
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K**

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended October 2, 2021

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 1-05129

MOOG Inc.

(Exact name of registrant as specified in its charter)

New York

(State or other jurisdiction of
incorporation or organization)

16-0757636

(I.R.S. Employer Identification No.)

400 Jamison Road East Aurora, New York

(Address of Principal Executive Offices)

14052-0018

(Zip Code)

(716) 652-2000

Registrant's telephone number, including area code

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Class A common stock	MOG.A	New York Stock Exchange
Class B common stock	MOG.B	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

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

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

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

The aggregate market value of the common stock outstanding and held by non-affiliates (as defined in Rule 405 under the Securities Act of 1933) of the registrant, based upon the closing sale price of the common stock on the New York Stock Exchange on April 2, 2021, the last business day of the registrant's most recently completed second fiscal quarter, was approximately \$2,521 million.

The number of shares outstanding of each class of common stock as of November 8, 2021 was:

Class A common stock, 29,232,810 shares

Class B common stock, 2,872,410 shares

DOCUMENTS INCORPORATED BY REFERENCE

Portions of Moog Inc.'s definitive Proxy Statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year to which this report relates (the "2021 Proxy Statement") are incorporated by reference into Part III of this Form 10-K.

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PART I

The Registrant, Moog Inc., a New York corporation formed in 1951, is referred to in this report as “Moog” or the “Company” or in the nominative “we” or the possessive “our.”

Unless otherwise noted or the context otherwise requires, all references to years in this report are to fiscal years.

Item 1. Business.

Description of the Business. Moog is a worldwide designer, manufacturer and systems integrator of high performance precision motion and fluid controls and controls systems for a broad range of applications in aerospace and defense and industrial markets. We have three operating segments: Aircraft Controls, Space and Defense Controls and Industrial Systems.

Additional information describing the business and comparative segment revenues, operating profits and related financial information for 2021, 2020 and 2019 are provided in Note 21, Segments, of Item 8, Financial Statements and Supplementary Data of this report.

Distribution. Our sales and marketing organization consists of individuals possessing highly specialized technical expertise. This expertise is required in order to effectively evaluate a customer’s precision control requirements and to facilitate communication between the customer and our engineering staff. Our sales staff is the primary contact with customers. Manufacturers’ representatives are used to cover certain domestic aerospace markets. Distributors are used selectively to cover certain industrial and medical markets.

Industry and Competitive Conditions. We experience considerable competition in our aerospace and defense and industrial markets. We believe that the principal points of competition in our markets are product quality, reliability, price, design and engineering capabilities, product development, conformity to customer specifications, timeliness of delivery, effectiveness of the distribution organization and quality of support after the sale. We believe we compete effectively on all of these bases. Competitors in our three operating segments include:

- Aircraft Controls: Curtiss-Wright, Liebherr, Nabtesco, Parker-Hannifin, Raytheon Technologies and Woodward.
- Space and Defense Controls: Aerojet Rocketdyne, Airbus, Amphenol, Cobham, Curtiss-Wright, Eaton, Elbit, General Dynamics, Glenair, Honeywell, IHI-Aerospace, Kongsberg, LORD, RUAG, Rafael Advanced Defense Systems, Raytheon Technologies, Schleifring, SEAKR, and Woodward.
- Industrial Systems: Allied Motion, Baumüller, Atos S.p.A, Bosch Rexroth, Cardinal Health, Eaton, ebm-papst, MTS Systems, Nidec, Parker-Hannifin, Schleifring, Shinano Kenshi, Smiths Medical, Wittenstein Group and Woodward.

Government Contracts. All United States (“U.S.”) Government contracts are subject to termination by the U.S. Government. In 2021, sales under U.S. Government contracts represented 44% of total sales and were primarily within our Aircraft Controls and Space and Defense Controls segments.

Backlog. Our twelve-month backlog represents confirmed orders we believe will be recognized as revenue within the next twelve months. As noted in Item 6, Selected Financial Data of this report, as of October 2, 2021, our twelve-month backlog was \$2.1 billion, an increase of 24% compared to October 3, 2020. See Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations of this report for a discussion on the various business drivers and conditions contributing to the twelve-month backlog change.

Raw Materials. Materials, supplies and components are purchased from numerous suppliers. We believe the loss of any one supplier, although potentially disruptive in the short-term, would not materially affect our operations in the long-term.

Working Capital. See the discussion on operating cycle in Note 1, Summary of Significant Accounting Policies, of Item 8, Financial Statements and Supplementary Data of this report.

Seasonality. Our business is generally not seasonal; however, certain products and systems, such as those in the energy market of our Industrial Systems segment, do experience seasonal variations in sales levels.

Patents. We maintain a patent portfolio of issued or pending patents and patent applications worldwide that generally includes the U.S., Europe, China, Japan and India. The portfolio includes patents that relate to electrohydraulic, electromechanical, electronics, hydraulics, components and methods of operation and manufacture as related to motion control and actuation systems. The portfolio also includes patents related to wind turbines, robotics, surveillance/security, vibration control and medical devices. We do not consider any one or more of these patents or patent applications to be material in relation to our business as a whole. The patent portfolio related to certain medical devices is significant to our position in this market as several of these products work exclusively together, and provide us future revenue opportunities.

Research Activities. Research and development activity has been, and continues to be, significant for us. Research and development expense was at least \$110 million in each of the last three years and represented approximately 4% of sales in 2021.

Human Capital Resources. Moog possesses a unique culture that fuels our business success. Our nearly 14,000 employees across over 25 countries work closely together, driven by a shared sense of purpose and a desire to do the right thing. We value our ground-breaking, challenging work and what we stand for. We value the skill and commitment of our talented workforce above all else. Whether it's enabling a Mars Rover to land safely or helping to support breakthrough advances in healthcare, together, we solve our customers' most difficult challenges.

Although we are a successful, global business, our employees feel like they are amongst friends and are comfortable being themselves. We empower them to find innovative ways of accomplishing things, and the scale of our business means that careers can develop in exciting and unexpected directions. For prospective employees looking for inspiring and meaningful work in a warm, respectful, family-like environment, Moog will feel like home.

In order to ensure we live our values and our culture stays unique and strong, our Board of Directors and executive team put significant focus on our human capital resources. These are some of the key aspects of Moog's human capital strategy:

Managing Through the Global Pandemic

As we managed through the second year of the global pandemic, we continued to run our business in a manner that was focused on maintaining the health and safety of our employees while meeting our customers' requirements as an essential business. We were able to effectively support a large number of employees working from home, developed policies and educational materials with employee safety in mind, and re-configured our production environments to maintain proper social distancing. We provided time-off and salary continuation benefits to employees affected by COVID-19 in a manner consistent with our values.

As the pandemic continued through 2021, we:

- Added additional benefits to help our employees cope with personal challenges such as childcare, eldercare, health care and schooling.
- Sponsored on-site immunization clinics.
- Provided "mental health" days.
- Created training programs and support groups to help people balance changing work and personal requirements brought on by the pandemic.
- Created and implemented protocols for employees returning to the workplace.

We are very proud of how Moog and our people adapted during the pandemic. We are certainly stronger from the multitude of business and personnel challenges we successfully worked through.

Moog deeply mourns the employees we lost to COVID-19.

Employee Recruitment

Moog actively seeks to attract the best talent from a diverse range of sources and industries in order to meet the current and future demands of our business. We have established relationships with trade schools, world-class universities, professional associations, and industry groups to proactively attract talent.

In 2021, we hired 1,348 new regular employees throughout the world.

Diversity, Equity and Inclusion

Moog aspires to be diverse, equitable, and inclusive, where employees are empowered to bring their whole, authentic selves to work every day. We believe being diverse, equitable and inclusive is better for all of our employees, customers and shareholders.

During 2021, we rolled out a new Diversity, Equity and Inclusion strategy. In support of this strategy, we:

- Conducted a variety of learning programs to help our employees understand the value of inclusivity, the very different experiences people have, and the role we all must play in creating an inclusive and welcoming environment at Moog.
- Honored employees from different backgrounds and helped increase understanding through a variety of monthly celebrations, including, but not limited, to Black History Month, International Women's Day, and Pride Month.
- Piloted Employee Resource Groups ("ERGs"). Our ERGs are voluntary, employee-led, corporate-supported groups that are organized primarily around a defined characteristic, special interest, or life experience. This year we supported the formation of ERGs to better enable women and gender equality and to support our black employees.

At Moog, we are pleased that 33% of the executive team and 29% of our independent directors are female. Having said that, we are continuously striving to ensure the diversity of our organization more fully represents the diversity of the communities in which we operate.

Compensation and Benefits

Moog works to maintain compensation, benefits and rewards programs that enable us to attract, retain, motivate, and reward employees for their contributions to company performance. Our compensation and rewards programs are linked closely to our values of *We Are All In This Together*, *We Try Harder*, *Competence Is King* and *Performance And Commitment Should Be Rewarded*.

Moog is committed to providing comprehensive benefit options that reflect the differing priorities and needs of our sites globally, governed by an intent to offer plans that will allow our employees and their families to live healthier and more secure lives.

In addition to traditional employee benefits, Moog has a number of innovative initiatives to support the well-being of our employee base, including onsite wellness clinics at a number of locations, online tools that assist employees with their physical and mental health, special events with outside vendors and participants focusing on employee well-being and much more.

Health and Safety

Maintaining a safe and healthy work environment is a key priority and a responsibility for all of our employees. At Moog, we embrace a continuous improvement approach with regard to our global Environment, Health & Safety ("EHS") culture. All Moog businesses strive to operate in a responsible manner that demonstrates our commitment to the health and safety of our employees, customers, suppliers, communities and the environment. Our commitment will not be compromised. We expect our employees, visitors and service providers to follow our EHS standards and practices. We regularly conduct training for all of our employees and work hard to learn lessons from every incident. Additionally, we measure and review our EHS results continuously in each location.

Employee Engagement and Retention

Moog is deeply committed to continuously evolving into an even better place to work. We're built on a strong foundation of mutual trust and the premise that we must engage with employees at different levels to empower our people, enable progress and align efforts.

Moog employs a variety of mechanisms to collect and respond to feedback from our employees. We conduct a regular employee engagement survey. We also leverage focus groups and listening sessions to solicit feedback.

In response to employee feedback and in acknowledgment of the changing landscape brought about by the global pandemic, Moog has been piloting a variety of flexible working arrangements, including remote work and hybrid working schedules. We are implementing these changes in a way that allows our employees to collaborate and innovate in the Moog Way that has made us so successful to date.

We see our positive employee engagement coming through in high levels of employee retention. For the last four years, the average of voluntary attrition has been just below 5% of our workforce. That is a competitive attrition figure and a testament to Moog being a great place to work.

Leadership Development and Training

At Moog, we believe that the best leaders are the ones who come from within. These leaders learn with us, grow with us, and reach their potential through challenging job experiences we provide and deliberate learning experiences.

Moog has carefully designed two leadership development programs to improve the effectiveness of our managers. Our Moog Leadership Program is a two-year program designed to expand, develop, support, and sustain high potential leadership throughout the Company. This program accelerates the growth and development of our high potential employees and prepares them for future senior-level roles within the organization. Our Emerging Leadership Program is a nine-month global, cross-group leadership development program. The goal of this program is to accelerate the development of a pool of global, cross-group top talent in order to help meet the demand for important leadership roles throughout our Company. Finally, our leading and coaching people program, which is open to people managers at Moog, is a two-day course and provides the foundational framework for engaging, empowering, and coaching employees for optimal performance.

In addition to our leadership development programs, Moog has many other valuable training resources available for employees in order to ensure our people have everything they need to succeed both personally and professionally. Moog facilitates these training opportunities and programs through state-of-the-art learning management systems. Our employees are encouraged to take responsibility for their own development and create learning plans that fit their needs and development goals best.

Succession Planning

Each year Moog conducts an extensive talent review across our global enterprise that includes, among other important topics, a review of succession plans for many of our roles. To ensure the long-term continuity of our business, we actively manage the development of talent to fill the roles that are most critical to the on-going success of our Company.

Corporate Social and Environmental Responsibility

Our values, rooted in trust, integrity, and collaboration, lay the foundation for Moog's commitment to corporate social and environmental responsibility. As a company, we believe that to be truly successful, we must do our part to improve the world for current and future generations. At Moog, we are committed to:

- Protecting our planet by minimizing our environmental impact.
- Striving to contribute our time, talent, and resources to strengthen the communities where we do business.
- Engaging in ethical practices.

We're all in this together - when our local and global communities succeed, we succeed. Moog and its employees live this mantra with countless initiatives focused on supporting our communities both financially and with employee time. Some recent examples of Moog's "responsibility in action" include:

- Our Moog team in India sponsored 300 cataract surgeries through Nayonika Eye Care Charitable Trust.
- Our Wolverhampton, United Kingdom ("UK") site has transitioned 90% of its electric lighting to LED bulbs; in doing so, the site will save over 13,000 kWh each year.
- Our U.S. and UK organizations piloted a "direct giving program" that allows our employees to contribute funds and volunteer time to local charities that are meaningful to them.
- A group of our employees in Torrance, California donated their time to crochet hats and other items for nonprofits like the American Heart Association's "Little Hats, Big Hearts" program.

Business Ethics

Moog is fully dedicated to conducting ourselves by the letter and in the spirit of the many laws and standards that apply to our business. Ethics are deeply embedded in our values and business processes. We regularly re-enforce our commitment to ethics and integrity in employee communications, in our everyday actions and in processes and controls. As a part of our on-going efforts to ensure our employees conduct business with the highest levels of ethics and integrity, Moog has compliance training programs in multiple languages. We also maintain two ethics related hotlines, through which individuals can anonymously raise concerns they have about business behavior they do not feel comfortable discussing personally with business operations managers or human resources personnel. The Company's general confidential ethics hotline is administered by internal company counsel designated as Moog's ethics advocate. In addition, we maintain a separate hotline for cases wherein an employee believes that the Company's financial statements are materially misstated as a result of intentional acts or material weaknesses in the systems of internal control. This hotline is administered by the Company's corporate Secretary.

Customers. Our principal customers are Original Equipment Manufacturers ("OEMs"), and end users for whom we provide aftermarket support. Aerospace and defense OEM customers collectively represented 58% of 2021 sales. The majority of these sales are to a small number of large companies. Due to the long-term nature of many of the programs, many of our relationships with aerospace and defense OEM customers are based on long-term agreements. Our industrial OEM sales, which represented 31% of 2021 sales, are to a wide range of global customers and are normally based on lead times of 90 days or less. We also provide aftermarket support, consisting of spare and replacement parts and repair and overhaul services, for all of our products. Our major aftermarket customers are the U.S. Government and commercial airlines. In 2021, aftermarket sales accounted for 11% of total sales.

Significant customers in our three operating segments include:

- Aircraft Controls: Boeing, Lockheed Martin, Airbus, Raytheon Technologies, General Dynamics, BAE Systems, Honeywell, Bell Helicopter, Embraer S.A., Japan Aerospace, and the U.S. Government.
- Space and Defense Controls: Lockheed Martin, Northrup Grumman, Boeing, Raytheon Technologies, L3 Harris Technologies, General Dynamics, Aerojet Rocketdyne, United Launch Alliance, Australia Department of Defense, BAE Systems, and the U.S. Government.
- Industrial Systems: McKesson, Nutricia, Integrated Medical Systems, Phillips Healthcare, CAE, TurboChef Technologies, Flight Safety, Mitsubishi Hitachi Power Systems, MacArtney, and Nordex.

International Operations. Our operations outside the United States are conducted primarily through wholly-owned foreign subsidiaries and are located predominantly in Europe and the Asia-Pacific region. See Note 21, Segments, of Item 8, Financial Statements and Supplementary Data of this report for information regarding sales by geographic area and Exhibit 21 of Item 15, Exhibits and Financial Statement Schedules of this report for a list of subsidiaries. Our international operations are subject to the usual risks inherent in international trade, including currency fluctuations, local government contracting regulations, local governmental restrictions on foreign investment and repatriation of profits, exchange controls, regulation of the import and distribution of foreign goods, as well as changing economic and social conditions in countries in which our operations are conducted.

Environmental Matters. See the discussion in Note 23, Commitments and Contingencies, of Item 8, Financial Statements and Supplementary Data of this report.

Website Access to Information. Our internet address is www.moog.com. The information contained on or connected to our website is not incorporated by reference into this Annual Report on Form 10-K and should not be considered part of this or any other report filed with the Securities and Exchange Commission ("SEC"). We make our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and, if applicable, amendments to those reports, available on the investor relations portion of our website. The reports are free of charge and are available as soon as reasonably practicable after they are filed with the SEC. The SEC maintains a website at www.sec.gov that contains reports, proxy statements and other information regarding SEC registrants, including Moog.

Information about our Executive Officers. Other than the changes noted below, the principal occupations of our executive officers for the past five years have been their employment with us in the same positions they currently hold.

On January 2, 2020, Jennifer Walter was named Chief Financial Officer. Previously, she was Vice President - Finance, a position she held since January 5, 2018. Prior to that she was Controller and Principal Accounting Officer, a position she held since 2008.

On December 1, 2017, Paul Wilkinson was named Vice President and Chief Human Resources Officer. Previously, he was a Group Vice President and Global Human Resources Director, Aircraft Group.

Executive Officers	Age	Year First Elected Officer
John R. Scannell Director; Chairman of the Board; Chief Executive Officer	58	2006
Jennifer Walter Vice President; Chief Financial Officer	50	2008
Maureen M. Athoe Vice President	63	2015
Patrick J. Roche Vice President	58	2012
Mark J. Trabert Vice President	62	2015
Paul Wilkinson Vice President	41	2017

Disclosure Regarding Forward-Looking Statements

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,” “plans,” “projects,” “approximate,” “estimates,” “predicts,” “potential,” “outlook,” “forecast,” “anticipates,” “presume” and “assume,” are 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. Certain of these factors, risks and uncertainties are discussed in the sections of this report entitled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” 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, except as required by law.

Item 1A. Risk Factors.

Our business, financial condition, and results of operations face many risks, many of which are not exclusively within our control, and the known, material risks to our business summarized below should be carefully considered together with all of the other information included in this report, including the financial statements and related notes. Any of the risks discussed below, or elsewhere in this report or in our other SEC filings, could have a material impact on our business, financial condition or results of operations. Although the risks summarized below are organized by heading, and each risk is summarized separately, many of the risks are interrelated. While we believe we have identified and discussed below the material risks affecting our business, there may be additional risks and uncertainties not currently known to us or that we currently consider immaterial that may materially adversely affect our business, financial condition or results of operations in the future and may require significant management time and attention.

COVID-19 PANDEMIC RISKS

We face various risks related to health pandemics such as the global COVID-19 pandemic, which have had material adverse consequences on our operations, financial position, cash flows, and those of our customers and suppliers. The global COVID-19 pandemic, and the associated pandemic-related responses, continues to cause significant and volatile disruptions in global economies, in capital markets and across industries. While to-date, substantially all of our operations and production activities in the U.S. and globally remained functional during the COVID-19 pandemic, parts of our business have been negatively affected. We have experienced, and may continue to experience, lower levels of customer demand for our products, a net reduction in our overall manufacturing activities and disruptions in our global supply chains. Our commercial airline customers have, and continue to, match their wide-body aircraft production rates with the reduced airline traffic demand. Given the uncertain length of this pandemic and associated restrictions to travel long distances, the commercial market may shift away from wide-body aircraft. Working from home, social distancing and cleaning measures at our facilities could materially adversely affect our ability to adequately staff, supply and maintain our operations. Additionally, we will fully comply with the U.S. Government's Safer Federal Workforce Task Force's guidelines on vaccination requirements for employees of the federal government and their contractors and subcontractors. These guidelines could result in increased attrition, loss of critical skills and reduced employee morale. This could potentially result in increased expenses to address any disruptions. Potential future directives curtailing in-person operations due to illness, quarantines, government actions, facility closures or other restrictions in connection with the COVID-19 pandemic could change at any time. Supply chain disruptions such as shortages for industry-wide parts including electronic components, labor shortages and other logistical challenges have extended our lead times, increased our freight costs and required additional work to locate alternate sources or redesign products. We continue to monitor the situation, assessing possible implications on our operations, supply chain, liquidity, cash flow and customer orders, and will continue taking actions in an effort to mitigate adverse consequences. Recognizing the unprecedented nature, scale and uncertainty associated with this global health crisis, the duration and extent of the on-going impacts cannot be reasonably estimated at this time.

STRATEGIC RISKS

We operate in highly competitive markets with competitors who may have greater resources than we possess. Many of our products are sold in highly competitive markets. Some of our competitors, especially in our industrial markets and medical markets, are larger, more diversified and have greater financial, marketing, production and research and development resources. Within the aerospace and defense industries, suppliers have consolidated to widen their product offerings and to secure long-term sole-source positions. As a result, these competitors may be better able to withstand the effects of periodic economic downturns, including withstanding the current global pandemic, and their program wins could increase their market share, which would reduce the total number of viable suppliers. Our sales and operating margins will be negatively impacted if our competitors:

- develop products that are superior to our products,
- develop products of comparable quality and performance that are more competitively priced than our products,
- develop more efficient and effective manufacturing methods for their products and services, or
- adapt more quickly than we do to technological innovations or evolving customer requirements.

We believe that the principal points of competition in our markets are product quality, reliability, design and engineering capabilities, price, innovation, conformity to customers' specifications, timeliness of delivery, effectiveness of the distribution organization and quality of support after the sale. Maintaining or improving our competitive position requires continued investment in manufacturing, engineering, quality standards, marketing, customer service and support and our distribution networks. If we do not maintain sufficient resources to make these investments, are not successful in meeting our quality or delivery standards or are not successful in maintaining our competitive position, we could face pricing pressures or loss in market share, causing our operations and financial performance to suffer.

Our new products and technology research and development efforts are substantial and may not be successful, which could reduce our sales and earnings. Technologies related to our products have undergone, and in the future may undergo, significant changes. In order to maintain a leadership position in the high-performance, precision controls market in the future, we have incurred, and we expect to continue to incur, expenses associated with research and development activities during the introduction of new products. Our technology has been developed through customer-funded and internally-funded research and development, as well as through business acquisitions. If we fail to predict customers' preferences or fail to provide viable technological solutions, we may experience inefficiencies that could delay or prevent the acceptance of new products or product enhancements. Also, the research and development expenses we incur may exceed our cost estimates and the new products we develop may not generate sales sufficient to offset our costs. Additionally, our competitors may develop technologies and products that have more competitive advantages than ours and render our technology noncompetitive or obsolete.

If we are unable to adequately enforce and protect our intellectual property or defend against assertions of infringement, our business and our ability to compete could be harmed. Protecting our intellectual property is critical in order to maintain a competitive advantage. We therefore rely on internally developed and acquired patents, trademarks, copyrights, trade secrets, proprietary know-how to establish and protect our technologies and products. However, these measures afford only limited protection, and our patent rights and other intellectual property protections may be infringed, misappropriated, misrepresented, copied without authorization, circumvented or invalidated in the U.S. or in foreign countries that do not offer the same level of intellectual property protections. Also, as our patents and other intellectual property protections expire, we may face increased competition. Additionally, we cannot be assured that our existing or planned products do not, or will not, infringe on the intellectual property rights of others or that others will not claim such infringement. When others infringe on our intellectual property rights, the value of our products is diminished, and we may incur substantial litigation costs to enforce our rights. Litigation could also divert management's focus and resources away from operations. If we are unable to adequately enforce and protect our intellectual property or defend against assertions of infringement, we could face reputational harm and our inability to defend against these scenarios could have an adverse effect on our competitive position, our business operations and financial condition.

Our sales and earnings may be affected if we cannot identify, acquire or integrate strategic acquisitions, or as we conduct divestitures. Acquisitions are an element of our growth strategy as we opportunistically resume investments in our businesses. Our historical growth has depended, and our future growth is likely to depend, in part, on our ability to successfully identify, acquire and integrate acquired businesses. We intend to continue to seek additional acquisition opportunities throughout the world, both to expand into new markets and to enhance our position in existing markets. Growth by acquisition involves risk that could adversely affect our financial condition and operating results. We may not know the potential exposure to unanticipated liabilities. Additionally, the expected benefits or synergies might not be fully realized, integrating operations and personnel may be slowed and key employees, suppliers or customers of the acquired business may depart. As a result of our ongoing operational assessment, we may continue to divest assets or businesses if we deem the operations as non-strategic or no longer match the current customer demand. Divestitures could adversely affect our profitability and, under certain circumstances, require us to record impairment charges or a loss as a result of a transaction. In pursuing acquisition opportunities, integrating acquired businesses, or divesting business operations, management's time and attention may be diverted from our core business, while consuming resources and incurring expenses for these activities.

MARKET CONDITION RISKS

The markets we serve are cyclical and sensitive to domestic and foreign economic conditions and events, which may cause our operating results to fluctuate. The markets we serve are sensitive to fluctuations in general business cycles, global pandemics, domestic and foreign governmental tariffs, trade and monetary policies and economic conditions and events, and are facing varying levels of pressure from the COVID-19 pandemic. The COVID-19 pandemic drastically reduced air traffic as travel restrictions and social distancing measures were implemented to help control the spread of the virus. The reduced air traffic applied financial pressures on airlines, who, in order to preserve cash and liquidity, dramatically reduced flight hours and delayed the purchases of new aircraft. Although U.S. domestic air travel has increased during 2021, international travel has not yet begun to recover at the same pace. Given the uncertain length of this pandemic and associated restrictions to travel long distances, the commercial market may shift away from wide-body aircraft. Furthermore, as companies and employees become accustomed to working remotely, business travel and the associated flight hours may not reach the pre-pandemic levels. We believe The Boeing Company, or Boeing, and Airbus may continue to directionally match their wide-body aircraft production rates with the reduced international air traffic volume, which has lowered their demand for our flight control systems. Other factors influencing our business, including our defense and our space programs, are largely contingent on U.S. Department of Defense investment funding, which can fluctuate. Our industrial product demand depends upon several factors including levels of capital investment, the pace of product innovations and technology upgrades, changing economic conditions, and the current and forecasted price of oil and natural gas. If the global pandemic and related economic uncertainties deteriorate, our operations could be negatively impacted through declines in our sales, profitability and cash flows as a result of lower orders, payment delays and price pressures for our products.

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. Sales to the U.S. Government and its prime contractors and subcontractors represent a significant portion of our business. In 2021, sales under U.S. Government contracts represented 44% of our total sales, primarily within Aircraft Controls and Space and Defense Controls. Sales to foreign governments represented 8% of our total sales. Funding for government programs can be structured into a series of individual contracts and depend on annual congressional appropriations, which are cyclical. At times when there are perceived threats to national security, U.S. Defense spending can increase; at other times, defense spending can decrease. Future levels of defense spending beyond 2021 are uncertain and subject to congressional debate and spending prioritization. Any reduction in future Department of Defense spending levels could adversely impact our sales, operating profit and our cash flow. We have resources applied to specific government contracts and if any of those contracts are rescheduled or terminated, we may incur substantial costs redeploying those resources.

The loss of The Boeing Company or Lockheed Martin as a customer or a significant reduction in sales to either company could adversely impact our operating results. We provide Boeing with controls for both military and commercial applications, as well as controls for space and defense applications, which totaled 12% of our 2021 sales. We provide Lockheed Martin similar products for military, space and defense applications, which totaled 12% of our 2021 sales. Sales to Boeing's commercial airplane group are generally made under long-term supply agreements. Boeing operates in a competitive environment and continues to evaluate the size, scope and cost of their supplier base. We have seen lower commercial aircraft orders from Boeing, as they match their commercial production rates to the reduced global air traffic volume due to the COVID-19 pandemic. As a portion of our sales to Boeing and Lockheed Martin is tied to varying levels of government defense spending, a reduction in future Department of Defense spending levels could adversely impact our sales, operating profit and cash flow. Furthermore, a loss of Boeing or Lockheed Martin as a customer could reduce our sales and earnings.

We may not realize the full amounts reflected in our backlog as revenue, which could adversely affect our future revenue and growth prospects. As of October 2, 2021, our total backlog was \$4.8 billion, which represents confirmed orders we believe will be recognized as revenue. There is no assurance that our customers will purchase all the orders represented in our backlog. A significant portion of our backlog relates to commercial aircraft programs. During the ongoing COVID-19 pandemic, we believe Boeing and Airbus will continue to directionally match their wide-body aircraft production rates with the reduced international air traffic volume, which has lowered their demand for our flight control systems and may cause us to never realize the full amounts included in our commercial backlog. Also, given the uncertain nature of our contracts with the U.S. Government and other foreign governments, in part due to governments' abilities to modify, curtail or terminate major programs, we may not realize the full revenue value of the orders included in our backlog. If this occurs, our future revenue and growth prospects may be adversely affected.

OPERATIONAL RISKS

Our business operations may be adversely affected by information systems interruptions, intrusions, or new software implementations. We rely extensively on various information technologies throughout our company in support of nearly every business activity. In doing so, we work with sensitive data types including proprietary business information, intellectual property, and confidential employee data. Handling and storage of this data, either onsite or managed by authorized third parties, may be subject to privacy, security, or other regulatory requirements. Business disruptions are possible due to information system errors, equipment failures, or ever-evolving cyber-attacks. Unauthorized access or tampering via cybersecurity incident may result in potential data corruption, exposure of proprietary or confidential information, work stoppage, increased operational costs, fines, penalties, or diminished competitive advantage through loss of intellectual property or reputational damage. Our vulnerability to cybersecurity risks may have also increased after adopting a hybrid working policy in response to the COVID-19 pandemic, empowering employees to work productively from home when appropriate to do so. Additionally, we have and expect to incur additional costs to comply with our customers' increased cybersecurity protections and standards, including those of the U.S. Government. We have embarked on multi-year business information system transformation and standardization projects. These endeavors are complex and company-wide, involving new technologies and may introduce risk to our cybersecurity infrastructure. While we are investing significant resources throughout the planning, project managing and deployment processes, unanticipated delays could occur and could adversely affect our financial results. Any of these cybersecurity issues may cause operational stoppages, increased operational costs, fines, penalties and diminished competitive advantages through reputational damages.

We may not be able to prevent, or timely detect, issues with our products and our manufacturing processes which may adversely affect our operations and our earnings. We must continuously improve product development and manufacturing processes and systems to ensure we deliver high-quality, technically advanced products. Due to growth in operations, there is a risk our current manufacturing processes and systems are unable to maintain our high-quality and on-time delivery standards for our customers. If we are unable to maintain these standards, we could experience late deliveries and penalties, recalls, increased warranty costs, order cancellations and litigation.

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. With respect to many of our contracts, we rely on other companies to perform portions of the manufacturing process of our products. While we actively manage our supply chain establishing alternate sources, some business conditions cause us to obtain certain components and sub-assemblies from a single supplier or a limited group of suppliers. There is a risk that we may have disputes with our subcontractors regarding the quality and timeliness of work performed by the subcontractor, customer concerns about the subcontractor, our failure to extend existing task orders or issue new task orders under a subcontract or our hiring of personnel of a subcontractor. Failure by our sole-sourced or group of subcontractors to satisfactorily provide on a timely basis the agreed-upon, defect-free supplies, or perform the agreed-upon services, may materially and adversely impact our ability to perform our obligations as the prime contractor. Subcontractor performance deficiencies could result in a customer terminating our contract for default, which could expose us to liability and substantially impair our ability to compete for future orders. In addition, a delay or failure in our ability to obtain components and equipment parts from our suppliers may adversely affect our ability to perform our obligations to our customers.

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. Defects in the design and manufacture of our products or our subcontractors' products may necessitate a product recall. We include complex system designs and components in our products that could contain errors or defects, particularly when we incorporate new technologies into our products. If any of our products are defective, we could be required to redesign or recall those products, pay substantial damages or warranty claims and face actions by regulatory bodies and government authorities. Such an event could result in significant expenses, delay sales, inflate inventory, cause reputational damage or cause us to withdraw from certain markets. We are also exposed to product liability claims. Many of our products are used in applications where their failure or misuse could result in significant property loss and serious personal injury or death. We carry product liability insurance consistent with industry norms. However, these insurance coverages may not be sufficient to fully cover the payment of any potential claim. A product recall or a product liability claim not covered by insurance could have a material adverse effect on our business, financial condition and results of operations.

FINANCIAL RISKS

We make estimates in accounting for over-time contracts, and changes in these estimates may have significant impacts on our earnings. We have over-time contracts with some of our customers, predominantly in our aerospace and defense markets. We recognize revenue using an input method that uses costs incurred to date to measure progress toward completion ("cost-to-cost"). Changes in these required estimates could have a material adverse effect on sales and profits. Any adjustments are recognized in the period in which the change becomes known using the cumulative catch-up method of accounting. For contracts with anticipated losses at completion, we establish a provision for the entire amount of the estimated remaining loss and charge it against income in the period in which the loss becomes known and can be reasonably estimated. Amounts representing performance incentives, penalties, contract claims or impacts of scope change negotiations are considered in estimating revenues, costs and profits when they can be reliably estimated and realization is considered probable. Due to the substantial judgments involved with this process, our actual results could differ materially or could be settled unfavorably from our estimates. See Note 2, Revenue from Contracts with Customers in Part II of this Form 10-K.

We enter into fixed-price contracts, which could subject us to losses if we have cost overruns. In 2021, fixed-price contracts represented 88% of our sales that were accounted for using the cost-to-cost method. On fixed-price contracts, we agree to perform the scope of work specified in the contract for a predetermined price. Depending on the fixed price negotiated, these contracts may provide us with an opportunity to achieve higher profits based on the relationship between our total contract costs and the contract's fixed price. However, we bear the risk that increased or unexpected costs may reduce our profit or cause us to incur a loss on the contract, which would reduce our net earnings. Although we closely monitor all programs and continuously seek opportunities, in coordination with our customers and suppliers, to mitigate future material impacts on profitability resulting from programs where we expect cost increases for labor or material, we may be unsuccessful and our net earnings may be reduced. Contract loss reserves are most commonly associated with fixed-price contracts that involve the design and development of innovative control systems to meet the customer's specifications.

Our indebtedness and restrictive covenants under our credit facilities could limit our operational and financial flexibility. We have incurred significant indebtedness and may incur additional debt as we invest in operations, research and development, capital expenditures and acquisitions in a measured and balanced way. Our ability to make interest and scheduled principal payments and operate within our covenants could be adversely impacted by changes in the availability, terms and cost of capital, changes in interest rates or changes in our credit ratings or our outlook. These changes could increase our cost of debt, limiting our ability to meet operational and capital needs, delaying our reactions to changes in market conditions and pursuing acquisition opportunities, thereby placing us at a competitive disadvantage.

The transition away from the use of the London interbank offered rate ("LIBOR") settings as an interest rate benchmark may negatively impact our debt agreements and financial position, results of operations and liquidity. On March 5, 2021, the United Kingdom's Financial Conduct Authority published the dates that the use of LIBOR as an index for commercial loans will be phased out. Foreign currency indices, including the British pound, the Euro, and Swiss franc, along with the U.S. dollar 1-week and 2-month settings will cease after December 31, 2021. Also, after June 30, 2023, the remaining U.S. dollar settings will cease. Our most significant exposure to LIBOR relates to our revolving domestically held credit facility and securitization facility, which may be negatively impacted by renegotiated terms and costs of indebtedness associated with the latter of these transition dates. In addition, the overall financial markets may be disrupted as a result of the replacement of LIBOR, which could have an adverse effect on our cost of capital and our financial position. We continue to monitor the LIBOR transition and will work to minimize any impact.

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. Pension costs and obligations are determined using actual results as well as actuarial valuations that involve several assumptions. The most critical assumptions are the discount rate, the long-term expected return on assets and mortality tables. Other assumptions include salary increases and retirement age. Some of these assumptions, such as the discount rate and return on pension assets, are reflective of economic conditions and largely out of our control. Despite our largest pension plan being fully funded, changes in the pension assumptions could adversely affect our earnings, equity and 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. Goodwill and other intangible assets are a substantial portion of our assets. At October 2, 2021, goodwill was \$852 million and other intangible assets were \$106 million of our total assets of \$3.4 billion. Our goodwill and other intangible assets may increase in the future since our growth strategy includes acquisitions. However, we may have to write off all or part of our goodwill or other intangible assets if their value becomes impaired. Although this write-off would be a non-cash charge, it could reduce our earnings and our financial condition significantly. We review whether goodwill or other intangible assets have been impaired annually, or more frequently, if there have been changes in circumstances or conditions.

Unforeseen exposure to additional income tax liabilities may affect our operating results. Our distribution of taxable income is subject to domestic and, as a result of our significant manufacturing and sales presence in foreign countries, foreign tax jurisdictions. Our effective tax rate and earnings may be affected by shifts in our mix of earnings in countries with varying statutory tax rates, changes in the valuation of deferred tax assets and outcomes of any audits performed on previous tax returns. Additionally, any alterations to domestic and foreign government tax regulations or interpretations, global minimum taxes or other tax law changes could have significant impacts on our effective tax rate and on our deferred tax assets and liabilities.

LEGAL AND COMPLIANCE RISKS

Contracting on government programs is subject to significant regulation, including rules related to bidding, billing and accounting standards, and any false claims or non-compliance could subject us to fines, penalties or possible debarment. We are subject to risks associated with government program contracting, including substantial civil and criminal fines and penalties. These fines and penalties could be imposed for failing to follow procurement integrity and bidding rules, employing improper billing practices or otherwise failing to follow cost accounting standards, receiving or paying kickbacks or filing false claims. We have been, and expect to continue to be, subjected to audits and investigations by U.S. and foreign government agencies and authorities. The failure to comply with the terms of our government contracts could harm our business reputation. It could also result in our progress payments being withheld or our suspension or debarment from future government contracts, which could have a material effect on our operational and financial results.

Our operations in foreign countries expose us to currency, political and trade risks and adverse changes in local legal and regulatory environments could impact our results of operations. We have significant manufacturing and sales operations in foreign countries. In addition, our domestic operations sell to foreign customers. Our financial results may be adversely affected by fluctuations in foreign currencies and by the translation of the financial statements of our foreign subsidiaries from local currencies into U.S. dollars. Both the sales from international operations and export sales are subject in varying degrees to risks inherent in doing business outside of the United States. Such risks include the possibility of unfavorable circumstances arising from host country laws or regulations including, but not limited to privacy laws protecting personal data, changes in tariff and trade barriers and import or export licensing requirements. Uncertainty also remains with respect to trade policies and treaties between the United States and other countries including China, both where we source products and where we have large customers. Changes to tariffs or other trade restrictions may result in higher prices for aircraft, which may negatively impact customer order volume, and restrict our future orders. The potential loss of orders would negatively impact our financial results including lower sales, operating profits and cash flow. For our sales mix by country, see Note 21, Segments, of Item 8, Financial Statements and Supplementary Data, of this report.

Government regulations could limit our ability to sell our products outside the United States and otherwise adversely affect our business. Our failure to obtain, or fully adhere to the limitations contained in the requisite licenses, meet registration standards or comply with other government export regulations would hinder our ability to generate revenues from the sale of our products outside the United States. In addition, the U.S. Government has established and, from time to time, revises sanctions that restrict or prohibit U.S. companies and their subsidiaries from doing business with certain foreign countries, entities and individuals. The absence of comparable restrictions on competitors in other countries may adversely affect our competitive position. In order to sell our products in European Union countries, we must satisfy certain technical requirements. If we are unable to comply with those requirements with respect to a significant quantity of our products, our sales in Europe would be restricted. Doing business internationally also subjects us to numerous U.S. and foreign laws and regulations, including regulations relating to import-export control, technology transfer restrictions, anti-bribery, privacy regulations and anti-boycott provisions. From time to time, we may file voluntary disclosure reports with the U.S. Department of State and the Department of Commerce regarding certain violations of U.S. export laws and regulations discovered by us in the course of our business activities, employee training or internal reviews and audits. To date, our voluntary disclosures have not resulted in a fine, penalty, or export privilege denial or restriction that has materially impacted our financial condition or ability to export. Our failure, or failure by an authorized agent or representative that is attributable to us, to comply with these laws and regulations could result in administrative, civil or criminal liabilities. In the extreme case, these failures could result in financial penalties, suspension or debarment from government contracts or suspension of our export privileges, which could have a material adverse effect on us. For our sales mix by country, see Note 21, Segments, of Item 8, Financial Statements and Supplementary Data, of this report.

We are involved in various legal proceedings, the outcome of which may be unfavorable to us. Our business may be adversely impacted by the outcome of legal proceedings and other contingencies that cannot be predicted with certainty. We estimate loss contingencies and establish reserves based on our assessment where liability is deemed probable and reasonably estimable given the facts and circumstances known to us at a particular point in time. Subsequent developments may affect our assessment and estimates of the loss contingencies recognized as liabilities.

Our operations are subject to environmental laws and complying with those laws may cause us to incur significant costs. Our operations and facilities are subject to numerous stringent environmental laws and regulations. Although we believe that we are in material compliance with these laws and regulations, future changes in these laws, regulations or interpretations of them, or changes in the nature of our operations may require us to make significant capital expenditures to ensure compliance. We have been, and are currently involved in, environmental remediation activities. The cost of these activities may become significant depending on the discovery of additional environmental exposures at sites that we currently own or operate, at sites that we formerly owned or operated, or at sites to which we have sent hazardous substances or wastes for treatment, recycling or disposal.

GENERAL RISKS

Future terror attacks, war, natural disasters or other catastrophic events beyond our control could negatively impact our business. Terror attacks, war or other civil disturbances, natural disasters and other catastrophic events could lead to economic instability and decreased demand for commercial products, which could negatively impact our business, financial condition, results of operations and cash flows. From time to time, terrorist attacks worldwide have caused instability in global financial markets and the aviation industry. Also, our facilities and suppliers are located throughout the world and could be subject to damage from fires, floods, earthquakes or other natural or man-made disasters. Although we carry third party property insurance covering these and other risks, our inability to meet customers' schedules as a result of a catastrophe may result in the loss of customers or significantly increase costs, including penalty claims under customer contracts.

Our performance could suffer if we cannot maintain our culture as well as attract, retain and engage our employees. We believe our culture is our strongest asset and is the foundation of our business. Our culture focuses on trust, respect, collaboration, confidence and empowerment. Our strong culture allows us to recruit and retain top-level talent. Focusing on talent in the organization is one of our three company-wide initiatives, along with lean and innovation. We believe our employees and experienced leadership group are competitive advantages, as the best people, over time, produce the best results. If we are unable to carry these values forward by not attracting the most talented candidates, by not retaining and engaging our global workforce including our senior management team, or by not investing in their talent and personal development, our operational and financial performances could suffer.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

On October 2, 2021, we occupied 5,716,000 square feet of space, distributed by segment as follows:

	Square Feet		
	Owned	Leased	Total
Aircraft Controls	1,530,000	419,000	1,949,000
Space and Defense Controls	912,000	522,000	1,434,000
Industrial Systems	1,710,000	603,000	2,313,000
Corporate Headquarters	20,000	—	20,000
Total	4,172,000	1,544,000	5,716,000

We have principal manufacturing facilities in the United States and countries throughout the world in the following locations:

- Aircraft Controls - U.S., Philippines and United Kingdom.
- Space and Defense Controls - U.S., Ireland and United Kingdom.
- Industrial Systems - U.S., Germany, India, Czech Republic, Italy, Japan, United Kingdom, China, Netherlands, Costa Rica, Luxembourg, Canada, Lithuania and Philippines.

Our corporate headquarters is located in East Aurora, New York.

We believe that our properties have been adequately maintained, are generally in good condition and will be able to accommodate our capacity needs to meet current levels of demand. We continuously review our anticipated requirements for facilities and on the basis of that review, may from time to time acquire additional facilities, expand or dispose of existing facilities. Operating leases for our properties expire at various times from 2022 through 2057. Upon the expiration of our current leases, we believe that we will be able to either secure renewal terms or enter into leases for alternative locations at market terms.

Item 3. Legal Proceedings.

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

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Our two classes of common shares, Class A common stock and Class B common stock, are traded on the New York Stock Exchange ("NYSE") under the ticker symbols MOG.A and MOG.B.

The number of shareholders of record of Class A common stock and Class B common stock was 563 and 319, respectively, as of November 8, 2021.

The following table summarizes our purchases of our common stock for the quarter ended October 2, 2021.

Issuer Purchases of Equity Securities

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)
July 4, 2021 - July 31, 2021	4,471	\$ 83.34	—	2,819,277
August 1, 2021 - August 28, 2021	49,300	74.53	46,724	2,772,553
August 29, 2021 - October 2, 2021	21,459	75.88	15,700	2,756,853
Total	75,230	\$ 75.44	62,424	2,756,853

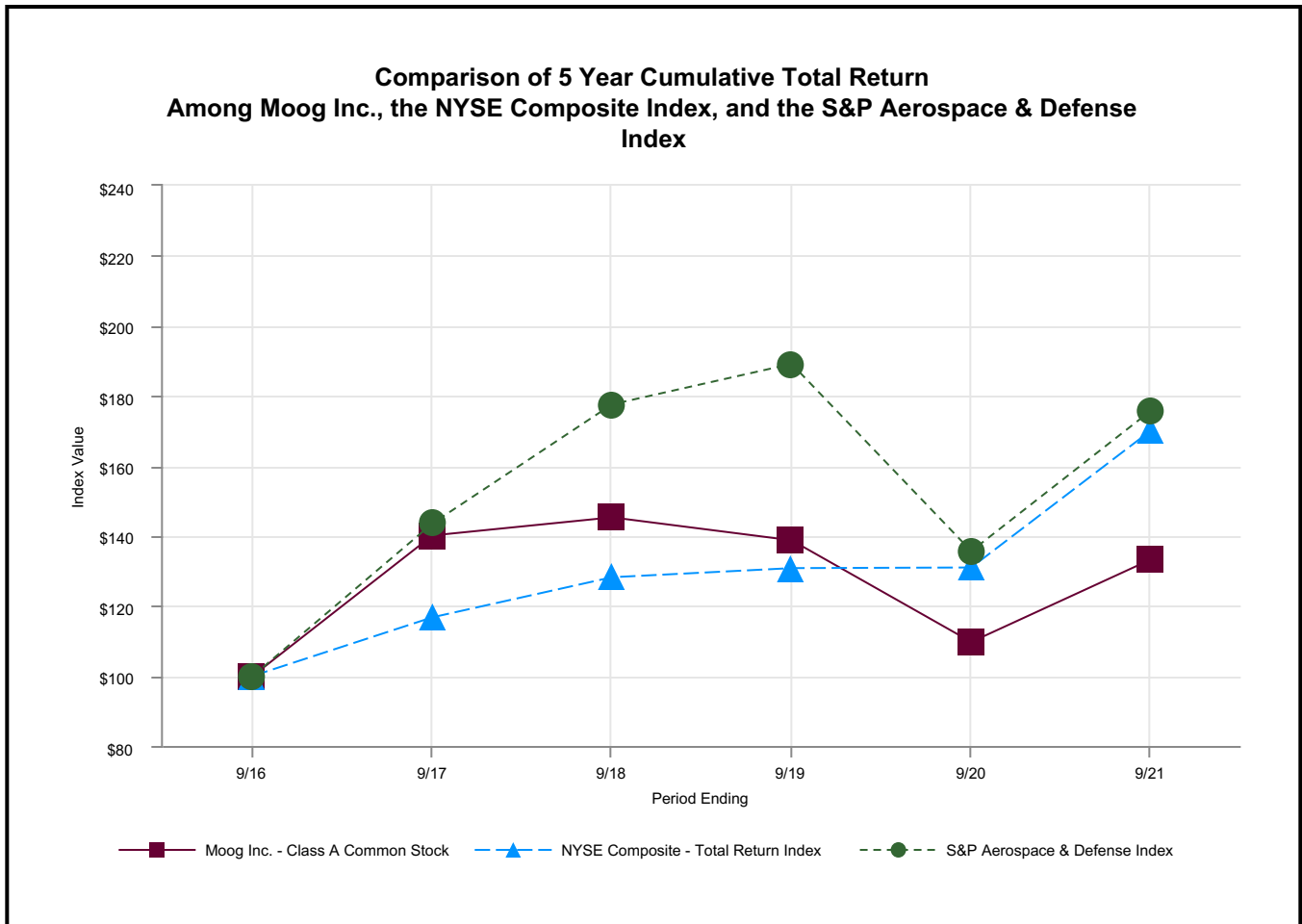
(1) Reflects purchases by the Moog Inc. Stock Employee Compensation Trust Agreement ("SECT") of shares of Class B common stock from the Moog Inc. Retirement Savings Plan ("RSP") and the Employee Stock Purchase Plan ("ESPP") as follows: 4,471 shares at \$83.34 per share during July; 2,481 shares at \$78.42 per share during August and 1,729 shares at \$78.88 per share during September.

(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 August, we accepted delivery of 95 shares Class A shares at \$77.01 per share; In September, we accepted delivery of 3,256 Class A shares at \$78.51 per share and 774 Class B shares at \$80.21 per share.

(3) On November 20, 2020, the Board of Directors approved a new share repurchase program. The program authorizes repurchases of up to 3 million common shares of Class A or Class B common stock in open market or privately negotiated transactions at the discretion of management. In August, we purchased 46,724 Class A shares at an average price of \$74.32 and in September, we purchased 15,700 Class A Shares at an average price of \$74.79.

Performance Graph

The following graph and tables show the performance of the Company's Class A common stock compared to the NYSE Composite-Total Return Index and the S&P Aerospace & Defense Index for a \$100 investment made on September 30, 2016, including reinvestment of any dividends.



	9/16	9/17	9/18	9/19	9/20	9/21
Moog Inc. - Class A Common Stock	\$ 100.00	\$ 140.12	\$ 145.29	\$ 138.74	\$ 109.70	\$ 133.27
NYSE Composite - Total Return Index	100.00	116.74	128.19	130.79	130.97	170.11
S&P Aerospace & Defense Index	100.00	143.54	177.57	189.12	135.64	175.78

Item 6. Selected Financial Data.

For a more detailed discussion of 2019 through 2021, refer to Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations of this report and Item 8, Financial Statements and Supplementary Data of this report.

(dollars in thousands, except per share data)	2021	2020	2019	2018	2017
RESULTS FROM OPERATIONS					
Net sales	\$ 2,851,993	\$ 2,884,554	\$ 2,904,663	\$ 2,709,468	\$ 2,497,524
Net earnings	157,220	9,205	174,548	95,240	143,157
Net earnings per share					
Basic	\$ 4.90	\$ 0.28	\$ 5.01	\$ 2.67	\$ 3.99
Diluted	\$ 4.87	\$ 0.28	\$ 4.96	\$ 2.64	\$ 3.95
Weighted-average shares outstanding					
Basic	32,112,589	33,257,684	34,854,614	35,661,638	35,852,448
Diluted	32,297,956	33,437,801	35,178,968	36,052,307	36,230,043
OTHER FINANCIAL DATA					
Cash and cash equivalents	\$ 99,599	\$ 84,583	\$ 89,702	\$ 125,584	\$ 368,073
Acquisitions of businesses, net of cash acquired	77,600	54,265	—	48,382	40,545
Research and development	125,528	110,865	126,453	129,838	144,157
Share repurchase programs	29,446	215,776	23,358	27	147
Total backlog	4,800,000	2,600,000	2,200,000	n/a	n/a
Twelve-month backlog	2,100,000	1,700,000	1,500,000	1,500,000	1,200,000
Net debt to capitalization	36 %	40 %	36 %	38 %	33 %

Notes and definitions for the above table:

- All periods include the effects of our share repurchase programs. See the Consolidated Statements of Shareholders' Equity and Consolidated Statements of Cash Flow of Item 8, Financial Statements and Supplementary Data, of this report.
- All periods include the effects of acquisitions and divestitures. See Note 3, Acquisitions and Divestitures, of Item 8, Financial Statements and Supplementary Data, of this report.
- 2020 includes long-lived asset impairment charges and the effect of a pension settlement in our qualified U.S. defined benefit pension plan. See the Consolidated Statements of Earnings, Note 1, Summary of Significant Accounting Policies and Note 14, Employee Benefit Plans, of Item 8, Financial Statements and Supplementary Data, of this report.
- Net earnings and net earnings per share represents amounts attributable to common shareholders.
- Twelve-month backlog is defined as confirmed orders we believe will be recognized as revenue within the next twelve months.
- Net debt to capitalization is computed as net debt (total debt less cash and cash equivalents) divided by capitalization (the sum of net debt and shareholders' equity).

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

The following discussion and analysis of our financial condition and results of operations should be read together with our consolidated financial statements and the related notes appearing elsewhere in this report.

This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including but not limited to those under the heading "Risk Factors" in Item 1A of this report.

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, as well as integrated space vehicles.

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

- Industrial automation market - components and systems for injection and blow molding machinery, heavy industry applications for steel and aluminum production, metal forming presses, flight simulation motion control systems and material and automotive structural and fatigue testing systems.
- Medical market - components and systems for enteral clinical nutrition and infusion therapy pumps, CT scan medical equipment, ultrasonic sensors and surgical handpieces and sleep apnea equipment.
- Energy market - control and safety components for steam and gas power generation turbines and oil and gas exploration components and systems.

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, Czech Republic, Italy, Costa Rica, China, Netherlands, Luxembourg, Japan, Canada, India and Lithuania.

Under ASC 606, 63% of revenue was recognized over time for the year ended October 2, 2021, using the cost-to-cost method of accounting. The over-time method of revenue recognition is predominantly used in Aircraft Controls and Space and Defense Controls. We use this method for U.S. Government contracts and repair and overhaul arrangements as we are creating or enhancing assets that the customer controls. In addition, many of our large commercial contracts qualify for over-time accounting as our performance does not create an asset with an alternative use and we have an enforceable right to payment for performance completed to date.

For the year ended October 2, 2021, 37% of revenue was recognized at the point in time control transferred to the customer. This method of revenue recognition is used most frequently in Industrial Systems. We use this method for commercial contracts in which the asset being created has an alternative use. We determine the point in time control transfers to the customer by weighing the five indicators provided by ASC 606. When control has transferred to the customer, profit is generated as cost of sales is recorded and as revenue is recognized.

We concentrate on providing our customers with products designed and manufactured to the highest quality standards. Our technical experts work collaboratively around the world, delivering capabilities for mission-critical solutions. These core operational principles are necessary as our products are applied in demanding applications, "When Performance Really Matters®." By capitalizing on these core foundational strengths, we believe we have achieved a leadership position in the high performance, precision controls market. Additionally, 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 our customers' most demanding technical problems, we have been able to expand our control product franchise to multiple markets; organically growing from a high-performance components manufacturer to a high-performance systems designer, manufacturer and systems integrator. In addition, we continue expanding our content positions on our current platforms, seeking to be the market-leading supplier in the niche markets we serve. We also look for innovation in all aspects of our business, employing new technologies to improve productivity and operational performance.

Our fundamental long-term 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 fundamentals 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 bases and geographic presence.

We focus on improving shareholder value through strategic revenue growth, both organic and acquired, through improving operating efficiencies and manufacturing initiatives and through utilizing low cost manufacturing facilities without compromising quality. Historically, we have taken a balanced approach to capital deployment in order to maximize shareholder returns over the long-term. Our activities have included strategic acquisitions, share buybacks and dividend payments. As we continue to adapt to the changing COVID-19 environment, we believe we are well positioned to invest in our business and have returned to a balanced capital deployment strategy. We will organically invest in our operations and explore opportunities to make strategic acquisitions and return capital to shareholders.

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.

Acquisitions

In the first quarter of 2021, we acquired Genesys Aerosystems Group, Inc. ("Genesys"), headquartered in Mineral Wells, Texas for a purchase price of \$78 million. Genesys designs and manufactures a full suite of electronic flight instrument systems and autopilot solutions. This operation is included in our Aircraft Controls segment.

In the first quarter of 2020, we acquired Gesellschaft für Antriebstechnik mbH and GAT Inc. ("GAT"), headquartered in Geisenheim, Germany for a purchase price of \$54 million. GAT designs and manufactures high-end fluid rotating unions and slip rings. This operation is included in our Industrial Systems segment.

Divestitures

In the fourth quarter of 2021, we sold a non-core business of our Industrial Systems segment for \$11 million in net consideration and recorded a loss in other income of \$2 million.

In the third quarter of 2021, we announced that we entered into a definitive agreement to sell the assets of our Navigation Aids ("Nav aids") business to Thales. Nav aids is engaged in the business of designing, developing, manufacturing and marketing ground and ship-based radio frequency navigation beacons and related antennas for military and civilian applications. The business is based in Salt Lake City, Utah and is included in our Aircraft Controls segment. The transaction is subject to regulatory review and customary closing conditions.

In the first quarter of 2020, we sold a non-core business of our Industrial Systems segment for \$2 million in net consideration and recorded a minimal gain in other income.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our financial statements and accompanying notes are prepared in accordance with U.S. generally accepted accounting principles. The preparation of these consolidated financial statements requires us to make estimates, assumptions and judgments that affect the amounts reported. These estimates, assumptions and judgments are affected by our application of accounting policies, which are discussed in Note 1, Summary of Significant Accounting Policies, of Item 8, Financial Statements and Supplementary Data, of this report. We believe the accounting policies discussed below are the most critical in understanding and evaluating our financial results. These critical accounting policies have been reviewed with the Audit Committee of our Board of Directors.

Revenue Recognition on Over-Time Contracts

We recognize revenue from contracts with customers using the five-step model prescribed in ASC 606. For contracts that qualify for over time treatment, we recognize revenue as control of the promised goods or services is being transferred to the customer. Revenue recognized over time for the year ended October 2, 2021 was 63% of total revenue. The cost-to-cost method of accounting as determined by the ratio of cumulative costs incurred to date to estimated total contract costs at completion, multiplied by the total estimated contract revenue, less cumulative revenue recognized in prior periods. We believe this is an appropriate measure of progress toward satisfaction of performance obligations as this measure most accurately depicts the progress of our work and transfer of control to our customers. Changes in estimates affecting sales, costs and profits are recognized in the period in which the change becomes known using the cumulative catch-up method of accounting. Revenue and cost estimates for substantially all over-time contract performance obligations are reviewed and updated quarterly. For further information, refer to Note 2, Revenue from Contracts with Customers and Note 21, Segments, of Item 8, Financial Statements and Supplementary Data, of this report.

Contract Reserves

At October 2, 2021, we had contract reserves of \$59 million. Contract reserves are comprised of contract loss reserves, recall reserves, and contract-related reserves. Contract loss reserves are recorded for open contracts where it is anticipated that contract costs will be greater than contract income and are determined considering all direct and indirect contract costs, exclusive of any selling, general or administrative cost allocations that are treated as period expenses. In accordance with ASC 606, we calculate contract losses at the contract level, versus the performance obligation level. Recall reserves are recorded when additional work is needed on completed products for them to meet contract specifications. Contract-related reserves are recorded for other reasons, such as delivery issues outside of the ordinary scope of the contract. For all three types of reserves, a provision for the entire amount of the loss is charged against income in the period in which the loss becomes known and can be reasonably estimated by management. For further information, refer to Note 2, Revenue from Contracts with Customers, of Item 8, Financial Statements and Supplementary Data, of this report.

Reserves for Inventory Valuation

At October 2, 2021, we had net inventories of \$613 million, or 36% of current assets. Reserves for inventory were \$156 million, or 20% of gross inventories. Inventories are stated at the lower of cost or net realizable value with cost determined primarily on the first-in, first-out method of valuation.

We record valuation reserves to provide for slow-moving or obsolete inventory by principally using a formula-based method that increases the valuation reserve as the inventory ages. We also take specific circumstances into consideration. We consider overall inventory levels in relation to firm customer backlog in addition to forecasted demand including aftermarket sales. Changes in these and other factors, such as low demand and technological obsolescence, could cause us to increase our reserves for inventory valuation, which would negatively impact our gross margin. As we record provisions within cost of sales to increase inventory valuation reserves, we establish a new, lower cost basis for the inventory.

Reviews for Impairment of Goodwill

At October 2, 2021, we had \$852 million of goodwill, or 25% of total assets. We test goodwill for impairment for each of our reporting units at least annually, during our fourth quarter, and whenever events occur or circumstances change, such as changes in the business climate, poor indicators of operating performance or the sale or disposition of a significant portion of a reporting unit. We also test goodwill for impairment when there is a change in reporting units.

We identify our reporting units by assessing whether the components of our operating segments constitute businesses for which discrete financial information is available and segment management regularly reviews the operating results of those components. We aggregate certain components based upon an evaluation of the facts and circumstances, including the nature of products and services and the extent of shared assets and resources. As a result, we have four reporting units.

Companies may perform a qualitative assessment as the initial step in the annual goodwill impairment testing process for all or selected reporting units. Companies are also allowed to bypass the qualitative analysis and perform a quantitative analysis if desired. Economic uncertainties and the length of time from the calculation of a baseline fair value are factors that we consider in determining whether to perform a quantitative test.

When we evaluate the potential for goodwill impairment using a qualitative assessment, we consider factors including, but not limited to, macroeconomic conditions, industry conditions, the competitive environment, changes in the market for our products and services, regulatory and political developments, entity specific factors such as strategy and changes in key personnel and overall financial performance. If, after completing this assessment, it is determined that it is more likely than not that the fair value of a reporting unit is less than its carrying value, we proceed to a quantitative two-step impairment test.

Quantitative testing first requires a comparison of the fair value of each reporting unit to its carrying value. We principally use the discounted cash flow method to estimate the fair value of our reporting units. The discounted cash flow method incorporates various assumptions, the most significant being projected revenue growth rates, operating margins and cash flows, the terminal growth rate and the discount rate. Management projects revenue growth rates, operating margins and cash flows based on each reporting unit's current business, expected developments and operational strategies typically over a five-year period. If the carrying value of the reporting unit exceeds its fair value, goodwill is considered impaired and any loss must be measured.

In measuring the impairment loss, the implied fair value of goodwill is determined by assigning a fair value to all of the reporting unit's assets and liabilities, including any unrecognized intangible assets, as if the reporting unit had been acquired in a business combination at fair value. If the carrying amount of the reporting unit's goodwill exceeds the implied fair value of that goodwill, an impairment loss would be recognized in an amount equal to that excess.

The determination of our assumptions is subjective and requires significant estimates. Changes in these estimates and assumptions could materially affect the results of our reviews for impairment of goodwill.

For our annual test of goodwill for impairment in 2021, we performed a qualitative assessment for each of our four reporting units.

We evaluated the potential for goodwill impairment by considering macroeconomic conditions, industry and market conditions, cost factors, both current and future expected financial performance, and relevant entity-specific events for each of the reporting units. We also considered our overall market performance discretely as well as in relation to our peers. The results of our qualitative assessment indicated that it is more likely than not that the fair value of each of the reporting units exceed its carrying value; and therefore, a quantitative two-step impairment test was not necessary.

Reviews for Impairment of Long-Lived Assets

Long-lived assets held for use, which primarily includes finite-lived intangible assets, property, plant and equipment and right-of-use assets, are evaluated for impairment whenever events or circumstances indicate that the undiscounted net cash flows to be generated by their use over their expected useful lives and eventual disposition are less than their carrying value. The long-term nature of these assets requires the estimation of their cash inflows and outflows several years into the future and only takes into consideration technological advances known at the time of the impairment test. For further information, refer to Note 6, Property, Plant and Equipment and Note 8, Goodwill and Intangible Assets, of Item 8, Financial Statements and Supplementary Data, of this report.

Pension Assumptions

We maintain various defined benefit pension plans covering employees at certain locations. In 2021, pension expense for all defined benefit plans was \$26 million. For further information, refer to Note 14, Employee Benefit Plans, of Item 8, Financial Statements and Supplementary Data, of this report. Pension obligations and the related costs are determined using actuarial valuations that involve several assumptions. The most critical assumptions are the discount rate, the long-term expected return on assets and mortality rates. Other assumptions include salary increases and retirement age.

We use the spot rate approach to estimate the service and interest cost components of the net periodic benefit cost for most of our plans. Under this approach the service cost is determined by applying the discount rates along the yield curve to the specific service cost cash flows to determine the present value. The interest cost component is computed by using each assumed discount rate along the curve. The discount rates used in determining expense for the U.S. Employees' Retirement Plan, our largest plan, in 2021 were 3.1% for service cost and 2.6% for interest cost, compared to 3.5% and 2.9%, respectively, in 2020. A 50 basis point decrease in the discount rates would decrease our annual pension expense by \$1 million. The discount rates are used to state expected future cash flows at present value. Using a higher discount rate typically decreases the present value of pension obligations and decreases pension expense. We use the Aon Hewitt AA Above Median yield curve to determine the discount rate for our U.S. defined benefit plans at year end. We believe that the Aon Hewitt AA Above Median yield curve best mirrors the yields of bonds that would be selected by management if actions were taken to settle our obligation.

Mortality rates are used to estimate the life expectancy of plan participants during which they are expected to receive benefit payments. We use a modified version of the mortality table and projection scale published by the Society of Actuaries, which reflects improvements consistent with the Social Security Administration, as a basis for our mortality assumptions for our U.S. plans. We believe the use of this modified table and projection scale best reflects our demographics and anticipated plan outcomes.

The long-term expected return on assets assumption reflects the average rate of return expected on funds invested or to be invested to provide for the benefits included in the projected benefit obligation. In determining the long-term expected return on assets assumption, we consider our current and target asset allocations. We consider the relative weighting of plan assets, the historical performance of total plan assets and individual asset classes and economic and other indicators of future performance. Asset management objectives include maintaining an adequate level of diversification to reduce interest rate and market risk and to provide adequate liquidity to meet immediate and future benefit payment requirements. In determining the 2021 expense for our largest plan, we used a 5.0% return on assets assumption, compared to 4.5% for 2020. A 25 basis point decrease in the long-term expected return on assets assumption would increase our annual pension expense by \$2 million.

Income Taxes

Our annual tax rate is based on our earnings before tax by jurisdiction, applicable statutory tax rates, the impacts of permanent differences, tax incentives and tax planning opportunities in the various jurisdictions in which we operate. Significant judgment is required in determining our annual tax rate and in evaluating our tax positions.

An estimated annual effective tax rate is applied to our quarterly ordinary operating results. For certain significant, unusual or infrequent events, we recognize the tax impact in the quarter in which it occurs.

We record reserves against tax benefits when it's more likely than not that we will not sustain a position if the appropriate taxing jurisdiction had full information and examined our position. We adjust these reserves when facts and circumstances change, such as when progress is made by taxing authorities in their review of our position. There is a considerable amount of judgment in making these assessments. There were no significant reserves taken in 2021.

Valuation allowances associated with deferred tax assets is another area that requires judgment. We record a valuation allowance to reduce deferred tax assets to the amount of future tax benefit that we believe is more likely than not to be realized. We consider recent earnings projections, allowable tax carryforward periods, tax planning strategies and historical earnings performance to determine the amount of the valuation allowance. Changes in these factors could cause us to adjust our valuation allowance, which would impact our income tax expense when we determine that these factors have changed.

At October 2, 2021, we had gross deferred tax assets of \$157 million and deferred tax asset valuation allowances of \$14 million. The deferred tax assets principally relate to benefit accruals, inventory obsolescence, tax benefit carryforwards, contract reserves and lease liabilities. The deferred tax assets include \$15 million related to tax benefit carryforwards associated with net operating losses and tax credits, for which \$13 million of deferred tax asset valuation allowances are recorded. For further information, refer to Note 15, Income Taxes, of Item 8, Financial Statements and Supplementary Data, of this report.

COVID-19 IMPACTS ON OUR BUSINESS

The spread of the COVID-19 outbreak has disrupted businesses on a global scale. On March 11, 2020, the World Health Organization classified the outbreak as a pandemic. As we entered this crisis, the Company established two clear priorities: first and foremost the health and safety of our employees and their families, and second, continuing to meet the needs of our customers and secure the financial well-being of the Company. Substantially all of our operations and production activities have, to-date, remained operational. In response to the COVID-19 crisis, we implemented changes in our work practices to maintain a safe working environment for production employees at our facilities, while enabling other employees to productively work from home. As we commence bringing employees back to the workplace and return to in-person meetings with customers and suppliers, we have adopted a flexible work approach. These actions will allow for a smooth transition from COVID-19 conditions to a future that better meets the needs of the business and the interests of our employees. Additionally, we will fully comply with the U.S. Government's Safer Federal Workforce Task Force's guidelines on vaccination requirements for employees of the federal government and their contractors and subcontractors. As economic activity recovers, we will continue to monitor the situation, assessing further possible implications on our operations, supply chain, liquidity, cash flow and customer orders. We believe that our existing financial arrangements are sufficient to meet our operating needs, and have adequate borrowings under short and long-term arrangements that could provide additional relief if necessary.

CONSOLIDATED RESULTS OF OPERATIONS

The following is a discussion of our results of operations in 2021 compared to 2020. A discussion of our 2020 results of operations compared to 2019 results can be found within Part II, Item 7. Management's Discussion and Analysis within our 2020 Annual Report on Form 10-K, filed with the Securities and Exchange Commission on November 17, 2020.

(dollars and shares in millions, except per share data)	2021	2020	2019	2021 vs. 2020		2020 vs. 2019	
				\$	%	\$	%
Net sales	\$ 2,852	\$ 2,885	\$ 2,905	\$ (33)	(1%)	\$ (20)	(1%)
Gross margin	27.2 %	25.8 %	28.1 %				
Research and development expenses	\$ 126	\$ 111	\$ 126	\$ 15	13%	\$ (16)	(12%)
Selling, general and administrative expenses as a percentage of sales	14.4 %	13.8 %	13.9 %				
Interest expense	\$ 34	\$ 39	\$ 39	\$ (5)	(13%)	\$ —	(1%)
Restructuring expense	\$ —	\$ 11	\$ —	\$ (11)	(100%)	\$ 11	n/a
Long-lived asset impairment	\$ 2	\$ 38	\$ —	\$ (36)	(96%)	\$ 38	n/a
Pension settlement	\$ —	\$ 121	\$ —	\$ (121)	(100%)	\$ 121	n/a
Other	\$ (1)	\$ 21	\$ 19	\$ (22)	(105%)	\$ 2	12%
Effective tax rate	22.8 %	(69.9)%	23.1 %				
Net earnings	\$ 157	\$ 9	\$ 175	\$ 148	n/a	\$ (165)	(95%)
Diluted average common shares outstanding	32	33	35	(1)	(3%)	(2)	(5%)
Diluted earnings per share	\$ 4.87	\$ 0.28	\$ 4.96	\$ 4.59	n/a	\$ (4.68)	(94%)
Total backlog	\$ 4,800	\$ 2,600	\$ 2,200	\$ 2,200	88%	\$ 400	14%
Twelve-month backlog	\$ 2,100	\$ 1,700	\$ 1,500	\$ 400	24%	\$ 200	13%

Net sales for the 2021 year are down marginally in comparison to 2020, due to the timing of the recovery from the COVID-19 pandemic. In 2021, sales were impacted by a full year of COVID-19 related pressure, as compared to 2020 where only the second half of the year was impacted. Sales growth in Space and Defense was offset by decreases within Industrial Systems and Aircraft Controls, the segments most impacted by this pandemic. Stronger foreign currencies, primarily the Euro relative to the U.S. Dollar, increased sales \$34 million in the year in comparison to 2020, offsetting the real sales decrease. Additionally, the acquisition of Genesys contributed \$44 million of incremental sales compared to 2020.

Gross margin increased in 2021 compared to 2020 due to the absence of last year's \$23 million COVID-19 related inventory write-down. Excluding last year's COVID-19 related charges, gross margin increased marginally due to favorable sales mixes within Aircraft Controls and Industrial Systems. Also, higher sales volume within Space and Defense contributed to the increase. Partially offsetting these increases was lower sales volumes within Aircraft Controls and Industrial Systems.

Research and development expenses increased across Aircraft Controls and Industrial Systems in 2021 as compared to the prior year. The incorporation of the Genesys acquisition and higher activity across military development programs within Aircraft Controls increased research and development expenses \$10 million. Research and development expenses also increased in Industrial Systems by \$4 million for the year, due to higher innovation spend.

For 2021, selling, general and administrative expenses were slightly higher as a percentage of sales than the prior year, reflecting increased investments after several quarters of depressed spending throughout 2020 due to the COVID-19 pandemic.

Interest expense for fiscal 2021 decreased compared to 2020 due to lower interest rates on outstanding debt.

In 2021, we recorded \$2 million of impairment charges in our Space and Defense Controls segment as we exited certain product and contract arrangements. Additionally, we incurred \$4 million of portfolio refinement and other charges in Industrial Systems and Space and Defense Controls. In 2020, we incurred impairment and restructuring expenses related to the impact that the COVID-19 pandemic had on our business. Throughout 2020, we incurred \$38 million of long-lived asset impairments, \$23 million of inventory write-downs and \$11 million of restructuring expense. Of the total expense, the charges consist of \$29 million of non-cash charges for the impairment of property, plant and equipment, \$23 million of non-cash inventory reserves, \$10 million for severance and \$9 million of non-cash charges for the impairment of intangible assets.

In the fourth quarter of 2020, we purchased a single premium non-participating group annuity contract for our retirees who are receiving benefits of our U.S. defined benefit plan, which were then transferred to an insurance company. As a result of this transaction, we incurred a \$121 million non-cash pension settlement charge as we accelerated unrecognized losses held in equity into our earnings.

Other expense in 2021 included a \$6 million pension curtailment gain associated with the termination of a foreign pension plan, partially offset by \$2 million of losses on the sale of non-core businesses within our Industrial Systems and Aircraft Controls segments. Other expense in 2020 included \$15 million of non-service pension expense, as well as a \$4 million call premium, as we redeemed our \$300 million aggregate principal 5.25% senior notes.

In 2021, the effective tax rate increased when compared to 2020. In 2021, we revalued our deferred tax liabilities due to an increase in the U.K. tax rate that will become effective in 2023. During 2020, the effective tax rate was low due to foreign tax credit utilization associated with a prior year tax return filing, the pension settlement in the fourth quarter and due to the lower earnings before income tax.

The change in twelve-month backlog at October 2, 2021 as compared with the twelve-month backlog at October 3, 2020 was driven by increases across all markets. Backlog increased in Aircraft Controls due to the timing of commercial aircraft orders, F-35 and additional military development programs. Backlog also increased in Space and Defense Controls driven by increases in space satellite programs and higher orders for defense control products. The Industrial Systems backlog increased due to recovering demand for core industrial and industrial components products.

SEGMENT RESULTS OF OPERATIONS

Operating profit, as presented below, is net sales less cost of sales and other operating expenses, excluding interest expense, equity-based compensation expense, non-service pension 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 21, Segments, of Item 8, Financial Statements and Supplementary Data of this report.

Aircraft Controls

(dollars in millions)	2021	2020	2019	2021 vs. 2020		2020 vs. 2019	
				\$	%	\$	%
Net sales - military aircraft	\$ 782	\$ 721	\$ 622	\$ 61	8%	\$ 99	16%
Net sales - commercial aircraft	379	485	681	(105)	(22%)	(196)	(29%)
	\$ 1,161	\$ 1,206	\$ 1,303	\$ (45)	(4%)	\$ (97)	(7%)
Operating profit	\$ 97	\$ 35	\$ 123	\$ 62	179%	\$ (88)	(72%)
Operating margin	8.3 %	2.9 %	9.4 %				

Aircraft Controls' net sales decreased in 2021 as compared to 2020 due to the continued impacts of the global COVID-19 pandemic adversely affecting commercial OEM and aftermarket programs.

Across our commercial aircraft programs, the COVID-19 pandemic greatly reduced airline traffic and orders for new aircraft. Our airframe customers refined their production forecasts and worked down their inventory levels during the second half of 2020. During the second half of 2021, U.S. domestic commercial air traffic began to recover; however, international travel has remained muted and wide-body production rates have remained pressured. In 2021 compared to 2020, commercial OEM sales declined \$97 million and commercial aftermarket sales declined \$8 million as the impacts of the COVID-19 pandemic affected all of our programs. Partially offsetting the declines was a \$61 million sales increase across our military programs, driven by higher activity on funded development programs, higher quantities for the F-35 program and acquired sales from Genesys.

Operating margin increased in 2021 compared to 2020 due to the absence of last year's \$57 million in COVID-19 related impairment and restructuring charges. Excluding these charges, adjusted operating margin in 2020 was 7.6%. In 2021 operating margin was higher than the adjusted operating margin in 2020 due to a more favorable sales mix from higher levels of military OEM sales, including foreign military, and the addition of Genesys. In addition, 2021 included an increase of \$10 million in research and development expenses from continued investment in military programs and the newly acquired Genesys, which partially offset the margin increase.

Space and Defense Controls

(dollars in millions)	2021	2020	2019	2021 vs. 2020		2020 vs. 2019	
				\$ Variance	% Variance	\$ Variance	% Variance
Net sales	\$ 799	\$ 770	\$ 683	\$ 29	4%	\$ 87	13%
Operating profit	\$ 88	\$ 102	\$ 89	\$ (13)	(13%)	\$ 13	14%
Operating margin	11.1 %	13.2 %	13.0 %				

Net sales within Space and Defense Controls in 2021 increased compared to 2020, driven by growth in our space markets.

Across our space programs, we continue benefiting from increased government spending on military applications and civil missions. Sales in our space market increased \$39 million in 2021 when compared to 2020 due to increases in integrated space vehicles programs and satellite avionics programs. Partially offsetting the increase was a \$10 million sales decline within our defense market. Within the defense market, sales declined \$15 million in missile systems due to the timing of orders for development and production missiles. Additionally, defense sales declined \$13 million in our security programs due to lower bookings. Increased orders for defense component programs and naval programs partially offset the sales declines.

Operating margin decreased in 2021 as compared to 2020 primarily due to higher costs on firm fixed price development contracts across our space and defense markets. As a result of the COVID-19 pandemic, we experienced supply chain challenges and direct labor inefficiencies. Additionally, in 2021 we recorded \$2 million of impairment charges and \$1 million in other charges as we exited certain product and contract arrangements.

Industrial Systems

(dollars in millions)	2021	2020	2019	2021 vs. 2020		2020 vs. 2019	
				\$ Variance	% Variance	\$ Variance	% Variance
Net sales	\$ 892	\$ 909	\$ 918	\$ (17)	(2%)	\$ (10)	(1%)
Operating profit	\$ 86	\$ 80	\$ 109	\$ 6	7%	\$ (29)	(27%)
Operating margin	9.6 %	8.8 %	11.9 %				

Net sales in Industrial Systems declined in 2021 as compared to 2020, as the recent industrial automation recoveries were more than offset by a decline across our other industrial markets. Stronger foreign currencies, primarily the Euro relative to the U.S. Dollar, increased sales \$23 million in the year in comparison to 2020, partially offsetting the real sales decrease.

The COVID-19 pandemic, and the associated macroeconomic slowdown and reduced capital investments by our customers, created productivity and demand challenges. Additionally, the decline of the global airline market weakened demand for flight simulation products. These factors started in the second half of 2020 and continued through much of fiscal 2021, leading to a sales decline of \$17 million year over year. Sales decreased \$18 million within our medical market, as the prior year's surge in demand related to the COVID-19 pandemic moderated. The COVID-19 pandemic also affected sales within our simulation and test markets and energy markets, resulting in \$13 million and \$8 million declines, respectively. Partially offsetting these declines was a \$22 million sales increase in our industrial automation market, as companies began to build capacity to meet recovering demand late in the year.

Both 2021 and 2020 operating margins include COVID-19 charges. In 2021, there was \$4 million of COVID-19 related charges and impairments, while in 2020 there was \$14 million charges related to the COVID-19 pandemic. Excluding these charges, adjusted operating margin for 2021 and 2020 were relatively unchanged at 10.1% and 10.3%, respectively. Research and development expenses increased by \$4 million, which when combined with the sales decrease and portfolio refinement charges, resulted in a slightly reduced adjusted operating margin.

SEGMENT OUTLOOK

(dollars in millions)	2022 vs. 2021			
	2022	2021	\$ Variance	% Variance
Net sales:				
Aircraft Controls	\$ 1,245	\$ 1,161	\$ 84	7%
Space and Defense Controls	880	799	81	10%
Industrial Systems	910	892	18	2%
	<u>\$ 3,035</u>	<u>\$ 2,852</u>	<u>\$ 183</u>	<u>6%</u>
Operating profit:				
Aircraft Controls	\$ 126	\$ 97	\$ 29	30%
Space and Defense Controls	101	88	13	15%
Industrial Systems	86	86	—	—
	<u>\$ 313</u>	<u>\$ 271</u>	<u>\$ 42</u>	<u>16%</u>
Operating margin:				
Aircraft Controls	10.1 %	8.3 %		
Space and Defense Controls	11.5 %	11.1 %		
Industrial Systems	9.5 %	9.6 %		
	<u>10.3 %</u>	<u>9.5 %</u>		
Net earnings				
	\$ 178	\$ 157		
Diluted earnings per share				
	\$5.30 - \$5.70	\$ 4.87		

2022 Outlook – We expect higher sales and general recovery across all segments to drive an increase in net sales in 2022. This growth is anticipated to be led by a recovery of legacy and recently acquired programs within commercial aircraft. We also expect increased Space and Defense sales, due mostly to higher amounts of activity in advanced space missions and satellites. In addition, we expect a modest sales recovery in Industrial Systems. We expect operating margin will increase due to operational improvements within all segments, combined with the absence of restructuring and impairment charges from 2021. Net earnings in 2022 are expected to benefit from the incremental operating margin, while holding our non-operating expense levels as a percentage of sales in line with 2021. We expect diluted earnings per share will range between \$5.30 and \$5.70, with a midpoint of \$5.50, reflecting the continued uncertainty from the COVID-19 environment.

2022 Outlook for Aircraft Controls – In 2022, within commercial aircraft programs, we anticipate an increase in sales in our legacy OEM programs, a full year of the Genesys acquisition, combined with general recoveries within business jets and commercial aftermarket programs. We also expect military sales will increase driven by both OEM and aftermarket programs, spread across helicopters, funded development programs, Genesys and F-35 aftermarket, which will offset expected declines in F-35 OEM sales. We expect operating margin will increase in 2022 due to increased sales volumes and the continuation of a more favorable sales mix driven by military OEM and aftermarket programs.

2022 Outlook for Space and Defense Controls – We expect 2022 sales in Space and Defense Controls will increase in both of our markets. Within our defense market, we expect higher sales across both U.S. and foreign programs, primarily from our new turret program, and growth in defense component sales. We expect sales in our space market to increase as well, driven by higher sales from advanced missions and satellites, partially offset by the wind down of some of our launch program sales. We expect operating margin will increase in 2022 resulting from the incremental margin from higher sales volume, in addition to the absence of charges from portfolio refinement and product line sales from 2021.

2022 Outlook for Industrial Systems – We expect a similar level of sales in 2022 as compared to 2021. In 2022, we anticipate strong sales within our medical components business, led by increased orders for sleep therapy products, as compared to 2021. We expect a modest sales increase in the simulation and test markets as they continue to recover from the effects of COVID-19. Additionally, we expect sales to be relatively unchanged in our industrial automation programs as global capital investment activity stabilizes. We expect operating margin will remain relatively unchanged in 2022 as compared to 2021, due to ongoing footprint rationalization activities and new product investments.

FINANCIAL CONDITION AND LIQUIDITY

(dollars in millions)	2021	2020	2019	2021 vs. 2020		2020 vs. 2019	
				\$ Variance	% Variance	\$ Variance	% Variance
Net cash provided (used) by:							
Operating activities	\$ 293	\$ 279	\$ 181	\$ 14	5%	\$ 98	54%
Investing activities	(191)	(146)	(116)	(45)	31%	(30)	26%
Financing activities	(87)	(143)	(99)	56	(39%)	(44)	45%

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 October 2, 2021, our cash balances were \$101 million which was 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.

Operating activities

Net cash provided by operating activities increased in 2021 compared to 2020, driven by working capital improvements. In 2021, cash from inventories increased approximately \$120 million when compared to 2020, primarily in our Aircraft Controls and Space and Defense Controls segments. Also, accounts payable used \$105 million less cash than a year ago, based on the timing of vendor payments. These working capital benefits were partially offset by accounts receivable, which provided \$185 million less cash than a year ago, as a result of strong year end collections in 2020. In addition, 2021 pension contributions decreased \$21 million from the prior year.

We expect cash from operations in 2022 to be approximately \$340 million, driven primarily by cash from the amended securitization facility, partially offset by less cash from new customer advances, as we work down existing project milestones. See Note 24, Subsequent Events, of Item 8, Financial Statements and Supplementary Data of this report for further discussion of our amended and restated receivables purchase agreement.

Investing activities

Net cash used by investing activities in 2021 included \$78 million for our acquisition of Genesys and \$129 million for capital expenditures. We increased our investments in capital expenditures in 2021 once the level of uncertainty from the pandemic subsided. Net cash used by investing activities in 2020 included \$54 million for our acquisition of GAT and \$88 million for capital expenditures.

We expect capital expenditures in 2022 to be \$160 million, as we invest in facilities and infrastructure to support future growth and operational improvements.

Financing activities

Net cash used by financing activities in 2021 included \$32 million of cash dividends, \$30 million for our Board of Directors authorized share repurchase programs and \$28 million of net repayments on our credit facilities.

Net cash used by financing activities in 2020 included the net proceeds of issuing our \$500 million aggregate principal 4.25% senior notes, which were used to repay a portion of our outstanding borrowings. Additionally, financing activities in 2020 included \$215 million related to repurchasing approximately 3 million shares, \$95 million of net payments on long-term debt and \$25 million of cash dividends.

CAPITAL STRUCTURE AND RESOURCES

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

On October 15, 2019, we amended and restated our U.S. revolving credit facility, which matures on October 15, 2024. Our 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 \$400 million to the credit facility upon satisfaction of certain conditions. The U.S. revolving credit facility had an outstanding balance of \$322 million at October 2, 2021. The weighted-average interest rate on the majority of the outstanding credit facility borrowings was 1.59% and is principally based on LIBOR plus the applicable margin, which was 1.5% at October 2, 2021. The credit facility is secured by substantially all of our U.S. assets.

The U.S. revolving credit facility contains various covenants. The minimum for the interest coverage ratio, defined as the ratio of EBITDA to interest expense for the most recent four quarters, is 3.0. The maximum for the leverage ratio, defined as the ratio of net debt to EBITDA for the most recent four quarters, is 4.0. 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.

The SECT has a revolving credit facility with a borrowing capacity of \$35 million, maturing on July 26, 2024. Interest was 2.21% as of October 2, 2021 and is based on LIBOR plus a margin of 2.13%. As of October 2, 2021, there were \$7 million of outstanding borrowings.

On December 13, 2019, we completed the sale of \$500 million aggregate principal amount of 4.25% senior notes due December 15, 2027 with interest paid semiannually on June 15 and December 15 of each year, which commenced on June 15, 2020. 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 aggregate net proceeds of \$492 million were used to repay indebtedness under our U.S. revolving credit facility, thereby increasing the unused portion of our U.S. revolving credit facility. The effective interest rate for these notes after considering the amortization of deferred debt issuance costs is 4.60%.

On December 13, 2019, we issued a notice of redemption to the holders of our 5.25% senior notes due on December 1, 2022, to redeem and retire all of the outstanding notes. The notes were redeemed on January 13, 2020 at 101.313% pursuant to an early redemption right. We redeemed the aggregate principal amount of \$300 million using proceeds drawn from our U.S. revolving credit facility. The associated loss on redemption includes \$4 million of call premium paid to external bondholders.

We have a trade receivables securitization facility (the "Securitization Program") that matures on October 29, 2021. The Securitization Program provides up to \$80 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 \$80 million at October 2, 2021. The Securitization Program has a minimum borrowing requirement, which was \$64 million at October 2, 2021. Interest on the secured borrowings under the Securitization Program was 0.95% at October 2, 2021 and is based on 30-day LIBOR plus an applicable margin.

At October 2, 2021, we had \$786 million of unused capacity, including \$746 million from the U.S. revolving credit facility after considering standby letters of credit. Our leverage ratio covenant limits our unused borrowing capacity to \$609 million as of October 2, 2021.

Net debt to capitalization was 36% at October 2, 2021 and 40% at October 3, 2020. The decrease in net debt to capitalization is primarily due to our net earnings, which has increased the total capitalization.

We declared and paid cash dividends of \$0.25 per share on our Class A and Class B common stock in each quarter of 2021.

On November 20, 2020, the Board of Directors authorized a new share repurchase program to replace the previously existing share repurchase program. This program authorizes repurchases that includes both Class A and Class B common stock, and allows us to buy up to an aggregate 3 million common shares. Under this program, since inception we purchased approximately 243,000 shares for \$19 million.

Previously, the Board of Directors authorized a share repurchase program that was amended from time to time to authorize additional repurchases that includes both Class A and Class B common stock, and allowed us to buy up to an aggregate 13 million common shares. Under this program, we purchased approximately 13 million shares for \$899 million.

As we continue to adapt to the changing COVID-19 environment, we believe we are well positioned to invest in our business and have returned to a balanced capital deployment strategy. We expect to organically invest in our operations and explore opportunities to make strategic acquisitions and return capital to shareholders.

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 financial condition, results of operations or cash flows.

Contractual Obligations and Commercial Commitments

For further information on our contractual obligations and commitments as of October 2, 2021, see the notes referenced below, of Item 8, Financial Statements and Supplementary Data, of this report.

Right-of-use lease liabilities - See Note 7, Leases, for details on obligations and timing of expected future payments, including a five-year maturity schedule.

Debt Obligations and Interest Payments - See Note 9, Indebtedness, for details of our debt and timing of expected future principal and interest payments. Our current and long-term interest obligation on fixed-rate debt is \$21 million and \$111 million, respectively. Interest on variable-rate long-term debt, assuming the rate and outstanding balances do not change from those at October 2, 2021, would be approximately \$8 million annually.

Employee Benefit Plans - See Note 14, Employee Benefit Plans, for details on our obligations and timing of expected future payments under these plans. In 2022, we have no minimum funding requirements. However, we anticipate making contributions to defined benefit pension plans of \$13 million, of which approximately \$5 million is for a non-qualified U.S. plan. We are unable to determine minimum funding requirements beyond 2022. We have made no discretionary incremental contributions to our defined benefit plans in excess of minimum funding requirements. We do not plan to make additional contributions for the foreseeable future.

Income Taxes - We are unable to determine if and when any unrecognized tax benefits, which are not material, will be settled, nor can we estimate any potential changes to the unrecognized tax benefits. See Note 15, Income Taxes, for additional details of tax obligations.

Commitments - Our current and long-term obligations for non-cancelable purchase commitments are \$489 million and \$106 million, respectively. See Note 23, Commitments and Contingencies, for additional details.

ECONOMIC CONDITIONS AND MARKET TRENDS

We operate within the aerospace and defense and industrial markets. Our businesses continue to face varying levels of pressure from the COVID-19 pandemic.

Our defense and aerospace businesses represented 69% of our 2021 sales. These businesses have faced, and will continue to face, modest supply chain and production level risks as a result of the COVID-19 pandemic. Conversely, they are more directly affected by program funding levels, which have remained relatively stable. Our commercial aircraft market, which represented less than 15% of our 2021 sales, continues to face the greatest pressure due to dramatic reductions in air travel throughout the past year and a half. While domestic travel has recently started to show signs of recovery, international travel remains muted.

Within our industrial markets, which represented 31% of our 2021 sales, we have seen recent signs of recovery within industrial automation; however, as the demand is starting to rebuild, we are now experiencing pressure within our material supply chains and direct labor inefficiencies. Additionally, our simulation and test and energy markets continue to face demand challenges from the macroeconomic slowdown and reduced capital investments. Our medical business, which represented less than 10% of our 2021 sales, experienced a surge in demand for our medical applications essential in the fight against the pandemic. As this surge in demand wanes, we expect a return to normal growth rates in the future.

A common factor throughout our markets is the continuing demand for technologically advanced products.

Aerospace and Defense

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, which to-date, have not been impacted by the COVID-19 pandemic. We have a growing development program order book for future generation aircraft and hypersonic missiles, and we strive to embed our technologies within these high-performance military programs of the future. Aircraft production programs are typically long-term in nature, offering predictable capacity needs and future revenues. We maintain positions on numerous high priority programs, including the Lockheed Martin F-35 Lightning II, 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. At times when there are perceived threats to national security, U.S. Defense spending can increase; at other times, defense spending can decrease. Future levels of defense spending are uncertain, subject to presidential and congressional debate and could be reduced to offset the various COVID-19 pandemic relief payments.

The commercial OEM aircraft market has depended on a number of factors, including both the last decade's increasing global demand for air travel and increasing fuel prices. Both factors contributed to the demand for new, more fuel-efficient aircraft with lower operating costs that lead to large production backlogs for Boeing and Airbus. However, the impact of the COVID-19 pandemic has drastically reduced air traffic as travel restrictions and social distancing measures were implemented to help control the spread of the virus. The reduced air traffic has applied financial pressures on airlines, and in order to preserve cash and liquidity, have dramatically reduced flight hours and delayed the purchases of new aircraft. Although U.S. domestic air travel has recently increased during the second half of 2021, international travel has not yet begun to recover. Given the uncertain length of this pandemic and associated restrictions to travel long distances, the commercial market may shift away from wide-body aircraft. Furthermore, as companies and employees become accustomed to working remotely, business travel and the associated flight hours may not reach the pre-crisis levels. As such, we believe Boeing and Airbus will continue to directionally match their wide-body aircraft production rates with the reduced air traffic volume, which has lowered their demand for our flight control systems. We believe the commercial OEM market's recovery will be heavily dependent on the return to pre-COVID-19 air traffic activity levels and therefore will face pressures for a prolonged period of time.

The commercial aftermarket is driven by usage and age of the existing aircraft fleet for passenger and cargo aircraft, which drives the need for maintenance and repairs. Given the dramatic reductions in flight hours and the airlines' cash preservation measures due to the impacts of COVID-19, we believe the demand volume for our maintenance services and spare parts will be reduced. Also, with fewer expected new aircraft deliveries, we would see lower future initial provisioning and spares sales. However, as domestic and eventually international travel begin to recover, we expect a faster recovery in this market as compared to the commercial OEM market.

The space market is comprised of four customer markets: the civil market, the department of defense market, the commercial space market and the new space market. The civil market, namely NASA, is driven by investment for commercial and exploration activities, including NASA's return to the moon. The department of defense market is driven by governmental-authorized levels of funding for satellite communications, as well as funding for hypersonic defense technologies. The commercial space market is comprised of large satellite customers, which traditionally sell to 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 replacements and global navigation needs. The new space market is driven by investments to increase the speed and access to space through integrated space vehicles and smaller satellites at reduced cost. Similar to the defense market, funding for these four markets have not been impacted by the COVID-19 pandemic to-date.

Industrial

Within industrial, we serve two end markets: industrial, consisting of industrial automation products, simulation and test products and energy generation and exploration products; and medical.

The industrial market we serve with our industrial automation products is influenced by several factors including capital investment levels, the pace of product innovation, economic conditions, cost-reduction efforts and technology upgrades. As governments around the world implemented measures to help control the spread of the COVID-19 virus, the subsequent economic downturn constrained capital investment and slowed spending for product innovation and upgrades. During the second half of 2021, we started to see a modest recovery in these markets; however concerns regarding supply chain constraints still exist.

Our simulation and test products operate in markets that are largely affected by these same factors and investment challenges stemming from the COVID-19 pandemic. Reduced air travel and the subsequent reduction in new commercial aircraft have reduced the demand for flight simulator training, for which we supply motion control products. Similarly, the recent lower capital spend has reduced the demand for our automotive and material testing applications.

Our energy generation and exploration products operate in a market that is influenced by changing oil and natural gas prices, global urbanization and the resulting change in supply and demand for global energy. Historically, drivers for global growth include investments in power generation infrastructure and exploration of new oil and gas resources. However, the COVID-19 pandemic led to reduced oil prices, reducing the economic feasibility for these investments and explorations, which to-date, have not returned to the pre-pandemic levels.

The medical market we serve, in general, 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. The outbreak of the COVID-19 virus created unprecedented demand for medical equipment and has shifted the way hospitals optimize their capacity. Our medical components products are critical motion control components for life saving medical equipment, including ventilators, oxygen concentrators and continuous positive airway pressure (CPAP) machines, among others. The COVID-19 pandemic increased the demand for ventilators, of which our products are a key component of that industry's supply chain. Additionally, our medical devices products, including infusion and enteral feeding pumps and their corresponding disposable sets, are used primarily in the home healthcare environment. Since the COVID-19 pandemic has altered the way hospitals provide care by asking non-critical patients to recuperate at home, our medical devices products saw an increase in orders. As this level of demand was directly related to pandemic, we have already moved beyond the initial surge in demand as our customers resize their inventory levels.

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-fifth of our 2021 sales were denominated in foreign currencies. During 2021, average foreign currency rates generally strengthened against the U.S. dollar compared to 2020. The translation of the results of our foreign subsidiaries into U.S. dollars increased sales by \$34 million compared to one year ago. During 2020, average foreign currency rates generally weakened against the U.S. dollar compared to 2019. The translation of the results of our foreign subsidiaries into U.S. dollars decreased 2020 sales by \$4 million compared to 2019.

RECENT ACCOUNTING PRONOUNCEMENTS

See Note 1, Summary of Significant Accounting Policies, included in Item 8, Financial Statements and Supplementary Data of this report for further information regarding Financial Accounting Standards Board issued Accounting Standards Updates ("ASU").

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

In the normal course of business, we are exposed to interest rate risk from our long-term debt and foreign exchange rate risk related to our foreign operations and foreign currency transactions. To manage these risks, we may enter into derivative instruments such as interest rate swaps and foreign currency contracts. We do not hold or issue financial instruments for trading purposes. In 2021, our derivative instruments consisted of interest rate swaps designated as cash flow hedges and foreign currency contracts.

At October 2, 2021, we had \$409 million of borrowings subject to variable interest rates. At October 2, 2021, we had no outstanding interest rate swaps. During 2021, our average borrowings subject to variable interest rates, after adjusting for interest rate swaps, were \$456 million and, therefore, if interest rates had been one percentage point higher during 2021, our interest expense would have been \$5 million higher.

We also enter into forward contracts to reduce fluctuations in foreign currency cash flows related to third party purchases and revenue, intercompany product shipments and to reduce exposure on intercompany balances that are denominated in foreign currencies. We have foreign currency contracts with notional amounts of \$172 million outstanding at October 2, 2021 that mature at various times through June 2, 2023. These include notional amounts of \$151 million outstanding where the U.S. dollar is one side of the trade. The net fair value of all of our foreign currency contracts involving the U.S. dollar was a \$2 million net liability at October 2, 2021. A hypothetical 10% increase in the value of the U.S. dollar against all currencies would decrease the fair value of our foreign currency contracts at October 2, 2021 by approximately \$14 million, while a hypothetical 10% decrease in the value of the U.S. dollar against all currencies would increase the fair value of our foreign currency contracts at October 2, 2021 by approximately \$17 million. It is important to note that gains and losses indicated in the sensitivity analysis would often be offset by gains and losses on the underlying receivables and payables.

Although the majority of our sales, expenses and cash flows are transacted in U.S. dollars, we have exposure to changes in foreign currency exchange rates such as the Euro, British pound and Japanese yen. If average annual foreign exchange rates collectively weakened or strengthened against the U.S. dollar by 10%, our net earnings in 2021 would have decreased or increased by \$6 million from foreign currency translation. This sensitivity analysis assumed that each exchange rate would change in the same direction relative to the U.S. dollar and excludes the potential effects that changes in foreign currency exchange rates may have on actual transactions.

Item 8. Financial Statements and Supplementary Data.

MOOG^{Inc.}
Consolidated Statements of Earnings

	Fiscal Years Ended		
	October 2, 2021	October 3, 2020	September 28, 2019
(dollars in thousands, except share and per share data)			
Net sales	\$ 2,851,993	\$ 2,884,554	\$ 2,904,663
Cost of sales	2,076,270	2,118,150	2,088,831
Inventory write-down	—	22,708	—
Gross profit	775,723	743,696	815,832
Research and development	125,528	110,865	126,453
Selling, general and administrative	412,028	397,947	404,653
Interest	33,892	38,897	39,269
Long-lived asset impairment	1,500	37,839	—
Restructuring	—	10,700	—
Pension settlement	—	121,324	—
Other	(999)	20,707	18,505
Earnings before income taxes	203,774	5,417	226,952
Income taxes (benefit)	46,554	(3,788)	52,404
Net earnings	\$ 157,220	\$ 9,205	\$ 174,548
Net earnings per share			
Basic	\$ 4.90	\$ 0.28	\$ 5.01
Diluted	\$ 4.87	\$ 0.28	\$ 4.96
Average common shares outstanding			
Basic	32,112,589	33,257,684	34,854,614
Diluted	32,297,956	33,437,801	35,178,968

See accompanying Notes to Consolidated Financial Statements.

**Consolidated Statements of Comprehensive Income**

(dollars in thousands)	Fiscal Years Ended		
	October 2, 2021	October 3, 2020	September 28, 2019
Net earnings	\$ 157,220	\$ 9,205	\$ 174,548
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustment	10,005	26,405	(29,984)
Retirement liability adjustment	30,443	102,081	(12,806)
Change in accumulated income (loss) on derivatives	(2,555)	1,538	105
Other comprehensive income (loss), net of tax	37,893	130,024	(42,685)
Comprehensive income	\$ 195,113	\$ 139,229	\$ 131,863

See accompanying Notes to Consolidated Financial Statements.

MOOG Inc.
Consolidated Balance Sheets

(dollars in thousands, except per share data)	October 2, 2021	October 3, 2020
ASSETS		
Current assets		
Cash and cash equivalents	\$ 99,599	\$ 84,583
Restricted cash	1,315	489
Receivables, net	945,929	855,535
Inventories, net	613,095	623,043
Prepaid expenses and other current assets	58,842	49,837
Total current assets	1,718,780	1,613,487
Property, plant and equipment, net	645,778	600,498
Operating lease right-of-use assets	60,355	68,393
Goodwill	851,605	821,856
Intangible assets, net	106,095	85,046
Deferred income taxes	17,769	18,924
Other assets	32,787	17,627
Total assets	\$ 3,433,169	\$ 3,225,831
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities		
Current installments of long-term debt	\$ 80,365	\$ 350
Accounts payable	200,602	176,868
Accrued compensation	112,703	109,510
Contract advances	263,686	203,338
Accrued liabilities and other	212,005	220,488
Total current liabilities	869,361	710,554
Long-term debt, excluding current installments	823,355	929,982
Long-term pension and retirement obligations	162,728	183,366
Deferred income taxes	64,642	40,474
Other long-term liabilities	112,939	118,372
Total liabilities	2,033,025	1,982,748
Shareholders' equity		
Common stock - par value \$1.00		
Class A - Authorized 100,000,000 shares	43,803	43,799
Issued 43,803,236 and outstanding 29,220,367 shares at October 2, 2021		
Issued 43,799,229 and outstanding 29,414,083 shares at October 3, 2020		
Class B - Authorized 20,000,000 shares. Convertible to Class A on a one-for-one basis	7,477	7,481
Issued 7,476,477 and outstanding 2,870,372 shares at October 2, 2021		
Issued 7,480,484 and outstanding 2,751,894 shares at October 3, 2020		
Additional paid-in capital	509,622	472,645
Retained earnings	2,237,848	2,112,734
Treasury shares	(1,007,506)	(990,783)
Stock Employee Compensation Trust	(79,776)	(64,242)
Supplemental Retirement Plan Trust	(63,764)	(53,098)
Accumulated other comprehensive loss	(247,560)	(285,453)
Total shareholders' equity	1,400,144	1,243,083
Total liabilities and shareholders' equity	\$ 3,433,169	\$ 3,225,831

See accompanying Notes to Consolidated Financial Statements.



Consolidated Statements of Shareholders' Equity

(dollars in thousands)	Fiscal Years Ended		
	October 2, 2021	October 3, 2020	September 28, 2019
COMMON STOCK			
Beginning and end of year	\$ 51,280	\$ 51,280	\$ 51,280
ADDITIONAL PAID-IN CAPITAL			
Beginning of year	472,645	510,546	502,257
Issuance of treasury shares	7,478	142	(1,018)
Equity-based compensation expense	6,859	5,661	6,464
Adjustment to market - SECT and SERP	22,640	(43,704)	2,843
End of year	509,622	472,645	510,546
RETAINED EARNINGS			
Beginning of year	2,112,734	2,128,739	1,974,125
Net earnings	157,220	9,205	174,548
Dividends ⁽¹⁾	(32,106)	(25,210)	(34,857)
Adoption of ASC 606	—	—	14,923
End of year	2,237,848	2,112,734	2,128,739
TREASURY SHARES AT COST			
Beginning of year	(990,783)	(769,569)	(738,494)
Class A and B shares issued related to compensation	14,139	11,887	9,880
Class A and B shares purchased	(30,862)	(233,101)	(40,955)
End of year	(1,007,506)	(990,783)	(769,569)
STOCK EMPLOYEE COMPENSATION TRUST ("SECT")			
Beginning of year	(64,242)	(111,492)	(118,449)
Issuance of shares	679	28,768	22,190
Purchase of shares	(4,239)	(6,774)	(15,288)
Adjustment to market	(11,974)	25,256	55
End of year	(79,776)	(64,242)	(111,492)
SUPPLEMENTAL RETIREMENT PLAN ("SERP") TRUST			
Beginning of year	(53,098)	(71,546)	(72,941)
Issuance of shares	—	—	4,293
Adjustment to market	(10,666)	18,448	(2,898)
End of year	(63,764)	(53,098)	(71,546)
ACCUMULATED OTHER COMPREHENSIVE LOSS			
Beginning of year	(285,453)	(415,477)	(372,792)
Other comprehensive income (loss)	37,893	130,024	(42,685)
End of year	(247,560)	(285,453)	(415,477)
TOTAL SHAREHOLDERS' EQUITY	\$ 1,400,144	\$ 1,243,083	\$ 1,322,481

See accompanying Notes to Consolidated Financial Statements.

⁽¹⁾ Cash dividends were \$1.00, \$0.75 and \$1.00 per share for the fiscal years ended October 2, 2021, October 3, 2020, and September 28, 2019, respectively.



Consolidated Statements of Shareholders' Equity, Shares

(share data)	Fiscal Years Ended		
	October 2, 2021	October 3, 2020	September 28, 2019
COMMON STOCK - CLASS A			
Beginning of year	43,799,229	43,794,935	43,784,489
Conversion of Class B to Class A	4,007	4,294	10,446
End of year	43,803,236	43,799,229	43,794,935
COMMON STOCK - CLASS B			
Beginning of year	7,480,484	7,484,778	7,495,224
Conversion of Class B to Class A	(4,007)	(4,294)	(10,446)
End of year	7,476,477	7,480,484	7,484,778
TREASURY SHARES - CLASS A COMMON STOCK			
Beginning of year	(13,959,998)	(11,101,512)	(10,872,575)
Class A shares issued related to compensation	39,227	31,943	109,005
Class A shares purchased	(236,950)	(2,890,429)	(337,942)
End of year	(14,157,721)	(13,959,998)	(11,101,512)
TREASURY SHARES - CLASS B COMMON STOCK			
Beginning of year	(3,344,877)	(3,345,489)	(3,323,996)
Class B shares issued related to compensation	346,585	215,040	148,017
Class B shares purchased	(180,763)	(214,428)	(169,510)
End of year	(3,179,055)	(3,344,877)	(3,345,489)
SECT - CLASS A COMMON STOCK			
Beginning and end of period	(425,148)	(425,148)	(425,148)
SECT - CLASS B COMMON STOCK			
Beginning of year	(557,543)	(886,300)	(983,772)
Issuance of shares	8,683	408,641	270,675
Purchase of shares	(52,020)	(79,884)	(173,203)
End of year	(600,880)	(557,543)	(886,300)
SERP - CLASS B COMMON STOCK			
Beginning of year	(826,170)	(826,170)	(876,170)
Issuance of shares	—	—	50,000
End of year	(826,170)	(826,170)	(826,170)

See accompanying Notes to Consolidated Financial Statements.

MOOG Inc.

Consolidated Statements of Cash Flows

(dollars in thousands)	Fiscal Years Ended		
	October 2, 2021	October 3, 2020	September 28, 2019
CASH FLOWS FROM OPERATING ACTIVITIES			
Net earnings	\$ 157,220	\$ 9,205	\$ 174,548
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Depreciation	76,671	74,243	71,926
Amortization	13,488	12,729	13,334
Deferred income taxes	8,162	(40,845)	(4,598)
Equity-based compensation expense	7,461	5,661	6,464
Impairment of long-lived assets and inventory write-down	1,500	60,547	—
Pension settlement	—	121,324	—
Other	745	9,636	4,239
Changes in assets and liabilities providing (using) cash:			
Receivables	(73,459)	111,525	(79,887)
Inventories	19,576	(99,015)	(96,652)
Accounts payable	20,520	(84,065)	52,499
Contract advances	59,298	65,680	(14,432)
Accrued expenses	2,290	(3,516)	19,758
Accrued income taxes	4,653	(17,964)	3,818
Net pension and post retirement liabilities	12,503	33,305	32,529
Other assets and liabilities	(17,402)	20,727	(2,123)
Net cash provided by operating activities	293,226	279,177	181,423
CASH FLOWS FROM INVESTING ACTIVITIES			
Acquisitions of businesses, net of cash acquired	(77,600)	(54,265)	—
Purchase of property, plant and equipment	(128,734)	(88,284)	(118,422)
Other investing transactions	15,177	(3,644)	2,702
Net cash used by investing activities	(191,157)	(146,193)	(115,720)
CASH FLOWS FROM FINANCING ACTIVITIES			
Net short-term repayments	—	—	(3,653)
Proceeds from revolving lines of credit	799,950	1,151,550	971,658
Payments on revolving lines of credit	(838,936)	(1,187,159)	(998,726)
Proceeds from long-term debt	78,700	15,128	—
Payments on long-term debt	(68,080)	(74,470)	(411)
Proceeds from senior notes, net of issuance costs	—	491,769	—
Payments on senior notes	—	(300,000)	—
Payments on finance lease obligations	(2,156)	(1,167)	—
Payment of dividends	(32,106)	(25,210)	(34,857)
Proceeds from sale of treasury stock	10,866	7,014	5,268
Purchase of outstanding shares for treasury	(31,673)	(232,290)	(40,955)
Proceeds from sale of stock held by SECT	679	24,721	13,990
Purchase of stock held by SECT	(4,239)	(6,774)	(15,288)
Proceeds from sale of SERP stock	—	—	4,293
Other financing transactions	—	(5,878)	—
Net cash used by financing activities	(86,995)	(142,766)	(98,681)
Effect of exchange rate changes on cash	768	2,306	(2,180)
Increase (decrease) in cash, cash equivalents and restricted cash	15,842	(7,476)	(35,158)
Cash, cash equivalents and restricted cash at beginning of year	85,072	92,548	127,706
Cash, cash equivalents and restricted cash at end of year	\$ 100,914	\$ 85,072	\$ 92,548

Consolidated Statements of Cash Flows, continued

	Fiscal Years Ended		
	October 2, 2021	October 3, 2020	September 28, 2019
SUPPLEMENTAL CASH FLOW INFORMATION			
Interest paid	\$ 35,220	\$ 38,420	\$ 38,864
Income taxes paid, net of refunds	44,043	59,053	36,474
Treasury shares issued as compensation	10,751	9,063	11,795
Equipment and property acquired through lease financing	14,984	24,904	216

See accompanying Notes to Consolidated Financial Statements.

Notes to Consolidated Financial Statements
(dollars in thousands, except per share data)

Note 1 - Summary of Significant Accounting Policies

Consolidation: The consolidated financial statements include the accounts of Moog Inc. and all of our U.S. and foreign subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Fiscal Year: Our fiscal year ends on the Saturday that is closest to September 30. The consolidated financial statements include 52 weeks for the year ended October 2, 2021, 53 weeks for the year ended October 3, 2020 and 52 weeks for the year ended September 28, 2019.

Operating Cycle: Consistent with industry practice, aerospace and defense related inventories, unbilled recoverable costs and profits on over-time contract receivables, customer advances, warranties and contract reserves include amounts relating to contracts having long production and procurement cycles, portions of which are not expected to be realized or settled within one year.

Foreign Currency Translation: Assets and liabilities of subsidiaries that prepare financial statements in currencies other than the U.S. dollar are translated using rates of exchange as of the balance sheet date and the statements of earnings are translated at the average rates of exchange for each reporting period.

Use of Estimates: The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from those estimates and assumptions.

Revenue Recognition: We recognize revenue from contracts with customers using an over-time, cost-to-cost method of accounting or at the point in time that control transfers to the customer. For additional discussion on revenue recognition, see Note 2, Revenue from Contracts with Customers.

Shipping and Handling Costs: Shipping and handling costs are included in cost of sales.

Research and Development: Research and development costs are expensed as incurred and include salaries, benefits, consulting, material costs and depreciation.

Bid and Proposal Costs: Bid and proposal costs are expensed as incurred and classified as selling, general and administrative expenses.

Equity-Based Compensation: Our equity-based compensation plans allow for various types of equity-based incentive awards. The types and mix of these incentive awards are evaluated on an on-going basis and may vary based on our overall strategy regarding compensation. Equity-based compensation expense is based on awards that are ultimately expected to vest over the requisite service periods and are based on the fair value of the award measured on the grant date. Vesting requirements vary for directors, officers and key employees. In general, awards granted to officers and key employees principally vest over three years, in equal annual installments for time-based awards and in three years cliff vest for performance-based awards. We have elected to account for forfeitures when the forfeiture of the underlying awards occur. Equity-based compensation expense is included in selling, general and administrative expenses.

Cash and Cash Equivalents: All highly liquid investments with an original maturity of three months or less are considered cash equivalents.

Restricted Cash: Restricted cash principally represents funds held to satisfy supplemental retirement obligations.

Allowance for Credit Losses: The allowance for credit losses is based on our assessment of the collectibility of customer accounts. The allowance is determined by considering factors such as historical experience, credit quality, age of the accounts receivable, current economic conditions and reasonable forecasted financial information that may affect a customer's ability to pay.

Inventories: Inventories are stated at the lower of cost or net realizable value with cost determined primarily on the first-in, first-out (FIFO) method of valuation.

Property, Plant and Equipment: Property, plant and equipment are stated at cost. Plant and equipment are depreciated principally using the straight-line method over the estimated useful lives of the assets, generally ranging from 15 to 40 years for buildings and improvements, 5 to 15 years for machinery and equipment and 3 to 10 years for computer equipment and software. Leasehold improvements are amortized on a straight-line basis over the term of the lease or the estimated useful life of the asset, whichever is shorter.

Goodwill: We test goodwill for impairment at the reporting unit level on an annual basis or more frequently if an event occurs or circumstances change that indicate that the fair value of a reporting unit is likely to be below its carrying amount. We also test goodwill for impairment when there is a change in reporting units.

We may elect to perform a qualitative assessment that considers economic, industry and company-specific factors for all or selected reporting units. If, after completing this assessment, it is determined that it is more likely than not that the fair value of a reporting unit is less than its carrying value, we proceed to a quantitative test. We may also elect to perform a quantitative test instead of a qualitative assessment for any or all of our reporting units.

Quantitative testing requires a comparison of the fair value of each reporting unit to its carrying value. We typically use the discounted cash flow method to estimate the fair value of our reporting units. The discounted cash flow method incorporates various assumptions, the most significant being projected revenue growth rates, operating margins and cash flows, the terminal growth rate and the weighted-average cost of capital. If the carrying value of the reporting unit exceeds its fair value, goodwill is considered impaired and any loss must be measured. To determine the amount of the impairment loss, the implied fair value of goodwill is determined by assigning a fair value to all of the reporting unit's assets and liabilities, including any unrecognized intangible assets, as if the reporting unit had been acquired in a business combination at fair value. If the carrying amount of the reporting unit goodwill exceeds the implied fair value of that goodwill, an impairment loss would be recognized in an amount equal to that excess.

There were no goodwill impairment charges recorded in 2021, 2020 or 2019.

Acquired Intangible Assets: Acquired identifiable intangible assets are recorded at cost and are amortized over their estimated useful lives.

Impairment of Long-Lived Assets: Long-lived assets, including acquired identifiable intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of those assets may not be recoverable. We use undiscounted cash flows to determine whether impairment exists and measure any impairment loss using discounted cash flows.

In 2021, we recorded impairment charges on long-lived assets in our Space and Defense Controls segment. These charges relate to property, plant and equipment and intangibles assets that experienced a decline in value. These charges are included in long-lived asset impairment in the Consolidated Statements of Earnings.

In 2020, we recorded impairment charges on long-lived assets primarily in our Aircraft Controls and Industrial Systems segments. These charges relate to property, plant and equipment, right-of-use-assets and intangible assets that experienced significant decline in value due to economic impacts of the COVID-19 pandemic. These charges are included in long-lived asset impairment in the Consolidated Statements of Earnings.

In 2019, we recorded impairment charges for capitalized software costs that were not placed in service. These charges are included as other expense in the Consolidated Statements of Earnings.

See Note 6, Property, Plant and Equipment, Note 7, Leases, Note 8, Goodwill and Intangible Assets and Note 12, Fair Value for additional disclosures relating to impairment charges recorded.

Product Warranties: In the ordinary course of business, we warrant our products against defect 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.

Financial Instruments: Our financial instruments consist primarily of cash and cash equivalents, receivables, notes payable, accounts payable, long-term debt, interest rate swaps and foreign currency contracts. The carrying values for our financial instruments approximate fair value with the exception at times of long-term debt. We do not hold or issue financial instruments for trading purposes.

We carry derivative instruments on the Consolidated Balance Sheets at fair value, determined by reference to quoted market prices. The accounting for changes in the fair value of a derivative instrument depends on whether it has been designated and qualifies as part of a hedging relationship and, if so, the reason for holding it. Our use of derivative instruments is generally limited to cash flow hedges of certain interest rate risks and minimizing foreign currency exposure on foreign currency transactions, which are typically designated in hedging relationships, and intercompany balances, which are not designated as hedging instruments. Cash flows resulting from forward contracts are accounted for as hedges of identifiable transactions or events and classified in the same category as the cash flows from the items being hedged.

Refer to the following table for a summary of ASUs we adopted during 2021 and the related financial statement impact.

Recent Accounting Pronouncements:

Recent Accounting Pronouncements Adopted

Standard	Description	Financial Statement Effect or Other Significant Matters
ASU no. 2016-13 <i>Measurement of Credit Losses on Financial Instruments</i>	The standard replaces the incurred loss model with the current expected credit loss ("CECL") model to estimate credit losses for financial assets measured at amortized cost and certain off-balance sheet credit exposures. The CECL model requires a Company to estimate credit losses expected over the life of the financial assets based on historical experience, current conditions and reasonable and supportable forecasts. The provisions of the standard are effective for fiscal years beginning after December 15, 2019 and interim periods within those fiscal years. Early adoption is permitted. The amendment requires a modified retrospective approach by recording a cumulative-effect adjustment to retained earnings as of the beginning of the period of adoption.	We adopted this standard using a modified retrospective approach. Based on immateriality, there was no cumulative-effect adjustment to retained earnings as of the beginning of period of adoption. Upon adoption, we now calculate current expected credit losses for financial assets measured at amortized cost. We utilize factors such as historical experience, credit quality, age of accounts receivable, current economic conditions and reasonable forecasted financial information in order to determine expected credit losses for these assets. We are not subject to material receivable credit risk given a significant portion of our sales are generated from contracts with the U.S. Government, prime contractors to the U.S. Government and reputable Fortune 500 companies. The impact of this standard was immaterial to financial statements, related disclosures and internal controls. Date adopted: Q1 2021

Recent Accounting Pronouncements Not Yet Adopted

We consider the applicability and impact of all Accounting Standard Updates ("ASU"). ASUs not listed were assessed and determined to be either not applicable, or had or are expected to have an immaterial impact on our financial statements and related disclosures.

Note 2 - Revenue from Contracts with Customers

We recognize revenue from contracts with customers using the five-step model prescribed in ASC 606. The first step is identifying the contract. The identification of a contract with a customer requires an assessment of each party's rights and obligations regarding the products or services to be transferred, including an evaluation of termination clauses and presently enforceable rights and obligations. Each party's rights and obligations and the associated terms and conditions are typically determined in purchase orders. For sales that are governed by master supply agreements under which provisions define specific program requirements, purchase orders are issued under these agreements to reflect presently enforceable rights and obligations for the units of products and services being purchased.

Contracts are sometimes modified to account for changes in contract specifications and requirements. When this occurs, we assess the modification as prescribed in ASC 606 and determine whether the existing contract needs to be modified (and revenue cumulatively caught up), whether the existing contract needs to be terminated and a new contract needs to be created, or whether the existing contract remains and a new contract needs to be created. This is determined based on the rights and obligations within the modification as well as the associated transaction price.

The next step is identifying the performance obligations. A performance obligation is a promise to transfer goods or services to a customer that is distinct in the context of the contract, as defined by ASC 606. We identify a performance obligation for each promise in a contract to transfer a distinct good or service to the customer. As part of our assessment, we consider all goods and/or services promised in the contract, regardless of whether they are explicitly stated or implied by customary business practices. The products and services in our contracts are typically not distinct from one another due to their complexity and reliance on each other or, in many cases, we provide a significant integration service. Accordingly, many of our contracts are accounted for as one performance obligation. In limited cases, our contracts have more than one distinct performance obligation, which occurs when we perform activities that are not highly complex or interrelated or involve different product life cycles. Warranties are provided on certain contracts, but do not typically provide for services beyond standard assurances and are therefore not distinct performance obligations under ASC 606.

The third step is determining the transaction price, which represents the amount of consideration we expect to be entitled to receive from a customer in exchange for providing the goods or services. There are times when this consideration is variable, for example a volume discount, and must be estimated. Sales, use, value-added, and excise taxes are excluded from the transaction price, where applicable.

The fourth step is allocating the transaction price. The transaction price must be allocated to the performance obligations identified in the contract based on relative stand-alone selling prices when available, or an estimate for each distinct good or service in the contract when standalone prices are not available. Our contracts with customers generally require payment under normal commercial terms after delivery. Payment terms are typically within 30 to 60 days of delivery. The timing of satisfaction of our performance obligations does not significantly vary from the typical timing of payment.

The final step is the recognition of revenue. We recognize revenue as the performance obligations are satisfied. ASC 606 provides guidance to help determine if we are satisfying the performance obligation at a point in time or over time. In determining when performance obligations are satisfied, we consider factors such as contract terms, payment terms and whether there is an alternative use of the product or service. In essence, we recognize revenue when or as control of the promised goods or services transfer to the customer.

Revenue is recognized either over time using the cost-to-cost method, or point in time method. The over-time method of revenue recognition is predominantly used in Aircraft Controls and Space and Defense Controls. We use this method for U.S. Government contracts and repair and overhaul arrangements as we are creating or enhancing assets that the customer controls as the assets are being created or enhanced. In addition, many of our large commercial contracts qualify for over-time accounting as our performance does not create an asset with an alternative use and we have an enforceable right to payment for performance completed to date. Our over-time contracts are primarily firm fixed price.

Revenue recognized at the point in time control is transferred to the customer is used most frequently in Industrial Systems. We use this method for commercial contracts in which the asset being created has an alternative use. We determine the point in time control transfers to the customer by weighing the five indicators provided by ASC 606 - the entity has a present right to payment; the customer has legal title; the customer has physical possession; the customer has the significant risks and rewards of ownership; and the customer has accepted the asset. When control has transferred to the customer, profit is generated as cost of sales is recorded and as revenue is recognized. Inventory costs include all product manufacturing costs such as direct material, direct labor, other direct costs and indirect overhead cost allocations. Shipping and handling costs are considered costs to fulfill a contract and not considered performance obligations. They are included in cost of sales as incurred.

Revenue is recognized on contracts using the cost-to-cost method of accounting as work progresses toward completion as determined by the ratio of cumulative costs incurred to date to estimated total contract costs at completion, multiplied by the total estimated contract revenue, less cumulative revenue recognized in prior periods. We believe that cumulative costs incurred to date as a percentage of estimated total contract costs at completion is an appropriate measure of progress toward satisfaction of performance obligations as this measure most accurately depicts the progress of our work and transfer of control to our customers. Changes in estimates affecting sales, costs and profits are recognized in the period in which the change becomes known using the cumulative catch-up method of accounting, resulting in the cumulative effect of changes reflected in the period. Estimates are reviewed and updated quarterly for substantially all contracts. In 2021, we recognized revenues of \$11,167 for adjustments made to performance obligations satisfied (or partially satisfied) in previous periods. In 2020, we recognized revenues of \$15,785 for adjustments made to performance obligations satisfied (or partially satisfied) in previous periods. In 2019, we recognized revenues of \$20,055 for adjustments made to performance obligations satisfied (or partially satisfied) in previous periods.

Contract costs include only allocable, allowable and reasonable costs which are included in cost of sales when incurred. For applicable U.S. Government contracts, contract costs are determined in accordance with the Federal Acquisition Regulations and the related Cost Accounting Standards. The nature of these costs includes development engineering costs and product manufacturing costs such as direct material, direct labor, other direct costs and indirect overhead costs. Contract profit is recorded as a result of the revenue recognized less costs incurred in any reporting period. Variable consideration and contract modifications, such as performance incentives, penalties, contract claims or change orders are considered in estimating revenues, costs and profits when they can be reliably estimated and realization is considered probable. As of October 2, 2021, revenue recognized on contracts for unresolved claims or unapproved contract change orders was not material.

As of October 2, 2021, we had contract reserves of \$58,857. For contracts with anticipated losses at completion, a provision for the entire amount of the estimated remaining loss is charged against income in the period in which the loss becomes known. Contract losses are determined considering all direct and indirect contract costs, exclusive of any selling, general or administrative cost allocations that are treated as period expenses. Loss reserves are more common on firm fixed-price contracts that involve, to varying degrees, the design and development of new and unique controls or control systems to meet the customers' specifications. In accordance with ASC 606, we calculate contract losses at the contract level, versus the performance obligation level. Recall reserves are recorded when additional work is needed on completed products for them to meet contract specifications. Contract-related loss reserves are recorded for the additional work needed on completed and delivered products in order for them to meet contract specifications.

Contract Assets and Liabilities

Unbilled receivables (contract assets) primarily represent revenues recognized for performance obligations that have been satisfied but for which amounts have not been billed. These are included as Receivables on the Consolidated Balance Sheets. Contract advances (contract liabilities) relate to payments received from customers in advance of the satisfaction of performance obligations for a contract. We do not consider contract advances to be significant financing components as the intent of these payments in advance are for reasons other than providing a significant financing benefit and are customary in our industry.

Total contract assets and contract liabilities are as follows:

	October 2, 2021	October 3, 2020
Unbilled receivables	\$ 546,764	\$ 493,734
Contract advances	263,686	203,338
Net contract assets	\$ 283,078	\$ 290,396

The increase in contract assets reflects the net impact of additional unbilled revenues recorded in excess of revenue recognized during the period. The increase in contract liabilities reflects the net impact of additional deferred revenues recorded in excess of revenue recognized during the period. As of October 2, 2021, we recognized \$162,344 of revenue that was included in the contract liability balance at the beginning of the period.

Remaining Performance Obligations

As of October 2, 2021, the aggregate amount of the transaction price allocated to the performance obligations that are unsatisfied (or partially unsatisfied) was \$4,800,000. We expect to recognize approximately 44% of that amount as sales over the next twelve months and the balance thereafter.

Disaggregation of Revenue

See Note 21, Segments, for disclosures related to disaggregation of revenue.

Note 3 - Acquisitions and Divestitures

Acquisitions

On December 18, 2020, we acquired Genesys Aerosystems Group, Inc. ("Genesys"), headquartered in Mineral Wells, Texas for a purchase price of \$77,600, net of acquired cash. Genesys designs and manufactures a full suite of electronic flight instrument systems and autopilot solutions. This operation is included in our Aircraft Controls segment.

On November 28, 2019, we acquired GAT Gesellschaft für Antriebstechnik mbH and GAT Inc. ("GAT"), headquartered in Geisenheim, Germany for a purchase price of \$54,265, net of acquired cash. GAT designs and manufactures high-end fluid rotating unions and slip rings. This operation is included in our Industrial Systems segment.

Divestitures

In the fourth quarter of 2021, we sold a non-core business of our Industrial Systems segment for \$11,285 in net consideration and recorded a loss in other income of \$1,536.

On June 29, 2021, we announced that we entered into a definitive agreement to sell the assets of our Navigation Aids ("Nav aids") business to Thales. Nav aids is engaged in the business of designing, developing, manufacturing and marketing ground and ship-based radio frequency navigation beacons and related antennas for military and civilian applications. The business is based in Salt Lake City, Utah and is included in our Aircraft Controls segment. The transaction is subject to regulatory review and customary closing conditions.

In the first quarter of 2021, we sold a non-core business in our Aircraft Controls segment for \$2,081 in net consideration and recorded a loss in other income of \$683.

In the first quarter of 2020, we sold a non-core business of our Industrial Systems segment for \$1,775 in net consideration and recorded a gain in other income of \$169.

Note 4 - Receivables

Receivables consist of:

	October 2, 2021	October 3, 2020
Accounts receivable	\$ 395,674	\$ 363,089
Unbilled receivables	546,764	493,734
Other	7,842	5,025
Less allowance for credit losses	(4,351)	(6,313)
Receivables, net	\$ 945,929	\$ 855,535

We securitize certain trade receivables in transactions that are accounted for as secured borrowings (the "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 Balance Sheets, is recorded at fair value, which approximates the total amount of the designated pool of accounts receivable. See Note 9, Indebtedness, for additional disclosures related to the Securitization Program. See Note 24, Subsequent Events, for additional information related to the Securitization Program.

Over-time contract receivables are primarily associated with prime contractors and subcontractors in connection with U.S. Government contracts, as well as commercial aircraft and satellite manufacturers. Amounts billed for over-time contracts to the U.S. Government were \$11,330 at October 2, 2021 and \$10,286 at October 3, 2020. Unbilled recoverable costs and accrued profits under over-time contracts to be billed to the U.S. Government were \$32,245 at October 2, 2021 and \$34,223 at October 3, 2020. Unbilled recoverable costs and accrued profits principally represent revenues recognized on contracts that were not billable on the balance sheet date. These amounts will be billed in accordance with contract terms, generally as certain milestones are reached or upon shipment. Unbilled amounts expected to be collected beyond one year are not material. In situations where billings exceed revenues recognized, the excess is included in contract advances.

There are no material amounts of claims or unapproved change orders included in the Consolidated Balance Sheets. There are no material balances billed but not paid by customers under retainage provisions.

Concentrations of credit risk on receivables are limited to those from significant customers who are believed to be financially sound. Receivables from Boeing were \$209,653 at October 2, 2021 and \$249,424 at October 3, 2020 and receivables from Lockheed Martin were \$88,744 at October 2, 2021 and \$79,015 at October 3, 2020. We perform periodic credit evaluations of our customers' financial condition and generally do not require collateral.

Note 5 - Inventories

Inventories, net of reserves, consist of:

	October 2, 2021	October 3, 2020
Raw materials and purchased parts	\$ 231,406	\$ 235,906
Work in progress	315,762	327,990
Finished goods	65,927	59,147
Inventories, net	\$ 613,095	\$ 623,043

There are no material inventoried costs relating to over-time contracts where revenue is accounted for using the cost-to-cost method of accounting as of October 2, 2021 and October 3, 2020.

Note 6 - Property, Plant and Equipment

Property, plant and equipment consists of:

	October 2, 2021	October 3, 2020
Land	\$ 35,762	\$ 37,463
Buildings and improvements	506,450	476,659
Machinery and equipment	791,984	782,194
Computer equipment and software	179,066	158,683
Property, plant and equipment, at cost	1,513,262	1,454,999
Less accumulated depreciation and amortization	(867,484)	(854,501)
Property, plant and equipment, net	\$ 645,778	\$ 600,498

In 2021, we recorded \$356 of impairment charges for owned assets, based on expected cash flows over the remaining life of the assets in relation to a decline in the related business. In 2020, we recorded \$25,419 of impairment charges for owned and finance lease ROU assets, based on expected cash flows over the remaining life of the assets in relation to the impact of the COVID-19 pandemic. In 2019, we recorded \$4,464 relating to impairment charges for capitalized software that was not placed in service.

Note 7 - Leases

We lease certain manufacturing facilities, office space and machinery and equipment globally. At inception we evaluate whether a contractual arrangement contains a lease. Specifically, we consider whether we control the underlying asset and have the right to obtain substantially all the economic benefits or outputs from the asset. If the contractual arrangement contains a lease, we then determine the classification of the lease, operating or finance, using the classification criteria described in ASC 842. We then determine the term of the lease based on terms and conditions of the contractual arrangement, including whether the options to extend or terminate the lease are reasonably certain to be exercised. We have elected to not separate lease components from non-lease components, such as common area maintenance charges and instead, account for the lease and non-lease components as a single component.

Our lease right-of-use ("ROU") assets represent our right to use an underlying asset for the lease term and our lease liabilities represent our obligation to make lease payments. Operating lease ROU assets are included in Operating lease right-of-use assets and operating lease liabilities are included in Accrued liabilities and other and Other long-term liabilities on the Consolidated Balance Sheets. Finance lease ROU assets are included in Property, plant and equipment and finance lease liabilities are included in Accrued liabilities and other and Other long-term liabilities on the Consolidated Balance Sheets. Operating lease cost is included in Cost of sales and Selling, general and administrative on the Consolidated Statements of Earnings. Finance lease cost is included in Cost of sales, Selling, general and administrative and Interest on the Consolidated Statements of Earnings.

The ROU assets and lease liabilities for both operating and finance leases are recognized as of the commencement date at the net present value of the fixed minimum lease payments over the term of the lease, using the discount rate described below. Variable lease payments are recorded in the period in which the obligation for the payment is incurred. Variable lease payments based on an index or rate are initially measured using the index or rate as of the commencement date of the lease and included in the fixed minimum lease payments. For short-term leases that have a term of 12 months or less as of the commencement date, we do not recognize a ROU asset or lease liability on our balance sheet; we recognize expense as the lease payments are made over the lease term.

The discount rate used to calculate the present value of our leases is the rate implicit in the lease. If the information necessary to determine the rate implicit in the lease is not available, we use our incremental borrowing rate for collateralized debt, which is determined using our credit rating and other information available as of the lease commencement date.

The components of lease expense were as follows:

	2021	2020
Operating lease cost	\$ 30,353	\$ 27,493
Finance lease cost:		
Amortization of right-of-use assets	\$ 2,282	\$ 1,175
Interest on lease liabilities	736	367
Total finance lease cost	\$ 3,018	\$ 1,542

As we have not restated prior-year information for the adoption of ASC 842, total rent expense for operating leases under ASC 840 amounted to \$25,510 in 2019.

Supplemental cash flow information related to leases was as follows:

	2021	2020
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flow for operating leases	\$ 29,926	\$ 24,218
Operating cash flow for finance leases	736	367
Financing cash flow for finance leases	2,156	1,167
Assets obtained in exchange for lease obligations:		
Operating leases	9,426	13,738
Finance leases	5,558	11,166

Supplemental balance sheet information related to leases was as follows:

	October 2, 2021	October 3, 2020
Operating Leases		
Operating lease right-of-use assets	\$ 60,355	\$ 68,393
Accrued liabilities and other	\$ 14,176	\$ 15,034
Other long-term liabilities	57,277	60,837
Total operating lease liabilities	\$ 71,453	\$ 75,871
Finance Leases		
Property, plant, and equipment, at cost	\$ 19,861	\$ 13,930
Accumulated depreciation	(3,375)	(1,497)
Property, plant, and equipment, net	\$ 16,486	\$ 12,433
Accrued liabilities and other	\$ 2,014	\$ 2,199
Other long-term liabilities	15,904	11,392
Total finance lease liabilities	\$ 17,918	\$ 13,591
Weighted average remaining lease term in years		
Operating leases	7.4	7.4
Finance leases	15.5	12.3
Weighted average discount rate		
Operating leases	4.7 %	4.7 %
Finance leases	5.0 %	4.8 %

Maturities of lease liabilities were as follows:

	October 2, 2021	
	Operating Leases	Finance Leases
2022	\$ 17,158	\$ 2,754
2023	13,874	2,734
2024	10,227	2,735
2025	8,458	2,543
2026	7,123	2,242
Thereafter	30,788	15,205
Total lease payments	87,628	28,213
Less: imputed interest	(16,175)	(10,295)
Total	\$ 71,453	\$ 17,918

The operating lease ROU assets and finance leased cost in the disclosures above as of October 3, 2020 reflect write downs of \$3,696 and \$1,112, respectively, based on expected cash flows over the remaining life of the assets in relation to impairment charges associated with the COVID-19 pandemic.

Note 8 - 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 September 29, 2018	\$ 179,907	\$ 261,732	\$ 355,578	\$ 797,217
Divestiture	—	—	(1,237)	(1,237)
Foreign currency translation	(2,968)	(48)	(8,724)	(11,740)
Balance at September 28, 2019	176,939	261,684	345,617	784,240
Acquisition	—	—	25,237	25,237
Divestiture	—	—	(635)	(635)
Foreign currency translation	2,582	42	10,390	13,014
Balance at October 3, 2020	179,521	261,726	380,609	821,856
Acquisition	29,123	—	—	29,123
Divestitures	(312)	—	(3,092)	(3,404)
Foreign currency translation	2,447	41	1,542	4,030
Balance at October 2, 2021	\$ 210,779	\$ 261,767	\$ 379,059	\$ 851,605

Goodwill in our Space and Defense Controls segment is net of a \$4,800 accumulated impairment loss at October 2, 2021. Goodwill in our Medical Devices reporting unit, included in our Industrial Systems segment, is net of a \$38,200 accumulated impairment loss at October 2, 2021.

The components of intangible assets are as follows:

	October 2, 2021			October 3, 2020	
	Weighted-Average Life (years)	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Customer-related	11	\$ 163,215	\$ (108,844)	\$ 140,048	\$ (103,733)
Technology-related	9	82,716	(58,119)	77,060	(54,833)
Program-related	23	40,211	(19,707)	38,963	(17,340)
Marketing-related	8	28,590	(22,212)	25,581	(20,981)
Other	10	1,963	(1,718)	4,134	(3,853)
Intangible assets	12	\$ 316,695	\$ (210,600)	\$ 285,786	\$ (200,740)

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.

In 2021, we recorded \$1,144 in impairment charges on long-lived assets in our Space and Defense Controls segment. These charges relate to intangibles assets that experienced a decline in value. These charges are included in long-lived asset impairment in the Consolidated Statements of Earnings. In 2020, we recorded a \$8,723 write down of intangible assets based on expected cash flows over the remaining life of the assets in relation to the impairment charges associated with the COVID-19 pandemic.

Amortization of acquired intangible assets is as follows:

	2021	2020	2019
Acquired intangible asset amortization	\$ 13,454	\$ 12,524	\$ 13,079

Based on acquired intangible assets recorded at October 2, 2021, amortization is estimated to be approximately:

	2022	2023	2024	2025	2026
Estimated future amortization of acquired intangible assets	\$ 13,500	\$ 12,900	\$ 12,100	\$ 10,900	\$ 10,700

Note 9 - 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:

	October 2, 2021	October 3, 2020
U.S. revolving credit facility	\$ 321,886	\$ 362,136
SECT revolving credit facility	7,000	6,000
Senior notes 4.25%	500,000	500,000
Securitization program	80,000	69,000
Other long-term debt	1,280	1,661
Senior debt	910,166	938,797
Less deferred debt issuance cost	(6,446)	(8,465)
Less current installments	(80,365)	(350)
Long-term debt	\$ 823,355	\$ 929,982

On October 15, 2019, we amended and restated our U.S. revolving credit facility, which matures on October 15, 2024. 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 \$400,000 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. We are in compliance with all covenants. The weighted-average interest rate on the majority of the outstanding credit facility borrowings is 1.59% and is principally based on LIBOR plus the applicable margin, which was 1.5% at October 2, 2021.

The SECT has a revolving credit facility with a borrowing capacity of \$35,000, maturing on July 26, 2024. Interest is based on LIBOR plus an applicable margin of 2.13%. A commitment fee is also charged based on a percentage of the unused amounts available and is not material.

On December 13, 2019, we completed the sale of \$500,000 aggregate principal amount of 4.25% senior notes due December 15, 2027 with interest paid semiannually on June 15 and December 15 of each year, which commenced on June 15, 2020. 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 aggregate net proceeds of \$491,769 were used to repay indebtedness under our U.S. revolving credit facility, thereby increasing the unused portion of our U.S. revolving credit facility. The effective interest rate for these notes after considering the amortization of deferred debt issuance costs is 4.60%.

On December 13, 2019, we issued a notice of redemption to the holders of our 5.25% senior notes due on December 1, 2022, to redeem and retire all of the outstanding notes. The notes were redeemed on January 13, 2020 at 101.313% pursuant to an early redemption right. We redeemed the aggregate principal amount of \$300,000 using proceeds drawn from our U.S. revolving credit facility. The associated loss on redemption includes \$3,939 of call premium paid to external bondholders.

The Securitization Program matures on October 29, 2021 and effectively increases our borrowing capacity by up to \$80,000. 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 0.95% at October 2, 2021 and 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 October 2, 2021, our minimum borrowing requirement was \$64,000. See Note 24, Subsequent Events, for additional information related to the Securitization Program.

Maturities of long-term debt are:

	2022	2023	2024	2025	2026	Thereafter
Long-term debt maturities	\$ 80,365	\$ 915	\$ 7,000	\$ 321,886	\$ —	\$ 500,000

At October 2, 2021, we had pledged assets with a net book value of \$1,928,138 as security for long-term debt.

At October 2, 2021, we had \$785,638 of unused short and long-term borrowing capacity, including \$745,701 from the U.S. revolving credit facility.

Commitment fees are charged on some of these arrangements and on the U.S. revolving credit facility based on a percentage of the unused amounts available and are not material.

Note 10 - Other Accrued Liabilities

Other accrued liabilities consists of:

	October 2, 2021	October 3, 2020
Contract reserves	\$ 58,857	\$ 72,412
Employee benefits	54,146	40,734
Warranty accrual	26,602	27,707
Accrued income taxes	12,908	11,785
Other	59,492	67,850
Other accrued liabilities	\$ 212,005	\$ 220,488

Activity in the warranty accrual is summarized as follows:

	2021	2020	2019
Warranty accrual at beginning of period	\$ 27,707	\$ 28,061	\$ 25,537
Additions from acquisitions	990	767	—
Warranties issued during current period	13,937	14,820	20,024
Adjustments to pre-existing warranties	(519)	(1,779)	(952)
Reductions for settling warranties	(15,630)	(14,656)	(16,083)
Foreign currency translation	117	494	(465)
Warranty accrual at end of period	\$ 26,602	\$ 27,707	\$ 28,061

Note 11 - Derivative Financial Instruments

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

Derivatives designated as hedging instruments

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 contracts with notional amounts of \$41,188 at October 2, 2021. These contracts mature at various times through June 2, 2023.

We use forward currency contracts to hedge our net investment in certain foreign subsidiaries. As of October 2, 2021, we had no outstanding net investment hedges.

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 October 2, 2021, we had no outstanding interest rate swaps.

Foreign currency contracts, net investment hedges and interest rate swaps are recorded in the Consolidated 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 Statements of Earnings, as necessary, during the periods in which the related payments or receipts affect earnings. However, to the extent the foreign currency contracts and interest rate swaps 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 2021, 2020 or 2019.

Derivatives not designated as hedging instruments

We also have foreign currency exposure on balances, primarily intercompany, that are denominated in a foreign currency and are adjusted to current values using period-end exchange rates. The resulting gains or losses are recorded in the Consolidated Statements of Earnings. To minimize foreign currency exposure, we have foreign currency contracts with notional amounts of \$131,055 at October 2, 2021. The foreign currency contracts are recorded in the Consolidated Balance Sheets at fair value and resulting gains or losses are recorded in the Consolidated Statements of Earnings. We recorded the following gains and 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:

	Statements of Earnings location	2021	2020
Net gain			
Foreign currency contracts	Other	\$ 648	\$ 1,306

Summary of derivatives

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

	Balance Sheets location	October 2, 2021	October 3, 2020
Derivatives designated as hedging instruments:			
Foreign currency contracts	Other current assets	\$ 325	\$ 1,818
Foreign currency contracts	Other assets	104	169
	Total asset derivatives	\$ 429	\$ 1,987
Foreign currency contracts	Accrued liabilities and other	\$ 1,235	\$ 169
Foreign currency contracts	Other long-term liabilities	537	—
	Total liability derivatives	\$ 1,772	\$ 169
Derivatives not designated as hedging instruments:			
Foreign currency contracts	Other current assets	\$ 226	\$ 1,044
Foreign currency contracts	Accrued liabilities and other	\$ 480	\$ 245

Note 12 - 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:

	Balance Sheets location	October 2, 2021	October 3, 2020
Foreign currency contracts	Other current assets	\$ 551	\$ 2,862
Foreign currency contracts	Other assets	104	169
	Total assets	\$ 655	\$ 3,031
Foreign currency contracts	Accrued liabilities and other	\$ 1,715	\$ 414
Foreign currency contracts	Other long-term liabilities	537	—
	Total liabilities	\$ 2,252	\$ 414

Our only financial instrument for which the carrying value differs from its fair value is long-term debt. At October 2, 2021, the fair value of long-term debt was \$916,764 compared to its carrying value of \$910,166. 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.

Property, plant and equipment, ROU assets and intangible assets have been measured at fair values on a nonrecurring basis using future discounted cash flows and other observable inputs (Level 3) and are not included in the fair value tables above. The impairment losses of \$1,500 and \$37,839 in 2021 and 2020, respectively, are recorded as a result of these measurements are described in Note 6, Property, Plant and Equipment, Note 7, Leases and Note 8, Goodwill and Intangible Assets.

Note 13 - Restructuring

In 2020, we initiated restructuring actions in relation to impacts of the COVID-19 pandemic. The actions resulted in workforce reductions, primarily in the Philippines, Europe and the U.S. We have recorded a total of \$10,466 for severance.

Restructuring activity for severance and other costs by segment and reconciliation to consolidated amounts is as follows:

	Aircraft Controls	Space and Defense Controls	Industrial Systems	Corporate	Total
Balance at September 29, 2018	\$ 626	\$ 64	\$ 6,994	\$ 429	\$ 8,113
Adjustments to provision	13	(21)	275	17	284
Cash payments - 2016 plan	—	—	—	(446)	(446)
Cash payments - 2018 plan	(632)	(16)	(2,757)	—	(3,405)
Foreign currency translation	(7)	—	(416)	—	(423)
Balance at September 28, 2019	—	27	4,096	—	4,123
Charged to expense - 2020 plan	3,340	185	7,175	—	10,700
Non-cash charges - 2020 plan	(234)	—	—	—	(234)
Adjustments to provision	—	(1)	(892)	—	(893)
Cash payments - 2018 plan	—	(26)	(705)	—	(731)
Cash payments - 2020 plan	(1,859)	(185)	(828)	—	(2,872)
Foreign currency translation	—	—	249	—	249
Balance at October 3, 2020	1,247	—	9,095	—	10,342
Adjustments to provision	(457)	—	(711)	—	(1,168)
Cash payments - 2018 plan	—	—	(524)	—	(524)
Cash payments - 2020 plan	(611)	—	(2,423)	—	(3,034)
Foreign currency translation	—	—	49	—	49
Balance at October 2, 2021	\$ 179	\$ —	\$ 5,486	\$ —	\$ 5,665

As of October 2, 2021, the restructuring accrual consists of \$3,637 for the 2020 plan and \$2,028 for the 2018 plan. Restructuring is expected to be paid by October 1, 2022, except portions classified as long-term liabilities based on the nature of the reserve.

Note 14 - Employee Benefit Plans

We maintain multiple employee benefit plans, covering employees at certain locations.

Our qualified U.S. defined benefit pension plan is not open to new entrants. New employees are not eligible to participate in the pension plan. Instead, we make contributions for those employees to an employee-directed investment fund in the Moog Inc. Retirement Savings Plan ("RSP"), which consists of two defined contribution options, the RSP and the RSP(+). Effective January 1, 2020, all employees hired prior to January 1, 2019 are eligible to either participate in the new RSP(+) or remain in the existing RSP. All employees hired after January 1, 2019 are automatically enrolled in the new RSP(+). The Company's contributions to both the RSP and RSP(+) are based on a percentage of the employee's eligible compensation and age and are in addition to the employer match on voluntary employee contributions. The Company's contributions and the employer match were both enhanced under the new RSP(+).

The RSP and RSP(+) includes an employee stock ownership feature. As one of the investment alternatives, participants in the RSP and RSP(+) can acquire our stock at market value. Shares are allocated and compensation expense is recognized as the employer share match is earned. At October 2, 2021, the participants in the RSP and RSP(+) owned 1,644,078 Class B shares.

As of January 1, 2021, one of our non-U.S. defined benefit plans was replaced by a defined contribution plan. The transaction eliminated balance sheet exposure for the plan, reducing the projected benefit obligation by \$63,333, the fair value of plan assets by \$57,643 and resulted in a curtailment gain of \$5,830.

On September 16, 2020, we entered into an agreement to purchase a single premium non-participating group annuity contract and transferred the future benefit obligations and annuity administration for certain retirees and beneficiaries in our qualified U.S. defined benefit pension plan. This settlement reduced the projected benefit obligation and fair value of assets by \$486,615 and resulted in a one-time settlement charge of \$121,324.

The changes in projected benefit obligations and plan assets and the funded status of the U.S. and non-U.S. defined benefit plans are as follows:

	U.S. Plans		Non-U.S. Plans	
	2021	2020	2021	2020
Change in projected benefit obligation:				
Projected benefit obligation at prior year measurement date	\$ 688,689	\$1,065,937	\$ 264,419	\$ 249,575
Service cost	22,488	23,033	5,290	6,771
Interest cost	17,103	30,597	2,277	2,785
Contributions by plan participants	—	—	380	832
Actuarial (gains) losses	(13,815)	97,438	2,224	(3,572)
Foreign currency exchange impact	—	—	68	16,256
Benefits paid	(8,298)	(40,246)	(5,271)	(5,278)
Curtailments	—	—	(5,690)	81
Settlements	—	(486,615)	(58,604)	(2,999)
Other	(1,178)	(1,455)	—	(32)
Projected benefit obligation at measurement date	\$ 704,989	\$ 688,689	\$ 205,093	\$ 264,419
Change in plan assets:				
Fair value of assets at prior year measurement date	\$ 615,872	\$1,004,163	\$ 170,765	\$ 166,242
Actual return on plan assets	28,718	134,871	11,552	(5,088)
Employer contributions	5,399	5,154	8,119	7,017
Contributions by plan participants	—	—	380	832
Benefits paid	(8,298)	(40,246)	(5,271)	(5,278)
Settlements	—	(486,615)	(58,604)	(2,999)
Foreign currency exchange impact	—	—	825	10,071
Other	(1,178)	(1,455)	—	(32)
Fair value of assets at measurement date	\$ 640,513	\$ 615,872	\$ 127,766	\$ 170,765
Funded status and amount recognized in assets and liabilities	\$ (64,476)	\$ (72,817)	\$ (77,327)	\$ (93,654)
Amount recognized in assets and liabilities:				
Long-term assets	\$ 40,873	\$ 30,887	\$ 9,266	\$ 3,862
Current and long-term pension liabilities	(105,349)	(103,704)	(86,593)	(97,516)
Amount recognized in assets and liabilities	\$ (64,476)	\$ (72,817)	\$ (77,327)	\$ (93,654)
Amount recognized in AOCIL, before taxes:				
Prior service cost (credit)	\$ —	\$ —	\$ 940	\$ 56
Actuarial losses	158,445	184,156	49,196	60,721
Amount recognized in AOCIL, before taxes	\$ 158,445	\$ 184,156	\$ 50,136	\$ 60,777

Our funding policy is to contribute at least the amount required by law in the respective countries.

The total accumulated benefit obligation as of the measurement date for all defined benefit pension plans was \$832,053 in 2021 and \$868,316 in 2020. At the measurement date in 2021, our plans had fair values of plan assets totaling \$768,279. The following table provides aggregate information for the pension plans, which have accumulated benefit obligations in excess of plan assets:

	October 2, 2021	October 3, 2020
Accumulated benefit obligation	\$ 223,933	\$ 277,404
Fair value of plan assets	48,884	97,872

The following table provides aggregate information for the pension plans, which have projected benefit obligations in excess of plan assets:

	October 2, 2021	October 3, 2020
Projected benefit obligation	\$ 256,084	\$ 312,995
Fair value of plan assets	64,143	111,776

Weighted-average assumptions used to determine net periodic benefit cost and weighted-average assumptions used to determine benefit obligations as of the measurement dates are as follows:

	U.S. Plans			Non-U.S. Plans		
	2021	2020	2019	2021	2020	2019
Assumptions for net periodic benefit cost:						
Service cost discount rate	3.1 %	3.5 %	4.4 %	1.5 %	1.6 %	2.9 %
Interest cost discount rate	2.6 %	2.9 %	4.1 %	1.2 %	1.3 %	2.6 %
Return on assets	5.0 %	4.5 %	5.3 %	3.2 %	2.7 %	3.5 %
Rate of compensation increase	3.3 %	2.9 %	3.5 %	2.6 %	2.1 %	2.5 %
Assumptions for benefit obligations:						
Discount rate	3.2 %	3.0 %	3.3 %	1.8 %	1.4 %	1.6 %
Rate of compensation increase	3.5 %	3.3 %	2.9 %	2.8 %	2.2 %	2.1 %

Pension plan investment policies and strategies are developed on a plan specific basis, which varies by country. The overall objective for the long-term expected return on both domestic and international plan assets is to earn a rate of return over time to meet anticipated benefit payments in accordance with plan provisions. The long-term investment objective of both the domestic and international retirement plans is to maintain the economic value of plan assets and future contributions by producing positive rates of investment return after subtracting inflation, benefit payments and expenses. Each of the plan's strategic asset allocations is based on this long-term perspective and short-term fluctuations are viewed with appropriate perspective.

The U.S. qualified defined benefit plan's assets are invested for long-term investment results. To accommodate the long-term investment horizon while providing appropriate liquidity, the plan maintains a liquid cash reserve sufficient to allow the plan to meet its benefit payment, fee and expense obligations. Its assets are broadly diversified to help alleviate the risk of adverse returns in any one security or investment class. The international plans' assets are invested in both low-risk and high-risk investments in order to achieve the long-term investment strategy objective. Investment risks for both domestic and international plans are considered within the context of the entire asset allocation, rather than on a security-by-security basis.

The U.S. qualified defined benefit plan and certain international plans have investment committees that are responsible for formulating investment policies, developing manager guidelines and objectives and approving and managing qualified advisors and investment managers. The guidelines established for each of the plans define permitted investments within each asset class and apply certain restrictions such as limits on concentrated holdings in order to meet overall investment objectives.

Pension obligations and the related costs are determined using actuarial valuations that involve several assumptions. The return on assets assumption reflects the average rate of return expected on funds invested or to be invested to provide for the benefits included in the projected benefit obligation. In determining the return on assets assumption, we consider the relative weighting of plan assets, the historical performance of total plan assets and individual asset classes and economic and other indicators of future performance. Asset management objectives include maintaining an adequate level of diversification to reduce interest rate and market risk and to provide adequate liquidity to meet immediate and future benefit payment requirements.

In determining our U.S. pension expense for 2021, we assumed an average rate of return on U.S. pension assets of approximately 5.0% measured over a planning horizon with reasonable and acceptable levels of risk. The rate of return was based on the actual asset allocation of 37% in equity securities and 63% in fixed income securities at October 3, 2020. As a result of the pension settlement transaction, we modified our asset allocation to align our investment portfolio to maintain the funded status of the plan. In determining our non-U.S. pension expense for 2021, we assumed an average rate of return on non-U.S. pension assets of approximately 3.2% measured over a planning horizon with reasonable and acceptable levels of risk. The rate of return assumed an average asset allocation of 40% in equity securities and 60% in fixed income securities and other investments.

The weighted average asset allocations by asset category for the pension plans as of October 2, 2021 and October 3, 2020 are as follows:

	U.S. Plans			Non-U.S. Plans		
	Target	2021 Actual	2020 Actual	Target	2021 Actual	2020 Actual
Asset category:						
Equity	30%-40%	35%	37%	25%-45%	32%	24%
Fixed Income	60%-70%	65%	63%	45%-65%	63%	38%
Other	—%	—%	—%	5%-15%	5%	38%

The valuation methodologies used for pension plan assets measured at fair value have been applied consistently.

Cash and cash equivalents: Direct cash holdings valued at cost, which approximates fair value.

Money market funds: Institutional short-term investment vehicles valued daily.

Shares of registered investment companies: Consists of both equity and fixed income mutual funds. Valued at quoted market prices that represent the net asset value ("NAV") of shares held by the plan at year end.

Fixed income securities: Valued using methods, such as dealer quotes, available trade information, spreads, bids and offers provided by a pricing vendor.

Equity securities: Traded on national exchanges are valued at the last reported sales price. Investments denominated in foreign currencies are translated into U.S. dollars using the last reported exchange rate.

Collective investment trust: NAV of the fund is calculated daily by the investment manager.

Unit linked life insurance funds: NAV value of the fund is calculated daily by the investment manager.

Investment in insurance contracts: Valued at contract value, which is the fair value of the underlying investment of the insurance company.

Limited partnerships: Valued at NAV of units held. The NAV is used as a practical expedient to estimate fair value. The NAV is based on the fair value of the underlying investments held by the fund less its liability. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different from the reported NAV.

Securities or other assets for which market quotations are not readily available or for which market quotations do not represent the value at the time of pricing (including certain illiquid securities) are fair valued in accordance with procedures established under the supervision and responsibility of the Trustee of that investment. Such procedures may include the use of independent pricing services or affiliated advisor pricing, which use prices based upon yields or prices of securities of comparable quality, coupon, maturity and type, indications as to values from dealers, operating data and general market conditions.

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The following tables present the consolidated plan assets using the fair value hierarchy, which is described in Note 12, Fair Value, as of October 2, 2021 and October 3, 2020.

U.S. Plans, October 2, 2021	Level 1	Level 2	Level 3	Total
Investments at fair value:				
Shares of registered investment companies:				
Equity funds	\$ 200,929	\$ —	\$ —	\$ 200,929
Fixed income funds	261,945	—	—	261,945
Money market funds	—	25,275	—	25,275
Total investments in fair value hierarchy	462,874	25,275	—	488,149
Investments measured at NAV practical expedient (1)				152,364
Total investments at fair value	\$ 462,874	\$ 25,275	\$ —	\$ 640,513

Non-U.S. Plans, October 2, 2021	Level 1	Level 2	Level 3	Total
Investments at fair value:				
Mutual funds:				
Equity funds	\$ —	\$ 6,971	\$ —	\$ 6,971
Fixed income funds	—	8,152	—	8,152
Equity securities	9,843	—	—	9,843
Fixed income securities	—	18,594	—	18,594
Collective investment trusts	—	21,681	—	21,681
Unit linked life insurance funds	—	58,643	—	58,643
Money market funds	—	542	—	542
Cash and cash equivalents	349	—	—	349
Insurance contracts and other	—	—	2,991	2,991
Total investments at fair value	\$ 10,192	\$ 114,583	\$ 2,991	\$ 127,766

U.S. Plans, October 3, 2020	Level 1	Level 2	Level 3	Total
Investments at fair value:				
Shares of registered investment companies:				
Equity funds	\$ 197,580	\$ —	\$ —	\$ 197,580
Fixed income funds	390,695	—	—	390,695
Money market funds	—	6,281	—	6,281
Total investments in fair value hierarchy	588,275	6,281	—	594,556
Investments measured at NAV practical expedient (1)				21,316
Total investments at fair value	\$ 588,275	\$ 6,281	\$ —	\$ 615,872

Non-U.S. Plans, October 3, 2020	Level 1	Level 2	Level 3	Total
Investments at fair value:				
Mutual funds:				
Equity funds	\$ —	\$ 6,159	\$ —	\$ 6,159
Fixed income funds	—	7,558	—	7,558
Equity securities	8,689	—	—	8,689
Fixed income securities	—	17,930	—	17,930
Collective investment trusts	—	19,636	—	19,636
Unit linked life insurance funds	—	53,607	—	53,607
Money market funds	—	576	—	576
Cash and cash equivalents	149	—	—	149
Insurance contracts and other	—	—	56,461	56,461
Total investments at fair value	\$ 8,838	\$ 105,466	\$ 56,461	\$ 170,765

- (1) Certain investments that are measured at fair value using the NAV per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the total retirement plan assets.

The following is a roll forward of the consolidated plan assets classified as Level 3 within the fair value hierarchy:

	U.S. Plans	Non-U.S. Plans	Total
Balance at September 28, 2019	\$ 505	\$ 56,213	\$ 56,718
Return on assets	4	(4,671)	(4,667)
Purchases from contributions to Plans	—	2,508	2,508
Settlements paid in cash	(509)	(1,274)	(1,783)
Foreign currency translation	—	3,685	3,685
Balance at October 3, 2020	—	56,461	56,461
Return on assets	—	2,882	2,882
Purchases from contributions to Plans	—	1,914	1,914
Settlements paid in cash	—	(59,180)	(59,180)
Foreign currency translation	—	914	914
Balance at October 2, 2021	\$ —	\$ 2,991	\$ 2,991

The following table summarizes investments measured at fair value based on NAV per share as of October 2, 2021:

	Fair Value				
	October 2, 2021	October 3, 2020	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Collective investment trusts	\$ 128,941	\$ —	\$ —	Daily	5 days
Limited partnerships (1)	23,423	21,316	4,280	Varies	10-45 days
Total	\$ 152,364	\$ 21,316	\$ 4,280		

- (1) Investments in limited partnerships held by us invest primarily in emerging markets, equity and equity related securities. The strategy for the partnerships is to have exposure to certain markets or to securities that are judged to achieve superior earnings growth and/or judged undervalued relative to intrinsic value.

The preceding methods may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although we believe the valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Expense for all defined benefit plans is as follows:

	U.S. Plans			Non-U.S. Plans		
	2021	2020	2019	2021	2020	2019
Service cost	\$ 22,488	\$ 23,033	\$ 21,003	\$ 5,290	\$ 6,771	\$ 4,988
Interest cost	17,103	30,597	36,924	2,277	2,785	4,393
Expected return on plan assets	(30,543)	(44,084)	(45,054)	(4,102)	(4,577)	(5,182)
Amortization of prior service cost (credit)	—	133	187	45	(3)	(18)
Amortization of actuarial loss	13,721	25,316	26,639	5,568	4,943	2,532
Curtailement (gain) loss	—	—	—	(5,830)	100	—
Settlement (gain) loss	—	121,324	—	(44)	676	—
Total expense for defined benefit plans	\$ 22,769	\$ 156,319	\$ 39,699	\$ 3,204	\$ 10,695	\$ 6,713

Benefits expected to be paid to the participants of the plans are:

	U.S. Plans	Non-U.S. Plans
2022	\$ 12,528	\$ 6,851
2023	16,274	8,784
2024	19,991	7,180
2025	23,607	7,511
2026	27,039	8,772
Five years thereafter	181,532	43,218

We presently anticipate contributing approximately \$5,200 to the SERP Trust for the non-qualified plan and \$7,900 to the non-U.S. plans in 2022.

Expense for all defined contribution plans consists of:

	2021	2020	2019
U.S. defined contribution plans	\$ 36,131	\$ 27,698	\$ 19,848
Non-U.S. defined contribution plans	8,890	5,965	5,270
Total expense for defined contribution plans	\$ 45,021	\$ 33,663	\$ 25,118

We provide postretirement health care benefits to certain domestic retirees, who were hired prior to October 1, 1989. There are no plan assets. The changes in the accumulated benefit obligation of this unfunded plan for 2021 and 2020 are shown in the following table:

	October 2, 2021	October 3, 2020
Change in Accumulated Postretirement Benefit Obligation (APBO):		
APBO at prior year measurement date	\$ 9,274	\$ 8,810
Service cost	52	55
Interest cost	124	211
Contributions by plan participants	553	629
Benefits paid	(464)	(668)
Actuarial (gains) losses	(3,258)	237
APBO at measurement date	\$ 6,281	\$ 9,274
Funded status	\$ (6,281)	\$ (9,274)
Accrued postretirement benefit liability	\$ 6,281	\$ 9,274
Amount recognized in AOCIL, before taxes:		
Actuarial gains	6,042	3,297
Amount recognized in AOCIL, before taxes	\$ 6,042	\$ 3,297

The cost of the postretirement benefit plan is as follows:

	2021	2020	2019
Service cost	\$ 52	\$ 55	\$ 68
Interest cost	124	211	315
Amortization of prior service credit	—	(259)	(471)
Amortization of actuarial gain	(513)	(607)	(713)
Net periodic postretirement benefit income	\$ (337)	\$ (600)	\$ (801)

As of the measurement date, the assumed discount rate used in the accounting for the postretirement benefit obligation was 2.5% in 2021, 2.3% in 2020 and 3.0% in 2019. The assumed service cost discount rate and interest cost discount rate used in the accounting for the net periodic postretirement benefit cost were 2.5% and 1.4%, respectively in 2021, 3.1% and 2.5%, respectively in 2020 and 4.3% and 3.8%, respectively in 2019.

For measurement purposes, a 7.8% annual per capita rate of increase of medical and drug costs were assumed for 2022, gradually decreasing to 4.5% for 2035 and years thereafter.

Employee and management profit sharing reflects a discretionary payment based on our financial performance. Profit share expense was \$34,257, \$21,968 and \$33,250 in 2021, 2020 and 2019, respectively.

Note 15 - Income Taxes

The reconciliation of the provision for income taxes to the amount computed by applying the U.S. federal statutory tax rate to earnings before income taxes is as follows:

	2021	2020	2019
Earnings before income taxes:			
Domestic	\$ 141,665	\$ 1,126	\$ 136,308
Foreign	62,109	4,291	90,644
Total	\$ 203,774	\$ 5,417	\$ 226,952
Federal statutory income tax rate	21.0 %	21.0 %	21.0 %
Increase (decrease) in income taxes resulting from:			
Impacts of Tax Act	(1.2)%	(96.4)%	0.4 %
Revaluation of deferred taxes	1.6 %	(21.6)%	(0.2)%
Withholding taxes	0.4 %	27.5 %	1.0 %
Reversal of indefinite reinvestment assertion	0.2 %	(2.9)%	0.6 %
R&D and foreign tax credits	(4.6)%	(102.8)%	(2.1)%
Foreign tax rates	4.4 %	76.0 %	2.3 %
Equity-based compensation	(0.1)%	(6.5)%	(0.7)%
Change in valuation allowance for deferred taxes	(1.6)%	21.1 %	(0.7)%
State taxes, net of federal benefit	2.1 %	(1.9)%	1.4 %
Other	0.6 %	16.6 %	0.1 %
Effective income tax rate	22.8 %	(69.9)%	23.1 %

Our accounting policy is to treat tax on the Global Intangible Low-Tax Income ("GILTI") as a current period cost included in tax expenses the year incurred. As such, we will not be measuring the impact of the GILTI in our determination of deferred taxes. In 2021, we recorded \$101 of GILTI tax and received a benefit of \$2,053 related to the Foreign-Derived Intangible Income deduction. In 2021, we also recorded a tax benefit for provision to return adjustments of \$3,057 related to domestic research and development tax credits and the adoption of the GILTI high tax election. In addition, we recorded a current year expense of \$1,446 for a total accrual of \$10,043 for taxes on undistributed earnings not considered permanently reinvested.

During 2021, 2020 and 2019, we repatriated available unremitted earnings from various foreign subsidiaries that were previously taxed under the Tax Act of \$41,987, \$23,001, \$103,227, respectively. We do not indefinitely reinvest unremitted earnings and therefore we maintain a liability related to the remaining unremitted earnings generated by the foreign subsidiaries, which primarily relates to foreign withholding taxes. We continue to be permanently invested in outside basis differences other than the unremitted earnings as we have no plans to liquidate or sell those foreign subsidiaries.

The components of income taxes are as follows:

	2021	2020	2019
Current:			
Federal	\$ 9,907	\$ 14,789	\$ 23,302
Foreign	23,801	18,997	29,460
State	4,684	3,271	4,240
Total current	38,392	37,057	57,002
Deferred:			
Federal	4,625	(35,603)	(5,666)
Foreign	2,898	(1,843)	1,413
State	639	(3,399)	(345)
Total deferred	8,162	(40,845)	(4,598)
Income taxes (benefit)	\$ 46,554	\$ (3,788)	\$ 52,404

Realization of deferred tax assets is dependent, in part, upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers projected future taxable income, tax planning strategies, carryback opportunities and reversal of existing deferred tax liabilities in making its assessment of the recoverability of deferred tax assets.

The tax effects of temporary differences that generated deferred tax assets and liabilities are as follows:

	October 2, 2021	October 3, 2020
Deferred tax assets:		
Benefit accruals	\$ 68,657	\$ 78,703
Inventory reserves	31,900	31,571
Tax benefit carryforwards	15,434	14,146
Contract reserves not currently deductible	13,294	16,418
Lease liability	16,997	17,622
Other accrued expenses	10,983	12,510
Total gross deferred tax assets	157,265	170,970
Less valuation allowance	(13,896)	(14,784)
Total net deferred tax assets	\$ 143,369	\$ 156,186
Deferred tax liabilities:		
Differences in bases and depreciation of property, plant and equipment	\$ 164,581	\$ 152,926
Pension	25,661	24,810
Total gross deferred tax liabilities	190,242	177,736
Net deferred tax assets (liabilities)	\$ (46,873)	\$ (21,550)

Deferred tax assets and liabilities are reported in separate captions on the Consolidated Balance Sheets.

At October 2, 2021 foreign tax benefit carryforwards total \$27,840 with expirations ranging from 2023 to indefinite life. Domestic benefit carryforwards include capital loss of \$5,000 expiring in 2024 and state tax losses of \$579 expiring in 2022. We also have \$1,391 and \$6,673 of federal and state tax credit carryforward with expirations from 2030 to 2031 and 2027 to indefinite life, respectively. The change in the valuation allowance relates to tax benefit carryforwards that were utilized during 2021.

We have no material unrecognized tax benefits which, if ultimately recognized, will reduce our annual effective tax rate.

We are subject to income taxes in the U.S. and in various states and foreign jurisdictions. Tax regulations within each jurisdiction are subject to the interpretation of the related tax laws and regulations and require the application of significant judgment. With few exceptions, we are no longer subject to U.S. federal, state and local, or non-U.S. income tax examinations by tax authorities in significant jurisdictions for tax years before 2019. The statute of limitations in several jurisdictions will expire in the next twelve months and we will have no unrecognized tax benefits recognized if the statute of limitations expires without the relevant taxing authority examining the applicable returns.

During 2021, due to passage of time, we concluded that it would be appropriate to relieve the \$1,131 accrual of interest and penalties related to historical unrecognized tax benefits in income tax expense.

Note 16 - Earnings per Share

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

	2021	2020	2019
Basic weighted-average shares outstanding	32,112,589	33,257,684	34,854,614
Dilutive effect of equity-based awards	185,367	180,117	324,354
Diluted weighted-average shares outstanding	32,297,956	33,437,801	35,178,968

There were 50,012, 136,323 and 29,971 common shares from equity-based compensation in 2021, 2020 and 2019, respectively, excluded from the calculation of diluted earnings per share as they would be anti-dilutive.

Note 17 - Shareholders' Equity

Class A and Class B common stock share equally in our earnings and are identical with certain exceptions. Other than on matters relating to the election of directors or as required by law where the holders of Class A and Class B shares vote as separate classes, Class A shares have limited voting rights, with each share of Class A being entitled to one-tenth of a vote on most matters, and each share of Class B being entitled to one vote. Class A shareholders are entitled, subject to certain limitations, to elect at least 25% of the Board of Directors (rounded up to the nearest whole number) with Class B shareholders entitled to elect the balance of the directors. No cash dividend may be paid on Class B shares unless at least an equal cash dividend is paid on Class A shares. Class B shares are convertible at any time into Class A shares on a one-for-one basis at the option of the shareholder.

Class A shares and Class B shares reserved for issuance at October 2, 2021 are as follows:

	Shares
Conversion of Class B to Class A shares	7,476,477
Employee Stock Purchase Plan	1,605,368
2014 Long Term Incentive Plan	1,725,039
2008 Stock Appreciation Rights Plan	1,128,815
Class A and B shares reserved for issuance	11,935,699

We are authorized to issue up to 10,000,000 shares of preferred stock. The Board of Directors may authorize, without further shareholder action, the issuance of additional preferred stock which ranks senior to both classes of our common stock with respect to the payment of dividends and the distribution of assets on liquidation. The preferred stock, when issued, would have such designations relative to voting and conversion rights, preferences, privileges and limitations as determined by the Board of Directors.

We issue common stock under our equity-based compensation plans from treasury stock or from stock held by the SECT. As of October 2, 2021, in addition to the shares reserved for issuance upon the exercise of outstanding equity awards, there were 883,111 shares authorized for awards that may be granted in the future under the 2014 Long Term Incentive Plan, assuming performance-based awards currently outstanding are all settled at the targeted payout.

On November 20, 2020, the Board of Directors authorized a new share repurchase program to replace the previously existing share repurchase program. This program authorizes repurchases that includes both Class A and Class B common stock, and allows us to buy up to an aggregate 3,000,000 common shares. Shares acquired by the SECT or the SERP Trust are not included in this program. During 2021, we repurchased 243,147 of our Class A and B common stock for \$19,253. As of October 2, 2021, the total remaining authorization for future common share repurchases under our program is 2,756,853 shares.

Previously, the Board of Directors authorized a share repurchase program that was amended from time to time to authorize additional repurchases. Shares acquired by the SECT or the SERP Trust are not included in this program. During 2021, we repurchased 155,963 of our Class A and B common stock for \$10,193. During 2020, we repurchased 2,881,116 of our Class A and Class B common stock for \$215,776. During 2019, we repurchased 302,184 of our Class A and Class B common stock for \$23,358. As of October 2, 2021, there are no shares remaining for future common share repurchases under this program.

Note 18 - Equity-Based Compensation

We have equity-based compensation plans that authorize the issuance of equity-based awards for shares of Class A and Class B common stock to directors, officers and key employees. Equity-based compensation grants are designed to reward long-term contributions to Moog and provide incentives for recipients to remain with Moog.

We have an Employee Stock Purchase Plan ("ESPP") that allows for qualified employees (as defined in the plan) to purchase our common stock at a price equal to 85% of the fair market value at the lower of the beginning or the end of the semi-annual offering period.

The 2014 Long Term Incentive Plan ("2014 Plan") authorizes the issuance of a total of 2,000,000 shares of either Class A or Class B common stock. The 2014 Plan is intended to provide a flexible framework that permits the development and implementation of a variety of equity-based programs that base awards on key performance metrics as well as align our long term incentive compensation with our peers and shareholder interests.

During 2021, we granted awards in the form of stock appreciations rights ("SARs"), performance-based restricted stock units ("PSUs"), time vested restricted stock units ("TVAs") and restricted stock awards ("RSAs"). The compensation cost for employee and non-employee director equity-based compensation programs for all current and prior year awards granted are as follows:

	2021	2020	2019
Stock appreciation rights	\$ 2,345	\$ 2,643	\$ 2,594
Performance-based restricted stock units	1,151	221	2,048
Time vested restricted stock units	602	—	—
Restricted stock awards	730	680	480
Employee stock purchase plan	2,633	2,117	1,342
Total compensation cost before income taxes	\$ 7,461	\$ 5,661	\$ 6,464
Income tax benefit	\$ 893	\$ 677	\$ 1,024

Stock Appreciation Rights

The fair value of SARs granted was estimated on the date of grant using the Black-Scholes option-pricing model. The following table provides the range of assumptions used to value awards and the weighted-average fair value of the awards granted.

	2021	2020	2019
Expected volatility	38% - 41%	27% - 28%	26%
Risk-free rate	0.4% - 0.5%	1.7% - 1.8%	3.0%
Expected dividends	1.4 %	1.2 %	1.2 %
Expected term	5-6 years	5-6 years	5-6 years
Weighted-average fair value of awards granted	\$ 23.11	\$ 21.45	\$ 20.79

To determine expected volatility, we generally use historical volatility based on daily closing prices of our Class A and Class B common stock over periods that correlate with the expected terms of the awards granted. The risk-free rate is based on the United States Treasury yield curve at the time of grant for the appropriate expected term of the awards granted. Expected dividends are based on our history and expectation of dividend payouts. The expected term of equity-based awards is based on vesting schedules, expected exercise patterns and contractual terms.

The number of shares received upon the exercise of a SAR is equal in value to the difference between the fair market value of the common stock on the exercise date and the exercise price of the SAR. The term of a SAR may not exceed ten years from the grant date. The exercise price of SARs and options, determined by a committee of the Board of Directors, may not be less than the fair value of the common stock on the grant date.

SARs are as follows:

Stock Appreciation Rights	Number of Awards	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life	Aggregate Intrinsic Value
Outstanding at October 3, 2020	984,270	\$ 67.07		
Granted in 2021	90,304	73.39		
Exercised in 2021	(172,642)	57.51		
Expired in 2021	(11,039)	74.39		
Forfeited in 2021	(7,470)	81.43		
Outstanding at October 2, 2021	883,423	\$ 69.37	5.0 years	\$ 9,261
Exercisable at October 2, 2021	674,283	\$ 66.20	4.0 years	\$ 8,922

The aggregate intrinsic value in the preceding tables represents the total pre-tax intrinsic value, based on our closing price of Class A common stock of \$78.56 and Class B common stock of \$77.18 as of October 2, 2021. That value would have been effectively received by the SAR holders had all SARs been exercised as of that date.

The intrinsic value of awards exercised and fair value of awards vested are as follows:

Stock Appreciation Rights	2021	2020	2019
Intrinsic value of SARs exercised	\$ 3,833	\$ 2,665	\$ 10,616
Total fair value of SARs vested	\$ 2,558	\$ 2,825	\$ 2,871

As of October 2, 2021, total unvested compensation expense associated with SARs amounted to \$2,511 and will be recognized over a weighted-average period of two years.

Restricted Stock Units

Performance-Based Awards

PSU awards consist of shares of our stock which are payable upon the determination that we achieve certain established performance targets and can range from 0% to 200% of the targeted payout based on the actual results. PSU's granted in 2021 have a performance period of three years. The fair value of each PSU granted is equal to the fair market value of our common stock on the date of grant. PSUs granted generally have a three years period cliff vesting schedule; however, according to the grant agreements, if certain conditions are met, the employee (or beneficiary) will receive a prorated amount of the award based on active employment during the service period.

PSUs are as follows:

Performance-Based Restricted Stock Units	Number of Awards	Weighted-Average Grant Date Fair Value
Nonvested at October 3, 2020	64,841	\$ 83.11
Granted in 2021	28,442	73.39
Vested in 2021	(30,467)	80.22
Forfeited in 2021	(3,311)	81.80
Nonvested at October 2, 2021	59,505	\$ 80.02

As of October 2, 2021, total unvested compensation expense associated with nonvested PSUs amounted to \$1,990 and will be recognized over a weighted-average period of two years.

The number of Class B common stock to be issued for PSU awards granted in 2019 that vested based on the achievement of performance targets in 2021, will be approximately 11,500 shares.

Time Vested Awards

TVAs consist of shares of our stock which are payable over a vesting schedule determined at the time the award is granted. TVAs will vest in equal fixed dollar tranches over the agreed upon vesting term beginning one year after the date of the grant and will settle using the fair market value of shares on the date of vesting of the tranche. Although it is our intention to settle vested amount in shares, we reserve the right to settle in cash at our discretion.

TVAs are as follows:

Time Vested Restricted Stock Units	Number of Awards	Weighted-Average Grant Date Fair Value
Granted in 2021	26,153	\$ 79.87
Forfeited in 2021	(314)	79.87
Nonvested at October 2, 2021	25,839	\$ 79.87

As of October 2, 2021, total unvested compensation expense associated with nonvested TVAs amounted to \$1,459 and will be recognized over a weighted-average period of two years.

Restricted Stock Awards

The fair value of each RSA granted is equal to the fair market value of our common stock on the date of grant. These shares vest and are issued upon grant. There were 9,914 RSAs granted and vested in 2021 at a price of \$73.69 resulting in a fair value of the RSAs vested of \$730.

The Management Short Term Incentive Plan ("STI") is intended to attract, motivate and retain highly qualified executives serving on the management team and reward them according to our financial performance with a payment of either cash and/or shares of our common stock. There were 45,834 STI awards granted and vested in 2021 at a price of \$86.56, resulting in a fair value of \$3,967 in satisfaction of a portion of the 2020 management profit share expense.

Employee Stock Purchase Plan

Shares and the weighted-average price per share associated with the ESPP are as follows:

Employee Stock Purchase Plan	2021	2020	2019
Shares issued	141,647	119,470	79,928
Weighted-average price per share	\$ 58.52	\$ 58.71	\$ 65.91

Note 19 - Stock Employee Compensation Trust and Supplemental Retirement Plan Trust

The SECT assists in administering and provides funding for equity-based compensation plans and benefit programs, including the RSP, RSP(+) and ESPP. The SERP Trust provides funding for benefits under the SERP provisions of the Moog Inc. Plan to Equalize Retirement Income and Supplemental Retirement Income. 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 20 - Accumulated Other Comprehensive Income (Loss)

The changes in AOCIL, net of tax, by component are as follows:

	Accumulated foreign currency translation	Accumulated retirement liability	Accumulated gain (loss) on derivatives	Total
AOCIL at September 28, 2019	\$ (129,399)	\$ (285,734)	\$ (344)	\$ (415,477)
Other comprehensive income (loss) before reclassifications	26,898	(13,659)	2,245	15,484
Amounts reclassified from AOCIL	(493)	115,740	(707)	114,540
Other comprehensive income (loss), net of tax	26,405	102,081	1,538	130,024
AOCIL at October 3, 2020	(102,994)	(183,653)	1,194	(285,453)
Other comprehensive income (loss) before reclassifications	12,559	21,958	(1,277)	33,240
Amounts reclassified from AOCIL	(2,554)	8,485	(1,278)	4,653
Other comprehensive income (loss), net of tax	10,005	30,443	(2,555)	37,893
AOCIL at October 2, 2021	\$ (92,989)	\$ (153,210)	\$ (1,361)	\$ (247,560)

Net gains and losses on net investment hedges are recorded in Accumulated foreign currency translation to the extent that the instruments are effective in hedging the designated risk.

The amounts reclassified from AOCIL into earnings are as follows:

	Statements of Earnings location	2021	2020
Retirement liability:			
Prior service cost (credit)		\$ 45	\$ (129)
Actuarial losses		18,776	29,652
Curtailment (gain) loss		(5,830)	100
Settlement (gain) loss		(44)	122,000
Reclassification from AOCIL into earnings		12,947	151,623
Tax effect		(4,462)	(35,883)
Net reclassification from AOCIL into earnings		\$ 8,485	\$ 115,740
Derivatives:			
Foreign currency contracts	Sales	\$ (130)	\$ (48)
Foreign currency contracts	Cost of sales	(1,535)	(874)
Interest rate swaps	Interest	—	(1)
Reclassification from AOCIL into earnings		(1,665)	(923)
Tax effect		387	216
Net reclassification from AOCIL into earnings		\$ (1,278)	\$ (707)

Reclassification from AOCIL into earnings for the Retirement liability are included in the computation of non-service pension expense, which is included in Other on the Consolidated Statements of Earnings.

The effective portion of amounts deferred in AOCIL are as follows:

	2021	2020
Retirement liability:		
Net actuarial gain (loss) during period	\$ 26,157	\$ (16,131)
Tax effect	(4,199)	2,472
Net deferral in AOCIL of retirement liability	\$ 21,958	\$ (13,659)
Derivatives:		
Foreign currency contracts	\$ (1,668)	\$ 2,965
Interest rate swaps	—	(47)
Net gain (loss)	(1,668)	2,918
Tax effect	391	(673)
Net deferral in AOCIL of derivatives	\$ (1,277)	\$ 2,245

Note 21 - Segments

Aircraft Controls. We design, manufacture and integrate primary and secondary flight controls and avionics for military and commercial aircraft and provide aftermarket support. Our systems are used on both development and production programs in large commercial transports, supersonic fighters, multi-role military aircraft, business jets and rotorcraft. We also supply ground-based navigation aids.

We are currently working on the KC-46 military air refueling tanker and classified military development work on the military side, and the COMAC C919 and the Embraer E-Jet E2 family on the commercial side. Typically development programs require concentrated periods of research and development by our engineering teams, while production programs are generally long-term manufacturing efforts that extend for as long as the aircraft builder receives new orders.

Our large military programs include the F-35 Joint Strike Fighter, F/A-18E/F Super Hornet, the V-22 Osprey tiltrotor and the Black Hawk UH-60/Seahawk SH-60 helicopter, while our large commercial production programs include the full line of Boeing 7-series aircraft, Airbus A320, A330 and A350XWB and a variety of business jets.

Aftermarket sales, which represented 27%, 30% and 27% of 2021, 2020 and 2019 sales, respectively, for this segment consist of the maintenance, repair, overhaul and parts supply for both military and commercial aircraft. Further, we sell spare parts and line replaceable units to both military and commercial customers that they store throughout the world in order to minimize down time.

Space and Defense Controls. We provide controls for a wide array of space and defense applications, including spacecraft, space vehicles, launch vehicles, armored combat vehicles, naval vessels, security and surveillance, as well as tactical, hypersonic, and strategic missiles.

We design, manufacture, and integrate steering and propulsion controls for space launch vehicles, hypersonic missiles, and MDA vehicles. Programs of note include Atlas, Vulcan, SLS, LauncherOne, MMIII, Trident, and a variety of other platforms. We have also developed a family of orbital maneuvering vehicles (OMV) and spacecraft bus platforms that have their own avionics, power, propulsion, and communications systems. The Moog Evolved Secondary Payload Adapter (ESPA) is used as the structure of the OMV and has also enabled the rideshare market for many years. Our spacecraft avionics are used for a variety of purposes and missions, including a complete flight control computer, payload processing, and processing of discrete elements on board a spacecraft. Mission specific actuation mechanisms control solar array panels and antenna, and we provide discrete isolation systems for sensitive systems on spacecraft. Our propulsion and fluid control solutions accelerate the spacecraft for orbit-insertion, station keeping, and attitude control. Our fluid control systems are also used in life support systems (ECLSS) for crewed missions, such as Orion. We are an integral part of future human spaceflight and exploration, including NASA's Artemis program.

We produce a new reconfigurable turret system (RIWP®) for several military vehicle programs. In addition, we design controls for gun aiming, stabilization and automatic ammunition loading for armored combat vehicles for a variety of domestic and international customers. We also design controls for steering tactical and strategic missiles including: Lockheed Martin's HELLFIRE® and PAC-3 interceptor, the U.S. National Missile Defense Agency's (MDA) Ballistic Missile Defense initiatives, multiple hypersonic missiles, as well as Raytheon's TOW, and Trident missiles. We also design, build, and integrate weapons stores management systems for light attack aerial reconnaissance, ground, and sea platforms. Our high-power, quiet controls are designed and built for many naval vessels including naval surface ships and submarines such as the U.S. Virginia Class. Our sensor and surveillance products are used in both military and commercial applications such as electrical grid and other critical infrastructure protection.

Also, we design and manufacture a number of component products that serve both the space and defense segments by providing mission critical power and data transfer, motion control and military electronics. Slip rings allow unimpeded rotation while delivering power and data through a rotating interface. Our motion control products include high-performance motors, position feedback devices, actuators and integrated motion assemblies. The military electronics include a range of media converters and Ethernet devices. Each of these components are used across a broad range of applications which include military vehicles, aircraft, missiles, radar and satellites.

Industrial Systems. We provide customized machine performance components and systems utilizing electrohydraulic, electromechanical and control technologies in applications involving motion control, fluid control and power and data management across a variety of markets.

In the industrial automation market, we design, manufacture and integrate components and systems for applications in injection and blow molding machinery, metal forming presses and heavy industry for steel and aluminum production. Our components and systems allow for precise controls of critical parameters in the industrial manufacturing processes, using both hydraulic and electric technologies. Other industrial automation applications we serve include material handling and paper mills.

In the simulation and test market, we supply electromechanical motion simulation bases for the flight simulation and training applications. We also supply custom test systems and controls for automotive, structural and fatigue testing.

In the energy market, we supply solutions for power generation applications which allow for precise control and greater safety of fuel metering and guide vane positioning on steam and gas turbines. We also design and manufacture high reliability systems and components for applications in oil and gas exploration and production, including downhole drilling, topside and subsea environments. We supply high-reliability components for wind turbine applications.

In the medical market, we supply components and systems for diagnostic imaging CT scan medical equipment, sleep apnea equipment, oxygen concentrators, infusion therapy and enteral clinical nutrition.

Our components product categories include hydraulics, slip rings, rotary unions and fiber optic rotary joints, motors and infusion and enteral pumps and associated sets across similar markets.

Hydraulic components include high-performance servo valves with mechanical or electronic feedback, high-dynamic performance hydraulic servo pumps, energy-efficient electro hydrostatic actuators and complex hydraulic manifold systems.

Slip rings, rotary unions and fiber optic rotary joints come in a range of sizes that allow them to be used in many applications, including diagnostic imaging CT scan medical equipment, remotely operated vehicles and floating platforms for offshore oil exploration, surveillance cameras and wind turbines.

Electric motors are used in an equally broad range of solutions, many of which are the same as for slip rings. We design and manufacture a series of fractional horsepower brushless motors that provide extremely low acoustic noise and reliable long life operation, with the largest programs being sleep apnea equipment and datacenter cooling. Industrial customers use our motors for material handling and electric pumps.

Infusion therapy products include infusion pumps and associated administration sets. They offer IV, intra-arterial, subcutaneous or epidural flow of fluids and precise medicine delivery and can be applied to many applications, including hydration, nutrition, patient-controlled analgesia, local anesthesia, chemotherapy and antibiotics.

Enteral clinical nutrition products include a complete line of portable and stationary pumps along with disposable sets. They are designed for ease of use and mobility. Medical customers use our enteral feeding products in the delivery of enteral nutrition for patients in their own homes, hospitals and long-term care facilities.

Disaggregation of net sales by segment are as follows:

Market Type	2021	2020	2019
Net sales:			
Military	\$ 781,921	\$ 721,024	\$ 622,126
Commercial	379,317	484,726	680,846
Aircraft Controls	1,161,238	1,205,750	1,302,972
Space	332,946	294,254	218,970
Defense	466,289	475,860	464,498
Space and Defense Controls	799,235	770,114	683,468
Energy	120,173	127,693	120,771
Industrial Automation	427,076	405,291	447,515
Simulation and Test	89,459	102,600	122,935
Medical	254,812	273,106	227,002
Industrial Systems	891,520	908,690	918,223
Net sales	\$ 2,851,993	\$ 2,884,554	\$ 2,904,663

Customer Type	2021	2020	2019
Net sales:			
Commercial	\$ 379,317	\$ 484,726	\$ 680,846
U.S. Government (including OEM)	617,034	593,093	484,203
Other	164,887	127,931	137,923
Aircraft Controls	1,161,238	1,205,750	1,302,972
Commercial	126,751	133,715	124,445
U.S. Government (including OEM)	614,984	571,045	513,250
Other	57,500	65,354	45,773
Space and Defense Controls	799,235	770,114	683,468
Commercial	865,269	877,148	888,132
U.S. Government (including OEM)	18,510	23,184	20,452
Other	7,741	8,358	9,639
Industrial Systems	891,520	908,690	918,223
Commercial	1,371,337	1,495,589	1,693,423
U.S. Government (including OEM)	1,250,528	1,187,322	1,017,905
Other	230,128	201,643	193,335
Net sales	\$ 2,851,993	\$ 2,884,554	\$ 2,904,663

Revenue Recognition Method	2021	2020	2019
Net sales:			
Over-time	\$ 939,251	\$ 1,018,190	\$ 1,068,747
Point in time	221,987	187,560	234,225
Aircraft Controls	1,161,238	1,205,750	1,302,972
Over-time	746,613	700,068	625,250
Point in time	52,622	70,046	58,218
Space and Defense Controls	799,235	770,114	683,468
Over-time	122,066	152,366	152,646
Point in time	769,454	756,324	765,577
Industrial Systems	891,520	908,690	918,223
Over-time	1,807,930	1,870,624	1,846,643
Point in time	1,044,063	1,013,930	1,058,020
Net sales	\$ 2,851,993	\$ 2,884,554	\$ 2,904,663

Operating profit is net sales less cost of sales and other operating expenses, excluding interest expense, equity-based compensation expense, non-service pension 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 by segment and reconciliations to consolidated amounts are as follows:

	2021	2020	2019
Operating profit:			
Aircraft Controls	\$ 96,678	\$ 34,670	\$ 122,701
Space and Defense Controls	88,333	101,667	88,990
Industrial Systems	85,948	80,025	109,451
Total operating profit	270,959	216,362	321,142
Deductions from operating profit:			
Interest expense	33,892	38,897	39,269
Equity-based compensation expense	7,461	5,661	6,464
Pension settlement	—	121,324	—
Non-service pension expense (income)	(2,194)	15,231	19,552
Corporate and other expenses, net	28,026	29,832	28,905
Earnings before income taxes	\$ 203,774	\$ 5,417	\$ 226,952
Depreciation and amortization:			
Aircraft Controls	\$ 41,580	\$ 39,782	\$ 41,144
Space and Defense Controls	18,655	18,039	18,014
Industrial Systems	29,731	28,644	25,454
Corporate	193	507	648
Total depreciation and amortization	\$ 90,159	\$ 86,972	\$ 85,260
Identifiable assets:			
Aircraft Controls	\$ 1,471,338	\$ 1,322,335	\$ 1,300,781
Space and Defense Controls	839,783	761,874	737,141
Industrial Systems	1,078,025	1,102,222	1,040,659
Corporate	44,023	39,400	35,656
Total assets	\$ 3,433,169	\$ 3,225,831	\$ 3,114,237
Capital expenditures:			
Aircraft Controls	\$ 63,514	\$ 47,954	\$ 68,595
Space and Defense Controls	39,863	22,505	23,903
Industrial Systems	25,338	17,700	25,808
Corporate	19	125	116
Total capital expenditures	\$ 128,734	\$ 88,284	\$ 118,422

Sales, based on the customer's location, and property, plant and equipment by geographic area are as follows:

	2021	2020	2019
Net sales:			
United States	\$ 1,935,626	\$ 1,873,667	\$ 1,757,518
Germany	148,739	175,598	213,128
Japan	108,813	159,025	166,690
Other	658,815	676,264	767,327
Net sales	\$ 2,851,993	\$ 2,884,554	\$ 2,904,663
Property, plant and equipment, net:			
United States	\$ 438,851	\$ 389,454	\$ 365,136
United Kingdom	62,662	58,888	56,253
Philippines	35,851	37,270	61,910
Other	108,414	114,886	103,468
Property, plant and equipment, net	\$ 645,778	\$ 600,498	\$ 586,767

Sales to Boeing were \$345,907, \$402,960 and \$370,306, or 12%, 14% and 13% of sales, in 2021, 2020 and 2019, respectively, including sales to Boeing Commercial Airplanes of \$118,549, \$206,648 and \$264,805 in 2021, 2020 and 2019, respectively. Sales to Lockheed Martin were \$330,779 and \$366,609, or 12% and 13% in 2021 and 2020, respectively. Sales arising from U.S. Government prime or sub-contracts, including military sales to Boeing and Lockheed Martin, were \$1,250,528, \$1,187,322 and \$1,017,905 in 2021, 2020 and 2019, respectively. Sales to Boeing, Lockheed Martin and the U.S. Government and its prime- or sub-contractors are made primarily from our Aircraft Controls and Space and Defense Controls segments.

Note 22 - Related Party Transactions

John Scannell, Moog's Chairman of the Board of Directors and Chief Executive Officer, is a member of 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 totaled \$14,176, \$15,533 and \$20,612 for 2021, 2020 and 2019, respectively. At October 2, 2021, we held outstanding leases with a total original cost of \$22,603. At October 2, 2021, outstanding deposits on our behalf for future equipment leases totaled \$1,524. 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 9, Indebtedness. Wilmington Trust, a subsidiary of M&T Bank, is the trustee of the pension assets for our qualified U.S. defined benefit pension plan.

Note 23 - 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 is still significant effort required to complete the ultimate deliverable. Future variability in internal cost and 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 \$32,271 of standby letters of credit issued by a bank to third parties on our behalf at October 2, 2021. Purchase commitments outstanding at October 2, 2021 are \$594,896 including \$57,180 for property, plant and equipment.

Note 24 - Subsequent Events

On October 29, 2021, we amended our Securitization Program to extend the facility termination date to December 29, 2021 and changed the Administrator and Issuer to Wells Fargo Bank, N.A. Previously, the Securitization Program was to mature on October 29, 2021.

On November 4, 2021, we amended and restated our receivables purchase agreement (the "RPA") of our Securitization Program. Under the RPA, a receivables subsidiary may sell receivables to purchasers in amounts up to a \$100,000 limit in exchange for cash so long as certain conditions have been satisfied. The parties subject to the RPA intend that the conveyance of receivables will constitute a purchase and sale of receivables and not a pledge for security. The receivables subsidiary has guaranteed to the purchasers and the agent the prompt payment of sold receivables, and to secure the prompt payment and performance of such guaranteed obligations, the receivables subsidiary has granted a security interest to the agent, for the benefit of the purchasers, in all assets of the receivables subsidiary. The RPA matures on November 4, 2024 and is subject to customary termination events related to transactions of this type.

On November 4, 2021, the Board of Directors declared a \$0.25 per share quarterly dividend payable on issued and outstanding shares of our Class A and Class B common stock on December 6, 2021 to shareholders of record at the close of business on November 19, 2021.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Moog Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Moog Inc. (the Company) as of October 2, 2021 and October 3, 2020, the related consolidated statements of earnings, comprehensive income, shareholders' equity and cash flows for each of the three years in the period ended October 2, 2021, and the related notes and financial statement schedule listed in the Index at Item 15 (2) (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at October 2, 2021 and October 3, 2020, and the results of its operations and its cash flows for each of the three years in the period ended October 2, 2021, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of October 2, 2021, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated November 15, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosure to which it relates.

Estimated contract costs at completion

Description of the Matter As discussed in Note 2 of the consolidated financial statements, revenue for certain of the Company's contracts with its customers is recognized over time as work progresses toward completion and is measured based on the ratio of cumulative costs incurred to date to the estimated total contract costs at completion. For the year ended October 2, 2021, the Company recognized revenue of \$1.8 billion or 63% of total revenue on this basis. In addition, contract loss reserves are recorded for open contracts for which total estimated contract costs are expected to exceed total contract revenues.

Auditing management's estimated contract costs at completion was complex and highly judgmental due to the significant judgments applied by management including the application of significant assumptions such as estimated direct labor hours, direct material costs, and other direct costs. A significant change in an estimate on one or more contracts could have a material effect on the Company's statement of earnings.

How We Addressed the Matter in Our Audit We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over management's review of estimated contract costs at completion, including the determination of the underlying significant assumptions described above.

To test the estimated contract cost at completion, we performed audit procedures that included, among others, inspecting the approved contract and inquiring of program managers regarding the nature of the contract and the scope of work to be performed, testing the actual costs incurred through inspection of source documentation and testing the significant assumptions described above. Our testing of each of these assumptions included a combination of inquiries of finance directors and program managers, inspection of source documentation to support the future estimated costs and analytical procedures comparing profit rates to similar contracts, as applicable. We also assessed the historical accuracy of management's estimated costs at completion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2003.

Buffalo, NY
November 15, 2021

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) and 15d-15(f) of the Exchange Act. Under the supervision and with the participation of our management, including the Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of October 2, 2021 based upon the framework in Internal Control - Integrated Framework (2013) by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on that evaluation, our management concluded that our internal control over financial reporting is effective as of October 2, 2021.

We completed one acquisition in 2021, which was excluded from our management's report on internal control over financial reporting as of October 2, 2021. On December 18, 2020, we acquired Genesys Aerosystems Group, Inc. This acquisition is included in our 2021 consolidated financial statements and constituted \$90.6 million and \$81.7 million of total and net assets, respectively, as of October 2, 2021 and \$44.2 million and \$3.4 million of net sales and net earnings, respectively, for the year then ended.

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in this Annual Report on Form 10-K and, as part of their audit, has issued their report, included herein, on the effectiveness of our internal control over financial reporting.

/s/ JOHN R. SCANNELL

John R. Scannell

Chief Executive Officer
(Principal Executive Officer)

/s/ JENNIFER WALTER

Jennifer Walter

Vice President,
Chief Financial Officer
(Principal Financial Officer)

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Moog Inc.

Opinion on Internal Control over Financial Reporting

We have audited Moog Inc.'s internal control over financial reporting as of October 2, 2021, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), (the COSO criteria). In our opinion, Moog Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of October 2, 2021, based on the COSO criteria.

As indicated in the accompanying Management's Report on Internal Control Over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Genesys Aerosystems Group, Inc., which is included in the 2021 consolidated financial statements of the Company and constituted \$90.6 million and \$81.7 million of total and net assets, respectively, as of October 2, 2021 and \$44.2 million and \$3.4 million of revenues and net earnings, respectively, for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Genesys Aerosystems Group, Inc.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of October 2, 2021 and October 3, 2020, the related consolidated statements of earnings, comprehensive income, shareholders' equity and cash flows for each of the three years in the period ended October 2, 2021, and the related notes and financial statement schedule listed in the Index at Item 15 (2) and our report dated November 15, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ Ernst & Young LLP

Buffalo, NY
November 15, 2021

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

Not applicable.

Item 9A. Controls and Procedures.

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.

Management's Report on Internal Control over Financial Reporting.

See the report appearing under Item 8, Financial Statements and Supplemental Data of this report.

Changes in Internal Control over Financial Reporting.

There have been no changes in our internal control over financial reporting during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

On November 15, 2021, the Board of Directors adopted amended and restated by-laws that incorporate prior amendments and further amend the by-laws regarding the scope of responsibilities of the officers as provided for in Article IV. The amended and restated by-laws are effective as of November 15, 2021. The above description does not purport to be complete and is qualified in its entirety by reference to the full text of the Amended and Restated By-laws, which are filed as Exhibit 3.1 to this Annual Report on Form 10-K and incorporated by reference herein.

On November 15, 2021, the Executive Compensation Committee of the Board of Directors approved revised forms of Award Agreements for Stock Appreciation Rights ("SARs") and Restricted Stock Units ("RSUs") authorizing (i) acceleration of the vesting of SARs that have been outstanding for at least one year from their grant date upon an employee's termination of employment for reasons other than cause, death or disability after attaining normal retirement age (i.e. age 65) or, in the case of officers of the Company, after attaining a combination of age and years of service equal to or greater than 90 (the "Rule of 90"), (ii) SARs that become vested upon normal retirement or, in the case of officers of the Company, upon satisfying the Rule of 90 to remain exercisable for the duration of the original term of the award, and (iii) RSUs to remain eligible to be earned, subject to actual achievement of the applicable performance goals, upon an employee's termination of employment at least one year following the commencement of the applicable performance period for reasons other than cause or death after attaining normal retirement age or, in the case of officers of the Company, after satisfying the Rule of 90. The above description of the revised forms of Award Agreements does not purport to be complete and is qualified in its entirety by reference to the full text of the revised forms, which are filed as Exhibits 10.1 and 10.2 to this Annual Report on Form 10-K and incorporated by reference herein.

On November 15, 2021, the Board of Directors approved revisions to the Moog Inc. Revised 2021 Management Short Term Incentive Plan, that previously became effective on October 3, 2021 (the "Revised STI Plan"), which Revised STI Plan is in effect beginning with the Company's current 2022 fiscal year. The bonuses earned under the Revised STI Plan are based on performance as against a diluted earnings per share ("EPS") performance metric and a free cash flow ("FCF") performance metric. The revisions to the Revised STI Plan modified the weighting of the EPS and FCF performance metrics in determining the amount of the bonuses earned from 50% and 50%, respectively, to 75% and 25%, respectively. The above description does not purport to be complete and is qualified in its entirety by reference to the full text, which is filed as Exhibit 10.4 to this Annual Report on Form 10-K and incorporated by reference herein.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information concerning the Company's directors required by Item 401 of Regulation S-K will appear under the caption "Proposal 1 - Election of Directors" in the 2021 Proxy Statement and is incorporated herein by reference. Information concerning the Company's executive officers required by Item 401 of Regulation S-K is presented under the caption "Information about our Executive Officers" in Part I of this Annual Report on Form 10-K. Information required by Item 405 of Regulation S-K will be included under the caption "Security Ownership of Certain Beneficial Owners and Management" in the 2021 Proxy Statement and is incorporated herein by reference. Information required by Items 407(d)(4) and (d)(5) of Regulation S-K will be included under the captions "Audit Committee" and "Audit Committee Report" in the 2021 Proxy Statement and is incorporated herein by reference.

We have adopted a code of ethics that applies to our Chief Executive Officer, Chief Financial Officer and Controller. The code of ethics is available upon request without charge by contacting our Chief Financial Officer at 716-652-2000.

Item 11. Executive Compensation.

Information required by Item 402 of Regulation S-K will be included under the captions "Compensation Discussion and Analysis," "Compensation of Executive Officers," and "Compensation of Directors" in the 2021 Proxy Statement and is incorporated herein by reference. Information required by Item 407(e)(4) and 407(e)(5) of Regulation S-K will be included under the captions "Executive Compensation Committee Interlocks and Insider Participation" and "The Executive Compensation Committee Report" in the 2021 Proxy Statement and is incorporated herein by reference.

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

Information required by Item 201(d) of Regulation S-K will be included under the caption "Equity Compensation Plan Information" in the 2021 Proxy Statement and is incorporated herein by reference. Information required by Item 403 of Regulation S-K will be included under the caption "Security Ownership of certain Beneficial Owners and Management" in the 2021 Proxy Statement and is incorporated herein by reference.

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

Information required by Item 404 of Regulation S-K will be included under the caption "Related Party Transactions" in the 2021 Proxy Statement and is incorporated herein by reference. Information required by Item 407(a) of Regulation S-K will be included under the caption "Director Independence" in the 2021 Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services.

Information required by this Item 14 will be included under the caption "Audit Fees and Pre-Approval Policy" in the 2021 Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

Documents filed as part of this report:

1 Financial Statements

Consolidated Statements of Earnings
Consolidated Statements of Comprehensive Income
Consolidated Balance Sheets
Consolidated Statements of Shareholders' Equity
Consolidated Statements of Cash Flows
Notes to Consolidated Financial Statements
Reports of Independent Registered Public Accounting Firm

2 Financial Statement Schedules

II. Valuation and Qualifying Accounts.

Schedules other than that listed above are omitted because the conditions requiring their filing do not exist or because the required information is included in the Consolidated Financial Statements, including the Notes thereto.

3 Exhibits

(3) Articles of Incorporation and By-Laws.

- (i) [Restated Certificate of Incorporation of Moog Inc., incorporated by reference to exhibit 3\(i\) of our report on Form 10-K for the year ended September 28, 2013.](#)
- (ii) [Restated By-laws of Moog Inc., dated November 15, 2021, as amended. \(Filed herewith\).](#)

(4) Instruments defining the rights of security holders, including indentures.

- (a) [Indenture between Moog Inc. and MUFG Union Bank, N.A. as Trustee, dated December 13, 2019, relating to the 4.25% Senior Notes due 2027, incorporated by reference to exhibit 4.1 of our report on Form 8-K dated December 13, 2019.](#)
- (b) [Description of Registrant's Securities.](#)

(10) Material contracts.

Credit and Securitization agreements.

- (a) [Amended and Restated Receivables Purchase Agreement, dated November 4, 2021, by and among Moog Receivables LLC, as Seller, Moog Inc. as Master Servicer, and Wells Fargo Bank, N.A., as Administrative Agent, incorporated by reference to exhibit 10.1 on Form 8-K dated November 10, 2021.](#)
- (b) [Fifth Amended and Restated Loan Agreement between Moog Inc. and the Lenders and HSBC Bank USA, National Association, as Administrative Agent for the Lenders dated as of October 15, 2019, incorporated by reference to exhibit 10.1 of our report on Form 8-K dated October 21, 2019.](#)

Management contracts or compensatory plan or arrangement.

- (c) [2008 Stock Appreciation Rights Plan, incorporated by reference to exhibit A of definitive proxy statement filed under Schedule 14A on December 10, 2007.](#)
- (d) [Form of Stock Appreciation Rights Award Agreement under 2008 Stock Appreciation Rights Plan, incorporated by reference to exhibit 10.14 of our report on Form 10-K for the year ended September 27, 2008.](#)
- (e) [First Amendment to the Moog Inc. 2008 Stock Appreciation Rights Plan, incorporated by reference to Appendix A of definitive proxy statement filed under Schedule 14A on December 13, 2012.](#)
- (f) [Second Amendment to the Moog Inc. 2008 Stock Appreciation Rights Plan, incorporated by reference to Item 8.01 on Form 8-K dated December 26, 2012.](#)
- (g) [2014 Long Term Incentive Plan, incorporated by reference to exhibit A of definitive proxy statement filed under Schedule 14A on December 12, 2014.](#)
- (h) [Form of Stock Appreciation Rights Award Agreement under the 2014 Long Term Incentive Plan, incorporated by reference to exhibit 10.2 \(Class A common stock\) and exhibit 10.3 \(Class B common stock\) of our report on Form 8-K dated November 20, 2015.](#)
- (i) [Form of Restricted Stock Unit Award Agreement under the 2014 Long Term Incentive Plan, incorporated by reference to exhibit 10.4 \(Class A common stock\) and exhibit 10.5 \(Class B common stock\) of our report on Form 8-K dated November 20, 2015.](#)
- (j) [Form of Restricted Stock Unit Award Agreement under the 2014 Long Term Incentive Plan \(for awards granted on or after November 15, 2021\). \(Filed herewith\).](#)
- (k) [Form of Stock Appreciation Rights Award Agreement under the 2014 Long Term Incentive Plan \(for awards granted on or after November 15, 2021\). \(Filed herewith\).](#)
- (l) [Form of Time Vested Award Agreement under the 2014 Long Term Incentive Plan \(for awards granted on or after November 17, 2020\). \(Filed herewith\).](#)
- (m) [Form of Employment Termination Benefits Agreement between Moog Inc. and Employee-Officers, incorporated by reference to exhibit 10\(vii\) of our report on Form 10-K for the year ended September 25, 1999.](#)
- (n) [Deferred Compensation Plan for Directors and Officers, amended and restated May 16, 2002, incorporated by reference to exhibit 10\(ii\) of our report on Form 10-K for the year ended September 28, 2002.](#)
- (o) [Form of Indemnification Agreement for officers, directors and key employees, incorporated by reference to exhibit 10.1 of our report on Form 8-K dated November 30, 2004.](#)
- (p) [Moog Inc. Management Short Term Incentive Plan, dated September 29, 2017, incorporated by reference to exhibit 10.1 of our report on Form 8-K dated October 5, 2017.](#)

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- (q) [First Amendment to the Moog Inc. Management Short Term Incentive Plan, dated July 26, 2018, incorporated by reference to exhibit 10.3 of our report on Form 10-Q for the quarter ended June 30, 2018.](#)
- (r) [Moog Inc. Revised 2021 Management Short Term Incentive Plan, effective October 3, 2021. \(Filed herewith\).](#)
- (s) [Moog Inc. Plan to Equalize Retirement Income and Supplemental Retirement Plan dated August 9, 2017, incorporated by reference to exhibit 10.1 of our report on Form 8-K dated August 11, 2017.](#)
- (t) [Defined Contribution Supplemental Executive Retirement Plan, dated March 4, 2016, incorporated by reference to exhibit 10.1 of our report on Form 10-Q for the quarter ended April 2, 2016.](#)
- (u) [First Amendment to the Defined Contribution Supplemental Executive Retirement Plan, dated July 26, 2018, incorporated by reference to exhibit 10.2 of our report on Form 10-Q for the quarter ended June 30, 2018.](#)

Other material contracts.

- (v) [Moog Inc. Stock Employee Compensation Trust Agreement amended and restated as of August 13, 2014, incorporated by reference to exhibit 10.2 of our report on Form 10-Q for the quarter ended January 3, 2015.](#)
- (w) [Amendment No. 1 to the Moog Inc. Stock Employee Compensation Trust Agreement, dated May 8, 2018, incorporated by reference to exhibit 10.1 of our report on Form 10-Q for the quarter ended June 30, 2018.](#)
- (x) [Moog Inc. Supplemental Retirement Plan Trust, as amended and restated, effective January 1, 2015, incorporated by reference to exhibit 10.1 of our Form 10-Q for the quarter ended April 4, 2015.](#)

All of the exhibits listed above have been filed under Moog Inc., Securities and Exchange Commission file number 1-05129.

- [\(3.1\)](#) Restated By-laws of Moog Inc., dated November 15, 2021, as amended. (Filed herewith).
- [\(10.1\)](#) Form of Restricted Stock Unit Award Agreement under the 2014 Long Term Incentive Plan (for awards granted on or after November 15, 2021). (Filed herewith).
- [\(10.2\)](#) Form of Stock Appreciation Rights Award Agreement under the 2014 Long Term Incentive Plan (for awards granted on or after November 15, 2021). (Filed herewith).
- [\(10.3\)](#) Form of Time Vested Award Agreement under the 2014 Long Term Incentive Plan (for awards granted on or after November 17, 2020). (Filed herewith).
- [\(10.4\)](#) Moog Inc. Revised 2021 Management Short Term Incentive Plan, effective October 3, 2021. (Filed herewith).
- [\(21\)](#) Registrant Subsidiary Listing. (Filed herewith)
- [\(23\)](#) Consent of Ernst & Young LLP. (Filed herewith)
- [\(31.1\)](#) 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. (Filed herewith)
- [\(31.2\)](#) 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. (Filed herewith)
- [\(32.1\)](#) Certification pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. (Filed herewith)
- (101) Interactive Data Files (submitted electronically herewith)
 - (101.INS) XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL 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
- (104) Cover Page Interactive Data File - the cover page XBRL tags are embedded within the Inline XBRL document and are contained within Exhibit 101.

Item 16. Form 10-K Summary.

None.



Valuation and Qualifying Accounts

(dollars in thousands)					Schedule II
Description	Balance at beginning of year	Additions charged to expenses and other accounts	Deductions*	Foreign exchange impact and other	Balance at end of year
Fiscal year ended September 28, 2019					
Contract reserves	\$ 48,818	\$ 45,464	\$ 35,714	\$ 2,346	\$ 60,914
Allowance for credit losses	4,959	1,522	891	(188)	5,402
Reserve for inventory valuation	125,316	23,227	12,716	(1,642)	134,185
Deferred tax valuation allowance	15,181	274	1,808	(510)	13,137
Fiscal year ended October 3, 2020					
Contract reserves	\$ 60,914	\$ 76,747	\$ 66,885	\$ 1,636	\$ 72,412
Allowance for credit losses	5,402	3,774	3,144	281	6,313
Reserve for inventory valuation	134,185	52,956	35,747	1,917	153,311
Deferred tax valuation allowance	13,137	2,003	860	504	14,784
Fiscal year ended October 2, 2021					
Contract reserves	\$ 72,412	\$ 41,572	\$ 55,377	\$ 250	\$ 58,857
Allowance for credit losses	6,313	2,245	4,238	31	4,351
Reserve for inventory valuation	153,311	26,513	25,151	982	155,655
Deferred tax valuation allowance	14,784	2,513	3,729	328	13,896

* Includes the effects of divestitures.

Signatures

Pursuant to the requirements of Section 13 or 15(d) 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)

By /s/ JOHN R. SCANNELL
John R. Scannell
Chief Executive Officer
Date: November 15, 2021

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated on November 15, 2021.

 /s/ JOHN R. SCANNELL
John R. Scannell
Chairman of the Board and Director
Chief Executive Officer
(Principal Executive Officer)

 /s/ WILLIAM G. GISEL, JR.
William G. Gisel, Jr.
Director

 /s/ JENNIFER WALTER
Jennifer Walter
Vice President and Chief Financial Officer
(Principal Financial Officer)

 /s/ PETER J. GUNDERMANN
Peter J. Gundermann
Director

 /s/ MICHAEL J. SWOPE
Michael J. Swope
Controller
(Principal Accounting Officer)

 /s/ KRAIG H. KAYSER
Kraig H. Kayser
Director

 /s/ JANET M. COLETTI
Janet M. Coletti
Director

 /s/ R. BRADLEY LAWRENCE
R. Bradley Lawrence
Director

 /s/ DONALD R. FISHBACK
Donald R. Fishback
Director

 /s/ BRIAN J. LIPKE
Brian J. Lipke
Director

 /s/ BRENDA L. REICHELDERFER
Brenda L. Reichelderfer
Director