined in the Amended Credit Agreement, plus a margin of 0.10% to 0.70%. The Company paid fees and expenses of $2,542 in conjunction with executing the Amended Credit Agreement; such fees have been deferred within Other Assets on the accompanying Consolidated Balance Sheets and are being amortized into interest expense on the accompanying Consolidated Statements of Income through its maturity. Cash used to pay these fees have been recorded through financing activities on the Consolidated Statements of Cash Flows for the three-month period ended March 31, 2017.

Borrowings and availability under the Amended Credit Agreement were $397,550 and $452,450, respectively, at March 31, 2018 and $421,500 and $428,500, respectively, at December 31, 2017. The average interest rate on these borrowings was 2.96% and 2.65% on March 31, 2018 and December 31, 2017, respectively. The fair value of the borrowings is based on observable Level 2 inputs. The borrowings were valued using discounted cash flows based upon the Company's estimated interest costs for similar types of borrowings.

In October 2014, the Company entered into a Note Purchase Agreement (“Note Purchase Agreement”), among the Company and New York Life Insurance Company, New York Life Insurance and Annuity Corporation and New York Life Insurance and Annuity Corporation Institutionally Owned Life Insurance Separate Account, as purchasers, for the issuance of $100,000 aggregate principal amount of 3.97% Senior Notes due October 17, 2024 (the “3.97% Senior Notes”).

The 3.97% Senior Notes are senior unsecured obligations of the Company and pay interest semi-annually on April 17 and October 17 of each year at an annual rate of 3.97%. The 3.97% Senior Notes will mature on October 17, 2024 unless earlier prepaid in accordance with their terms. Subject to certain conditions, the Company may, at its option, prepay all or any part of the 3.97% Senior Notes in an amount equal to 100% of the principal amount of the 3.97% Senior Notes so prepaid, plus any accrued and unpaid interest to the date of prepayment, plus the Make-Whole Amount, as defined in the Note Purchase Agreement, with respect to such principal amount being prepaid. The fair value of the 3.97% Senior Notes was determined using the US Treasury yield and a long-term credit spread for similar types of borrowings, which represent Level 2 observable inputs.

The Company's borrowing capacity remains limited by various debt covenants in the Amended Credit Agreement and the Note Purchase Agreement (the "Agreements"). The Agreements require the Company to maintain a ratio of Consolidated Senior

Debt, as defined, to Consolidated EBITDA, as defined, of not more than 3.25 times ("Senior Debt Ratio"), a ratio of Consolidated Total Debt, as defined, to Consolidated EBITDA of not more than 3.75 times and a ratio of Consolidated EBITDA to Consolidated Cash Interest Expense, as defined, of not less than 4.25 at the end of each fiscal quarter; provided that the debt to EBITDA ratios are permitted to increase for a period of four fiscal quarters after the closing of certain permitted acquisitions.

In addition, the Company has available approximately $59,000 in uncommitted short-term bank credit lines ("Credit Lines") and overdraft facilities. Under the Credit Lines, $14,600 was borrowed at March 31, 2018 at an interest rate of 2.60% and $5,300 was borrowed at December 31, 2017 at an average interest rate of 2.33%. The Company had also borrowed $296 and $369 under the overdraft facilities at March 31, 2018 and December 31, 2017, respectively. Repayments under the Credit Lines are due within one month after being borrowed. Repayments of the overdrafts are generally due within two days after being borrowed. The carrying amounts of the Credit Lines and overdrafts approximate fair value due to the short maturities of these financial instruments.

The Company has several capital leases under which $7,896 and $4,541 was outstanding at March 31, 2018 and December 31, 2017, respectively. The fair value of the capital leases are based on observable Level 2 inputs. These instruments were valued using discounted cash flows based upon the Company's estimated interest costs for similar types of borrowings.

At March 31, 2018 and December 31, 2017, the Company also had other foreign bank borrowings of $742 and $886, respectively. The fair value of the other foreign bank borrowings is based on observable Level 2 inputs. These instruments were valued using discounted cash flows based upon the Company's estimated interest costs for similar types of borrowings.

8. Derivatives

The Company has manufacturing and sales facilities around the world and thus makes investments and conducts business transactions denominated in various currencies. The Company is also exposed to fluctuations in interest rates and commodity price changes. These financial exposures are monitored and managed by the Company as an integral part of its risk management program.

Financial instruments have been used by the Company to hedge its exposure to fluctuations in interest rates. In 2012, the Company entered into five-year interest rate swap agreements (the "Swaps") transacted with three banks which together converted the interest on the first $100,000 of the Company's one-month LIBOR-based borrowings from a variable rate plus the borrowing spread to a fixed rate of 1.03% plus the borrowing spread. The Swaps expired on April 28, 2017. The Company entered into a new interest rate swap agreement (the "Swap") that commenced on April 28, 2017, with one bank, and converts the interest on the first $100,000 of the Company's one-month LIBOR-based borrowings from a variable rate plus the borrowing spread to a fixed rate of 1.92% plus the borrowing spread. The Swap expires on January 31, 2022. These interest rate swap agreements were accounted for as cash flow hedges. The Swap remained in place at March 31, 2018.

The Company also uses financial instruments to hedge its exposures to fluctuations in foreign currency exchange rates. The Company has various contracts outstanding which primarily hedge recognized assets or liabilities and anticipated transactions in various currencies including the Euro, British pound sterling, U.S. dollar, Canadian dollar, Japanese yen, Singapore dollar, Korean won, Swedish kroner, Chinese renminbi and Swiss franc. Certain foreign currency derivative instruments are treated as cash flow hedges of forecasted transactions. All foreign exchange contracts are due within two years.

The Company does not use derivatives for speculative or trading purposes or to manage commodity exposures. Changes in the fair market value of derivatives that qualify as fair value hedges or cash flow hedges are recorded directly to earnings or accumulated other non-owner changes to equity, depending on the designation. Amounts recorded to accumulated other non-owner changes to equity are reclassified to earnings in a manner that matches the earnings impact of the hedged transaction. Any ineffective portion, or amounts related to contracts that are not designated as hedges, are recorded directly to earnings.

The Company's policy for classifying cash flows from derivatives is to report the cash flows consistent with the underlying hedged item. Other financing cash flows during the first three months of 2018 and 2017, as presented on the Consolidated Statements of Cash Flows, include $6,505 and $3,243, respectively, of net cash payments related to the settlement of foreign currency hedges related to intercompany financing.

The following table sets forth the fair value amounts of derivative instruments held by the Company.

	March 31, 2018		December 31, 2017	
	Asset Derivatives	Liability Derivatives	Asset Derivatives	Liability Derivatives
Derivatives designated as hedging instruments:				
Interest rate contracts	$2,274	$ —	$654	$ —
Foreign exchange contracts	—	(1,454)	—	(379)
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	640	(1,096)	58	(29)
Total derivatives	$2,914	$ (2,550)	$712	$ (408)

Asset derivatives related to interest rate contracts and foreign exchange contracts are recorded in other assets and prepaid expenses and other current assets, respectively, in the accompanying Consolidated Balance Sheets. Liability derivatives related to interest rate contracts and foreign exchange contracts are recorded in other liabilities and accrued liabilities, respectively, in the accompanying Consolidated Balance Sheets.

The following table sets forth the gain (loss) recorded in accumulated other comprehensive income (loss), net of tax, for the three-month periods ended March 31, 2018 and 2017 for derivatives held by the Company and designated as hedging instruments.

	Three months ended March 31,	
	2018	2017
Cash flow hedges:		
Interest rate contracts	$1,235	$ 47
Foreign exchange contracts	(839)	36
	$396	$ 83

Amounts related to the interest rate swaps included within accumulated other comprehensive income (loss) that were reclassified to expense during the first three months of 2018 and 2017 resulted in a fixed rate of interest plus the borrowing spread for the first $100,000 of one-month LIBOR borrowings. The fixed rate of interest was 1.92% for the period covered by the Swap, which matures in January 2022, and 1.03% for the Swaps, which matured in April 2017.

The following table sets forth the net (loss) gains recorded in other expense (income), net in the Consolidated Statements of Income for the three-month periods ended March 31, 2018 and 2017 for non-designated derivatives held by the Company. Such amounts were substantially offset by the net (gain) loss recorded on the underlying hedged asset or liability, also recorded in other expense (income), net.

	Three months ended March 31,	
	2018	2017
Foreign exchange contracts	$(6,092)	$(896)

9. Fair Value Measurements

The provisions of the accounting standard for fair value define fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. This standard classifies the inputs used to measure fair value into the following hierarchy:

Level 1 Unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2 Unadjusted quoted prices in active markets for similar assets or liabilities, or unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable for the asset or liability.

Level 3 Unobservable inputs for the asset or liability.

The following table provides the assets and liabilities reported at fair value and measured on a recurring basis:

Description	Total	Fair Value Measurements Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
March 31, 2018				
Asset derivatives	$2,914	$—	$ 2,914	$ —
Liability derivatives	(2,550)	—	(2,550)	—
Bank acceptances	17,350	—	17,350	—
Rabbi trust assets	2,553	2,553	—	—
	$20,267	$2,553	$ 17,714	$ —
December 31, 2017				
Asset derivatives	$712	$—	$ 712	$ —
Liability derivatives	(408)	—	(408)	—
Bank acceptances	16,092	—	16,092	—
Rabbi trust assets	2,554	2,554	—	—
	$18,950	$2,554	$ 16,396	$ —

The derivative contracts are valued using observable current market information as of the reporting date such as the prevailing LIBOR-based interest rates and foreign currency spot and forward rates. Bank acceptances represent financial instruments accepted from certain Chinese customers in lieu of cash paid on receivables, generally range from three to six months in maturity and are guaranteed by banks. The carrying amounts of the bank acceptances, which are included within prepaid expenses and other current assets, approximate fair value due to their short maturities. The fair values of rabbi trust assets are based on quoted market prices from various financial exchanges.

10. Pension and Other Postretirement Benefits

Pension and other postretirement benefits expenses consisted of the following:

	Three months ended March 31,	
Pensions	2018	2017
Service cost	$1,590	$1,643
Interest cost	4,309	4,621
Expected return on plan assets	(7,394)	(6,860)
Amortization of prior service cost	141	109
Amortization of actuarial losses	2,811	2,480
Settlement gain	—	(261)
Net periodic benefit cost	$1,457	$1,732

	Three months ended March 31,	
Other Postretirement Benefits	2018	2017
Service cost	$24	$22
Interest cost	344	389
Amortization of prior service cost (credit)	5	(17)
Amortization of actuarial losses	160	69
Net periodic benefit cost	$533	$463

The components of net periodic benefit cost other than the service cost component are included in Other Income (Expense) on the Consolidated Statements of Income. The amended guidance related to the presentation of net periodic pension and other postretirement benefit cost (See Note 2) provides for a practical expedient that allows use of amounts disclosed in prior year filings for the prior year comparable periods as an estimation basis for applying the retrospective presentation requirements. The Company has elected to use this practical expedient.
The Company currently expects to contribute approximately $4,600 to certain of its defined benefit pension plans in 2018. No contributions to the U.S. Qualified pension plans, specifically, are required, and the Company does not currently plan to make any discretionary contributions to such plans in 2018.

11. Income Taxes

The Company's effective tax rate for the first quarter of 2018 was 23.9% compared with 26.9% in the first quarter of 2017 and 69.6% for the full year 2017. The effective tax rate in 2017 was impacted by the U.S. government's enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the "Act"). Excluding the impact of a one-time $99,214 of discrete tax expense related to the Act, partially offset by a benefit of $2,514 on the prior year repatriation, the effective tax rate would have been 20.2% for the full year 2017. The increase in the first quarter of 2018 effective tax rate from the full year 2017 rate is primarily due to a new provision within the Act that is designed to tax global intangible low-taxed income (GILTI), the absence of the adjustment of the Swiss valuation reserves, the absence of the settlement of tax audits and closure of tax years for various tax jurisdictions, the expiration of certain tax holidays and the decrease in the excess tax benefit on stock awards. The increase is partially offset by the increase in the projected change in the mix of earnings attributable to lower-taxing jurisdictions.

The Company has determined that foreign earnings for the period beginning January 1, 2018 will be indefinitely reinvested. Accordingly, a deferred tax liability has not been recorded for the excess of the tax basis over the financial statement (book) basis arising since January 1, 2018. For the period ended December 31, 2017, the Company recorded a deferred tax liability of $6,932 on the portion of earnings it expects to repatriate. The Company continues to analyze its position in regards to the excess of the tax basis over the financial statement (book) basis arising for the period prior to January 1, 2018 and as such, the entry made effective December 31, 2017 remains provisional.

The Aerospace and Industrial segments were previously awarded international tax holidays. All significant tax holidays for which the Company currently receives benefit have expired.

12. Changes in Accumulated Other Comprehensive Income (Loss) by Component

The following tables sets forth the changes in accumulated other comprehensive income (loss), net of tax, by component for the three-month periods ended March 31, 2018 and 2017:

	Gains and Losses on Cash Flow Hedges	Pension and Other Postretirement Benefit Items	Foreign Currency Items	Total
January 1, 2018	$ 72	$ (103,844)	$ (2,627)	$ (106,399)
Other comprehensive income before reclassifications	157	763	26,953	27,873
Amounts reclassified from accumulated other comprehensive income to the consolidated statements of income	239	2,401	—	2,640
Net current-period other comprehensive income	396	3,164	26,953	30,513

Amounts reclassified from accumulated other comprehensive income to retained earnings [(A)]	—	(19,331)	—	(19,331)
March 31, 2018	$ 468	$ (120,011)	$ 24,326	$ (95,217)

(A) This amount represents the reclassification of stranded tax effects resulting from the Act, as permitted by amended guidance issued by the FASB in February 2018. See Note 2.

	Gains and Losses on Cash Flow Hedges	Pension and Other Postretirement Benefit Items	Foreign Currency Items	Total
January 1, 2017	$(227)	$(114,570)	$(86,031)	$(200,828)
Other comprehensive income (loss) before reclassifications	27	(214)	18,609	18,422
Amounts reclassified from accumulated other comprehensive income to the consolidated statements of income	56	1,479	—	1,535
Net current-period other comprehensive income	83	1,265	18,609	19,957
March 31, 2017	$(144)	$(113,305)	$(67,422)	$(180,871)

The following table sets forth the reclassifications out of accumulated other comprehensive income (loss) by component for the three-month periods ended March 31, 2018 and 2017:

Details about Accumulated Other Comprehensive Income (Loss) Components	Amount Reclassified from Accumulated Other Comprehensive Income (Loss)		Affected Line Item in the Consolidated Statements of Income
	Three months ended March 31, 2018	Three months ended March 31, 2017	
Gains and losses on cash flow hedges			
Interest rate contracts	$(82)	$(53)	Interest expense
Foreign exchange contracts	(226)	(30)	Net sales
	(308)	(83)	Total before tax
	69	27	Tax benefit
	(239)	(56)	Net of tax
Pension and other postretirement benefit items			
Amortization of prior-service costs, net	$(146)	$(92)	(A)
Amortization of actuarial losses	(2,971)	(2,549)	(A)
Settlement gain	—	261	(A)
	(3,117)	(2,380)	Total before tax
	716	901	Tax benefit
	(2,401)	(1,479)	Net of tax
Total reclassifications in the period	$(2,640)	$(1,535)	

(A) These accumulated other comprehensive income (loss) components are included within the computation of net periodic Pension and Other Postretirement Benefits cost. See Note 10.

13. Information on Business Segments

The Company is organized based upon the nature of its products and services and reports under two global business segments: Industrial and Aerospace. Segment information is consistent with how management reviews the businesses, makes investing and resource allocation decisions and assesses operating performance. The Company has not aggregated operating segments for purposes of identifying these two reportable segments.

Industrial is a global manufacturer of highly-engineered, high-quality precision components, products and systems for critical applications serving a diverse customer base in end-markets such as transportation, industrial equipment, consumer products, packaging, electronics, medical devices, and energy. Focused on innovative custom solutions, Industrial participates in the design phase of components and assemblies whereby customers receive the benefits of application and systems engineering, new product development, testing and evaluation, and the manufacturing of final products. Products are sold primarily through its direct sales force and global distribution channels. Industrial's Molding Solutions businesses design and manufacture

customized hot runner systems, advanced mold cavity sensors and process control systems, and precision high cavitation mold assemblies - collectively, the enabling technologies for many complex injection molding applications. Industrial's Nitrogen Gas Products business provides innovative cost effective force and motion solutions for sheet metal forming, heavy duty suspension and other selective niche markets for customers worldwide. Industrial's Engineered Components businesses manufacture and supply precision mechanical products used in transportation and industrial applications, including mechanical springs, high-precision punched and fine-blanked components and retention rings.

Aerospace is a global provider of fabricated and precision-machined components and assemblies for original equipment manufacturer ("OEM") turbine engine, airframe and industrial gas turbine builders, and the military. Aerospace Aftermarket includes the jet engine component maintenance repair and overhaul business ("MRO") and the spare parts business. MRO includes our Component Repair Programs ("CRPs") and services many of the world's major turbine engine manufacturers, commercial airlines and the military. The spare parts business includes our revenue sharing programs ("RSPs") under which the Company receives an exclusive right to supply designated aftermarket parts over the life of the related aircraft engine program.

The following tables set forth information about the Company's operations by its two reportable segments:

	Three months ended March 31,	
	2018	2017
Net sales		
Industrial	$245,967	$227,340
Aerospace	120,699	114,470
Intersegment sales	(6)	(8)
Total net sales	$366,660	$341,802
Operating profit		
Industrial	$32,378	$33,903
Aerospace	24,255	22,375
Total operating profit	56,633	56,278
Interest expense	3,892	3,349
Other expense (income), net	1,763	553
Income before income taxes	$50,978	$52,376

	March 31, 2018	December 31, 2017
Assets		
Industrial	$1,574,386	$ 1,505,355
Aerospace	675,741	667,085
Other [(A)]	166,069	193,276
Total assets	$2,416,196	$ 2,365,716

(A) "Other" assets include corporate-controlled assets, the majority of which are cash and cash equivalents.

14. Commitments and Contingencies

Product Warranties

The Company provides product warranties in connection with the sale of certain products. From time to time, the Company is subject to customer claims with respect to product warranties. The Company accrues its estimated exposure for warranty claims at the time of sale based upon the length of the warranty period, historical experience

and other related information known to the Company. Liabilities related to product warranties and extended warranties were not material as of March 31, 2018 and December 31, 2017.

15. Business Reorganizations

In 2017, the Company authorized the closure and consolidation of two production facilities (the "Closures") including a FOBOHA facility located in Muri, Switzerland and an Associated Spring facility into other facilities included within the Industrial segment to leverage capacity, infrastructure and critical resources. The Muri Closure was completed as of December 31, 2017, whereas the Closure at the Associated Spring facility is currently expected to be completed in the first half of 2018. The remaining severance liability is included within accrued liabilities and is expected to be paid in 2018.
The following table sets forth the change in the liability for the 2017 employee termination actions:

January 1, 2018	$649
Payments	(195)
Foreign currency translation	8
March 31, 2018	$462

With respect to the unaudited consolidated financial information of Barnes Group Inc. for the three month periods ended March 31, 2018 and 2017, PricewaterhouseCoopers LLP reported that they have applied limited procedures in accordance with professional standards for a review of such information. However, their separate report dated April 27, 2018 appearing herein, states that they did not audit and they do not express an opinion on that unaudited consolidated financial information. Accordingly, the degree of reliance on their report should be restricted in light of the limited nature of the review procedures applied. PricewaterhouseCoopers LLP is not subject to the liability provisions of Section 11 of the Securities Act of 1933, as amended, for their report on the unaudited consolidated financial information because that report is not a “report” or a “part” of the registration statement prepared or certified by PricewaterhouseCoopers LLP within the meaning of Sections 7 and 11 of the Securities Act of 1933, as amended.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Barnes Group Inc.:

Results of Review of Financial Information

We have reviewed the accompanying consolidated balance sheet of Barnes Group, Inc. and its subsidiaries as of March 31, 2018 and the related consolidated statements of income, of comprehensive income and of cash flows for the three-month periods ended March 31, 2018 and 2017, including the related notes (collectively referred to as the "interim financial information"). Based on our reviews, we are not aware of any material modifications that should be made to the accompanying interim financial information for them to be in conformity with accounting principles generally accepted in the United States of America.

We have previously audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheet of the Company as of December 31, 2017, and the related consolidated statements of income, of comprehensive income, of changes in stockholders' equity and of cash flows for the year then ended (not presented herein), and in our report dated February 20, 2018, which included a paragraph describing a change in the manner of accounting for share based compensation in the 2016 financial statements, we expressed an unqualified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying consolidated balance sheet information as of December 31, 2017, is fairly stated, in all material respects, in relation to the consolidated balance sheet from which it has been derived.

Basis for Review Results

This interim financial information is the responsibility of the Company's management. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB. We conducted our review in accordance with the standards of the PCAOB. A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with the standards of the PCAOB, the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an opinion.

/s/ PricewaterhouseCoopers LLP
PricewaterhouseCoopers LLP
Hartford, Connecticut
April 27, 2018

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

OVERVIEW

Please refer to the Overview in the Management's Discussion and Analysis of Financial Condition and Results of Operations in the Company's Annual Report on Form 10-K for the year ended December 31, 2017. The Annual Report on Form 10-K and other documents related to the Company are located on the Company's website: www.bginc.com.

RESULTS OF OPERATIONS

Net Sales

	Three months ended March 31,			
(in millions)	2018	2017	Change	
Industrial	$246.0	$227.3	$18.6	8.2%
Aerospace	120.7	114.5	6.2	5.4%
Total	$366.7	$341.8	$24.9	7.3%

The Company reported net sales of $366.7 million in the first quarter of 2018, an increase of $24.9 million or 7.3%, from the first quarter of 2017. Organic sales increased by $2.8 million, including an increase of $6.2 million at Aerospace, partially offset by a decrease of $3.4 million at Industrial. The increase at Aerospace was driven primarily by sales growth within the aftermarket businesses, whereas continued growth on newer, more technologically advanced engine platforms contributed to increased sales within the original equipment manufacturing business. Within Industrial, lower organic sales were primarily driven by slight declines in sales within each of the business units. The acquisition of Gammaflux in the second quarter of 2017 also provided sales of $3.1 at the Industrial segment during the first quarter of 2018. The weakening of the U.S. dollar against foreign currencies increased net sales within the Industrial segment by approximately $18.9 million.

Expenses and Operating Income

	Three months ended March 31,			
(in millions)	2018	2017	Change	
Cost of sales	$237.1	$219.5	$17.6	8.0 %
% sales	64.7 %	64.2 %		
Gross profit [1]	$129.5	$122.3	$7.3	5.9 %
% sales	35.3 %	35.8 %		
Selling and administrative expenses	$72.9	$66.0	$6.9	10.5%
% sales	19.9 %	19.3 %		
Operating income	$56.6	$56.3	$0.4	0.6 %
% sales	15.4 %	16.5 %		

(1) Sales less cost of sales.

Cost of sales in the first quarter of 2018 increased 8.0% from the 2017 period, while gross profit margin decreased slightly from 35.8% in the 2017 period to 35.3% in the 2018 period. Gross margins improved at Aerospace and declined at Industrial. At Industrial, gross margin decreased during the 2018 period, primarily as a result of unfavorable product mix and lower productivity. Gross margin during the first quarter of 2017 was negatively impacted by $0.6 million of short-term purchase accounting adjustments related to the acquisition of FOBOHA. Within Aerospace, improvement in gross profit relates primarily to organic growth within each of the businesses,

partially offset by scheduled price deflation as certain engine programs transition from their development stage into their production stage. Increased volumes in the maintenance overhaul and repair and spare parts businesses, in particular, contributed to the gross margin improvement during the first quarter of 2018. Selling and administrative expenses in the first quarter of 2018 increased 10.5% from the 2017 period, due primarily to increased personnel costs during the period. As a percentage of sales, selling and administrative costs increased from 19.3% in the first quarter of 2017 to 19.9% in the 2018 period. Operating income in the first quarter of 2018 increased 0.6% to $56.6 million from the first quarter of 2017 and operating income margin decreased from 16.5% to 15.4%, driven by Industrial.

Interest expense
Interest expense increased by $0.5 million in the first quarter of 2018, as compared with the prior year period, primarily a result of higher interest rates.

Other expense (income), net
Other expense (income), net in the first quarter of 2018 was $1.8 million compared to $0.6 million in the first quarter of 2017.

Income Taxes

U.S. Tax Reform

On December 22, 2017 the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “Act”). The Act made broad and complex changes to the U.S. Tax Code that affected 2017 and include, but are not limited to, requiring a one-time Transition Tax on certain unrepatriated earnings of foreign subsidiaries of the Company.

The Act also established new law that affects 2018 and beyond and includes, but is not limited to, (1) a reduction of the U.S. Corporate income tax rate from 35% to 21%; (2) general elimination of U.S. federal income taxes on dividends from foreign subsidiaries; (3) a new limitation on the deduction of interest expense; (4) repeal of the domestic production activity deduction; (5) additional limitations on deduction of compensation for certain executives; (6) a new provision designed to tax global intangible low-taxed income (“GILTI”) which allows for the possibility of utilizing foreign tax credits (“FTCs”) and a deduction up to 50% to offset the income tax liability (subject to certain limitations); (7) the introduction of the base erosion anti-abuse tax which represents a new minimum tax; (8) limitations on utilization of FTCs to reduce U.S. income tax liability; and (9) limitations on net operating losses (“NOLs”) generated after December 31, 2017 to 80% of taxable income.

The SEC issued Staff Accounting Bulletin 118 ("SAB 118") in January 2018, which provided guidance on accounting for the tax effects of the Act. SAB 118 provides a measurement period in which to finalize the accounting under Accounting Standards Codification 740, Income Taxes ("ASC 740"). This measurement period should not extend beyond one year from the Act enactment date. In accordance with SAB 118, we are required to reflect the income tax effects of those aspects of the Act for which the accounting under ASC 740 is complete. To the extent that our accounting for certain income tax effects of the Act is incomplete but we are capable of reasonably estimating the effects, we must record a provisional amount in the Consolidated Financial Statements based on this estimate. To the extent we could not reasonably estimate the provisional impacts of the Act, we are required to apply ASC 740 on the basis of tax law in place immediately prior to the enactment of the Act.

As part of our analysis of the impact of the Act, the Company recorded a one-time discrete tax expense of $99.2 million as of December 31, 2017. This amount primarily consisted of net expense related to the deemed repatriation Transition Tax of $86.7 million, combined with the impacts of reduced corporate income tax rates on our deferred tax assets of $4.2 million, state taxation on the earnings reported under the Transition Tax of $1.4 million and foreign income and withholding taxes of $6.9 million related to the repatriation of certain foreign earnings.

As of March 31, 2018, the Company has not completed the accounting related to the income tax effects for certain sections of the Act and therefore the amount remains provisional. Additional guidance related to Transition Tax, both from federal and state standpoint, is anticipated by the end of 2018. Further, the Company remains in the process of completing its analysis related to the potential repatriation of foreign earnings. As a result, the Company has not adjusted the tax expense related to the impact of the Act recorded in December 31, 2017 in the three-month period ended March 31, 2018.

Effective Tax Rate

The Company's effective tax rate for the first quarter of 2018 was 23.9% compared with 26.9% in the first quarter of 2017 and 69.6% for the full year 2017. Excluding the impact of $99.2 million of one-time discrete tax expense related to the Act, partially offset by a benefit of $2.5 million on the prior year repatriation, the effective tax rate would have been 20.2% for the full year 2017. The increase in the first quarter of 2018 effective tax rate from the full year 2017 rate is primarily due to GILTI, the absence of the adjustment of the Swiss valuation reserves, the absence of the settlement of tax audits and closure of tax years for various tax jurisdictions, the expiration of certain tax holidays and the decrease in the excess tax benefit on stock awards. The increase is partially offset by the increase in the projected change in the mix of earnings attributable to lower-taxing jurisdictions.

The Company has determined that foreign earnings for the period beginning January 1, 2018 will be indefinitely reinvested. Accordingly, a deferred tax liability has not been recorded for the excess of the tax basis over the financial statement (book) basis arising since January 1, 2018. For the period ended December 31, 2017, the Company recorded a deferred tax liability of

$6.9 million on the portion of earnings it expects to repatriate. The Company continues to analyze its position in regards to the excess of the tax basis over the financial statement (book) basis arising for the period prior to January 1, 2018 and as such, the entry made effective December 31, 2017 remains provisional.

The Aerospace and Industrial segments were previously awarded international tax holidays. All significant tax holidays for which the Company currently receives benefit have expired.

Income and Income per Share

	Three months ended March 31,			
(in millions, except per share)	2018	2017	Change	
Net income	$38.8	$38.3	$0.5	1.3 %
Net income per common share:				
Basic	$0.73	$0.71	$0.02	2.8 %
Diluted	0.72	0.70	0.02	2.9 %
Weighted average common shares outstanding:				
Basic	53.5	54.2	(0.6)	(1.2)%
Diluted	54.1	54.7	(0.6)	(1.0)%

In the first quarter of 2018, both basic and diluted net income per common share increased slightly from the first quarter of 2017. The increases were driven by an increase in net income combined with reductions in both basic and diluted weighted average common shares outstanding which decreased due to the repurchase of 677,100 and 533,000 shares during 2017 and the first quarter of 2018, respectively, as part of the Company's repurchase program. The impact of the repurchased shares was partially offset by the issuance of additional shares for employee stock plans.

Financial Performance by Business Segment

Industrial

	Three months ended March 31,			
(in millions)	2018	2017	Change	
Sales	$246.0	$227.3	$18.6	8.2 %
Operating profit	32.4	33.9	(1.5)	(4.5)%
Operating margin	13.2 %	14.9 %		

Sales at Industrial were $246.0 million in the first quarter of 2018, an $18.6 million, or 8.2% increase from the first quarter of 2017. The acquisition of Gammaflux in the second quarter of 2017 provided sales of $3.1 million during the first quarter of 2018. Organic sales decreased by $3.4 million, or 1.5%, during the 2018 period, driven primarily by slight declines in sales within each of the business units. Foreign currency increased sales by approximately $18.9 million as the U.S. dollar weakened against foreign currencies.

Operating profit in the first quarter of 2018 at Industrial was $32.4 million, a decrease of $1.5 million from the first quarter of 2017. Operating profit was impacted primarily by the lower profit contribution of organic sales volumes, including unfavorable product mix, and lower productivity. The first quarter of 2017 included $0.6 million of short-term purchase accounting adjustments related to the acquisition of FOBOHA. Operating margin decreased from 14.9% in the 2017 period to 13.2% in the 2018 period due to the above items.

Outlook: In Industrial, management is focused on generating organic sales growth through the introduction of new products and services and by leveraging the benefits of the diversified products and industrial end-markets in which its businesses have a global presence. Our ability to generate sales growth is subject to economic conditions in the global

markets served by all of our businesses. For overall industrial end-markets, manufacturing Purchasing Managers' Indices ("PMIs") above 50 in China, North America and Europe remain positive signs. Within China, we have seen a strengthening in orders that has continued through the first quarter of 2018, indicating strength within the transportation markets. Global forecasted production for light vehicles is expected to grow nominally in 2018, with production expected to improve modestly within the North American market. Within our Molding Solutions businesses, global markets remain healthy. The Molding Solutions businesses exited 2017 with improved growth, and we generally anticipate favorable demand trends to continue within the automotive, medical,

personal care and packaging hot runner and mold markets in 2018. As noted above, our sales were positively impacted by $18.9 million from fluctuations in foreign currencies. To the extent that the U.S. dollar fluctuates relative to other foreign currencies, our sales may continue to be impacted by foreign currency relative to the prior year periods. The relative impact on operating profit is not expected to be as significant as the impact on sales as most of our businesses have expenses primarily denominated in local currencies, where their revenues reside, however operating margins may be impacted. The Company also remains focused on sales growth through acquisition and expanding geographic reach. Strategic investments in new technologies, manufacturing processes and product development are expected to provide incremental benefits over the long term.

Operating profit is largely dependent on sales volumes, mix of the businesses in the segment and the Company's ability to effectively perform. Management continues to focus on improving profitability and expanding margins through leveraging organic sales growth, acquisitions, pricing initiatives, global sourcing, productivity and the evaluation of customer programs. Increased costs incurred on certain programs within Engineered Components were not as impactful during the first quarter of 2018 as compared with 2017, and management currently expects these business challenges to be primarily resolved in the second quarter of 2018. Operating profits may also be impacted by potential changes in tariffs, trade agreements and trade policies that may affect the cost and/or availability of goods, including aluminum and steel. We continue to evaluate market conditions and remain proactive in managing costs. Costs associated with new product and process introductions, restructuring initiatives, strategic investments and the integration of acquisitions may negatively impact operating profit.

Aerospace

	Three months ended March 31,			
(in millions)	2018	2017	Change	
Sales	$120.7	$114.5	$6.2	5.4%
Operating profit	24.3	22.4	1.9	8.4%
Operating margin	20.1 %	19.5 %		

The Aerospace segment reported sales of $120.7 million in the first quarter of 2018, a 5.4% increase from the first quarter of 2017. Sales increased within all of the Aerospace businesses. The original equipment manufacturing ("OEM") business continued to transition from the manufacture of components on legacy engine platforms to newer, more technologically advanced platforms. Increased volume generated by these newer programs was partially offset by lower volumes on more mature engine platforms and scheduled price deflation as certain engine programs transition from their development stage into their production stage. Sales within the aftermarket repair and overhaul ("MRO") business increased during the first quarter of 2018 as we continue to obtain additional sales volume from existing customers. Volumes within the spare parts business also increased during the 2018 period. Sales within the segment are largely denominated in U.S. dollars and therefore were not impacted by changes in foreign currency.

Operating profit at Aerospace in the first quarter of 2018 increased 8.4% from the first quarter of 2017 to $24.3 million. The increase resulted from the profit impact of the increased volumes discussed above, primarily driven by growth within the aftermarket businesses, partially offset by scheduled price deflation as certain programs move into their production stages. Operating margin increased from 19.5% in the 2017 period to 20.1% in the 2018 period primarily as a result of these items.

Outlook: Sales in the Aerospace OEM business are based on the general state of the aerospace market driven by the worldwide economy and are supported by its order backlog through participation in certain strategic commercial and military engine and airframe programs. Over the next several years, the Company expects sustained strength in demand for new engines, driven by a forecasted increase in commercial aircraft production levels. The Company anticipates further shifts in the production mix from legacy engine programs to the continual ramping of several new engine programs. Backlog at OEM was $733.2 million at March 31, 2018, an increase of 2.7% since December 31,

2017, at which time backlog was $713.8 million. Approximately 50% of OEM backlog is expected to ship in the next 12 months. The Aerospace OEM business may be impacted by changes in the content levels on certain platforms, changes in customer sourcing decisions, adjustments to customer inventory levels, commodity availability and pricing and the use of alternate materials. Additional impacts may include changes in production schedules of specific engine and airframe programs, redesign of parts, quantity of parts per engine, cost schedules agreed to under contract with the engine manufacturers, as well as the pursuit and duration of new programs. Sales in the Aerospace aftermarket business may be impacted by fluctuations in end-market demand, early aircraft retirements, inventory management and changes in customer sourcing, deferred or limited maintenance activity during engine shop visits and the use of surplus (used) material during the engine repair and overhaul process. End markets are expected to grow based on the long term underlying fundamentals of the aerospace industry. Management continues to believe its Aerospace aftermarket business is competitively positioned based on well-established long-term customer relationships, including maintenance and repair contracts in the MRO business and long-term Revenue Sharing Programs ("RSPs") and Component Repair Programs ("CRPs"),

expanded capabilities and current capacity levels. The MRO business may be potentially impacted by airlines that closely manage their aftermarket costs as engine performance and quality improves. Fluctuations in fuel costs and their impact on airline profitability and behaviors within the aerospace industry could also impact levels and frequency of aircraft maintenance and overhaul activities, and airlines' decisions on maintaining, deferring or canceling new aircraft purchases, in part based on the economics associated with new fuel efficient technologies.

Management is focused on growing operating profit at Aerospace primarily through leveraging organic sales growth, strategic investments, new product and process introductions, and productivity. Operating profit is expected to be affected by the impact of changes in sales volume, mix and pricing, particularly as they relate to the highly profitable aftermarket RSP spare parts business, and investments made in each of its businesses. Operating profits may also be impacted by potential changes in tariffs, trade agreements and trade policies that may affect the cost and/or availability of goods. Costs associated with new product and process introductions, the physical transfer of work to other global regions, additional productivity initiatives and restructuring activities may also negatively impact operating profit.

LIQUIDITY AND CAPITAL RESOURCES

Management assesses the Company's liquidity in terms of its overall ability to generate cash to fund its operating and investing activities. Of particular importance in the management of liquidity are cash flows generated from operating activities, capital expenditure levels, dividends, capital stock transactions, effective utilization of surplus cash positions overseas and adequate lines of credit.

The Company believes that its ability to generate cash from operations in excess of its internal operating needs is one of its financial strengths. Management continues to focus on cash flow and working capital management, and anticipates that operating activities in 2018 will generate sufficient cash to fund operations. The Company closely monitors its cash generation, usage and preservation including the management of working capital to generate cash.

In February 2017, the Company and certain of its subsidiaries entered into the fourth amendment of its fifth amended and restated revolving credit agreement (the “Amended Credit Agreement”) and retained Bank of America, N.A. as the Administrative Agent for the lenders. The Amended Credit Agreement increases the facility from $750.0 million to $850.0 million and extends the maturity date from September 2018 to February 2022. The Amended Credit Agreement also increases the existing accordion feature from $250.0 million, allowing the Company to now request additional borrowings of up to $350.0 million. The Company may exercise the accordion feature upon request to the Administrative Agent as long as an event of default has not occurred or is not continuing. The borrowing availability of $850.0 million, pursuant to the terms of the Amended Credit Agreement, allows for multi-currency borrowing which includes euro, British pound sterling or Swiss franc borrowing, up to $600.0 million. Depending on the Company’s consolidated leverage ratio, and at the election of the Company, borrowings under the Amended Credit Agreement will bear interest at either LIBOR plus a margin of between 1.10% and 1.70% or the base rate, as defined in the Amended Credit Agreement, plus a margin of 0.10% to 0.70%.

In October 2014, the Company entered into a Note Purchase Agreement (“Note Purchase Agreement”), among the Company and New York Life Insurance Company, New York Life Insurance and Annuity Corporation and New York Life Insurance and Annuity Corporation Institutionally Owned Life Insurance Separate Account, as purchasers, for the issuance of $100.0 million aggregate principal amount of 3.97% senior notes due October 17, 2024 (the “3.97% Senior Notes”). The 3.97% Senior Notes are senior unsecured obligations of the Company and pays interest semi-annually on April 17 and October 17 of each year at an annual rate of 3.97%. The 3.97% Senior Notes will mature on October 17, 2024 unless earlier prepaid in accordance with their terms. Subject to certain conditions, the Company may, at its option, prepay all or any part of the 3.97% Senior Notes in an amount equal to 100% of the principal amount of the 3.97% Senior Notes so prepaid, plus any accrued and unpaid interest to the date of prepayment, plus the Make-Whole

Amount, as defined in the Note Purchase Agreement, with respect to such principal amount being prepaid. The Note Purchase Agreement contains customary affirmative and negative covenants that are similar to the covenants required under the Amended Credit Agreement, as discussed below. At March 31, 2018, the Company was in compliance with all covenants under the Note Purchase Agreement.

The Company's borrowing capacity remains limited by various debt covenants in the Amended Credit Agreement and the Note Purchase Agreement (the "Agreements"). The Agreements require the Company to maintain a ratio of Consolidated Senior Debt, as defined, to Consolidated EBITDA, as defined, of not more than 3.25 times ("Senior Debt Ratio"), a ratio of Consolidated Total Debt, as defined, to Consolidated EBITDA of not more than 3.75 times and a ratio of Consolidated EBITDA to Consolidated Cash Interest Expense, as defined, of not less than 4.25, in each case at the end of each fiscal quarter; provided that the debt to EBITDA ratios are permitted to increase for a period of four fiscal quarters after the closing of certain permitted acquisitions. At March 31, 2018, the Company was in compliance with all covenants under the Agreements. The Company's most restrictive financial covenant is the Senior Debt Ratio which requires the Company to maintain a ratio of

Consolidated Senior Debt to Consolidated EBITDA of not more than 3.25 times at March 31, 2018. The actual ratio at March 31, 2018 was 1.66 times.

During the first three months of 2018, the Company repurchased 0.5 million shares of the Company's stock at a cost of $33.5 million.

Operating cash flow may be supplemented with external borrowings to meet near-term business expansion needs and the Company's current financial commitments. The Company has assessed its credit facilities in conjunction with the Amended Credit Facility and currently expects that its bank syndicate, comprised of 14 banks, will continue to support its Amended Credit Agreement which matures in February 2022. At March 31, 2018, the Company had $452.5 million unused and available for borrowings under its $850.0 million Amended Credit Facility, subject to covenants in the Company's revolving debt agreements. At March 31, 2018, additional borrowings of $656.1 million of Total Debt and $499.1 million of Senior Debt, would have been allowed under the financial covenants. The Company intends to use borrowings under its Amended Credit Facility to support the Company's ongoing growth initiatives. The Company believes its credit facilities and access to capital markets, coupled with cash generated from operations, are adequate for its anticipated future requirements.

The Company had $14.6 million in borrowings under short-term bank credit lines at March 31, 2018.

In 2012, the Company entered into five-year interest rate swap agreements (the "Swaps") transacted with three banks which together convert the interest on the first $100.0 million of the Company's one-month LIBOR-based borrowings from a variable rate plus the borrowing spread to a fixed rate of 1.03% plus the borrowing spread, for the purpose of mitigating its exposure to variable interest rates. The swaps expired on April 28, 2017. The Company entered into a new interest rate swap agreement (the "Swap") that commenced on April 28, 2017, with one bank, and converts the interest on the first $100.0 million of the Company's one-month LIBOR-based borrowings from a variable rate plus the borrowing spread to a fixed rate of 1.92% plus the borrowing spread. The swap expires on January 31, 2022. At March 31, 2018, the Company's total borrowings were comprised of approximately 40% fixed rate debt and 60% variable rate debt. At December 31, 2017, the Company's total borrowings were comprised of approximately 39% fixed rate debt and 61% variable rate debt.

At March 31, 2018, the Company held $104.7 million in cash and cash equivalents, the majority of which was held by foreign subsidiaries. These amounts have no material regulatory or contractual restrictions. The Act has changed the impact of U.S. taxation on foreign distributions. The Company is continuing its evaluation regarding the potential repatriation of overseas cash. The Company has determined that foreign earnings for the period beginning January 1, 2018 will be indefinitely reinvested. Accordingly, a deferred tax liability has not been recorded for the excess of the tax basis over the financial statement (book) basis arising since January 1, 2018. For the period ended December 31, 2017, the Company recorded a deferred tax liability of $6.9 million on the portion of earnings it expects to repatriate. The Company continues to analyze its position in regards to the excess of the tax basis over the financial statement (book) basis arising for the period prior to January 1, 2018 and as such, the entry made effective December 31, 2017 remains provisional.

The Company currently expects to contribute approximately $4.6 million to certain of its defined benefit pension plans in 2018. No contributions to the U.S Qualified pension plans, specifically, are required, and the Company does not currently plan to make any discretionary contributions to such plans in 2018.

Any future acquisitions are expected to be financed through internal cash, borrowings and equity, or a combination thereof. Additionally, we may from time to time seek to retire or repurchase our outstanding debt through cash purchases and/or exchanges for equity securities, in open market purchases, under a Rule 10b5-1 trading plan, privately negotiated transactions or otherwise. Such repurchases or exchanges, if any, will depend on prevailing

market conditions, our liquidity requirements, contractual restrictions and other factors.

Cash Flow

	Three months ended March 31,		
(in millions)	2018	2017	Change
Operating activities	$30.5	$51.8	$(21.4)
Investing activities	(11.7)	(11.6)	(0.1)
Financing activities	(62.5)	(20.1)	(42.4)
Exchange rate effect	3.1	1.7	1.4
(Decrease) Increase in cash	$(40.6)	$21.8	$(62.4)

Operating activities provided $30.5 million in the first three months of 2018 compared to $51.8 million in the first three months of 2017. Operating cash flows in the 2018 period included cash used for working capital of $36.3 million, as compared with a use of $14.5 million during the 2017 period. The changes to working capital in the 2018 period include a use of $11.0 million related to additional rights to payment and customer advances that were recorded pursuant to the amended revenue recognition guidance (included within accounts receivable). Cash from operating activities during the 2017 period includes cash received from a prior contract termination arbitration award. Accrued liabilities within the 2018 period include a corresponding $11.0 million increase related to the customer advances above, offset by an $11.8 million increase in cash outflows for accrued liabilities related to employee incentive compensation payments.

Investing activities used $11.7 million and $11.6 million in the first three months of 2018 and 2017, respectively. Investing activities in the 2018 period include capital expenditures of $11.2 million compared to $11.7 million in the 2017 period. The Company expects capital spending in 2018 to approximate $60 million.

Financing activities in the first three months of 2018 included a net decrease in borrowings of $15.2 million compared to a decrease of $2.2 million in the comparable 2017 period. During the first three months of 2018 and 2017, the Company repurchased 0.5 million shares and 0.1 million shares, respectively, of the Company's stock at a cost of $33.5 million and $5.4 million, respectively. Total cash used to pay dividends increased to $7.5 million in the 2018 period from $7.0 million in the 2017 period. Other financing cash flows during the first three months of 2018 and 2017 include $6.5 million and $3.2 million, respectively, of net cash payments resulting from the settlement of foreign currency hedges related to intercompany financing. Cash used for financing activities in the 2017 period also includes $2.5 million of deferred financing fees paid in connection with the Amended Credit Agreement.

The Company maintains borrowing facilities with banks to supplement internal cash generation. At March 31, 2018, $397.6 million was borrowed at an average interest rate of 2.96% under the Company's $850.0 million Amended Credit Facility which matures in February 2022. In addition, as of March 31, 2018, the Company had $14.6 million in borrowings under short-term bank credit lines. At March 31, 2018, the Company's total borrowings were comprised of 40% fixed rate debt and 60% variable rate debt. The interest payments on $100.0 million of the variable rate interest debt have been converted into payment of fixed interest plus the borrowing spread under the terms of the respective interest rate swap that was executed in April 2017.

Debt Covenants

As noted above, borrowing capacity is limited by various debt covenants in the Company's debt agreements. Following is a reconciliation of Consolidated EBITDA, a key metric in the debt covenants, to the Company's net income (in millions):

	Four fiscal quarters ended March 31, 2018
Net income	$ 59.9
Add back:	
Interest expense	15.1
Income taxes	134.4
Depreciation and amortization	92.5
Adjustment for non-cash stock based compensation	11.9
Other adjustments	0.1
Consolidated EBITDA, as defined	$ 313.9
Consolidated Senior Debt, as defined, as of March 31, 2018	$ 521.1
Ratio of Consolidated Senior Debt to Consolidated EBITDA	1.66
Maximum	3.25
Consolidated Total Debt, as defined, as of March 31, 2018	$ 521.1
Ratio of Consolidated Total Debt to Consolidated EBITDA	1.66
Maximum	3.75
Consolidated Cash Interest Expense, as defined, as of March 31, 2018	$ 15.1
Ratio of Consolidated EBITDA to Consolidated Cash Interest Expense	20.77
Minimum	4.25

The Amended Credit Agreement allows for certain adjustments within the calculation of the financial covenants. Other adjustments include net gains on the sale of assets, due diligence and transaction expenses and changes in accounting as permitted under the Amended Credit Agreement. The Company's financial covenants are measured as of the end of each fiscal quarter. At March 31, 2018, additional borrowings of $656.1 million of Total Debt and $499.1 million of Senior Debt would have been allowed under the covenants. Senior Debt includes primarily the borrowings under the Amended Credit Facility, the 3.97% Senior Notes and the borrowings under the lines of credit. The Company's unused committed credit facilities at March 31, 2018 were $452.5 million. As noted above, the Company is continuing to analyze the impacts of the Act, however we currently do not believe that any changes proposed by the Act will impact compliance with our debt covenants.

OTHER MATTERS

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant accounting policies are disclosed in Note 1 of the Consolidated Financial Statements in the Company's Annual Report on Form 10-K for the year ended December 31, 2017. The most significant areas involving management judgments and estimates are described in Management's Discussion and Analysis of Financial Condition and Results of Operations in the Company's Annual Report on Form 10-K for the year ended December 31, 2017. Actual results could differ from those estimates. There have been no material changes to such judgments and estimates, except for certain items related to the amended revenue recognition guidance. See Note 3 of the Consolidated Financial Statements.

EBITDA

EBITDA for the first quarter of 2018 was $78.5 million compared to $77.1 million in the first quarter of 2017. EBITDA is a measurement not in accordance with accounting principles generally accepted in the United States of America (“GAAP”). The Company defines EBITDA as net income plus interest expense, income taxes and depreciation and amortization which the Company incurs in the normal course of business. The Company does not intend EBITDA to represent cash flows from operations as defined by GAAP, and the reader should not consider it as an alternative to net income, net cash provided by operating activities or any other items calculated in accordance with GAAP, or as an indicator of the Company's operating performance. The Company's definition of EBITDA may not be comparable with EBITDA as defined by other companies. Accordingly, the measurement has limitations depending on its use. The Company believes EBITDA is commonly used by financial analysts and others in the industries in which the Company operates and, thus, provides useful information to investors.

Following is a reconciliation of EBITDA to the Company's net income (in millions):

	Three months ended March 31,	
	2018	2017
Net income	$38.8	$38.3
Add back:		
Interest expense	3.9	3.3
Income taxes	12.2	14.1
Depreciation and amortization	23.7	21.4
EBITDA	$78.5	$77.1

FORWARD-LOOKING STATEMENTS

Certain of the statements in this quarterly report contain forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995. Forward-looking statements often address our expected future operating and financial performance and financial condition, and often contain words such as "anticipate," "believe," "expect," "plan," "estimate," "project," and similar terms. These forward-looking statements do not constitute guarantees of future performance and are subject to a variety of risks and uncertainties that may cause actual results to differ materially from those expressed in the forward-looking statements. These include, among others: difficulty maintaining relationships with employees, including unionized employees, customers, distributors, suppliers, business partners or governmental entities; failure to successfully negotiate collective bargaining agreements or potential strikes, work stoppages or other similar events; difficulties leveraging market opportunities; changes in market demand for our products and services; rapid technological and market change; the ability to protect intellectual property rights; introduction or development of new products or transfer of work; higher risks in global operations and markets; the impact of intense competition; acts of terrorism, cybersecurity attacks or intrusions that could adversely impact our businesses; uncertainties relating to conditions in financial markets; currency fluctuations and foreign currency exposure; future financial performance of the industries or customers that we serve; our dependence upon revenues and earnings from a small number of significant customers; a major loss of customers; inability to realize expected sales or profits from existing backlog due to a range of factors, including changes in customer sourcing decisions, material changes, production schedules and volumes of specific programs; the impact of government budget and funding decisions; the impact of new or revised tax laws and regulations; changes in raw material or product prices and availability; integration of acquired businesses; restructuring costs or savings; the continuing impact of prior acquisitions and divestitures; and any other future strategic actions, including acquisitions, divestitures, restructurings, or strategic business realignments, and our ability to achieve the financial and operational targets set in connection with any such actions; the outcome of pending and future legal, governmental, or regulatory proceedings and contingencies and uninsured claims; product liabilities; future repurchases of common stock; future levels of indebtedness; and numerous other matters of a global, regional or national scale, including those of a political, economic, business, competitive, environmental, regulatory and public health nature; government tariffs, trade agreements and trade policies; and other risks and uncertainties described in documents filed with or furnished to the Securities and Exchange Commission ("SEC") by the Company, including, among others, those in the Management's Discussion and Analysis of Financial Condition and Results of Operations and Risk Factors sections of the Company's filings. The Company assumes no obligation to update its forward-looking statements.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

For discussion of the Company’s exposure to market risk, refer to the Company’s Annual Report on Form 10-K for the year ended December 31, 2017.

Item 4. Controls and Procedures

Management, including the Company's President and Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures as of the end of the period covered by this report. Based upon, and as of the date of, our evaluation, the President and Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures were effective, in all material respects and designed to provide reasonable assurance that information required to be disclosed in the reports the Company files and submits under the Securities Exchange Act of 1934, as amended, is (i) recorded, processed, summarized and reported as and when required and (ii) is accumulated and communicated to the Company's management, including our President and Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control Over Financial Reporting

The Company has adopted ASC 606, Revenue from Contracts with Customers, effective January 1, 2018. See Notes 2 and 3 of the Consolidated Financial Statements. While the adoption of the amended guidance was not material to the Consolidated Statements of Income, the future impact of the amended guidance is dependent on the mix and nature of specific customer contracts. We have implemented certain changes to our internal controls over financial reporting to support the recognition and disclosure requirements under the amended guidance, including changes to our accounting policies and internal control procedures.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

We are subject to litigation from time to time in the ordinary course of business and various other suits, proceedings and claims are pending against us and our subsidiaries. While it is not possible to determine the ultimate disposition of each of these proceedings and whether they will be resolved consistent with our beliefs, we expect that the outcome of these proceedings, individually or in the aggregate, will not have a material adverse effect on our consolidated financial position, cash flows or results of operations.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

(c) Issuer Purchases of Equity Securities

Period	(a) Total Number of Shares (or Units) Purchased		(b) Average Price Paid Per Share (or Unit)	(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs[2]
January 1-31, 2018	156,349		$ 65.79	156,000	3,615,906
February 1-28, 2018	100,624		$ 63.56	100,000	3,515,906
March 1-31, 2018	277,076		$ 61.10	277,000	3,238,906
Total	534,049	[1]	$ 62.93	533,000	

(1) Other than 533,000 shares purchased in the first quarter of 2018, which were purchased as part of the Company's 2011 Program (defined below), all acquisitions of equity securities during the first quarter of 2018 were the result of the operation of the terms of the Company's stockholder-approved equity compensation plans and the terms of the equity rights granted pursuant to those plans to pay for the related income tax upon issuance of shares. The purchase price of a share of stock used for tax withholding is the market price on the date of issuance.

(2) The program was publicly announced on October 20, 2011 (the "2011 Program") authorizing repurchase of up to 5.0 million shares of common stock. At December 31, 2015, 1.1 million shares of common stock had not been purchased under the 2011 Program. On February 10, 2016, the Board of Directors of the Company increased the number of shares authorized for repurchase under the 2011 Program by 3.9 million shares of common stock (5.0 million authorized, in total). The 2011 Program permits open market purchases, purchases under a Rule 10b5-1 trading plan and privately negotiated transactions.

Item 6. Exhibits

Exhibit 15	Letter regarding unaudited interim financial information.
Exhibit 31.1	Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
Exhibit 31.2	Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
Exhibit 32	Certification pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
Exhibit 101.INS	XBRL Instance Document.
Exhibit 101.SCH	XBRL Taxonomy Extension Schema Document.
Exhibit 101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
Exhibit 101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
Exhibit 101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
Exhibit 101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Barnes Group Inc.
(Registrant)

Date: April 27, 2018 /s/ CHRISTOPHER J. STEPHENS, JR.
Christopher J. Stephens, Jr.
Senior Vice President, Finance
Chief Financial Officer
(Principal Financial Officer)

Date: April 27, 2018 /s/ MARIAN ACKER
Marian Acker
Vice President, Controller
(Principal Accounting Officer)

EXHIBIT INDEX
Barnes Group Inc.
Quarterly Report on Form 10-Q
For the Quarter ended March 31, 2018

Exhibit No.	Description	Reference
15	Letter regarding unaudited interim financial information.	Filed with this report.
31.1	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed with this report.
31.2	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed with this report.
32	Certification pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	Furnished with this report.
Exhibit 101.INS	XBRL Instance Document.	Filed with this report.
Exhibit 101.SCH	XBRL Taxonomy Extension Schema Document.	Filed with this report.
Exhibit 101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.	Filed with this report.
Exhibit 101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.	Filed with this report.
Exhibit 101.LAB	XBRL Taxonomy Extension Label Linkbase Document.	Filed with this report.
Exhibit 101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.	Filed with this report.