

BARNES GROUP INC
Form 10-K
February 24, 2016
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT
OF 1934

For the fiscal year ended December 31, 2015

.. 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 (State of incorporation) 06-0247840 (I.R.S. Employer Identification No.)
123 Main Street, Bristol, Connecticut 06010
(Address of Principal Executive Office) (Zip Code)

(860) 583-7070
Registrant's telephone number, including area code
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, \$0.01 Par Value	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes x No ..

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes .. No x

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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ..

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

Large accelerated filer x Accelerated filer o
Non-accelerated filer o Smaller reporting company o

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

The aggregate market value of the voting stock (Common Stock) held by non-affiliates of the registrant as of the close of business on June 30, 2015 was approximately \$2,009,804,702 based on the closing price of the Common Stock on the New York Stock Exchange on that date. The registrant does not have any non-voting common equity.

The registrant had outstanding 53,900,397 shares of common stock as of February 18, 2016.

Documents Incorporated by Reference

Portions of the registrant's definitive proxy statement to be delivered to stockholders in connection with the Annual Meeting of Stockholders to be held May 6, 2016 are incorporated by reference into Part III.

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FORWARD-LOOKING STATEMENTS

This Annual Report may 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 international 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

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volumes of specific programs; the impact of government budget and funding decisions; 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; 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; and other risks and uncertainties described in this Annual Report. The Company assumes no obligation to update its forward-looking statements.

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PART I

Item 1. Business

BARNES GROUP INC. ⁽¹⁾

Founded in 1857, Barnes Group Inc. (the "Company") is an international industrial and aerospace manufacturer and service provider, serving a wide range of end markets and customers. The highly engineered products, differentiated industrial technologies, and innovative solutions delivered by Barnes Group are used in far-reaching applications that provide transportation, manufacturing, healthcare products, and technology to the world. Barnes Group's approximately 4,700 skilled and dedicated employees around the globe are committed to achieving consistent and sustainable profitable growth.

Structure

The Company operates under two global business segments: Industrial and Aerospace. The Industrial segment includes the the Molding Solutions, Engineered Components and Nitrogen Gas Products business units. The Aerospace segment includes the original equipment manufacturer ("OEM") business and the aftermarket business, which includes maintenance overhaul and repair ("MRO") services and the manufacture and delivery of aerospace aftermarket spare parts.

In the fourth quarter of 2015, the Company completed the acquisition of privately held Priamus System Technologies AG and two of its subsidiaries (collectively, "Priamus") from Growth Finance AG. Priamus, which has approximately 40 employees, is headquartered in Schaffhausen, Switzerland and has direct sales and service offices in the U.S. and Germany. Priamus is a technology leader in the development of advanced process control systems for the plastic injection molding industry and services many of the world's highest quality plastic injection molders in the medical, automotive, consumer goods, electronics and packaging markets. Priamus is being integrated into the Industrial Segment, within our Molding Solutions business unit. See Note 2 of the Consolidated Financial Statements.

In the third quarter of 2015, the Company completed the acquisition of the Thermoplay business ("Thermoplay") by acquiring all of the capital stock of privately held HPE S.p.A., the parent company through which Thermoplay operates. Thermoplay's headquarters and manufacturing facility are located in Pont-Saint-Martin in Aosta, Italy, with technical service capabilities in China, India, France, Germany, United Kingdom, Portugal, and Brazil. Thermoplay specializes in the design, development, and manufacturing of hot runner systems for plastic injection molding, primarily in the packaging, automotive, and medical end markets. Thermoplay is being integrated into the Industrial Segment, within our Molding Solutions business unit. See Note 2 of the Consolidated Financial Statements.

In the fourth quarter of 2013, the Company and two of its subsidiaries (collectively with the Company, the "Purchaser") completed the acquisition of Otto Männer GmbH (the "Männer Business"). The Männer Business serves as a leader in the development and manufacture of high precision and high cavitation molds, valve gate hot runner systems, and system solutions for the medical/ pharmaceutical, packaging, and personal care/health care industries. The Männer Business includes manufacturing locations in Germany, Switzerland and the United States, and sales and service offices in Europe, the United States, Hong Kong/China and Japan. See Note 2 of the Consolidated Financial Statements.

INDUSTRIAL

Industrial is a global manufacturer of highly-engineered, high-quality precision parts, 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 plastic injection molding applications. 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 retaining

(1) As used in this annual report, "Company," "Barnes Group," "we" and "ours" refer to the registrant and its consolidated subsidiaries except where the context requires otherwise, and "Industrial" and "Aerospace" refer to the registrant's segments, not to separate corporate entities

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rings. Engineered Components is equipped to produce virtually every type of highly engineered precision spring, from fine hairsprings for electronics and instruments to large heavy-duty springs for machinery. Industrial's Nitrogen Gas Products business manufactures nitrogen gas springs and manifold systems used to precisely control stamping presses. Industrial competes with a broad base of large and small companies engaged in the manufacture and sale of engineered products, precision molds, hot runner systems and precision components. Industrial competes on the basis of quality, service, reliability of supply, engineering and technical capability, geographic reach, product breadth, innovation, design, and price. Industrial has manufacturing, distribution and assembly operations in the United States, Brazil, China, Germany, Italy, Mexico, Singapore, Sweden and Switzerland. Industrial also has sales and service operations in the United States, Brazil, Canada, China/Hong Kong, France, Germany, India, Italy, Japan, Mexico, the Netherlands, Portugal, Singapore, Slovakia, South Korea, Spain, Switzerland, Thailand and the United Kingdom. Sales by Industrial to its three largest customers accounted for approximately 10% of its sales in 2015.

AEROSPACE

Aerospace is a global provider of complex fabricated and precision machined components and assemblies for original equipment manufacturer ("OEM") turbine engine, airframe and industrial gas turbine builders, and the military. The Aerospace aftermarket business provides jet engine component maintenance overhaul and repair ("MRO") services, including services performed under our Component Repair Programs ("CRPs"), for many of the world's major turbine engine manufacturers, commercial airlines and the military. The Aerospace aftermarket activities also include the manufacture and delivery of aerospace aftermarket spare parts, including the 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 programs.

Aerospace's OEM business supplements the leading jet engine OEM capabilities and competes with a large number of fabrication and machining companies. Competition is based mainly on quality, engineering and technical capability, product breadth, new product introduction, timeliness, service and price. Aerospace's fabrication and machining operations, with facilities in Arizona, Connecticut, Michigan, Ohio, Utah and Singapore, produce critical engine and airframe components through technically advanced manufacturing processes.

The Aerospace aftermarket business supplements jet engine OEMs' maintenance, repair and overhaul capabilities, and competes with the service centers of major commercial airlines and other independent service companies for the repair and overhaul of turbine engine components. The manufacture and supply of aerospace aftermarket spare parts, including those related to the RSPs, are dependent upon the reliable and timely delivery of high-quality components.

Aerospace's aftermarket facilities, located in Connecticut, Ohio and Singapore, specialize in the repair and refurbishment of highly engineered components and assemblies such as cases, rotating life limited parts, rotating air seals, turbine shrouds, vanes and honeycomb air seals. Sales by Aerospace to its two largest customers, General Electric and Roll-Royce, accounted for approximately 51% and 11% of its sales in 2015, respectively. Sales to its next two largest customers in 2015 collectively accounted for approximately 13% of its total sales.

FINANCIAL INFORMATION

The backlog of the Company's orders believed to be firm at the end of 2015 was \$764 million as compared with \$729 million at the end of 2014. Of the 2015 year-end backlog, \$571 million was attributable to Aerospace and \$193 million was attributable to Industrial. Approximately 52% of the Company's year-end backlog is scheduled to be shipped during 2016. The remainder of the Company's backlog is scheduled to be shipped after 2016.

We have a global manufacturing footprint and a technical service network to service our worldwide customer base. The global economies have a significant impact on the financial results of the business as we have significant operations outside of the United States. For an analysis of our revenue from sales to external customers, operating profit and assets by business segment, as well as revenues from sales to external customers and long-lived assets by geographic area, see Note 20 of the Consolidated Financial Statements. For a discussion of risks attendant to the

global nature of our operations and assets, see Item 1A. Risk Factors.

RAW MATERIALS

The principal raw materials used to manufacture our products are various grades and forms of steel, from rolled steel bars, plates and sheets, to high-grade valve steel wires and sheets, various grades and forms (bars, sheets, forgings, castings and powders) of stainless steels, aluminum alloys, titanium alloys, copper alloys, graphite, and iron-based, nickel-based (Inconels) and cobalt-based (Hastelloys) superalloys for complex aerospace applications. Prices for steel, titanium, Inconel, Hastelloys, as

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well as other specialty materials, have periodically increased due to higher demand and, in some cases, reduction of the availability of materials. If this occurs, the availability of certain raw materials used by us or in products sold by us may be negatively impacted.

RESEARCH AND DEVELOPMENT

We conduct research and development activities in our effort to provide a continuous flow of innovative new products, processes and services to our customers. We also focus on continuing efforts aimed at discovering and implementing new knowledge that significantly improves existing products and services, and developing new applications for existing products and services. Our product development strategy is driven by product design teams and collaboration with our customers, particularly within Industrial's Molding Solutions businesses, as well as within our Aerospace and our other Industrial businesses. Many of the products manufactured by us are custom parts made to customers' specifications. Investments in research and development are important to our long-term growth, enabling us to stay ahead of changing customer and marketplace needs. We spent approximately \$13 million, \$16 million and \$15 million in 2015, 2014 and 2013, respectively, on research and development activities.

PATENTS AND TRADEMARKS

Patents and other proprietary rights are critical to certain of our business units, however the Company also holds certain trade secrets and unpatented know-how. We are party to certain licenses of intellectual property and hold numerous patents, trademarks, and trade names that enhance our competitive position. The Company does not believe, however, that any of these licenses, patents, trademarks or trade names is individually significant to the Company or either of our segments. We maintain procedures to protect our intellectual property (including patents and trademarks) both domestically and internationally. Risk factors associated with our intellectual property are discussed in Item 1A. Risk Factors.

EXECUTIVE OFFICERS OF THE COMPANY

For information regarding the Executive Officers of the Company, see Part III, Item 10 of this Annual Report.

ENVIRONMENTAL

Compliance with federal, state, and local laws, as well as those of other countries, which have been enacted or adopted regulating the discharge of materials into the environment or otherwise relating to the protection of the environment has not had a material effect, and is not expected to have a material effect, upon our capital expenditures, earnings, or competitive position.

AVAILABLE INFORMATION

Our Internet address is www.BGInc.com. Our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports are available without charge on our website as soon as reasonably practicable after they are filed with, or furnished to, the U.S. Securities and Exchange Commission ("SEC"). In addition, we have posted on our website, and will make available in print to any stockholder who makes a request, our Corporate Governance Guidelines, our Code of Business Ethics and Conduct, and the charters of the Audit Committee, Compensation and Management Development Committee and Corporate Governance Committee (the responsibilities of which include serving as the nominating committee) of the Company's Board of Directors. References to our website addressed in this Annual Report are provided as a convenience and do not constitute, and should not be viewed as, an incorporation by reference of the information contained on, or available through, the website. Therefore, such information should not be considered part of this Annual Report.

Item 1A. Risk Factors

Our business, financial condition or results of operations could be materially adversely affected by any of the following risks. Please note that additional risks not presently known to us may also materially impact our business and operations.

RISKS RELATED TO OUR BUSINESS

We depend on revenues and earnings from a small number of significant customers. Any bankruptcy of or loss of or, cancellation, reduction or delay in purchases by these customers could harm our business. In 2015, our net sales to General Electric and its subsidiaries accounted for 18% of our total sales and approximately 51% of Aerospace's net sales. Aerospace's second largest customer, Rolls-Royce, accounted for 11% of total Aerospace net sales in 2015. Approximately 13%

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of Aerospace's sales in 2015 were to its next two largest customers. Approximately 10% of Industrial's sales in 2015 were to its three largest customers. Some of our success will depend on the business strength and viability of those customers. We cannot assure you that we will be able to retain our largest customers. Some of our customers may in the future reduce their purchases due to economic conditions or shift their purchases from us to our competitors, in-house or to other sources. Some of our long-term sales agreements provide that until a firm order is placed by a customer for a particular product, the customer may unilaterally reduce or discontinue its projected purchases without penalty, or terminate for convenience. The loss of one or more of our largest customers, any reduction, cancellation or delay in sales to these customers (including a reduction in aftermarket volume in our RSPs), our inability to successfully develop relationships with new customers, or future price concessions we make to retain customers could significantly reduce our sales and profitability.

The global nature of our business exposes us to foreign currency fluctuations that may affect our future revenues, debt levels and profitability. We have manufacturing facilities and technical service, sales and distribution centers around the world, and the majority of our foreign operations use the local currency as their functional currency. These include, among others, the Brazilian real, British pound sterling, Canadian dollar, Chinese renminbi, Euro, Japanese yen, Korean won, Mexican peso, Singapore dollar, Swedish krona, Swiss franc and Thai baht. Since our financial statements are denominated in U.S. dollars, changes in currency exchange rates between the U.S. dollar and other currencies expose us to translation risk when the local currency financial statements are translated to U.S. dollars. Changes in currency exchange rates may also expose us to transaction risk. We may buy hedges in certain currencies to reduce or offset our exposure to currency exchange fluctuations; however, these transactions may not be adequate or effective to protect us from the exposure for which they are purchased. We have not engaged in any speculative hedging activities. Currency fluctuations may adversely impact our revenues and profitability in the future.

Our operations depend on our manufacturing, sales, and service facilities and information systems in various parts of the world which are subject to physical, financial, regulatory, environmental, operational and other risks that could disrupt our operations. We have a significant number of manufacturing facilities and technical service, and sales centers both within and outside the U.S. The international scope of our business subjects us to increased risks and uncertainties such as threats of war, terrorism and instability of governments; and economic, regulatory and legal systems in countries in which we or our customers conduct business.

Some of our facilities are located in areas that may be affected by natural disasters, including earthquakes or tsunamis, which could cause significant damage and disruption to the operations of those facilities and, in turn, could have a material adverse effect on our business, financial condition, results of operations and cash flows. Additionally, some of our manufacturing equipment and tooling is custom-made and is not readily replaceable. Loss of such equipment or tooling could have a negative impact on our manufacturing business, financial condition, results of operations and cash flows.

Although we have obtained property damage and business interruption insurance, a major catastrophe such as an earthquake, hurricane, flood, tsunami or other natural disaster at any of our sites, or significant labor strikes, work stoppages, political unrest, or any of the events described above, in any of the areas where we conduct operations could result in a prolonged interruption of our business. Any disruption resulting from these events could cause significant delays in the manufacture or shipment of products or the provision of repair and other services that may result in our loss of sales and customers. Our insurance will not cover all potential risks, and we cannot assure you that we will have adequate insurance to compensate us for all losses that result from any insured risks. Any material loss not covered by insurance could have a material adverse effect on our financial condition, results of operations and cash flows. We cannot assure you that insurance will be available in the future at a cost acceptable to us or at a cost that will not have a material adverse effect on our profitability, net income and cash flows.

The global nature of our operations and assets subject us to additional financial and regulatory risks. We have operations and assets in various parts of the world. In addition, we sell or may in the future sell our products and services to the U.S. and foreign governments and in foreign countries. As a global business, we are subject to complex laws and regulations in the U.S. and other countries in which we operate, and associated risks, including: U.S. imposed embargoes of sales to specific countries; foreign import controls (which may be arbitrarily imposed or enforced); import regulations and duties; export regulations (which require us to comply with stringent licensing regimes); reporting requirements regarding the use of "conflict" minerals mined from certain countries; anti-dumping regulations; price and currency controls; exchange rate fluctuations; dividend remittance restrictions; expropriation of assets; war, civil uprisings and riots; government instability; government contracting requirements including cost accounting standards, including various procurement, security, and audit requirements, as well as requirements to certify to the government compliance with these requirements; the necessity of obtaining governmental approval for new and continuing products and operations; and legal systems or decrees, laws, taxes, regulations, interpretations and court decisions that are not always fully developed and that may be retroactively or arbitrarily applied. We have experienced inadvertent violations of some of these regulations, including export regulations, safety and

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environmental regulations, regulations prohibiting sales of certain products and product labeling regulations, in the past, none of which has had or, we believe, will have a material adverse effect on our business. However, any significant violations of these or other regulations in the future could result in civil or criminal sanctions, and the loss of export or other licenses which could have a material adverse effect on our business. We are subject to federal and state unclaimed property laws in the ordinary course of business, and are currently undergoing a multi-state unclaimed property audit, the timing and outcome of which cannot be predicted, and we may incur significant professional fees in conjunction with the audit. We may also be subject to unanticipated income taxes, excise duties, import taxes, export taxes, value added taxes, or other governmental assessments, and taxes may be impacted by changes in legislation in the tax jurisdictions in which we operate. In addition, our organizational and capital structure may limit our ability to transfer funds between countries, particularly into the U.S., without incurring adverse tax consequences. Any of these events could result in a loss of business or other unexpected costs that could reduce sales or profits and have a material adverse effect on our financial condition, results of operations and cash flows.

Any disruption or failure in the operation of our information systems, including from conversions or integrations of information technology or reporting systems, could have a material adverse effect on our business, financial condition, results of operations and cash flows. Our information technology (IT) systems are an integral part of our business. We depend upon our IT systems to help process orders, manage inventory and collect accounts receivable. Our IT systems also allow us to purchase, sell and ship products efficiently and on a timely basis, to maintain cost-effective operations, and to help provide superior service to our customers. We are currently in the process of implementing enterprise resource planning (ERP) platforms across certain of our businesses, and we expect that we will need to continue to improve and further integrate our IT systems, on an ongoing basis in order to effectively run our business. If we fail to successfully manage and integrate our IT systems, including these ERP platforms, it could adversely affect our business or operating results.

Further, in the ordinary course of our business, we store sensitive data, including intellectual property, our proprietary business information and that of our customers, suppliers and business partners, and personally identifiable information of our employees, in our data centers and on our networks. The secure maintenance and transmission of this information is critical to our business operations. Despite our security measures, our information technology and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, malfeasance or other disruptions. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, and regulatory penalties, disrupt our operations, and damage our reputation, which could adversely affect our business, revenues and competitive position.

We have significant indebtedness that could affect our operations and financial condition, and our failure to meet certain financial covenants required by our debt agreements may materially and adversely affect our assets, financial position and cash flows. At December 31, 2015, we had consolidated debt obligations of \$509.9 million, representing approximately 31% of our total capital (indebtedness plus stockholders' equity) as of that date. Our level of indebtedness, proportion of variable rate debt obligations and the significant debt servicing costs associated with that indebtedness may adversely affect our operations and financial condition. For example, our indebtedness could require us to dedicate a substantial portion of our cash flows from operations to payments on our debt, thereby reducing the amount of our cash flows available for working capital, capital expenditures, investments in technology and research and development, acquisitions, dividends and other general corporate purposes; limit our flexibility in planning for, or reacting to, changes in the industries in which we compete; place us at a competitive disadvantage compared to our competitors, some of whom have lower debt service obligations and greater financial resources than we do; limit our ability to borrow additional funds; or increase our vulnerability to general adverse economic and industry conditions. In addition, a majority of our debt arrangements require us to maintain certain debt and interest coverage ratios and limit our ability to incur debt, make investments or undertake certain other business activities.

These requirements could limit our ability to obtain future financing and may prevent us from taking advantage of attractive business opportunities. Our ability to meet the financial covenants or requirements in our debt arrangements may be affected by events beyond our control, and we cannot assure you that we will satisfy such covenants and requirements. A breach of these covenants or our inability to comply with the restrictions could result in an event of default under our debt arrangements which, in turn, could result in an event of default under the terms of our other indebtedness. Upon the occurrence of an event of default under our debt arrangements, after the expiration of any grace periods, our lenders could elect to declare all amounts outstanding under our debt arrangements, together with accrued interest, to be immediately due and payable. If this were to happen, we cannot assure you that our assets would be sufficient to repay in full the payments due under those arrangements or our other indebtedness or that we could find alternative financing to replace that indebtedness.

Conditions in the worldwide credit markets may limit our ability to expand our credit lines beyond current bank commitments. In addition, our profitability may be adversely affected as a result of increases in interest rates. At December 31, 2015, we and our subsidiaries had approximately \$509.9 million aggregate principal amount of consolidated debt obligations outstanding, of which approximately 59% had interest rates that float with the market (not hedged against interest rate

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fluctuations). A 100 basis point increase in the interest rate on the floating rate debt in effect at December 31, 2015 would result in an approximate \$3.0 million annualized increase in interest expense.

Changes in the availability or price of materials, products and energy resources could adversely affect our costs and profitability. We may be adversely affected by the availability or price of raw materials, products and energy resources, particularly related to certain manufacturing operations that utilize steel, stainless steel, titanium, Inconel, Hastelloys and other specialty materials. The availability and price of raw materials and energy resources may be subject to curtailment or change due to, among other things, new laws or regulations, global economic or political events including strikes, terrorist attacks and war, suppliers' allocations to other purchasers, interruptions in production by suppliers, changes in exchange rates and prevailing price levels. In some instances there are limited sources for raw materials and a limited number of primary suppliers for some of our products for resale. Although we are not dependent upon any single source for any of our principal raw materials or products for resale, and such materials and products have, historically, been readily available, we cannot assure you that such raw materials and products will continue to be readily available. Disruption in the supply of raw materials, products or energy resources or our inability to come to favorable agreements with our suppliers could impair our ability to manufacture, sell and deliver our products and require us to pay higher prices. Any increase in prices for such raw materials, products or energy resources could materially adversely affect our costs and our profitability.

We maintain pension and other postretirement benefit plans in the U.S. and certain international locations. Our costs of providing defined benefit plans are dependent upon a number of factors, such as the rates of return on the plans' assets, exchange rate fluctuations, future governmental regulation, global fixed income and equity prices, and our required and/or voluntary contributions to the plans. Declines in the stock market, prevailing interest rates, declines in discount rates, improvements in mortality rates and rising medical costs may cause an increase in our pension and other postretirement benefit expenses in the future and result in reductions in our pension fund asset values and increases in our pension and other postretirement benefit obligations. These changes have caused and may continue to cause a significant reduction in our net worth and without sustained growth in the pension investments over time to increase the value of the plans' assets, and depending upon the other factors listed above, we could be required to increase funding for some or all of these pension and postretirement plans.

We carry significant inventories and a loss in net realizable value could cause a decline in our net worth. At December 31, 2015, our inventories totaled \$208.6 million. Inventories are valued at the lower of cost or market based on management's judgments and estimates concerning future sales levels, quantities and prices at which such inventories will be sold in the normal course of business. Accelerating the disposal process or incorrect estimates of future sales potential may necessitate future reduction to inventory values. The Company's inventories include certain parts related to specific engines within the aftermarket repair and overhaul business. The demand for these parts and our ability to utilize these parts depends on the frequency and scope of repair and maintenance of aircraft engines and our ability to effectively access that market, and a decline in demand could require us to write off a portion of our inventory. See "Part II - Item 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations - Critical Accounting Policies".

We have significant goodwill and an impairment of our goodwill could cause a decline in our net worth. Our total assets include substantial goodwill. At December 31, 2015, our goodwill totaled \$588.0 million. The goodwill results from our prior acquisitions, representing the excess of the purchase price we paid over the net assets of the companies acquired. We assess whether there has been an impairment in the value of our goodwill during each calendar year or sooner if triggering events warrant. If future operating performance at one or more of our reporting units does not meet expectations or fair values fall due to significant stock market declines, we may be required to reflect a non-cash charge to operating results for goodwill impairment. The recognition of an impairment of a significant portion of goodwill would negatively affect our results of operations and total capitalization, the effect of which could be material. See "Part II - Item 7 - Management's Discussion and Analysis of Financial Condition and Results of

Operations - Critical Accounting Policies”.

We may not realize all of the sales expected from our existing backlog or anticipated orders. At December 31, 2015, we had \$763.8 million of order backlog, the majority of which related to aerospace OEM customers. There can be no assurances that the revenues projected in our backlog will be realized or, if realized, will result in profits. We consider backlog to be firm customer orders for future delivery. OEM customers may provide projections of components and assemblies that they anticipate purchasing in the future under new and existing programs. Such projections are included in our backlog when they are supported by a contract. Our customers may have the right under certain circumstances or with certain penalties or consequences to terminate, reduce or defer firm orders that we have in backlog. If our customers terminate, reduce or defer firm orders, we may be protected from certain costs and losses, but our sales will nevertheless be adversely affected. Although we strive to maintain ongoing relationships with our customers, there is an ongoing risk that orders may be cancelled or rescheduled due to fluctuations in our customers’ business needs or purchasing budgets.

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Also, our realization of sales from new and existing programs is inherently subject to a number of important risks and uncertainties, including whether our customers execute the launch of product programs on time, or at all, the number of units that our customers actually produce, the timing of production and manufacturing insourcing decisions made by our customers. In addition, until firm orders are placed, our customers generally have the right to discontinue a program or replace us with another supplier at any time without penalty. Our failure to realize sales from new and existing programs could have a material adverse effect on our net sales, results of operations and cash flows.

We may not recover all of our up-front costs related to new or existing programs. New programs may require significant up-front investments for capital equipment, engineering, inventory, design and tooling. As OEMs in the transportation and aerospace industries have looked to suppliers to bear increasing responsibility for the design, engineering and manufacture of systems and components, they have increasingly shifted the financial risk associated with those responsibilities to the suppliers as well. This trend may continue and is most evident in the area of engineering cost reimbursement. We cannot assure you that we will have adequate funds to make such up-front investments or to recover such costs from our customers as part of our product pricing. In the event that we are unable to make such investments, or to recover them through sales or direct reimbursement from our customers, our profitability, liquidity and cash flows may be adversely affected. In addition, we incur costs and make capital expenditures for new program awards based upon certain estimates of production volumes and production complexity. While we attempt to recover such costs and capital expenditures by appropriately pricing our products, the prices of our products are based in part upon planned production volumes. If the actual production is significantly less than planned or significantly more complex than anticipated, we may be unable to recover such costs. In addition, because a significant portion of our overall costs is fixed, declines in our customers' production levels can adversely affect the level of our reported profits even if our up-front investments are recovered.

We may not realize all of the intangible assets related to the Aerospace aftermarket businesses. We participate in aftermarket RSPs under which we receive an exclusive right to supply designated aftermarket parts over the life of the related aircraft engine program to our customer, General Electric. As consideration, we pay participation fees, which are recorded as intangible assets and are recognized as a reduction of sales over the estimated useful life of the related engine programs which range up to 30 years. Our total investments in participation fees under our Revenue Sharing Programs (RSPs) as of December 31, 2015 equaled \$293.7 million, all of which have been paid. At December 31, 2015, the remaining unamortized balance of these participation fees was \$209.1 million.

We entered into Component Repair Programs ("CRPs"), also with General Electric, during the fourth quarter of 2013 ("CRP 1"), the second quarter of 2014 ("CRP 2") and the fourth quarter of 2015 ("CRP 3" and, collectively with CRP 1 and CRP 2, the "CRPs"). The CRPs provide for, among other items, the right to sell certain aftermarket component repair services for CFM56, CF6, CF34 and LM engines directly to other customers as one of a few GE licensed suppliers. In addition, the CRPs extend certain existing contracts under which the Company currently provides these services directly to GE.

We agreed to pay \$26.6 million as consideration for the rights related to CRP 1. Of this balance, we paid \$16.6 million in the fourth quarter of 2013 and \$9.1 million in the fourth quarter of 2014. The remaining payment of \$0.9 million has been included within accrued liabilities in the Consolidated Financial Statements. We agreed to pay \$80.0 million as consideration for the rights related to CRP 2. We paid \$41.0 million in the second quarter of 2014, \$20.0 million in the fourth quarter of 2014 and \$19.0 million in the second quarter of 2015. We agreed to pay \$5.2 million as consideration for the rights related to CRP 3. Of this balance, we paid \$2.0 million in the fourth quarter of 2015. The remaining payment of \$3.2 million is due by December 31, 2016 and has also been included within accrued liabilities in the Consolidated Financial Statements. We recorded the CRP payments as an intangible asset which is recognized as a reduction of sales over the remaining useful life of these engine programs.

The realizability of each asset is dependent upon future revenues related to the programs' aftermarket parts and services and is subject to impairment testing if circumstances indicate that its carrying amount may not be recoverable. The potential exists that actual revenues will not meet expectations due to a change in market conditions, including, for example, the replacement of older engines with new, more fuel-efficient engines or our ability to capture additional market share within the aftermarket business. A shortfall in future revenues may result in the failure to realize the net amount of the investments, which could adversely affect our financial condition and results of operations. In addition, future growth and profitability could be impacted by the amortization of the participation fees and licenses, and the expiration of the international tax incentives on these programs.

We face risks of cost overruns and losses on fixed-price contracts. We sell certain of our products under firm, fixed-price contracts providing for a fixed price for the products regardless of the production or purchase costs incurred by us. The cost of producing products may be adversely affected by increases in the cost of labor, materials, fuel, outside processing,

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overhead and other factors, including manufacturing inefficiencies. Increased production costs may result in cost overruns and losses on contracts.

The departure of existing management and key personnel, a shortage of skilled employees or a lack of qualified sales professionals could materially affect our business, operations and prospects. Our executive officers are important to the management and direction of our business. Our future success depends, in large part, on our ability to retain or replace these officers and other capable management personnel. Although we believe we will be able to attract and retain talented personnel and replace key personnel should the need arise, our inability to do so could have a material adverse effect on our business, financial condition, results of operations or cash flows. Because of the complex nature of many of our products and services, we are generally dependent on an educated and highly skilled workforce, including, for example, our engineering talent. In addition, there are significant costs associated with the hiring and training of sales professionals. We could be adversely affected by a shortage of available skilled employees or the loss of a significant number of our sales professionals.

If we are unable to protect our intellectual property rights effectively, our financial condition and results of operations could be adversely affected. We own or are licensed under various intellectual property rights, including patents, trademarks and trade secrets. Our intellectual property rights may not be sufficiently broad or otherwise may not provide us a significant competitive advantage, and patents may not be issued for pending or future patent applications owned by or licensed to us. In addition, the steps that we have taken to maintain and protect our intellectual property may not prevent it from being challenged, invalidated, circumvented or designed-around, particularly in countries where intellectual property rights are not highly developed or protected. In some circumstances, enforcement may not be available to us because an infringer has a dominant intellectual property position or for other business reasons, or countries may require compulsory licensing of our intellectual property. We also rely on nondisclosure and noncompetition agreements with employees, consultants and other parties to protect, in part, confidential information, trade secrets and other proprietary rights. There can be no assurance that these agreements will adequately protect these intangible assets and will not be breached, that we will have adequate remedies for any breach, or that others will not independently develop substantially equivalent proprietary information. Our failure to obtain or maintain intellectual property rights that convey competitive advantage, adequately protect our intellectual property or detect or prevent circumvention or unauthorized use of such property and the cost of enforcing our intellectual property rights could adversely impact our competitive position, financial condition and results of operations.

Any product liability, warranty, contractual or other claims in excess of insurance may adversely affect our financial condition. Our operations expose us to potential product liability risks that are inherent in the design, manufacture and sale of our products and the products we buy from third parties and sell to our customers, or to potential warranty, contractual or other claims. For example, we may be exposed to potential liability for personal injury, property damage or death as a result of the failure of an aircraft component designed, manufactured or sold by us, or the failure of an aircraft component that has been serviced by us or of the components themselves. While we have liability insurance for certain risks, our insurance may not cover all liabilities. Additionally, insurance coverage may not be available in the future at a cost acceptable to us. Any material liability not covered by insurance or for which third-party indemnification is not available for the full amount of the loss could have a material adverse effect on our financial condition, results of operations and cash flows.

From time to time, we receive product warranty claims, under which we may be required to bear costs of repair or replacement of certain of our products. Warranty claims may range from individual customer claims to full recalls of all products in the field. We vigorously defend ourselves in connection with these matters. We cannot, however, assure you that the costs, charges and liabilities associated with these matters will not be material, or that those costs, charges and liabilities will not exceed any amounts reserved for them in our consolidated financial statements.

Our business, financial condition, results of operations and cash flows could be adversely impacted by strikes or work stoppages. Approximately 15% of our U.S. employees are covered by collective bargaining agreements and more than 36% of our non-U.S. employees are covered by collective bargaining agreements or statutory trade union agreements. The Company is currently in the process of negotiating a collective bargaining agreement (“CBA”) with certain unionized employees at the Bristol, Connecticut and Corry, Pennsylvania facilities, which are part of the Associated Spring business unit, and which covers approximately 240 employees. The current CBA expired on November 30, 2014, and we continue to negotiate a successor agreement. In addition, we have annual negotiations in Brazil and Mexico and, collectively, these negotiations cover approximately 300 employees in those two countries. We also completed negotiations in 2015 resulting in wage increases with two of our German locations, a Singapore location, and our Sweden location, which collectively cover approximately 676 employees. Although we believe that our relations with our employees are good, we cannot assure you that we will be successful in negotiating new collective bargaining agreements or that such negotiations will not result in significant increases in the cost of labor, including healthcare, pensions or other benefits. Any potential strikes or work stoppages, and the resulting adverse impact on our relationships with customers, could have a material adverse effect on our business, financial

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condition, results of operations or cash flows. Similarly, a protracted strike or work stoppage at any of our major customers, suppliers or other vendors could materially adversely affect our business.

Changes in accounting guidance and taxation requirements could affect our financial results. New accounting guidance that may become applicable to us from time to time, or changes in the interpretations of existing guidance, could have a significant effect on our reported results for the affected periods. For example, the Financial Accounting Standards Board issued a new accounting standard for revenue recognition in May 2014 - Accounting Standards Update (ASU) 2014-09, "Revenue from Contracts with Customers (Topic 606)". Although we are currently in the process of evaluating the impact of ASU 2014-09 on our consolidated financial statements, it will likely change the way we account for certain of our sales transactions. Adoption of the standard could have a significant impact on our financial statements and may retroactively affect the accounting treatment of transactions completed before adoption. In addition, our products are subject to import and excise duties and/or sales or value-added taxes in many jurisdictions in which we operate. Increases in indirect taxes could affect our products' affordability and therefore reduce our sales. We are also subject to income tax in numerous jurisdictions in which we generate revenues. Changes in tax laws, tax rates or tax rulings may have a significant adverse impact on our effective tax rate. Among other things, our tax liabilities are affected by the mix of pretax income or loss among the tax jurisdictions in which we operate and the repatriation of foreign earnings to the U.S. Further, during the ordinary course of business, we are subject to examination by the various tax authorities of the jurisdictions in which we operate which could result in an unanticipated increase in taxes. Accordingly, we must exercise judgment in determining our worldwide provision for income taxes, interest and penalties-while noting that, future events could change management's assessment of these amounts.

RISKS RELATED TO THE INDUSTRIES IN WHICH WE OPERATE

We operate in highly competitive markets. We may not be able to compete effectively with our competitors, and competitive pressures could adversely affect our business, financial condition and results of operations. Our two global business segments compete with a number of larger and smaller companies in the markets we serve. Some of our competitors have greater financial, production, research and development, or other resources than we do. Within Aerospace, certain of our OEM customers compete with our repair and overhaul business. Some of our OEM customers in the aerospace industry also compete with us where they have the ability to manufacture the components and assemblies that we supply to them but have chosen, for capacity limitations, cost considerations or other reasons, to outsource the manufacturing to us. Our customers award business based on, among other things, price, quality, reliability of supply, service, technology and design. Our competitors' efforts to grow market share could exert downward pressure on our product pricing and margins. Our competitors may also develop products or services, or methods of delivering those products or services that are superior to our products, services or methods. Our competitors may adapt more quickly than us to new technologies or evolving customer requirements. We cannot assure you that we will be able to compete successfully with our existing or future competitors. Our ability to compete successfully will depend, in part, on our ability to continue make investments to innovate and manufacture the types of products demanded by our customers, and to reduce costs by such means as reducing excess capacity, leveraging global purchasing, improving productivity, eliminating redundancies and increasing production in low-cost countries. We have invested, and expect to continue to invest, in increasing our manufacturing footprint in low-cost countries. We cannot assure you that we will have sufficient resources to continue to make such investments or that we will be successful in maintaining our competitive position. If we are unable to differentiate our products or maintain a low-cost footprint, we may lose market share or be forced to reduce prices, thereby lowering our margins. Any such occurrences could adversely affect our financial condition, results of operations and cash flows.

The industries in which we operate have been experiencing consolidation, both in our suppliers and the customers we serve. Supplier consolidation is in part attributable to OEMs more frequently awarding long-term sole source or preferred supplier contracts to the most capable suppliers in an effort to reduce the total number of suppliers from

whom components and systems are purchased. If consolidation of our existing competitors occurs, we would expect the competitive pressures we face to increase, and we cannot assure you that our business, financial condition, results of operations or cash flows will not be adversely impacted as a result of consolidation by our competitors or customers.

Original equipment manufacturers in the aerospace and transportation industries have significant pricing leverage over suppliers and may be able to achieve price reductions over time. Additionally, we may not be successful in our efforts to raise prices on our customers. There is substantial and continuing pressure from OEMs in the transportation industries, including automotive and aerospace, to reduce the prices they pay to suppliers. We attempt to manage such downward pricing pressure, while trying to preserve our business relationships with our customers, by seeking to reduce our production costs through various measures, including purchasing raw materials and components at lower prices and implementing cost-effective process improvements. Our suppliers have periodically resisted, and in the future may resist, pressure to lower their prices and may seek to impose price increases. If we are unable to offset OEM price reductions, our profitability and cash flows could be adversely affected. In addition, OEMs have substantial leverage in setting purchasing and

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payment terms, including the terms of accelerated payment programs under which payments are made prior to the account due date in return for an early payment discount. OEMs can unexpectedly change their purchasing policies or payment practices, which could have a negative impact on our short-term working capital.

Demand for our defense-related products depends on government spending. A portion of Aerospace's sales is derived from the military market, including single-sourced and dual-sourced sales. The military market is largely dependent upon government budgets and is subject to governmental appropriations. Although multi-year contracts may be authorized in connection with major procurements, funds are generally appropriated on a fiscal year basis even though a program may be expected to continue for several years. Consequently, programs are often only partially funded and additional funds are committed only as further appropriations are made. We cannot assure you that maintenance of or increases in defense spending will be allocated to programs that would benefit our business. Moreover, we cannot assure you that new military aircraft programs in which we participate will enter full-scale production as expected. A decrease in levels of defense spending or the government's termination of, or failure to fully fund, one or more of the contracts for the programs in which we participate could have a material adverse effect on our financial position and results of operations.

The aerospace industry is highly regulated. Complications related to aerospace regulations may adversely affect the Company. A substantial portion of our income is derived from our aerospace businesses. The aerospace industry is highly regulated in the U.S. by the Federal Aviation Administration, or FAA, and in other countries by similar regulatory agencies. We must be certified by these agencies and, in some cases, by individual OEMs in order to engineer and service systems and components used in specific aircraft models. If material authorizations or approvals were delayed, revoked or suspended, our business could be adversely affected. New or more stringent governmental regulations may be adopted, or industry oversight heightened, in the future, and we may incur significant expenses to comply with any new regulations or any heightened industry oversight.

Environmental regulations impose costs and regulatory requirements on our operations. Environmental compliance may be more costly than we expect, and we may be subject to material environmental-based claims in the future. Our past and present business operations and past and present ownership and operations of real property and the use, sale, storage and handling of chemicals and hazardous products subject us to extensive and changing U.S. federal, state and local environmental laws and regulations, as well as those of other countries, pertaining to the discharge of materials into the environment, enforcement, disposition of wastes (including hazardous wastes), the use, shipping, labeling, and storage of chemicals and hazardous materials, building requirements, or otherwise relating to protection of the environment. We have experienced, and expect to continue to experience, costs to comply with environmental laws and regulations. In addition, new laws and regulations, stricter enforcement of existing laws and regulations, the discovery of previously unknown contamination or the imposition of new clean-up requirements could require us to incur costs or become subject to new or increased liabilities that could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We use and generate hazardous substances and wastes in our operations. In addition, many of our current and former properties are or have been used for industrial purposes. Accordingly, we monitor hazardous waste management and applicable environmental permitting and reporting for compliance with applicable laws at our locations in the ordinary course of our business. We may be subject to potential material liabilities relating to any investigation and clean-up of our locations or properties where we delivered hazardous waste for handling or disposal that may be contaminated or which may have been contaminated prior to our purchase, and to claims alleging personal injury.

Fluctuations in jet fuel and other energy prices may impact our operating results. Fuel costs constitute a significant portion of operating expenses for companies in the aerospace industry. Fluctuations in fuel costs could 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 value associated with new fuel efficient technologies.

Widespread disruption to oil production, refinery operations and pipeline capacity in certain areas of the U.S. can impact the price of jet fuel significantly. Conflicts in the Middle East, an important source of oil for the U.S. and other countries where we do business, cause prices for fuel to be volatile. Because we and many of our customers are in the aerospace industry, these fluctuations could have a material adverse effect on our financial condition or results of operations.

Our products and services may be rendered obsolete by new products, technologies and processes. Our manufacturing operations focus on highly engineered components which require extensive engineering and research and development time. Our competitive advantage may be adversely impacted if we cannot continue to introduce new products ahead of our competition, or if our products are rendered obsolete by other products or by new, different technologies and processes. The success of our new products will depend on a number of factors, including innovation, customer acceptance, the efficiency of our suppliers in providing materials and component parts, and the performance and quality of our products relative to those of our competitors. We cannot predict the level of market acceptance or the amount of market share our new products

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will achieve. Additionally, we may face increased or unexpected costs associated with new product introduction including the use of additional resources such as personnel. We cannot assure that we will not experience new product introduction delays in the future.

RISKS RELATED TO RESTRUCTURING, ACQUISITIONS, JOINT VENTURES AND DIVESTITURES

Our restructuring actions could have long-term adverse effects on our business. From time to time, we have implemented restructuring activities across our businesses to adjust our cost structure, and we may engage in similar restructuring activities in the future. We may not achieve expected cost savings from workforce reductions or restructuring activities and actual charges, costs and adjustments due to these actions may vary materially from our estimates. Our ability to realize anticipated cost savings, synergies and revenue enhancements may be affected by a number of factors, including the following: our ability to effectively eliminate duplicative back office overhead and overlapping sales personnel, rationalize manufacturing capacity, synchronize information technology systems, consolidate warehousing and other facilities and shift production to more economical facilities; significant cash and non-cash integration and implementation costs or charges in order to achieve those cost savings, which could offset any such savings and other synergies resulting from our acquisitions or divestitures; and our ability to avoid labor disruption in connection with these activities. In addition, delays in implementing planned restructuring activities or other productivity improvements may diminish the expected operational or financial benefits.

Our acquisition and other strategic initiatives may not be successful. We have made a number of acquisitions in the past, including most recently the acquisitions of the Thermoplay and Priamus businesses, and we anticipate that we may, from time to time, acquire additional businesses, assets or securities of companies, and enter into joint ventures and other strategic relationships that we believe would provide a strategic fit with our businesses. These activities expose the Company to a number of risks and uncertainties, the occurrence of any of which could materially adversely affect our business, cash flows, financial condition and results of operations. A portion of the industries that we serve are mature industries. As a result, our future growth may depend in part on the successful acquisition and integration of acquired businesses into our existing operations. We may not be able to identify and successfully negotiate suitable acquisitions, obtain financing for future acquisitions on satisfactory terms, obtain regulatory approvals or otherwise complete acquisitions in the future.

We could have difficulties integrating acquired businesses with our existing operations. Difficulties of integration can include coordinating and consolidating separate systems, integrating the management of the acquired business, retaining market acceptance of acquired products and services, maintaining employee morale and retaining key employees, and implementing our enterprise resource planning systems and operational procedures and disciplines. Any such difficulties may make it more difficult to maintain relationships with employees, customers, business partners and suppliers. In addition, even if integration is successful, the financial performance of acquired business may not be as expected and there can be no assurance we will realize anticipated benefits from our acquisitions. We cannot assure you that we will effectively assimilate the business or product offerings of acquired companies into our business or product offerings or realize anticipated operational synergies. In connection with the integration of acquired operations or the conduct of our overall business strategies, we may periodically restructure our businesses and/or sell assets or portions of our business. Integrating the operations and personnel of acquired companies into our existing operations may result in difficulties, significant expense and accounting charges, disrupt our business or divert management's time and attention.

Acquisitions involve numerous other risks, including potential exposure to unknown liabilities of acquired companies and the possible loss of key employees and customers of the acquired business. Certain of the acquisition agreements by which we have acquired businesses require the former owners to indemnify us against certain liabilities related to the business operations before we acquired it. However, the liability of the former owners is limited and certain former owners may be unable to meet their indemnification responsibilities. We cannot assure you that these indemnification provisions will protect us fully or at all, and as a result we may face unexpected liabilities that adversely affect our financial condition. In connection with acquisitions or joint venture investments outside the U.S.,

we may enter into derivative contracts to purchase foreign currency in order to hedge against the risk of foreign currency fluctuations in connection with such acquisitions or joint venture investments, which subjects us to the risk of foreign currency fluctuations associated with such derivative contracts. Additionally, our final determinations and appraisals of the fair value of assets acquired and liabilities assumed in our acquisitions may vary materially from earlier estimates. We cannot assure you that the fair value of acquired businesses will remain constant.

We continually assess the strategic fit of our existing businesses and may divest or otherwise dispose of businesses that are deemed not to fit with our strategic plan or are not achieving the desired return on investment, and we cannot be certain that our business, operating results and financial condition will not be materially and adversely affected. A successful divestiture depends on various factors, including our ability to effectively transfer liabilities, contracts, facilities and employees to any purchaser, identify and separate the intellectual property to be divested from the intellectual property that we wish to retain, reduce fixed costs previously associated with the divested assets or business, and collect the proceeds from any divestitures. In addition, if customers of the divested business do not receive the same level of service from the new owners,

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this may adversely affect our other businesses to the extent that these customers also purchase other products offered by us. All of these efforts require varying levels of management resources, which may divert our attention from other business operations. If we do not realize the expected benefits or synergies of any divestiture transaction, our consolidated financial position, results of operations and cash flows could be negatively impacted. In addition, divestitures of businesses involve a number of risks, including significant costs and expenses, the loss of customer relationships, and a decrease in revenues and earnings associated with the divested business. Furthermore, divestitures potentially involve significant post-closing separation activities, which could involve the expenditure of material financial resources and significant employee resources. Any divestiture may result in a dilutive impact to our future earnings if we are unable to offset the dilutive impact from the loss of revenue associated with the divestiture, as well as significant write-offs, including those related to goodwill and other intangible assets, which could have a material adverse effect on our results of operations and financial condition.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Number of Facilities - Owned

Location	Industrial	Aerospace	Other	Total
Manufacturing:				
North America	6	5	0	11
Europe	8	0	0	8
Asia	1	0	0	1
Central and Latin America	2	0	0	2
	17	5	0	22
Non-Manufacturing:				
North America	0	0	1*	1
Europe	2	0	0	2
	2	0	1	3

* The Company's Corporate office

Number of Facilities - Leased

Location	Industrial	Aerospace	Other	Total
Manufacturing:				
North America	2	2	0	4
Europe	2	0	0	2
Asia	3	4	0	7
	7	6	0	13
Non-Manufacturing:				
North America	8	2	1**	11
Europe	13	1	0	14
Asia	21	0	0	21
Central and Latin America	4	0	0	4
	46	3	1	50

** Industrial segment headquarters and certain Shared Services groups.

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Item 3. Legal Proceedings

On April 16, 2013, the United States Tax Court rendered an unfavorable decision in the matter Barnes Group Inc. and Subsidiaries v. Commissioner of Internal Revenue (“Tax Court Decision”). The Tax Court rejected the Company's objections and imposed penalties. The case involved IRS proposed adjustments of approximately \$16.5 million, plus a 20% penalty and interest for the tax years 1998, 2000 and 2001.

The case arose out of an Internal Revenue Service (“IRS”) audit for the tax years 2000 through 2002. The adjustment relates to the federal taxation of foreign income of certain foreign subsidiaries. The Company filed an administrative protest of these adjustments. In the third quarter of 2009, the Company was informed that its protest was denied and a tax assessment was received from the Appeals Office of the IRS. Subsequently, in November 2009, the Company filed a petition against the IRS in the United States Tax Court, contesting the tax assessment. A trial was held and all briefs were filed in 2012. In April 2013 the Tax Court Decision was then issued rendering an unfavorable decision against the Company and imposing penalties. As a result of the unfavorable Tax Court Decision, the Company recorded an additional tax charge during 2013 for \$16.4 million.

In November 2013, the Company made a cash payment of approximately \$12.7 million related to tax, interest and penalties and utilized a portion of its net operating losses. The Company also submitted a notice of appeal of the Tax Court Decision to the United States Court of Appeals for the Second Circuit. The Company filed its opening brief with the United States Court of Appeals for the Second Circuit on February 13, 2014 and presented its oral arguments on October 1, 2014.

On November 5, 2014, the Second Circuit upheld the Tax Court Decision. Following the decision by the Second Circuit Court of Appeals, the Company had 60 days in which to file with U.S. Supreme court a petition for review. The Company has not filed a petition for review and therefore the judgment of the Second Circuit Court of Appeals is final.

In connection with the IRS audit, the Company filed protective claims related to the withholding taxes paid as a component of the transaction with certain subsidiaries. These filings allowed the Company to preserve the right to claim certain protection should the IRS prevail in its assessment. Upon expiration of the period to file a petition for review to the U.S. Supreme Court, the Company acted on protective claims and filed for the refund of the withholding taxes. In the third quarter of 2015, the Company received refunds of \$3.0 million related to the withholding taxes and recorded a corresponding tax benefit.

During the third quarter of 2015 the Company recorded a \$2.8 million charge related to a contract termination dispute following the decision of a customer, Triumph Actuation Systems - Yakima, LLC (“Triumph”), to re-source work. The Company has approximately \$8.0 million of net assets, in connection with this dispute, recorded on the Consolidated Balance Sheet as of December 31, 2015. The Company has assessed recoverability of costs and damages provided by the relevant contracts and, during the fourth quarter of 2015, filed an arbitration demand before the American Arbitration Association for recovery of these costs and damages for approximately \$15.0 million. Also during the fourth quarter, Triumph responded with a counterclaim of a similar amount, alleging various breaches and seeking damages, which the Company views as unsubstantiated. An arbitrator has been appointed and a hearing is currently scheduled for May 2016. While it is currently not possible to determine the ultimate outcome of this matter, the Company intends to vigorously defend its position and believes that the ultimate resolution will not have a material adverse effect on the Company’s consolidated financial position or liquidity, but could be material to the consolidated results of operations of any one period.

In addition, 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 such proceedings, individually or in the aggregate, will not have a material adverse effect on our financial condition or results of operations.

Item 4. Mine Safety Disclosures

Not applicable.

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PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

(a) Market Information

The Company's common stock is traded on the New York Stock Exchange under the symbol "B". The following table sets forth, for the periods indicated, the low and high sales intra-day trading price per share, as reported by the New York Stock Exchange, and dividends declared and paid.

	2015		
	Low	High	Dividends
Quarter ended March 31	\$33.75	\$41.00	\$0.12
Quarter ended June 30	38.75	41.74	0.12
Quarter ended September 30	35.33	41.78	0.12
Quarter ended December 31	33.00	39.74	0.12
	2014		
	Low	High	Dividends
Quarter ended March 31	\$35.34	\$40.92	\$0.11
Quarter ended June 30	36.27	40.01	0.11
Quarter ended September 30	30.35	39.07	0.11
Quarter ended December 31	29.47	37.88	0.12

Stockholders

As of February 12, 2016, there were approximately 3,457 holders of record of the Company's common stock. A significant number of the outstanding shares of common stock which are beneficially owned by individuals or entities are registered in the name of a nominee of The Depository Trust Company, a securities depository for banks and brokerage firms. The Company believes that there are approximately 11,766 beneficial owners of its common stock.

Dividends

Payment of future dividends will depend upon the Company's financial condition, results of operations and other factors deemed relevant by the Company's Board of Directors, as well as any limitations resulting from financial covenants under the Company's credit facilities or debt indentures. See the table above for dividend information for 2015 and 2014.

Securities Authorized for Issuance Under Equity Compensation Plans

For information regarding Securities Authorized for Issuance Under Equity Compensation Plans, see Part III, Item 12 of this Annual Report.

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Performance Graph

A stock performance graph based on cumulative total returns (price change plus reinvested dividends) for \$100 invested in Barnes Group, Inc. ("BGI") on December 31, 2010 is set forth below.

	2010	2011	2012	2013	2014	2015
BGI	\$100.00	\$118.35	\$112.12	\$193.86	\$189.60	\$183.52
S&P 600	\$100.00	\$100.99	\$117.46	\$165.96	\$175.47	\$171.96
Russell 2000	\$100.00	\$95.81	\$111.49	\$154.76	\$162.33	\$155.17

The performance graph does not include a published industry or line-of-business index or peer group of similar issuers because the Company is in multiple lines of business and does not believe a meaningful published index or peer group can be reasonably identified. Accordingly, as permitted by SEC rules, the graph includes the S&P 600 Small Cap Index and the Russell 2000 Index, which are comprised of issuers with generally similar market capitalizations to that of the Company.

(c) Issuer Purchases of Equity Securities

Period	Total Number of Shares (or Units) Purchased	Average Price Paid Per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs ⁽²⁾
October 1-31, 2015	67,771	\$35.36	67,668	2,058,285
November 1-30, 2015	982,372	\$38.30	982,372	1,075,913
December 1-31, 2015	284	\$38.07	—	1,075,913
Total	1,050,427	⁽¹⁾ \$38.11	1,050,040	

Other than 1,050,040 shares purchased in the fourth quarter of 2015, which were purchased as part of the Company's 2011 Program (defined below), all acquisitions of equity securities during the fourth quarter of 2015 (1) 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. 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.

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Item 6. Selected Financial Data

	2015 ⁽⁵⁾	2014	2013 ⁽⁶⁾⁽⁸⁾	2012 ⁽⁷⁾⁽⁸⁾	2011 ⁽⁸⁾
Per common share ⁽¹⁾					
Income from continuing operations					
Basic	\$2.21	\$2.20	\$1.34	\$1.46	\$1.36
Diluted	2.19	2.16	1.31	1.44	1.34
Net income					
Basic	2.21	2.16	5.02	1.74	1.17
Diluted	2.19	2.12	4.92	1.72	1.16
Dividends declared and paid	0.48	0.45	0.42	0.40	0.34
Stockholders' equity (at year-end)	20.94	20.40	21.17	14.76	13.29
Stock price (at year-end)	35.39	37.01	38.31	22.46	24.11
For the year (in thousands)					
Net sales	\$1,193,975	\$1,262,006	\$1,091,566	\$928,780	\$865,078
Operating income	168,396	179,974	123,201	107,131	101,579
As a percent of net sales	14.1 %	14.3 %	11.3 %	11.5 %	11.7 %
Income from continuing operations	\$121,380	\$120,541	\$72,321	\$79,830	\$74,955
As a percent of net sales	10.2 %	9.6 %	6.6 %	8.6 %	8.7 %
Net income	\$121,380	\$118,370	\$270,527	\$95,249	\$64,715
As a percent of net sales	10.2 %	9.4 %	24.8 %	10.3 %	7.5 %
As a percent of average stockholders' equity ⁽²⁾	10.7 %	10.3 %	28.3 %	12.6 %	8.4 %
Depreciation and amortization	\$78,242	\$81,395	\$65,052	\$57,360	\$58,904
Capital expenditures	45,982	57,365	57,304	37,787	37,082
Weighted average common shares outstanding – basic	55,028	54,791	53,860	54,626	55,215
Weighted average common shares outstanding – diluted	55,513	55,723	54,973	55,224	55,932
Year-end financial position (in thousands)					
Working capital	\$359,038	\$323,306	\$276,878	\$418,645	\$332,316
Goodwill	587,992	594,949	649,697	579,905	366,104
Other intangible assets, net	528,322	554,694	534,293	383,972	272,092
Property, plant and equipment, net	308,856	299,435	302,558	233,097	210,784
Total assets	2,061,866	2,073,885	2,123,673	1,868,596	1,440,365
Long-term debt and notes payable	509,906	504,734	547,424	646,613	346,052
Stockholders' equity	1,127,753	1,111,793	1,141,414	800,118	722,400
Debt as a percent of total capitalization ⁽³⁾	31.1 %	31.2 %	32.4 %	44.7 %	32.4 %
Statistics					
Employees at year-end ⁽⁴⁾	4,735	4,515	4,331	3,795	3,019

Income from continuing operations and net income per common share are based on the weighted average common (1) shares outstanding during each year. Stockholders' equity per common share is calculated based on actual common shares outstanding at the end of each year.

(2) Average stockholders' equity is calculated based on the month-end stockholders equity balances between December 31, 2014 and December 31, 2015 (13-month average).

(3) Debt includes all interest-bearing debt and total capitalization includes interest-bearing debt and stockholders' equity.

(4) The number of employees at each year-end includes employees of continuing operations and excludes prior employees of discontinued operations.

(5)

During 2015, the Company completed the acquisitions of Thermoplay and Priamus. The results of Thermoplay and Priamus, from their acquisitions on August 7, 2015 and October 1, 2015, respectively, have been included within the Company's Consolidated Financial Statements for the period ended December 31, 2015.

(6) During 2013, the Company completed the acquisition of the Männer Business. The results of the Männer Business, from the acquisition on October 31, 2013, have been included within the Company's Consolidated Financial Statements for the period ended December 31, 2013.

(7) During 2012, the Company completed the acquisition of Synventive. The results of Synventive, from the acquisition on August 27, 2012, have been included within the Company's Consolidated Financial Statements for the period ended December 31, 2012.

During 2013, the Company sold the BDNA business within the segment formerly referred to as Distribution.

(8) During 2011, the Company sold the Barnes Distribution Europe ("BDE") business within the segment formerly referred to as Logistics and Manufacturing Services. The results of the BDNA and the BDE businesses, including any (loss) gain on the sale of businesses, have been reported through discontinued operations during the respective periods.

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Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion in conjunction with our consolidated financial statements and related notes in this Annual Report on Form 10-K. In addition to historical information, this discussion contains forward-looking statements that involve risks, uncertainties, and assumptions that could cause actual results to differ materially from our expectations. Factors that could cause such differences include those described in the section titled "Risk Factors" and elsewhere in this report. We undertake no obligation to update any of the forward-looking statements.

OVERVIEW

2015 Highlights

Barnes Group Inc. (the "Company") achieved sales of \$1,194.0 million in 2015, a decrease of \$68.0 million, or 5.4%, from 2014. In Industrial, the acquisitions of Thermoplay on August 7, 2015 and Priamus on October 1, 2015 provided sales of \$13.6 million and \$2.0 million, respectively, during 2015. Organic sales (net sales excluding both foreign currency and acquisition impacts) decreased by \$14.8 million, or 1.2%, with a decline of 6.4% within the Aerospace segment being partially offset by an increase of 1.6% within the Industrial segment. Sales in the Industrial segment were impacted by changes in foreign currency which decreased sales by approximately \$68.8 million as the U.S. dollar strengthened against foreign currencies.

Operating income decreased 6.4% from \$180.0 million in 2014 to \$168.4 million in 2015 and operating margin declined from 14.3% in 2014 to 14.1% in 2015. Operating income was impacted by decreased organic sales in the Aerospace OEM manufacturing business, \$2.2 million of short-term purchase accounting adjustments and transaction costs resulting from the acquisitions of Thermoplay and Priamus, a \$2.8 million charge related to a contract termination dispute following an Aerospace OEM customer's decision to re-source work, a \$9.9 million lump-sum pension settlement charge, \$4.2 million of charges related to certain workforce reductions and restructuring charges, lower productivity and the unfavorable impact of foreign exchange within the Industrial segment. Operating profit benefited from increased organic sales at Industrial and within the spare parts business at Aerospace, and lower employee related costs, primarily incentive compensation, partially offset by higher pension costs. Operating income during 2015 and 2014 included \$1.5 million and \$8.5 million of short-term purchase accounting adjustments, respectively, related to the acquisition of the Männer business. Charges of \$6.0 million during the 2014 period related to the closure of production operations at the Associated Spring facility located in Saline, Michigan (the "Closure").

The Company focused on profitable sales growth both organically and through acquisition, in addition to productivity improvements, as key strategic objectives in 2015. Management continued its focus on cash flow and working capital management in 2015 and generated \$209.9 million in cash flow from operations.

Business Transformation

Acquisitions and strategic relationships with our customers have been a key growth driver for the Company, and we continue to seek alliances which foster long-term business relationships. These acquisitions have allowed us to extend into new or adjacent markets, expand our geographic reach, and commercialize new products, processes and services. The Company continually evaluates its business portfolio to optimize product offerings and maximize value. We have significantly transformed our business over the past few years with our entrance into the plastic injection molding market.

In the fourth quarter of 2015, the Company, itself and through two of its subsidiaries, completed the acquisition of privately held Priamus System Technologies AG and two of its subsidiaries (collectively, "Priamus") from Growth Finance AG. Priamus, which has approximately 40 employees, is headquartered in Schaffhausen, Switzerland and has

direct sales and service offices in the U.S. and Germany. Priamus is a technology leader in the development of advanced process control systems for the plastic injection molding industry and services many of the world's highest quality plastic injection molders in the medical, automotive, consumer goods, electronics and packaging markets. Priamus is being integrated into our Industrial segment. The Company acquired Priamus for an aggregate cash purchase price of CHF 9.8 million (\$10.1 million) which was financed using cash on hand and borrowings under the Company's revolving credit facility. The purchase price includes adjustments under the terms of the Share Purchase Agreement, including CHF 1.6 million (\$1.6 million) related to cash acquired, and is subject to post closing adjustments under the terms of the Share Purchase Agreement. See Note 2 of the Consolidated Financial Statements.

In the third quarter of 2015, the Company, through one of its subsidiaries, completed the acquisition of the Thermoplay business ("Thermoplay") by acquiring all of the capital stock of privately held HPE S.p.A., the parent company through which

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Thermoplay operates ("HPE"). Thermoplay's headquarters and manufacturing facility are located in Pont-Saint-Martin in Aosta, Italy, with technical service capabilities in China, India, France, Germany, United Kingdom, Portugal, and Brazil. Thermoplay, which is being integrated into our Industrial segment, specializes in the design, development, and manufacturing of hot runner solutions for plastic injection molding, primarily in the packaging, automotive, and medical end markets. The Company acquired Thermoplay for an aggregate cash purchase price of €58.1 million (\$63.7 million), pursuant to the terms of the Sale and Purchase Agreement ("SPA"). The Company paid €56.7 million (\$62.2 million) in cash, using cash on hand and borrowings under the Company's revolving credit facility and recorded a liability of €1.4 million (\$1.5 million) related to the estimated post closing adjustments. The purchase price includes adjustments under the terms of the SPA, including €17.1 million (\$18.7 million) related to cash acquired. See Note 2 of the Consolidated Financial Statements.

In the fourth quarter of 2013, the Company and two of its subsidiaries (collectively with the Company, the "Purchaser") completed the acquisition of the Männer Business (defined below) pursuant to the terms of the Share Purchase and Assignment Agreement dated September 30, 2013 ("Share Purchase Agreement") among the Purchaser, Otto Männer Holding AG, a German company based in Bahlingen, Germany (the "Seller"), and the three shareholders of the Seller (the "Männer Business"). The Männer Business is a leader in the development and manufacture of high precision molds, valve gate hot runner systems, and system solutions for the medical/pharmaceutical, packaging, and personal care/health care industries. The Männer Business includes manufacturing locations in Germany, Switzerland and the United States, and sales and service offices in Europe, the United States, Hong Kong/China and Japan. Pursuant to the terms of the Share Purchase Agreement, the Company acquired all the shares of capital stock of the Männer Business for an aggregate purchase price of €280.7 million (\$380.7 million). The acquisition has been integrated into the Industrial segment. See Note 2 of the Consolidated Financial Statements.

In the second quarter of 2013, the Company completed the sale of its Barnes Distribution North America business ("BDNA") to MSC Industrial Direct Co., Inc. ("MSC") pursuant to the terms of the Asset Purchase Agreement dated February 22, 2013 (the "APA") between the Company and MSC. The total cash consideration received for BDNA was \$537.8 million, net of transaction costs and closing adjustments paid. See Note 3 of the Consolidated Financial Statements.

Management Objectives

Management focused on three key initiatives during 2015: productivity, innovation and global talent management, which, in combination, are expected to generate long-term value for the Company's stockholders and our customers. The Company's strategies for growth include both organic growth from new products, processes, services, markets and customers, and growth from acquisitions. The Company's strategies for profitability include employee engagement and empowerment to drive productivity and process initiatives, such as the application of new technologies, automation and innovation, intensified focus on intellectual property as a core differentiator. A key component of the Company's culture is the Barnes Enterprise System (BES), the Company's operating system which drives alignment and fosters continuous improvement, collaboration and innovation throughout the global organization.

Our Business

The Company consists of two operating segments: Industrial and Aerospace. In both of these businesses, the Company is among the leaders in the market niches served.

Key Performance Indicators

Management evaluates the performance of its reportable segments based on the sales, operating profit and operating margins of the respective businesses, which includes net sales, cost of sales, selling and administrative expenses and certain components of other income and other expenses, as well as the allocation of corporate overhead expenses. Each segment has standard key performance indicators (“KPIs”), a number of which are focused on customer metrics (on-time-delivery and quality), internal effectiveness and efficiency metrics (sales per employee, productivity, cost of quality, days working capital and controllable expenses), employee safety-related metrics (total recordable incident rate and lost time incident rate), and specific KPIs on profitable growth.

Key Industry Data

In both segments, management tracks a variety of economic and industry data as indicators of the health of a particular sector.

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At Industrial, key data for the manufacturing operations include the Institute for Supply Management's manufacturing PMI Composite Index (and similar indices for European and Asian-based businesses); the Federal Reserve's Industrial Production Index ("the IPI"); the Global Insight global medical and measuring equipment index; the production of light vehicles, both in the U.S. and globally; worldwide light vehicle new model introductions and existing model refreshes; North American medium and heavy duty vehicle production; and global GDP growth forecasts.

At Aerospace, management of the aftermarket business monitors the number of aircraft in the active fleet, the number of planes temporarily or permanently taken out of service, aircraft utilization rates for the major airlines, engine shop visits, airline profitability, aircraft fuel costs and traffic growth. The Aerospace OEM business regularly tracks orders and deliveries for each of the major aircraft manufacturers, as well as engine purchases made for new aircraft. Management also monitors annual appropriations for the U.S. military related to purchases of new or used aircraft and engine components.

RESULTS OF OPERATIONS

Sales (\$ in millions)	2015	2014	\$ Change	% Change	2013
Industrial	\$782.3	\$822.1	\$(39.8)	(4.8)%	\$687.6
Aerospace	411.7	440.0	(28.3)	(6.4)%	404.0
Total	\$1,194.0	\$1,262.0	\$(68.0)	(5.4)%	\$1,091.6

2015 vs. 2014:

The Company reported net sales of \$1,194.0 million in 2015, a decrease of \$68.0 million, or 5.4%, from 2014. The acquisitions of Thermoplay on August 7, 2015 and Priamus on October 1, 2015 provided sales of \$13.6 million and \$2.0 million, respectively, during the 2015 period. Organic sales within Industrial increased by \$13.5 million, or 1.6%, during 2015, primarily due to favorable end-markets served by our tool and die and plastics businesses during the first half of 2015. A softening within our transportation and general industrial end-markets during the second half of 2015 tempered a substantial portion of the organic growth in the first half of the year. Aerospace recorded sales of \$411.7 million in 2015, a \$28.3 million, or 6.4% decrease from 2014. Lower sales within the OEM and MRO businesses were partially offset by increased sales within the spare parts business. The spare parts business benefited from increased demand as a result of higher aircraft utilization and customer restocking of inventory, whereas the MRO business continued to be impacted by deferred maintenance on certain platforms. The timing of customer deliveries and execution, which was partially impacted by new product introduction challenges, in addition to the the impact of a contract termination dispute, directly impacted lower sales within the OEM business during the second half of 2015. The impact of foreign currency translation decreased sales within Industrial by approximately \$68.8 million as the U.S. dollar strengthened against foreign currencies. Sales within Aerospace were not impacted by changes in foreign currency as these are largely denominated in U.S. dollars. The Company's international sales decreased 2.4% year-over-year, while domestic sales decreased 4.7%. Excluding the impact of foreign currency translation on sales, however, the Company's international sales in 2015 increased 7.8%, inclusive of sales through acquisition, from 2014.

2014 vs. 2013:

The Company reported net sales of \$1,262.0 million in 2014, an increase of \$170.4 million, or 15.6%, from 2013. The Männer Business, acquired on October 31, 2013, provided sales of \$113.7 million during the January through October 2014 period. In Aerospace, sales increased as a result of growth in the OEM manufacturing and the aftermarket MRO business, partially offset by declines within the aftermarket spare parts business. Organic sales increased by \$64.1 million, or 5.9%. Organic growth within the Industrial segment benefited from favorable light vehicle and tool and die end-markets, whereas Aerospace growth within the OEM business resulted from continued strength in demand for

new engines, driven by increased commercial aircraft production. The strengthening of the U.S. dollar against foreign currencies as compared to 2013 decreased net sales by \$7.3 million in 2014. The Company's international sales increased 29.3% year-over-year, primarily due to the acquisition of the Männer Business, while domestic sales increased 4.3%. Excluding the impact of foreign currency translation on sales, the Company's international sales in 2014 increased 30.7% from 2013.

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Expenses and Operating Income

(\$ in millions)	2015	2014	\$ Change	% Change	2013	
Cost of sales	\$782.8	\$829.6	\$(46.8)	(5.6)	\$738.2	%
% sales	65.6	% 65.7	%		67.6	%
Gross profit ⁽¹⁾	\$411.2	\$432.4	\$(21.2)	(4.9)	\$353.4	%
% sales	34.4	% 34.3	%		32.4	%
Selling and administrative expenses	\$242.8	\$252.4	\$(9.6)	(3.8)	\$230.2	%
% sales	20.3	% 20.0	%		21.1	%
Operating income	\$168.4	\$180.0	\$(11.6)	(6.4)	\$123.2	%
% sales	14.1	% 14.3	%		11.3	%

(1) Sales less cost of sales

2015 vs. 2014:

Cost of sales in 2015 decreased 5.6% from 2014, while gross profit margin increased slightly from 34.3% in 2014 to 34.4% in 2015. Gross margins remained flat at Industrial and improved slightly at Aerospace, however a higher percentage of sales were driven by the Industrial segment in 2015. The gross profit decrease during 2015 includes a charge of \$6.4 million related to a lump-sum pension settlement (see Note 12 of the Consolidated Financial Statements). At Industrial, gross profit during 2014 was partially offset by \$4.5 million of short-term purchase accounting adjustments related to the acquisition of the Männer business and restructuring charges of \$5.4 million related to the closure of the Saline facility, which was completed in 2014. During 2015, short term purchase accounting adjustments of \$0.9 million and \$0.9 million were related to the acquisitions of the Männer business and Thermoplay, respectively. Within Aerospace, gross profit declined as a result lower sales within OEM, partially offset by increased profits within the spare parts business, and a \$2.8 million charge related to a contract termination dispute following a customer decision to re-source. Selling and administrative expenses decreased 3.8% from 2014 due primarily to foreign exchange translation and a \$3.4 million reduction in the short-term purchase accounting adjustments related to the acquisition of the Männer business. Lower employee related expenses, primarily from incentive compensation, reduced selling and administrative expenses during the 2015 period. The 2014 period also included \$0.6 million of charges related to the Closure of the Saline facility. These expense reductions during 2015 were partially offset by \$4.2 million of charges related to workforce reductions and severance, \$3.5 million of lump-sum pension settlement charges and \$0.3 million of short-term purchase accounting adjustments related to the acquisition of Thermoplay. As a percentage of sales, selling and administrative costs increased from 20.0% in 2014 to 20.3% in 2015. Operating margin was 14.1% in 2015 compared to 14.3% in 2014.

2014 vs. 2013:

Cost of sales in 2014 increased 12.4% from 2013, while gross profit margin increased from 32.4% in 2013 to 34.3% in 2014. Gross margins improved at Industrial and at Aerospace. Cost of sales in 2013 included a third quarter \$8.6 million pre-tax inventory valuation charge related to a specific family of spare parts within the repair and overhaul business at Aerospace. The acquisition of the Männer Business also resulted in a higher percentage of sales being driven by Industrial during 2014. Gross profit benefits from the Männer Business in 2014 were partially offset by \$4.5 million of short-term purchase accounting adjustments related to the acquisition of the Männer Business and charges of \$5.4 million related to the Closure of the Saline operations. During 2013, gross profit was partially offset by \$3.6 million in short-term purchase accounting adjustments related the Männer Business. Selling and administrative expenses increased 9.6% from 2013 due primarily to the incremental operations of the Männer business, \$4.0 million of short-term purchase accounting adjustments related to the acquisition of the Männer Business and \$0.6 million of charges related to the closure of the Saline operations. During 2013, selling and administrative expenses also included

\$3.7 million in short-term purchase accounting adjustments and transaction costs related to the Männer Business and CEO transition costs of \$10.5 million. As a percentage of sales, selling and administrative costs decreased from 21.1% in 2013 to 20.0% in 2014. Operating margin was 14.3% in 2014 compared to 11.3% in 2013.

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Interest expense

2015 vs. 2014:

Interest expense in 2015 decreased \$0.7 million to \$10.7 million from 2014, primarily as a result of lower average borrowings, partially offset by higher average borrowing rates resulting from the 3.97% Senior Notes that were issued under the Note Purchase Agreement executed on October 15, 2014. See Liquidity and Capital Resources within Item 7.

2014 vs. 2013:

Interest expense in 2014 decreased \$1.7 million to \$11.4 million from 2013, primarily a result of lower average borrowing rates, partially offset by higher average borrowings under the Amended Credit Facility, as defined below.

Other (income) expense, net

2015 vs. 2014:

Other (income) expense, net in 2015 was \$(0.2) million compared to \$2.1 million in 2014. Foreign currency gains of \$0.5 million in the 2015 period compared with foreign currency losses of \$1.5 million in the 2014 period.

2014 vs. 2013:

Other expense (income), net in 2014 was \$2.1 million compared to \$2.5 million in 2013.

Income Taxes

2015 vs. 2014:

The Company's effective tax rate from continuing operations was 23.2% in 2015 compared with 27.6% in 2014. The decrease in 2015 is primarily due to a tax refund of withholding taxes, the granting of an extended tax holiday in China as well as a change in the mix of earnings in lower tax jurisdictions offset by an increase in the repatriation of a portion of current year foreign earnings to the U.S. During 2015, the Company repatriated a dividend from a portion of the current year foreign earnings to the U.S. in the amount of \$19.5 million compared to \$12.5 million in 2014. The increase in the dividend increased tax expense by \$2.4 million and increased the annual effective tax rate by 1.5 percentage points compared to 2014.

In 2016, the Company expects the effective tax rate from continuing operations to increase to between 27% and 29% in part due to the expiration of certain foreign tax holidays as well as the absence of a tax benefit for withholding tax refunds recognized in 2015.

2014 vs. 2013:

The Company's effective tax rate from continuing operations was 27.6% in 2014 compared with 32.8% in 2013 which includes the impact of \$16.4 million of tax expense related to the April 16, 2013 U.S. Court Decision (Note 14 of the Consolidated Financial Statements and below). Excluding the impact of the U.S. Tax Court Decision, the Company's effective tax rate from continuing operations for 2013 was 17.5%. The remaining increase in the 2014 effective tax rate from continuing operations is primarily due to a change in the mix of earnings attributable to higher-taxing jurisdictions (principally in the U.S. and Germany) or jurisdictions where losses cannot be benefited in 2014, the expiration of certain international tax holidays and the increase in the repatriation of a portion of current year foreign

earnings to the U.S. During 2014, the Company repatriated a dividend from a portion of the current year foreign earnings to the U.S. in the amount of \$12.5 million compared to \$5.0 million in 2013. This increase in the dividend increased tax expense by \$3.2 million and increased the annual effective tax rate by 1.9 percentage points compared to 2013.

See Note 14 of the Consolidated Financial Statements for a reconciliation of the U.S. federal statutory income tax rate to the consolidated effective income tax rate.

On April 16, 2013, the United States Tax Court rendered an unfavorable decision in the matter Barnes Group Inc. and Subsidiaries v. Commissioner of Internal Revenue ("Tax Court Decision"). The Tax Court rejected the Company's objections and imposed penalties. The case involved IRS proposed adjustments of approximately \$16.5 million, plus a 20% penalty and interest for the tax years 1998, 2000 and 2001.

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The case arose out of an Internal Revenue Service ("IRS") audit for the tax years 2000 through 2002 (the "IRS Audit"). The adjustment relates to the federal taxation of foreign income of certain foreign subsidiaries. The Company filed an administrative protest of these adjustments. In the third quarter of 2009, the Company was informed that its protest was denied and a tax assessment was received from the Appeals Office of the IRS. Subsequently, in November 2009, the Company filed a petition against the IRS in the United States Tax Court, contesting the tax assessment. A trial was held and all briefs were filed in 2012. In April 2013 the Tax Court Decision was then issued rendering an unfavorable decision against the Company and imposing penalties. As a result of the unfavorable Tax Court Decision, the Company recorded an additional tax charge during 2013 for \$16.4 million.

In November 2013, the Company made a cash payment of approximately \$12.7 million related to tax, interest and penalties and utilized a portion of its net operating losses. The Company also submitted a notice of appeal of the Tax Court Decision to the United States Court of Appeals for the Second Circuit. The Company filed its opening brief with the United States Court of Appeals for the Second Circuit on February 13, 2014 and presented its oral arguments on October 1, 2014.

On November 5, 2014, the Second Circuit Court of Appeals upheld the Tax Court decision. Following the decision by the Second Circuit Court of Appeals, the Company had 60 days in which to file with the U.S. Supreme Court a petition for review. The Company has not filed a petition for review and therefore the judgment of the Second Circuit Court of Appeals is final.

In connection with the IRS Audit, the Company filed protective claims related to withholding taxes paid as a component of the transactions with certain subsidiaries. These filings allowed the Company to preserve the right to claim certain protection should the IRS prevail in its assessment. Upon the expiration of the period to file a petition for review to the U.S. Supreme Court, the Company acted on the protective claims and filed for the refund of the withholding taxes. In the third quarter of 2015, the Company received refunds of \$3.0 million related to the withholding taxes and recorded a corresponding tax benefit.

Discontinued Operations

In April 2013, the Company completed the sale of BDNA to MSC pursuant to the terms of the APA between the Company and MSC. The total cash consideration received for BDNA was \$537.8 million, net of transaction costs and closing adjustments paid. The net after-tax proceeds were \$419.1 million after consideration of certain post closing adjustments, transaction costs and income taxes. In 2013, the Company recorded a net after-tax gain of \$195.3 million on the sale of BDNA, net of transaction-related costs of \$9.7 million, whereas pre-tax income from the discontinued operations at BDNA was \$6.3 million.

The results of BDNA have been segregated and presented as discontinued operations. See Note 3 of the Consolidated Financial Statements.

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Income and Income Per Share (in millions, except per share)					
	2015	2014	Change	% Change	2013
Income from continuing operations	\$121.4	\$120.5	\$0.8	0.7	% \$72.3
(Loss) income from discontinued operations, net of income taxes	—	(2.2	) 2.2	NM	198.2
Net income	\$121.4	\$118.4	\$3.0	2.5	% \$270.5
Per common share:					
Basic:					
Income from continuing operations	\$2.21	\$2.20	\$0.01	0.5	% \$1.34
(Loss) income from discontinued operations, net of income taxes	—	(0.04	) 0.04	NM	3.68
Net income	\$2.21	\$2.16	\$0.05	2.3	% \$5.02
Diluted:					
Income from continuing operations	\$2.19	\$2.16	\$0.03	1.4	% \$1.31
(Loss) income from discontinued operations, net of income taxes	—	(0.04	) 0.04	NM	3.61
Net income	\$2.19	\$2.12	\$0.07	3.3	% \$4.92
Weighted average common shares outstanding:					
Basic	55.0	54.8	0.2	0.4	% 53.9
Diluted	55.5	55.7	(0.2	) (0.4	)% 55.0

NM - Not Meaningful

In 2015, basic and diluted income from continuing operations per common share increased 0.5% and 1.4%, respectively. The increases were directly attributable to the increase in income from continuing operations year over year. Basic weighted average common shares outstanding increased due to the issuance of additional shares for employee stock plans. The impact of these issuances was partially offset by the repurchase of 1,352,596 shares during 2015 as part of the Company's repurchase program. Diluted weighted average common shares outstanding decreased slightly due to a decrease in potentially issuable shares, driven by the redemption of the 3.375% Convertible Notes during 2014 partially offset by the increase in basic weighted average common shares outstanding.

Financial Performance by Business Segment

Industrial

(\$ in millions)	2015	2014	\$ Change	% Change	2013	
Sales	\$782.3	\$822.1	\$(39.8	) (4.8	)% \$687.6
Operating profit	103.0	108.4	(5.4	) (5.0	)% 71.9
Operating margin	13.2	% 13.2	%		10.5	%

2015 vs. 2014:

Sales at Industrial were \$782.3 million in 2015, a decrease of \$39.8 million, or 4.8%, from 2014. The acquisitions of Thermoplay on August 7, 2015 and Priamus on October 1, 2015 provided sales of \$13.6 million and \$2.0 million, respectively, during the 2015 period. Organic sales increased by \$13.5 million, or 1.6%, during 2015, primarily due to favorable end-markets served by our tool and die and plastics businesses during the first half of 2015. A softening within our transportation and general industrial end-markets during the second half of 2015 tempered a substantial

portion of organic growth in the first half. The impact of foreign currency translation decreased sales by approximately \$68.8 million as the U.S. dollar strengthened against foreign currencies.

Operating profit in 2015 at Industrial was \$103.0 million, a decrease of 5.0% from 2014. Operating profit benefited primarily from the profit contribution of increased organic sales within our end markets during the first half of 2015, more than

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offset by lower productivity and the unfavorable impact of foreign exchange during the full year. The 2015 period also included lump-sum pension settlement charges of \$7.5 million that were allocated to the segment, short-term purchase adjustments and transaction costs resulting from the acquisitions of Thermoplay and Priamus of \$1.9 million and \$0.2 million, respectively, and \$3.4 million of charges related to certain workforce reductions and restructuring. Lower sales volumes during the second half of 2015 tapered the benefit of growth in organic sales during the first half of the year. The 2014 period included \$8.5 million of short-term purchase accounting adjustments related to the acquisition of the Männer Business, whereas the 2015 period included \$1.5 million of such adjustments. The 2014 period also included \$6.0 million of pre-tax restructuring charges related to the closure of production operations at the facility in Saline, Michigan.

Outlook:

In the Industrial manufacturing businesses, management is focused on generating organic sales growth through the introduction of new products 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. The Company is continuing to see softness in certain global industrial markets as indicated by declining Purchasing Managers Indexes (PMIs) in North America and China. In our light vehicle markets, production levels in North America and Europe are growing, while China's automotive build forecast, while growing, is decelerating. As noted above, our sales were negatively impacted by fluctuations in foreign currencies during 2015 of \$68.8 million. A significant portion of businesses within the Industrial segment are domiciled in Europe. To the extent that the U.S. dollar strengthens as compared with the Euro and other foreign currencies, our sales may continue to be unfavorably 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 the European businesses have expenses primarily denominated in local currencies, where their revenues reside. 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. The Company is currently in the process of negotiating a collective bargaining agreement ("CBA") with certain unionized employees at the Bristol, CT and Corry, PA facilities, which are located within the Associated Spring business unit. The current CBA expired on November 30, 2014, and we continue to negotiate to reach a successor agreement.

Operating profit is largely dependent on the sales volumes and mix of the businesses in the segment. Management continues to focus on improving profitability and expanding margins through leveraging organic sales growth, acquisitions, pricing initiatives, and productivity and process improvements. The Company continues to actively manage costs during these periods of market softening. Workforce reductions and facility consolidations, combined with other productivity initiatives, are expected to contribute favorably in 2016. We continue to evaluate market conditions and remain pro-active in managing costs if markets further soften. Costs associated with new product and process introductions, plant consolidations, strategic investments and the integration of acquisitions may negatively impact operating profit.

2014 vs. 2013:

Sales at Industrial were \$822.1 million in 2014, an increase of 19.6% from 2013. The Männer Business, acquired on October 31, 2013, provided sales of \$113.7 million during the January through October 2014 period, and segment organic sales increased by \$28.1 million, or 4.1%, during 2014. Organic growth resulted from favorable light vehicle and tool and die end-markets and strengthening within the geographic markets into which the Company sells. The impact of foreign currency translation decreased sales by approximately \$7.3 million as the U.S. dollar strengthened against foreign currencies.

Operating profit in 2014 at Industrial was \$ 108.4 million, an increase of 50.7% from 2013. Operating profit benefited from the profit contributions of the acquired Männer Business and increased organic sales, and was partially offset by charges of \$6.0 million related to the closure of the Saline operations and \$8.5 million of short-term purchase accounting adjustments related to the acquisition of the Männer Business. During 2013, operating profits were partially offset by \$7.3 million in short-term purchase accounting adjustments and transaction costs related the Männer Business and CEO transition costs of \$6.6 million that were allocated to the segment during the year.

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Aerospace

(\$ in millions)	2015	2014	\$ Change	% Change	2013	
Sales	\$411.7	\$440.0	\$(28.3)	(6.4)	\$404.0	%
Operating profit	65.4	71.6	(6.2)	(8.6)	51.3	%
Operating margin	15.9	% 16.3	%		12.7	%

2015 vs. 2014:

Aerospace recorded sales of \$411.7 million in 2015, a 6.4% decrease from 2014. Lower sales within the OEM and MRO businesses were partially offset by increased sales within the spare parts business. The spare parts business benefited from increased demand as a result of higher aircraft utilization and customer restocking of inventory, whereas the MRO business continued to be impacted by deferred maintenance on certain platforms. The timing of customer deliveries and execution, which was partially impacted by new product introduction challenges, in addition to the impact of a contract termination dispute, directly impacted lower sales within the OEM business during the second half of 2015. Sales were not impacted by changes in foreign currency as sales within the segment are largely denominated in U.S. dollars.

Operating profit at Aerospace decreased 8.6% from 2014 to \$65.4 million. The operating profit decrease was primarily due to the profit impact of lower sales within the OEM and MRO businesses, lump-sum pension settlement charges of \$2.4 million that were allocated to the segment, \$0.8 million in workforce reduction and restructuring charges, a \$2.8 million charge that resulted from a contract termination dispute following a customer decision to re-source work and lower productivity. Partially offsetting these items were the higher profit impact of increased sales within the spare parts business and lower employee related costs, primarily incentive compensation, partially offset by higher pension costs.

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 continued strength in demand for new engines, driven by increased commercial aircraft production. Backlog at OEM was \$563.9 million at December 31, 2015, an increase of 8.7% since December 31, 2014, at which time backlog was \$518.6 million. Approximately 50% of this backlog at December 31, 2015 is expected to be shipped over the next 12 months, with a greater mix of our backlog reflecting new engine programs. 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, our ability to expand operations within lower cost regions, changes in production schedules of specific engine and airframe programs, as well as the pursuit of new programs. Sales levels in the Aerospace aftermarket business may be impacted by fluctuations in end-market demand, 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. Fluctuations in fuel costs and their impact on airline profitability and behaviors within the aerospace industry could 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 value associated with new fuel efficient technologies. The Company does not expect that fluctuations in fuel costs will have a significant impact in the near

term on the OEM business, however may impact the MRO business.

Management is focused on growing operating profit at Aerospace primarily through leveraging organic sales growth, strategic investments, productivity initiatives, new product and process introductions and continued cost management. 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. During the fourth quarter of 2015, the Company has responded to the challenging economic environment affecting certain of our Aerospace businesses. As noted above, workforce reductions and restructure charges primarily related to a plant consolidation were recorded following reduced aftermarket volumes and the impact of the OEM customers re-sourcing decision. These actions supporting our productivity initiatives are expected to favorably impact 2016. We continue to evaluate market conditions and remain pro-active in managing costs if markets further soften. Costs associated with new product and process introductions, the physical transfer of work to lower cost manufacturing regions and additional restructuring activities may negatively impact operating profit.

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2014 vs. 2013:

Aerospace recorded sales of \$440.0 million in 2014, a 8.9% increase from 2013. A sales increase in the OEM business and the aftermarket MRO business was partially offset by slightly lower sales in the aftermarket spare parts business. Increased sales within the OEM business reflected continued strength in demand for new engines, driven by increased aircraft production. Sales in the MRO business benefited primarily from the CRPs that were executed in December 2013 and June 2014.

Operating profit at Aerospace increased 39.6% from 2013 to \$71.6 million. Operating profit benefited from increased sales in the OEM business and increased sales in the MRO business, primarily due to the profit impact of the CRPs. These benefits were partially offset by an increase in employee related costs, primarily due to incentive compensation. Operating profit in 2013 also included a \$8.6 million pre-tax inventory valuation charge related to a specific family of spare parts within the MRO business and CEO transition costs of \$3.9 million allocated to the segment.

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's 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 2016 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.

On October 15, 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 (BOLI 30C), 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 Company completed funding of the transaction and issued the 3.97% Senior Notes on October 17, 2014. The 3.97% Senior Notes are senior unsecured obligations of the Company and will 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 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 December 31, 2015, the Company was in compliance with all covenants under the Note Purchase Agreement.

During the second quarter of 2014, the 3.375% Convertible Notes (the "3.375% Notes") were eligible for conversion due to meeting their conversion price eligibility requirement. On June 16, 2014, \$0.2 million of the 3.375% Notes (par value) were surrendered for conversion. On June 24, 2014, the Company exercised its right to redeem the remaining \$55.4 million principal amount of the 3.375% Notes, effective July 31, 2014. The Company elected to pay cash to holders of the 3.375% Notes surrendered for conversion, including the value of any residual shares of common stock that might be payable to the holders electing to convert their 3.375% Notes into an equivalent share value. Under the terms of the indenture, the conversion value was measured based upon a 20-day valuation period of the Company's stock price. The Company used borrowings under its Amended Credit Facility to finance the redemption and

conversion of the 3.375% Notes. The remaining 3.375% Notes were rendered for conversion during the third quarter of 2014 and the Company paid \$70.5 million in cash to the holders, which included a premium of \$14.9 million.

In September 2013, the Company entered into a second amendment to 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 \$750.0 million Amended Credit Agreement matures in September 2018 with an option to extend the maturity date for an additional year, subject to certain conditions. The Amended Credit Agreement adds a new foreign subsidiary borrower in Germany, Barnes Group Acquisition GmbH, and includes an accordion feature to increase the borrowing availability of the Company to \$1,000.0 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 continuing. The borrowing availability of \$750.0 million, pursuant to the terms of the Amended Credit Agreement, allows for Euro-denominated borrowings equivalent to \$500.0 million. Borrowings

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under the Amended Credit Agreement bear interest at LIBOR plus a spread ranging from 1.10% to 1.70% depending on the Company's leverage ratio at prior quarter end.

The Company's borrowing capacity may be 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 in the Agreements, to Consolidated EBITDA, as defined, of not more than 3.25 times at the end of each fiscal quarter ("Senior Debt Ratio"), a ratio of Consolidated Total Debt, as defined, to Consolidated EBITDA of not more than 4.00 times at the end of each fiscal quarter, and a ratio of Consolidated EBITDA to Consolidated Cash Interest Expense, as defined, of not less than 4.25 times at the end of each fiscal quarter. The Agreements also provide that in connection with certain permitted acquisitions with aggregate consideration in excess of \$150.0 million, the Consolidated Senior Debt to EBITDA ratio and the Consolidated Total Debt to EBITDA ratio are permitted to increase to 3.50 times and 4.25 times, respectively, for a period of the four fiscal quarters ending after the closing of the acquisition. At December 31, 2015, 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 December 31, 2015. The actual ratio at December 31, 2015 was 1.85 times.

In 2015, 2014 and 2013, the Company acquired 1.4 million shares, 0.2 million shares and 2.4 million shares of the Company's common stock, respectively, at a cost of \$52.1 million, \$8.4 million and \$68.6 million, respectively.

In August 2015, the Company completed the acquisition of Thermoplay, a permitted transaction pursuant to the terms of the Amended Credit Agreement. The Company acquired all of the capital stock of HPE for an aggregate purchase price of €58.1 million (\$63.7 million), consisting of €56.7 million (\$62.2 million) in cash, which was paid using cash on hand of €28.7 million (\$31.5 million) and borrowings of €28.0 million (\$30.7 million) under the Company's revolving credit facility, and a €1.4 million (\$1.5 million) estimated liability to the seller. At December 31, 2015, the Company had repaid all €28.0 million of the borrowings under the revolving credit facility.

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 17 banks, will continue to support its Amended Credit Agreement which matures in September 2018. At December 31, 2015, the Company had \$370.3 million unused and available for borrowings under its \$750.0 million Amended Credit Facility, subject to covenants in the Company's debt agreements. At December 31, 2015, additional borrowings of \$595.0 million of Total Debt and \$387.8 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 \$22.5 million in borrowings under short-term bank credit lines at December 31, 2015.

In 2012, the Company entered into five-year interest rate swap agreements transacted with three banks which together convert the interest on the first \$100.0 million of borrowings under the Company's Credit Agreement 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. At December 31, 2015, the Company's total borrowings were comprised of approximately 41% fixed rate debt and 59% variable rate debt compared to 40% fixed rate debt and 60% variable rate debt as of December 31, 2014.

The funded status of the Company's pension plans is dependent upon many factors, including actual rates of return that impact the fair value of pension assets and changes in discount rates that impact projected benefit obligations. The

unfunded status of the pension plans increased from \$60.7 million at December 31, 2014 to \$65.7 million at December 31, 2015 as the reduction in the fair value of the pension plan assets exceeded the decrease in the projected benefit obligations ("PBOs"), following an update of certain actuarial assumptions. The Company recorded a \$9.6 million non-cash after-tax increase in stockholders' equity (through other non-owner changes to equity) during 2015 that included the amortization of actuarial losses, including the accelerated amortization of actuarial losses related to the pre-tax \$9.9 million lump sum pension settlement (described below), changes in actuarial assumptions and current year adjustments for changes in the funded status of its pension and postretirement benefit plans as required under the applicable accounting standards for defined benefit pension and other postretirement plans. In 2015, the Company made \$4.5 million in contributions to its various defined benefit pension plans. The Company expects to contribute approximately \$19.4 million to its various defined benefit pension plans in 2016, including \$15.0 million of discretionary contributions to the U.S. Qualified pension plans. See Note 12 of the Consolidated Financial Statements.

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In September 2015, the Company announced a limited-time program offering (the "Program") to certain eligible, vested, terminated participants ("eligible participants") for a voluntary lump-sum pension payout or reduced annuity option (the "payout") that, if accepted, would settle the Company's pension obligation to them. The Program provides the eligible participants with a limited time opportunity of electing to receive a lump-sum settlement of their remaining pension benefit, or reduced annuity. The eligible participants notified the Company by November 20, 2015, the required deadline, to confirm whether they would opt for a lump-sum payout or reduced annuity. The scheduled payments of \$28.0 million were made in December 2015. The payouts were funded by the assets of the Company's pension plan and therefore the Program did not require significant cash outflows by the Company. The resultant pre-tax settlement charge of \$9.9 million reflects the accelerated amortization of actuarial losses and was recorded within costs of sales and selling and administrative expenses within the Consolidated Statements of Income.

At December 31, 2015, the Company held \$83.9 million in cash and cash equivalents, the majority of which was held by foreign subsidiaries. These amounts have no material regulatory or contractual restrictions and are expected to primarily fund international investments. The Company repatriated \$19.5 million of current year foreign earnings to the U.S. during 2015.

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

(\$ in millions)	2015	2014	\$ Change	% Change	2013
Operating activities	\$209.9	\$186.9	\$23.0	12.3	% \$10.1
Investing activities	(115.5)	(124.2 )	) 8.8	7.0	% 157.4
Financing activities	(51.6)	(83.5 )	) 32.0	38.2	% (182.8)
Exchange rate effect	(4.9)	(3.9 )	) (1.0)	(25.5 )	)% (0.2)
Increase (decrease) in cash	\$37.9	\$(24.8 )	) \$62.7	NM	\$ (15.5)

NM – Not meaningful

Operating activities provided \$209.9 million in 2015 compared to \$186.9 million in 2014. Operating cash flows in the 2015 period were positively impacted by improved operating performance and the absence of the use of cash for working capital seen in the 2014 period, which was driven by sales growth that resulted in an increase in receivables in 2014. The improvements in the 2015 period were partially offset by a reduction in accrued liabilities related primarily to employee incentive compensation.

Investing activities used \$115.5 million in cash in 2015 and \$124.2 million in 2014. Investing activities in 2015 include a cash outflow of \$52.0 million required to fund the Thermoplay and Priamus acquisitions and capital expenditures of \$46.0 million, compared to \$57.4 million in 2014. Investing activities in 2015 and 2014 also include cash outflows of \$21.0 million and \$70.1 million, respectively, related to the Component Repair Programs ("CRPs"). See Note 6 of the Consolidated Financial Statements. The Company expects capital spending in 2016 to approximate \$50 million. Capital expenditures relate to both maintenance needs and support of growth initiatives, which include the purchase of equipment and facilities to support new products and services, and will be funded primarily through cash flows from operations.

Cash used by financing activities in 2015 included a net increase in borrowings of \$2.7 million compared to a net decrease of \$32.0 million in 2014. Financing activities in the 2014 period include the redemption of the convertible debt which is reflected within payments on long-term debt (\$55.6 million par value) and premium paid on convertible debt redemption (\$14.9 million) which were financed through borrowings under the Amended Credit Facility. Financing activities in the 2014 period also include the payment of an assumed liability to the seller in connection with the acquisition of the Männer Business. Proceeds from the issuance of common stock remained flat at \$11.4 million and \$11.5 million in 2015 and 2014, respectively. Stock repurchases of 1.4 million shares during the 2015 period cost \$52.1 million whereas 0.2 million shares were purchased in 2014 at a cost of \$8.4 million. Total cash used to pay dividends increased to \$26.2 million in 2015 compared to \$24.5 million in 2014, primarily due to a dividend rate increase. Cash used by financing activities in the 2015 and 2014 periods was partially offset by \$2.7 million and \$4.9 million, respectively, in excess tax benefits recorded for current year tax deductions related to

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employee stock plan activity. Other financing cash flows during 2015 include \$10.3 million of net cash proceeds from the settlement of foreign currency hedges related to intercompany financings.

Debt Covenants

Borrowing capacity is limited by various debt covenants in the Company's debt agreements. As of December 31, 2015, the most restrictive financial covenant is included within the Amended Credit Agreement and the Note Purchase Agreement and requires the Company to maintain a maximum ratio of Consolidated Senior Debt, as defined, to Consolidated EBITDA, as defined, of not more than 3.25 times for the four fiscal quarters then ending. The Agreements also contain other financial covenants that require the maintenance of a certain other debt ratio, Consolidated Total Debt, as defined, to Consolidated EBITDA of not more than 4.00 times and a certain interest coverage ratio, Consolidated EBITDA to Consolidated Cash Interest Expense, as defined, of at least 4.25 times, at December 31, 2015. The Agreements also provide that in connection with certain permitted acquisitions with aggregate consideration in excess of \$150.0 million, the Consolidated Senior Debt to EBITDA ratio and the Consolidated Total Debt to EBITDA ratio are permitted to increase to 3.50 times and 4.25 times, respectively, for a period of the four fiscal quarters ending after the closing of the acquisition. Following is a reconciliation of Consolidated EBITDA to the Company's net income (in millions):

	2015
Net income	\$121.4
Add back:	
Interest expense	10.7
Income taxes	36.6
Depreciation and amortization	78.2
Adjustment for non-cash stock based compensation	9.1
Adjustment for acquired businesses	4.6
Workforce reduction and restructuring charges	4.5
Pension lump-sum settlement charge	9.9
Other adjustments	1.3
Consolidated EBITDA, as defined	\$276.2
Consolidated Senior Debt, as defined, as of December 31, 2015	\$509.9
Ratio of Consolidated Senior Debt to Consolidated EBITDA	1.85
Maximum	3.25
Consolidated Total Debt, as defined, as of December 31, 2015	\$509.9
Ratio of Consolidated Total Debt to Consolidated EBITDA	1.85
Maximum	4.00
Consolidated Cash Interest Expense, as defined, as of December 31, 2015	\$11.4
Ratio of Consolidated EBITDA to Consolidated Cash Interest Expense	24.31
Minimum	4.25

The Amended Credit Agreement allows for certain adjustments within the calculation of the financial covenants. The adjustment for acquired businesses reflects the unaudited pre-acquisition operations of Thermoplay and Priamus for the periods from January 1, 2015 through August 6, 2015 and from January 1, 2015 through September 30, 2015, respectively. The workforce reduction and restructuring charges include charges recorded during 2015 related to workforce reductions and the closure of the Saline facility. The pension lump-sum settlement charge represents the accelerated amortization of actuarial pension losses. See Note 12 of the Consolidated Financial Statements. Other adjustments consist of net gains on the sale of assets, the amortization of the Thermoplay acquisition inventory step-up and due diligence and transaction expenses as permitted under the Amended Credit Agreement. The

Company's financial covenants are measured as of the end of each fiscal quarter. At December 31, 2015, additional borrowings of \$595.0 million of Total Debt and \$387.8 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 December 31, 2015 were \$370.3 million.

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Contractual Obligations and Commitments

At December 31, 2015, the Company had the following contractual obligations and commitments:

(\$ in millions)	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 Years
Long-term debt obligations ⁽¹⁾	\$509.9	\$24.2	\$382.1	\$1.2	\$102.4
Estimated interest payments under long-term obligations ⁽²⁾	51.9	10.0	18.3	8.2	15.3
Operating lease obligations	29.5	7.6	7.9	4.5	9.5
Purchase obligations ⁽³⁾	122.6	113.3	6.3	2.5	0.6
Expected pension contributions ⁽⁴⁾	19.4	19.4	—	—	—
Expected benefit payments – other postretirement benefit plans ⁽⁵⁾	33.3	4.5	7.5	7.2	14.2
Total	\$766.7	\$179.0	\$422.0	\$23.6	\$142.0

(1) Long-term debt obligations represent the required principal payments under such agreements.

(2) Interest payments under long-term debt obligations have been estimated based on the borrowings outstanding and market interest rates as of December 31, 2015.

The amounts do not include purchase obligations reflected as current liabilities on the consolidated balance sheet.

(3) The purchase obligation amount includes all outstanding purchase orders as of the balance sheet date as well as the minimum contractual obligation or termination penalty under other contracts.

(4) The amount included in “Less Than 1 Year” reflects anticipated contributions to the Company’s various pension plans. Anticipated contributions beyond one year are not determinable.

The amounts reflect anticipated future benefit payments under the Company’s various other postretirement benefit

(5) plans based on current actuarial assumptions. Expected benefit payments do not extend beyond 2025. See Note 12 of the Consolidated Financial Statements.

The above table does not reflect unrecognized tax benefits as the timing of the potential payments of these amounts cannot be determined. See Note 14 of the Consolidated Financial Statements.

OTHER MATTERS

Inflation

Inflation generally affects the Company through its costs of labor, equipment and raw materials. Increases in the costs of these items have historically been offset by price increases, commodity price escalator provisions, operating improvements, and other cost-saving initiatives.

Critical Accounting Policies

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. The most significant areas involving management judgments and estimates are described below. Actual results could differ from such estimates.

Inventory Valuation: Inventories are valued at the lower of cost, determined on a first-in, first-out basis, or market. Provisions are made to reduce excess or obsolete inventories to their estimated net realizable value. Loss provisions, if any, on aerospace contracts are established when estimable. Loss provisions are based on the projected excess of

manufacturing costs over the net revenues of the products or group of related products under contract or purchase order. The Company carries a certain amount of inventory which includes certain parts related to specific engines within the Aftermarket MRO business. The process for evaluating the value of excess and obsolete inventory often requires the Company to make subjective judgments and estimates concerning future sales levels, access to applicable markets, quantities and prices at which such inventory will be sold in the normal course of business. Accelerating the disposal process or incorrect estimates of future sales potential may necessitate future adjustments to these provisions.

Business Acquisitions, Indefinite-Lived Intangible Assets and Goodwill: Assets and liabilities acquired in a business combination are recorded at their estimated fair values at the acquisition date. At December 31, 2015, the Company had \$588.0 million and \$38.4 million of goodwill and indefinite-lived intangible assets, respectively. Goodwill represents the cost of acquisitions in excess of fair values assigned to the underlying net assets of acquired companies. Goodwill and intangible assets deemed to have indefinite lives are not amortized but are subject to impairment testing annually or earlier if an event or change in circumstances indicates that the fair value of a reporting unit may have been reduced below its carrying value. Management

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completes its annual impairment assessments for goodwill and indefinite-lived intangible assets during the second quarter of each year. The Company uses the option to first assess qualitative factors to determine whether it is necessary to perform the two-step quantitative impairment tests in accordance with applicable accounting standards.

Under the qualitative goodwill assessment, management considers relevant events and circumstances including but not limited to macroeconomic conditions, industry and market considerations, overall unit performance and events directly affecting a unit. If the Company determines that the two-step quantitative impairment test is required, management estimates the fair value of the reporting unit primarily using the income approach, which reflects management's cash flow projections, and also evaluates the fair value using the market approach. Inherent in management's development of cash flow projections are assumptions and estimates, including those related to future earnings and growth and the weighted average cost of capital. Based on the second quarter 2015 assessment, the estimated fair value of all reporting units significantly exceeded their carrying values. There was no goodwill impairment at any reporting units through June 30, 2015. Many of the factors used in assessing fair value are outside the control of management, and these assumptions and estimates can change in future periods as a result of both Company-specific and overall economic conditions. Management's quantitative assessment during the second quarter of 2015 included a review of the potential impacts of current and projected market conditions from a market participant's perspective on reporting units' projected cash flows, growth rates and cost of capital to assess the likelihood of whether the fair value would be less than the carrying value. While management expects future operating improvements at certain reporting units to result from improving end-market conditions, new product introductions and further market penetration, there can be no assurance that such expectations will be met or that the fair value of the reporting units will continue to exceed their carrying values. If the fair values were to fall below the carrying values, a non-cash impairment charge to income from operations could result. Management also performed its annual impairment testing of its trade names, indefinite-lived intangible assets, during the second quarter of 2015. Based on this assessment, there was no trade name impairment recognized.

Aerospace Aftermarket Programs: The Company participates in aftermarket RSPs under which the Company receives an exclusive right to supply designated aftermarket parts over the life of the related aircraft engine program. As consideration, the Company has paid participation fees, which are recorded as intangible assets. The carrying value of these intangible assets was \$209.1 million at December 31, 2015. The Company records amortization of the related asset as sales dollars are being earned based on a proportional sales dollar method. Specifically, this method amortizes each asset as a reduction to revenue based on the proportion of sales under a program in a given period to the estimated aggregate sales dollars over the life of that program which reflects the pattern in which economic benefits are realized.

The Company entered into Component Repair Programs ("CRPs") with General Electric ("GE") during the fourth quarter of 2013 ("CRP 1"), the second quarter of 2014 ("CRP 2") and the fourth quarter of 2015 ("CRP 3"). The CRPs provide for, among other items, the right to sell certain aftermarket component repair services for CFM56, CF6, CF34 and LM engines directly to other customers as one of a few GE licensed suppliers. In addition, the CRPs extend certain existing contracts under which the Company currently provides these services directly to GE. The Company agreed to pay \$26.6 million, \$80.0 million and \$5.2 million as consideration for the rights related CRP1, CRP 2 and CRP 3, respectively. The Company recorded the CRP payments as an intangible asset which is recognized as a reduction of sales over the remaining useful life of these engine programs. This method reflects the pattern in which the economic benefits of the CRPs are realized.

The recoverability of each asset is subject to significant estimates about future revenues related to the programs' aftermarket parts and services. The Company evaluates these intangible assets for recoverability and updates amortization rates on an agreement by agreement basis for the RSPs and on an individual asset basis for the CRPs. The assets are reviewed for recoverability periodically including whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. Annually, the Company evaluates the remaining useful

life of these assets to determine whether events and circumstances warrant a revision to the remaining periods of amortization. Management updates revenue projections, which includes comparing actual experience against projected revenue and industry projections. The potential exists that actual revenues will not meet expectations due to a change in market conditions, including, for example, the replacement of older engines with new, more fuel-efficient engines or the Company's ability to capture additional market share within the aftermarket business. A shortfall in future revenues may indicate a triggering event requiring a write down or further evaluation of the recoverability of the assets or require the Company to accelerate amortization expense prospectively dependent on the level of the shortfall. The Company has not identified any impairment of these assets. See Note 6 of the Consolidated Financial Statements.

Pension and Other Postretirement Benefits: Accounting policies and significant assumptions related to pension and other postretirement benefits are disclosed in Note 12 of the Consolidated Financial Statements. As discussed further below, the significant assumptions that impact pension and other postretirement benefits include discount rates, mortality rates and expected long-term rates of return on invested pension assets.

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The following table provides a breakout of the current targeted mix of investments, by asset classification, along with the historical rates of return for each asset class and the long-term projected rates of return for the U.S. plans.

Asset class	Target Asset Mix %	Annual Return %	
		Historical ⁽¹⁾	Long- Term Projection
U.S. large cap growth equity	6	9.9	8.2
U.S. large cap value equity	5	10.5	8.2
U.S. mid cap equity	4	11.9	8.5
U.S. small cap - growth equity	2	8.4	9.1
U.S. small cap - value equity	2	11.0	9.1
Global equity	13	7.5	9.3
International Developed market equity	20	5.3	9.7
Emerging market equity	13	10.3	12.4
Fixed income - long government credit	15	8.4	5.6
Fixed income - long credit	15	8.2	5.9
Cash	5	3.5	3.0
Weighted average		8.6	8.25

(1) Historical returns based on the life of the respective index, or approximately 30 years.

The historical rates of return for the Company's defined benefit plans were calculated based upon compounded average rates of return of published indices. In 2014, the Company approved a change in the targeted mix of assets. The revised target mix reflects a 65% equity investment target and a 35% target for fixed income and cash investments (in aggregate). This represents a strategic investment shift from a 75% equity investment target and 25% target for fixed income and cash investments (in aggregate). Within the equity investment of 65%, the Company shifted more heavily from U.S. equity investment targets to global equity investment targets. Based on the historical and projected rates of return of the revised target asset mix, management selected a long-term expected rate of return on its U.S. pension assets of 8.25%. The long-term rates of return for non-U.S. plans were selected based on actual historical rates of return of published indices that were used to measure the plans' target asset allocations. Historical rates were then discounted to consider fluctuations in the historical rates as well as potential changes in the investment environment.

The discount rate used for the Company's U.S. pension plans reflects the rate at which the pension benefits could be effectively settled. At December 31, 2015, the Company selected a discount rate of 4.65% based on a bond matching model for its U.S. pension plans. Market interest rates have increased in 2015 as compared with 2014 and, as a result, the discount rate used to measure pension liabilities increased from 4.25% at December 31, 2014. The discount rates for non-U.S. plans were selected based on highly rated long-term bond indices and yield curves that match the duration of the plan's benefit obligations.

A one-quarter percentage point change in the assumed long-term rate of return on the Company's U.S. pension plans as of December 31, 2015 would impact the Company's 2016 pre-tax income by approximately \$1.0 million. A one-quarter percentage point decrease in the discount rate on the Company's U.S. pension plans as of December 31, 2015 would decrease the Company's 2016 pre-tax income by approximately \$1.1 million. The Company reviews these and other assumptions at least annually.

The Company recorded a \$9.6 million non-cash after-tax increase in stockholders equity (through other non-owner changes to equity) to record the current year adjustments for changes in the funded status of its pension and

postretirement benefit plans as required under accounting for defined benefit and other postretirement plans. This increase in stockholders equity resulted primarily from the amortization of actuarial losses, including the accelerated amortization of actuarial losses related to the lump sum pension settlement and changes in actuarial assumptions, combined with unfavorable variances between expected and actual returns on pension plan assets. During 2015, the fair value of the Company's pension plan assets decreased by \$57.3 million and the projected benefit obligation decreased \$52.3 million. The change in the projected benefit obligation included a \$18.9 million (pre-tax) decrease due to actuarial gains resulting primarily from a change in the discount rates used to measure pension liabilities and \$56.7 million in benefits paid, partially offset by annual interest cost of \$20.0 million. Benefit payments of \$28.0 million were made under the Program (as discussed above), driving the increase in payments from \$27.4 million in 2014 to \$56.7 million in 2015. Changes to other actuarial assumptions in 2015 did not have a material impact on our stockholders equity or projected benefit obligation. Actual pre-tax losses on total pension plan assets were \$3.8 million compared with an expected pre-tax return on pension assets of \$32.4 million. Pension expense for 2016 is

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expected to decrease from \$18.4 million in 2015, of which \$9.9 million relates to settlements, to \$4.9 million in 2016, due in part to higher discount rates.

Income Taxes: As of December 31, 2015, the Company had recognized \$26.0 million of deferred tax assets, net of valuation reserves. The realization of these benefits is dependent in part on the amount and timing of future taxable income in the jurisdictions where deferred tax assets reside. For those jurisdictions where the expiration date of tax loss carryforwards or the proposed operating results indicate that realization is not likely, a valuation allowance is provided. Management believes that sufficient taxable income should be earned in the future to realize deferred income tax assets, net of valuation allowances recorded.

The valuation of deferred tax assets requires significant judgment. Management's assessment that the deferred tax assets will be realized represents its estimate of future results; however, there can be no assurance that such expectations will be met. Changes in management's assessment of achieving sufficient future taxable income could materially increase the Company's tax expense and could have a material adverse impact on the Company's financial condition and results of operations.

Additionally, the Company is exposed to certain tax contingencies in the ordinary course of business and records those tax liabilities in accordance with the guidance for accounting for uncertain tax positions. For tax positions where the Company believes it is more likely than not that a tax benefit will be sustained, the Company has recorded the largest amount of tax benefit with a greater than 50% likelihood of being realized. For those income tax positions where it is more likely than not that a tax benefit will not be sustained, no tax benefit has been recognized in the financial statements. See Note 14 of the Consolidated Financial Statements.

Stock-Based Compensation: The Company accounts for its stock-based employee compensation plans at fair value on the grant date and recognizes the related cost in its consolidated statement of income in accordance with accounting standards related to share-based payments. The fair values of stock options are estimated using the Black-Scholes option-pricing model based on certain assumptions. The fair values of service and performance based share awards are estimated based on the fair market value of the Company's stock price on the grant date. The fair value of market based performance share awards are estimated using the Monte Carlo valuation method. See Note 13 of the Consolidated Financial Statements.

Recent Accounting Changes

In May 2014, the Financial Accounting Standards Board ("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 will supersede 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 will (1) identify the contract(s) with a customer; (2) identify the performance obligations in the contract; (3) determine the transaction price; (4) allocate the transaction price to the contract's performance obligations; and (5) recognize 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. The amended guidance was initially effective for annual reporting periods (including interim periods within those periods) beginning after December 15, 2016 for public companies. Early adoption is not permitted. On July 9, 2015, the FASB approved a deferral of the effective date by one year to December 15, 2017 for annual reporting periods beginning after that date. The FASB also proposed permitting early adoption of the standard, but not before the original effective date of December 15, 2016. Entities have the option of using either a full retrospective or modified retrospective approach to the amended guidance. The Company is evaluating this guidance and has not determined the impact that it

may have on its financial statements nor decided upon the method of adoption.

In April 2015, the FASB amended its guidance related to the presentation of debt issuance costs. The amended guidance specifies that debt issuance costs related to notes shall be reported in the balance sheet as a direct deduction from the face amount of that note and that amortization of debt issuance costs shall be reported as interest expense. The amended guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2015 and should be applied retrospectively. The Company has evaluated the guidance and believes it will not have a material impact on its Consolidated Financial Statements.

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 or net realizable value and thereby simplifies the current guidance of measuring inventory at the lower of cost or market. The amended guidance is effective prospectively for fiscal years, and interim periods

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within those fiscal years, beginning after December 15, 2016. The Company is currently evaluating the guidance and does not anticipate a material impact on its Consolidated Financial Statements.

In November 2015, the FASB amended its guidance related to the balance sheet classification of deferred income taxes. The amended guidance removes the requirement to separate and classify deferred income tax liabilities and assets into current and non-current amounts and requires an entity to now classify all deferred tax liabilities and assets as non-current. The amended guidance can be adopted either on a prospective or retrospective basis and is effective for interim and annual periods beginning after December 15, 2016. Early adoption is permitted. The Company plans to classify its non-current deferred income tax assets and liabilities to current deferred income tax assets and liabilities on the Consolidated Statement Balance Sheets at the date of adoption.

EBITDA

Earnings before interest expense, income taxes, and depreciation and amortization (“EBITDA”) for 2015 was \$246.9 million compared to \$257.4 million in 2014. EBITDA is a measurement not in accordance with generally accepted accounting principles (“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. 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. Accordingly, the calculation has limitations depending on its use.

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

	2015	2014
Net income	\$121.4	\$118.4
Add back:		
Interest expense	10.7	11.4
Income taxes	36.6	46.3
Depreciation and amortization	78.2	81.4
EBITDA	\$246.9	\$257.4

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Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Market risk is the potential economic loss that may result from adverse changes in the fair value of financial instruments. The Company's financial results could be impacted by changes in interest rates and foreign currency exchange rates, and commodity price changes. The Company uses financial instruments to hedge its exposure to fluctuations in interest rates and foreign currency exchange rates. The Company does not use derivatives for speculative or trading purposes.

The Company's long-term debt portfolio consists of fixed-rate and variable-rate instruments and is managed to reduce the overall cost of borrowing while also minimizing the effect of changes in interest rates on near-term earnings. The Company's primary interest rate risk is derived from its outstanding variable-rate debt obligations. Financial instruments have been used by the Company to hedge its exposures to fluctuations in interest rates. In April 2012, the Company entered into five-year interest rate swap agreements transacted with three banks which together convert the interest on the first \$100.0 million of borrowings under the Company's Amended Credit Agreement 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. At December 31, 2015, the result of a hypothetical 100 basis point increase in the average cost of the Company's variable-rate debt would have reduced annual pretax profit by \$2.9 million.

At December 31, 2015, the fair value of the Company's fixed-rate debt was \$110.4 million, compared with its carrying amount of \$107.5 million. The Company estimates that a 100 basis point decrease in market interest rates at December 31, 2015 would have increased the fair value of the Company's fixed rate debt to \$118.1 million.

The Company has manufacturing, sales and distribution facilities around the world and thus makes investments and conducts business transactions denominated in various currencies. The Company is exposed primarily to financial instruments denominated in currencies other than the functional currency at its international locations. A 10% adverse change in foreign currencies relative to the U.S. dollar at December 31, 2015 would have resulted in a \$2.4 million loss in the fair value of those financial instruments. At December 31, 2015, the Company held \$83.9 million of cash and cash equivalents, the majority of which is held by foreign subsidiaries.

Foreign currency commitments and transaction exposures are managed at the operating units as an integral part of their businesses in accordance with a corporate policy that addresses acceptable levels of foreign currency exposures. At December 31, 2015, the Company did not hedge its foreign currency net investment exposures.

Additionally, to reduce foreign currency exposure, management generally maintains the majority of foreign cash and short-term investments in functional currency and uses forward currency contracts for non-functional currency denominated monetary assets and liabilities and anticipated transactions in an effort to reduce the effect of the volatility of changes in foreign exchange rates on the income statement. In historically weaker currency countries, such as Brazil and Mexico, management assesses the strength of these currencies relative to the U.S. dollar and may elect during periods of local currency weakness to invest excess cash in U.S. dollar-denominated instruments.

The Company's exposure to commodity price changes relates to certain manufacturing operations that utilize high-grade steel spring wire, stainless steel, titanium, Inconel, Hastelloys and other specialty metals. The Company attempts to manage its exposure to price increases through its procurement and sales practices.

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Item 8. Financial Statements and Supplementary Data

BARNES GROUP INC.

CONSOLIDATED STATEMENTS OF INCOME

(Dollars in thousands, except per share data)

	Years Ended December 31,		
	2015	2014	2013
Net sales	\$1,193,975	\$1,262,006	\$1,091,566
Cost of sales	782,817	829,648	738,170
Selling and administrative expenses	242,762	252,384	230,195
	1,025,579	1,082,032	968,365
Operating income	168,396	179,974	123,201
Interest expense	10,698	11,392	13,090
Other (income) expense, net	(248	) 2,082	2,537
Income from continuing operations before income taxes	157,946	166,500	107,574
Income taxes	36,566	45,959	35,253
Income from continuing operations	121,380	120,541	72,321
(Loss) income from discontinued operations, net of income taxes of \$0, \$315 and \$120,750, respectively (Note 3)	—	(2,171	) 198,206
Net income	\$121,380	\$118,370	\$270,527
Per common share:			
Basic:			
Income from continuing operations	\$2.21	\$2.20	\$1.34
(Loss) income from discontinued operations, net of income taxes	—	(0.04	) 3.68
Net income	\$2.21	\$2.16	\$5.02
Diluted:			
Income from continuing operations	\$2.19	\$2.16	\$1.31
(Loss) income from discontinued operations, net of income taxes	—	(0.04	) 3.61
Net income	\$2.19	\$2.12	\$4.92
Dividends	\$0.48	\$0.45	\$0.42
Weighted average common shares outstanding:			
Basic	55,028,063	54,791,030	53,860,308
Diluted	55,513,219	55,723,267	54,973,344

See accompanying notes.

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

	Years Ended December 31,		
	2015	2014	2013
Net income	\$121,380	\$118,370	\$270,527
Other comprehensive (loss) income, net of tax			
Unrealized gain (loss) on hedging activities, net of tax (1)	847	(213)	(87)
Foreign currency translation adjustments, net of tax (2)	(54,232)	(83,168)	19,615
Defined benefit pension and other postretirement benefits, net of tax (3)	9,586	(42,016)	73,168
Total other comprehensive (loss) income, net of tax	(43,799)	(125,397)	92,696
Total comprehensive income (loss)	\$77,581	\$(7,027)	\$363,223

(1) Net of tax of \$227, \$(45) and \$272 for the years ended December 31, 2015, 2014 and 2013, respectively.

(2) Net of tax of \$(1,777), \$(3,292) and \$439 for the years ended December 31, 2015, 2014 and 2013, respectively.

(3) Net of tax of \$3,916, \$(24,799) and \$43,109 for the years ended December 31, 2015, 2014 and 2013, respectively.

See accompanying notes.

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BARNES GROUP INC.
CONSOLIDATED BALANCE SHEETS
(Dollars in thousands)

	December 31,	
	2015	2014
Assets		
Current assets		
Cash and cash equivalents	\$83,926	\$46,039
Accounts receivable, less allowances (2015 – \$4,085; 2014 – \$3,873)	261,757	275,890
Inventories	208,611	212,044
Deferred income taxes	24,825	31,849
Prepaid expenses and other current assets	32,469	22,574
Total current assets	611,588	588,396
Deferred income taxes	1,139	10,061
Property, plant and equipment, net	308,856	299,435
Goodwill	587,992	594,949
Other intangible assets, net	528,322	554,694
Other assets	23,969	26,350
Total assets	\$2,061,866	\$2,073,885
Liabilities and Stockholders' Equity		
Current liabilities		
Notes and overdrafts payable	\$22,680	\$8,028
Accounts payable	97,035	94,803
Accrued liabilities	131,320	161,397
Long-term debt – current	1,515	862
Total current liabilities	252,550	265,090
Long-term debt	485,711	495,844
Accrued retirement benefits	112,888	115,057
Deferred income taxes	62,364	70,147
Other liabilities	20,600	15,954
Commitments and contingencies (Note 21)		
Stockholders' equity		
Common stock – par value \$0.01 per share		
Authorized: 150,000,000 shares		
Issued: at par value (2015 – 62,071,144 shares; 2014 – 61,229,980 shares)	621	612
Additional paid-in capital	427,558	405,525
Treasury stock, at cost (2015 – 8,206,683 shares; 2014 – 6,729,438 shares)	(226,421	) (169,405
Retained earnings	1,069,247	974,514
Accumulated other non-owner changes to equity	(143,252	) (99,453
Total stockholders' equity	1,127,753	1,111,793
Total liabilities and stockholders' equity	\$2,061,866	\$2,073,885

See accompanying notes.

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

	Years Ended December 31,			
	2015	2014	2013	
Operating activities:				
Net income	\$121,380	\$118,370	\$270,527	
Adjustments to reconcile net income to net cash provided by operating activities:				
Depreciation and amortization	78,242	81,395	65,052	
Amortization of convertible debt discount	—	731	2,391	
(Gain) loss on disposition of property, plant and equipment	(1,128	) 143	(887)
Stock compensation expense	9,258	7,603	18,128	
Withholding taxes paid on stock issuances	(4,913	) (4,367	) (2,090)
Loss (gain) on the sale of businesses	—	1,586	(313,708)
Pension lump-sum settlement charge	9,856	—	—	
Changes in assets and liabilities, net of the effects of acquisitions/divestitures:				
Accounts receivable	14,027	(21,367	) (23,764)
Inventories	(1,190	) (10,092	) 2,079)
Prepaid expenses and other current assets	(2,645	) (7,137	) (2,172)
Accounts payable	(2,936	) 8,123	2,384)
Accrued liabilities	(16,833	) 24,402	(9,891)
Deferred income taxes	3,121	(9,841	) 3,412)
Long-term retirement benefits	1,081	(7,584	) (642)
Other	2,575	4,933	(729)
Net cash provided by operating activities	209,895	186,898	10,090	
Investing activities:				
Proceeds from disposition of property, plant and equipment	3,442	849	1,767	
(Payments for) proceeds from the sale of businesses	—	(1,181	) 538,942)
Change in restricted cash	—	4,886	—	
Capital expenditures	(45,982	) (57,365	) (57,304)
Business acquisitions, net of cash acquired	(51,954	) —	(307,264)
Component Repair Program payments	(21,000	) (70,100	) (16,639)
Other	—	(1,338	) (2,058)
Net cash (used) provided by investing activities	(115,494	) (124,249	) 157,444)
Financing activities:				
Net change in other borrowings	14,680	7,009	(2,753)
Payments on long-term debt	(171,198	) (332,336	) (555,195)
Proceeds from the issuance of long-term debt	159,264	293,291	450,253	
Payment of assumed liability to Otto Männer Holding AG	—	(19,796) —)
Premium paid on convertible debt redemption	—	(14,868) —)
Proceeds from the issuance of common stock	11,425	11,460	13,491	
Common stock repurchases	(52,103	) (8,389	) (68,608)
Dividends paid	(26,176	) (24,464	) (22,422)
Excess tax benefit on stock awards	2,667	4,888	3,899	
Other	9,850	(338	) (1,472)
Net cash used by financing activities	(51,591) (83,543) (182,807)
Effect of exchange rate changes on cash flows	(4,923) (3,923) (227)

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Increase (decrease) in cash and cash equivalents	37,887	(24,817) (15,500)
Cash and cash equivalents at beginning of year	46,039	70,856	86,356	
Cash and cash equivalents at end of year	\$83,926	\$46,039	\$70,856	

Supplemental Disclosure of Cash Flow Information:

Non-cash investing activities in 2015, 2014 and 2013 included the acquisition of \$3,200, \$19,000 and \$10,000, respectively, of intangible assets, and the recognition of the corresponding liabilities, in connection with the Component Repair Programs. Non-cash financing activities in 2013 included the issuance of 1,032,493 treasury shares (\$36,695) in connection with the acquisition of the Männer Business.

See accompanying notes.

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BARNES GROUP INC.

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY

(Dollars and shares in thousands)

	Common Stock (Number of Shares)	Common Stock (Amount)	Additional Paid-In Capital	Treasury Stock (Number of Shares)	Treasury Stock	Retained Earnings	Accumulated Other Non-Owner Changes to Equity	Total Stockholders' Equity
January 1, 2013	59,202	\$592	\$332,588	5,000	\$(99,756)	\$633,446	\$(66,752)	\$800,118
Comprehensive income						270,527	92,696	363,223
Dividends paid						(22,422)		(22,422)
Common stock repurchases				2,351	(68,608)			(68,608)
Männer Acquisition			22,890	(1,032)	13,805			36,695
Employee stock plans	1,104	11	34,869	70	(2,090)	(382)		32,408
December 31, 2013	60,306	603	390,347	6,389	(156,649)	881,169	25,944	1,141,414
Comprehensive income						118,370	(125,397)	(7,027)
Dividends paid						(24,464)		(24,464)
Common stock repurchases				221	(8,389)			(8,389)
Convertible debt redemption, net of tax			(8,666)					(8,666)
Employee stock plans	924	9	23,844	119	(4,367)	(561)		18,925
December 31, 2014	61,230	612	405,525	6,729	(169,405)	974,514	(99,453)	1,111,793
Comprehensive income						121,380	(43,799)	77,581
Dividends paid						(26,176)		(26,176)
Common stock repurchases				1,353	(52,103)			(52,103)
Employee stock plans	841	9	22,033	125	(4,913)	(471)		16,658
December 31, 2015	62,071	\$621	\$427,558	8,207	\$(226,421)	\$1,069,247	\$(143,252)	\$1,127,753

See accompanying notes.

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(All dollar amounts included in the notes are stated in thousands except per share data and the tables in Note 20)

1. Summary of Significant Accounting Policies

General: The preparation of consolidated 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. Actual results could differ from those estimates.

Consolidation: The accompanying consolidated financial statements include the accounts of the Company and all of its subsidiaries. Intercompany transactions and account balances have been eliminated.

In the second quarter of 2013, the Company completed the sale of its Barnes Distribution North America business ("BDNA") to MSC Industrial Direct Co., Inc. ("MSC"). The results of these operations are segregated and presented as discontinued operations in the Consolidated Financial Statements. See Note 3 of the Consolidated Financial Statements.

Revenue recognition: Sales and related cost of sales are recognized when products are shipped or delivered to customers depending upon when title and risk of loss have passed. Service revenue is recognized when the related services are performed. In the aerospace manufacturing businesses, the Company recognizes revenue based on the units-of-delivery method in accordance with accounting standards related to accounting for performance of construction-type and certain production-type contracts. Management fees related to the aerospace aftermarket Revenue Sharing Programs ("RSPs") are satisfied through an agreed upon reduction from the sales price of each of the related spare parts. These fees recognize our customer's necessary performance of engine program support activities, such as spare parts administration, warehousing and inventory management, and customer support, and are not separable from our sale of products, and accordingly, they are reflected as a reduction to sales, rather than as costs incurred, when revenues are recognized.

Operating expenses: The Company includes manufacturing labor, material, manufacturing overhead and costs of its distribution network within cost of sales. Other costs, including selling personnel costs and commissions, and other general and administrative costs of the Company are included within selling and administrative expenses. Depreciation and amortization expense is allocated between cost of sales and selling and administrative expenses.

Cash and cash equivalents: Cash in excess of operating requirements is invested in short-term, highly liquid, income-producing investments. All highly liquid investments purchased with an original maturity of three months or less are considered cash equivalents. Cash equivalents are carried at cost which approximates fair value.

Inventories: Inventories are valued at the lower of cost, determined on a first-in, first-out basis, or market. Loss provisions, if any, on aerospace contracts are established when estimable. Loss provisions are based on the projected excess of manufacturing costs over the net revenues of the products or group of related products under contract or purchase order.

Property, plant and equipment: Property, plant and equipment is stated at cost. Depreciation is recorded over estimated useful lives, ranging from 20 to 50 years for buildings, three to five years for computer equipment, four to 12 years for

machinery and equipment and 12 to 17 years for furnaces and boilers. The straight-line method of depreciation was adopted for all property, plant and equipment placed in service after March 31, 1999. For property, plant and equipment placed into service prior to April 1, 1999, depreciation is calculated using accelerated methods. The Company assesses the impairment of property, plant and equipment subject to depreciation whenever events or changes in circumstances indicate the carrying value may not be recoverable.

Goodwill: Goodwill represents the excess purchase cost over the fair value of net assets of companies acquired in business combinations. Goodwill is considered an indefinite-lived asset. Goodwill is subject to impairment testing in accordance with accounting standards governing such on an annual basis, in the second quarter, or more frequently if an event or change in circumstances indicates that the fair value of a reporting unit has been reduced below its carrying value. Based on the assessments performed during 2015, there was no goodwill impairment.

Aerospace Aftermarket Programs: The Company participates in aftermarket RSPs under which the Company receives an exclusive right to supply designated aftermarket parts over the life of the related aircraft engine program. As consideration, the Company has paid participation fees, which are recorded as long-lived intangible assets. The Company records amortization

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

of the related intangible asset as sales dollars are being earned based on a proportional sales dollar method. Specifically, this method amortizes each asset as a reduction to revenue based on the proportion of sales under a program in a given period to the estimated aggregate sales dollars over the life of that program.

The Company also entered into Component Repair Programs ("CRPs") that provide for, among other items, the right to sell certain aftermarket component repair services for CFM56, CF6, CF34 and LM engines directly to other customers as one of a few GE licensed suppliers. In addition, the CRPs extend certain existing contracts under which the Company currently provides these services directly to GE. The Company has recorded the consideration for these rights as an intangible asset that will be amortized as a reduction to sales over the remaining life of these engine programs. This method reflects the pattern in which the economic benefits of the RSPs and the CRPs are realized.

The recoverability of each asset is subject to significant estimates about future revenues related to the program's aftermarket parts and services. The Company evaluates these intangible assets for recoverability and updates amortization rates on an agreement by agreement basis for the RSPs and on an individual asset basis for the CRPs. The assets are reviewed for recoverability periodically including whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. Annually, the Company evaluates the remaining useful life of these assets to determine whether events and circumstances warrant a revision to the remaining periods of amortization. Management updates revenue projections, which includes comparing actual experience against projected revenue and industry projections. The potential exists that actual revenues will not meet expectations due to a change in market conditions including, for example, the replacement of older engines with new, more fuel-efficient engines or the Company's ability to capture additional market share within the Aftermarket business. A shortfall in future revenues may indicate a triggering event requiring a write down or further evaluation of the recoverability of the assets or require the Company to accelerate amortization expense prospectively dependent on the level of the shortfall. The Company has not identified any impairment of these assets.

Other Intangible Assets: Other intangible assets consist primarily of the Aerospace Aftermarket Programs, as discussed above, customer relationships, tradenames, patents and proprietary technology. These intangible assets, with the exception of tradenames, have finite lives and are amortized over the periods in which they provide benefit. The Company assesses the impairment of long-lived assets, including identifiable intangible assets subject to amortization, whenever significant events or significant changes in circumstances indicate the carrying value may not be recoverable. Tradenames, intangible assets with indefinite lives, are subject to impairment testing in accordance with accounting standards governing such on an annual basis, in the second quarter, or more frequently if an event or change in circumstances indicates that the fair value of a reporting unit has been reduced below its carrying value. Based on the assessment performed during 2015, there were no impairments of other intangible assets. See Note 6 of the Consolidated Financial Statements.

Derivatives: Accounting standards related to the accounting for derivative instruments and hedging activities require that all derivative instruments be recorded on the balance sheet at fair value. Foreign currency contracts may qualify as fair value hedges of unrecognized firm commitments, cash flow hedges of recognized assets and liabilities or anticipated transactions, or a hedge of a net investment. 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.

Foreign currency: Assets and liabilities of international operations are translated at year-end rates of exchange; revenues and expenses are translated at average rates of exchange. The resulting translation gains or losses are reflected in accumulated other non-owner changes to equity within stockholders' equity. A net foreign currency transaction gain of \$505 in 2015, a loss of \$1,466 in 2014 and a gain of \$945 in 2013 were included in other (income) expense, net in the Consolidated Statements of Income.

Research and Development: Costs are incurred in connection with efforts aimed at discovering and implementing new knowledge that is critical to developing new products, processes or services, significantly improving existing products or services, and developing new applications for existing products and services. Research and development expenses for the creation of new and improved products and services were \$12,688, \$15,782 and \$14,707, for the years 2015, 2014 and 2013, respectively, and are included in selling, general and administrative expense.

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

2. Acquisitions

The Company has acquired a number of businesses during the past three years. The results of operations of these acquired businesses have been included in the consolidated results from the respective acquisition dates. The purchase prices for these acquisitions have been allocated to tangible and intangible assets and liabilities of the businesses based upon estimates of their respective fair values.

In October 2013, the Company completed the acquisition of the Männer Business, a German company based in Bahlingen, Germany. The Männer Business is a leader in the development and manufacture of high precision molds, valve gate hot runner systems, and system solutions for the medical/pharmaceutical, packaging, and personal care/health care industries. The Männer Business, which has been integrated into the Industrial segment, includes manufacturing locations in Germany, Switzerland and the United States, and sales and service offices in Europe, the United States, Hong Kong/China and Japan. The Company acquired all the shares of capital stock of the Männer Business for an aggregate purchase price of €280,742 (\$380,673) which was paid through a combination of €253,242 in cash (\$343,978) and 1,032,493 shares of the Company's common stock (valued at €27,500 pursuant to the Share Purchase Agreement and \$36,695 based upon market value at close). The purchase price includes certain adjustments under the terms of the Share Purchase Agreement, including approximately €27,030 related to cash acquired (\$36,714).

The Company incurred \$3,642 of acquisition-related costs during the year ended December 31, 2013 related to the acquisition of the Männer business. These costs include due diligence costs and transaction costs to complete the acquisition, and have been recognized in the Company's Consolidated Statements of Income as selling and administrative expenses.

The operating results of the Männer Business have been included in the Consolidated Statements of Income for the period ended December 31, 2013, since the October 31, 2013 date of acquisition. The Company reported \$18,894 in net sales and an operating loss of \$2,817 from the Männer Business, included within the Industrial segment's operating profit, inclusive of \$7,279 of short-term purchase accounting adjustments and transaction costs, for the year ended December 31, 2013.

The following table reflects the unaudited pro forma operating results of the Company for the year ended December 31, 2013, which give effect to the acquisition of the Männer Business as if it had occurred on January 1, 2012. The pro forma results are based on assumptions that the Company believes are reasonable under the circumstances. The pro forma results are not necessarily indicative of the operating results that would have occurred had the acquisition been effective on January 1, 2012, nor are they intended to be indicative of results that may occur in the future. The underlying pro forma information includes the historical financial results of the Company and the acquired business adjusted for certain items including depreciation and amortization expense associated with the assets acquired and the Company's expense related to financing arrangements, with the related tax effects. The pro forma information does not include the effects of any synergies or cost reduction initiatives related to the acquisition.

	(Unaudited Pro Forma) 2013
Net sales	\$1,191,109
Income from continuing operations	92,343
Net income	\$290,549

Per common share:

Basic:

Income from continuing operations	\$1.69
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Net income	\$5.31
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Diluted:

Income from continuing operations	\$1.65
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Net income	\$5.20
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For the Männer Business, pro forma earnings during the year ended December 31, 2013 were adjusted to exclude non-recurring items including acquisition-related costs and expenses related to fair value adjustments to inventory and acquired backlog.

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

In the fourth quarter of 2015, the Company, itself and through two of its subsidiaries, completed the acquisition of privately held Priamus System Technologies AG and two of its subsidiaries (collectively, "Priamus") from Growth Finance AG. Priamus, which has approximately 40 employees, is headquartered in Schaffhausen, Switzerland and has direct sales and service offices in the U.S. and Germany. Priamus is a technology leader in the development of advanced process control systems for the plastic injection molding industry and services many of the world's highest quality plastic injection molders in the medical, automotive, consumer goods, electronics and packaging markets. Priamus is being integrated into our Industrial segment. The Company acquired Priamus for an aggregate cash purchase price of CHF 9,831 (\$10,062) which was financed using cash on hand and borrowings under the Company's revolving credit facility. The purchase price includes adjustments under the terms of the Share Purchase Agreement, including CHF 1,556 (\$1,592) related to cash acquired, and is subject to post closing adjustments under the terms of the Share Purchase Agreement.

In the third quarter of 2015, the Company, through one of its subsidiaries, completed the acquisition of the Thermoplay business ("Thermoplay") by acquiring all of the capital stock of privately held HPE S.p.A., the parent Company through which Thermoplay operates. Thermoplay's headquarters and manufacturing facility are located in Pont-Saint-Martin in Aosta, Italy, with technical service capabilities in China, India, France, Germany, United Kingdom, Portugal, and Brazil. Thermoplay, which is being integrated into our Industrial segment, specializes in the design, development, and manufacturing of hot runner solutions for plastic injection molding, primarily in the packaging, automotive, and medical end markets. The Company acquired Thermoplay for an aggregate cash purchase price of €58,066 (\$63,690), pursuant to the terms of the Sale and Purchase Agreement ("SPA"). The Company paid €56,700 (\$62,191) in cash, using cash on hand and borrowings under the Company's revolving credit facility and recorded a liability of €1,366 (\$1,499) related to the estimated post closing adjustments. The purchase price includes adjustments under the terms of the SPA, including €17,054 (\$18,706) related to cash acquired.

The Company incurred \$2,195 and \$574 of acquisition-related costs during the year ended December 31, 2015 related to the Thermoplay and Priamus acquisitions, respectively. These costs include due diligence costs and transaction costs to complete the acquisitions, and have been recognized in the Company's Consolidated Statements of Income as selling and administrative expenses. Pro forma operating results for the 2015 acquisitions are not presented since the results would not be significantly different than historical results.

The operating results of Thermoplay and Priamus have been included in the Consolidated Statements of Income for the period ended December 31, 2015, since the August 7, 2015 and the October 1, 2015 dates of acquisition, respectively. The Company reported \$13,593 and \$2,028 in net sales for Thermoplay and Priamus, respectively, for the year ended December 31, 2015.

3. Discontinued Operations

In April 2013, the Company completed the sale of BDNA to MSC pursuant to the terms of the Asset Purchase Agreement between the Company and MSC. The total cash consideration received for BDNA was \$537,761, net of transaction costs and closing adjustments paid. The net after-tax proceeds were \$419,136 after consideration of certain post closing adjustments, transaction costs and income taxes.

The below amounts relate primarily to the sale of BDNA and were derived from historical financial information. The amounts have been segregated from continuing operations and reported as discontinued operations within the consolidated financial statements. In 2014, the Company recorded a net after-tax loss on the sale of businesses of

\$1,987 resulting primarily from a 2014 reduction to the proceeds related to the sale of the Barnes Distribution Europe business in 2011 (€1,250). In 2013, the Company recorded a net after-tax gain of \$195,317 on the sale of BDNA, net of transaction-related costs of \$9,749, whereas pre-tax income from the discontinued operations at BDNA was \$6,345.

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

	2014	2013
Net sales	\$—	\$93,173
(Loss) income before income taxes	(270)	)5,248
Income tax (benefit) expense	(86)	)2,359
(Loss) income from operations of discontinued businesses, net of income taxes	(184)	)2,889
(Loss) gain on transaction	(1,586)	)313,708
Income tax expense on sale	401	118,391
(Loss) gain on the sale of businesses, net of income taxes	(1,987)	)195,317
(Loss) income from discontinued operations, net of income taxes	\$(2,171)	)\$198,206

4. Inventories

Inventories at December 31 consisted of:

	2015	2014
Finished goods	\$76,836	\$83,905
Work-in-process	77,061	79,563
Raw materials and supplies	54,714	48,576
	\$208,611	\$212,044

5. Property, Plant and Equipment

Property, plant and equipment at December 31 consisted of:

	2015	2014
Land	\$19,153	\$19,422
Buildings	156,294	145,142
Machinery and equipment	539,360	507,661
	714,807	672,225
Less accumulated depreciation	(405,951)	) (372,790)
	\$308,856	\$299,435

Depreciation expense was \$39,654, \$41,875 and \$34,419 during 2015, 2014 and 2013, respectively.

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 the Company:

	Industrial	Aerospace	Total Company
January 1, 2014	\$618,911	\$30,786	\$649,697
Foreign currency translation	(54,748)	) —	(54,748)
December 31, 2014	564,163	30,786	594,949
Goodwill acquired	22,798	—	22,798
Foreign currency translation	(29,755)	) —	(29,755)
December 31, 2015	\$557,206	\$30,786	\$587,992

Of the \$587,992 of goodwill at December 31, 2015, \$43,860 represents the original tax deductible basis.

The goodwill acquired at Industrial includes \$20,521 related to the purchase of Thermoplay in August 2015 and \$2,277 related to the purchase of Priamus in October 2015 (aggregate of \$22,798). The amounts allocated to goodwill reflect the

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

benefits that the Company expects to realize from geographical expansion, new end-market applications within the plastics market, future enhancements to technology and assembled workforce. None of the recognized goodwill is expected to be deductible for income tax purposes. Final purchase price allocations are subject to post-closing adjustments pursuant to the respective purchase agreements.

Other Intangible Assets: Other intangible assets at December 31 consisted of:

	Range of Life-Years	2015 Gross Amount	Accumulated Amortization	2014 Gross Amount	Accumulated Amortization
Amortized intangible assets:					
Revenue Sharing Programs	Up to 30	\$293,700	\$(84,629)	\$293,700	\$(72,958)
Component Repair Program	Up to 30	111,839	(6,054)	106,639	(1,941)
Customer lists/relationships	10-16	194,566	(41,786)	183,406	(30,731)
Patents and technology	6-14	69,352	(29,551)	62,972	(22,356)
Trademarks/trade names	10-30	11,950	(9,412)	11,950	(8,552)
Other	Up to 15	20,551	(15,413)	19,292	(14,806)
		701,958	(186,845)	677,959	(151,344)
Unamortized intangible asset:					
Trade names		38,370	—	36,900	—
Foreign currency translation		(25,161)	—	(8,821)	—
Other intangible assets		\$715,167	\$(186,845)	\$706,038	\$(151,344)

The Company entered into Component Repair Programs ("CRPs") with General Electric ("GE") during the fourth quarter of 2013 ("CRP 1"), the second quarter of 2014 ("CRP 2") and the fourth quarter of 2015 ("CRP 3"). The CRPs provide for, among other items, the right to sell certain aftermarket component repair services for CFM56, CF6, CF34 and LM engines directly to other customers as one of a few GE licensed suppliers. In addition, the CRPs extend certain existing contracts under which the Company currently provides these services directly to GE.

The Company agreed to pay \$26,639 as consideration for the rights related to CRP 1. Of this balance, the Company paid \$16,639 in the fourth quarter of 2013 and \$9,100 in the fourth quarter of 2014. The remaining payment of \$900 has been included within accrued liabilities in the Consolidated Financial Statements. The Company agreed to pay \$80,000 as consideration for the rights related to CRP 2. The Company paid \$41,000 in the second quarter of 2014, \$20,000 in the fourth quarter of 2014 and \$19,000 in the second quarter of 2015. The Company agreed to pay \$5,200 as consideration for the rights related to CRP 3. Of this balance, the Company paid \$2,000 in the fourth quarter of 2015 and the remaining payment of \$3,200 is due by December 31, 2016 and has been included within accrued liabilities. The Company recorded the CRP payments as an intangible asset which is recognized as a reduction of sales over the remaining useful life of these engine programs.

In connection with the acquisition of Thermoplay in August 2015, the Company recorded intangible assets of \$14,770, which includes \$9,860 of customer relationships, \$3,180 of patents and technology, \$1,470 of an indefinite life Thermoplay trade name and \$260 of customer backlog. The weighted-average useful lives of the acquired assets were

13 years, 6 years and less than one year, respectively.

In connection with the acquisition of Priamus in October 2015, the Company recorded intangible assets of \$4,500, which includes \$3,200 of patents and technology and \$1,300 of customer relationships. The weighted-average useful lives of the acquired assets were 6 years and 14 years, respectively.

Amortization of intangible assets for the years ended December 31, 2015, 2014 and 2013 was \$38,502, \$37,125 and \$27,973, respectively. Estimated amortization of intangible assets for future periods is as follows: 2016 - \$35,000; 2017 - \$35,000; 2018 - \$36,000; 2019 - \$35,000 and 2020 - \$32,000.

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The Company has entered into a number of aftermarket RSP agreements each of which is with General Electric. See Note 1 of the Consolidated Financial Statements for a further discussion of these Revenue Sharing Programs. As of December 31, 2015, the Company has made all required participation fee payments under the aftermarket RSP agreements.

7. Accrued Liabilities

Accrued liabilities at December 31 consisted of:

	2015	2014
Payroll and other compensation	\$27,186	\$41,948
Deferred revenue	16,453	25,344
CRP Accrual	4,100	19,900
Pension and other postretirement benefits	8,444	8,233
Accrued income taxes	25,682	21,755
Other	49,455	44,217
	\$131,320	\$161,397

8. Debt and Commitments

Long-term debt and notes and overdrafts payable at December 31 consisted of:

	2015		2014	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Revolving credit agreement	379,700	375,188	393,518	394,917
3.97% Senior Notes	100,000	102,484	100,000	102,859
Borrowings under lines of credit and overdrafts	22,680	22,680	8,028	8,028
Capital leases	7,105	7,503	3,188	3,479
Other foreign bank borrowings	421	410	—	—
	509,906	508,265	504,734	509,283
Less current maturities	(24,195)		(8,890)	
Long-term debt	\$485,711		\$495,844	

The Company's long-term debt portfolio consists of fixed-rate and variable-rate instruments and is managed to reduce the overall cost of borrowing and to mitigate fluctuations in interest rates. Among other things, interest rate fluctuations impact the market value of the Company's fixed-rate debt.

In September 2013, the Company entered into a second amendment to 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 \$750,000 Amended Credit Agreement matures in September 2018 with an option to extend the maturity date for an additional year, subject to certain conditions. The Amended Credit Agreement adds a new foreign subsidiary borrower in Germany, Barnes Group Acquisition GmbH, and includes an accordion feature to increase the borrowing availability of the Company to \$1,000,000. 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 continuing. The borrowing availability of \$750,000, pursuant to the terms of the Amended Credit Agreement, allows for Euro-denominated

borrowings equivalent to \$500,000. Borrowings under the Amended Credit Agreement bear interest at LIBOR plus a spread ranging from 1.10% to 1.70% depending on the Company's leverage ratio at prior quarter end. The Company paid fees and expenses of \$1,261 in conjunction with executing the second

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

amendment in 2013. Such fees were deferred and are being amortized into interest expense on the accompanying Consolidated Statements of Income through September 2018.

Borrowings and availability under the Amended Credit Agreement were \$379,700 and \$370,300, respectively, at December 31, 2015 and \$393,518 and \$356,482, respectively, at December 31, 2014. The average interest rate on these borrowings was 1.50% and 1.33% on December 31, 2015 and 2014, respectively. Borrowings included Euro-denominated borrowings of €30,945 (\$37,618) at December 31, 2014. There were no Euro-denominated borrowings at December 31, 2015. 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.

On October 15, 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 (BOLI 30C), 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 Company completed funding of the transaction and issued the 3.97% Notes on October 17, 2014.

The 3.97% Senior Notes are senior unsecured obligations of the Company and will 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, that 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 contain customary affirmative and negative covenants, including, among others, limitations on indebtedness, liens, investments, restricted payments, dispositions and business activities. 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 at the end of each fiscal quarter, provided that such ratio may increase to 3.50 times following the consummation of certain acquisitions. In addition, the Agreements require the Company to maintain (i) a ratio of Consolidated Total Debt, as defined, to Consolidated EBITDA of not more than 4.00 times at the end of each fiscal quarter, provided that such ratio may increase to 4.25 times following the consummation of certain acquisitions and (ii) a ratio of Consolidated EBITDA to Consolidated Cash Interest Expense, as defined, of not less than 4.25 times at the end of each fiscal quarter. At December 31, 2015, the Company was in compliance with all covenants under the Agreements and continues to monitor its future compliance based on current and future economic conditions.

In addition, the Company has approximately \$56,000 in uncommitted short-term bank credit lines ("Credit Lines") and overdraft facilities. Under the Credit Lines, \$22,500 was borrowed at December 31, 2015 at an average interest rate of 1.56% and \$7,550 was borrowed at December 31, 2014 at an average interest rate of 1.23%. The Company had also borrowed \$180 and \$478 under the overdraft facilities at December 31, 2015 and 2014, 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 capital leases within the Thermoplay Business that was acquired on August 7, 2015 and the Männer Business that was acquired on October 31, 2013. The fair value of the capital leases are based on observable Level 2 inputs. These instruments are valued using discounted cash flows based upon the Company's estimated interest costs for similar types of borrowings.

At December 31, 2015, the Company also had other foreign bank borrowings of \$421. The fair value of the foreign bank borrowings was 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.

Long-term debt and notes payable are payable as follows: \$24,195 in 2016, \$1,551 in 2017, \$380,551 in 2018, \$732 in 2019, \$465 in 2020 and \$102,412 thereafter. The 3.97% Notes are due in 2024 according to their maturity date.

In addition, the Company had outstanding letters of credit totaling \$8,689 at December 31, 2015.

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Interest paid was \$10,550, \$10,471 and \$11,636 in 2015, 2014 and 2013, respectively. Interest capitalized was \$422, \$359 and \$247 in 2015, 2014 and 2013, respectively, and is being depreciated over the lives of the related fixed assets.

During the second quarter of 2014, the 3.375% Senior Subordinated Convertible Notes ("Notes") were eligible for conversion due to meeting the conversion price eligibility requirement and on March 20, 2014, the Company formally notified the note holders that they were entitled to convert the Notes. On June 16, 2014, \$224 (par value) of the Notes were surrendered for conversion. On June 24, 2014, the Company exercised its right to redeem the remaining \$55,412 principal amount of the Notes, effective July 31, 2014. Of the total \$55,412 principal amount, \$7 of these Notes were redeemed with accrued interest through the redemption date. The remaining \$55,405 of these Notes were surrendered for conversion. The Company elected to pay cash to holders of the Notes surrendered for conversion, including the value of any residual shares of common stock that were payable to the holders electing to convert their notes into an equivalent share value, resulting in a total cash payment of \$70,497 including a premium on conversion of \$14,868 (reducing the equity component by \$9,326, net of tax of \$5,542). As a result of this transaction, the Company recaptured \$23,565 of previously deducted contingent convertible debt interest which resulted in an \$8,784 reduction in short-term deferred tax liabilities and a corresponding increase in current taxes payable included within accrued liabilities. The Company used borrowings under its Amended Credit Facility to finance the conversion of the Notes. The fair value of the Notes was previously determined using quoted market prices that represent Level 2 observable inputs. As of December 31, 2015 and 2014 there were no balances reflected on the balance sheet related to the Company's convertible notes.

The following table sets forth the components of interest expense for the Notes for the years ended December 31, 2014 and 2013. The effective interest rate on the liability component of the Notes was 8.00% (life of the Notes).

	2014	2013
Interest expense – 3.375% coupon	\$ 1,046	\$ 1,878
Interest expense – 3.375% debt discount amortization	731	2,391
	\$ 1,777	\$ 4,269

9. Business Reorganization

The Company authorized the closure of production operations ("Saline operations") at its Associated Spring facility located in Saline, Michigan (the "Closure") during the first quarter of 2014. The Saline operations, which included approximately 50 employees, primarily manufactured certain automotive engine valve springs, a highly commoditized product. Based on changing market dynamics and increased customer demands for commodity pricing, several customers advised the Company of their intent to transition these specific springs to other suppliers, which led to the decision of the Closure. The Closure occurred during the second quarter of 2014, however certain other facility Closure costs, including the transfer of machinery and equipment, continued during the remainder of 2014. The Company recorded restructuring and related costs of \$6,020 during 2014. This included \$2,182 of employee termination costs, primarily employee severance expense and defined benefit pension and other postretirement plan (the "Plans") costs related to the accelerated recognition of actuarial losses and special termination benefits, and \$3,838 of other facility costs, primarily related to asset write-downs and depreciation on assets utilized through the Closure. See Note 12 for costs associated with the Plans that were impacted by the Closure. The Closure was completed as of December 31, 2014. Closure costs were recorded primarily within Cost of Sales in the accompanying Consolidated Statements of Income and are reflected in the results of the Industrial segment.

10. 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 exposures to fluctuations in interest rates. In April 2012, the Company entered into five-year interest rate swap agreements transacted with three banks which together convert the interest on the first \$100,000 of the Company's one-month LIBOR-based borrowings from a variable rate plus the borrowing

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spread to a fixed rate of 1.03% plus the borrowing spread. These interest rate swap agreements were accounted for as cash flow hedges and remained in place at December 31, 2015.

The Company 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, Chinese renminbi, Singapore dollar, Korean won, Swedish kroner 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. 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 year ended December 31, 2015, as presented on the consolidated statements of cash flows, include \$10,309 of net cash proceeds from 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 as of December 31.

	2015		2014	
	Asset	Liability	Asset	Liability
	Derivatives	Derivatives	Derivatives	Derivatives
Derivatives designated as hedging instruments:				
Interest rate contracts	\$—	\$(357)	\$—	\$(295)
Foreign exchange contracts	484	—	—	(652)
	484	(357)	—	(947)
Derivatives not designated as hedging instruments:				
Foreign exchange contracts	215	(101)	460	(699)
Total derivatives	\$699	\$(458)	\$460	\$(1,646)

Asset derivatives are recorded in prepaid expenses and other current assets 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 years ended December 31, 2015 and 2014 for derivatives held by the Company and designated as hedging instruments.

	2015	2014
Cash flow hedges:		
Interest rate contracts	\$(39)	\$48
Foreign exchange contracts	886	(261)
	\$847	\$(213)

Amounts included within accumulated other comprehensive income (loss) that were reclassified to expense during the year ended December 31, 2015 and 2014 related to the interest rate swaps resulted in a fixed rate of interest of 1.03%

plus the borrowing spread for the first \$100,000 of one-month LIBOR borrowings. Additionally, there were no amounts recognized in income for hedge ineffectiveness during the years ended December 31, 2015 and 2014.

The following table sets forth the net gains (losses) recorded in other (income) expense, net in the consolidated statements of income for the years ended December 31, 2015 and 2014 for non-designated derivatives held by the Company. Such gains (losses) were substantially offset by (losses) gains recorded on the underlying hedged asset or liability.

	2015	2014	
Foreign exchange contracts	\$8,215	\$(810)

11. Fair Value Measurements

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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 as of December 31, 2015 and 2014:

	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)
December 31, 2015				
Asset derivatives	\$699	\$—	\$699	\$—
Liability derivatives	(458)	) —	(458)) —
Bank acceptances	10,823	—	10,823	—
Rabbi trust assets	2,159	2,159	—	—
	\$13,223	\$2,159	\$11,064	\$—
December 31, 2014				
Asset derivatives	\$460	\$—	\$460	\$—
Liability derivatives	(1,646)	) —	(1,646)) —
Bank acceptances	10,785	—	10,785	—
Rabbi trust assets	2,092	2,092	—	—
	\$11,691	\$2,092	\$9,599	\$—

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 3 to 6 months in maturity and are guaranteed by banks. The carrying amounts of the bank acceptances, which are included within 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. For disclosures of the fair values of the Company's pension plan assets, see Note 12 of the Consolidated Financial Statements.

12. Pension and Other Postretirement Benefits

The accounting standards related to employers' accounting for defined benefit pension and other postretirement plans requires the Company to recognize the funded status of its defined benefit postretirement plans as assets or liabilities in the accompanying consolidated balance sheets and to recognize changes in the funded status of the plans in comprehensive income.

The Company has various defined contribution plans, the largest of which is its Retirement Savings Plan. Most U.S. salaried and non-union hourly employees are eligible to participate in this plan. See Note 17 for further discussion of

the Retirement Savings Plan. The Company also maintains various other defined contribution plans which cover certain other employees. Company contributions under these plans are based primarily on the performance of the business units and employee compensation. Contribution expense under these other defined contribution plans was \$5,347, \$5,213 and \$4,780 in 2015, 2014 and 2013, respectively.

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Defined benefit pension plans in the U.S. cover a majority of the Company's U.S. employees at the Associated Spring and Nitrogen Gas Products businesses of Industrial, the Company's Corporate Office and certain former U.S. employees, including retirees. Plan benefits for salaried and non-union hourly employees are based on years of service and average salary. Plans covering union hourly employees provide benefits based on years of service. In 2012, the Company closed the U.S. salaried defined benefit pension plan (the "U.S. Salaried Plan") to employees hired on or after January 1, 2013, with no impact to the benefits of existing participants. Effective January 1, 2013, the Retirement Savings Plan was amended to provide certain salaried employees hired on or after January 1, 2013 with an additional annual retirement contribution of 4% of eligible earnings, in place of pensionable benefits under the closed U.S. Salaried Plan. The Company funds U.S. pension costs in accordance with the Employee Retirement Income Security Act of 1974, as amended ("ERISA"). Non-U.S. defined benefit pension plans cover certain employees of certain international locations in Europe and Canada.

The Company provides other medical, dental and life insurance postretirement benefits for certain of its retired employees in the U.S. and Canada. It is the Company's practice to fund these benefits as incurred.

The accompanying balance sheets reflect the funded status of the Company's defined benefit pension plans at December 31, 2015 and 2014, respectively. Reconciliations of the obligations and funded status of the plans follow:

	2015			2014		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Benefit obligation, January 1	\$433,079	\$80,305	\$513,384	\$374,740	\$78,982	\$453,722
Service cost	4,160	1,348	5,508	3,549	997	4,546
Interest cost	17,967	2,052	20,019	19,129	2,897	22,026
Amendments	—	(463)	(463)	—	—	—
Actuarial (gain) loss	(16,622)	(2,288)	(18,910)	58,906	9,728	68,634
Benefits paid	(52,490)	(4,244)	(56,734)	(23,960)	(3,405)	(27,365)
Transfers in	—	3,951	3,951	—	1,929	1,929
Plan curtailments	(465)	—	(465)	—	—	—
Plan settlements	—	(375)	(375)	—	(4,949)	(4,949)
Special termination benefit	—	—	—	715	—	715
Participant contributions	—	368	368	—	906	906
Foreign exchange rate changes	—	(5,248)	(5,248)	—	(6,780)	(6,780)
Benefit obligation, December 31	385,629	75,406	461,035	433,079	80,305	513,384
Fair value of plan assets, January 1	380,937	71,750	452,687	379,059	74,519	453,578
Actual return on plan assets	(5,045)	1,264	(3,781)	20,436	6,349	26,785
Company contributions	3,427	1,100	4,527	5,402	2,219	7,621
Participant contributions	—	368	368	—	906	906
Benefits paid	(52,490)	(4,244)	(56,734)	(23,960)	(3,405)	(27,365)
Plan settlements	—	(376)	(376)	—	(4,949)	(4,949)
Transfers in	—	3,434	3,434	—	1,929	1,929
Foreign exchange rate changes	—	(4,743)	(4,743)	—	(5,818)	(5,818)
Fair value of plan assets, December 31	326,829	68,553	395,382	380,937	71,750	452,687
Funded/(underfunded) status, December 31	\$(58,800)	\$(6,853)	\$(65,653)	\$(52,142)	\$(8,555)	\$(60,697)

In September 2015, the Company announced a limited-time program offering (the "Program") to certain eligible, vested, terminated participants ("eligible participants") for a voluntary lump-sum pension payout or reduced annuity option (the "payout") that, if accepted, would settle the Company's pension obligation to them. The Program provides the eligible participants with a limited time opportunity of electing to receive a lump-sum settlement of their remaining pension benefit, or reduced annuity. The eligible participants notified the Company by November 20, 2015, the required deadline, to confirm whether they would opt for a lump-sum payout or reduced annuity. The scheduled payments of \$27,986 were made in December 2015, and are included within the "Benefits Paid" of \$52,490 above. The payouts were funded by the assets of the Company's pension plan and therefore the Program did not require significant cash outflows by the Company. The resultant pre-tax settlement charge of \$9,856 represents accelerated amortization of actuarial losses and was reflected within costs of sales and selling and administrative expenses within the Consolidated Statements of Income.

Projected benefit obligations related to pension plans with benefit obligations in excess of plan assets follow:

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	2015			2014		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Projected benefit obligation	\$271,459	\$31,613	\$303,072	\$297,067	\$29,971	\$327,038
Fair value of plan assets	204,270	20,199	224,469	234,305	17,660	251,965

Information related to pension plans with accumulated benefit obligations in excess of plan assets follows:

	2015			2014		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Projected benefit obligation	\$271,459	\$30,560	\$302,019	\$297,067	\$23,496	\$320,563
Accumulated benefit obligation	262,172	26,998	289,170	286,217	20,446	306,663
Fair value of plan assets	204,270	19,256	223,526	234,305	12,552	246,857

The accumulated benefit obligation for all defined benefit pension plans was \$447,591 and \$497,453 at December 31, 2015 and 2014, respectively.

Amounts related to pensions recognized in the accompanying balance sheets consist of:

	2015			2014		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Other assets	\$8,389	\$4,561	\$12,950	\$10,620	\$3,882	\$14,502
Accrued liabilities	2,806	379	3,185	2,810	376	3,186
Accrued retirement benefits	64,383	11,035	75,418	59,952	12,061	72,013
Accumulated other non-owner changes to equity, net	(83,014)	(16,812)	(99,826)	(86,925)	(20,689)	(107,614)

Amounts related to pensions recognized in accumulated other non-owner changes to equity, net of tax, at December 31, 2015 and 2014, respectively, consist of:

	2015			2014		
	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
Net actuarial loss	\$(82,643)	\$(16,999)	\$(99,642)	\$(86,399)	\$(20,406)	\$(106,805)
Prior service costs	(371)	187	(184)	(526)	(283)	(809)
	\$(83,014)	\$(16,812)	\$(99,826)	\$(86,925)	\$(20,689)	\$(107,614)

The accompanying balance sheets reflect the underfunded status of the Company's other postretirement benefit plans at December 31, 2015 and 2014. Reconciliations of the obligations and underfunded status of the plans follow:

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	2015	2014
Benefit obligation, January 1	\$46,814	\$46,243
Service cost	145	139
Interest cost	1,836	2,179
Actuarial (gain) loss	(2,521	) 3,049
Benefits paid	(6,970	) (7,568
Curtailement gain	—	—
Participant contributions	2,486	2,833
Foreign exchange rate changes	(84	) (61
Benefit obligation, December 31	41,706	46,814
Fair value of plan assets, January 1	—	—
Company contributions	4,484	4,735
Participant contributions	2,486	2,833
Benefits paid	(6,970	) (7,568
Fair value of plan assets, December 31	—	—
Underfunded status, December 31	\$41,706	\$46,814

Amounts related to other postretirement benefits recognized in the accompanying balance sheets consist of:

	2015	2014
Accrued liabilities	\$5,259	\$5,047
Accrued retirement benefits	36,447	41,767
Accumulated other non-owner changes to equity, net	(5,877	) (7,675

Amounts related to other postretirement benefits recognized in accumulated other non-owner changes to equity, net of tax, at December 31, 2015 and 2014 consist of:

	2015	2014
Net actuarial loss	\$(6,061	) \$(8,212
Prior service credits	184	537
	\$(5,877	) \$(7,675

The sources of changes in accumulated other non-owner changes to equity, net, during 2015 were:

	Pension	Other Postretirement Benefits
Prior service cost	\$379	\$—
Net (loss) gain	(10,493	) 1,557
Amortization of prior service costs (credits)	213	(354
Amortization of actuarial loss	16,007	627
Foreign exchange rate changes	1,682	(32
	\$7,788	\$1,798

Weighted-average assumptions used to determine benefit obligations at December 31, are:

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	2015	2014	
U.S. plans:			
Discount rate	4.65	% 4.25	%
Increase in compensation	3.71	% 3.73	%
Non-U.S. plans:			
Discount rate	2.80	% 2.74	%
Increase in compensation	2.71	% 2.72	%

The investment strategy of the plans is to generate a consistent total investment return sufficient to pay present and future plan benefits to retirees, while minimizing the long-term cost to the Company. Target allocations for asset categories are used to earn a reasonable rate of return, provide required liquidity and minimize the risk of large losses. Targets may be adjusted, as necessary, to reflect trends and developments within the overall investment environment. The weighted-average target investment allocations by asset category were as follows during 2014: 70% in equity securities, 20% in fixed income securities, 5% in real estate and 5% in other investments, including cash. During the fourth quarter of 2014, the Company approved a strategic shift that resulted in a change in the targeted mix of assets. The revised target mix reflects the following investment allocations by asset category: 65% in equity securities, 30% in fixed income securities and 5% in other investments, including cash.

The fair values of the Company's pension plan assets at December 31, 2015 and 2014, by asset category are as follows:

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Asset Category	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)
December 31, 2015				
Cash and short-term investments	\$ 18,795	\$ 18,795	\$—	\$—
Equity securities:				
U.S. large-cap	67,274	28,190	39,084	—
U.S. mid-cap	38,790	38,790	—	—
U.S. small-cap	38,248	38,248	—	—
International equities	91,563	—	91,563	—
Global equity	17,928	17,928	—	—
Fixed income securities:				
U.S. bond funds	84,645	—	84,645	—
International bonds	36,282	—	36,282	—
Real estate securities	—	—	—	—
Other	1,857	—	—	1,857
	\$395,382	\$141,951	\$251,574	\$1,857
December 31, 2014				
Cash and short-term investments	10,805	10,805	—	—
Equity securities:				
U.S. large-cap	137,051	65,484	71,567	—
U.S. mid-cap	48,614	48,614	—	—
U.S. small-cap	47,972	47,972	—	—
International equities	71,451	—	71,451	—
Fixed income securities:				
U.S. bond funds	79,810	—	79,810	—
International bonds	35,949	—	35,949	—
Real estate securities	18,915	—	18,915	—
Other	2,120	—	—	2,120
	\$452,687	\$172,875	\$277,692	\$2,120

The fair values of the Level 1 assets are based on quoted market prices from various financial exchanges. The fair values of the Level 2 assets are based primarily on quoted prices in active markets for similar assets or liabilities. The Level 2 assets are comprised primarily of commingled funds and fixed income securities. Commingled equity funds are valued at their net asset values based on quoted market prices of the underlying assets. Fixed income securities are valued using a market approach which considers observable market data for the underlying asset or securities. The Level 3 assets relate to the defined benefit pension plan at the Synventive business. These pension assets are fully insured and have been estimated based on accrued pension rights and actuarial rates. These pension assets are limited to fulfilling the Company's pension obligations.

The Company expects to contribute approximately \$19,398 to the pension plans in 2016, including \$15,000 of discretionary contributions to the U.S. Qualified pension plans.

The following are the estimated future net benefit payments, which include future service, over the next 10 years:

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	Pensions	Other Postretirement Benefits
2015	\$29,147	\$4,467
2016	29,071	3,933
2017	28,980	3,540
2018	29,290	3,687
2019	29,051	3,468
Years 2020-2024	145,470	14,242
Total	\$291,009	\$33,337

Pension and other postretirement benefit expenses consist of the following:

	Pensions			Other Postretirement Benefits		
	2015	2014	2013	2015	2014	2013
Service cost	\$5,508	\$4,546	\$6,181	\$145	\$139	\$233
Interest cost	20,019	22,026	20,112	1,836	2,179	2,061
Expected return on plan assets	(32,404)	) (34,232	) (33,144) —	—	—
Amortization of prior service cost (credit)	305	648	752	(564	) (871	) (1,006
Recognized losses	15,004	8,617	16,365	1,011	1,017	1,004
Curtailment loss (gain)	—	219	199	—	4	(3,081
Settlement loss	9,939	871	637	—	—	—
Special termination benefits	—	715	1,016	—	—	—
Net periodic benefit cost	\$18,371	\$3,410	\$12,118	\$2,428	\$2,468	\$(789

The estimated net actuarial loss and prior service cost for the defined benefit pension plans that will be amortized from accumulated other non-owner changes to equity into net periodic benefit cost in 2016 are \$10,218 and \$207, respectively. The estimated net actuarial loss and prior service credit for other defined benefit postretirement plans that will be amortized from accumulated other non-owner changes to equity into net periodic benefit cost in 2016 are \$704 and \$(373), respectively.

Weighted-average assumptions used to determine net benefit expense for years ended December 31, are:

	2015	2014	2013	
U.S. plans:				
Discount rate	4.25	% 5.20	% 4.25	%
Long-term rate of return	8.25	% 9.00	% 9.00	%
Increase in compensation	3.71	% 3.72	% 3.71	%
Non-U.S. plans:				
Discount rate	2.74	% 3.93	% 3.73	%
Long-term rate of return	5.00	% 5.07	% 5.33	%
Increase in compensation	2.72	% 2.76	% 2.69	%

The expected long-term rate of return is based on projected rates of return and the historical rates of return of published indices that are used to measure the plans' target asset allocation. The historical rates are then discounted to consider fluctuations in the historical rates as well as potential changes in the investment environment.

The Company's accumulated postretirement benefit obligations, exclusive of pensions, take into account certain cost-sharing provisions. The annual rate of increase in the cost of covered benefits (i.e., health care cost trend rate) is assumed to be 6.65% and 6.88% at December 31, 2015 and 2014, respectively, decreasing gradually to a rate of 4.50% by December 31, 2029. A one percentage point change in the assumed health care cost trend rate would have the following effects:

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	One Percentage Point Increase	One Percentage Point Decrease
Effect on postretirement benefit obligation	\$ 391	\$ (360)
Effect on postretirement benefit cost	17	(15)

The Company previously contributed to a multi-employer defined benefit pension plan under the terms of a collective bargaining agreement. This multi-employer plan provides pension benefits to certain former union-represented employees of the Edison, New Jersey facility at BDNA. The Company determined that a withdrawal from this multi-employer plan, following its entry into a definitive agreement to sell BDNA in February 2013, was probable. The Company estimated its assessment of a withdrawal liability, on a pre-tax discounted basis, and recorded a liability of \$2,788 during the first quarter of 2013. The expense was recorded within discontinued operations. The Company completed the sale of BDNA and ceased making contributions into the multi-employer plan during the second quarter of 2013. The Company settled the withdrawal liability in the fourth quarter of 2013, with the agreed-upon settlement payment being made in January 2014.

The Company actively contributes to a Swedish pension plan that supplements the Swedish social insurance system. The pension plan guarantees employees a pension based on a percentage of their salary and represents a multi-employer pension plan, however the pension plan was not significant in any year presented. This pension plan is not underfunded.

Contributions related to the individually insignificant multi-employer plans, as disclosure is required pursuant to the applicable accounting standards, are as follows:

	Contributions by the Company		
	2015	2014	2013
Pension Fund:			
Teamsters Local 641 Pension Fund (Edison, New Jersey)	\$—	\$—	\$23
Swedish Pension Plan (ITP2)	343	379	414
Total Contributions	\$343	\$379	\$437

The Company also contributed to a multi-employer other postretirement benefit plan under the terms of the collective bargaining agreement at the former Edison, New Jersey facility. This postretirement benefit plan was also settled in 2013 in conjunction with the defined benefit pension plan. This health and welfare postretirement plan provides medical, prescription, optical and other benefits to certain former union-represented active employees and retirees. Company contributions to the postretirement plan were \$0, \$0 and \$40 in 2015, 2014 and 2013, respectively, as contributions ceased in 2013. There have been no significant changes that affect the comparability of 2015, 2014 or 2013 contributions, however contributions to the postretirement benefit plan ceased during the second quarter of 2013 following the sale of BDNA.

13. Stock-Based Compensation

The Company accounts for the cost of all share-based payments, including stock options, by measuring the payments at fair value on the grant date and recognizing the cost in the results of operations. The fair values of stock options are estimated using the Black-Scholes option-pricing model based on certain assumptions. The fair values of service and performance based stock awards are estimated based on the fair market value of the Company's stock price on the grant date. The fair value of market based performance share awards are estimated using the Monte Carlo valuation method. Estimated forfeiture rates are applied to outstanding awards. The Company records the cash flows resulting

from tax deductions in excess of compensation for those options and other stock awards, if any, as financing cash flows. The Company has elected the shortcut method as described in the related accounting literature for determining the available pool of windfall tax benefits upon adoption. The Company accounts for the utilization of windfall tax benefits using the tax law ordering approach.

Refer to Note 17 for a description of the Company's stock-based compensation plans and their general terms. As of December 31, 2015, incentives have been awarded in the form of performance share awards and restricted stock unit awards (collectively, "Rights") and stock options. The Company has elected to use the straight-line method to recognize compensation costs. Stock options and awards vest over a period ranging from six months to five years. The maximum term of stock option awards is 10 years. Upon exercise of a stock option or upon vesting of Rights, shares may be issued from treasury shares held by the Company or from authorized shares.

In February of 2013, the Board of Directors of the Company approved a Transition and Resignation Agreement (the "Agreement") for its former Chief Executive Officer ("Former CEO") in connection with his resignation from the CEO role and his assumption of a Vice Chairman role. The Agreement provided that, in exchange for the Former CEO's delivery of an

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

effective release of claims, his adherence to certain restrictive covenants, and the successful provision of transition services, including with regard to certain equity grants, the successful sale of the BDNA business, the Former CEO's outstanding equity awards were modified to increase the post-termination exercise period for stock options until the earlier of ten years from the date of grant or five years from the retirement date and made non-forfeitable all outstanding stock options, restricted stock unit awards and performance share unit awards that remained unvested on the day of his agreed to resignation date from the Company. The original vesting dates of the equity awards serve as the delivery dates and the performance metrics continue to apply to the performance share unit awards. The Company recorded \$10,492 of stock compensation expense in the first quarter of 2013 as a result of the modifications.

During 2015, 2014 and 2013, the Company recognized \$9,258, \$7,603, and \$18,128 respectively, of stock-based compensation cost and \$3,451, \$2,834, and \$6,757 respectively, of related tax benefits in the accompanying consolidated statements of income. Stock compensation cost in 2013 includes the \$10,492 related to the modification of awards for the Former CEO. In addition, the Company has recorded \$2,667, \$4,888 and \$3,899 of excess tax benefits for current year tax deductions in additional paid-in capital in 2015, 2014 and 2013, respectively. The Company has realized all available tax benefits related to deductions from excess stock awards exercised or issued in earlier periods. At December 31, 2015, the Company had \$12,875 of unrecognized compensation costs related to unvested awards which are expected to be recognized over a weighted average period of 2.07 years.

The following table summarizes information about the Company's stock option awards during 2015:

	Number of Shares	Weighted-Average Exercise Price
Outstanding, January 1, 2015	1,013,224	\$22.72
Granted	131,852	36.49
Exercised	(491,638	) 22.42
Forfeited	(9,366	) 32.89
Outstanding, December 31, 2015	644,072	25.63

The following table summarizes information about stock options outstanding at December 31, 2015:

Range of Exercise Prices	Options Outstanding			Options Exercisable	
	Number of Shares	Average Remaining Life (Years)	Average Exercise Price	Number of Shares	Average Exercise Price
\$11.45 to \$20.69	241,854	4.17	\$16.41	241,854	\$16.41
\$22.34 to \$26.59	191,116	4.72	25.00	143,153	25.14
\$33.45 to \$36.31	121,800	8.99	36.26	2,000	33.45
\$37.13 to \$38.96	89,302	8.28	37.43	26,726	37.26

The Company received cash proceeds from the exercise of stock options of \$11,022, \$11,024 and \$13,034 in 2015, 2014 and 2013, respectively. The total intrinsic value (the amount by which the stock price exceeds the exercise price of the option on the date of exercise) of the stock options exercised during 2015, 2014 and 2013 was \$8,331, \$11,178 and \$14,022, respectively.

The weighted-average grant date fair value of stock options granted in 2015, 2014 and 2013 was \$8.86, \$12.14 and \$8.77, respectively. The fair value of each stock option grant on the date of grant was estimated using the Black-Scholes option-pricing model based on the following weighted average assumptions:

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	2015		2014		2013	
Risk-free interest rate	1.58	%	1.68	%	0.96	%
Expected life (years)	5.3		5.3		5.3	
Expected volatility	31.1	%	42.6	%	48.9	%
Expected dividend yield	2.06	%	2.24	%	2.38	%

The risk-free interest rate is based on the term structure of interest rates at the time of the option grant. The expected life represents an estimate of the period of time that options are expected to remain outstanding. Assumptions of expected volatility

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BARNES GROUP INC.

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of the Company's common stock and expected dividend yield are estimates of future volatility and dividend yields based on historical trends.

The following table summarizes information about stock options outstanding that are expected to vest and stock options outstanding that are exercisable at December 31, 2015:

Options Outstanding, Expected to Vest				Options Outstanding, Exercisable			
Shares	Weighted-Average Exercise Price	Aggregate Intrinsic Value	Weighted-Average Remaining Term (Years)	Shares	Weighted-Average Exercise Price	Aggregate Intrinsic Value	Weighted-Average Remaining Term (Years)
626,523	\$25.63	\$6,400	5.81	413,733	\$20.86	\$6,063	4.61

The following table summarizes information about the Company's Rights during 2015:

	Service Based Rights		Service and Performance Based Rights		Service and Market Based Rights	
	Number of Units	Weighted-Average Grant Date Fair Value	Number of Units	Weighted-Average Grant Date Fair Value	Number of Units	Weighted-Average Grant Date Fair Value
Outstanding, January 1, 2015	429,206	\$ 26.76	227,064	\$ 28.11	113,531	\$ 41.82
Granted	186,996	36.39	61,973	36.48	30,986	54.54
Forfeited	(13,526)	30.86	(6,342)	39.64	(3,171)	49.48
Additional Earned	—	—	36,965	25.37	(2,057)	32.06
Issued	(200,970)	27.96	(105,234)	25.37	(32,076)	32.06
Outstanding, December 31, 2015	401,706		214,426		107,213	

The Company granted 186,996 restricted stock unit awards and 92,959 performance share awards in 2015. All of the restricted stock unit awards vest upon meeting certain service conditions. "Additional Earned" reflects performance share awards earned above target that have been issued. The performance share awards are part of the long-term Performance Share Award Program (the "Awards Program"), which is designed to assess the long-term Company performance relative to the performance of companies included in the Russell 2000 Index or to pre-established goals. The performance goals are independent of each other and based on three equally weighted metrics. Prior to 2015, the metrics included the Company's total shareholder return ("TSR"), basic or diluted earnings per share growth and operating income before depreciation and amortization growth. For awards granted in 2015, return on invested capital (the "ROIC metric") replaced the earnings per share metric. The total shareholder return ("TSR"), operating income before depreciation and amortization growth, and basic or diluted earnings per share 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 period. The return on invested capital metrics (the "ROIC metric"), is designed to assess the Company's performance compared to pre-established goals 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. Compensation expense for the awards is recognized over the three year service period based upon the value determined under the intrinsic value method for the basic or diluted earnings per share growth, operating income before depreciation and amortization growth and ROIC portions of the award and the Monte Carlo simulation valuation model for the TSR portion of the award since it contains a market condition. The weighted-average assumptions used to determine the weighted-average fair values of the market based portion of the 2015 awards include a 1.01% risk-free interest rate and a 24.9% expected volatility rate.

Compensation expense for the TSR portion of the awards is fixed at the date of grant and will not be adjusted in future periods based upon the achievement of the TSR performance goal. Compensation expense for the basic or diluted earnings per share growth or the return on invested capital, and the operating income before depreciation and amortization growth portions of the awards is recorded each period based upon a probability assessment of achieving the goals with a final adjustment at the end of the service period based upon the actual achievement of those performance goals.

14. Income Taxes

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The components of Income from continuing operations before income taxes and Income taxes follow:

	2015	2014	2013
Income from continuing operations before income taxes:			
U.S.	\$ 11,525	\$ 33,070	\$ 10,343
International	146,421	133,430	97,231
Income from continuing operations before income taxes	\$ 157,946	\$ 166,500	\$ 107,574
Income tax provision:			
Current:			
U.S. – federal	\$(210)	\$ 22,673	\$ 8,356
U.S. – state	2,019	1,236	539
International	32,217	35,954	16,933
	34,026	59,863	25,828
Deferred:			
U.S. – federal	7,670	(6,737)	13,792
U.S. – state	(1,137)	1,279	(110)
International	(3,993)	(8,446)	(4,257)
	2,540	(13,904)	9,425
Income taxes	\$ 36,566	\$ 45,959	\$ 35,253

Deferred income tax assets and liabilities at December 31 consist of the tax effects of temporary differences related to the following:

	Assets		Liabilities	
	2015	2014	2015	2014
Allowance for doubtful accounts	\$ 662	\$ 494	\$ 129	\$ 86
Depreciation and amortization	(1,610)	(19,338)	78,786	59,271
Inventory valuation	15,911	17,072	1,843	1,981
Other postretirement/postemployment costs	2,978	17,549	(12,774)	(247)
Tax loss carryforwards	13,412	13,977	(1,919)	(56)
Pension	1,663	21,968	(22,946)	(1,005)
Accrued compensation	2,975	15,418	(7,267)	—
Goodwill	—	(13,772)	14,545	57
Swedish tax incentive	—	—	4,647	4,255
Unrealized foreign currency gain	—	—	1,350	1,999
Other	4,374	4,398	7,513	5,763
	40,365	57,766	63,907	72,104
Valuation allowance	(14,401)	(15,856)	—	—
	\$ 25,964	\$ 41,910	\$ 63,907	\$ 72,104
Current deferred income taxes	\$ 24,825	\$ 31,849	\$ 1,543	\$ 1,957
Non-current deferred income taxes	1,139	10,061	62,364	70,147
	\$ 25,964	\$ 41,910	\$ 63,907	\$ 72,104

Net current deferred tax liabilities are recorded in accrued liabilities on the consolidated Balance Sheet.

The standards related to accounting for income taxes require that deferred tax assets be reduced by a valuation allowance if, based on all available evidence, it is more likely than not that the deferred tax asset will not be realized. Available evidence includes the reversal of existing taxable temporary differences, future taxable income exclusive of

temporary differences, taxable income in carryback years and tax planning strategies.

Management believes that sufficient taxable income should be earned in the future to realize the net deferred tax assets principally in the United States. The realization of these assets is dependent in part on the amount and timing of future taxable

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income in the jurisdictions where deferred tax assets reside. The Company has tax loss carryforwards of \$57,560; \$1,756 of which relates to state tax loss carryforwards and \$145 which relates to federal loss carryforward acquired in the Priamus deal and not limited by Section 382; \$47,462 of which relates to international tax loss carryforwards with carryforward periods ranging from one to 15 years; and \$8,197 of which relates to international tax loss carryforwards with unlimited carryforward periods. In addition, the Company has tax credit carryforwards of \$242 with remaining carryforward periods ranging from one year to 5 years. As the ultimate realization of the remaining net deferred tax assets is dependent upon future taxable income, if such future taxable income is not earned and it becomes necessary to recognize a valuation allowance, it could result in a material increase in the Company's tax expense which could have a material adverse effect on the Company's financial condition and results of operations.

The Company has not recognized a deferred income liability on \$959,857 of undistributed earnings of its international subsidiaries, since such earnings are considered to be reinvested indefinitely as defined per the indefinite reversal criterion within the accounting guidance for income taxes. If the earnings were distributed in the form of dividends, the Company would be subject, in certain cases, to both U.S. income taxes and foreign income and withholding taxes. Determination of the amount of this unrecognized deferred income tax liability is not practicable. During 2015, the Company repatriated a dividend from a portion of current year foreign earnings to the U.S. in the amount of \$19,500. As a result of the dividend, tax expense increased by \$6,821 and the 2015 annual consolidated effective income tax rate increased by 4.3 percentage points.

A reconciliation of the U.S. federal statutory income tax rate to the consolidated effective income tax rate from continuing operations follows:

	2015		2014		2013	
U.S. federal statutory income tax rate	35.0	%	35.0	%	35.0	%
State taxes (net of federal benefit)	0.2		0.5		0.3	
Foreign losses without tax benefit	1.1		1.1		0.8	
U.S. Tax Court Decision	—		—		15.3	
Foreign operations taxed at lower rates	(12.9	)	(9.9	)	(14.4)
Repatriation from current year foreign earnings	4.3		2.6		1.1	
Tax withholding refund	(1.9)	—		—	
Tax Holiday's	(3.2	)	(2.7	)	(6.2)
Other	0.6		1.0		0.9	
Consolidated effective income tax rate	23.2	%	27.6	%	32.8	%

The Aerospace and Industrial Segments were previously awarded a number of multi-year tax holidays in both Singapore and China. Tax benefits of \$5,000 (\$0.09 per diluted share), \$4,513 (\$0.08 per diluted share) and \$6,746 (\$0.12 per diluted share) were realized in 2015, 2014 and 2013, respectively. These holidays are subject to the Company meeting certain commitments in the respective jurisdictions. The significant tax holidays are due to expire in 2016 and 2017.

Income taxes paid globally, net of refunds, were \$31,895, \$33,146 and \$158,092 in 2015, 2014 and 2013, respectively.

As of December 31, 2015, 2014 and 2013, the total amount of unrecognized tax benefits recorded in the consolidated balance sheet was \$10,634, \$8,560 and \$8,027, respectively, which, if recognized, would have reduced the effective tax rate in prior years, with the exception of amounts related to acquisitions. A reconciliation of the unrecognized tax

benefits for 2015, 2014 and 2013 follows:

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	2015	2014	2013
Balance at January 1	\$8,560	\$8,027	\$9,321
Increase (decrease) in unrecognized tax benefits due to:			
Tax positions taken during prior periods	1,691	533	9,944
Tax positions taken during the current period	—	—	3,350
Acquisition	598	—	556
Settlements with taxing authorities	—	—	(15,144)
Lapse of the applicable statute of limitations	(215)) \$—	\$—
Balance at December 31	\$10,634	\$8,560	\$8,027

The Company recognizes interest and penalties, if any, related to unrecognized tax benefits in income tax expense. The Company recognized interest and penalties as a component of income taxes of \$616, \$0, and \$9,614 in the years 2015, 2014, and 2013 respectively. The liability for unrecognized tax benefits include gross accrued interest and penalties of \$1,923, \$1,031 and \$1,031 at December 31, 2015, 2014 and 2013, respectively.

The Company or its subsidiaries file income tax returns in the U.S. federal jurisdiction, and various state and foreign jurisdictions. In the normal course of business, the Company is subject to examination by various taxing authorities, including the IRS in the U.S. and the taxing authorities in other major jurisdictions including China, Germany, Singapore, Sweden and Switzerland. With a few exceptions, tax years remaining open to examination in significant foreign jurisdictions include tax years 2010 and forward and for the U.S. include tax years 2012 and forward. The Company is under audit in the U.S. for tax year 2013 as well as several state audits for the period 2011 through 2013. No other matters are ongoing.

15. Common Stock

In 2013, 1,032,493 shares of common stock were issued from treasury and used to fund the acquisition of the Männer business. There were no shares of common stock issued from treasury in 2015 or 2014.

In 2015, 2014 and 2013, the Company acquired 1,352,596 shares, 220,794 shares and 2,350,697 shares, respectively, of the Company's common stock at a cost of \$52,103, \$8,389 and \$68,608, respectively. These amounts exclude shares reacquired to pay for the related income tax upon issuance of shares in accordance with the terms of the Company's stockholder-approved equity compensation plans and the equity rights granted under those plans ("Reacquired Shares"). These Reacquired Shares were placed in treasury.

In 2015, 2014 and 2013, 841,164 shares, 923,852 shares and 1,104,099 shares of common stock, respectively, were issued from authorized shares for the exercise of stock options, various other incentive awards and purchases by the Company's Employee Stock Purchase Plan.

16. Preferred Stock

At December 31, 2015 and 2014, the Company had 3,000,000 shares of preferred stock authorized, none of which were outstanding.

17. Stock Plans

Most U.S. salaried and non-union hourly employees are eligible to participate in the Company's 401(k) plan (the "Retirement Savings Plan"). The Retirement Savings Plan provides for the investment of employer and employee contributions in various investment alternatives including the Company's common stock, at the employee's direction. The Company contributes an amount equal to 50% of employee contributions up to 6% of eligible compensation. The Company expenses all contributions made to the Retirement Savings Plan. Effective January 1, 2013, the Retirement Savings Plan was amended to provide certain salaried employees hired on or after January 1, 2013 with an additional annual retirement contribution of 4% of eligible earnings. The Company recognized expense of \$3,666, \$3,278 and \$2,815 in 2015, 2014 and 2013, respectively. As of December 31, 2015, the Retirement Savings Plan held 1,566,536 shares of the Company's common stock.

The Company has an Employee Stock Purchase Plan ("ESPP") under which eligible employees may elect to have up to the lesser of \$25 or 10% of base compensation deducted from their payroll checks for the purchase of the Company's common stock at 95% of the average market value on the date of purchase. The maximum number of shares which may be purchased under the ESPP is 4,550,000. The number of shares purchased under the ESPP was 11,246, 12,770 and 14,979 in 2015, 2014

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

and 2013, respectively. The Company received cash proceeds from the purchase of these shares of \$403, \$436 and \$457 in 2015, 2014 and 2013, respectively. As of December 31, 2015, 297,209 additional shares may be purchased.

The 1991 Barnes Group Stock Incentive Plan (the “1991 Plan”) authorized the granting of incentives to executive officers, directors and key employees in the form of stock options, stock appreciation rights, incentive stock rights and performance unit awards. On May 9, 2014, the 1991 Plan was merged into the 2014 Plan (defined below).

The Barnes Group Inc. Employee Stock and Ownership Program (the “2000 Plan”) was approved on April 12, 2000, and subsequently amended on April 10, 2002 by the Company’s stockholders. The 2000 Plan permitted the granting of incentive stock options, nonqualified stock options, restricted stock awards, performance share or cash unit awards and stock appreciation rights, or any combination of the foregoing, to eligible employees to purchase up to 6,900,000 shares of the Company’s common stock. Such shares were authorized and reserved. On May 9, 2014, the 2000 Plan was merged into the 2014 Plan (defined below).

The Barnes Group Stock and Incentive Award Plan (the “2004 Plan”) was approved on April 14, 2004, and subsequently amended on April 20, 2006 and May 7, 2010 by the Company’s stockholders. The 2004 Plan permits the issuance of incentive awards, stock option grants and stock appreciation rights to eligible participants to purchase up to 5,700,000 shares of common stock. On May 9, 2014, the 2004 Plan was merged into the 2014 Plan (defined below), and the remaining shares available for future grants under the 2004 Plan, as of the merger date, were made available under the 2014 Plan.

The 2014 Barnes Group Stock and Incentive Award Plan (the “2014 Plan”) was approved on May 9, 2014 by the Company’s stockholders. The 2014 Plan permits the issuance of incentive awards, stock option grants and stock appreciation rights to eligible participants to purchase up to 6,913,978 shares of common stock. The amount includes shares available for purchase under the 1991, 2000, and 2004 Plans which were merged into the 2014 Plan. The 2014 Plan allows for stock options and stock appreciation rights to be issued at a ratio of 1:1 and other types of incentive awards at a ratio of 2.84:1 from the shares available for future grants. As of December 31, 2015, there were 6,767,432 shares available for future grants under the 2014 Plan, inclusive of Shares Reacquired and shares made available through 2015 forfeitures. As of December 31, 2015, there were 1,401,926 shares of common stock outstanding to be issued upon the exercise of stock options and the vesting of Rights.

Rights under the 2014 Plan entitle the holder to receive, without payment, one share of the Company’s common stock after the expiration of the vesting period. Certain of these Rights are also subject to the satisfaction of established performance goals. Additionally, holders of certain Rights are credited with dividend equivalents, which are converted into additional Rights, and holders of certain restricted stock units are paid dividend equivalents in cash when dividends are paid to other stockholders. All Rights have a vesting period of up to five years.

Under the Non-Employee Director Deferred Stock Plan, as amended, each non-employee director who joined the Board of Directors prior to December 15, 2005 was granted the right to receive 12,000 shares of the Company’s common stock upon retirement. In 2015, 2014 and 2013, \$26, \$28 and \$30, respectively, of dividend equivalents were paid in cash related to these shares. Compensation cost related to this plan was \$16, \$16 and \$16 in 2015, 2014 and 2013, respectively. There are 52,800 shares reserved for issuance under this plan. Each non-employee director who joined the Board of Directors subsequent to December 15, 2005 received restricted stock units under the respective 2004 or 2014 Plans that have a value of \$50 that vest three years after the date of grant.

Total maximum shares reserved for issuance under all stock plans aggregated 8,519,367 at December 31, 2015.

18. Weighted Average Shares Outstanding

Income from continuing operations and net income per common share is computed in accordance with accounting standards related to earnings per share. Basic earnings per share is calculated using the weighted-average number of common shares outstanding during the year. Share-based payment awards that entitle their holders to receive nonforfeitable dividends before vesting should be considered participating securities and, as such, should be included in the calculation of basic earnings per share. The Company's restricted stock unit awards which contain nonforfeitable rights to dividends are considered participating securities. Diluted earnings per share reflects the assumed exercise and conversion of all dilutive securities. Shares held by the Retirement Savings Plan are considered outstanding for both basic and diluted earnings per share. There are no significant adjustments to income from continuing operations and net income for purposes of computing income available to common stockholders for the years ended December 31, 2015, 2014 and 2013. A reconciliation of the weighted-average number of common shares outstanding used in the calculation of basic and diluted earnings per share follows:

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

	Weighted-Average Common Shares Outstanding		
	2015	2014	2013
Basic	55,028,063	54,791,030	53,860,308
Dilutive effect of:			
Stock options	206,778	355,595	575,202
Performance share awards	278,378	319,704	280,488
Convertible senior subordinated debt	—	245,230	209,321
Non-Employee Director Deferred Stock Plan	—	11,708	48,025
Diluted	55,513,219	55,723,267	54,973,344

The calculation of weighted-average diluted shares outstanding excludes all anti-dilutive shares. During 2015, 2014 and 2013, the Company excluded 214,032, 89,924 and 133,162 stock awards, respectively, from the calculation of diluted weighted-average shares outstanding as the stock awards were considered anti-dilutive.

On June 16, 2014, \$224 (par value) of the 3.375% Convertible Senior Subordinated Notes due in March 2027 (the "3.375% Convertible Notes") were surrendered for conversion. On June 24, 2014, the Company exercised its right to redeem the remaining \$55,412 principal amount of the Notes, effective July 31, 2014, and elected to pay cash to holders of the Notes surrendered for conversion, including the value of any residual shares of common stock that were payable to the holders electing to convert their notes into an equivalent share value. Accordingly, the potential shares issuable for the 3.375% Convertible Notes were included in diluted average common shares outstanding for the period prior to the June 24, 2014 notification date. Under the net share settlement method, there were 245,230 and 209,321 potential shares issuable under the Notes that were considered dilutive in 2014 and 2013, respectively.

19. Changes in Accumulated Other Comprehensive Income by Component

The following tables set forth the changes in accumulated other comprehensive income by component for the years ended December 31, 2015 and December 31, 2014:

	Gains and Losses on Cash Flow Hedges	Pension and Other Postretirement Benefit Items	Foreign Currency Items	Total
January 1, 2015	\$(732)	\$(115,289)	\$16,568	\$(99,453)
Other comprehensive loss before reclassifications to consolidated statements of income	(70)	(6,921)	(54,232)	(61,223)
Amounts reclassified from accumulated other comprehensive income to the consolidated statements of income	917	16,507	—	17,424
Net current-period other comprehensive income (loss)	847	9,586	(54,232)	(43,799)
December 31, 2015	\$115	\$(105,703)	\$(37,664)	\$(143,252)
	Gains and Losses on Cash Flow Hedges	Pension and Other Postretirement Benefit Items	Foreign Currency Items	Total

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January 1, 2014	\$ (519)	\$ (73,273)	\$ 99,736	\$ 25,944
Other comprehensive loss before reclassifications to consolidated statements of income	(1,074)	(49,144)	(83,168	(133,386
Amounts reclassified from accumulated other comprehensive income to the consolidated statements of income	861		7,128		—	7,989
Net current-period other comprehensive loss	(213)	(42,016)	(83,168	(125,397
December 31, 2014	\$ (732)	\$ (115,289)	\$ 16,568	\$ (99,453

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The following table sets forth the reclassifications out of accumulated other comprehensive income by component for the years ended December 31, 2015 and December 31, 2014:

Details about Accumulated Other Comprehensive Income Components	Amount Reclassified from Accumulated Other Comprehensive Income		Affected Line Item in the Consolidated Statements of Income
	2015	2014	
Gains and losses on cash flow hedges			
Interest rate contracts	\$(853	) \$(886	) Interest expense
Foreign exchange contracts	(490	) (391	) Net sales
	(1,343	) (1,277	) Total before tax
	426	416	Tax benefit
	(917	) (861	) Net of tax
Pension and other postretirement benefit items			
Amortization of prior-service credits, net	\$259	\$223	(A)
Amortization of actuarial losses	(16,015	) (9,634	) (A)
Curtailment loss	—	(223	) (A)
Settlement loss	(9,939	) (871	) (A)
	(25,695	) (10,505	) Total before tax
	9,188	3,377	Tax benefit
	(16,507	) (7,128	) Net of tax
Total reclassifications in the period	\$(17,424	) \$(7,989)

(A) These accumulated other comprehensive income components are included within the computation of net periodic pension cost. See Note 12.

20. Information on Business 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 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 that position parts on a shaft or other axis. Engineered Components is equipped to produce virtually every type of precision engineered spring, from fine hairsprings for electronics and instruments to large heavy-duty springs for machinery. Industrial's Nitrogen Gas Products business manufactures nitrogen gas springs and manifold systems used to precisely control stamping presses.

Industrial has a diverse customer base with products purchased by durable goods manufacturers located around the world in industries including transportation, consumer products, packaging, farm and mining equipment, telecommunications, medical devices, home appliances and electronics.

Industrial competes with a broad base of large and small companies engaged in the manufacture and sale of custom metal components, products and assemblies, precision molds, and hot runner systems. Industrial competes on the basis of quality, service, reliability of supply, engineering and technical capability, geographic reach, product breadth, innovation, design, and price. Industrial has manufacturing, distribution and assembly operations in the United States, Brazil, China, Germany, Italy, Mexico, Singapore, Sweden and Switzerland. Industrial also has sales and service operations in the United States, Brazil,

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Canada, China/Hong Kong, France, Germany, India, Italy, Japan, Mexico, the Netherlands, Portugal, Singapore, Slovakia, South Korea, Spain, Switzerland, Thailand and the United Kingdom.

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. The Aerospace aftermarket business provides jet engine component maintenance overhaul and repair (“MRO”) services, including our Component Repair Programs (“CRPs”), for many of the world’s major turbine engine manufacturers, commercial airlines and the military. The Aerospace aftermarket activities also include the manufacture and delivery of aerospace aftermarket spare parts, including the 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. Aerospace’s OEM business supplements the leading jet engine OEM capabilities and competes with a large number of fabrication and machining companies. Competition is based mainly on quality, engineering and technical capability, product breadth, new product introduction, timeliness, service and price. Aerospace’s fabrication and machining operations, with facilities in Arizona, Connecticut, Michigan, Ohio, Utah and Singapore, produce critical engine and airframe components through technically advanced manufacturing processes.

The Aerospace aftermarket business supplements jet engine OEMs’ maintenance, repair and overhaul capabilities, and competes with the service centers of major commercial airlines and other independent service companies for the repair and overhaul of turbine engine components. The manufacture and supply of aerospace aftermarket spare parts, including those related to the RSPs, are dependent upon the reliable and timely delivery of high-quality components. Aerospace’s aftermarket facilities, located in Connecticut, Ohio and Singapore, specialize in the repair and refurbishment of highly engineered components and assemblies such as cases, rotating life limited parts, rotating air seals, turbine shrouds, vanes and honeycomb air seals.

The Company evaluates the performance of its reportable segments based on the operating profit of the respective businesses, which includes net sales, cost of sales, selling and administrative expenses and certain components of other (income) expense, net, as well as the allocation of corporate overhead expenses.

Sales between the business segments and between the geographic areas in which the businesses operate are accounted for on the same basis as sales to unaffiliated customers. Additionally, revenues are attributed to countries based on the location of facilities.

The following tables (dollars shown in millions) set forth information about the Company’s operations by its reportable business segments and by geographic area.

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BARNES GROUP INC.

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Operations by Reportable Business Segment

	Industrial	Aerospace	Other	Total Company
Sales				
2015	\$782.3	\$411.7	\$—	\$1,194.0
2014	822.1	440.0	—	1,262.0
2013	687.6	404.0	—	1,091.6
Operating profit				
2015	\$103.0	\$65.4	\$—	\$168.4
2014	108.4	71.6	—	180.0
2013	71.9	51.3	—	123.2
Assets				
2015	\$1,241.2	\$654.1	\$166.5	\$2,061.9
2014	1,282.0	655.0	136.9	2,073.9
2013	1,410.4	567.1	146.2	2,123.7
Depreciation and amortization				
2015	\$46.0	\$30.8	\$1.3	\$78.2
2014	54.7	24.9	1.8	81.4
2013	38.4	23.2	3.5	65.1
Capital expenditures				
2015	\$28.7	\$17.2	\$0.1	\$46.0
2014	36.1	20.9	0.4	57.4
2013	31.3	23.8	2.2	57.3

Notes:

One customer, General Electric, accounted for 18%, 19% and 21% of the Company's total revenues in 2015, 2014 and 2013, respectively.

"Other" assets include corporate-controlled assets, the majority of which are cash and deferred tax assets.

A reconciliation of the total reportable segments' operating profit to income from continuing operations before income taxes follows:

	2015	2014	2013
Operating profit	\$168.4	\$180.0	\$123.2
Interest expense	10.7	11.4	13.1
Other (income) expense, net	(0.2	) 2.1	2.5
Income from continuing operations before income taxes	\$157.9	\$166.5	\$107.6

Operations by Geographic Area

	Domestic	International	Other	Total Company
Sales				
2015	\$589.6	\$661.7	\$(57.3) \$1,194.0
2014	618.9	677.6	(34.5) 1,262.0

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2013	593.3	524.1	(25.9) 1,091.6
Long-lived assets				
2015	\$379.2	\$1,069.9	\$—	\$1,449.1
2014	380.6	1,094.9	—	1,475.4
2013	330.2	1,214.0	—	1,544.2

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BARNES GROUP INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Notes:

Germany, with sales of \$210.5 million, \$249.9 million and \$140.8 million in 2015, 2014 and 2013, respectively, represents the only international country with revenues in excess of 10% of the Company's total revenues.

“Other” revenues represent the elimination of intercompany sales between geographic locations, of which approximately 82% were sales from international locations to domestic locations.

Germany, with long-lived assets of \$362.7 million, \$410.0 million and \$477.3 million in 2015, 2014 and 2013, respectively, Singapore, with long-lived assets of \$246.4 million, \$255.3 million and \$255.3 million in 2015, 2014 and 2013, respectively, Switzerland, with long-lived assets of \$167.0 million, \$165.7 million and \$193.8 million in 2015, 2014 and 2013, respectively and China with long-lived assets of \$151.7 million and \$156.4 million in 2014 and 2013, respectively, represent the only international countries that exceeded 10% of the Company's total long-lived assets in those years.

21. Commitments and Contingencies

Leases

The Company has various noncancellable operating leases for buildings, office space and equipment. Rent expense was \$11,166, \$12,745 and \$11,398 for 2015, 2014 and 2013, respectively. Minimum rental commitments under noncancellable leases in years 2016 through 2020 are \$7,619, \$4,445, \$3,419, \$2,315 and \$2,216, respectively, and \$9,469 thereafter. The rental expense and minimum rental commitments of leases with step rent provisions are recognized on a straight-line basis over the lease term.

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. Product warranty liabilities were not material as of December 31, 2015 or 2014.

Contract Matters

During the third quarter of 2015 the Company recorded a \$2,788 charge related to a contract termination dispute following the decision of a customer, Triumph Actuation Systems - Yakima, LLC ("Triumph"), to re-source work. The Company has approximately \$8,000 of net assets, in connection with this dispute, recorded on the Consolidated Balance Sheet as of December 31, 2015. The Company has assessed recoverability of costs and damages provided by the relevant contracts and, during the fourth quarter of 2015, filed an arbitration demand before the American Arbitration Association for recovery of these costs and damages for approximately \$15,000. Also during the fourth quarter, Triumph responded with a counterclaim of a similar amount, alleging various breaches and seeking damages, which the Company views as unsubstantiated. An arbitrator has been appointed and a hearing is currently scheduled for May 2016. While it is currently not possible to determine the ultimate outcome of this matter, the Company intends to vigorously defend its position and believes that the ultimate resolution will not have a material adverse effect on the Company's consolidated financial position or liquidity, but could be material to the consolidated results of operations of any one period.

22. Accounting Changes

In September 2015, the FASB amended its guidance related to the accounting for measurement period adjustments. The amended guidance eliminates the requirement to restate prior period financial statements for measurement period adjustments resulting from a business combination. The amended guidance is effective prospectively for interim and annual periods beginning after December 15, 2015. Early adoption is permitted. The Company elected to adopt the amended guidance in the third quarter of 2015 and it had no impact on the Consolidated Financial Statements during this period.

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Report of Independent Registered Public Accounting Firm

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

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, of comprehensive income, of changes in stockholders' equity and of cash flows present fairly, in all material respects, the financial position of Barnes Group Inc. and its subsidiaries (the "Company") at December 31, 2015 and 2014, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2015 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the accompanying index appearing under item 15(a)(2) presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on criteria established in Internal Control - Integrated Framework 2013 issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PRICEWATERHOUSECOOPERS LLP

Hartford, Connecticut
February 24, 2016

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QUARTERLY DATA (UNAUDITED)

(Dollars in millions, except per share data)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
2015					
Net sales	\$300.6	\$314.9	\$291.4	\$287.0	\$1,194.0
Gross profit ⁽¹⁾	102.2	110.8	100.3	97.8	411.2
Operating income	43.9	50.6	43.7	30.1	168.4
Income from continuing operations	29.1	34.2	33.7	24.4	121.4
Net income	29.1	34.2	33.7	24.4	121.4
Per common share:					
Income from continuing operations:					
Basic	\$0.53	\$0.62	\$0.61	\$0.45	\$2.21
Diluted	0.52	0.61	0.61	0.44	2.19
Net income:					
Basic	0.53	0.62	0.61	0.45	2.21
Diluted	0.52	0.61	0.61	0.44	2.19
Dividends	0.12	0.12	0.12	0.12	0.48
Market prices (high - low)	\$41.00-33.75	\$41.74-38.75	\$41.78-35.33	\$39.74-33.00	\$41.78-33.00
2014					
Net sales	\$312.1	\$322.1	\$317.7	\$310.2	\$1,262.0
Gross profit ⁽¹⁾	97.5	110.4	111.2	113.2	432.4
Operating income	35.1	45.4	50.9	48.6	180.0
Income from continuing operations	22.8	30.2	34.3	33.3	120.5
Net income	22.8	30.2	33.9	31.5	118.4
Per common share:					
Income from continuing operations:					
Basic	\$0.42	\$0.55	\$0.63	\$0.60	\$2.20
Diluted	0.41	0.54	0.62	0.60	2.16
Net income:					
Basic	0.42	0.55	0.62	0.57	2.16
Diluted	0.41	0.54	0.61	0.57	2.12
Dividends	0.11	0.11	0.11	0.12	0.45
Market prices (high - low)	\$40.92-35.34	\$40.01-36.27	\$39.07-30.35	\$37.88-29.47	\$40.92-29.47

⁽¹⁾Sales less cost of sales.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Disclosure 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.

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Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Under the supervision and with the participation of management, including the principal executive officer and principal financial officer, the Company conducted an assessment of the effectiveness of its internal control over financial reporting based on the framework in the "Internal Control - Integrated Framework 2013" issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on the assessment under this framework, management concluded that the Company's internal control over financial reporting was effective as of December 31, 2015.

PricewaterhouseCoopers LLP, the independent registered public accounting firm that audited the financial statements included in this Annual Report, has issued an attestation report on the Company's internal control over financial reporting as of December 31, 2015, which appears on page 69 of this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

There has been no change to our internal control over financial reporting during the Company's fourth fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

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PART III

Item 10. Directors, Executive Officers and Corporate Governance

DIRECTORS

Information with respect to our directors and nominees may be found under the caption “Election of Directors” of the Company’s proxy statement to be delivered to stockholders in connection with the Annual Meeting of Stockholders to be held on May 6, 2016 (the “Proxy Statement”). Such information is incorporated herein by reference.

EXECUTIVE OFFICERS

The Company’s executive officers as of the date of this Annual Report are as follows:

Executive Officer	Position	Age as of December 31, 2015
Patrick J. Dempsey	President and Chief Executive Officer	51
Richard R. Barnhart	Senior Vice President, Barnes Group Inc., and President, Barnes Aerospace	55
James P. Berklas, Jr.	Senior Vice President, General Counsel and Secretary	44
Dawn N. Edwards	Senior Vice President, Human Resources	47
Scott A. Mayo	Senior Vice President, Barnes Group Inc., and President, Barnes Industrial	48
Christopher J. Stephens, Jr.	Senior Vice President, Finance and Chief Financial Officer	51

Each officer holds office until his or her successor is appointed and qualified or otherwise as provided in the Company’s Amended and Restated By-Laws, except Mr. Barnhart who, on November 3, 2015, gave notice of his intention to retire as Senior Vice President, Barnes Group Inc. and President, Barnes Aerospace at the end of June 2016. No family relationships exist among the executive officers of the Company. Except for Mr. Berklas and Mr. Mayo, each of the Company’s executive officers has been employed by the Company or its subsidiaries in an executive or managerial capacity for at least the past five years.

Mr. Dempsey was appointed President and Chief Executive Officer effective March 1, 2013. From February 2012 until such appointment, he served as Senior Vice President and Chief Operating Officer. From October 2008 until February 2012, he served as Vice President, Barnes Group Inc. and President, Logistics and Manufacturing Services. Prior to that, he held a series of roles of increasing responsibility since joining the Company in October 2000. In October 2007, he was appointed Vice President, Barnes Group Inc. and President, Barnes Distribution. In November 2004, he was promoted to Vice President, Barnes Group Inc. and President, Barnes Aerospace.

Mr. Barnhart was appointed Senior Vice President, Barnes Group Inc., and President, Barnes Aerospace effective August 1, 2013. From February 2012 until such appointment, he served as Vice President, Aerospace and President, Barnes Aerospace. Prior to that, from October 2010 to February 2012, Mr. Barnhart served as Vice President, Finance, Logistics & Manufacturing Services. Prior to that, he held a series of roles of increasing responsibility since joining

the Company in April 2005 including President, Barnes Distribution Europe; Vice President & General Manager, Barnes Aerospace OEM; and Vice President & General Manager, Windsor Airmotive Division.

Mr. Berklas was appointed Senior Vice President, General Counsel and Secretary effective August 1, 2015. Before joining the Company, from 2008 to 2015, Mr. Berklas served as Senior Vice President, Associate General Counsel, Chief Compliance Officer and Associate Corporate Secretary, Herbalife Ltd., a global nutrition company. Prior to that, from 2005 to 2008, Mr. Berklas served as General Counsel and Corporate Secretary for Marietta Corporation, a personal care products company. From 2006 to 2008, he also served as the Senior Vice President and Hotel Division Manager for Marietta's hotel product division.

Ms. Edwards was appointed Senior Vice President, Human Resources effective August 2009. From December 2008 until August 2009, she served as Vice President of Human Resources – Global Operations. From September 1998 until December

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2008, Ms. Edwards served as Group Director, Human Resources for Barnes Aerospace, Associated Spring and Barnes Industrial. Ms. Edwards joined the Company in September 1998.

Mr. Mayo was appointed Senior Vice President, Barnes Group Inc. and President, Barnes Industrial effective March 17, 2014. Before joining the Company, from 2012 to 2014, Mr. Mayo served as Vice President and General Manager, Power Sector, Flow Control, a division of Flowserve Corporation. From 2010 to 2012, he served as Vice President and General Manager, General Industries Sector, Flow Control Division. From 2009 to 2010, he served as Vice President, Marketing for the Flow Control Division. Prior to that, from 2002 to 2008, Mr. Mayo held a series of roles including General Manager, Flow Control Division China based in Shanghai, China; Director, Marketing, Flow Control Division, based in Raleigh, NC; Director and General Manager, Aftermarket, Raleigh, NC; and Director, Strategic Planning and Business Development, also based in Raleigh, NC.

Mr. Stephens was appointed Senior Vice President, Finance and Chief Financial Officer, Barnes Group Inc. effective January 2009. Prior to joining the Company, Mr. Stephens held key leadership roles at Honeywell International, serving as President of the Consumer Products Group from 2007 to 2008, and Vice President and Chief Financial Officer of Honeywell Transportation Systems from 2003 to 2007. Prior to that, he held roles with increasing responsibility at The Boeing Company, serving as Vice President and General Manager, Boeing Electron Dynamic Devices; Vice President, Business Operations, Boeing Space and Communications; and Vice President and Chief Financial Officer, Boeing Satellite Systems.

AUDIT COMMITTEE

Ms. Sohovich and Messrs. Bristow, McClellan and Morgan are the members of the Company's Audit Committee which is a separately designated standing committee of the Board of Directors of the Company established in accordance with Section 3(a)(58)(A) of the Exchange Act.

The Company's Board of Directors has determined that Mr. Morgan, who qualifies as an independent director under the New York Stock Exchange corporate governance listing standards and the Company's Corporate Governance Guidelines, is an "audit committee financial expert," as such term is defined by the SEC.

COMPLIANCE WITH SECTION 16(A) OF THE EXCHANGE ACT

The information in the Proxy Statement under the caption "Section 16(a) Beneficial Ownership Reporting Compliance" is incorporated herein by reference.

CODE OF ETHICS

We have adopted a Code of Business Ethics and Conduct (the "Code of Ethics") which is applicable to all employees, including our Chief Executive Officer, Chief Financial Officer and Principal Accounting Officer and any persons performing similar functions. The Code of Ethics is available on our website at www.BGInc.com. We will promptly disclose any material waivers of or substantive amendments to the Executive Code of Ethics on our website or in a report on Form 8-K.

Item 11. Executive Compensation

The information in the Proxy Statement under the captions "Executive Compensation" and "Director Compensation in 2015" is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information in the Proxy Statement under “Securities Authorized for Issuance Under Equity Compensation Plans”, “Security Ownership of Certain Beneficial Owners” and “Security Ownership of Directors and Executive Officers” is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information in the Proxy Statement under “Related Person Transactions” and “Governance – Director Independence” is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information in the Proxy Statement under “Principal Accountant Fees and Services” is incorporated herein by reference.

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PART IV

Item 15. Exhibits, Financial Statement Schedule

- (a)(1) The following Financial Statements and Supplementary Data of the Company are set forth herein under Item 8 of this Annual Report:
- Consolidated Statements of Income for the years ended December 31, 2015, 2014 and 2013
 - Consolidated Balance Sheets as of December 31, 2015 and 2014
 - Consolidated Statements of Comprehensive Income for the years ended December 31, 2015, 2014 and 2013
 - Consolidated Statements of Cash Flows for the years ended December 31, 2015, 2014 and 2013
 - Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2015, 2014 and 2013
 - Notes to Consolidated Financial Statements
 - Report of Independent Registered Public Accounting Firm
- (a)(2) See Financial Statement Schedule under Item 15(c).
- (a)(3) See Item 15(b) below.
- (b) The Exhibits required by Item 601 of Regulation S-K are filed as Exhibits to this Annual Report and indexed at pages 79 through 83 of this Annual Report, which index is incorporated herein by reference.
- (c) Financial Statement Schedule.

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Schedule II—Valuation and Qualifying Accounts
 Years Ended December 31, 2015, 2014 and 2013
 (In thousands)

Allowances for Doubtful Accounts:		
Balance January 1, 2013		\$2,858
Provision charged to income		1,726
Doubtful accounts written off (net)		(532)
Other adjustments ⁽¹⁾		(614)
Balance December 31, 2013		3,438
Provision charged to income		1,523
Doubtful accounts written off (net)		(493)
Other adjustments ⁽¹⁾		(595)
Balance December 31, 2014		3,873
Provision charged to income		1,248
Doubtful accounts written off (net)		(404)
Other adjustments ⁽¹⁾		(632)
Balance December 31, 2015		\$4,085

⁽¹⁾ These amounts are comprised primarily of foreign currency translation and other reclassifications. The reduction in 2013 includes \$0.8 million of reserves recorded at BDNA which was sold in the second quarter of 2013.

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Schedule II—Valuation and Qualifying Accounts
 Years Ended December 31, 2015, 2014 and 2013
 (In thousands)

Valuation Allowance on Deferred Tax Assets:	
Balance January 1, 2013	\$24,936
Additions charged to income tax expense	473
Additions charged to other comprehensive income	(547)
Reductions credited to income tax expense	(1,412)
Changes due to foreign currency translation	(849)
Divestiture ⁽¹⁾	(3,728)
Balance December 31, 2013	18,873
Additions charged to income tax expense	1,049
Additions charged to other comprehensive income	(30)
Reductions credited to income tax expense	(2,303)
Changes due to foreign currency translation	(1,733)
Balance December 31, 2014	15,856
Additions charged to income tax expense	1,043
Reductions charged to other comprehensive income	(59)
Reductions credited to income tax expense	(1,216)
Changes due to foreign currency translation	(2,204)
Acquisition ⁽²⁾	981
Balance December 31, 2015	\$14,401

(1) The reduction in 2013 reflects the valuation allowance adjustment to Discontinued Operations as it relates to the sale of BDNA

(2) The increase in 2015 reflects the valuation allowance recorded at the Thermoplay and Priamus businesses which were acquired in the third and fourth quarters of 2015, respectively.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Company has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: February 24, 2016

BARNES GROUP INC.

By /S/ PATRICK J. DEMPSEY
Patrick J. Dempsey
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below as of the above date by the following persons on behalf of the Company in the capacities indicated.

/S/ PATRICK J. DEMPSEY
Patrick J. Dempsey
President and Chief Executive Officer
(Principal Executive Officer), and Director

/S/ CHRISTOPHER J. STEPHENS, JR.
Christopher J. Stephens, Jr.
Senior Vice President, Finance
Chief Financial Officer
(Principal Financial Officer)

/S/ MARIAN ACKER
Marian Acker
Vice President, Controller
(Principal Accounting Officer)

/S/ THOMAS O. BARNES
Thomas O. Barnes
Director

/S/ GARY G. BENANAV
Gary G. Benanav
Director

/S/ WILLIAM S. BRISTOW, JR.
William S. Bristow, Jr.
Director

/S/ FRANCIS J. KRAMER
Francis J. Kramer
Director

/S/ MYLLE H. MANGUM
Mylle H. Mangum
Director

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/S/ HASSELL H. MCCLELLAN

Hassell H. McClellan

Director

/S/ WILLIAM J. MORGAN

William J. Morgan

Director

/S/ JOANNA L. SOHOVICH

JoAnna L. Sohovich

Director

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EXHIBIT INDEX

Barnes Group Inc.

Annual Report on Form 10-K
for the Year ended December 31, 2015

Exhibit No.	Description	Reference
2.1*	Asset Purchase Agreement dated February 22, 2013 between the Company and MSC Industrial Direct Co., Inc.	Incorporated by reference to Exhibit 2.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2013.
2.2*	Share Purchase and Assignment Agreement dated September 30, 2013 among the Company, two of its subsidiaries, Otto Männer Holding AG (the "Seller"), and the three shareholders of Seller.	Incorporated by reference to Exhibit 2.1 to Form 8-K filed by the Company on October 4, 2013.
3.1	Restated Certificate of Incorporation; Certificate of Designation, Preferences and Rights of Series A Junior Participating Preferred Stock; Certificate of Change of Location of registered office and of registered agent, dated December 13, 2002; Certificate of Merger of domestic limited liability company into a domestic company, dated May 19, 2004; Certificate of Amendment of Restated Certificate of Incorporation, dated April 20, 2006; and Certificate of Amendment of Restated Certificate of Incorporation, dated as of May 3, 2013.	Incorporated by reference to Exhibit 3.1 to the Company's report on Form 10-Q for the quarter ended June 30, 2013.
3.2	Amended and Restated By-Laws.	Incorporated by reference to Exhibit 3.1 to Form 8-K filed by the Company on February 11, 2016.
10.1	(i) Fifth Amended and Restated Senior Unsecured Revolving Credit Agreement, dated September 27, 2011.	Incorporated by reference to Exhibit 4.1 to the Company's report on Form 10-Q for the quarter ended June 30, 2013.
	(ii) Amendment No. 2 and Joinder to Credit Agreement dated as of September 27, 2013 (amending Fifth Amended and Restated Senior Unsecured Revolving Credit Agreement, dated as of September 27, 2011).	Incorporated by reference to Exhibit 4.1 to the Company's report on Form 10-Q for the quarter ended September 30, 2013.
	(iii) Amendment No. 3 to Credit Agreement dated as of October 15, 2014.	Incorporated by reference to Exhibit 10.1(iii) to the Company's report on Form 10-K for the year ended December 31, 2014.

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10.2	Note Purchase Agreement, dated as of October 15, 2014, 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 (BOLI 30C).	Incorporated by reference to Exhibit 10.1 to Form 8-K filed by the Company on October 17, 2014.
10.3**	Barnes Group Inc. Management Incentive Compensation Plan, amended October 22, 2008.	Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-K for the year ended December 31, 2008.
10.4**	Barnes Group Inc. Performance-Linked Bonus Plan for Selected Executive Officers, as amended February 8, 2011.	Incorporated by reference to Annex 1 to the Company's definitive proxy statement filed with the Securities and Exchange Commission on April 5, 2011.
10.5**	(i) Offer Letter between the Company and Patrick Dempsey, dated February 22, 2013.	Incorporated by reference to Exhibit 10.3 to the Company's report on Form 10-Q for the quarter ended March 31, 2013.

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Exhibit No.	Description	Reference
	(ii) Amendment to Offer Letter to Patrick Dempsey, dated January 6, 2015.	Incorporated by reference to Exhibit 10.6(ii) to the Company's report on Form 10-K for the year ended December 31, 2014.
	(iii) Employee Non-Disclosure, Non-Competition, Non-Solicitation and Non-Disparagement Agreement between the Company and Patrick J. Dempsey, dated February 27, 2013.	Incorporated by reference to Exhibit 10.4 to the Company's report on Form 10-Q for the quarter ended March 31, 2013.
10.6**	(i) Amendment to Offer Letter to Christopher J. Stephens, Jr., dated June 7, 2013.	Incorporated by reference to Exhibit 10.2 to the Company's report on Form 10-Q for the quarter ended June 30, 2013.
	(ii) Amendment to Amended Offer Letter to Christopher J. Stephens, Jr., dated February 12, 2014.	Incorporated by reference to Exhibit 10.6(ii) to the Company's report on Form 10-K for the year ended December 31, 2013.
10.7**	Offer Letter to Scott A. Mayo, dated January 28, 2014.	Incorporated by reference to Exhibit 10.2 to the Company's report on Form 10-Q for the quarter ended March 31, 2014.
10.8**	Offer Letter to James P. Berklas, Jr., dated June 5, 2015.	Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended September 30, 2015.
10.9**	(i) Barnes Group Inc. Retirement Benefit Equalization Plan, as amended and restated effective January 1, 2013.	Incorporated by reference to Exhibit 10.39(ii) to the Company's report on Form 10-K for the year ended December 31, 2012.
	(ii) First Amendment to the Barnes Group Inc. Retirement Benefit Equalization Plan dated December 12, 2014.	Incorporated by reference to Exhibit 10.9(ii) to the Company's report on Form 10-K for the year ended December 31, 2014.
10.10**	(i) Barnes Group Inc. Supplemental Senior Officer Retirement Plan, as amended and restated effective January 1, 2009.	Incorporated by reference to Exhibit 10.3 to the Company's report on Form 10-K for the year ended December 31, 2008.
	(ii) Amendment to the Barnes Group Inc. Supplemental Senior Officer Retirement Plan dated December 30, 2009.	Incorporated by reference to Exhibit 10.3(ii) to the Company's report on Form 10-K for the year ended December 31, 2009.
	(iii) Second Amendment to the Barnes Group Inc. Supplemental Senior Officer Retirement Plan dated	Incorporated by reference to Exhibit 10.10(iii) to the Company's report on Form 10-K for the year

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December 12, 2014.

ended December 31, 2014.

- 10.11** (i) Amended and Restated Supplemental Executive Retirement Plan effective April 1, 2012. Incorporated by reference to Exhibit 10.6(ii) to the Company's report on Form 10-K for the year ended December 31, 2011.
- (ii) Amendment 2013-1 to the Barnes Group Inc. Supplemental Executive Retirement Plan dated July 23, 2013. Incorporated by reference to Exhibit 10.3 to the Company's report on Form 10-Q for the quarter ended June 30, 2013.
- (iii) Amendment 2014-1 to the Barnes Group Inc. Supplemental Executive Retirement Plan dated December 12, 2014. Incorporated by reference to Exhibit 10.11(iii) to the Company's report on Form 10-K for the year ended December 31, 2014.
- 10.12** Barnes Group Inc. Senior Executive Enhanced Life Insurance Program, as amended and restated effective April 1, 2011. Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended June 30, 2011.
- 10.13** Barnes Group Inc. Enhanced Life Insurance Program, as amended and restated effective April 1, 2011. Incorporated by reference to Exhibit 10.6 to the Company's report on Form 10-Q for the quarter ended March 30, 2011.
- 10.14** Barnes Group Inc. Executive Group Term Life Insurance Program effective April 1, 2011. Incorporated by reference to Exhibit 10.1 to Form 8-K filed by the Company on June 19, 2012.

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Exhibit No.	Description	Reference
10.15**	Form of Barnes Group Inc. Executive Officer Severance Agreement, as amended March 31, 2010.	Incorporated by reference to Exhibit 10.20 to the Company's Form 10-K for the year ended December 31, 2010.
10.16**	Form of Barnes Group Inc. Executive Officer Severance Agreement, effective February 19, 2014.	Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2014.
10.17**	Barnes Group Inc. Executive Separation Pay Plan, as amended and restated effective January 1, 2012.	Incorporated by reference to Exhibit 10.11(ii) to the Company's report on Form 10-K for the year ended December 31, 2011.
10.18**	(i) Trust Agreement between the Company and Fidelity Management Trust Company (Barnes Group 2009 Deferred Compensation Plan) dated September 1, 2009.	Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the quarter ended September 30, 2009.
	(ii) Amended and Restated Barnes Group 2009 Deferred Compensation Plan effective as of April 1, 2012.	Incorporated by reference to Exhibit 10.12(iv) to the Company's report on Form 10-K for the year ended December 31, 2011.
	(iii) First Amendment to the Barnes Group 2009 Deferred Compensation Plan dated December 12, 2014.	Incorporated by reference to Exhibit 10.18(iii) to the Company's report on Form 10-K for the year ended December 31, 2014.
10.19**	Barnes Group Inc. Non-Employee Director Deferred Stock Plan, as amended and restated December 31, 2008.	Incorporated by reference to Exhibit 10.5 to the Company's report on Form 10-K for the year ended December 31, 2008.
10.20**	Barnes Group Inc. Directors' Deferred Compensation Plan, as amended and restated December 31, 2008.	Incorporated by reference to Exhibit 10.6 to the Company's report on Form 10-K for the year ended December 31, 2008.
10.21**	Form of Amended and Restated Contingent Dividend Equivalent Rights Agreement for Officers.	Incorporated by reference to Exhibit 10.29 to the Company's Form 10-K for the year ended December 31, 2008.
10.22**	Barnes Group Inc. Trust Agreement for Specified Plans.	Incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q for the quarter ended June 30, 2010.
10.23**	Form of Incentive Compensation Reimbursement Agreement between the Company and certain Officers.	Incorporated by reference to Exhibit 10.19 to the Company's Form 10-K for the year ended December 31, 2010.
10.24**		

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	Form of Indemnification Agreement between the Company and its Officers and Directors.	Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the quarter ended June 30, 2010.
10.25**	(i) Barnes Group Inc. Stock and Incentive Award Plan, as amended December 31, 2008.	Incorporated by reference to Exhibit 10.15 to the Company's report on Form 10-K for the year ended December 31, 2008.
	(ii) Barnes Group Inc. Stock and Incentive Award Plan, as amended March 15, 2010.	Incorporated by reference to Annex 1 to the Company's definitive Proxy Statement filed with the Securities and Exchange Commission on April 5, 2010.
	(iii) Exercise of Authority Relating to the Stock and Incentive Award Plan, dated March 3, 2009.	Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2009.
	(iv) Amendment 2010-1 approved on December 9, 2010 to the Barnes Group Inc. Stock and Incentive Award Plan as amended March 15, 2010.	Incorporated by reference to Exhibit 10.15 to the Company's Form 10-K for the year ended December 31, 2010.
10.26**	2014 Barnes Group Inc. Stock and Incentive Award Plan.	Incorporated by reference to Annex A to the Company's definitive proxy statement filed with the Securities and Exchange Commission on March 25, 2014.

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Exhibit No.	Description	Reference
10.27**	Form of Barnes Group Inc. Stock and Incentive Award Plan Restricted Stock Unit Summary of Grant and Restricted Stock Unit Agreement for Directors dated February 8, 2012 (for non-management directors).	Incorporated by reference to Exhibit 10.38 to the Company's report on Form 10-K for the year ended December 31, 2011.
10.28**	Form of Barnes Group Inc. Stock and Incentive Award Plan Restricted Stock Unit Summary of Grant and Restricted Stock Unit Agreement for Directors dated May 9, 2014 (for non-management directors).	Incorporated by reference to Exhibit 10.2 to the Company's report on Form 10-Q for the quarter ended June 30, 2014.
10.29**	Form of Barnes Group Inc. Stock and Incentive Award Plan Restricted Stock Unit Summary of Grant and Restricted Stock Unit Agreement for Directors dated February 9, 2016 (for non-management directors).	Filed with this report.
10.30**	Form of Non-Qualified Stock Option Agreement for employees grade 21 and up.	Incorporated by reference to Exhibit 10.25 to the Company's Form 10-K for the year ended December 31, 2008.
10.31**	Form of Barnes Group Inc. Stock and Incentive Award Plan Stock Option Summary of Grant and Stock Option Agreement for employees in grade 21 and up dated as of February 8, 2011.	Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2011.
10.32**	Form of Barnes Group Inc. Stock and Incentive Award Plan Stock Option Summary of Grant and Stock Option Agreement for Employees in Grade 21 and up dated May 9, 2014.	Incorporated by reference to Exhibit 10.4 to the Company's report on Form 10-Q for the quarter ended June 30, 2014.
10.33**	Form of Barnes Group Inc. Stock and Incentive Award Plan Stock Option Summary of Grant and Stock Option Agreement for Employees in Grade 21 and up dated February 9, 2016.	Filed with this report.
10.34**	Form of Barnes Group Inc. Stock and Incentive Award Plan Restricted Stock Unit Summary of Grant and Restricted Stock Unit Agreement for employees grade 21 and up dated as of February 8, 2011.	Incorporated by reference to Exhibit 10.1 to the Company's report on Form 10-Q for the quarter ended March 31, 2011.
10.35**	Form of Barnes Group Inc. Stock and Incentive Award Plan Restricted Stock Unit Summary of Grant for Employees and Restricted Stock Unit Agreement dated February 8, 2012.	Incorporated by reference to Exhibit 10.37 to the Company's report on Form 10-K for the year ended December 31, 2011.

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- 10.36** Form of Barnes Group Inc. Stock and Incentive Award Plan Restricted Stock Unit Summary of Grant for Employees and Restricted Stock Unit Agreement dated May 9, 2014. Incorporated by reference to Exhibit 10.3 to the Company's report on Form 10-Q for the quarter ended June 30, 2014.
- 10.37** Form of Barnes Group Inc. Stock and Incentive Award Plan Restricted Stock Unit Summary of Grant for Employees and Restricted Stock Unit Agreement dated February 9, 2016. Filed with this report.
- 10.38** Form of Barnes Group Inc. Stock and Incentive Award Plan Performance Share Award Summary of Grant and Performance Share Award Agreement for Officers and Other Individuals as Designated by the Compensation and Management Development Committee dated as of February 8, 2012. Incorporated by reference to Exhibit 10.36 to the Company's report on Form 10-K for the year ended December 31, 2011.
- 10.39** Form of Barnes Group Inc. Stock and Incentive Award Plan Performance Share Award Summary of Grant and Performance Share Award Agreement for Officers and Other Individuals as Designated by the Compensation and Management Development Committee dated as of February 11, 2014. Incorporated by reference to Exhibit 10.36 to the Company's report on Form 10-K for the year ended December 31, 2013.

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Exhibit No.	Description	Reference
10.40**	Form of Barnes Group Inc. Stock and Incentive Award Plan Performance Share Award Summary of Grant and Performance Share Award Agreement for Officers and Other Individuals as Designated by the Compensation and Management Development Committee dated July 21, 2014.	Incorporated by reference to Exhibit 10.5 to the Company's report on Form 10-Q for the quarter ended June 30, 2014.
10.41**	Form of Barnes Group Inc. Stock and Incentive Award Plan Performance Share Award Summary of Grant and Performance Share Award Agreement for Officers and Other Individuals as Designated by the Compensation and Management Development Committee dated as of February 11, 2015.	Incorporated by reference to Exhibit 10.40 to the Company's report on Form 10-K for the year ended December 31, 2014.
10.42**	Form of Barnes Group Inc. Stock and Incentive Award Plan Performance Share Award Summary of Grant and Performance Share Award Agreement for Officers and Other Individuals as Designated by the Compensation and Management Development Committee dated as of February 9, 2016.	Filed with this report.
21	List of Subsidiaries.	Filed with this report.
23	Consent of Independent Registered Public Accounting Firm.	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.
101.INS	XBRL Instance Document.	Filed with this report.
101.SCH	XBRL Taxonomy Extension Schema Document.	Filed with this report.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.	Filed with this report.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.	Filed with this report.

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101.LAB	XBRL Taxonomy Extension Label Linkbase Document.	Filed with this report.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.	Filed with this report.

* The Company hereby agrees to provide the Commission upon request copies of any omitted exhibits or schedules to this exhibit required by Item 601(b)(2) of Regulation S-K.

** Management contract or compensatory plan or arrangement.

The Company agrees to furnish to the Commission, upon request, a copy of each instrument with respect to which there are outstanding issues of unregistered long-term debt of the Company and its subsidiaries, the authorized principal amount of which does not exceed 10% of the total assets of the Company and its subsidiaries on a consolidated basis.