ARROWHEAD RESEARCH CORP
Form S-3/A
March 23, 2006

As filed with the Securities and Exchange Commission on March 22, 2006

File No. 333-132310

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

AMENDMENT NO. 1

to

FORM S-3

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

ARROWHEAD RESEARCH CORPORATION

(Name of small business issuer in its charter)

Delaware	**46-0408024**
(State of incorporation)	**(I.R.S. Employer Identification No.)**

201 South Lake Avenue, Suite 703

Pasadena, California 91101

(626) 304-3400

(Address, including zip code, and telephone number, including area code, of Registrant s principal executive offices)

Dr. Leon Ekchian, President

ARROWHEAD RESEARCH CORPORATION

201 South Lake Avenue, Suite 703

Pasadena, California 91101

(626) 304-3400

(Name and address of agent for service)

Copies of communications sent to:

Rachael Simonoff Wexler, Esq.

ALSCHULER GROSSMAN STEIN & KAHAN LLP

1620 26th Street North Tower, Fourth Floor

Santa Monica, CA 90404

(310) 907-1000

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of the Registration Statement, as determined by the Registrant.

If the only securities being registered on this form are to be offered pursuant to dividend or interest reinvestment plans, please check the following box. ¨

If the only securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. x

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ¨

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering ¨

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. ¨

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the commission pursuant to Rule 462(e) under the Securities Act, check the following box. ¨

If this Form is a post-effective amendment of a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to 413(b) under the Securities Act, check the following box. ¨

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share(2)	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee
Common Stock, par value $.001 per share	7,161,000	$4.69	$33,585,090	$3,594*

(1) Pursuant to Rule 416 of the Securities Act of 1933, as amended, this Registration Statement also covers such additional securities as may become issuable to prevent dilution resulting from stock splits, stock dividends and similar events.

(2) Pursuant to Rule 457(c), calculated on the basis of the average of the high and low prices per share of the Registrant s Common Stock reported on the Nasdaq Capital Market on March 7, 2006.

* Previously paid.

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until this registration statement shall become effective on such date as the Commission, acting pursuant to said section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

PROSPECTUS (Subject to Completion)

dated March 22, 2006

ARROWHEAD RESEARCH CORPORATION

7,161,000 shares of Common Stock

This prospectus covers the sale of an aggregate of 7,161,000 shares of the Common Stock, $.001 par value (the Common Stock) of Arrowhead Research Corporation, a Delaware corporation (the Company), by the selling security holders identified in this prospectus, (collectively with any holder s transferee, pledgee, donee or successor, the Selling Stockholders). The Common Stock covered by this prospectus consists of (i) 5,590,000 shares of Common Stock (the Private Placement Shares) issued to the Selling Stockholders in a private placement (the Private Placement), (ii) 1,397,500 shares of Common Stock underlying the warrants (the Warrants) issued to the Selling Stockholders in the Private Placement, (iii) 15,000 shares of Common Stock issued to an individual inventor for rights to a certain patent, (iv) 81,000 shares of Common Stock issued pursuant to the exercise of options granted for administrative services provided during the early stages of the Company, (v) 12,500 shares of Common Stock issued pursuant to the exercise of options granted for public relations services provided to the Company, and (vi) 65,000 shares of Common Stock underlying options to purchase Common Stock issued for public relations services provided to the Company. The shares identified in clauses (iv), (v) and (vi), the Option Shares, and, collectively with the shares in clauses (i), (ii) and (iii), the Shares.

The Company will not receive any proceeds from the sale by the Selling Stockholders of the Common Stock, or the Common Stock issuable upon exercise of the Warrants and options except for the $7,196,150 payable to the Company upon exercise of the Warrants and options.

The Company s Common Stock is traded on The Nasdaq Capital Market and under the symbol ARWR. On March 20, 2006, the closing sale price of our Common Stock on The Nasdaq Capital Market was $4.98 per share. Our principal executive offices are located at 201 South Lake Avenue, Suite 703, Pasadena, California 91101, and our telephone number is (626) 304-3400.

Investing in our securities involves risks. You should carefully consider the risk factors beginning on page 1 of this prospectus before you make an investment in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is March __, 2006

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You should read this prospectus, any applicable prospectus supplement and the information incorporated by reference in this prospectus before making an investment in the securities of Arrowhead Research Corporation. See Where You Can Find More Information for more information, page 9. You should rely only on the information contained in or incorporated by reference in this prospectus or a prospectus supplement. The Company has not authorized anyone to provide you with different information. This document may be used only in jurisdictions where offers and sales of these securities are permitted. You should assume that information contained in this prospectus, or in any document incorporated by reference, is accurate only as of any date on the front cover of the applicable document. Our business, financial condition, results of operations and prospects may have changed since that date.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into it contain forward-looking statements that involve risks and uncertainties. The Company has made these statements in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. The Company s forward-looking statements relate to future events or our future performance and include, but are not limited to, statements concerning our business strategy, future research and development projects, potential commercial revenues, capital requirements, new potential product introductions, expansion plans and the Company s funding requirements. Other statements contained in our filings that are not historical facts are also forward-looking statements. The Company has tried, wherever possible, to identify forward-looking statements by terminology such as may, will, could, should, expects, anticipates, intends, plans, believes, seeks, estimates and other comparable termi

Forward-looking statements are not guarantees of future performance and are subject to various risks, uncertainties and assumptions that are difficult to predict. Actual results may differ materially from those anticipated in these forward-looking statements as a result of a number of factors, including the risk factors described below in this prospectus and in our periodic filings with the SEC, incorporated by reference or included in this prospectus. All forward-looking statements contained in this prospectus are made only as of the date on the prospectus cover. We are under no obligation and we expressly disclaim any such obligation to update or alter our forward-looking statements, whether as a result of new information, future events or otherwise. Before deciding to buy or sell our securities, you should be aware that the occurrence of the events described in these risk factors could harm our business, operating results and financial condition, which consequences could materially diminish the trading price of our securities and/or their value.

SUMMARY

Unless otherwise noted, (1) the term Arrowhead Research refers to Arrowhead Research Corporation, a Delaware corporation and formerly known as InterActive Group, Inc., (2) the terms Arrowhead, the Company, we, us, and our, refer to the ongoing business operations of Arrowhead and its subsidiaries, whether conducted through Arrowhead Research or a subsidiary of the company, (3) the term ARC refers to Arrowhead Research Corporation, a privately-held California corporation with which Arrowhead Research consummated a stock exchange transaction in January 2004,(4) the term Warrants refers to the warrants to purchase Common Stock issued by Arrowhead Research to the Selling Stockholders and (5) the term Common Stock refers to Arrowhead Research s Common Stock and the term stockholder(s) refers to the holders of Common Stock or securities exercisable for Common Stock, including the Common Stock issuable upon exercise of the Warrants and the holders of the Warrants.

Arrowhead Research is a development-stage nanotechnology company structured to bring together a diverse and innovative mix of technologies in the areas of healthcare, semiconductors and manufacturing processes, a broad suite of intellectual property, and some of the most respected minds in this dynamic field. Nanotechnology generally refers to the investigation and manipulation of matter at the atomic, molecular, or macromolecular levels.

The Company was originally incorporated in South Dakota in 1989, and was reincorporated in Delaware in 2000. Arrowhead Research consummated a stock exchange transaction on January 12, 2004 with the owners of ARC, referred to as the Stock Exchange. In the Stock Exchange, the owners of ARC acquired approximately 89% of the Common Stock of the Company, and ARC became a wholly-owned subsidiary of the Company. The Company s principal executive offices are located at 201 South Lake Avenue, Suite 703, Pasadena, California 91101, and its telephone number is (626) 304-3400.

RISK FACTORS

We are a development stage company and we have limited historical operations. We urge you to consider our likelihood of success and prospects in light of the risks, expenses and difficulties frequently encountered by entities at our current stage of development.

Certain Risk Factors Relating to the Company s Focus on Nanotechnology

There are substantial risks inherent in attempting to commercialize new technological applications, and, as a result, we may not be able to successfully develop nanotechnology for commercial use.

The Company finances research and development of nanotechnology, which is new and unproven. The Company s investigative scientists are at various stages of developing technology and such technology s commercial feasibility and acceptance is unknown. Scientific research and development requires significant financing and has a lengthy lifecycle. To date, the Company s research and development projects have not produced commercially viable applications, and may never do so. During our research and development process, the Company may experience technological issues that it may be unable to overcome. For example, our scientists must determine how to design and develop nanotechnology applications for potential products designed by third parties for use in cost-effective manufacturing processes. Because of these uncertainties, none of our potential applications may be successfully developed. If the Company is unable to successfully develop nanotechnology applications for commercial use, we will be unable to generate revenue or build a sustainable or profitable business.

We will need to achieve commercial acceptance of our applications to obtain revenue and achieve profitability.

Even if our research and development yields technologically feasible applications, the Company may not successfully develop commercial products on a timely basis, if at all. If the Company s research efforts are successful, it could be at least several years before our technology will be commercially viable, and, during this period, superior competitive technologies may be introduced or customer needs may change diminishing or extinguishing the commercial uses for our applications. To date, the broad markets have generally not adopted nanotechnology-enabled products. The Company cannot predict when broad-market acceptance for nanotechnology-enabled products will develop, if at all, and we cannot reliably estimate the projected size of any market that may develop. If markets fail to accept nanotechnology-enabled products, we may not be able to achieve revenue from the commercial application of our technologies. Our revenue growth and achievement of profitability will depend substantially on our ability to introduce new technological applications to manufacturers for products accepted by customers. If we are unable to cost-effectively achieve OEM acceptance of our technology, or if the associated products do not achieve wide market acceptance, our business will be materially and adversely affected.

The Company may not be able to compete effectively in securing first-tier research and development projects when competing against existing or new ventures.

Management believes that the Company s success to date in raising capital to finance nanotechnology research and commercialization projects is attributable, in large part, to the belief that the plan of operations adopted by the Company is relatively novel. If the Company continues to be successful in attracting funding for research and commercialization projects, it is possible that additional competitors could emerge and compete for financing. Should that occur, the Company could encounter difficulty in raising funds to finance its future operations and further research and commercialization projects.

Additionally, there are some companies that already fund early-stage, scientific research at universities, and some venture capital funds invest in companies seeking to commercialize technology. It is possible that these established companies and venture funds, as well as possible additional competitors, have or will emerge to finance nanotechnology research. Should that occur, the Company could encounter difficulty in obtaining the opportunity to finance first-tier research and commercialization projects. Furthermore, should any commercial undertaking by the Company, with respect to a particular product or technology, prove to be successful, there can be no assurance those competitors with greater financial resources than the Company will not emerge to offer similar competitive, products and/or technologies.

Nanotechnology-enabled products are new and may be viewed as being harmful to human health or the environment.

There is increasing public concern about the environmental and ethical implications of nanotechnology that could impede market acceptance of products developed through these means. Potentially, nanotechnology-enabled products could be composed of materials such as carbon, silicon, silicon carbide, germanium, gallium arsenide, gallium nitride, cadmium selenide or indium phosphide, and nanotechnology-enabled products have no historical safety record. Because of the size, shape, or composition of the nanostructures or because they may contain harmful elements, nanotechnology-enabled products could pose a safety risk to human health or the environment. In addition, some countries have adopted regulations prohibiting or limiting the use of certain materials that contain certain chemicals, which may limit the market for nanotechnology-enabled products. U.S. government authorities could, for social or other purposes, prohibit or regulate the use of nanotechnology. The regulation and limitation of the kinds of materials used in or to develop nanotechnology-enabled products, or the regulation of the products themselves, could harm the commercialization of nanotechnology-enabled products and impair our ability to achieve revenue from the license of nanotechnology applications.

The Company will need approval from governmental authorities in the United States and other countries to successfully realize commercial value from the Company s activities.

In order to clinically test, manufacture, and market products for commercial use, two of the Company s current subsidiaries must satisfy mandatory procedures and safety and effectiveness standards established by various regulatory bodies, including the U.S. Food and Drug Administration (FDA). Technology and product development and approval within this regulatory framework takes a number of years and involves the expenditure of substantial resources. The time and expense required to perform the required testing can vary and is substantial. In addition, no action can be taken to market any biologic, drug or device in the United States until an appropriate marketing application is approved by the FDA. Furthermore, even after initial FDA approval has been obtained, further trials may be required to provide additional data on safety and effectiveness. Adverse events that are reported during regulatory trials or after marketing approval can result in additional limitations being placed on a product s use and, potentially, withdrawal of the product from the market. Any adverse event, either before or after approval, can result in product liability claims against the Company, which could significantly and adversely impact the value of our Common Stock.

If export controls affecting our products are expanded, our business will be adversely affected.

The U.S. government regulates the sale and shipment of numerous technologies by U.S. companies to foreign countries. Arrowhead s subsidiaries may develop products that might be useful for military and antiterrorism activities. Accordingly, U.S. government export regulations could restrict sales of these products in other countries. If the U.S. government places expanded export controls on our technology or products, our business would be materially and adversely affected. If the U.S. government determines that we have not complied with the applicable export regulations, we may face penalties in the form of fines or other punishment.

Our research and product development efforts pertaining to the pharmaceutical industry are subject to additional risks.

As of December 31, 2005, two of our Subsidiaries, Insert and Calando, were focused on research and development projects related to new and improved pharmaceutical conjugates. Drug development is time-consuming, expensive, and risky. Even product candidates that appear promising in the early phases of development, such as in early animal and human clinical trials, often fail to reach the market for a number of reasons, such as:

clinical trial results are not acceptable, even though preclinical trial results were promising;

inefficacy and/or harmful side effects in humans or animals;

the necessary regulatory bodies, such as the FDA, did not approve our product candidate for an intended use; and

manufacture and distribution is uneconomical;

Clinical trial results are frequently susceptible to varying interpretations by scientists, medical personnel, regulatory personnel, statisticians, and others, which often delays, limits, or prevents further clinical development or regulatory approvals of a product candidate. If Insert and Calando are unable to cost-effectively achieve acceptance of their respective biopharmaceutical technology, or if the associated drug products do not achieve wide market acceptance, the business of each of Insert and Calando will be materially and adversely affected, and the value of Company s interest in each Subsidiary will be diminished.

Our corporate compliance program cannot guarantee that we are in compliance with all potentially applicable federal and state regulations.

The Company s research and development, as well as its efforts related to commercialization, such as clinical trials, manufacturing and distribution, together with the Company s general operations, is subject to extensive federal and state regulation. While we have developed and instituted a corporate compliance program based on current best practices, we cannot assure you that the Company or its employees are or will be in compliance with all potentially applicable federal and state regulations or laws. If we fail to comply with any of these regulations or laws, a range of actions could result, including, but not limited to, the termination of clinical trials, the failure to approve a commercialized product, significant fines, sanctions, or litigation.

The Company s ability to protect its patents and other proprietary rights is uncertain, exposing it to the possible loss of competitive advantage.

The Company s Subsidiaries have licensed rights to pending patents and have filed and will continue to file patent applications. The researchers sponsored by the Company may also file patent applications that Arrowhead chooses to license. If a particular patent is not granted, the value of the invention described in the patent would be diminished. Further, even if these patents are granted, they may be difficult to enforce. Even if successful, efforts to enforce our patent rights could be expensive, distracting for management, cause our patents to be invalidated, and frustrate commercialization of products. Additionally, even if patents are issued, and are enforceable, others may independently develop similar, superior, or parallel technologies to any technology developed by us, or the Company s technology may prove to infringe upon patents or rights owned by others. Thus, the patents held by or licensed to us may not afford us any meaningful competitive advantage. If we are unable to derive value from our licensed or owned intellectual property, the value of your investment in the Company may decline.

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CERTAIN RISK FACTORS RELATING TO THE EARLY STAGE OF THE COMPANY S BUSINESS

We are a development stage company and the Company s success is subject to the substantial risks inherent in the establishment of a new business venture.

As a consequence of the change in the control of the Company on January 12, 2004, the Company changed management and all efforts that were previously initiated by prior management were abandoned. At that time, the Company s new management adopted a new plan of operations based on the strategy that was formulated by the California corporation following its formation in May 2003 and not previously proven successful. To date, implementation of this strategy is still in the development stage. We have acquired majority interests in four Subsidiary companies and, are sponsoring one university research project at Caltech and two university research projects at Stanford. In November 2005, the Company began sponsorship of research at Duke University. The Company s business and operations should be considered to be in the development stage and subject to all of the risks inherent in the establishment of a new business venture. Accordingly, the intended business and operations of the Company may not prove to be successful in the near future, if at all. Any future success that the Company might enjoy will depend upon many factors, many of which may be beyond the control of the Company, or which cannot be predicted at this time, and could have a material adverse effect upon the financial condition, business prospects and operations of the Company and the value of an investment in the Company.

The Company has not generated revenue and its business model does not predict significant revenues in the foreseeable future.

To date, the Company has only generated a small amount of revenue as a result of its current plan of operations. Moreover, given its strategy of financing new and unproven technology research, we do not expect to realize significant revenue from operations in the foreseeable future, if at all.

We must overcome the many obstacles associated with integrating and operating varying business ventures to succeed.

Arrowhead s model to integrate and oversee the strategic direction of various research and development projects presents many risks, including:

- the difficulty of integrating operations and personnel; and

- the diversion of our management s attention as a result of evaluating, negotiating and integrating acquisitions or new business ventures.

If we are unable to timely and efficiently design and integrate administrative and operational support for our Subsidiaries, we may be unable to manage projects effectively, which could adversely affect our ability to meet our business objectives and the value of an investment in the Company could decline.

In addition, consummating acquisitions and taking advantage of strategic relationships could adversely impact our cash position, and dilute Stockholder interests, for many reasons, including:

- changes to our income to reflect the amortization of acquired intangible assets, including goodwill;

- interest costs and debt service requirements for any debt incurred to fund our growth strategy; and

- any issuance of securities to fund our operations or growth which dilutes or lessens the rights of current Stockholders.

The Company may need to raise additional capital in the near future, and, if we are unable to secure adequate funds on acceptable terms, the Company may be unable to support its business plan.

The Company s plan of operations is to provide substantial amounts of research project funding and financial support for majority-owned Subsidiaries over an extended period of time. Accordingly, the Company may need to raise additional capital in the near term, and may seek to do so by conducting one or more private

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placements of equity securities, selling additional securities in a registered public offering, or through a combination of one or more of such financing alternatives. There can be no assurance that any additional capital resources needed by the Company will be available to the Company as and when required, or on favorable terms that will be acceptable to the Company. If the Company is unable to raise the capital required on a timely basis, it may not be able to fund its research projects or the development of the businesses of its Subsidiaries. In such event, the Company may be required to delay or reduce implementation of certain aspects of its plan of operations.

Stockholder interest in the Company may be substantially diluted in additional financings by the Company.

Our Certificate of Incorporation authorizes the issuance of an aggregate of 70,000,000 shares of Common Stock, on such terms and at such prices as the Board of Directors of the Company may determine. As of December 31, 2005, an aggregate of 28,003,194 shares of Common Stock were issued and outstanding and 4,785,000 shares of Common Stock were reserved for issuance under the Company s 2000 Stock Option Plan and 2004 Equity Incentive Plan. Since December 31, 2005, the Company sold 5,590,000 shares of Common Stock and Warrants to purchase 1,397,500 shares of Common Stock in the Private Placement, consummated on January 24, 2006. Additionally, on February 23, 2006, the Company s Stockholders approved the increase in Arrowhead s 2004 Equity Incentive Plan from 3,000,000 shares to 5,000,000 shares. Therefore, as of March 1, 2006, approximately 28,224,306 shares of Common Stock remain available for issuance by the Company to raise additional capital, in connection with prospective acquisitions or for other corporate purposes. The issuance of additional securities would dilute the equity interests of the Company s existing Stockholders, perhaps substantially, and might result in dilution in the tangible net book value of a share of our Common Stock, depending upon the price and other terms on which the additional shares are issued.

The Company s success depends on the attraction and retention of senior management and scientists with relevant expertise.

The Company s future success will depend to a significant extent on the continued services of its key employees, particularly Mr. R. Bruce Stewart, Chief Executive Officer, who conceived of the Company s business and overall operating strategy and has been most instrumental in assisting the Company raise capital. On September 7, 2004, Mr. Joseph T. Kingsley joined the Company as its Chief Financial Officer, and on November 14, 2005, Dr. Leon Ekchian joined the Company as its President. Both Mr. Kingsley and Dr. Ekchian are key members of the Company s management team. The Company does not maintain key man life insurance for Mr. Stewart, Mr. Kingsley, Dr. Ekchian, or any other executive. The Company s ability to execute its strategy also will depend on its ability to continue to attract and retain qualified scientists, sales, marketing and additional managerial personnel. If we are unable to find, hire and retain qualified individuals, we could have difficulty implementing our business plan in a timely manner, or at all.

Our Board of Directors has the authority to issue shares of blank check Preferred Stock, which may make an acquisition of our company by another company more difficult.

We have adopted and may in the future adopt certain measures that may have the effect of delaying, deferring or preventing a takeover or other change in control of the Company that a holder of our Common Stock might consider in its best interest. Specifically, the Company s Board of Directors, without further action by the Company s stockholders, currently has the authority to issue up to 5,000,000 shares of preferred stock and to fix the rights (including voting rights), preferences and privileges of these shares (blank check preferred). Such preferred stock may have rights, including economic rights, senior to our Common Stock. As a result, the issuance of the preferred stock could have a material adverse effect on the price of our Common Stock and could make it more difficult for a third party to acquire a majority of our outstanding Common Stock.

CERTAIN RISK FACTORS RELATING TO OUR STOCK

Arrowhead s Common Stock price has fluctuated significantly during fiscal 2005 and may continue to do so in the future.

Because we are a developmental stage company, there are few objective metrics by which our progress may be measured. Consequently, we expect that the market price of our Common Stock will likely continue to fluctuate significantly. We do not expect to generate substantial revenue from the license or sale of our nanotechnology for several years, if at all. In the absence of product revenue as a measure of our operating performance, we anticipate that investors and market analysts will assess our performance by considering factors such as:

- announcements of developments related to our business;
- developments in our strategic relationships with scientists within the nanotechnology field;
- our ability to enter into or extend investigation phase, development phase, commercialization phase and other agreements with new and/or existing partners;
- announcements regarding the status of any or all of our collaborations or products;
- market perception and/or investor sentiment regarding nanotechnology as the next technological wave;
- announcements regarding developments in the nanotechnology field in general;
- the issuance of competitive patents or disallowance or loss of our patent rights; and
- quarterly variations in our operating results.

We will not have control over many of these factors but expect that our stock price may be influenced by them. As a result, our stock price may be volatile and you may lose all or part of your investment.

The market for purchases and sales of the Company s Common Stock may be very limited, and the sale of a limited number of shares could cause the price to fall sharply.

Although the Company s Common Stock is listed for trading on The NASDAQ Capital Market, currently, our securities are very thinly traded. Accordingly, it may be difficult to sell shares of Common Stock quickly without significantly depressing the value of the stock. Unless we are successful in developing continued investor interest in our stock, sales of our stock could continue to result in major fluctuations in the price of the stock.

If securities or industry analysts do not publish research reports about our business, of if they make adverse recommendations regarding an investment in our stock, our stock price and trading volume may decline.

The trading market for our Common Stock will be influenced by the research and reports that industry or securities analysts publish about our business. We do not currently have and may never obtain research coverage by industry or securities analysts. If no industry or securities analysts commence coverage of our Company, the trading price of our stock could be negatively impacted. In the event we obtain industry or security analyst coverage, if one or more of the analysts downgrade our stock or comment negatively on our prospects, our stock price would likely decline. If one of more of these analysts cease to cover us or our industry or fails to publish reports about our Company regularly, our Common Stock could lose visibility in the financial markets, which could also cause our stock price or trading volume to decline.

The market price of our Common Stock may be adversely affected by the sale of shares by the Company s management or founding Stockholders.

Sales of our Common Stock by our officers, directors and founding Stockholders could adversely and unpredictably affect the price of those securities. Additionally, the price of Arrowhead s Common Stock could be affected even by the potential for sales by these persons. We cannot predict the effect that any future sales of our Common Stock or the potential for those sales, will have on our share price.

We may be the target of securities class action litigation due to future stock price volatility.

In the past, when the market price of a stock has been volatile, holders of that stock have often initiated securities class action litigation against the company that issued the stock. If any of our Stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit. The lawsuit could also divert the time and attention of our management.

We do not intend to declare cash dividends on our Common Stock.

We will not distribute cash to our stockholders until and unless we can develop sufficient funds from operations to meet our ongoing needs and implement our business plan. The time frame for that is inherently unpredictable, and you should not plan on it occurring in the near future, if at all.

USE OF PROCEEDS

The proceeds from the sale of the Common Stock offered by this prospectus are solely for the account of the Selling Stockholders. We will not directly receive any proceeds from the sale of shares under this prospectus. To the extent we receive cash from the exercise of the Warrants, we expect to use that cash for general corporate purposes.

SELLING SECURITY HOLDERS

The Company has included in this prospectus the following shares of Common Stock, Warrants and Option Shares:

5,590,000 shares of Common Stock and 1,397,500 shares of Common Stock underlying Warrants purchased from the Company pursuant to a Private Placement;

15,000 shares of Common Stock issued to an individual inventor for rights to a certain patent,

81,000 shares of Common Stock issued pursuant to exercise of options awarded for administrative services provided in the early stages of the Company, and;

12,500 shares of Common Stock and 65,000 shares of Common Stock underlying stock options awarded for public relations services to the Company.

The following table sets forth the name of each Selling Stockholder, the number of shares of Common Stock owned by each Selling Stockholder as of the date of this prospectus, and the percentage of all outstanding shares of Common Stock that such shares represent, together with the number of shares of the Company s Common Stock issuable upon exercise of Warrants or options owned by each as of the same date. Each Selling Stockholder that purchased Common Stock and Warrants in the Private Placement pursuant to the terms of the Common Stock and Warrant Purchase Agreement dated as of January 11, 2006, in accordance with a Registration Rights Agreement, is entitled to have all of the shares of Common Stock purchased in the Private Placement, and the shares of Common Stock issuable upon exercise of the Warrants, registered by the Company for resale under the Securities Act. The Selling Stockholders may sell their shares of Common Stock upon registration. The Warrants are not exercisable until July 26, 2006 at an exercise price of $5.04 per share. Selling Stockholders may offer shares under this prospectus from time to time and may elect to sell none, some or all of the shares set forth next to their name. As a result, we cannot estimate the number of shares of Common Stock, or shares of Common Stock issuable upon exercise of Warrants, that a Selling Stockholder will beneficially own after termination of sales under this prospectus. In addition, a Selling Stockholder may have sold, transferred or otherwise disposed of all or a portion of that holder s shares of Common Stock or Warrants since the date on which they provided information for this table. We have not made independent inquiries about this. We are relying on written commitments from the Selling Stockholders to notify us of any changes in their beneficial ownership after the date they originally provided this information. See Plan of Distribution beginning on page 8.

Selling Stockholder (1)	Total # of Shares covered by this Prospectus	# of Shares Offered	# of Shares underlying Warrants/Options	Percentage of Shares After Offering
York Capital Management, L.P.	974,186	779,349	194,837	12.4%(2)
York Investment Limited	4,227,600	3,382,080	845,520	(2)
Knott Partners, L.P.	542,375	433,900	108,475	12.1%(3)
Matterhorn Offshore Fund Ltd.	808,339	646,671	161,668	(3)
Commonfund Hedged Equity Co.	60,375	48,300	12,075	(3)
Shoshone Partners, L.P.	342,000	273,600	68,400	(3)
ANNO, L.P.	15,375	12,300	3,075	(3)
Good Steward Trading Co. SPC	17,250	13,800	3,450	(3)
Fred Finocchiaro	75,000	75,000	0	*
Glen Gonzales	1,500	1,500	0	*
Joshua Kelley	1,500	1,500	0	*
Darren Matsune	1,500	1,500	0	*
Carol Seine	1,500	1,500	0	*
Ivano Angelastri	30,000	0	30,000	*
Marlies Studer	5,000	0	5,000	*
Ed Wallich	30,000	0	30,000	*
Landon Barretto	12,500	12,500	0	*
Martin Moskovits	15,000	15,000	0	*
Total	7,161,000	5,698,500	1,462,500	

* Less than 1%.

(1) If required, information about other selling security holders, except for any future transferees, pledgees, donees or successors of selling security holders named in the table above, will be set forth in a prospectus supplement or amendment to the registration statement of which this prospectus is a part. Additionally, post-effective amendments to the registration statement will be filed to disclose any material changes to the plan of distribution from the description contained in the final prospectus.

(2) Percentage represents the cumulative percentage ownership of York Capital Management, L.P. and York Investment Limited. Percentage based on the Schedule 13G filed on behalf of York Capital Management, L.P. and York Investment Limited on February 2, 2006.

(3) Percentage represents the cumulative percentage ownership of Knott Partners, L.P., Matterhorn Offshore Fund Ltd., Commonfund Hedged Equity Co., Shoshone Partners, L.P., ANNO, L.P., and Good Steward Trading Co. SPC. Percentage based on the Form 3 filed by David M. Knott on January 30, 2006 reporting each entity s ownership and the Schedule 13G/A filed on behalf of David M. Knott and Dorset Management Corporation on February 2, 2006.

PLAN OF DISTRIBUTION

The Common Stock offered by this prospectus may be sold by the Selling Stockholders, or by their respective pledgees, donees, transferees or other successors in interest. Such sales may be made at fixed prices that may be changed, at market prices prevailing at the time of sale, at prices related to such prevailing market prices, or at negotiated prices, and may be made in the over-the-counter market or any exchange on which the Common Stock may then be listed, or otherwise. In addition, the Selling Stockholders may sell some or all of their Common Stock through:

a block trade in which a broker-dealer may resell a portion of the block, as principal, in order to facilitate the transaction;

purchases by a broker-dealer, as principal, and resale by the broker-dealer for its account; or

ordinary brokerage transactions and transactions in which a broker solicits purchasers.

When selling the Common Stock, the Selling Stockholders may enter into hedging transactions. For example, the Selling Stockholders may:

- enter into transactions involving short sales of the Common Stock by broker-dealers;
- sell Common Stock short themselves and redeliver such shares to close out their short positions;
- enter into option or other types of transactions that require the Selling Stockholder to deliver Common Stock to a broker-dealer, who will then resell or transfer the Common Stock under this prospectus; or
- loan or pledge the Common Stock to a broker-dealer, who may sell the loaned shares or, in the event of default, sell the pledged shares.

The Selling Stockholders may negotiate and pay broker-dealers commissions, discounts or concessions for their services. Broker-dealers engaged by the Selling Stockholders may allow other broker-dealers to participate in resales. However, the Selling Stockholders and any broker-dealers involved in the sale or resale of the Common Stock may qualify as underwriters within the meaning of the Section 2(a)(11) of the Securities Act of 1933 (the Securities Act). In addition, the broker-dealers commissions, discounts or concession may qualify as underwriters compensation under the Securities Act. If the Selling Stockholders qualify as underwriters, they will be subject to the prospectus delivery requirements of Section 5(b)(2) of the Securities Act. In addition to selling their Common Stock under this prospectus, the Selling Stockholders may:

- agree to indemnify any broker-dealer or agent against certain liabilities related to the selling of the Common Stock, including liabilities arising under the Securities Act;
- transfer their Common Stock in other ways not involving market makers or established trading markets, including, but not limited to, directly by gift, distribution, privately negotiated transactions in compliance with applicable law or other transfer; or
- sell their Common Stock under Rule 144 of the Securities Act rather than under this prospectus, if the transaction meets the requirements of Rule 144. Each Selling Stockholder will bear all expenses with respect to the offering of Common Stock by such Selling Stockholder.

LEGAL OPINION

Certain legal matters relating to the validity of the Common Stock offered by this prospectus will be passed upon for us by Alschuler Grossman Stein & Kahan LLP, Santa Monica, California.

EXPERTS

The financial statements of the Company incorporated in this prospectus by reference to the Company s Annual Reports on Form 10-KSB for the years ended September 30, 2005 and 2004, have been so incorporated in reliance on the report dated December 23, 2003 of Kevin G. Breard, CPA, An Accountancy Corporation, and on the report dated November 5, 2004, except for note 10 as to which the date is December 9, 2004 and the report dated November 30, 2005, of Rose, Snyder & Jacobs, a corporation of Certified Public Accountants, given on the authority of said firms as experts in auditing and accounting.

WHERE TO FIND ADDITIONAL INFORMATION

The Company files annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document filed by the Company at the SEC s Public Reference Room at 450 Fifth Street, N.W., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. The Company s filings with the SEC are also available to the public at the SEC s internet web site: http://www.sec.gov. You may also read and copy this information at the National Association of Securities Dealers, Inc., 1735 K Street, N.W., Washington, D.C. 20006.

The Company has filed a registration statement, of which this prospectus is a part, covering the securities offered hereby. As allowed by Commission rules, this prospectus does not include all of the information contained in the registration statement and the included exhibits, financial statements and schedules. You are referred to the registration statement, the included exhibits, financial statements and schedules for further information. This prospectus is qualified in its entirety by such other information.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows the Company to incorporate by reference the information that is filed by the Company with the SEC, which means that the Company can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and later information that the Company files with the SEC will automatically update and supersede this information. This prospectus incorporates by reference the documents listed below, and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, (the Exchange Act), until the Selling Stockholders sell all of the Common Stock offered herein. The documents incorporated by reference are:

1. The Company s Annual Report on Form 10-KSB/A for the fiscal year ended September 30, 2005, filed on December 22, 2005;

2. The Company s Proxy Statement on Form DEF 14-A, filed on January 18, 2006;

3. The Company s Current Reports on Form 8-K, filed on January 18, 2006, January 24, 2006, and February 28, 2006;

4. The Company s Quarterly Report on Form 10Q for the quarter ended December 31, 2005, filed on February 9, 2006;

5. The description of the Common Stock contained in the Company s Information Statement on Schedule 14-C, filed on December 22, 2000; and

6. All documents filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, after the date of this Registration Statement and prior to the filing of a post-effective amendment to this registration statement of which this prospectus is a part that indicates that all securities offered hereunder have been sold, or which deregisters all securities then remaining unsold under such registration statement of which this prospectus forms a part, shall be deemed to be incorporated by reference in the registration statement and to be a part hereof from the date of filing of such documents, provided that all documents furnished by the Company to the SEC and not filed are not deemed incorporated by reference herein.

The Company will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon such person s written or oral request, a copy of any and all of the information incorporated by reference in this prospectus, other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into the information that this prospectus incorporates. Requests should be directed to the Secretary at Arrowhead Research Corporation, 201 South Lake Avenue, Suite 703, Pasadena, California 91101; telephone: (626) 304-3400.

UP TO 7,161,000 SHARES OF COMMON STOCK

ARROWHEAD RESEARCH CORPORATION

PROSPECTUS

March __, 2006

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the costs and expenses, payable by the Company in connection with the registration and sale of the Common Stock being registered. All amounts are estimates except the SEC registration fee.

		Amount to be paid
SEC registration fee	$	3,594
Printing expense		5,000
Legal fees and expenses		10,000
Accounting fees and expenses		1,000
Miscellaneous		1,000
Total	$	20,594

Item 15. Indemnification of Directors and Officers.

The Company s Certificate of Incorporation provides for the elimination of personal monetary liability of directors to the fullest extent permissible under Delaware law. Delaware law does not permit the elimination or limitation of director monetary liability for: (i) breaches of the director s duty of loyalty to the corporation or its stockholders; (ii) acts or omissions not in good faith or involving intentional misconduct or knowing violations of law; (iii) the payment of unlawful dividends or unlawful stock repurchases or redemptions or (iv) transactions in which the director received an improper personal benefit.

Section 145 of the Delaware General Corporation Law permits a Delaware corporation to indemnify, on certain terms and conditions, any person who was or is a party or is threatened to be made a party to any threatened pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with such action. The Certificate of Incorporation and Bylaws of the Company require the Company to indemnify the Company s directors and officers to the fullest extent permitted under Delaware law.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Company pursuant to the foregoing provisions, the Company has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable.

Item 16. Exhibits.

See Exhibit Index set forth on page II-4 to this Registration Statement.

Item 17. Undertakings.

The Company hereby undertakes:

(a) Rule 415 Offering.
(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement to include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

(2) That, for the purpose of determining any liability under the Securities Act, each post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) Filings incorporating subsequent Exchange Act documents by reference.
The Company hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Company s annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan s annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in this Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Request for Acceleration of Effective Date.
Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the Company has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

In the event that a claim for indemnification against such liabilities (other than the payment by the Company of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Company will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(dollars in thousands)

December 30,
2017

September 30,
2017
ASSETS

Current assets

Cash and cash equivalents

$
394,980

$
368,073

Receivables

739,731

727,740

Inventories

511,653

489,127

Prepaid expenses and other current assets

38,800

41,499

Total current assets

1,685,164

1,626,439

Property, plant and equipment, net of accumulated depreciation of $791,388 and $771,160, respectively

527,356

522,991

Goodwill

776,156

774,268

Intangible assets, net

104,914

108,818

Deferred income taxes

11,395

26,558

Other assets

33,510

31,518

Total assets

$
3,138,495

$
3,090,592

LIABILITIES AND SHAREHOLDERS' EQUITY

Current liabilities

Short-term borrowings

$
89

$
89

Current installments of long-term debt

259

295

Accounts payable

156,967

170,878

Accrued compensation

122,763

148,406

Customer advances

179,598

159,274

Contract loss reserves

41,786

43,214

Other accrued liabilities

112,072

107,278

Total current liabilities

613,534

629,434

Long-term debt, excluding current installments

962,006

956,653

Long-term pension and retirement obligations

260,741

271,272

Deferred income taxes

40,782

13,320

Other long-term liabilities

33,483

5,609

Total liabilities

1,910,546

1,876,288

Commitments and contingencies (Note 18)

—

—

Shareholders' equity

Common stock - Class A

	43,716	43,704
Common stock - Class B	7,564	7,576
Additional paid-in capital	498,699	492,246
Retained earnings	1,849,118	1,847,819
Treasury shares	(739,210)	(739,157)
Stock Employee Compensation Trust	(98,990)	(89,919)
Supplemental Retirement Plan Trust	(13,311)	(12,474)
Accumulated other comprehensive loss	(319,637)	(335,491)
Total Moog shareholders’ equity	1,227,949	1,214,304

Total liabilities and shareholders' equity

$
3,138,495

$
3,090,592

See accompanying Notes to Consolidated Condensed Financial Statements.

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Moog Inc.
Consolidated Condensed Statements of Shareholders' Equity
(Unaudited)

(dollars in thousands, except per share data)	Amount	Number of Shares Class A Common Stock	Number of Shares Class B Common Stock
COMMON STOCK			
Beginning of period	$51,280	43,704,286	7,575,427
Conversion of Class B to Class A	—	11,300	(11,300)
End of period	51,280	43,715,586	7,564,127
ADDITIONAL PAID-IN CAPITAL			
Beginning of period	492,246		
Issuance of treasury shares	(1,633)		
Equity-based compensation expense	2,001		
Adjustment to market - SECT, SERP and other	6,085		
End of period	498,699		
RETAINED EARNINGS			
Beginning of period	1,847,819		
Net earnings attributable to Moog	1,299		
End of period	1,849,118		
TREASURY SHARES AT COST			
Beginning of period	(739,157)	(10,933,003)	(3,333,927)
Class A and B shares issued related to equity awards	2,681	64,486	5,878
Class A and B shares purchased	(2,734)	(33,020)	(15)
End of period	(739,210)	(10,901,537)	(3,328,064)
STOCK EMPLOYEE COMPENSATION TRUST (SECT)			
Beginning of period	(89,919)	(425,148)	(654,753)
Purchase of shares	(3,823)	—	(44,662)
Adjustment to market	(5,248)	—	—
End of period	(98,990)	(425,148)	(699,415)
SUPPLEMENTAL RETIREMENT PLAN (SERP) TRUST			
Beginning of period	(12,474)		(150,000)
Adjustment to market	(837)		—
End of period	(13,311)		(150,000)
ACCUMULATED OTHER COMPREHENSIVE LOSS			
Beginning of period	(335,491)		
Other comprehensive income (loss)	15,854		
End of period	(319,637)		
TOTAL MOOG SHAREHOLDERS’ EQUITY	$1,227,949	32,388,901	3,386,648

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Moog Inc.
Consolidated Condensed Statements of Cash Flows
(Unaudited)

(dollars in thousands)	Three Months Ended December 30, 2017	December 31, 2016
CASH FLOWS FROM OPERATING ACTIVITIES		
Net earnings attributable to Moog and noncontrolling interest	$1,299	$ 30,058
Adjustments to reconcile net earnings to net cash provided (used) by operating activities:		
Depreciation	17,487	17,918
Amortization	4,674	4,541
Deferred income taxes	37,617	1,371
Equity-based compensation expense	2,001	2,168
Other	1,563	9,868
Changes in assets and liabilities providing (using) cash:		
Receivables	(10,350)	(11,012)
Inventories	(22,236)	6,996
Accounts payable	(14,393)	6,737
Customer advances	19,888	8,287
Accrued expenses	(27,233)	(17,479)
Accrued income taxes	6,965	(8,885)
Net pension and post retirement liabilities	(4,562)	(1,295)
Other assets and liabilities	31,450	1,309
Net cash provided by operating activities	44,170	50,582
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchase of property, plant and equipment	(21,084)	(14,849)
Other investing transactions	(537)	(976)
Net cash (used) by investing activities	(21,621)	(15,825)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from revolving lines of credit	103,500	62,400
Payments on revolving lines of credit	(108,610)	(67,400)
Proceeds from long-term debt	10,000	—
Payments on long-term debt	(44)	(50)
Proceeds from sale of treasury stock	1,048	2,135
Purchase of outstanding shares for treasury	(2,734)	(5,211)
Proceeds from sale of stock held by SECT	—	867
Purchase of stock held by SECT	(3,823)	(5,709)
Net cash (used) by financing activities	(663)	(12,968)
Effect of exchange rate changes on cash	5,021	(15,253)
Increase in cash and cash equivalents	26,907	6,536
Cash and cash equivalents at beginning of period	368,073	325,128
Cash and cash equivalents at end of period	$394,980	$ 331,664

See accompanying Notes to Consolidated Condensed Financial Statements.

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Moog Inc.
Notes to Consolidated Condensed Financial Statements
Three Months Ended December 30, 2017
(Unaudited)
(dollars in thousands, except per share data)
Note 1 - Basis of Presentation
The accompanying unaudited consolidated condensed financial statements have been prepared by management in accordance with U.S. generally accepted accounting principles for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. In the opinion of management, all adjustments consisting of normal recurring adjustments considered necessary for the fair presentation of results for the interim period have been included. The results of operations for the three months ended December 30, 2017 are not necessarily indicative of the results expected for the full year. The accompanying unaudited consolidated condensed financial statements should be read in conjunction with the financial statements and notes thereto included in our Form 10-K for the fiscal year ended September 30, 2017. All references to years in these financial statements are to fiscal years.

Certain prior year amounts have been reclassified to conform to current year's presentation. During 2018, we made a change to our segment reporting structure and merged our former Components segment into Space and Defense Controls and Industrial Systems. The Goodwill and Segment footnotes have been restated to reflect these changes.

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Recent Accounting Pronouncements Not Yet Adopted

Standard	Description	Financial Statement Effect or Other Significant Matters
ASU no. 2014-09 Revenue from Contracts with Customers (And All Related ASUs)	The standard requires revenue recognition to depict the transfer of 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. The standard also requires additional disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts. The provisions of the standard, as well as all subsequently issued clarifications to the standard, are effective for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years. The standard can be adopted using either a full retrospective or modified retrospective approach.	We plan to adopt the standard using the modified retrospective method, under which prior years' results are not restated, but supplemental information will be provided in our disclosures that will present fiscal 2019 results before adoption of the standard. In addition, a cumulative adjustment will be necessary to Shareholder's Equity at the beginning of fiscal 2019. We are assessing the impact of the standard on our financial statements and related disclosures, internal controls and financial policies and information technology systems. We have not yet quantified the impact on our financial statements and related disclosures. Planned date of adoption: Q1 2019
ASU no. 2016-01 Recognition and Measurement of Financial Assets and Financial Liabilities	The standard requires most equity investments to be measured at fair value, with subsequent changes in fair value recognized in net income. The amendment also impacts the measurement of financial liabilities under the fair value option as well as certain presentation and disclosure requirements for financial instruments. The provisions of the standard are effective for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years. Early adoption is permitted for some, but not all, provisions. The amendment requires certain provisions to be applied prospectively and others to be applied by means of a cumulative-effect adjustment.	We are currently evaluating the effect on our financial statements and related disclosures. Planned date of adoption: Q1 2019
ASU no. 2016-02 Leases (And All Related ASUs)	The standard requires most lease arrangements to be recognized in the balance sheet as lease assets and lease liabilities. The standard also requires additional disclosures about the leasing arrangements. The provisions of the standard are effective for fiscal years beginning after December 15, 2018 and interim periods within those years. Early adoption is permitted.	We are currently evaluating the effect on our financial statements and related disclosures. Planned date of adoption: Q1 2020
ASU no. 2017-07 Presentation of Net Periodic	The standard amends existing guidance on the presentation of net periodic benefit cost in the income statement and what qualifies for	We are currently evaluating the effect on our financial statements and related disclosures.

Pension Cost and Net Periodic Postretirement Benefit Cost	capitalization on the balance sheet. The provisions of the standard are effective for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years. Early adoption is permitted as of the beginning of an annual period. The amendment requires income statement presentation provisions to be applied retrospectively and capitalization in assets provisions to be applied prospectively.	Planned date of adoption: Q1 2019
ASU no. 2017-12 Targeted Improvements to Accounting for Hedging Activities	The standard expands the hedging strategies eligible for hedge accounting, while simplifying presentation and disclosure by eliminating separate measurement and reporting of hedge ineffectiveness. The provisions of the standard are effective for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years. Early adoption is permitted.	We are currently evaluating the effect on our financial statements and related disclosures. Planned date of adoption: Q1 2020

We consider the applicability and impact of all ASUs. ASUs not listed above were assessed and determined to be either not applicable, or had or are expected to have minimal impact on our financial statements and related disclosures.

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Note 2 - Acquisitions, Divestitures and Equity Method Investments

On October 3, 2017, we, in collaboration with SIA Engineering Company, announced the joint venture company, Moog Aircraft Services Asia ("MASA"), in Singapore, of which we currently hold a 51% ownership. MASA is intended to provide maintenance, repair and overhaul services for our manufactured flight control systems. As we hold a majority ownership in MASA, but share voting control, we are accounting for this investment using the equity method. At December 30, 2017, we have made total contributions of $1,541 to MASA and intend to make two additional contributions during 2018. This operation is included in our Aircraft Controls segment.

In 2017, we sold non-core businesses of our Space and Defense Controls segment for $7,210 in cash and recorded losses in other expense of $13,119 related to the sales.

On April 2, 2017, we acquired Rotary Transfer Systems, a manufacturer of electromechanical systems, located in Germany and France for a purchase price, net of acquired cash, of $42,593, consisting of $40,545 in cash and $2,048 in assumed pension obligations. This operation is included in our Industrial Systems segment. The purchase price allocation is subject to adjustments as we obtain additional information for our estimates during the measurement period.

Note 3 - Receivables

Receivables consist of:

	December 30, 2017	September 30, 2017
Accounts receivable	$ 275,939	$ 286,773
Long-term contract receivables:		
Amounts billed	130,452	148,087
Unbilled recoverable costs and accrued profits	289,784	282,154
Total long-term contract receivables	420,236	430,241
Other	48,139	15,077
Total receivables	744,314	732,091
Less allowance for doubtful accounts	(4,583)	(4,351)
Receivables	$ 739,731	$ 727,740

We securitize certain trade receivables in transactions that are accounted for as secured borrowings (Securitization Program). We maintain a subordinated interest in a portion of the pool of trade receivables that are securitized. The retained interest, which is included in Receivables in the consolidated condensed balance sheets, is recorded at fair value, which approximates the total amount of the designated pool of accounts receivable. Refer to Note 6, Indebtedness, for additional disclosures related to the Securitization Program.

Note 4 - Inventories

Inventories, net of reserves, consist of:

	December 30, 2017	September 30, 2017
Raw materials and purchased parts	$ 201,228	$ 189,517
Work in progress	239,875	229,202
Finished goods	70,550	70,408
Inventories	$ 511,653	$ 489,127

There are no material inventoried costs relating to long-term contracts where revenue is accounted for using the percentage of completion, cost-to-cost method of accounting as of December 30, 2017 or September 30, 2017.

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Note 5 - Goodwill and Intangible Assets
The changes in the carrying amount of goodwill are as follows:

	Aircraft Controls	Space and Defense Controls	Industrial Systems	Total
Balance at September 30, 2017	$181,375	$259,951	$332,942	$774,268
Foreign currency translation	430	111	1,347	1,888
Balance at December 30, 2017	$181,805	$260,062	$334,289	$776,156

In 2018, we changed our segment reporting structure as our former Components segment was separated and merged into Space and Defense Controls and Industrial Systems. As a result, the September 30, 2017 balances for those segments were restated to reflect this change. Goodwill for Space and Defense Controls and Industrial Systems increased by $86,995 and $224,194, respectively, than what was previously reported.
Goodwill in our Space and Defense Controls segment is net of a $4,800 accumulated impairment loss at December 30, 2017.
Goodwill in our Medical Devices reporting unit, included in our Industrial Systems segment, is net of a $38,200 accumulated impairment loss at December 30, 2017.
The components of intangible assets are as follows:

		December 30, 2017		September 30, 2017	
	Weighted-Average Life (years)	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Customer-related	11	$177,239	$(131,433)	$175,872	$(128,019)
Technology-related	9	72,215	(56,018)	71,924	(55,069)
Program-related	19	66,889	(31,876)	66,458	(30,675)
Marketing-related	9	26,659	(19,727)	26,552	(19,251)
Other	10	4,445	(3,479)	4,379	(3,353)
Intangible assets	12	$347,447	$(242,533)	$345,185	$(236,367)

Substantially all acquired intangible assets other than goodwill are being amortized. Customer-related intangible assets primarily consist of customer relationships. Technology-related intangible assets primarily consist of technology, patents, intellectual property and software. Program-related intangible assets consist of long-term programs represented by current contracts and probable follow on work. Marketing-related intangible assets primarily consist of trademarks, trade names and non-compete agreements.
Amortization of acquired intangible assets was $4,600 for the three months ended December 30, 2017 and $4,477 for the three months ended December 31, 2016. Based on acquired intangible assets recorded at December 30, 2017, amortization is expected to be approximately $18,400 in 2018, $17,300 in 2019, $15,100 in 2020, $9,400 in 2021 and $7,200 in 2022.

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Note 6 - Indebtedness

We maintain short-term line of credit facilities with banks throughout the world that are principally demand lines subject to revision by the banks.

Long-term debt consists of:

	December 30, 2017	September 30, 2017
U.S. revolving credit facility	$ 535,000	$ 540,110
Senior notes	300,000	300,000
Securitization program	130,000	120,000
Obligations under capital leases	263	306
Senior debt	965,263	960,416
Less deferred debt issuance cost	(2,998)	(3,468)
Less current installments	(259)	(295)
Long-term debt	$ 962,006	$ 956,653

Our U.S. revolving credit facility matures on June 28, 2021. Our U.S. revolving credit facility has a capacity of $1,100,000 and provides an expansion option, which permits us to request an increase of up to $200,000 to the credit facility upon satisfaction of certain conditions. The credit facility is secured by substantially all of our U.S. assets. The loan agreement contains various covenants which, among others, specify interest coverage and maximum leverage and capital expenditures. We are in compliance with all covenants.

At December 30, 2017, we had $300,000 aggregate principal amount of 5.25% senior notes due December 1, 2022 with interest paid semiannually on June 1 and December 1 of each year. The senior notes are unsecured obligations, guaranteed on a senior unsecured basis by certain subsidiaries and contain normal incurrence-based covenants and limitations such as the ability to incur additional indebtedness, pay dividends, make other restricted payments and investments, create liens and certain corporate acts such as mergers and consolidations.

The Securitization Program was extended on October 23, 2017 and now matures on October 23, 2019. The Securitization Program provides up to $130,000 of borrowing capacity. Under the Securitization Program, we sell certain trade receivables and related rights to an affiliate, which in turn sells an undivided variable percentage ownership interest in the trade receivables to a financial institution, while maintaining a subordinated interest in a portion of the pool of trade receivables. Interest for the Securitization Program is based on 30-day LIBOR plus an applicable margin. A commitment fee is also charged based on a percentage of the unused amounts available and is not material. The agreement governing the Securitization Program contains restrictions and covenants which include limitations on the making of certain restricted payments, creation of certain liens, and certain corporate acts such as mergers, consolidations and sale of substantially all assets. The Securitization Program has a minimum borrowing requirement equal to the lesser of either 80% of our borrowing capacity or 100% of our borrowing base, which is a subset of the trade receivables sold under this agreement. As of December 30, 2017, our minimum borrowing requirement was $104,000.

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Note 7 - Product Warranties

In the ordinary course of business, we warrant our products against defects in design, materials and workmanship typically over periods ranging from twelve to sixty months. We determine warranty reserves needed by product line based on historical experience and current facts and circumstances. Activity in the warranty accrual is summarized as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Warranty accrual at beginning of period	$25,848	$ 21,363
Warranties issued during current period	4,757	3,414
Adjustments to pre-existing warranties	(70)	(265)
Reductions for settling warranties	(2,915)	(1,044)
Foreign currency translation	128	(585)
Warranty accrual at end of period	$27,748	$ 22,883

Note 8 - Derivative Financial Instruments

We principally use derivative financial instruments to manage interest rate risk associated with long-term debt and foreign exchange risk related to foreign operations and foreign currency transactions. We enter into derivative financial instruments with a number of major financial institutions to minimize counterparty credit risk.

Derivatives designated as hedging instruments

Interest rate swaps are used to adjust the proportion of total debt that is subject to variable and fixed interest rates. The interest rate swaps are designated as hedges of the amount of future cash flows related to interest payments on variable-rate debt that, in combination with the interest payments on the debt, convert a portion of the variable-rate debt to fixed-rate debt. At December 30, 2017, we had interest rate swaps with notional amounts totaling $150,000. The interest rate swaps effectively convert this amount of variable-rate debt to fixed-rate debt at 2.62%, including the applicable margin of 1.38% as of December 30, 2017. The interest will revert back to variable rates based on LIBOR plus the applicable margin upon the maturity of the interest rate swaps. These interest rate swaps mature at various times through June 23, 2020.

We use foreign currency contracts as cash flow hedges to effectively fix the exchange rates on future payments and revenue. To mitigate exposure in movements between various currencies, including the Philippine peso and the British pound, we had outstanding foreign currency forwards with notional amounts of $51,608 at December 30, 2017. These contracts mature at various times through November 29, 2019.

These interest rate swaps and foreign currency contracts are recorded in the consolidated condensed balance sheets at fair value and the related gains or losses are deferred in shareholders’ equity as a component of Accumulated Other Comprehensive Income (Loss) (AOCIL). These deferred gains and losses are reclassified into the consolidated condensed statements of earnings during the periods in which the related payments or receipts affect earnings. However, to the extent the interest rate swaps and foreign currency contracts are not perfectly effective in offsetting the change in the value of the payments and revenue being hedged, the ineffective portion of these contracts is recognized in earnings immediately. Ineffectiveness was not material in the first three months of 2018 or 2017.

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Derivatives not designated as hedging instruments

We also have foreign currency exposure on balances, primarily intercompany, that are denominated in foreign currencies and are adjusted to current values using period-end exchange rates. The resulting gains or losses are recorded in the consolidated condensed statements of earnings. To minimize foreign currency exposure, we had foreign currency contracts with notional amounts of $107,528 at December 30, 2017. The foreign currency contracts are recorded in the consolidated condensed balance sheets at fair value and resulting gains or losses are recorded in the consolidated condensed statements of earnings. We recorded the following gains or losses on foreign currency contracts which are included in other income or expense and generally offset the gains or losses from the foreign currency adjustments on the intercompany balances that are also included in other income or expense:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Net gain (loss)	$ (628)	$ 1,394

Summary of derivatives

The fair value and classification of derivatives is summarized as follows:

		December 30, 2017	September 30, 2017
Derivatives designated as hedging instruments:			
Foreign currency contracts	Other current assets	$ 639	$ 551
Foreign currency contracts	Other assets	298	50
Interest rate swaps	Other current assets	989	552
Interest rate swaps	Other assets	471	314
	Total asset derivatives	$ 2,397	$ 1,467
Foreign currency contracts	Other accrued liabilities	$ 601	$ 1,434
Foreign currency contracts	Other long-term liabilities	—	244
Interest rate swaps	Other accrued liabilities	—	10
Interest rate swaps	Other long-term liabilities	—	15
	Total liability derivatives	$ 601	$ 1,703
Derivatives not designated as hedging instruments:			
Foreign currency contracts	Other current assets	$ 314	$ 95
Foreign currency contracts	Other accrued liabilities	$ 515	$ 383

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Note 9 - Fair Value

Fair value is defined 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. Depending on the nature of the asset or liability, various techniques and assumptions can be used to estimate fair value. The definition of the fair value hierarchy is as follows:

Level 1 – Quoted prices in active markets for identical assets and liabilities.

Level 2 – Observable inputs other than quoted prices in active markets for similar assets and liabilities.

Level 3 – Inputs for which significant valuation assumptions are unobservable in a market and therefore value is based on the best available data, some of which is internally developed and considers risk premiums that a market participant would require.

Our derivatives are valued using various pricing models or discounted cash flow analyses that incorporate observable market data, such as interest rate yield curves and currency rates, and are classified as Level 2 within the valuation hierarchy.

The following table presents the fair values and classification of our financial assets and liabilities measured on a recurring basis, all of which are classified as Level 2.

	Classification	December 30, 2017	September 30, 2017
Foreign currency contracts	Other current assets	$ 953	$ 646
Foreign currency contracts	Other assets	298	50
Interest rate swaps	Other current assets	989	552
Interest rate swaps	Other assets	471	314
	Total assets	$ 2,711	$ 1,562
Foreign currency contracts	Other accrued liabilities	$ 1,116	$ 1,817
Foreign currency contracts	Other long-term liabilities	—	244
Interest rate swaps	Other accrued liabilities	—	10
Interest rate swaps	Other long-term liabilities	—	15
	Total liabilities	$ 1,116	$ 2,086

Our only financial instrument for which the carrying value differs from its fair value is long-term debt. At December 30, 2017, the fair value of long-term debt was $974,451 compared to its carrying value of $965,263. The fair value of long-term debt is classified as Level 2 within the fair value hierarchy and was estimated based on quoted market prices.

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Note 10 - Employee Benefit Plans

Net periodic benefit costs for our defined benefit pension plans are as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
U.S. Plans		
Service cost	$5,634	$ 6,022
Interest cost	8,073	7,636
Expected return on plan assets	(13,576)	(13,628)
Amortization of prior service cost (credit)	47	47
Amortization of actuarial loss	6,902	8,419
Pension expense for U.S. defined benefit plans	$7,080	$ 8,496
Non-U.S. Plans		
Service cost	$1,470	$ 1,532
Interest cost	1,055	751
Expected return on plan assets	(1,243)	(1,131)
Amortization of prior service cost (credit)	(14)	(27)
Amortization of actuarial loss	624	1,120
Pension expense for non-U.S. defined benefit plans	$1,892	$ 2,245

Pension expense for our defined contribution plans consists of:

	Three Months Ended	
	December 30, 2017	December 31, 2016
U.S. defined contribution plans	$3,972	$ 3,670
Non-U.S. defined contribution plans	1,709	1,360
Total pension expense for defined contribution plans	$5,681	$ 5,030

In 2018, expected contributions for our U.S. defined benefit pension plans is approximately $149,000.

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Note 11 - Restructuring

Restructuring activity for severance and other costs is as follows:

	Total
Balance at September 30, 2017	$1,168
Cash payments - 2016 plan	(254)
Balance at December 30, 2017	$914

Restructuring is expected to be paid by July 1, 2019 and is classified as current or long-term liabilities based on payment arrangements.

Note 12 - Income Taxes

The effective tax rate for the three months ended December 30, 2017 was 97.3%. The effective rate for this period was significantly impacted by the enactment of the Tax Cuts and Jobs Act (the "Act") of 2017.

The Act was enacted on December 22, 2017. It reduces the US federal corporate tax rate from 35% to 21%, requires companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred and creates new taxes on certain foreign sourced earnings. As of December 30, 2017, we have not completed the accounting for the tax effects of enactment of the Act; however, as described below, we have made a reasonable estimate of the effects on the one-time transition tax, withholding taxes deemed to be repatriated and existing deferred tax balances. These amounts are provisional and subject to change as the determination of the impact of the income tax effects will require additional analysis of historical records, annual data and further interpretation of the Act from yet to be issued U.S. Treasury regulations.

During the three months ended December 30, 2017 we recorded a $31,000, one-time transition tax on undistributed foreign earnings deemed to be repatriated and a tax charge of $15,250 as an additional provision for withholding taxes on undistributed earnings not considered to be permanently reinvested. No additional income taxes have been provided for any remaining undistributed foreign earnings not subject to the transition tax, or any additional outside basis difference inherent in these entities, as these amounts continue to be indefinitely reinvested in foreign operations. Determining the amount of unrecognized deferred tax liability related to any remaining undistributed foreign earnings not subject to the transition tax and additional outside basis difference in these entities is not practicable. These charges are partially offset by a $12,225 benefit due to the remeasurement of deferred tax assets and liabilities arising from a lower U.S. corporate tax rate, which took into account our decision to accelerate pension contributions into our 2017 pension plan year. This allows the pension contribution tax deduction to be taken in our 2017 federal income tax return which is taxed at the 35% federal rate.

The effective tax rate for the three months ended December 31, 2016 was 17.6%. The effective tax rate for this period is lower than would be expected by applying the U.S. federal statutory tax rate to earnings before income taxes primarily from tax benefits associated with selling our European space businesses.

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Note 13 - Accumulated Other Comprehensive Income (Loss)

The changes in AOCIL, net of tax, by component for the three months ended December 30, 2017 are as follows:

	Accumulated foreign currency translation	Accumulated retirement liability	Accumulated gain (loss) on derivatives	Total
AOCIL at September 30, 2017	$ (83,166)	$ (251,865)	$ (460)	$ (335,491)
Other comprehensive income (loss) before reclassifications	10,364	(363)	905	10,906
Amounts reclassified from AOCIL	—	4,619	329	4,948
Other comprehensive income (loss)	10,364	4,256	1,234	15,854
AOCIL at December 30, 2017	$ (72,802)	$ (247,609)	$ 774	$ (319,637)

The amounts reclassified from AOCIL into earnings are as follows:

	Statement of earnings classification	Three Months Ended December 30, 2017	December 31, 2016
Retirement liability:			
Prior service cost (credit)		$ (85)	$ 19
Actuarial losses		7,396	9,417
Reclassification from AOCIL into earnings [1]		7,311	9,436
Tax effect		(2,692)	(3,427)
Net reclassification from AOCIL into earnings		$ 4,619	$ 6,009
Derivatives:			
Foreign currency contracts	Sales	$ (118)	$ 1,297
Foreign currency contracts	Cost of sales	696	467
Interest rate swaps	Interest	(14)	115
Reclassification from AOCIL into earnings		564	1,879
Tax effect		(235)	(591)
Net reclassification from AOCIL into earnings		$ 329	$ 1,288

[1] The reclassifications are included in the computation of net periodic pension cost and postretirement benefit cost.

The amounts deferred in AOCIL are as follows:

	Net deferral in AOCIL - effective portion Three Months Ended December 30, 2017	December 31, 2016
Foreign currency contracts	$ 828	$ (1,786)
Interest rate swaps	617	694
Net gain (loss)	1,445	(1,092)
Tax effect	(540)	378
Net deferral in AOCIL of derivatives	$ 905	$ (714)

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Note 14 - Stock Employee Compensation Trust and Supplemental Retirement Plan Trust

The Stock Employee Compensation Trust (SECT) assists in administering and provides funding for equity-based compensation plans and benefit programs, including the Moog Inc. Retirement Savings Plan (RSP). The Supplemental Retirement Plan (SERP) Trust provides funding for benefits under the Moog Inc. SERP. Both the SECT and the SERP Trust hold shares as investments. The shares in the SECT and SERP Trust are not considered outstanding for purposes of calculating earnings per share. However, in accordance with the trust agreements governing the SECT and SERP Trust, the trustees vote all shares held by the SECT and SERP Trust on all matters submitted to shareholders.

Note 15 - Earnings per Share

Basic and diluted weighted-average shares outstanding are as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Basic weighted-average shares outstanding	35,772,406	35,869,052
Dilutive effect of equity-based awards	428,648	403,715
Diluted weighted-average shares outstanding	36,201,054	36,272,767

For the three months ended December 30, 2017 and December 31, 2016, there were 13,530 and 111,574 common shares from equity-based awards, respectively, excluded from the calculation of diluted earnings per share as they would be anti-dilutive.

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Note 16 - Segment Information

Effective October 1, 2017, we made changes to our segment reporting structure that resulted in three reporting segments. Our former Components segment has been separated and merged into Space and Defense Controls and Industrial Systems. All amounts have been restated to reflect this change.

Below are sales and operating profit by segment for the three months ended December 30, 2017 and December 31, 2016 and a reconciliation of segment operating profit to earnings before income taxes. Operating profit is net sales less cost of sales and other operating expenses, excluding interest expense, equity-based compensation expense and other corporate expenses. Cost of sales and other operating expenses are directly identifiable to the respective segment or allocated on the basis of sales, number of employees or profit.

	Three Months Ended	
	December 30, 2017	December 31, 2016
Net sales:		
Aircraft Controls	$278,534	$ 268,450
Space and Defense Controls	133,393	122,590
Industrial Systems	215,608	198,630
Net sales	$627,535	$ 589,670
Operating profit:		
Aircraft Controls	$30,768	$ 23,111
Space and Defense Controls	16,289	9,088
Industrial Systems	19,246	20,163
Total operating profit	66,303	52,362
Deductions from operating profit:		
Interest expense	8,646	8,486
Equity-based compensation expense	2,001	2,168
Corporate and other expenses, net	7,822	5,220
Earnings before income taxes	$47,834	$ 36,488

The amounts reclassified for net sales and operating profit as a result of the revised segment reporting structure for the three months ended December 31, 2016 are as follows:

	December 31, 2016
Net sales:	
Space and Defense Controls	$ 29,660
Industrial Systems	86,231
Total	$ 115,891
Operating profit:	
Space and Defense Controls	$1,992
Industrial Systems	9,462
Total	$11,454

Segment assets for Space and Defense Controls and Industrial Systems are approximately $613,000 and $1,142,000, respectively, as of December 30, 2017 as a result of the change to our segment reporting structure.

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Note 17 - Related Party Transactions

On November 20, 2017, John Scannell was elected to the Board of Directors of M&T Bank Corporation and M&T Bank. We currently engage with M&T Bank in the ordinary course of business for various financing activities, all of which were initiated prior to the election of Mr. Scannell to the Board. M&T Bank provides credit extension for routine purchases, which for the three months ended December 30, 2017 totaled $5,459. At December 30, 2017, we held a $15,000 interest rate swap with M&T Bank and outstanding leases with a total original cost of $27,955. M&T Bank also maintains an interest of approximately 12% in our U.S. revolving credit facility. Further details of the U.S. revolving credit facility can be found in Note 6, Indebtedness.

Note 18 - Commitments and Contingencies

From time to time, we are involved in legal proceedings. We are not a party to any pending legal proceedings which management believes will result in a material adverse effect on our financial condition, results of operations or cash flows.

We are engaged in administrative proceedings with governmental agencies and legal proceedings with governmental agencies and other third parties in the normal course of our business, including litigation under Superfund laws, regarding environmental matters. We believe that adequate reserves have been established for our share of the estimated cost for all currently pending environmental administrative or legal proceedings and do not expect that these environmental matters will have a material adverse effect on our financial condition, results of operations or cash flows.

In the ordinary course of business we could be subject to ongoing claims or disputes from our customers, the ultimate settlement of which could have a material adverse impact on our consolidated results of operations. While the receivables and any loss provisions recorded to date reflect management's best estimate of the projected costs to complete a given project, there may still be significant effort required to complete the ultimate deliverable. Future variability in internal cost as well as future profitability is dependent upon a number of factors including deliveries, performance and government budgetary pressures. The inability to achieve a satisfactory contractual solution, further unplanned delays, additional developmental cost growth or variations in any of the estimates used in the existing contract analysis could lead to further loss provisions. Additional losses could have a material adverse impact on our financial condition, results of operations or cash flows in the period in which the loss may be recognized.

We are contingently liable for $48,793 of standby letters of credit issued by a bank to third parties on our behalf at December 30, 2017.

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

The following should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations contained in the Company's Annual Report filed on Form 10-K for the fiscal year ended September 30, 2017. All references to years in this Management's Discussion and Analysis of Financial Condition and Results of Operations are to fiscal years and amounts may differ from reported values due to rounding.

OVERVIEW

We are a worldwide designer, manufacturer and systems integrator of high performance precision motion and fluid controls and control systems for a broad range of applications in aerospace and defense and industrial markets.

Within the aerospace and defense market, our products and systems include:

- Defense market - primary and secondary flight controls for military aircraft, stabilization and automatic ammunition loading controls for armored combat vehicles, tactical and strategic missile steering controls and gun aiming controls.
- Commercial aircraft market - primary and secondary flight controls for commercial aircraft.
- Commercial space market - satellite positioning controls and thrust vector controls for space launch vehicles.

In the industrial market, our products are used in a wide range of applications including:

- Industrial automation market - injection molding, metal forming, heavy industry, material and automotive testing and pilot training simulators.
- Energy market - power generation, oil and gas exploration and wind energy.
- Medical market - enteral clinical nutrition and infusion therapy pumps, ultrasonic sensors and surgical handpieces and CT scanners.

We operate under three segments, Aircraft Controls, Space and Defense Controls and Industrial Systems. Our principal manufacturing facilities are located in the United States, Philippines, United Kingdom, Germany, Costa Rica, India, China, Japan, Italy, Netherlands, Canada, Ireland and Luxembourg.

We have long-term contracts with some of our customers. These contracts are predominantly within Aircraft Controls and Space and Defense Controls and represent 38%, 34% and 33% of our sales in 2017, 2016 and 2015, respectively. We recognize revenue on these contracts using the percentage of completion, cost-to-cost method of accounting as work progresses toward completion. The remainder of our sales are recognized when the risks and rewards of ownership and title to the product are transferred to the customer, principally as units are delivered or as service obligations are satisfied. This method of revenue recognition is predominantly used within the Industrial Systems segment, as well as with aftermarket activity.

We concentrate on providing our customers with products designed and manufactured to the highest quality standards. Our products are applied in demanding applications, "When Performance Really Matters®." We believe we have achieved a leadership position in the high performance, precision controls market, by capitalizing on our core foundational strengths, which are our technical experts working collaboratively around the world and the capabilities we deliver for mission-critical solutions. These strengths yield a broad control product portfolio, across a diverse base of customers and end markets.

By focusing on customer intimacy and commitment to solving their most demanding technical problems, we have been able to innovate our control product franchise from one market to another, organically growing from a high-performance components supplier to a high-performance systems supplier. In addition, we continue achieving substantial content positions on the platforms on which we currently participate, seeking to be the dominant supplier in the current niche markets we serve. We also look for innovation in all aspects of our business, employing new technologies to improve productivity and to develop innovative business models.

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Our fundamental strategies to achieve our goals center around talent, lean and innovation and include:
- a strong leadership team that has positioned the company for growth,
- utilizing our global capabilities and strong engineering heritage to innovate,
- maintaining our technological excellence by solving our customers' most demanding technical problems in applications "When Performance Really Matters®,"
- continuing to invest in talent development to strengthen employee performance
- and maximizing customer value by implementing lean enterprise principles.

These activities will help us achieve our financial objective of increasing shareholder value with sustainable competitive advantages across our segments. In doing so, we expect to maintain a balanced, diversified portfolio in terms of markets served, product applications, customer base and geographic presence.

We focus on improving shareholder value through strategic revenue growth, both acquired and organic, through improving operating efficiencies and manufacturing initiatives and through utilizing low cost manufacturing facilities without compromising quality. Additionally, we take a balanced approach to capital deployment, which may include strategic acquisitions or further share buyback activity, in order to maximize shareholder returns over the long-term.

Acquisitions and Divestitures

All of our acquisitions are accounted for under the purchase method and, accordingly, the operating results for the acquired companies are included in the consolidated statements of earnings from the respective dates of acquisition. Under purchase accounting, we record assets and liabilities at fair value and such amounts are reflected in the respective captions on the consolidated balance sheets. The purchase price described for each acquisition below is net of any cash acquired, includes debt issued or assumed and the fair value of contingent consideration.

In 2017, we acquired Rotary Transfer Systems, a manufacturer of electromechanical systems, located in Germany and France for $43 million. This acquisition is included in our Industrial Systems segment. We also sold non-core businesses in our Space and Defense Controls segment for $7 million and recorded losses in other expense of $13 million related to the sales.

CRITICAL ACCOUNTING POLICIES

On a regular basis, we evaluate the critical accounting policies used to prepare our consolidated financial statements, including, but not limited to, revenue recognition on long-term contracts, contract and contract-related loss reserves, reserves for inventory valuation, reviews for impairment of goodwill, reviews for impairment of long-lived assets, pension assumptions and income taxes. See Note 12 of the Consolidated Condensed Financial Statements included in Item 1, Financial Statements of this report for the impact of the enactment of the Tax Cuts and Jobs Act of 2017.

Other than that described below, there have been no material changes in critical accounting policies in the current year from those disclosed in our 2017 Annual Report on Form 10-K.

Reviews for Impairment of Goodwill

Interim Test

Effective October 1, 2017, we changed our segment reporting structure from four to three reporting segments. The former Components reporting segment has been divided and merged into the Space and Defense Controls and Industrial Systems reporting segments. This change also impacted the reporting units we use to review goodwill for impairment. Based on the accounting rules that require aggregation of components with similar economic characteristics, we have changed the number of reporting units from five to four - Aircraft Controls, Space and Defense Controls, Industrial Systems and Medical Devices.

We transferred or allocated the assets and liabilities of the former Components business including the proportionate share of goodwill based on the relative fair value of the business to the new respective reporting units - Space and Defense Controls and Industrial Systems. We then compared the fair values to the carrying values of the reporting units and the resulting fair values exceeded the carrying values, so we determined that goodwill was not impaired.

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The fair value of each of these two reporting units exceeded the carrying amounts by over 100%. While any individual assumption could differ from those that we used, we believe the overall fair values of these reporting units are reasonable, as the values are derived from a mix of reasonable assumptions. Had we used discount rates that were 100 basis points higher or a terminal growth rate that was 100 basis points lower than those we assumed, the fair values of each of these reporting units would have continued to exceed their carrying amounts by at least 80%.

RECENT ACCOUNTING PRONOUNCEMENTS
See Note 1 of the Consolidated Condensed Financial Statements included in Item 1, Financial Statements of this report for further information regarding Financial Accounting Standards Board issued Accounting Standards Updates ("ASU").

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CONSOLIDATED RESULTS OF OPERATIONS

(dollars and shares in millions, except per share data)	Three Months Ended December 30, 2017	December 31, 2016	$ Variance	% Variance
Net sales	$628	$590	$38	6 %
Gross margin	29.3 %	29.3 %		
Research and development expenses	$32	$35	$(2)	(6 %)
Selling, general and administrative expenses as a percentage of sales	15.3 %	14.4 %		
Interest expense	$9	$8	$—	2 %
Other	$(1)	$8	$(9)	(109 %)
Effective tax rate	97.3 %	17.6 %		
Net earnings attributable to Moog	$1	$31	$(29)	(96 %)
Diluted average common shares outstanding	36	36	—	— %
Diluted earnings per share attributable to Moog	$0.04	$0.84	$(0.80)	(95 %)

Net sales increased across all of our segments in the first quarter of 2018 compared to the first quarter of 2017.

Gross margin was unchanged in the first quarter of 2018 compared to the same period of 2017. Aircraft Controls' gross margin increased due primarily to a more favorable sales mix from foreign military sales; however, Space and Defense Controls' gross margin decreased due to the reduced amount of last year's favorable defense controls sales.

Research and development expenses decreased in the first quarter of 2018 compared to the same period of 2017. Within Aircraft Controls, research and development expenses decreased $4 million, as we had lower activity across our major commercial OEM programs. The reduced spend was offset by increases in research and development activities across our remaining two segments.

Selling, general and administrative expenses as a percentage of sales increased in the first quarter of 2018 compared to the first quarter of 2017. Administrative expense increased $3 million due to the timing of expenses in the prior year's quarter, and we had higher planned selling expense in select growth markets.

Other expense in the first quarter of 2017 includes $9 million of losses associated with selling our European space businesses.

The effective tax rate in the first quarter of 2018 was impacted by the enactment of the Tax Cuts and Jobs Act of 2017. We recorded a $31 million, one-time transition tax on undistributed foreign earnings deemed to be repatriated and a tax charge of $15 million as an additional provision for withholding taxes on undistributed earnings not considered to be permanently reinvested. No additional income taxes have been provided for any remaining undistributed foreign earnings not subject to the transition tax, or any additional outside basis difference inherent in these entities, as these amounts continue to be indefinitely reinvested in foreign operations. Determining the amount of unrecognized deferred tax liability related to any remaining undistributed foreign earnings not subject to the transition tax and additional outside basis difference in these entities is not practicable. These charges are partially offset by a $12 million benefit due to the remeasurement of deferred tax assets and liabilities arising from a lower U.S. corporate tax rate, which took into account our decision to accelerate pension contributions into our 2017 pension plan year. This allows the pension contribution tax deduction to be taken in our 2017 federal income tax return which is taxed at the 35% federal rate. Excluding all of the impacts due to the Act, the effective tax rate for the first quarter of 2018 was 29.6%.

Our effective tax rate in 2017 is lower than the U.S. statutory tax rate, as it included the tax benefits associated with divesting our European space businesses. Excluding the impact of the divestiture, the effective tax rate for the first quarter of 2017 was 28.7%.

Other comprehensive income in the first quarter of 2018 includes $10 million of foreign currency translation income. Other comprehensive loss in the first quarter of 2017 includes $42 million of foreign currency translation loss. Foreign currency translation adjustments increased $52 million during this period, primarily attributable to changes in the Euro and the British Pound.

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SEGMENT RESULTS OF OPERATIONS

Effective October 1, 2017, we changed our segment reporting structure to three reporting segments. Our former Components segment has been separated and merged into Space and Defense Controls and Industrial Systems. All amounts have been restated to conform to the current presentation.

Operating profit, as presented below, is net sales less cost of sales and other operating expenses, excluding interest expense, equity-based compensation expense and other corporate expenses. Cost of sales and other operating expenses are directly identifiable to the respective segment or allocated on the basis of sales, manpower or profit. Operating profit is reconciled to earnings before income taxes in Note 16 of the Notes to Consolidated Condensed Financial Statements included in this report.

Aircraft Controls

(dollars in millions)	Three Months Ended December 30, 2017	December 31, 2016	$ Variance	% Variance
Net sales - military aircraft	$124	$ 128	$ (4)	(3 %)
Net sales - commercial aircraft	154	141	14	10 %
	$279	$ 268	$ 10	4 %
Operating profit	$31	$ 23	$ 8	33 %
Operating margin	11.0 %	8.6 %		
Backlog	$590	$ 610	$ (20)	(3 %)

Aircraft Controls' net sales increased in commercial aircraft programs the first quarter of 2018 compared to the first quarter of 2017, but were partially offset by military aircraft sales declines.

Commercial OEM and commercial aftermarket sales each increased $7 million in the first quarter of 2018 compared to the first quarter of 2017. OEM sales for the Airbus A350 increased $5 million due to the program's production volume ramp up, while aftermarket sales for the A350 increased $4 million due to higher initial provisioning. Additionally, aftermarket sales for legacy Boeing programs increased $4 million due to higher repair activity.

Military aftermarket sales declined $5 million in the first quarter of 2018 compared to the first quarter of 2017 due primarily to production delays on the V-22 program. Military OEM sales were relatively flat, as higher foreign military sales were mostly offset by lower F-35 sales. In the first quarter of 2017, F-35 sales were high due to a production increase ahead of an upcoming milestone delivery.

Operating margin increased in the first quarter of 2018 compared to the first quarter of 2017. Research and development expenses decreased $4 million, as we had lower activity on our major commercial OEM programs. Additionally, operating profit benefited from higher amounts of foreign military sales.

The decrease of twelve-month backlog for Aircraft Controls at December 30, 2017 compared to December 31, 2016 is primarily due to the timing of orders for the F-35.

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Space and Defense Controls

	Three Months Ended			
(dollars in millions)	December 30, 2017	December 31, 2016	$ Variance	% Variance
Net sales	$133	$ 123	$ 11	9 %
Operating profit	$16	$ 9	$ 7	79 %
Operating margin	12.2 %	7.4 %		
Backlog	$411	$ 365	$ 46	13 %

Space and Defense Controls' net sales increased in our space and our defense markets in the first quarter of 2018 compared to the same period of 2017. Partially offsetting the sales growth was a decline of $6 million due to lost sales associated the 2017 divestitures of non-core businesses.

Sales in our defense market increased $9 million in the first quarter of 2018 compared to the first quarter of 2017. Spares sales for controls for domestic and European defense vehicles increased $6 million, and sales for defense components increased $4 million. Sales in our space market increased $2 million in the first quarter of 2018 compared to the first quarter of 2017. New satellite avionics programs and new launch vehicle programs increased sales by $7 million, but were offset by the lost sales associated with the divestitures.

Operating margin increased in the first quarter of 2018 compared to the first quarter of 2017 due to the absence of last year's losses associated with selling our European space businesses. Operating margin excluding the losses would have been 14.7% in the first quarter of 2017, reflecting a more favorable sales mix in our defense markets.

Twelve-month backlog for Space and Defense Controls at December 30, 2017 compared to December 31, 2016 increased as growth in satellite avionics and launch vehicles was partially offset by completing defense controls programs.

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Industrial Systems

	Three Months Ended			
(dollars in millions)	December 30, 2017	December 31, 2016	$ Variance	% Variance
Net sales	$216	$ 199	$ 17	9 %
Operating profit	$19	$ 20	$ (1)	(5 %)
Operating margin	8.9 %	10.2 %		
Backlog	$272	$ 216	$ 55	25 %

Industrial Systems' net sales increased across our four markets in the first quarter of 2018 compared to the first quarter of 2017. Stronger foreign currencies, primarily the Euro relative to the U.S. Dollar, increased sales $6 million, and the recent acquisition of Rotary Transfer Systems also increased sales $6 million, primarily in our industrial automation market.

Excluding the currency effects on sales in the first quarter of 2018 compared to the first quarter of 2017, sales increased in our simulation and test market due to the timing of shipments of our auto test and entertainment applications. Sales also increased in our medical market due to higher sales volumes for IV pumps and sets as well as medical components. In addition, shipments for energy exploration products increased for on-shore drilling applications.

Operating margin decreased in the first quarter of 2018 compared to the first quarter of 2017. We had higher operating expenses, including increased investments in research and development and selling, whose increases offset the incremental margin from the higher sales volume.

The higher level of twelve-month backlog in Industrial Systems at December 31, 2017 compared to December 31, 2016 is mostly due to higher orders in our simulation and test market.

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CONSOLIDATED AND SEGMENT OUTLOOK

(dollars in millions)	2018	2017	2018 vs. 2017 $ Variance	2018 vs. 2017 % Variance
Net sales:				
Aircraft Controls	$1,175	$1,125	$50	4 %
Space and Defense Controls	547	529	18	3 %
Industrial Systems	894	843	51	6 %
	$2,617	$2,498	$119	5 %
Operating profit:				
Aircraft Controls	$125	$114	$11	9 %
Space and Defense Controls	63	49	14	30 %
Industrial Systems	100	88	13	14 %
	$288	$250	$38	15 %
Operating margin:				
Aircraft Controls	10.6 %	10.1 %		
Space and Defense Controls	11.5 %	9.2 %		
Industrial Systems	11.2 %	10.4 %		
	11.0 %	10.0 %		

2018 Outlook – We expect that all three segments will contribute to higher sales in 2018, driven primarily by industrial automation sales in Industrial Systems and military OEM sales for the F-35 program in Aircraft Controls. We expect 2018 operating margin will increase due to the absence of 2017's losses associated with divesting non-core businesses, as well as incremental margin from higher sales. However, we expect that the impact of the Tax Cuts and Jobs Act will result in an unusually high effective tax rate of 42% in 2018. This will result in a 12% decrease in net earnings attributable to common shareholders to $124 million, and diluted earnings per share will range between $3.23 and $3.63 with a midpoint of $3.43. Excluding all of the impacts due to the Act, we expect an effective tax rate of 31%, net earnings attributable to common shareholders of $148 million and diluted earnings per share will range between $3.90 and $4.30, with a midpoint of $4.10, an increase of 5% compared to 2017.

2018 Outlook for Aircraft Controls – We expect 2018 sales in Aircraft Controls will increase primarily due to the continued ramp ups of the F-35 program and the Airbus A350 program. Partially offsetting the increases is an expected sales decline of legacy Boeing OEM programs. We expect 2018 operating margin will increase compared to 2017. We expect that research and development costs will decrease $6 million and that we will continue to realize the benefits of cost saving activities. However, we expect a negative sales mix, as sales on our mature commercial programs are replaced with sales growth on newer commercial programs.

2018 Outlook for Space and Defense Controls – We expect 2018 sales in Space and Defense Controls will increase due to sales growth from launch vehicles and satellite programs. Also, within our defense market, we expect higher missile systems and security sales will offset a decline in defense controls sales. We expect 2018 operating margin will increase, as the losses associated with divesting non-core businesses do not repeat.

2018 Outlook for Industrial Systems – We expect 2018 sales in Industrial Systems to increase across all of our major markets, lead primarily by growth in our industrial automation products. We expect 2018 operating margin will increase as we benefit from incremental margin on higher sales volumes.

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FINANCIAL CONDITION AND LIQUIDITY

(dollars in millions)	Three Months Ended December 30, 2017	December 31, 2016	$ Variance	% Variance
Net cash provided (used) by:				
Operating activities	$44	$ 51	$ (6)	(13 %)
Investing activities	(22)	(16)	(6)	37 %
Financing activities	(1)	(13)	12	(95 %)

Our available borrowing capacity and our cash flow from operations provide us with the financial resources needed to run our operations, reinvest in our business and make strategic acquisitions.

At December 30, 2017, our cash balances were $395 million, which is primarily held outside of the U.S. Cash flow from our U.S. operations, together with borrowings on our credit facility, fund on-going activities, debt service requirements and future growth investments. Due to provisions in the Tax Cuts and Jobs Act, we plan to repatriate substantial amounts of our existing offshore cash and future earnings back to the U.S.

Operating activities

Net cash provided by operating activities decreased in the first quarter of 2018 compared to the same period of 2017. Operationally, increases in inventory, primarily in Aircraft Controls and Industrial Systems, used $29 million more in cash, and the unfavorable timing of payments across all of our segments used $21 million. These uses were principally offset by strong cash collections from accounts receivable and customer advances in Space and Defense Controls and Aircraft Controls.

Investing activities

Net cash used by investing activities in the first quarter of 2018 included $21 million for capital expenditures, while net cash used by investing activities in 2017 included $15 million for capital expenditures.

We expect our 2018 capital expenditures to be approximately $95 million, due to facilities investments supporting the increased production of the F-35 program, as well as engine propulsion testing.

Financing activities

Cash used by financing activities in the first quarters of 2018 and 2017 both include net payments on our credit facility.

Off Balance Sheet Arrangements

We do not have any material off balance sheet arrangements that have or are reasonably likely to have a material future effect on our results of operations or financial condition.

Contractual Obligations and Commercial Commitments

Our contractual obligations and commercial commitments have not changed materially from the disclosures in our 2017 Annual Report on Form 10-K, with the exception of tax payments required as a result of the Tax Cuts and Jobs Act of 2017 and accelerated pension contributions into our 2017 pension plan year. See Notes 10 and 12 of the Consolidated Condensed Financial Statements included in Item 1, Financial Statements of this report for the impact.

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CAPITAL STRUCTURE AND RESOURCES

We maintain bank credit facilities to fund our short and long-term capital requirements, including for acquisitions. From time to time, we also sell debt and equity securities to fund acquisitions or take advantage of favorable market conditions.

Our U.S. revolving credit facility matures on June 28, 2021. The U.S. revolving credit facility has a capacity of $1.1 billion and also provides an expansion option, which permits us to request an increase of up to $200 million to the credit facility upon satisfaction of certain conditions. The U.S. revolving credit facility had an outstanding balance of $535 million at December 30, 2017. The weighted-average interest rate on all of the outstanding credit facility borrowings was 2.89% and is based on LIBOR plus the applicable margin, which was 1.38% at December 30, 2017. The credit facility is secured by substantially all of our U.S. assets.

The U.S. revolving credit facility contains various covenants. The covenant for minimum interest coverage ratio, defined as the ratio of EBITDA to interest expense for the most recent four quarters, is 3.0. The covenant for the maximum leverage ratio, defined as the ratio of net debt, including letters of credit, to EBITDA for the most recent four quarters, is 3.5. We are in compliance with all covenants. EBITDA is defined in the loan agreement as (i) the sum of net income, interest expense, income taxes, depreciation expense, amortization expense, other non-cash items reducing consolidated net income and non-cash equity-based compensation expenses minus (ii) other non-cash items increasing consolidated net income.

We are generally not required to obtain the consent of lenders of the U.S. revolving credit facility before raising significant additional debt financing; however, certain limitations and conditions may apply that would require consent to be obtained. In recent years, we have demonstrated our ability to secure consents to access debt markets. We have also been successful in accessing equity markets from time to time. We believe that we will be able to obtain additional debt or equity financing as needed.

At December 30, 2017, we had $529 million of unused capacity, including $516 million from the U.S. revolving credit facility after considering standby letters of credit.

We have $300 million aggregate principal amount of 5.25% senior notes due December 1, 2022 with interest paid semiannually on June 1 and December 1 of each year. The senior notes are unsecured obligations, guaranteed on a senior unsecured basis by certain subsidiaries and contain normal incurrence-based covenants and limitations such as the ability to incur additional indebtedness, pay dividends, make other restricted payments and investments, create liens and certain corporate acts such as mergers and consolidations.

We have a trade receivables securitization facility (the "Securitization Program"), which was extended on October 23, 2017 and now matures on October 23, 2019. The Securitization Program provides up to $130 million of borrowing capacity and lowers our cost to borrow funds as compared to the U.S. revolving credit facility. Under the Securitization Program, we sell certain trade receivables and related rights to an affiliate, which in turn sells an undivided variable percentage ownership interest in the trade receivables to a financial institution, while maintaining a subordinated interest in a portion of the pool of trade receivables. We had an outstanding balance of $130 million at December 30, 2017. The Securitization Program has a minimum borrowing requirement, which was $104 million at December 30, 2017. Interest on the secured borrowings under the Securitization Program was 2.39% at December 30, 2017 and is based on 30-day LIBOR plus an applicable margin.

Net debt to capitalization was 32% at December 30, 2017 and 33% at September 30, 2017. The decrease in net debt to capitalization is primarily due to positive cash flow.

We believe that our cash on hand, cash flows from operations and available borrowings under short and long-term arrangements will continue to be sufficient to meet our operating needs.

The Board of Directors has authorized a share repurchase program. This program has been amended from time to time to authorize additional repurchases that includes both Class A and Class B common shares, and allows us to buy up to an aggregate 13 million common shares. Under this program, we have purchased approximately 9.7 million shares for $650 million as of December 30, 2017.

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ECONOMIC CONDITIONS AND MARKET TRENDS

We operate within the aerospace and defense and industrial markets. Our aerospace and defense markets are affected by market conditions and program funding levels, while our industrial markets are influenced by general capital investment trends and economic conditions. A common factor throughout our markets is the continuing demand for technologically advanced products.

Aerospace and Defense

Approximately two-thirds of our 2017 sales were generated in aerospace and defense markets. Within aerospace and defense, we serve three end markets: defense, commercial aircraft and space.

The defense market is dependent on military spending for development and production programs. Aircraft production programs are typically long-term in nature, offering predictability as to capacity needs and future revenues. We maintain positions on numerous high priority programs, including the Lockheed Martin F-35 Joint Strike Fighter, FA-18E/F Super Hornet and V-22 Osprey. The large installed base of our products leads to attractive aftermarket sales and service opportunities. The tactical and strategic missile, missile defense and defense controls markets are dependent on many of the same market conditions as military aircraft, including overall military spending and program funding levels. Our security and surveillance product line is dependent on government funding at federal and local levels, as well as private sector demand.

Reductions in the U.S. Department of Defense's mandatory and discretionary budgeted spending, which became effective on March 1, 2013, resulting from the Budget Control Act of 2011, has had ramifications for the domestic aerospace and defense market. As originally passed, the Budget Control Act provided that, in addition to an initial significant reduction in future domestic defense spending, further automatic cuts to defense spending authorization (which is generally referred to as sequestration) of approximately $500 billion through the Federal Government's 2021 fiscal year would be triggered by the failure of Congress to produce a deficit reduction bill. The sequestration spending cuts were intended to be uniform by category for programs, projects and activities within accounts. The Bipartisan Budget Act of 2013 and the Bipartisan Budget Act of 2015 provided stability and modest growth in Department of Defense spending through 2017. However, future budgets beyond 2017 are uncertain with respect to the overall levels of defense spending. Currently, we expect approximately $720 million of U.S. defense sales in 2018.

The commercial aircraft market is dependent on a number of factors, including global demand for air travel, which generally follows underlying economic growth. As such, the commercial aircraft market has historically exhibited cyclical swings which tend to track the overall economy. In recent years, the development of new, more fuel-efficient commercial air transports has helped drive increased demand in the commercial aircraft market, as airlines replace older, less fuel-efficient aircraft with newer models in an effort to reduce operating costs. The aftermarket is driven by usage of the existing aircraft fleet and the age of the installed fleet, and is impacted by fleet re-sizing programs for passenger and cargo aircraft. Changes in aircraft utilization rates affect the need for maintenance and spare parts impacting aftermarket sales. Boeing and Airbus have historically adjusted production in line with air traffic volume. Demand for our commercial aircraft products is in large part dependent on new aircraft production, which is increasing as Boeing and Airbus work to fulfill large backlogs of unfilled orders.

The commercial space market is comprised of large satellite customers, traditionally communications companies. Trends for this market, as well as for commercial launch vehicles, follow demand for increased capacity. This, in turn tends to track with underlying demand for increased consumption of telecommunication services, satellite replacement and global navigation needs. The space market is also partially dependent on the governmental-authorized levels of funding for satellite communications, as well as investment for commercial and exploration activities.

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Industrial

Approximately one-third of our 2017 sales were generated in industrial markets. Within industrial, we serve three end markets: industrial automation, energy and medical.

The industrial automation market we serve is influenced by several factors including capital investment, product innovation, economic growth, cost-reduction efforts and technology upgrades. We experience challenges from the need to react to the demands of our customers, who are in large part sensitive to international and domestic economic conditions.

The energy market we serve is affected by changing oil and natural gas prices, global urbanization, the resulting change in supply and demand for global energy and the political climate and corresponding public support for investments in renewable energy generation capacity. Historically, drivers for global growth include investments in power generation infrastructure, including renewable energy, and exploration in search of new oil and gas resources. However, the significant decline in the price of crude oil has reduced investment in exploration activities. This reduced investment has directly affected our energy business. Currently, we expect approximately $34 million of oil exploration-related sales in 2018, down from approximately $100 million in 2014.

The medical market we serve is influenced by economic conditions, regulatory environments, hospital and outpatient clinic spending on equipment, population demographics, medical advances, patient demands and the need for precision control components and systems. Advances in medical technology and medical treatments have had the effect of extending average life spans, in turn resulting in greater need for medical services. These same technology and treatment advances also drive increased demand from the general population as a means to improve quality of life. Access to medical insurance, whether through government funded health care plans or private insurance, also affects the demand for medical services.

Foreign Currencies

We are affected by the movement of foreign currencies compared to the U.S. dollar, particularly in Aircraft Controls and Industrial Systems. About one-quarter of our 2017 sales were denominated in foreign currencies. During the first three months of 2018, average foreign currency rates generally strengthened against the U.S. dollar compared to 2017. The translation of the results of our foreign subsidiaries into U.S. dollars increased sales by $8 million compared to the same period one year ago.

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Cautionary Statement

Information included or incorporated by reference in this report that does not consist of historical facts, including statements accompanied by or containing words such as “may,” “will,” “should,” “believes,” “expects,” “expected,” “intends,” “projects,” “approximate,” “estimates,” “predicts,” “potential,” “outlook,” “forecast,” “anticipates,” “presume” and “assume,” forward-looking statements. Such forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements are not guarantees of future performance and are subject to several factors, risks and uncertainties, the impact or occurrence of which could cause actual results to differ materially from the expected results described in the forward-looking statements. These important factors, risks and uncertainties include:

- the markets we serve are cyclical and sensitive to domestic and foreign economic conditions and events, which may cause our operating results to fluctuate;
- we operate in highly competitive markets with competitors who may have greater resources than we possess;
- we depend heavily on government contracts that may not be fully funded or may be terminated, and the failure to receive funding or the termination of one or more of these contracts could reduce our sales and increase our costs;
- we make estimates in accounting for long-term contracts, and changes in these estimates may have significant impacts on our earnings;
- we enter into fixed-price contracts, which could subject us to losses if we have cost overruns;
- we may not realize the full amounts reflected in our backlog as revenue, which could adversely affect our future revenue and growth prospects;
- if our subcontractors or suppliers fail to perform their contractual obligations, our prime contract performance and our ability to obtain future business could be materially and adversely impacted;
- contracting on government programs is subject to significant regulation, including rules related to bidding, billing and accounting kickbacks and false claims, and any non-compliance could subject us to fines and penalties or possible debarment;
- the loss of The Boeing Company as a customer or a significant reduction in sales to The Boeing Company could adversely impact our operating results;
- our new product research and development efforts may not be successful which could reduce our sales and earnings;
- our inability to adequately enforce and protect our intellectual property or defend against assertions of infringement could prevent or restrict our ability to compete;
- our business operations may be adversely affected by information systems interruptions, intrusions or new software implementations;
- our indebtedness and restrictive covenants under our credit facilities could limit our operational and financial flexibility;
- significant changes in discount rates, rates of return on pension assets, mortality tables and other factors could adversely affect our earnings and equity and increase our pension funding requirements;
- a write-off of all or part of our goodwill or other intangible assets could adversely affect our operating results and net worth;
- our sales and earnings may be affected if we cannot identify, acquire or integrate strategic acquisitions, or if we engage in divesting activities;
- our operations in foreign countries expose us to political and currency risks and adverse changes in local legal and regulatory environments;
- unforeseen exposure to additional income tax liabilities may affect our operating results;
- government regulations could limit our ability to sell our products outside the United States and otherwise adversely affect our business;
- governmental regulations and customer demands related to conflict minerals may adversely impact our operating results;
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- the failure or misuse of our products may damage our reputation, necessitate a product recall or result in claims against us that exceed our insurance coverage, thereby requiring us to pay significant damages;
- future terror attacks, war, natural disasters or other catastrophic events beyond our control could negatively impact our business;
- our operations are subject to environmental laws, and complying with those laws may cause us to incur significant costs; and
- we are involved in various legal proceedings, the outcome of which may be unfavorable to us.

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These factors are not exhaustive. New factors, risks and uncertainties may emerge from time to time that may affect the forward-looking statements made herein. Given these factors, risks and uncertainties, investors should not place undue reliance on forward-looking statements as predictive of future results. We disclaim any obligation to update the forward-looking statements made in this report.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

Refer to the Company's Annual Report on Form 10-K for the year ended September 30, 2017 for a complete discussion of our market risk. There have been no material changes in the current year regarding this market risk information.

Item 4. Controls and Procedures.

(a) Disclosure Controls and Procedures. We carried out an evaluation, under the supervision and with the participation of our management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Exchange Act Rules 13a-15(e) and 15d-15(e). Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that these disclosure controls and procedures are effective as of the end of the period covered by this report, to ensure that information required to be disclosed in reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures.

(b) Changes in Internal Control over Financial Reporting. There have been no changes during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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PART II OTHER INFORMATION

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

(c) The following table summarizes our purchases of our common stock for the quarter ended December 30, 2017.

Period	(a) Total Number of Shares Purchased (1)(2)	(b) Average Price Paid Per Share	(c) Total number of Shares Purchased as Part of Publicly Announced Plans or Programs (3)	(d) Maximum Number (or Approx. Dollar Value) of Shares that May Yet Be Purchased Under Plans or Programs (3)
October 1, 2017 - October 31, 2017	19,459	$ 87.15	—	3,349,819
November 1, 2017 - November 30, 2017	54,388	83.17	—	3,349,819
December 1, 2017 - December 30, 2017	3,850	87.68	—	3,349,819
Total	77,697	$ 84.39	—	3,349,819

(1) Reflects purchases by the Moog Inc. Stock Employee Compensation Trust Agreement ("SECT") of shares of Class B common stock from the Moog Inc. Retirement Savings Plan ("RSP") at average prices as follows: 17,494 shares at $87.00 per share during October; and 27,168 shares at $84.69 per share during November.

(2) In connection with the exercise of equity-based compensation awards, we accept delivery of shares to pay for the exercise price and withhold shares for tax withholding obligations. In October, we accepted delivery of 1,965 shares at $88.49 per share, in November, we accepted delivery of 27,220 shares at $81.65 per share and in December, we accepted delivery of 3,850 shares at $87.68 per share, in connection with the exercise of equity-based awards.

(3) The Board of Directors has authorized a share repurchase program. This program has been amended from time to time to authorize additional repurchases up to an aggregate 13 million common shares. The program permits the purchase of shares of Class A or Class B common stock in open market or privately negotiated transactions at the discretion of management.

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Item 6. Exhibits.

(a) Exhibits

31.1 Certification of Chief Executive Officer pursuant to Exchange Act Rule 13a-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

31.2 Certification of Chief Financial Officer pursuant to Exchange Act Rule 13a-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

32.1 Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

101 Interactive Date files (submitted electronically herewith)

(101.INS) XBRL Instance Document

(101.SCH) XBRL Taxonomy Extension Schema Document

(101.CAL) XBRL Taxonomy Extension Calculation Linkbase Document

(101.DEF) XBRL Taxonomy Extension Definition Linkbase Document

(101.LAB) XBRL Taxonomy Extension Label Linkbase Document

(101.PRE) XBRL Taxonomy Extension Presentation Linkbase Document

In accordance with Rule 406T of Regulation S-T, the XBRL related information in Exhibit 101 to this Quarterly Report on Form 10-Q shall not be deemed to be “filed” for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section and shall not be part of any registration or other document filed under the Securities Act or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

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SIGNATURES

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

		Moog Inc.
		(Registrant)
Date:	January 26, 2018	By /s/ John R. Scannell John R. Scannell Chairman Chief Executive Officer (Principal Executive Officer)
Date:	January 26, 2018	By /s/ Donald R. Fishback Donald R. Fishback Vice President Chief Financial Officer (Principal Financial Officer)
Date:	January 26, 2018	By /s/ Jennifer Walter Jennifer Walter Vice President - Finance Controller (Principal Accounting Officer)