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

(Mark One)

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

For the quarterly period ended July 1, 2023

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	**16-0757636**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
400 Jamison Road East Aurora, New York	**14052-0018**
(Address of Principal Executive Offices)	(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

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	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

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

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

The number of shares outstanding of each class of common stock as of July 24, 2023 was:
Class A common stock, 28,722,168 shares
Class B common stock, 3,176,310 shares

MOOG Inc.

QUARTERLY REPORT ON FORM 10-Q
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PART I FINANCIAL INFORMATION
Item 1. Financial Statements

MOOG Inc.

Consolidated Condensed Statements of Earnings
(Unaudited)

(dollars in thousands, except share and per share data)	Three Months Ended July 1, 2023	Three Months Ended July 2, 2022	Nine Months Ended July 1, 2023	Nine Months Ended July 2, 2022
Net sales	$ 850,176	$ 772,911	$ 2,447,071	$ 2,267,784
Cost of sales	627,543	560,966	1,799,437	1,646,742
Inventory write-down	—	202	—	3,407
Gross profit	222,633	211,743	647,634	617,635
Research and development	26,502	25,890	77,107	84,318
Selling, general and administrative	121,935	113,886	351,795	336,702
Interest	17,256	9,131	45,351	25,376
Asset impairment	435	692	1,654	15,928
Restructuring	1,642	576	4,737	8,369
Gain on sale of business	—	—	—	(16,146)
Gain on sale of buildings	—	—	(10,030)	—
Other	4,525	1,759	10,077	3,143
Earnings before income taxes	50,338	59,809	166,943	159,945
Income taxes	7,951	9,400	35,527	34,184
Net earnings	$ 42,387	$ 50,409	$ 131,416	$ 125,761
Net earnings per share				
Basic	$ 1.33	$ 1.58	$ 4.13	$ 3.93
Diluted	$ 1.32	$ 1.57	$ 4.11	$ 3.91
Average common shares outstanding				
Basic	31,838,961	31,922,377	31,811,034	31,988,150
Diluted	32,067,391	32,067,431	31,995,340	32,125,438

See accompanying Notes to Consolidated Condensed Financial Statements.

MOOG Inc.

Consolidated Condensed Statements of Comprehensive Income

(Unaudited)

(dollars in thousands)	Three Months Ended July 1, 2023	Three Months Ended July 2, 2022	Nine Months Ended July 1, 2023	Nine Months Ended July 2, 2022
Net earnings	$ 42,387	$ 50,409	$ 131,416	$ 125,761
Other comprehensive income (loss) ("OCI"), net of tax:				
Foreign currency translation adjustment	5,470	(43,954)	67,749	(68,797)
Retirement liability adjustment	2,028	5,438	5,259	14,066
Change in accumulated income on derivatives	201	(1,533)	3,200	(1,693)
Other comprehensive income (loss), net of tax	7,699	(40,049)	76,208	(56,424)
Comprehensive income	$ 50,086	$ 10,360	$ 207,624	$ 69,337

See accompanying Notes to Consolidated Condensed Financial Statements.

MOOG Inc.

Consolidated Condensed Balance Sheets

(Unaudited)

(dollars in thousands)	July 1, 2023	October 1, 2022
ASSETS		
Current assets		
Cash and cash equivalents	$ 122,512	$ 103,895
Restricted cash	2,892	15,338
Receivables, net	1,168,186	990,262
Inventories, net	710,252	588,466
Prepaid expenses and other current assets	52,833	60,349
Total current assets	2,056,675	1,758,310
Property, plant and equipment, net	795,994	668,908
Operating lease right-of-use assets	63,259	69,072
Goodwill	829,220	805,320
Intangible assets, net	79,680	85,410
Deferred income taxes	9,549	8,630
Other assets	47,866	36,191
Total assets	$ 3,882,243	$ 3,431,841
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities		
Current installments of long-term debt	$ 696	$ 916
Accounts payable	245,458	232,104
Accrued compensation	83,628	93,141
Contract advances and progress billings	366,766	296,899
Accrued liabilities and other	206,903	215,376
Total current liabilities	903,451	838,436
Long-term debt, excluding current installments	1,012,080	836,872
Long-term pension and retirement obligations	150,953	140,602
Deferred income taxes	42,239	63,527
Other long-term liabilities	152,336	115,591
Total liabilities	2,261,059	1,995,028
Shareholders' equity		
Common stock - Class A	43,807	43,807
Common stock - Class B	7,473	7,473
Additional paid-in capital	594,022	516,123
Retained earnings	2,466,012	2,360,055
Treasury shares	(1,058,558)	(1,047,012)
Stock Employee Compensation Trust	(109,759)	(73,602)
Supplemental Retirement Plan Trust	(86,979)	(58,989)
Accumulated other comprehensive loss	(234,834)	(311,042)
Total shareholders' equity	1,621,184	1,436,813
Total liabilities and shareholders' equity	$ 3,882,243	$ 3,431,841

See accompanying Notes to Consolidated Condensed Financial Statements.

MOOG Inc.

Consolidated Condensed Statements of Shareholders' Equity
(Unaudited)

	Three Months Ended		Nine Months Ended	
(dollars in thousands)	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
COMMON STOCK				
Beginning and end of period	$ 51,280	$ 51,280	$ 51,280	$ 51,280
ADDITIONAL PAID-IN CAPITAL				
Beginning of period	576,506	543,292	516,123	509,622
Issuance of treasury shares	3,312	1,578	7,627	9,187
Equity-based compensation expense	1,726	1,707	6,297	5,706
Adjustment to market - SECT and SERP	12,478	(18,006)	63,975	4,056
End of period	594,022	528,571	594,022	528,571
RETAINED EARNINGS				
Beginning of period	2,432,225	2,296,849	2,360,055	2,237,848
Net earnings	42,387	50,409	131,416	125,761
Dividends [1]	(8,600)	(8,302)	(25,459)	(24,653)
End of period	2,466,012	2,338,956	2,466,012	2,338,956
TREASURY SHARES AT COST				
Beginning of period	(1,056,187)	(1,028,414)	(1,047,012)	(1,007,506)
Class A and B shares issued related to compensation	305	514	9,312	6,087
Class A and B shares purchased	(2,676)	(4,004)	(20,858)	(30,485)
End of period	(1,058,558)	(1,031,904)	(1,058,558)	(1,031,904)
STOCK EMPLOYEE COMPENSATION TRUST ("SECT")				
Beginning of period	(99,880)	(94,548)	(73,602)	(79,776)
Issuance of shares	68	12	9,863	7,586
Purchase of shares	(2,814)	(1,088)	(10,035)	(11,484)
Adjustment to market	(7,133)	10,059	(35,985)	(1,891)
End of period	(109,759)	(85,565)	(109,759)	(85,565)
SUPPLEMENTAL RETIREMENT PLAN ("SERP") TRUST				
Beginning of period	(81,634)	(73,876)	(58,989)	(63,764)
Adjustment to market	(5,345)	7,947	(27,990)	(2,165)
End of period	(86,979)	(65,929)	(86,979)	(65,929)
ACCUMULATED OTHER COMPREHENSIVE LOSS				
Beginning of period	(242,533)	(263,935)	(311,042)	(247,560)
Other comprehensive income (loss)	7,699	(40,049)	76,208	(56,424)
End of period	(234,834)	(303,984)	(234,834)	(303,984)
TOTAL SHAREHOLDERS' EQUITY	$ 1,621,184	$ 1,431,425	$ 1,621,184	$ 1,431,425

See accompanying Notes to Consolidated Condensed Financial Statements.

[1] Cash dividends were $0.27 and $0.80 per share for the three and nine months ended July 1, 2023, respectively. Cash dividends were $0.26 and $0.77 per share for three and nine months ended July 2, 2022, respectively.

MOOG Inc.

Consolidated Condensed Statements of Shareholders' Equity, Shares
(Unaudited)

	Three Months Ended		Nine Months Ended	
(share data)	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
COMMON STOCK - CLASS A				
Beginning of period	43,806,835	43,803,861	43,806,835	43,803,236
Conversion of Class B to Class A	604	2,004	604	2,629
End of period	43,807,439	43,805,865	43,807,439	43,805,865
COMMON STOCK - CLASS B				
Beginning of period	7,472,878	7,475,852	7,472,878	7,476,477
Conversion of Class B to Class A	(604)	(2,004)	(604)	(2,629)
End of period	7,472,274	7,473,848	7,472,274	7,473,848
TREASURY SHARES - CLASS A COMMON STOCK				
Beginning of period	(14,663,116)	(14,377,074)	(14,614,444)	(14,157,721)
Class A shares issued related to compensation	3,130	8,678	44,749	37,707
Class A shares purchased	(1,130)	(53,291)	(91,421)	(301,673)
End of period	(14,661,116)	(14,421,687)	(14,661,116)	(14,421,687)
TREASURY SHARES - CLASS B COMMON STOCK				
Beginning of period	(2,946,838)	(3,082,267)	(3,020,291)	(3,179,055)
Class B shares issued related to compensation	41,192	26,530	243,723	225,702
Class B shares purchased	(27,787)	(160)	(156,865)	(102,544)
End of period	(2,933,433)	(3,055,897)	(2,933,433)	(3,055,897)
SECT - CLASS A COMMON STOCK				
Beginning and end of period	(425,148)	(425,148)	(425,148)	(425,148)
SECT - CLASS B COMMON STOCK				
Beginning of period	(577,327)	(632,060)	(611,942)	(600,880)
Issuance of shares	680	136	113,105	93,899
Purchase of shares	(28,023)	(12,827)	(105,833)	(137,770)
End of period	(604,670)	(644,751)	(604,670)	(644,751)
SERP - CLASS B COMMON STOCK				
Beginning and end of period	(826,170)	(826,170)	(826,170)	(826,170)

See accompanying Notes to Consolidated Condensed Financial Statements.

MOOG Inc.

Consolidated Condensed Statements of Cash Flows
(Unaudited)

(dollars in thousands)	Nine Months Ended July 1, 2023	Nine Months Ended July 2, 2022
CASH FLOWS FROM OPERATING ACTIVITIES		
Net earnings	$ 131,416	$ 125,761
Adjustments to reconcile net earnings to net cash provided (used) by operating activities:		
Depreciation	56,780	56,169
Amortization	8,725	9,998
Deferred income taxes	(26,680)	7,644
Equity-based compensation expense	8,121	6,747
Gain on sale of business	—	(16,146)
Gain on sale of buildings	(10,030)	—
Asset impairment and inventory write-down	1,654	19,335
Other	5,083	4,960
Changes in assets and liabilities providing (using) cash:		
Receivables	(163,259)	(58,668)
Inventories	(102,782)	(6,778)
Accounts payable	8,514	27,184
Contract advances and progress billings	65,746	35,867
Accrued expenses	(30,697)	(24,066)
Accrued income taxes	21,568	7,692
Net pension and post retirement liabilities	11,199	13,490
Other assets and liabilities	(2,455)	(24,925)
Net cash provided (used) by operating activities	(17,097)	184,264
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisitions of businesses, net of cash acquired	—	(11,837)
Purchase of property, plant and equipment	(125,074)	(106,713)
Net proceeds from businesses sold	959	35,550
Net proceeds from buildings sold	19,702	—
Other investing transactions	(9,482)	(2,267)
Net cash used by investing activities	(113,895)	(85,267)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from revolving lines of credit	711,732	661,675
Payments on revolving lines of credit	(536,826)	(629,251)
Payments on long-term debt	(219)	(80,273)
Payments on finance lease obligations	(3,449)	(1,779)
Payment of dividends	(25,459)	(24,653)
Proceeds from sale of treasury stock	12,765	10,792
Purchase of outstanding shares for treasury	(23,133)	(30,485)
Proceeds from sale of stock held by SECT	9,863	7,586
Purchase of stock held by SECT	(10,035)	(11,484)
Other financing transactions	(2,026)	—
Net cash provided (used) by financing activities	133,213	(97,872)
Effect of exchange rate changes on cash	3,950	(6,175)
Increase (decrease) in cash, cash equivalents and restricted cash	6,171	(5,050)
Cash, cash equivalents and restricted cash at beginning of period	119,233	100,914
Cash, cash equivalents and restricted cash at end of period	$ 125,404	$ 95,864
SUPPLEMENTAL CASH FLOW INFORMATION		
Treasury shares issued as compensation	$ 4,174	$ 4,482
Equipment and property acquired through lease financing	56,683	32,000

See accompanying Notes to Consolidated Condensed Financial Statements.

MOOG Inc.

Notes to Consolidated Condensed Financial Statements
Nine Months Ended July 1, 2023
(Unaudited)
(dollars in thousands, except per share data)

Note 1 - Basis of Presentation

The accompanying unaudited consolidated condensed financial statements have been prepared by management in accordance with U.S. generally accepted accounting principles for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. In the opinion of management, all adjustments consisting of normal recurring adjustments considered necessary for the fair presentation of results for the interim period have been included. The results of operations for the three and nine months ended July 1, 2023 are not necessarily indicative of the results expected for the full year. The accompanying unaudited consolidated condensed financial statements should be read in conjunction with the financial statements and notes thereto included in our Form 10-K for the fiscal year ended October 1, 2022. All references to years in these financial statements are to fiscal years.

Impairment of Assets

Long-lived assets, including acquired 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, or another comparable method.

In 2023, we recorded a $1,435 impairment charge on long-lived assets in our Aircraft Controls segment. These charges relate to equipment that experienced a decline in value due to the U.S. Air Force announcement to retire the KC-10 aerial refueling tanker and retirement of a trade name intangible. In addition, we have recorded a $219 impairment charge on receivables in our Space and Defense Controls segment associated with an expected cancellation of a contract. These charges are included in asset impairment in the Consolidated Condensed Statement of Earnings.

In 2022, we recorded impairment charges on long-lived assets in our Aircraft Controls segment. These charges relate to equipment that experienced a significant decline in value due to a slower than expected recovery of our commercial aircraft business. In addition, we recorded impairment charges on receivables and inventories associated with Russian actions in Ukraine. These charges are included in asset impairment in the Consolidated Condensed Statement of Earnings.

Reclassifications

Certain prior year amounts have been reclassified to conform to current year's presentation, which management does not consider to be material.

Recent Accounting Pronouncements Adopted

There have been no accounting pronouncements adopted for the nine months ended July 1, 2023.

Recent Accounting Pronouncements Not Yet Adopted

We consider the applicability and impact of all Accounting Standard Updates ("ASU"). ASUs 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 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. For the three and nine months ended July 1, 2023 we recognized lower revenue of $5,114 and $7,180, respectively, for adjustments made to performance obligations satisfied (or partially satisfied) in previous periods. For the three and nine months ended July 2, 2022 we recognized lower revenue of $8,615 and additional revenue of $124, respectively, 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. Revenue recognized on contracts for unresolved claims or unapproved contract change orders was not material for the three and nine months ended July 1, 2023.

As of July 1, 2023, we had contract reserves of $45,771. 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 Condensed Balance Sheets. Contract advances (contract liabilities) and progress billings relate to payments received from customers in advance of the satisfaction of performance obligations for a contract. We do not consider contract advances and progress billings 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:

	July 1, 2023	October 1, 2022
Unbilled receivables	$ 721,860	$ 614,760
Contract advances and progress billings	366,766	296,899
Net contract assets	$ 355,094	$ 317,861

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. For the three and nine months ended July 1, 2023, we recognized $54,054 and $219,202 of revenue, that was included in the contract liability balance at the beginning of the year.

Remaining Performance Obligations

As of July 1, 2023, the aggregate amount of the transaction price allocated to the performance obligations that are unsatisfied (or partially unsatisfied) was $5,300,000. We expect to recognize approximately 43% of that amount as sales over the next twelve months and the balance thereafter.

Disaggregation of Revenue

See Note 20 - Segments, for disclosures related to disaggregation of revenue.

Note 3 - Acquisitions and Divestitures

Acquisitions

On February 21, 2022, we acquired TEAM Accessories Limited ("TEAM") based in Dublin, Ireland for a purchase price, net of acquired cash, of $14,394, consisting of $11,832 in cash and contingent consideration with an initial fair value of $2,562. TEAM specializes in Maintenance, Repair and Overhaul of engine and airframe components. This operation is included in our Aircraft Controls segment. TEAM has been rebranded as Moog MRO Services as of July 1, 2023.

Divestitures

On September 30, 2022, we sold a sonar business based in the United Kingdom previously included in our Industrial Systems segment. We have cumulatively received net proceeds of $13,075 and recorded a loss of $15,246, net of transaction costs. The transaction is subject to adjustments associated with amounts currently held in escrow.

On September 20, 2022, we sold assets of a security business based in Northbrook, Illinois previously included in our Space and Defense Controls segment. We have cumulatively received net proceeds of $9,108 and recorded a loss of $4,324, net of transaction costs. The transaction is subject to adjustments associated with amounts currently held in escrow.

On December 3, 2021, we sold the assets of our Navigation Aids ("NAVAIDS") business based in Salt Lake City, Utah previously included in our Aircraft Controls segment to Thales USA Inc. We have cumulatively received net proceeds of $36,550 and recorded a gain of $16,146, net of transaction costs. The transaction is subject to adjustments associated with amounts currently held in escrow.

Note 4 - Receivables

Receivables consist of:

	July 1, 2023	October 1, 2022
Accounts receivable	$ 433,525	$ 363,137
Unbilled receivables	721,860	614,760
Other	16,361	16,973
Less allowance for credit losses	(3,560)	(4,608)
Receivables, net	$ 1,168,186	$ 990,262

Moog Receivables LLC (the "Receivables Subsidiary"), a wholly owned bankruptcy remote special purpose subsidiary of Moog Inc. (the "Company"), as seller, the Company, as master servicer, Wells Fargo Bank, N.A., as administrative agent (the "Agent") and certain purchasers (collectively, the "Purchasers") entered into an Amended and Restated Receivables Purchase Agreement (the "RPA"). The RPA matures on November 4, 2024 and is subject to customary termination events related to transactions of this type.

Under the RPA, the Receivables Subsidiary may sell receivables to the Purchasers in amounts up to a $100,000 limit. The receivables will be sold to the Purchasers in consideration for the Purchasers making payments of cash, which is referred to as "capital" for purposes of the RPA, to the Receivables Subsidiary in accordance with the terms of the RPA. The Receivables Subsidiary may sell receivables to the Purchasers so long as certain conditions are satisfied, including that, at any date of determination, the aggregate capital paid to the Receivables Subsidiary does not exceed a "capital coverage amount", equal to an adjusted net receivables pool balance minus a required reserve. Each Purchaser's share of capital accrues yield at a variable rate plus an applicable margin.

The parties intend that the conveyance of receivables to the Agent, for the ratable benefit of the Purchasers will constitute a purchase and sale of receivables and not a pledge for security. The Receivables Subsidiary has guaranteed to each Purchaser and 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 assets of the Receivables Subsidiary are not available to pay our creditors or any affiliate thereof. In our capacity as master servicer under the RPA, we are responsible for administering and collecting receivables and have made customary representations, warranties, covenants and indemnities. We also provided a performance guarantee for the benefit of the Purchaser.

The proceeds of the RPA are classified as operating activities in our Consolidated Condensed Statement of Cash Flows and were used to pay off the outstanding balance of the Securitization Program. Cash received from collections of sold receivables is used by the Receivables Subsidiary to fund additional purchases of receivables on a revolving basis or to return all or any portion of outstanding capital of the Purchaser. Subsequent collections on the pledged receivables, which have not been sold, will be classified as operating cash flows at the time of collection. Total receivables sold and cash collections under the RPA were $121,660 and $360,136 for the three and nine months ended July 1, 2023, respectively. The fair value of the sold receivables approximated book value due to their credit quality and short-term nature, and as a result, no gain or loss on sale of receivables was recorded.

As of July 1, 2023, the amount sold to the Purchasers was $100,000, which was derecognized from the Consolidated Condensed Balance Sheets. As collateral against sold receivables, the Receivables Subsidiary maintains a certain level of unsold receivables, which was $807,983 at July 1, 2023.

The allowance for credit losses is based on our assessment of the collectability 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.

Note 5 - Inventories

Inventories, net of reserves, consist of:

	July 1, 2023	October 1, 2022
Raw materials and purchased parts	$ 272,813	$ 219,893
Work in progress	351,804	305,328
Finished goods	85,635	63,245
Inventories, net	$ 710,252	$ 588,466

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 July 1, 2023 and October 1, 2022.

Note 6 - Property, Plant and Equipment

Property, plant and equipment consists of:

	July 1, 2023	October 1, 2022
Land	$ 31,799	$ 32,164
Buildings and improvements	606,175	502,050
Machinery and equipment	847,545	786,562
Computer equipment and software	221,509	201,960
Property, plant and equipment, at cost	1,707,028	1,522,736
Less accumulated depreciation and amortization	(911,034)	(853,828)
Property, plant and equipment, net	$ 795,994	$ 668,908

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 Condensed 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 Condensed Balance Sheets. Operating lease cost is included in Cost of sales and Selling, general and administrative on the Consolidated Condensed Statements of Earnings. Finance lease cost is included in Cost of sales, Selling, general and administrative and Interest on the Consolidated Condensed 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:

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Operating lease cost	$ 7,386	$ 7,601	$ 22,341	$ 21,759
Finance lease cost:				
Amortization of right-of-use assets	$ 1,471	$ 791	$ 3,589	$ 2,050
Interest on lease liabilities	959	289	1,750	753
Total finance lease cost	$ 2,430	$ 1,080	$ 5,339	$ 2,803

Supplemental cash flow information related to leases was as follows:

	Nine Months Ended	
	July 1, 2023	July 2, 2022
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flow for operating leases	$ 22,523	$ 22,167
Operating cash flow for finance leases	1,750	753
Financing cash flow for finance leases	3,449	1,779
Assets obtained in exchange for lease obligations:		
Operating leases	$ 4,857	$ 21,793
Finance leases	51,826	10,207

Supplemental balance sheet information related to leases was as follows:

	July 1, 2023	October 1, 2022
Operating Leases:		
Operating lease right-of-use assets	$ 63,259	$ 69,072
Accrued liabilities and other	$ 11,157	$ 13,002
Other long-term liabilities	61,862	66,167
Total operating lease liabilities	$ 73,019	$ 79,169
Finance Leases:		
Property, plant, and equipment, at cost	$ 83,204	$ 30,614
Accumulated depreciation	(9,379)	(5,606)
Property, plant, and equipment, net	$ 73,825	$ 25,008
Accrued liabilities and other	$ 5,066	$ 3,244
Other long-term liabilities	70,670	23,529
Total finance lease liabilities	$ 75,736	$ 26,773
Weighted average remaining lease term in years:		
Operating leases	7.7	7.7
Finance leases	24.4	16.7
Weighted average discount rates:		
Operating leases	5.2 %	5.0 %
Finance leases	6.4 %	4.8 %

Maturities of lease liabilities were as follows:

	July 1, 2023	
	Operating Leases	Finance Leases
2023	$ 3,887	$ 2,316
2024	14,145	9,255
2025	12,171	9,070
2026	11,501	8,777
2027	10,420	8,018
Thereafter	39,061	149,452
Total lease payments	91,185	186,888
Less: imputed interest	(18,166)	(111,152)
Total	$ 73,019	$ 75,736

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 at October 1, 2022	$ 199,519	$ 259,407	$ 346,394	$ 805,320
Adjustments to prior year acquisitions	122	—	—	122
Foreign currency translation	6,233	100	17,445	23,778
Balance at July 1, 2023	$ 205,874	$ 259,507	$ 363,839	$ 829,220

Goodwill in our Space and Defense Controls segment is net of a $4,800 accumulated impairment loss at July 1, 2023. Goodwill in our Medical Devices reporting unit, included in our Industrial Systems segment, is net of a $38,200 accumulated impairment loss at July 1, 2023.

The components of intangible assets are as follows:

		July 1, 2023		October 1, 2022	
	Weighted-Average Life (years)	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Customer-related	11	$ 139,167	$ (94,454)	$ 135,899	$ (88,179)
Technology-related	9	71,541	(56,556)	69,856	(52,951)
Program-related	23	38,476	(21,838)	35,305	(18,817)
Marketing-related	8	22,051	(18,909)	21,925	(17,833)
Other	10	1,848	(1,646)	1,693	(1,488)
Intangible assets	12	$ 273,083	$ (193,403)	$ 264,678	$ (179,268)

All acquired intangible assets other than goodwill are being amortized. Customer-related intangible assets primarily consist of customer relationships. Technology-related intangible assets primarily consist of technology, patents, intellectual property and software. Program-related intangible assets consist of long-term programs represented by current contracts and probable follow on work. Marketing-related intangible assets primarily consist of trademarks, trade names and non-compete agreements.

Amortization of acquired intangible assets is as follows:

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Acquired intangible asset amortization	$ 2,859	$ 3,235	$ 8,711	$ 9,962

Based on acquired intangible assets recorded at July 1, 2023, amortization is estimated to be approximately:

	2023	2024	2025	2026	2027
Estimated future amortization of acquired intangible assets	$ 11,800	$ 10,900	$ 9,800	$ 9,600	$ 8,300

Note 9 - Equity Method Investments and Joint Ventures

Investments and operating results in which we do not have a controlling interest, however we do have the ability to exercise significant influence over operations are accounted for using the equity method of accounting. Equity method investments and joint ventures consists of:

	July 1, 2023		
		Income (Loss)	
	Net investment balance	Three Months Ended	Nine Months Ended
Moog Aircraft Service Asia	$ 1,202	$ 10	$ (67)
NOVI LLC	325	34	34
Suffolk Technologies Fund 1, L.P.	1,247	—	105
Total	$ 2,774	$ 44	$ 72

Net investment balances are included as Other assets in the Consolidated Condensed Balance Sheets. Income (loss) from equity method investments and joint ventures is included in Other in the Consolidated Condensed Statements of Earnings.

Moog Aircraft Services Asia ("MASA") is a joint venture included in our Aircraft Controls segment in which we currently hold a 51% ownership share. MASA is intended to provide maintenance, repair and overhaul services for our manufactured flight control systems.

We hold a 20% ownership interest in NOVI LLC ("NOVI") that is included in our Space and Defense Controls segment. NOVI specializes in applying machine learning algorithms to space situational awareness.

Suffolk Technologies Fund 1, L.P., is a limited partnership included in our Industrial Systems segment that invests in startups to transform the construction, real estate and property maintenance industries in the U.S. We have a remaining on-call capital commitment of up to $6,552.

Hybrid Motion Solutions ("HMS") is a joint venture in our Industrial Systems segment in which we hold a 50% ownership interest. HMS specializes in hydrostatic servo drives and leverages synergies to enter new markets. The joint venture focuses on research and development, design and assembly as well as service. Our share of cumulative losses to date has exceeded our initial investment, and as such, we had no net investment balance recorded as of July 1, 2023. In addition to the investment, we have also loaned HMS $3,038 that is included in Other assets in the Consolidated Condensed Balance Sheets.

Investments in, and the operating results of, entities in which we do not have a controlling financial interest or the ability to exercise significant influence over the operations are accounted for using the cost method of accounting. As of July 1, 2023 we had cost method investments of $9,875, which are included as Other assets in the Consolidated Condensed Balance Sheets.

Note 10 - 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:

	July 1, 2023	October 1, 2022
U.S. revolving credit facility	$ 487,000	$ 321,300
SECT revolving credit facility	30,000	20,000
Senior notes 4.25%	500,000	500,000
Other long-term debt	696	916
Senior debt	1,017,696	842,216
Less deferred debt issuance cost	(4,920)	(4,428)
Less current installments	(696)	(916)
Long-term debt	$ 1,012,080	$ 836,872

On October 27, 2022, we amended our U.S. revolving credit facility, which extended the maturity date of the credit facility from October 15, 2024 to October 27, 2027. The 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. Interest on our outstanding borrowings is based on SOFR plus the applicable margin. 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 SECT has a revolving credit facility with a borrowing capacity of $35,000, maturing on July 26, 2024. Interest is based on SOFR plus an applicable margin. A commitment fee is also charged based on a percentage of the unused amounts available and is not material.

We have $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. The senior notes are unsecured obligations, guaranteed on a senior unsecured basis by certain subsidiaries and contain normal incurrence-based covenants and limitations such as the ability to incur additional indebtedness, pay dividends, make other restricted payments and investments, create liens and certain corporate acts such as mergers and consolidations. We are in compliance with all covenants.

Note 11 - Other Accrued Liabilities

Other accrued liabilities consists of:

	July 1, 2023	October 1, 2022
Employee benefits	$ 49,385	$ 56,136
Contract reserves	45,771	46,547
Warranty accrual	22,348	23,072
Accrued income taxes	30,546	17,776
Other	58,853	71,845
Other accrued liabilities	$ 206,903	$ 215,376

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

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Warranty accrual at beginning of period	$ 22,062	$ 24,471	$ 23,072	$ 26,602
Warranties issued during current period	2,279	2,973	7,231	6,373
Adjustments to pre-existing warranties	(15)	(195)	(458)	(261)
Reductions for settling warranties	(1,927)	(2,273)	(7,911)	(7,127)
Divestiture adjustment	—	—	—	(368)
Foreign currency translation	(51)	(389)	414	(632)
Warranty accrual at end of period	$ 22,348	$ 24,587	$ 22,348	$ 24,587

Note 12 - 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, we had outstanding foreign currency contracts with notional amounts of $10,378 at July 1, 2023. These contracts mature at various times through March 1, 2024.

We use forward currency contracts to hedge our net investment in certain foreign subsidiaries. As of July 1, 2023, 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 July 1, 2023, we had no outstanding interest rate swaps.

Foreign currency contracts, net investment hedges and interest rate swaps are recorded in the Consolidated Condensed Balance Sheets at fair value and the related gains or losses are deferred in Shareholders’ Equity as a component of Accumulated Other Comprehensive Income (Loss) ("AOCIL"). These deferred gains and losses are reclassified into the Consolidated Condensed Statements of Earnings, 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 the first nine months of 2023 or 2022.

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 Condensed Statements of Earnings. To minimize foreign currency exposure, we have foreign currency contracts with notional amounts of $99,772 at July 1, 2023. The foreign currency contracts are recorded in the Consolidated Condensed Balance Sheets at fair value and resulting gains or losses are recorded in the Consolidated Condensed Statements of Earnings. We recorded the following gains 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:

		Three Months Ended		Nine Months Ended	
	Statements of Earnings location	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Net gain (loss)					
Foreign currency contracts	Other	$ 1,151	$ (2,861)	$ 4,256	$ (6,899)

Summary of derivatives

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

	Balance Sheets location	July 1, 2023	October 1, 2022
Derivatives designated as hedging instruments:			
Foreign currency contracts	Other current assets	$ 381	$ 562
Foreign currency contracts	Other assets	—	165
	Total asset derivatives	$ 381	$ 727
Foreign currency contracts	Accrued liabilities and other	$ 668	$ 3,877
Foreign currency contracts	Other long-term liabilities	—	751
	Total liability derivatives	$ 668	$ 4,628
Derivatives not designated as hedging instruments:			
Foreign currency contracts	Other current assets	$ 372	$ 679
Foreign currency contracts	Accrued liabilities and other	$ 191	$ 738

Note 13 - 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, except for the acquisition contingent consideration, which is classified as Level 3:

	Balance Sheets location	July 1, 2023	October 1, 2022
Foreign currency contracts	Other current assets	$ 753	$ 1,241
Foreign currency contracts	Other assets	—	165
	Total assets	$ 753	$ 1,406
Foreign currency contracts	Accrued liabilities and other	$ 859	$ 4,615
Foreign currency contracts	Other long-term liabilities	—	751
Acquisition contingent consideration	Other long-term liabilities	3,006	3,272
	Total liabilities	$ 3,865	$ 8,638

The changes in financial liabilities classified as Level 3 within the fair value hierarchy are as follows:

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Balance at beginning of period	$ 2,954	$ 3,084	$ 3,272	$ —
Additions from acquisition	—	—	(491)	3,053
Increase in discounted future cash flows recorded as interest expense	52	94	225	125
Balance at end of period	$ 3,006	$ 3,178	$ 3,006	$ 3,178

Our only financial instrument for which the carrying value differs from its fair value is long-term debt. At July 1, 2023, the fair value of long-term debt was $977,502 compared to its carrying value of $1,017,696. 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.

Note 14 - Restructuring

In 2023, we initiated restructuring actions in relation to portfolio shaping activities that have and will result in workforce reductions in which a total of $1,696 for severance has been recorded.

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	Total
Balance at October 1, 2022	$ 229	$ 228	$ 6,678	$ 7,135
Charged to expense - 2023 plan	275	734	687	1,696
Charged to expense - 2022 plan	—	226	2,815	3,041
Adjustments to provision	(16)	—	36	20
Cash payments - 2023 plan	—	(267)	(166)	(433)
Cash payments - 2022 plan	(213)	(454)	(968)	(1,635)
Cash payments - 2020 plan	—	—	(244)	(244)
Cash payments - 2018 plan	—	—	(717)	(717)
Foreign currency translation	—	—	365	365
Balance at July 1, 2023	$ 275	$ 467	$ 8,486	$ 9,228

As of July 1, 2023, the restructuring accrual consists of $1,345 for the 2023 plan, $4,032 for the 2022 plan, $2,604 for the 2020 plan and $1,247 for the 2018 plan. Restructuring is expected to be paid within a year, except portions classified as long-term liabilities based on the nature of the reserve.

Note 15 - Employee Benefit Plans

Pension expense for our defined contribution plans consists of:

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
U.S. defined contribution plans	$ 11,791	$ 10,558	$ 33,979	$ 32,253
Non-U.S. defined contribution plans	2,336	1,994	6,448	6,551
Total expense for defined contribution plans	$ 14,127	$ 12,552	$ 40,427	$ 38,804

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

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
U.S. Plans				
Service cost	$ 3,229	$ 4,957	$ 9,685	$ 14,870
Interest cost	7,028	4,562	21,084	13,685
Expected return on plan assets	(7,148)	(7,451)	(21,442)	(22,352)
Amortization of actuarial loss	3,363	3,896	10,087	11,689
Expense for U.S. defined benefit plans	$ 6,472	$ 5,964	$ 19,414	$ 17,892
Non-U.S. Plans				
Service cost	$ 666	$ 1,056	$ 1,974	$ 3,285
Interest cost	1,374	602	4,031	1,863
Expected return on plan assets	(1,070)	(839)	(3,144)	(2,622)
Amortization of prior service cost	14	15	41	45
Amortization of actuarial loss	102	953	297	2,979
Expense for non-U.S. defined benefit plans	$ 1,086	$ 1,787	$ 3,199	$ 5,550

Note 16 - Income Taxes

The effective tax rate for the three and nine months ended July 1, 2023 was 15.8% and 21.3%, respectively and was lower than expected from applying the U.S. federal statutory tax rate of 21% to earnings before income taxes due to beneficial provision to return adjustments in the quarter ended July 1, 2023, primarily associated with an increase in the U.S. research and development tax credit, partially offset by tax on earnings generated outside the U.S.

The effective tax rate for the three and nine months ended July 2, 2022 was 15.7% and 21.4%, respectively and was lower than expected from applying the U.S. federal statutory tax rate of 21% to earnings before income taxes due to beneficial provision to return adjustments in the quarter ended July 2, 2022, primarily associated with an increase in the U.S. research and development tax credit, partially offset by tax on earnings generated outside the U.S.

Note 17 - Accumulated Other Comprehensive Income (Loss)

The changes in AOCIL, net of tax, by component for the nine months ended July 1, 2023 are as follows:

	Accumulated foreign currency translation	Accumulated retirement liability	Accumulated gain (loss) on derivatives	Total
AOCIL at October 1, 2022	$ (182,024)	$ (125,231)	$ (3,787)	$ (311,042)
OCI before reclassifications	67,190	(1,388)	1,198	67,000
Amounts reclassified from AOCIL	559	6,647	2,002	9,208
OCI, net of tax	67,749	5,259	3,200	76,208
AOCIL at July 1, 2023	$ (114,275)	$ (119,972)	$ (587)	$ (234,834)

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:

		Three Months Ended		Nine Months Ended	
	Statements of Earnings location	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Retirement liability:					
Prior service cost		$ 14	$ 15	$ 41	$ 45
Actuarial losses		2,884	4,530	8,643	13,713
Reclassification from AOCIL into earnings		2,898	4,545	8,684	13,758
Tax effect		(680)	(1,077)	(2,037)	(3,260)
Net reclassification from AOCIL into earnings		$ 2,218	$ 3,468	$ 6,647	$ 10,498
Derivatives:					
Foreign currency contracts	Sales	$ —	$ 375	$ 517	$ 619
Foreign currency contracts	Cost of sales	399	(8)	2,072	341
Reclassification from AOCIL into earnings		399	367	2,589	960
Tax effect		(94)	(69)	(587)	(198)
Net reclassification from AOCIL into earnings		$ 305	$ 298	$ 2,002	$ 762

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 Condensed Statement of Earnings.

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

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Foreign currency contracts	$ (136)	$ (2,350)	$ 1,551	$ (3,152)
Net gain (loss)	(136)	(2,350)	1,551	(3,152)
Tax effect	32	519	(353)	697
Net deferral in AOCIL of derivatives	$ (104)	$ (1,831)	$ 1,198	$ (2,455)

Note 18 - 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 Moog Inc. Retirement Savings Plan ("RSP"), RSP(+) and the Employee Stock Purchase Plan ("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 Moog 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 19 - Earnings per Share

Basic and diluted weighted-average shares outstanding, as well as shares considered to be anti-dilutive, are as follows:

	Three Months Ended		Nine Months Ended	
	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Basic weighted-average shares outstanding	31,838,961	31,922,377	31,811,034	31,988,150
Dilutive effect of equity-based awards	228,430	145,054	184,306	137,288
Diluted weighted-average shares outstanding	32,067,391	32,067,431	31,995,340	32,125,438
Anti-dilutive shares from equity-based awards	4,540	40,679	9,897	52,362

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Note 20 - Segments

Disaggregation of net sales by segment for the three and nine months ended July 1, 2023 and July 2, 2022 are as follows:

	Three Months Ended		Nine Months Ended	
Market Type	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Net sales:				
Military	$ 170,647	$ 180,891	$ 518,066	$ 558,929
Commercial	184,378	137,126	494,222	373,673
Aircraft Controls	355,025	318,017	1,012,288	932,602
Space	102,520	94,903	310,278	284,642
Defense	139,882	128,741	395,762	370,207
Space and Defense Controls	242,402	223,644	706,040	654,849
Energy	30,667	31,178	91,217	94,960
Industrial Automation	124,400	111,316	361,056	323,870
Simulation and Test	36,668	25,458	89,758	77,258
Medical	61,014	63,298	186,712	184,245
Industrial Systems	252,749	231,250	728,743	680,333
Net sales	$ 850,176	$ 772,911	$ 2,447,071	$ 2,267,784

	Three Months Ended		Nine Months Ended	
Customer Type	July 1, 2023	July 2, 2022	July 1, 2023	July 2, 2022
Net sales:				
Commercial	$ 184,378	$ 137,126	$ 494,222	$ 373,673
U.S. Government (including OEM)	109,725	141,793	373,570	423,698
Other	60,922	39,098	144,496	135,231
Aircraft Controls	355,025	318,017	1,012,288	932,602
Commercial	28,334	32,001	82,123	84,878
U.S. Government (including OEM)	192,897	177,643	574,914	527,767
Other	21,171	14,000	49,003	42,204
Space and Defense Controls	242,402	223,644	706,040	654,849
Commercial	249,849	227,445	715,878	669,845
U.S. Government (including OEM)	1,301	1,596	3,419	5,535
Other	1,599	2,209	9,446	4,953
Industrial Systems	252,749	231,250	728,743	680,333
Commercial	462,561	396,572	1,292,223	1,128,396
U.S. Government (including OEM)	303,923	321,032	951,903	957,000
Other	83,692	55,307	202,945	182,388
Net sales	$ 850,176	$ 772,911	$ 2,447,071	$ 2,267,784

Revenue Recognition Method	Three Months Ended July 1, 2023	Three Months Ended July 2, 2022	Nine Months Ended July 1, 2023	Nine Months Ended July 2, 2022
Net sales:				
Over-time	$ 276,113	$ 243,428	$ 799,646	$ 729,797
Point in time	78,912	74,589	212,642	202,805
Aircraft Controls	355,025	318,017	1,012,288	932,602
Over-time	228,164	204,196	659,327	603,951
Point in time	14,238	19,448	46,713	50,898
Space and Defense Controls	242,402	223,644	706,040	654,849
Over-time	38,814	36,536	99,732	105,848
Point in time	213,935	194,714	629,011	574,485
Industrial Systems	252,749	231,250	728,743	680,333
Over-time	543,091	484,160	1,558,705	1,439,596
Point in time	307,085	288,751	888,366	828,188
Net sales	$ 850,176	$ 772,911	$ 2,447,071	$ 2,267,784

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 for the three and nine months ended July 1, 2023 and July 2, 2022 and a reconciliation of segment operating profit to earnings before income taxes are as follows:

	Three Months Ended July 1, 2023	Three Months Ended July 2, 2022	Nine Months Ended July 1, 2023	Nine Months Ended July 2, 2022
Operating profit:				
Aircraft Controls	$ 37,888	$ 34,453	$ 99,468	$ 88,809
Space and Defense Controls	18,585	25,368	66,386	70,742
Industrial Systems	28,035	19,484	89,183	57,398
Total operating profit	84,508	79,305	255,037	216,949
Deductions from operating profit:				
Interest expense	17,256	9,131	45,351	25,376
Equity-based compensation expense	2,356	2,169	8,121	6,747
Non-service pension expense	3,124	1,442	9,338	4,399
Corporate and other expenses, net	11,434	6,754	25,284	20,482
Earnings before income taxes	$ 50,338	$ 59,809	$ 166,943	$ 159,945

Note 21 - Related Party Transactions

John Scannell, Moog's Non-Executive Chairman of the Board of Directors, 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 financing routine purchases and lease transactions, which for the three and nine months ended July 1, 2023 totaled $3,354 and $10,408, respectively. Financing for routine purchases and lease transactions for the three and nine months ended July 2, 2022 totaled $4,681 and $12,544, respectively. At July 1, 2023, we held outstanding leases with a total remaining obligation of $12,761. At July 1, 2023, outstanding deposits on our behalf for future equipment leases totaled $2,053. 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 10 - Indebtedness. Wilmington Trust, a subsidiary of M&T Bank, is the trustee of the pension assets for our qualified U.S. defined benefit plan.

Note 22 - 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 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 $21,413 related to standby letters of credit issued by banks to third parties on our behalf at July 1, 2023.

Note 23 - Subsequent Event

On July 27, 2023, we declared a $0.27 per share quarterly dividend payable on issued and outstanding shares of our Class A and Class B common stock on August 28, 2023 to shareholders of record at the close of business on August 11, 2023.

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

The following should be read in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations contained in the Company's Annual Report filed on Form 10-K for the fiscal year ended October 1, 2022. In addition, the following should be read in conjunction with our Consolidated Financial Statements and Notes to Consolidated Condensed Financial Statements contained herein. All references to years in this Management's Discussion and Analysis of Financial Condition and Results of Operations are to fiscal years. Amounts may differ from reported values due to rounding.

OVERVIEW

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

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

- Defense market - primary and secondary flight controls for military aircraft, turreted weapon systems, 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.
- Space market - satellite positioning controls and thrust vector controls, as well as integrated space vehicles and hypersonic applications.

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

- Industrial 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, gas and steam exploration and generation components and systems as well as material and automotive structural and fatigue testing systems.
- Medical market - components and pumps for enteral clinical nutrition and infusion therapy, CT scan medical equipment, ultrasonic sensors and surgical handpieces and sleep apnea equipment.

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

Under ASC 606, 64% of revenue was recognized over time for the quarter ended July 1, 2023, 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 quarter ended July 1, 2023, 36% 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 with customers around the world, delivering capabilities for mission-critical solutions. This approach is critical in creating products that are applied in demanding applications, "When Performance Really Matters®." By capitalizing on this customer intimacy, 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 motion control 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 path to success comes from our talented employees building a sustainable company for current and future generations. We are concentrating our efforts on: customer focus, people, community and the planet, and financial strength. Initiatives in these three areas will drive accountability, improve operational performance, increase employee engagement and workforce diversity and, with business simplification, result in improved financial results and increased shareholder value.

We will improve shareholder value through strategic revenue growth, both organic and acquired, and through margin expansion driven by our simplification and pricing initiatives. Historically, we have taken a balanced approach to capital deployment in order to maximize shareholder returns over the long term. These activities have included strategic acquisitions, share buybacks and dividend payments. Today, we believe we can create long term value for our shareholders by continuing to invest in our business through both capital expenditures as well as investments in new market opportunities. We will also continue exploring opportunities to make strategic acquisitions and return capital to shareholders.

Acquisitions and Divestitures

Acquisitions

On February 21, 2022, we acquired TEAM Accessories Limited ("TEAM") based in Dublin, Ireland for a purchase price, net of acquired cash, of $14 million, consisting of $12 million in cash and contingent consideration with an initial fair value of $3 million. TEAM specializes in Maintenance, Repair and Overhaul of engine and airframe components. This operation is included in our Aircraft Controls segment. TEAM has been rebranded as Moog MRO Services as of July 1, 2023.

Divestitures

On September 30, 2022, we sold a sonar business based in the United Kingdom previously included in our Industrial Systems segment. We have cumulatively received net proceeds of $13 million and recorded a loss of $15 million, net of transaction costs. The transaction is subject to adjustments associated with amounts currently held in escrow.

On September 20, 2022, we sold assets of a security business based in Northbrook, Illinois previously included in our Space and Defense Controls segment. We have cumulatively received net proceeds of $9 million and recorded a loss of $4 million, net of transaction costs. The transaction is subject to adjustments associated with amounts currently held in escrow.

On December 3, 2021, we sold the assets of our Navigation Aids ("NAVAIDS") business based in Salt Lake City, Utah previously included in our Aircraft Controls segment to Thales USA Inc. We have cumulatively received net proceeds of $37 million and recorded a gain of $16 million, net of transaction costs. The transaction is subject to adjustments associated with amounts currently held in escrow.

CRITICAL ACCOUNTING POLICIES

On a regular basis, we evaluate the critical accounting policies used to prepare our consolidated financial statements, including revenue recognition on long-term contracts, contract reserves, reserves for inventory valuation, reviews for impairment of goodwill, reviews for impairment of long-lived assets, pension assumptions and income taxes.

RECENT ACCOUNTING PRONOUNCEMENTS

See Note 1 - Basis of Presentation in the Consolidated Condensed Financial Statements included in Item 1, Financial Statements of this report for further information regarding Financial Accounting Standards Board issued ASUs.

CONSOLIDATED RESULTS OF OPERATIONS

	Three Months Ended				Nine Months Ended			
(dollars and shares in millions, except per share data)	July 1, 2023	July 2, 2022	$ Variance	% Variance	July 1, 2023	July 2, 2022	$ Variance	% Variance
Net sales	$ 850	$ 773	$ 77	10%	$ 2,447	$ 2,268	$ 179	8%
Gross margin	*26.2 %*	*27.4 %*			*26.5 %*	*27.2 %*		
Research and development expenses	$ 27	$ 26	$ 1	2%	$ 77	$ 84	$ (7)	(9%)
Selling, general and administrative expenses as a percentage of sales	*14.3 %*	*14.7 %*			*14.4 %*	*14.8 %*		
Interest expense	$ 17	$ 9	$ 8	89%	$ 45	$ 25	$ 20	79%
Asset impairment	$ —	$ 1	$ —	(37%)	$ 2	$ 16	$ (14)	(90%)
Restructuring expense	$ 2	$ 1	$ 1	185%	$ 5	$ 8	$ (4)	(43%)
Gain on sale of business	$ —	$ —	$ —	—%	$ —	$ (16)	$ 16	(100%)
Gain on sale of buildings	$ —	$ —	$ —	n/a	$ (10)	—	$ (10)	n/a
Other	$ 5	$ 2	$ 3	n/a	$ 10	$ 3	$ 7	n/a
Effective tax rate	*15.8 %*	*15.7 %*			*21.3 %*	*21.4 %*		
Net earnings	$ 42	$ 50	$ (8)	(16%)	$ 131	$ 126	$ 6	4%
Diluted earnings per share	$ 1.32	$ 1.57	$ (0.25)	(16%)	$ 4.11	$ 3.91	$ 0.20	5%
Twelve-month backlog					$ 2,300	$ 2,200	$ 100	5%

Net sales increased across all of our segments in the third quarter and in the first three quarters of 2023 compared to the same periods of 2022. The absence of sales associated with our divested businesses in 2022 decreased sales $9 million in the third quarter and $29 million through the first three quarters of 2023. Also, weaker foreign currencies, primarily the Euro and the British Pound, relative to the U.S. Dollar, decreased sales $25 million in the first three quarters of 2023 relative to the same periods of 2022. The 2023 sales increases excluding these effects compared to the same periods of 2022 were 11% in both the third quarter and in the first three quarters.

Gross margin in the third quarter of 2023 included an additional $14 million of contract-related charges in Space and Defense Controls. Excluding these charges, gross margin in the third quarter would have increased slightly compared to the third quarter of 2022. The benefits of our pricing initiatives in Industrial Systems was mostly offset by an unfavorable sales mix within Aircraft Controls. In the first three quarters of 2023 compared to the same periods of 2022, gross margin decreased due mostly to the same factors as the third quarter.

Research and development expenses were relatively unchanged in the third quarter, but lower through the first three quarters of 2023 compared to the same periods of 2022. Predominantly through the first half of 2023, we had lower research and development activity due to our prioritization of our engineering activities on funded development programs.

Selling, general and administrative expense as a percentage of sales decreased in the third quarter and in the first three quarters of 2023 compared to the third quarter and the first three quarters of 2022, reflecting the incremental benefit of higher sales volume.

Interest expense in the third quarter and in the first three quarters of 2023 increased due to higher interest rates on our outstanding debt balances and, to a lesser extent, higher debt levels.

The third quarters of 2023 and 2022 included charges for various restructuring activities and impairments across all of our segments. Through the first three quarters of 2023, we benefited from a $10 million gain from the sale of three buildings in Industrial Systems and incurred $7 million of various restructuring and impairment charges across all of our segments. The first three quarters of 2022 included a total of $28 million from various asset impairments, restructuring expenses and inventory write-down charges across all of our segments. Also, the first quarter of 2022 included a $16 million gain from the sale of our NAVAIDS business in Aircraft Controls.

The effective tax rate in the third quarter of 2023 was relatively unchanged as compared to the third quarter of 2022. In both quarters, we benefited from favorable adjustments for tax credits associated with the prior years' tax returns.

The twelve-month backlog increased in the third quarter of 2023 compared with the third quarter of 2022. Within Aircraft Controls, we had higher orders for both commercial and military OEM programs. The twelve-month backlog also increased in Space and Defense Controls across our defense control programs as well as our space vehicle programs. Partially offsetting these increases was a decline in Industrial Systems' twelve-month backlog due to lower orders across our industrial automation programs, particularly from customers in China.

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 20 - Segments in the Notes to Consolidated Condensed Financial Statements included in this report.

Aircraft Controls

	Three Months Ended				Nine Months Ended			
(dollars in millions)	July 1, 2023	July 2, 2022	$ Variance	% Variance	July 1, 2023	July 2, 2022	$ Variance	% Variance
Net sales - military aircraft	$ 171	$ 181	$ (10)	(6%)	$ 518	$ 559	$ (41)	(7%)
Net sales - commercial aircraft	184	137	47	34%	494	374	121	32%
	$ 355	$ 318	$ 37	12%	$ 1,012	$ 933	$ 80	9%
Operating profit	$ 38	$ 34	$ 3	10%	$ 99	$ 89	$ 11	12%
Operating margin	*10.7 %*	*10.8 %*			*9.8 %*	*9.5 %*		

Aircraft Controls' net sales increased in the third quarter and in the first three quarters of 2023 compared to the third quarter and the first three quarters of 2022, as the continued commercial aircraft market recovery was partially offset by lower military sales.

In the third quarter of 2023, sales increased $40 million in our commercial OEM and $7 million in our commercial aftermarket programs. Within commercial OEM, sales increased $15 million across our wide-body programs and increased $6 million across our other Boeing and Airbus programs. Also, higher sales volumes for business jets and a strong order book for our Genesys programs increased sales a combined $11 million. Within commercial aftermarket, higher amounts of spares and repair volume increased sales $5 million for the A350 program.

Partially offsetting the commercial sales increases was a sales decline of $8 million in our military OEM programs. Lower volume on funded development programs and lower deliveries across our legacy programs were partially offset by higher sales for foreign military fighters.

The sales increases in the first three quarters of 2023 compared to the first three quarters of 2022 were largely due to the same factors as the third quarter. The continued recovery of the commercial market increased OEM program sales by $86 million and aftermarket sales by $34 million. Within our military programs, sales decreased across both our OEM and aftermarket programs due mostly to the same factors as the third quarter.

Operating margin was relatively unchanged in the third quarter of 2023 compared to the same period of 2022. Both periods included small amounts of impairment and restructuring charges. Our sales mix drove the margin decline as higher amounts of lower-margin commercial OEM sales were mostly offset by higher amounts of higher-margin foreign military and commercial aftermarket sales.

Operating margin increased in the first three quarters of 2023 compared to the first three quarters of 2022. Adjustments in the first three quarters of 2023 included $2 million of restructuring and impairment charges, whereas the same period of 2022 included $19 million of impairments and restructuring charges and a $16 million gain associated with a divested business. Excluding these charges, the adjusted operating margins in the first three quarters of 2023 and 2022 were 10.0% and 9.9%, respectively. The resulting slight increase in adjusted operating margin is due to incremental sales volumes and $5 million of lower research and development expenses. Partially offsetting these benefits was the unfavorable sales mix due to higher levels of commercial OEM sales.

Space and Defense Controls

	Three Months Ended				Nine Months Ended			
(dollars in millions)	July 1, 2023	July 2, 2022	$ Variance	% Variance	July 1, 2023	July 2, 2022	$ Variance	% Variance
Net sales	$ 242	$ 224	$ 19	8%	$ 706	$ 655	$ 51	8%
Operating profit	$ 19	$ 25	$ (7)	(27%)	$ 66	$ 71	$ (4)	(6%)
Operating margin	*7.7 %*	*11.3 %*			*9.4 %*	*10.8 %*		

Space and Defense Controls' net sales increased in the third quarter and in the first three quarters of 2023 compared to the third quarter and first three quarters of 2022 driven by growth in both of our markets.

In the third quarter of 2023, sales increased $11 million in our defense programs and $8 million in our space programs. Within our defense market, sales increased $13 million for our RIwP turret program, which achieved full-rate production in the first quarter of 2023. Within our space market, accelerated activity on satellite avionics and components programs increased sales $5 million.

The sales increases in the first three quarters of 2023 compared to the first three quarters of 2022 were largely due to the same factors as the third quarter. The strong demand for our space programs and our RIwP turret program were partially offset by the absence of sales from our divested security business.

Operating margin decreased in the third quarter of 2023 compared to the third quarter of 2022. We incurred $14 million, or 500 basis points, of additional charges on our space vehicle development programs in the quarter. This was partially offset by benefits associated with higher sales and improvements in the core business.

Excluding $2 million of restructuring and impairment charges in the first three quarters of 2023, adjusted operating margin was 9.7%. Excluding $3 million of restructuring and inventory write-down charges in the first three quarters of 2022, adjusted operating margin was 11.3%. The resulting decline in adjusted operating margin is due to 300 basis points of cost growth on our space vehicle development programs, partially offset by the incremental margin from higher sales and improved operational performance.

Industrial Systems

(dollars in millions)	Three Months Ended July 1, 2023	Three Months Ended July 2, 2022	Three Months Ended $ Variance	Three Months Ended % Variance	Nine Months Ended July 1, 2023	Nine Months Ended July 2, 2022	Nine Months Ended $ Variance	Nine Months Ended % Variance
Net sales	$ 253	$ 231	$ 21	9%	$ 729	$ 680	$ 48	7%
Operating profit	$ 28	$ 19	$ 9	44%	$ 89	$ 57	$ 32	55%
Operating margin	*11.1%*	*8.4 %*			*12.2 %*	*8.4 %*		

Industrial Systems' net sales increased in the third quarter and in the first three quarters of 2023 compared to the same periods of 2022, primarily due to general market recoveries. Weaker foreign currencies, primarily the Euro relative to the U.S. Dollar, decreased sales $18 million through the first three quarters of 2023. Also, sales decreased $4 million in the third quarter and $10 million in the first three quarters of 2023 due to the absence of prior year sales associated with our sonar business that we divested in the fourth quarter of 2022. Excluding the impacts of weaker foreign currencies and the divested sales, the resulting sales increases in the third quarter and first three quarters of 2023 were 11% and 12%, respectively.

In the third quarter of 2023 compared to the third quarter of 2022, sales increased $13 million in our industrial automation market, driven by higher demand for industrial components and core products, and by new orders for our electrified construction vehicles. Sales also increased $11 million in our simulation and test market due to higher orders for flight simulation products.

In the first three quarters of 2023 compared to the same period of 2022, sales increased across our markets due to recovering demand. Sales increased $37 million for our industrial automation programs, $12 million in our simulation and test market and $2 million in our medical market. Additionally, sales increased $6 million in our energy market excluding the lost sales associated with our divested business.

Operating margin increased in the third quarter of 2023 compared to the third quarter of 2022 due to the benefits of our pricing initiatives. Also, we benefited from the absence of last year's higher operating costs caused by supply chain disruptions and by the pandemic, which impacted our operations in China.

Operating margin in the first three quarters of 2023 included a $10 million gain related to the sales of three buildings and $4 million of restructuring charges as we simplified our operations. Excluding the net impact of the gain and charges, adjusted operating margin in the first three quarters of 2023 was 11.4%. Adjusted operating margin in the first three quarters of 2022 was 9.1% after excluding $5 million of similar charges. The resulting increase in adjusted operating margin was driven by the same benefits as the third quarter.

CONSOLIDATED SEGMENT OUTLOOK

			2023 vs. 2022	
(dollars in millions, except per share data)	2023 Outlook	2022	$ Variance	% Variance
Net sales:				
Aircraft Controls	$ 1,355	$ 1,256	$ 99	8%
Space and Defense Controls	930	872	58	7%
Industrial Systems	965	907	58	6%
	$ 3,250	$ 3,036	$ 214	7%
Operating profit:				
Aircraft Controls	$ 145	$ 124	$ 22	17%
Space and Defense Controls	96	87	9	11%
Industrial Systems	116	72	44	60%
	$ 358	$ 283	$ 75	26%
Operating margin:				
Aircraft Controls	10.7 %	9.8 %		
Space and Defense Controls	10.3 %	10.0 %		
Industrial Systems	12.0 %	8.0 %		
	11.0 %	9.3 %		
Net earnings	$ 186	$ 155		
Diluted earnings per share	$ 5.82	$ 4.83		

Total Company – We expect higher sales in 2023, driven by the continued recoveries in commercial aircraft and in industrial markets, as well as higher demand for space and defense programs. Excluding the lost sales associated with our divestitures in 2022, and the weaker foreign currencies through the three quarters of 2023, we expect our sales growth to be 9%. We expect operating margin will increase due to the benefits of our initiatives and due to the incremental sales volumes, combined with lower amounts of charges related to restructuring and impairments. Excluding these charges, we expect adjusted operating margin will increase to 10.9%, from an adjusted operating margin in 2022 of 10.2%. Net earnings in 2023 are expected to benefit from the incremental operating margin, which we expect to be partially offset by higher interest expense due to higher interest rates. We expect adjusted diluted earnings per share will range between $5.65 and $5.85, with a midpoint of $5.75. Management believes that the adjusted outlook may be useful in evaluating the financial condition and results of operations of the Company.

Aircraft Controls – In 2023, we anticipate sales increases across all of our major commercial OEM programs as the commercial aircraft market recovers and as our customers match the increasing air travel demand with increased orders. However, in our military programs, we anticipate a sales decrease both of our military OEM and aftermarket programs. We expect operating margin in 2023 will increase due to the benefits of our pricing initiatives and due to improved factory utilization from the higher sales volume.

Space and Defense Controls – In 2023, we anticipate sales increases in our space programs from the higher activity on our satellite programs and for our integrated space vehicle programs. Excluding the impact of lost sales associated with our divested security business, we expect sales increases across our defense programs, primarily driven by the continued production ramp of our RIwP turret program. We expect operating margin will increase slightly in 2023. The benefits of the incremental margin from higher sales volume and from the absence of charges from our security business sale will be mostly offset by the charges associated with our space vehicle programs in the first three quarters of 2023. Excluding the restructuring and impairment charges, adjusted operating margin will decrease slightly.

Industrial Systems – In 2023, we anticipate sales increases across our markets due to recovering demand for our products. We expect operating margin will increase in 2023 resulting from the gain associated with the sale of buildings and due to lower amounts of charges related to impairments and restructuring. Excluding these charges, we expect adjusted operating margin to increase due to the benefits of our pricing and simplification activities.

LIQUIDITY AND CAPITAL RESOURCES

Consolidated Statement of Cash Flows

	Nine Months Ended		
(dollars in millions)	July 1, 2023	July 2, 2022	$ Variance
Net cash provided (used) by:			
Operating activities	$ (17)	$ 184	$ (201)
Investing activities	(114)	(85)	(29)
Financing activities	133	(98)	231

Operating activities

Net cash was used by operating activities in the first three quarters of 2023 compared to providing cash in the first three quarters of 2022. Accounts receivable used $105 million more of cash, as last year included a $100 million benefit from the RPA program. Also, inventory used $96 million more of cash as all of our segments continue to work through supply chain challenges, staffing shortages and production inefficiencies preventing the release of products. We continue to maintain material flow to reduce the risk of shipment delays.

We expect cash from operations in 2023 to be $105 million, a decrease compared to 2022, primarily due to the impact of the RPA transactions in the previous year.

Investing activities

Net cash used by investing activities in the first three quarters of 2023 included $125 million of capital expenditures, including a $28 million building purchase, as we continue to prioritize internal investments to support core business growth. The first three quarters of 2023 also included $21 million of proceeds from the sales of buildings and businesses.

Net cash used by investing activities in the first three quarters of 2022 included $107 million for capital expenditures, as we increased investments in facilities to support growth. Also, the first three quarters of 2022 included $12 million for the acquisition of TEAM Accessories. These cash outflows were partially offset by the proceeds from the sale of the NAVAIDS business.

We expect capital expenditures in 2023 to be $165 million, as we continue to invest in facilities and infrastructure to support future growth and operational improvements.

Financing activities

Net cash provided by financing activities in the first three quarters of 2023 included $175 million of net borrowings on our credit facilities. Partially offsetting the borrowings was the use of $25 million cash for dividend payments.

Net cash used by financing activities in the first three quarters of 2022 included $48 million of net payments on our credit facilities. Additionally, financing activities in the first three quarters of 2022 included $25 million of cash dividends and $21 million of share repurchases.

General

Cash flows from our operations, together with our various financing arrangements, fund on-going activities, debt service requirements, organic growth, acquisition opportunities and the ability to return capital to shareholders. We believe these sources of funding will be sufficient to meet our cash requirements for the next 12 months and for the foreseeable future thereafter.

At July 1, 2023, our cash balances were $125 million, which includes $113 million held outside of the U.S. by foreign operations. We regularly assess our cash needs, including repatriation of foreign earnings which may be subject to regulatory approvals and withholding taxes, where applicable by law.

Financing Arrangements

In addition to operations, our capital resources include bank credit facilities and an accounts receivable financing program to fund our short and long-term capital requirements. We continuously evaluate various forms of financing to improve our liquidity and position ourselves for future opportunities, which from time to time, may result in selling debt and equity securities to fund acquisitions or take advantage of favorable market conditions.

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. 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.

In the normal course of business, we are exposed to interest rate risk from our long-term debt. To manage these risks, we may enter into derivative instruments such as interest rate swaps which are used to adjust the proportion of total debt that is subject to variable and fixed interest rates.

Our U.S. revolving credit facility, which matures on October 27, 2027, 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 weighted-average interest rate on the outstanding credit facility borrowings was 6.72% and is based on SOFR plus the applicable margin, which was 1.60% at July 1, 2023.

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. 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.

The SECT has a revolving credit facility with a borrowing capacity of $35 million, maturing on July 26, 2024. Interest was 7.36% as of July 1, 2023 and is based on SOFR plus a margin of 2.23%.

We have $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. 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.

Our Receivables Purchase Agreement, which matures on November 4, 2024, allows the Receivables Subsidiary to sell receivables to the Purchasers in amounts up to a $100 million limit so long as certain conditions are satisfied. The receivables are sold to the Purchasers in consideration for the Purchasers making payments of cash. Each Purchaser's share of capital accrues yield at a variable rate plus an applicable margin, which totaled 6.22% as of July 1, 2023.

At July 1, 2023, we had $573 million of unused capacity, including $557 million from the U.S. revolving credit facility after considering standby letters of credit. Our leverage ratio covenant limits our ability to increase net debt by $510 million as of July 1, 2023.

We are in compliance with all covenants under each of our financing arrangements.
See Note 10 – Indebtedness, of Part I, Item 1, Financial Information of this report for additional details.

Dividends and Common Stock

We believe we can create long term value for our shareholders by continuing to invest in our business through both capital expenditures as well as investments in new market opportunities. We will also continue exploring opportunities to make strategic acquisitions and return capital to shareholders.

We are currently paying quarterly cash dividends on our Class A and Class B common stock and expect to continue to do so for the foreseeable future. See the Consolidated Condensed Statement of Shareholders Equity and Cash Flows, of Part I, Item 1, Financial Information, of this report for additional details.

The Board of Directors authorized a share repurchase program that permits repurchases for both Class A and Class B common stock, and allows us to buy up to an aggregate 3 million common shares. There are approximately 2.2 million common shares remaining under this authorization. See the Consolidated Condensed Statement of Shareholders Equity and Cash Flows, of Part I, Item 1, Financial Information and Part II, Item 2, Unregistered Sales of Equity Securities and Use of Proceeds, of this report for additional details.

Today, we believe we can create long term value for our shareholders by continuing to invest in our business through both capital expenditures as well as investments in new market opportunities. We will also continue exploring 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

Our contractual obligations and commercial commitments have not changed materially from the disclosures in our Annual Report on Form 10-K for the year ended October 1, 2022. See Note 7 - Leases, Note 10 - Indebtedness, Note 15 - Employee Benefit Plans and Note 22 - Commitments and Contingencies, of Part I, Item 1, Financial Information, of this report for additional details.

ECONOMIC CONDITIONS AND MARKET TRENDS

We operate within the aerospace and defense and industrial markets. Our businesses are facing varying levels of supply chain pressures from the residual impacts of the COVID-19 pandemic.

Our aerospace and defense businesses represented 70% of our 2022 sales. Within the defense market, our programs are directly affected by funding levels, which has recently increased. Our commercial aircraft market, which represented less than 18% of our 2022 sales, is aligning with our customers' growing demand. While domestic travel has recovered, global international travel remains slightly below pre-pandemic levels.

Within our industrial markets, which represented 30% of our 2022 sales, our programs benefited from increased order demand within industrial automation, simulation and test and energy markets.

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. 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 including the Textron Bell V-280 Valor. 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. 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 have increased in the near-term given the current global tensions, and are subject to presidential and congressional approval.

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 led to large production backlogs for Boeing and Airbus. While domestic air travel has recovered from the impact of the COVID-19 pandemic, international travel utilizing wide-body aircraft is close to 2019 levels. We believe Boeing and Airbus will continue to directionally match their wide-body aircraft production rates with the post-pandemic air traffic volumes, which affects our demand for our flight control systems.

The commercial aftermarket is driven by usage and the age of the existing aircraft fleet for passenger and cargo aircraft, which drives the need for maintenance and repairs. We have seen a recovery in the demand volume for our maintenance services and spare parts after the COVID-19 pandemic.

The space market is comprised of three customer markets: the civil market, the U.S. Department of Defense market and the commercial space market. The civil market, namely NASA, is driven by investment for commercial and exploration activities, including NASA's return to the moon. The U.S. Department of Defense market is driven by governmental-authorized levels of defense spending, including funding for hypersonic defense technologies. Levels of U.S. defense spending could increase as there is growing emphasis on space as the next frontier of potential future conflicts. 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.

Industrial

Within industrial, we serve two end markets: industrial and medical.The industrial market consists of industrial automation products, simulation and test products and energy generation and exploration products. The medical market consists of medical devices and medical components products.

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, technology upgrades and the subsequent effects of the COVID-19 pandemic. As our industrial market continues to recover, ongoing supply chain constraints continue to impact our operations, as will potential future economic recessions.

Our simulation and test products operate in markets that were largely affected by the same factors and investment challenges stemming from the COVID-19 pandemic. However, we have seen stronger order demand for flight simulation systems as the airline training market recovers.

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. Recently, we have seen oil prices rise above pre-pandemic levels due, in part, to global disruptions; but future energy crises could increase the market's uncertainty.

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. When the COVID-19 pandemic altered the way hospitals provided care by asking non-critical patients to recuperate at home, our medical devices products saw an increase in orders. This surge in demand has waned, as our customers have resized 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 2022 sales were denominated in foreign currencies. During the first nine months of 2023, average foreign currency rates generally weakened against the U.S. dollar compared to 2022. The translation of the results of our foreign subsidiaries into U.S. dollars decreased sales by $25 million compared to the same period one year ago.

Cautionary Statement

Information included or incorporated by reference in this report that does not consist of historical facts, including statements accompanied by or containing words such as “may,” “will,” “should,” “believes,” “expects,” “expected,” “intends,” “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 forward-looking 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. In evaluating these forward-looking statements, you should carefully consider the factors set forth below.

Although it is not possible to create a comprehensive list of all factors that may cause actual results to differ from the results expressed or implied by our forward-looking statements or that may affect our future results, some of these factors and other risks and uncertainties that arise from time to time are described in Item 1A “Risk Factors” of our Annual Report on Form 10-K and in our other periodic filings with the SEC and include the following:

STRATEGIC RISKS

- We operate in highly competitive markets with competitors who may have greater resources than we possess;
- Our research and development and innovation efforts are substantial and may not be successful, which could reduce our sales and earnings;
- 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; and
- Our sales and earnings may be affected if we cannot identify, acquire or integrate strategic acquisitions, or as we conduct divestitures.

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;
- 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;
- 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; and
- We may not realize the full amounts reflected in our backlog as revenue, which could adversely affect our future revenue and growth prospects.

OPERATIONAL RISKS

- A reduced supply, as well as inflated prices, across various raw materials and third-party provided components and sub-assemblies within our supply chain could have a material impact on our ability to manufacture and ship our products, in addition to adversely impacting our operating profit and balance sheet;
- We face various risks related to health pandemics, such as the COVID-19 pandemic, which have had material adverse consequences on our operations, financial position, cash flows, and those of our customers and suppliers;
- 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;
- We face, and may continue to face, risks related to information systems interruptions, intrusions or new software implementations, which may adversely affect our business operations;
- 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; and
- 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.

FINANCIAL RISKS

- We make estimates in accounting for over-time contracts, and changes in these estimates may have significant impacts on our earnings;
- We enter into fixed-price contracts, which could subject us to losses if we have cost overruns;
- Our indebtedness and restrictive covenants under our credit facilities and indenture governing our senior notes could limit our operational and financial flexibility;
- Significant changes in discount rates, rates of return on pension assets, mortality tables and other factors could adversely affect our earnings and equity and increase our pension funding requirements;
- A write-off of all or part of our goodwill or other intangible assets could adversely affect our operating results and net worth; and
- Unforeseen exposure to additional income tax liabilities may affect our operating results.

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;
- 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;
- Government regulations could limit our ability to sell our products outside the United States and otherwise adversely affect our business;
- We are involved in various legal proceedings, the outcome of which may be unfavorable to us;
- Our operations are subject to environmental laws and complying with those laws may cause us to incur significant costs; and
- We may face reputational, regulatory or financial risks from a perceived, or an actual, failure to achieve our sustainability goals.

GENERAL RISKS

- Future terror attacks, war, natural disasters or other catastrophic events beyond our control could negatively impact our business; and
- Our performance could suffer if we cannot maintain our culture as well as attract, retain and engage our employees.

While we believe we have identified and discussed above the material risks affecting our business, there may be additional factors, risks and uncertainties not currently known to us or that we currently consider immaterial 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. Any forward-looking statement speaks only as of the date on which it is made, and we disclaim any obligation to update any forward-looking statement made in this report, except as required by law.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

Refer to the Company's Annual Report on Form 10-K for the year ended October 1, 2022 for a complete discussion of our market risk. There have been no material changes in the current year regarding this market risk information.

Item 4. Controls and Procedures.

(a) Disclosure Controls and Procedures. We carried out an evaluation, under the supervision and with the participation of our management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures as defined in Exchange Act Rules 13a-15(e) and 15d-15(e). Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that these disclosure controls and procedures are effective as of July 1, 2023 to ensure that information required to be disclosed in reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures.

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

PART II OTHER INFORMATION

Item 1A. Risk Factors.

Refer to the Company's Annual Report on Form 10-K for the year ended October 1, 2022 for a complete discussion of our risk factors. There have been no material changes in the current year regarding our risk factors.

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

(c) The following table summarizes our purchases of our common stock for the quarter ended July 1, 2023.

Period	(a) Total Number of Shares Purchased (1) (2)(3)	(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)
April 2, 2023 - April 29, 2023	10,798	$ 97.39	—	2,198,081
April 30, 2023 - June 3, 2023	33,640	92.66	26,000	2,172,081
June 4, 2023 - July 1, 2023	12,502	105.64	—	2,172,081
Total	56,940	$ 96.41	26,000	2,172,081

(1) Reflects purchases by the SECT of shares of Class B common stock from the ESPP, the RSP and from equity-based compensation award recipients under right of first refusal terms at average prices as follows: 10,798 shares at $97.39 in April; 6,973 shares at $96.91 in May and 10,252 shares at $105.95 in June.

(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 at average prices as follows: In May, we accepted delivery of 218 Class B shares at $95.19. In June, we accepted delivery of 1,130 Class A shares at $108.85 and 889 Class B shares at $98.24. In connection with the issuance of equity-based awards, we purchased 449 Class B shares at $97.00 per share from the SECT in May and 231 Class B shares at $104.19 in June.

(3) The Board of Directors has authorized a share repurchase program that permits the purchase 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 May, we purchased 26,000 Class B shares at an average price of $91.43.

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Item 6. Exhibits.

(a) Exhibits

31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rule 13a-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101	Interactive Date files (submitted electronically herewith)

(101.INS)	XBRL Instance Document - 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.

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SIGNATURES

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

			Moog Inc.
			(Registrant)
Date:	July 28, 2023	By	/s/ Pat Roche Pat Roche Chief Executive Officer (Principal Executive Officer)
Date:	July 28, 2023	By	/s/ Jennifer Walter Jennifer Walter Vice President and Chief Financial Officer (Principal Financial Officer)
Date:	July 28, 2023	By	/s/ Michael J. Swope Michael J. Swope Controller (Principal Accounting Officer)

Exhibit 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

I, Pat Roche, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Moog Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date July 28, 2023

/s/ Pat Roche
Pat Roche
Chief Executive Officer

Exhibit 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

I, Jennifer Walter, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Moog Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date July 28, 2023

/s/ Jennifer Walter
Jennifer Walter
Chief Financial Officer

Exhibit 32.1

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

Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officers of Moog Inc. (the "Company") hereby certify that:

The Company's Quarterly Report on Form 10-Q for the quarter ended July 1, 2023 fully complies with the requirements of section 13(a) or 15(d) of the Securities and Exchange Act of 1934 and the information contained in the Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: July 28, 2023

/s/ Pat Roche
Pat Roche
Chief Executive Officer

/s/ Jennifer Walter
Jennifer Walter
Chief Financial Officer

This certification shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liability of that section. This certification shall not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent specifically incorporated by the Company into such filing.