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 AND EXCHANGE ACT OF 1934
For the quarterly period ended December 30, 2017

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES AND EXCHANGE ACT OF 1934
For the transition period from __________ to __________

Commission File Number: 000-02382

MTS SYSTEMS CORPORATION

(Exact name of Registrant as specified in its charter)

Minnesota	**41-0908057**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
14000 Technology Drive Eden Prairie, Minnesota	**55344**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (952) 937-4000

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ☒ Yes ☐ 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 ☐ (Do not check if smaller reporting company)	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

As of February 1, 2018, there were 17,806,736 shares of Common Stock outstanding.

MTS Systems Corporation
Quarterly Report on Form 10-Q
For the Three Months Ended December 30, 2017

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PART I – FINANCIAL INFORMATION
Item 1. Financial Statements

MTS SYSTEMS CORPORATION
Consolidated Balance Sheets
(in thousands, except per share data)

	December 30, 2017	September 30, 2017
	(Unaudited)	(Note)
Assets		
Current assets		
Cash and cash equivalents	$ 94,071	$ 108,733
Accounts receivable, net of allowance for doubtful accounts of $5,516 and $5,371, respectively	124,511	123,994
Unbilled accounts receivable, net	69,558	76,914
Inventories, net	133,498	127,728
Prepaid expenses and other current assets	23,930	19,880
Total current assets	445,568	457,249
Property and equipment, net	97,619	99,930
Goodwill	369,959	369,762
Intangible assets, net	252,523	255,079
Other long-term assets	3,913	4,116
Deferred income taxes	3,399	3,556
Total assets	$ 1,172,981	$ 1,189,692
Liabilities and Shareholders' Equity		
Current liabilities		
Short-term borrowings	$ 5,000	$ —
Current maturities of long-term debt, net	54,886	39,095
Accounts payable	48,861	47,515
Accrued payroll and related costs	35,542	49,434
Advance payments from customers	79,928	76,712
Accrued warranty costs	5,832	6,018
Accrued income taxes	3,549	4,464
Accrued dividends	5,285	5,278
Other accrued liabilities	21,365	18,873
Total current liabilities	260,248	247,389
Long-term debt, less current maturities, net	382,161	418,544
Deferred income taxes	44,433	74,981
Non-current accrued income taxes	10,769	5,855
Defined benefit pension plan obligation	8,151	8,588
Other long-term liabilities	5,639	5,558
Total liabilities	711,401	760,915
Shareholders' Equity		
Common stock, $0.25 par value; 64,000 shares authorized: 17,780 and 17,760 shares issued and outstanding as of December 30, 2017 and September 30, 2017, respectively	4,445	4,440
Additional paid-in capital	164,577	163,632
Retained earnings	289,105	261,258
Accumulated other comprehensive income (loss)	3,453	(553)
Total shareholders' equity	461,580	428,777
Total liabilities and shareholders' equity	$ 1,172,981	$ 1,189,692

Note: The Consolidated Balance Sheet as of September 30, 2017 has been derived from the audited consolidated financial statements at that date.

The accompanying Notes to Consolidated Financial Statements (Unaudited) are an integral part of these consolidated financial statements.

MTS SYSTEMS CORPORATION
Consolidated Statements of Income (Unaudited)
(in thousands, except per share data)

	Three Months Ended	
	December 30, 2017	December 31, 2016
Revenue		
Product	$ 169,241	$ 176,595
Service	24,921	22,684
Total revenue	194,162	199,279
Cost of Sales		
Product	100,494	112,778
Service	15,740	13,037
Total cost of sales	116,234	125,815
Gross profit	77,928	73,464
Operating expenses		
Selling and marketing	32,028	30,470
General and administrative	20,562	24,023
Research and development	8,841	8,681
Total operating expenses	61,431	63,174
Income from operations	16,497	10,290
Interest expense, net	(6,804)	(7,280)
Other income (expense), net	(223)	(829)
Income before income taxes	9,470	2,181
Income tax provision (benefit)	(23,681)	476
Net income	$ 33,151	$ 1,705
Earnings per share		
Basic		
Earnings per share	$ 1.73	$ 0.09
Weighted average common shares outstanding	19,124	18,969
Diluted		
Earnings per share	$ 1.72	$ 0.09
Weighted average common shares outstanding	19,254	19,074
Dividends declared per share	$ 0.30	$ 0.30

The accompanying Notes to Consolidated Financial Statements (Unaudited) are an integral part of these consolidated financial statements.

MTS SYSTEMS CORPORATION
Consolidated Statements of Comprehensive Income (Unaudited)
(in thousands)

	Three Months Ended	
	December 30, 2017	December 31, 2016
Net income	$ 33,151	$ 1,705
Other comprehensive income (loss), net of tax		
Foreign currency translation gain (loss) adjustments	2,499	(9,802)
Derivative instruments		
Unrealized net gain (loss)	1,030	4,158
Net (gain) loss reclassified to earnings	103	(268)
Defined benefit pension plan		
Unrealized net gain (loss)	370	128
Net (gain) loss reclassified to earnings	91	170
Currency exchange rate gain (loss)	(87)	697
Other comprehensive income (loss)	4,006	(4,917)
Comprehensive income (loss)	$ 37,157	$ (3,212)

The accompanying Notes to Consolidated Financial Statements (Unaudited) are an integral part of these consolidated financial statements.

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MTS SYSTEMS CORPORATION
Consolidated Statements of Cash Flows (Unaudited)
(in thousands)

	Three Months Ended	
	December 30, 2017	December 31, 2016
Cash Flows from Operating Activities		
Net income	$ 33,151	$ 1,705
Adjustments to reconcile net income to net cash provided by (used in) operating activities		
Stock-based compensation	1,622	1,721
Fair value adjustment to acquired inventory	—	7,724
Net periodic pension benefit cost	292	433
Depreciation and amortization	8,736	8,392
Amortization of debt issuance costs	1,310	907
Deferred income taxes	(30,352)	(1,823)
Bad debt provision (recovery), net	432	554
Changes in operating assets and liabilities		
Accounts receivable and unbilled accounts receivable	7,248	13,788
Inventories, net	(5,498)	227
Prepaid expenses	(3,810)	(2,908)
Accounts payable	1,167	130
Accrued payroll and related costs	(13,929)	(12,586)
Advance payments from customers	2,947	15,252
Accrued warranty costs	(190)	(297)
Other assets and liabilities	6,097	(4,287)
Net Cash Provided by (Used in) Operating Activities	9,223	28,932
Cash Flows from Investing Activities		
Purchases of property and equipment	(2,801)	(4,654)
Proceeds from sale of property and equipment	69	25
Net Cash Provided by (Used in) Investing Activities	(2,732)	(4,629)
Cash Flows from Financing Activities		
Payment of long-term debt	(19,667)	(1,150)
Payment of debt issuance costs for long-term debt	—	(186)
Payment of debt component of tangible equity units	(2,230)	(2,080)
Payment of debt issuance costs for revolving credit facility	—	(49)
Receipts under short-term borrowings	5,000	—
Cash dividends	(5,330)	(5,003)
Proceeds from exercise of stock options and employee stock purchase plan	212	652
Payments to purchase and retire common stock	(744)	(922)
Net Cash Provided by (Used in) Financing Activities	(22,759)	(8,738)
Effect of Exchange Rate Changes on Cash and Cash Equivalents	1,606	(4,396)
Cash and Cash Equivalents		
Increase (decrease) during the period	(14,662)	11,169
Balance, beginning of period	108,733	84,780
Balance, end of period	$ 94,071	$ 95,949

Supplemental Disclosures		
Cash paid during the period for		
Interest	$ 5,784	$ 10,436
Income taxes	2,323	5,984
Non-cash investing and financing activities		
Property and equipment acquired under capital lease	67	—
Dividends declared not yet paid	5,285	4,953

The accompanying Notes to Consolidated Financial Statements (Unaudited) are an integral part of these consolidated financial statements.

MTS SYSTEMS CORPORATION
Notes to Consolidated Financial Statements (Unaudited)
(Dollars and shares in thousands, unless otherwise noted)

NOTE 1 BASIS OF PRESENTATION

The consolidated financial statements include the accounts of MTS Systems Corporation and its wholly owned subsidiaries. Significant intercompany account balances and transactions have been eliminated.

The terms "MTS," "we," "us," the "Company" or "our" in this Quarterly Report on Form 10-Q, unless the context otherwise requires, refer to MTS Systems Corporation and its wholly owned subsidiaries.

We have prepared the interim unaudited consolidated financial statements included herein pursuant to the rules and regulations of the United States (U.S.) Securities and Exchange Commission (SEC). The information furnished in these consolidated financial statements includes normal recurring adjustments and reflects all adjustments that are, in our opinion, necessary for a fair presentation of such financial statements. The consolidated financial statements are prepared in accordance with U.S. Generally Accepted Accounting Principles (GAAP). GAAP requires us to make estimates and assumptions that affect amounts reported. Certain information and footnote disclosures normally included in financial statements prepared in accordance with GAAP have been condensed or omitted pursuant to SEC rules and regulations. The accompanying consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in our Annual Report on Form 10-K for the fiscal year ended September 30, 2017 filed with the SEC. Interim results of operations for the first fiscal quarter ended December 30, 2017 are not necessarily indicative of the results to be expected for the full fiscal year.

We have a 5-4-4 week, quarterly accounting cycle with our fiscal year ending on the Saturday closest to September 30. Fiscal year 2018 ending on September 29, 2018 will consist of 52 weeks. Fiscal year 2017 ended on September 30, 2017 and consisted of 52 weeks.

NOTE 2 RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

Revenue Recognition
In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, and in August 2015, issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of Effective Date*, which amended ASU No. 2014-09 as to the effective date of the standard. The guidance, as amended, clarifies the principles for revenue recognition in transactions involving contracts with customers. Determination of when and how revenue is recognized will be based on a five-step analysis. The new guidance will require revenue recognition to depict the transfer of promised goods or services to a customer in an amount that reflects the consideration a company expects to receive in exchange for those goods or services. The mandatory effective date of the new revenue recognition standard was deferred by one year under ASU No. 2015-14.

In March 2016, the FASB issued ASU No. 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)*, which amends ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, to clarify principal versus agent guidance in situations in which a revenue transaction involves a third party in providing goods or services to a customer. In such circumstances, an entity must determine whether the nature of its promise to the customer is to provide the underlying goods or services (i.e., the entity is the principal in the transaction) or to arrange for the third party to provide the underlying goods or services (i.e., the entity is the agent in the transaction). To determine the nature of its promise to the customer, the entity must first identify each specified good or service to be provided to the customer and then (before transferring it) assess whether it controls each specified good or service. The new guidance clarifies how an entity should identify the unit of accounting (the specified good or service) for the principal versus agent evaluation, and how it should apply the control principle to certain types of arrangements, such as service transactions, by explaining what a principal controls before the specified good or service is transferred to the customer.

In April 2016, the FASB issued ASU No. 2016-10, *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing*, to amend ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, on identifying performance obligations to allow entities to disregard items that are immaterial in the context of the contract, clarify when a promised good or service is separately identifiable from other promises in the a contract and allow an entity to elect to account for the cost of shipping and handling performed after control of a good has been transferred to the customer as a fulfillment cost or an expense. The updated guidance also clarifies how an entity would evaluate the nature of its promise in granting a license of intellectual property, which determines whether the entity recognizes revenue over time or at a point in time, and other aspects relative to licensing.

In May 2016, the FASB issued ASU No. 2016-11, *Revenue Recognition (Topic 605) and Derivatives and Hedging (Topic 815): Rescission of SEC Guidance Because of Accounting Standards Updates 2014-09 and 2014-16 Pursuant to Staff Announcements at the March 3, 2016 EITF Meeting (SEC Update)*, which rescinds previous guidance on revenue and expense recognition for freight services in process, accounting for shipping and handling fees and costs and accounting for consideration given by a vendor to a customer.

In May 2016, the FASB issued ASU No. 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients*, which amends ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, to clarify that, for a contract to be considered completed at transition, all (or substantially all) of the revenue must have been recognized under legacy GAAP. The amendment also added an expedient to ease transition for contracts that were modified prior to adoption of the new revenue standard and clarifies both how an entity should evaluate the collectibility threshold and when an entity can recognize non-refundable considerations received as revenue if the arrangement does not meet the standard's contract criteria. The amendment clarifies that fair value of non-cash considerations should be measured at contract inception when determining the transaction price and allows an entity to make an accounting policy election to exclude from the transaction price certain types of taxes collected from a customer if it discloses the policy.

In December 2016, the FASB issued ASU No. 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers*, which amends ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, providing thirteen corrections and improvements to the new revenue standard.

The aforementioned revenue standards and amendments are required to be adopted for annual periods beginning after December 15, 2017, including interim periods within that annual period, which is our fiscal year 2019. The new standards and amendments may be adopted retrospectively for all periods presented, or adopted using a modified retrospective approach. Early adoption is permitted for annual reporting periods beginning after December 15, 2016, and interim periods within that annual period, which is our fiscal year 2018. We intend to adopt the aforementioned revenue standards and amendments for our fiscal year 2019. We currently anticipate utilizing the modified retrospective approach as our method of adoption. We have substantially completed our review and analysis of our sales channels, selected contracts, policies and practices as compared to the new guidance and continue to work through implementation steps. We continue to evaluate our procedural and related system requirements related to the provisions of this standard. We are updating and rewriting our revenue recognition accounting policy as needed to reflect the requirements of this standard. In fiscal year 2018, we expect to draft our new revenue disclosures. We anticipate the revenue recognition methodology and timing of revenue recognition may change for certain products and contracts. Certain contracts may have a delay in revenue recognition until the customer takes control of the product, while certain products and contracts may accelerate revenue recognition to recognize revenue over the life of the contract. We continue to evaluate the impact that these changes in methodology will have on our consolidated financial statements.

Other

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 824)*, which requires lessees to recognize a right-of-use asset, representing the right to use the underlying asset for the lease term, and a lease liability on the balance sheet for all leases with terms greater than 12 months. Lessees can forgo recognizing a right-of-use asset and lease liability with lease terms of 12 months or less on the balance sheet through accounting policy elections as long as the lease does not include options to purchase the underlying assets that are reasonably certain to be exercised. The new guidance also requires certain qualitative and quantitative disclosures designed to assess the amount, timing and uncertainty of cash flows arising from leases, along with additional key information about leasing arrangements. The standard is required to be adopted for annual periods beginning after December 15, 2018, including interim periods within that annual period, which is our fiscal year 2020. The amendment is to be applied using a modified retrospective approach, which includes a number of optional practical expedients, with early adoption permitted. We are currently evaluating the impact the adoption of this guidance will have on our financial condition, results of operations and disclosures.

In March 2016, the FASB issued ASU No. 2016-04, *Liabilities—Extinguishments of Liabilities (Subtopic 405-20): Recognition of Breakage for Certain Prepaid Stored-Value Products*, which amends existing guidance on extinguishing financial liabilities for certain prepaid stored-value products. The new standard requires recognition of the expected breakage amount or the value that is ultimately not redeemed either proportionally in earnings as redemption occurs or when redemption is remote, if issuers are not entitled to breakage. The standard is required to be adopted for annual periods beginning after December 15, 2017, including interim periods within that annual period, which is our fiscal year 2019. The amendment is to be applied either using a modified retrospective approach by recognizing a cumulative-effect adjustment to retained earnings as of the beginning of the year or retrospectively to each period presented. Early adoption is permitted. We are currently evaluating the impact, if any, the adoption of this guidance may have on our financial condition, results of operations and disclosures.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, which changes the accounting for credit losses on instruments measured at amortized cost by adding an impairment model that is based on expected losses rather than incurred losses. An entity will recognize as an allowance its estimate of expected credit losses, which is believed to result in more timely recognition of such losses as the standard eliminates the probable initial recognition threshold. The standard is required to be adopted for annual periods beginning after December 15, 2019, including interim periods within that annual period, which is our fiscal year 2021. The amendment is to be applied using a modified retrospective approach as a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which adopted. Early adoption is permitted for annual periods beginning after December 15, 2018, including interim periods within that annual period, which is our fiscal year 2020. We have not yet evaluated the impact the adoption of this guidance may have on our financial condition, results of operations or disclosures.

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes (Topic 740), Intra-Entity Transfers of Assets Other Than Inventory*, which requires companies to account for the income tax effects of intercompany sales and transfers of assets other than inventory when the transfer occurs. Current guidance requires companies to defer the income tax effects of intercompany transfers of assets until the asset has been sold to an outside party or otherwise recognized. The standard is required to be adopted for annual periods beginning after December 15, 2017, including interim periods within that annual period, which is our fiscal year 2019. The amendment is to be applied using a modified retrospective approach. Early adoption is permitted as of the beginning of an annual period. We are currently evaluating the impact, if any, the adoption of this guidance will have on our financial condition, results of operations and disclosures.

In March 2017, the FASB issued ASU No. 2017-07, *Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost,* which changes how employers that sponsor defined benefit pension or other postretirement benefit plans present the net periodic benefit cost in the income statement. The new guidance requires the service cost component of net periodic benefit cost to be presented in the same income statement line items as other employee compensation costs arising from services rendered during the period with only the service cost component eligible for capitalization in assets. Other components of the net periodic benefit cost are to be stated separately from the line items that include the service cost and outside of operating income. These components are not eligible for capitalization in assets. The standard is required to be adopted for annual periods beginning after December 15, 2017, including interim periods within that annual period, which is our fiscal year 2019. The amendment is to be applied retrospectively. Early adoption is permitted as of the beginning of an annual period. We are currently evaluating the impact, if any, the adoption of this guidance will have on our financial condition, results of operations and disclosures.

In May 2017, the FASB issued ASU 2017-09, *Compensation - Stock Compensation (Topic 718): Scope of Modification Accounting*, which clarifies when changes to the terms or conditions of a share-based payment award must be accounted for as modifications. Modification guidance must be applied if the fair value, vesting conditions or classification of the awards changes. The standard is required to be adopted for annual periods beginning after December 15, 2017, including interim periods within that annual period, which is our fiscal year 2019. The amendment is to be applied prospectively to an award modified on or after the adoption date, with early adoption permitted. We do not expect the adoption of this standard to have a material effect on our financial condition, results of operations or disclosures.

In August 2017, the FASB issued ASU No. 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*, which amends the hedge accounting model in Accounting Standards Codification (ASC) 815 to enable entities to better portray the economics of their risk management activities in the financial statements and enhance the transparency and understandability of hedge results. The standard is required to be adopted for annual periods beginning after December 15, 2018, including interim periods within that annual period, which is our fiscal year 2020. The amendment is to be applied using a modified retrospective approach, with early adoption permitted. We have not yet evaluated the impact the adoption of this guidance may have on our financial condition, results of operations or disclosures.

Adopted

In July 2015, the FASB issued ASU No. 2015-11, *Inventory (Topic 330): Simplifying the Measurement of Inventory*, which modifies existing requirements regarding measuring inventory at the lower of cost or market. Under current inventory standards, the market value requires consideration of replacement cost, net realizable value and net realizable value less an approximately normal profit margin. The new guidance replaces market with net realizable value defined as estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. This eliminates the need to determine and consider replacement cost or net realizable value less an approximately normal profit margin when measuring inventory. We adopted ASU 2015-11 on a prospective basis for the annual period ending September 29, 2018, including interim periods within that annual period. The adoption of this guidance had no impact on our financial condition, results of operations or disclosures.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*, which is intended to simplify certain aspects of accounting for share-based compensation arrangements, including modifications to the accounting for income taxes upon vesting or settlement of awards, employer tax withholding on share-based compensation, classification on the statement of cash flows and forfeitures. We adopted ASU No. 2016-09 for the annual period ending September 29, 2018, including interim periods within that annual period. Certain aspects of the amendment were applied using a retrospective transition method, while others were applied prospectively. The adoption of this standard resulted in an increase in cash flows from operating activities and a decrease of cash flows from financing activities of $208 for fiscal year 2017 and $187 for fiscal year 2016 for the reclassification from financing activities to operating activities of excess tax benefits from stock-based compensation. Additionally, we elected to modify our accounting policy for forfeitures on stock-based awards to record forfeitures when the forfeiture occurs instead of recording stock-based compensation expense based on an estimation of stock awards that will ultimately vest. The adoption of this ASU will not have a material impact on our financial condition, results of operations or disclosures for fiscal year 2018.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*, which provides guidance on the classification of certain cash receipts and cash payments with the objective of reducing diversity in practice. We early adopted ASU No. 2016-15 on a retrospective basis for the annual period ending September 29, 2018, including interim periods within that annual period. The adoption of this guidance did not have a material impact on our current or prior year financial condition, results of operations or disclosures.

In January 2017, the FASB issued ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*, which changes the definition of a business to assist entities with evaluating when a set of transferred assets and activities is a business. The new guidance clarifies that a business must also include at least one substantive process and narrows the definition of outputs by more closely aligning it with how outputs are described in ASC 606, *Revenue from Contracts with Customers*. We early adopted ASU 2017-01 on a prospective basis for the annual period ending September 29, 2018, including interim periods within that annual period. The adoption of this guidance had no impact on our financial condition, results of operations or disclosures, as the standard only applies to transactions occurring subsequent to adoption.

NOTE 3 INVENTORIES

Inventories consist of material, labor and overhead costs and are stated at the lower of cost or net realizable value determined under the first-in, first-out accounting method. Certain inventories are measured using the weighted average cost method. Inventories, net were as follows:

	December 30, 2017	September 30, 2017
Components, assemblies and parts	$ 90,588	$ 86,991
Customer projects in various stages of completion	32,978	30,225
Finished goods	9,932	10,512
Total inventories, net	$ 133,498	$ 127,728

NOTE 4 WARRANTY OBLIGATIONS

Sales of our products and systems are subject to limited warranty obligations that are included in customer contracts. For sales that include installation services, warranty obligations generally extend for a period of 12 to 24 months from the date of either shipment or acceptance based on the contract terms. Product obligations generally extend for a period of 12 to 24 months from the date of purchase. Certain products offered in our Sensors segment include a lifetime warranty.

Under the terms of these warranties, we are obligated to repair or replace any components or assemblies deemed defective due to workmanship or materials. We reserve the right to reject warranty claims where it is determined that failure is due to normal wear, customer modifications, improper maintenance or misuse. We record general warranty provisions based on an estimated warranty expense percentage applied to current period revenue. The percentage applied reflects our historical warranty claims experience over the preceding 12-month period. Both the experience percentage and the warranty liability are evaluated on an ongoing basis for adequacy. Warranty provisions are also recognized for certain unanticipated product claims that are individually significant.

Changes to accrued warranty costs were as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Beginning accrued warranty costs	$ 6,018	$ 5,718
Warranty claims	(1,175)	(954)
Warranty provisions	985	652
Adjustments to preexisting warranties	—	5
Currency translation	4	(19)
Ending accrued warranty costs	$ 5,832	$ 5,402

NOTE 5 CAPITAL ASSETS

Property and Equipment

Property and equipment, net are as follows:

	December 30, 2017	September 30, 2017
Land and improvements	$ 2,867	$ 2,867
Buildings and improvements	61,119	60,340
Machinery and equipment	198,127	196,621
Assets held under capital leases	2,815	2,747
Total property and equipment	264,928	262,575
Less: Accumulated depreciation	(167,309)	(162,645)
Total property and equipment, net	$ 97,619	$ 99,930

Assets held under capital leases, consisting of machinery and equipment, are recorded at the present value of minimum lease payments and are amortized on a straight-line basis over the estimated life of the asset or the lease term. Amortization of assets held as capital leases is included in depreciation expense in the Consolidated Statements of Income.

Goodwill

Changes to the carrying amount of goodwill are as follows:

	Test	Sensors	Total
Balance, September 30, 2017	$ 25,109	$ 344,653	$ 369,762
Currency translation	186	11	197
Balance, December 30, 2017	$ 25,295	$ 344,664	$ 369,959

Intangible Assets

Intangible assets are as follows:

	December 30, 2017			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Value	Weighted Average Useful Life (in Years)
Software development costs	$ 26,902	$ (15,859)	$ 11,043	5.9
Technology and patents	46,858	(10,229)	36,629	14.9
Trademarks and trade names	7,007	(2,647)	4,360	25.6
Customer lists	157,007	(15,851)	141,156	15.8
Land-use rights	2,392	(557)	1,835	26.5
Trade names	57,500	—	57,500	Indefinite
Total intangible assets	$ 297,666	$ (45,143)	$ 252,523	14.9

	September 30, 2017			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Value	Weighted Average Useful Life (in Years)
Software development costs	$ 26,083	$ (15,830)	$ 10,253	5.9
Technology and patents	46,731	(9,399)	37,332	14.9
Trademarks and trade names	6,936	(2,484)	4,452	25.6
Customer lists	157,016	(13,359)	143,657	15.8
Land-use rights	2,377	(492)	1,885	26.4
Trade names	57,500	—	57,500	Indefinite
Total intangible assets	$ 296,643	$ (41,564)	$ 255,079	15.0

Amortization expense recognized is as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Amortization expense	$ 3,479	$ 3,665

Estimated future amortization expense related to finite-lived intangible assets is as follows:

	Amortization Expense
Remainder of 2018	$ 11,929
2019	15,810
2020	15,529
2021	15,529
2022	15,345
2023	13,586
Thereafter	107,295

Future amortization amounts presented above are estimates. Actual future amortization expense may be different due to fluctuations in foreign currency exchange rates, future acquisitions, impairments, changes in amortization periods or other factors.

NOTE 6 FAIR VALUE MEASUREMENTS

In determining the fair value of financial assets and liabilities, we currently utilize market data or other assumptions that we believe market participants would use in pricing the asset or liability in the principal or most advantageous market and adjust for non-performance and/or other risk associated with the company as well as counterparties, as appropriate. When considering market participant assumptions in fair value measurements, the following fair value hierarchy distinguishes between observable and unobservable inputs, which are categorized in one of the following levels:

- **Level 1:** Unadjusted quoted prices which are available in active markets for identical assets or liabilities accessible to us at the measurement date.
- **Level 2:** Inputs other than quoted prices included in Level 1 inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the asset or liability.
- **Level 3:** Unobservable inputs for the asset or liability used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date.

The hierarchy gives the highest priority to Level 1, as this level provides the most reliable measure of fair value, while giving the lowest priority to Level 3.

Assets and Liabilities Measured at Fair Value on a Recurring Basis
Financial assets and liabilities subject to fair value measurements on a recurring basis are as follows:

	December 30, 2017			
	Level 1	Level 2	Level 3	Total
Assets				
Currency contracts [1]	$ —	$ 151	$ —	$ 151
Interest rate swaps [2]	—	5,027	—	5,027
Total assets	—	5,178	—	5,178
Liabilities				
Currency contracts [1]	—	541	—	541
Total liabilities	$ —	$ 541	$ —	$ 541

	September 30, 2017			
	Level 1	Level 2	Level 3	Total
Assets				
Currency contracts [1]	$ —	$ 150	$ —	$ 150
Interest rate swaps [2]	—	3,499	—	3,499
Total assets	—	3,649	—	3,649
Liabilities				
Currency contracts [1]	—	551	—	551
Total liabilities	$ —	$ 551	$ —	$ 551

[1] Based on observable market transactions of spot currency rates and forward currency rates on equivalently-termed instruments. Carrying amounts of the financial assets and liabilities are equal to the fair value. See Note 7 for additional information on derivative financial instruments.

[2] Based on London Interbank Offered Rate (LIBOR) and spot rates. Carrying amount of the financial asset is equal to the fair value. See Note 7 for additional information on derivative financial instruments.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis
We measure certain financial instruments at fair value on a nonrecurring basis. These assets primarily include goodwill, intangible assets and other long-lived assets acquired either as part of a business acquisition, individually or with a group of other assets, as well as property and equipment. These assets were initially measured and recognized at amounts equal to the fair value determined as of the date of acquisition or purchase subject to changes in value only for foreign currency translation. Periodically, these assets are tested for impairment by comparing their respective carrying values to the estimated fair value of the reporting unit or asset group in which they reside. In the event any of these assets were to become impaired, we would recognize an impairment loss equal to the amount by which the carrying value of the reporting unit, impaired asset or asset group exceeds its estimated fair value. Fair value measurements of reporting units are estimated using an income approach involving discounted or undiscounted cash flow models that contain certain Level 3 inputs requiring management judgment, including projections of economic conditions and customer demand, revenue and margins, changes in competition, operating costs, working capital requirements and new product introductions. Fair value measurements of the reporting units associated with our goodwill balances and our indefinite-lived intangible assets are estimated at least annually in the fourth quarter of each fiscal year for purposes of impairment testing if a quantitative analysis is performed. Fair value measurements associated with our intangible assets, other long-lived assets and property and equipment are estimated when events or changes in circumstances such as market value, asset utilization, physical change, legal factors or other matters indicate that the carrying value may not be recoverable. See Note 5 for additional information on goodwill, indefinite-lived intangible assets, other long-lived assets and property and equipment.

Assets and Liabilities Not Measured at Fair Value
Certain financial instruments are not measured at fair value but are recorded at carrying amounts approximating fair value based on their short-term nature or variable interest rate. These financial instruments include cash and cash equivalents, accounts receivable, accounts payable and short-term borrowings.

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Other Financial Instruments

Other financial instruments subject to fair value measurements include debt, which is recorded at carrying value in the Consolidated Balance Sheets. The carrying amount and estimated fair value of our debt is as follows:

	December 30, 2017				
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
Debt component of tangible equity units [1]	$ 14,213	$ 17,295	$ —	$ 17,295	$ —
Tranche B term loan [2]	435,866	441,314	—	441,314	—
Total debt	$ 450,079	$ 458,609	$ —	$ 458,609	$ —

	September 30, 2017				
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
Debt component of tangible equity units [1]	$ 16,443	$ 19,844	$ —	$ 19,844	$ —
Tranche B term loan [2]	455,400	457,085	—	457,085	—
Total debt	$ 471,843	$ 476,929	$ —	$ 476,929	$ —

[1] The fair value of the 8.75% tangible equity units (TEUs) is based on the most recently quoted price for the outstanding securities, adjusted for any known significant deviations in value. The estimated fair value of these long-term obligations is not necessarily indicative of the amount that would be realized in a current market exchange. See Note 12 for additional information on the TEUs.

[2] The fair value of the tranche B term loan is based on the most recently quoted market price for the outstanding debt instrument, adjusted for any known significant deviations in value. The estimated fair value of the debt obligation is not necessarily indicative of the amount that would be realized in a current market exchange. See Note 8 for additional information on debt instruments.

NOTE 7 DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

Our currency exchange contracts and interest rate swaps are designated as cash flow hedges and qualify as hedging instruments. We also have derivatives which are not designated as cash flow hedges and, therefore, are accounted for and reported under foreign currency guidance. Regardless of designation for accounting purposes, we believe all of our derivative instruments are hedges of transactional risk exposures. The fair value of our outstanding designated and undesignated derivative assets and liabilities are reported in the Consolidated Balance Sheets as follows:

	December 30, 2017	
	Prepaid Expenses and Other Current Assets	Other Accrued Liabilities
Designated hedge derivatives		
Cash flow derivatives	$ 151	$ 520
Interest rate swaps	5,027	—
Total designated hedge derivatives	5,178	520
Undesignated hedge derivatives		
Balance sheet derivatives	—	21
Total hedge derivatives	$ 5,178	$ 541

	September 30, 2017	
	Prepaid Expenses and Other Current Assets	Other Accrued Liabilities
Designated hedge derivatives		
Cash flow derivatives	$ 73	$ 551
Interest rate swaps	3,499	—
Total designated hedge derivatives	3,572	551
Undesignated hedge derivatives		
Balance sheet derivatives	77	—
Total hedge derivatives	$ 3,649	$ 551

A reconciliation of the net fair value of foreign exchange cash flow hedge assets and liabilities subject to master netting arrangements that are recorded in the Consolidated Balance Sheets to the net fair value that could have been reported in the Consolidated Balance Sheets is as follows:

	Gross Recognized Amount	Gross Offset Amount	Net Amount Presented	Derivatives Subject to Offset	Cash Collateral Received	Net Amount [1]
December 30, 2017						
Assets	$ 5,178	$ —	$ 5,178	$ (235)	$ —	$ 4,943
Liabilities	520	—	520	(235)	—	285
September 30, 2017						
Assets	$ 3,572	$ —	$ 3,572	$ (210)	$ —	$ 3,362
Liabilities	551	—	551	(210)	—	341

[1] Net fair value of foreign exchange cash flow hedge assets or liabilities that could have been reported in the Consolidated Balance Sheets.

Cash Flow Hedging – Currency Risks

Currency exchange contracts utilized to maintain the functional currency value of expected financial transactions denominated in foreign currencies are designated as cash flow hedges. Qualifying gains and losses related to changes in the market value of these contracts are reported as a component of accumulated other comprehensive income (loss) (AOCI) within shareholders' equity in the Consolidated Balance Sheets and reclassified into earnings in the same period during which the underlying hedged transaction affects earnings. The effective portion of the cash flow hedges represents the change in fair value of the hedge that offsets the change in the functional currency value of the hedged item. We periodically assess whether our currency exchange contracts are effective and, when a contract is determined to be no longer effective as a hedge, we discontinue hedge accounting prospectively. Subsequent changes in the market value of ineffective currency exchange contracts are recognized as an increase or decrease in revenue in the Consolidated Statements of Income as that is the same line item in which the underlying hedged transaction is reported.

As of December 30, 2017 and September 30, 2017, we had outstanding cash flow hedge currency exchange contracts with gross notional U.S. dollar equivalent amounts of $44,890 and $29,136, respectively. Upon netting offsetting contracts to sell foreign currencies against contracts to purchase foreign currencies, irrespective of contract maturity dates, the net notional U.S. dollar equivalent amount of contracts outstanding was $39,951 and $24,093 as of December 30, 2017 and September 30, 2017, respectively. As of December 30, 2017, the net market value of the foreign currency exchange contracts was a net liability of $369, consisting of $151 in assets and $520 in liabilities. As of September 30, 2017, the net market value of the foreign currency exchange contracts was a net liability of $478, consisting of $73 in assets and $551 in liabilities.

The pretax amounts recognized in AOCI on currency exchange contracts, including (gains) losses reclassified into earnings in the Consolidated Statements of Income and gains (losses) recognized in other comprehensive income (loss) (OCI), are as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Beginning unrealized net gain (loss) in AOCI	$ (443)	$ (400)
Net (gain) loss reclassified into revenue (effective portion)	158	(419)
Net gain (loss) recognized in OCI (effective portion)	(159)	2,242
Ending unrealized net gain (loss) in AOCI	$ (444)	$ 1,423

The amount recognized in earnings as a result of the ineffectiveness of cash flow hedges was less than $1 in each of the three months ended December 30, 2017 and December 31, 2016. As of December 30, 2017, the amount projected to be reclassified from AOCI into earnings in the next 12 months was a net loss of $438. The maximum remaining maturity of any forward or optional contract as of December 30, 2017 was 2.1 years.

Interest Rate Swaps
On October 20, 2016, we entered into a floating to fixed interest rate swap agreement to mitigate our exposure to interest rate increases related to a portion of our tranche B term loan facility. The total notional amount of the interest rate swap was $255,000 as of December 30, 2017. The swap agreement expires April 3, 2021. As a result of this agreement, every month we pay fixed interest at 1.256% in exchange for interest received at one month U.S. LIBOR. The market value of the interest rate swap as of December 30, 2017 was an asset of $5,027. The interest rate swap has been designated as a cash flow hedge. As a result, changes in the fair value of the interest rate swap are recorded in AOCI within shareholders' equity in the Consolidated Balance Sheets.

The pretax amounts recognized in AOCI on interest rate swaps, including (gains) losses reclassified into earnings in the Consolidated Statements of Income and gains (losses) recognized in OCI, are as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Beginning unrealized net gain (loss) in AOCI	$ 3,499	$ —
Net (gain) loss reclassified into interest expense (effective portion)	(19)	—
Net gain (loss) recognized in OCI (effective portion)	1,547	4,267
Ending unrealized net gain (loss) in AOCI	$ 5,027	$ 4,267

As of December 30, 2017, the amount projected to be reclassified from AOCI into earnings in the next 12 months was a net gain of $1,359.

Foreign Currency Balance Sheet Derivatives
We also use foreign currency derivative contracts to maintain the functional currency value of monetary assets and liabilities denominated in non-functional foreign currencies. The gains and losses related to the changes in the market value of these derivative contracts are included in other income (expense), net in the Consolidated Statements of Income.

As of December 30, 2017 and September 30, 2017, we had outstanding foreign currency balance sheet derivative contracts with gross notional U.S. dollar equivalent amounts of $48,441 and $52,208, respectively. Upon netting offsetting contracts by counterparty banks to sell foreign currencies against contracts to purchase foreign currencies, irrespective of contract maturity dates, the net notional U.S. dollar equivalent amount of contracts outstanding as of December 30, 2017 and September 30, 2017 was $14,990 and $14,762, respectively. As of December 30, 2017 and September 30, 2017, the net market value of the foreign exchange balance sheet derivative contracts was a net liability of $21 and a net asset of $77, respectively.

The net gain (loss) recognized in the Consolidated Statements of Income on foreign exchange balance sheet derivative contracts is as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Net gain (loss) recognized in other income (expense), net	$ (179)	$ 421

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NOTE 8 FINANCING

Long-term debt consisted of the following:

	December 30, 2017	September 30, 2017
Long-term debt		
Tranche B term loan, 1.00% amortizing per year, maturing July 5, 2023	$ 435,866	$ 455,400
Tangible equity units, 8.75% coupon, maturing July 1, 2019 [1]	14,213	16,443
Capital lease obligations	2,400	2,466
Total long-term debt	452,479	474,309
Less: Unamortized underwriting discounts, commissions and other expenses	(11,220)	(12,491)
Less: Current maturities of tranche B term loan debt [2]	(49,252)	(33,600)
Less: Current maturities of TEU debt [2, 3]	(9,312)	(9,152)
Less: Current maturities of capital lease obligations [2]	(534)	(522)
Total long-term debt, less current maturities, net	$ 382,161	$ 418,544

[1] See Note 12 for additional information on our TEUs issued in the third quarter of fiscal year 2016.

[2] In addition to the current maturities above, current maturities of long-term debt, net in the Consolidated Balance Sheets includes the current portion of unamortized underwriting discounts, commissions and other expenses of $4,212 and $4,179 as of December 30, 2017 and September 30, 2017, respectively.

[3] As of December 30, 2017 and September 30, 2017, current maturities of tranche B term loan consists of the 1% annual payment and calculated or estimated required annual Excess Cash Flow payment as defined below, as well as planned prepayments.

Tranche B Term Loan and Revolving Credit Facility

We have a credit agreement with U.S. Bank National Association and HSBC Bank USA, National Association as Co-Documentation Agents, Wells Fargo Bank, National Association as Syndication Agent, JPMorgan Chase Bank, N.A. as Administrative Agent and JP Morgan Chase Bank, N.A. and Wells Fargo Securities, LLC as Joint Bookrunners and Joint Lead Arrangers (the Credit Agreement). The Credit Agreement provides for senior secured credit facilities consisting of a $120,000 revolving credit facility (the Revolving Credit Facility) which expires on July 5, 2021 and a $460,000 tranche B term loan facility (the Term Facility) which expires on July 5, 2023. The proceeds of the Revolving Credit Facility can be drawn upon to refinance existing indebtedness and for working capital and other general corporate purposes up to a maximum of $120,000. The proceeds of the Term Facility were used for financing the acquisition of PCB Group, Inc. (PCB) in fiscal year 2016. The Term Facility amortizes in equal quarterly installments equal to 1% of the original principal amount.

The primary categories of borrowing include Alternate Base Rate (ABR) Borrowing (ABR Term Loans and ABR Revolving Loans), Swingline Loans and Eurocurrency Borrowing (each as defined in the Credit Agreement). ABR Borrowings and Swingline Loans made in U.S. dollars under the Credit Agreement bear interest at a rate per annum equal to the ABR plus the Applicable Rate (as defined in the Credit Agreement). The ABR is defined as the greater of (a) the Prime Rate (as defined in the Credit Agreement) in effect on such day, (b) the New York Federal Reserve Bank (NYFRB) rate (as defined in the Credit Agreement) in effect on such day plus ½ of 1.00%, or (c) the Adjusted LIBOR (as defined in the Credit Agreement) for a one-month interest period in dollars on such day plus 1.00%. The ABR for ABR Term Loans shall not be less than 1.75% per annum. The Applicable Rate for any ABR Revolving Loans will be based upon the leverage ratio applicable on such date. As of December 30, 2017, the Applicable Rate for ABR Term Loans was 2.25% per annum.

Eurocurrency Borrowings made under the Credit Agreement bear interest at a rate per annum equal to the Adjusted LIBOR Rate plus the Applicable Rate. The Adjusted LIBOR Rate is defined as an interest rate per annum equal to (a) the LIBOR Rate for such interest period multiplied by (b) the Statutory Reserve Rate (as defined in the Credit Agreement). The Applicable Rate for any Eurocurrency Revolving Loan is based upon the leverage ratio applicable on such date. The Adjusted LIBOR Rate for Eurocurrency Term Loans shall not be less than 0.75% per annum. Based on our leverage ratio as of December 30, 2017, the Applicable Rate for Eurocurrency Revolving Loans was 3.00%. As of December 30, 2017, the Applicable Rate for Eurocurrency Term Loans was 3.25% per annum, plus the applicable Adjusted LIBOR Rate of 1.44%. The weighted average interest rate on Term Facility debt during the three months ended December 30, 2017 was 4.54%.

Outstanding borrowings under the Revolving Credit Facility were $5,000 and $0, as of December 30, 2017 and September 30, 2017, respectively, reported in short-term borrowings in the Consolidated Balance Sheets. We had outstanding letters of credit drawn from the Revolving Credit Facility totaling $43,381 and $37,811 as of December 30, 2017 and September 30, 2017, respectively, leaving approximately $71,619 and $82,189, respectively, of unused borrowing capacity. Commitment fees are payable on the unused portion of the Revolving Credit Facility at rates between 0.25% and 0.40% based on our leverage ratio. During the three months ended December 30, 2017 and December 31, 2016, commitment fees incurred totaled $79 and $101, respectively.

The Credit Agreement governing the Term Facility requires us to prepay outstanding term loans, subject to certain exceptions, depending on the leverage ratio with (a) up to 50% of the Company's annual Excess Cash Flow (as defined in the Credit Agreement) and (b) 100% of the net cash proceeds of (i) certain asset sales and casualty and condemnation events, subject to reinvestment rights and certain other exceptions; and (ii) any incurrence or issuance of certain debt, other than debt permitted under the Credit Agreement. We may voluntarily prepay outstanding loans under the Term Facility at any time without premium or penalty. All obligations under the Credit Agreement are unconditionally guaranteed by certain of the Company's existing wholly owned domestic subsidiaries, and are secured, subject to certain exceptions, by substantially all of the Company's assets and the assets of the Company's subsidiary guarantors.

Under the Credit Agreement, we are subject to customary affirmative and negative covenants, including, among others, restrictions on our ability to incur debt, create liens, dispose of assets, make investments, loans, advances, guarantees, and acquisitions, enter into transactions with affiliates, and enter into any restrictive agreements and customary events of default (including payment defaults, covenant defaults, change of control defaults and bankruptcy defaults). The Credit Agreement also contains financial covenants, including the ratio of consolidated total indebtedness to adjusted consolidated earnings before income, taxes, depreciation and amortization (Adjusted EBITDA), as defined in the Credit Agreement, as well as the ratio of Adjusted EBITDA to consolidated interest expense. These covenants restrict our ability to purchase outstanding shares of our common stock. As of December 30, 2017 and September 30, 2017, we were in compliance with these financial covenants.

See Note 6 for additional information on the fair value of the tranche B term loan and the TEU debt.

Interest Rate Swaps

On October 20, 2016, in order to mitigate our exposure to interest rate increases on our variable rate debt, we entered into a variable to fixed amortizing interest rate swap. See Note 7 for additional information on derivative financial instruments.

The interest rate swap will be reduced to the following notional amounts over the next five years:

	Notional Amount
October 3, 2018	225,000
October 3, 2019	180,000
October 3, 2020	125,000
April 3, 2021	—

NOTE 9 STOCK-BASED COMPENSATION

We compensate our officers, directors and employees with stock-based compensation under the 2017 Stock Incentive Plan (the 2017 Plan) approved by our shareholders and administered under the supervision of our Board of Directors. As of December 30, 2017, a total of 1,595 shares were available for issuance under the 2017 Plan.

In fiscal year 2018, we adopted ASU No. 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting.* See Note 2 for additional information regarding the impact of adoption.

Stock Options

There were no stock options granted during the three months ended December 30, 2017 and December 31, 2016.

Restricted Stock Units and Performance Restricted Stock Units

We award restricted stock units to directors and key employees and performance restricted stock units to key employees. During the three months ended December 30, 2017 and December 31, 2016, we granted approximately 1,294 restricted stock units to officers and employees and 2 restricted stock units to employees, respectively. The fair value of the restricted stock units granted during the three months ended December 30, 2017 and December 31, 2016 was $51.78 and $47.73, respectively, representing the market value of our shares at the date of grant less the present value of estimated foregone dividends over the

vesting period. There were no performance restricted stock units granted during the three months ended December 30, 2017 and December 31, 2016.

Employee Stock Purchase Plan
Our U.S. employees are eligible to participate in the 2012 Employee Stock Purchase Plan (2012 ESPP) approved by our shareholders. As of December 30, 2017, a total of 639 shares were available for issuance under the 2012 ESPP. During the three months ended December 30, 2017, we issued no shares under the 2012 ESPP. During the three months ended December 31, 2016, we issued 14 shares of our common stock to participants under the 2012 ESPP at a weighted average price per share of $37.53.

NOTE 10 EMPLOYEE BENEFIT PLANS

We sponsor a non-contributory, defined benefit retirement plan for eligible employees of one of our German subsidiaries. Net periodic benefit cost for our defined benefit pension plan included the following components:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Service cost	$ 318	$ 349
Interest cost	159	106
Expected return on plan assets	(315)	(266)
Net amortization and deferral	130	244
Net periodic benefit cost	$ 292	$ 433

The weighted average expected long-term rate of return on plan assets used to determine the net periodic benefit cost for each of the three months ended December 30, 2017 and December 31, 2016 was 5.5%.

NOTE 11 INCOME TAXES

The income tax benefit for the three months ended December 30, 2017 included certain discrete benefits of $25,378 for the estimated impact of the Tax Cuts and Jobs Act (the Tax Act) enacted into law on December 22, 2017. The discrete benefits primarily related to $32,264 of estimated benefit from the remeasurement of our estimated net deferred tax liabilities, partially offset by $6,886 of estimated expense associated with the mandatory deemed repatriation tax. Excluding the impact of these discrete benefits, the effective tax rate for the three months ended December 30, 2017 decreased compared to the prior year primarily due to the lower U.S. corporate tax rate under the Tax Act.

The SEC issued Staff Accounting Bulletin No. 118 (SAB 118) which allows registrants to record provisional amounts during a one-year measurement period. SAB 118 summarizes a three-step process to be applied at each reporting period to account for and qualitatively disclose: (i) the effects of the change in tax law for which accounting is complete; (ii) provisional amounts (or adjustments to provisional amounts) for the effects of the tax law where accounting is not complete, but that a reasonable estimate has been determined; and (iii) a reasonable estimate cannot yet be made and therefore taxes are reflected in accordance with law prior to the enactment of the Tax Act.

Amounts recorded where the accounting is complete during the three months ended December 30, 2017 primarily relate to the reduction in the U.S. corporate income tax rate to 21%, and we recorded an income tax benefit of $32,244 to remeasure deferred tax liabilities associated with intangible assets that will reverse at the new 21% rate.

Amounts recorded where the accounting is provisional during the three months ended December 30, 2017 include the remeasurement of other deferred taxes where the timing of the reversal cannot be known at this time. We have performed a provisional estimate of the net impact of remeasurement of other deferred tax assets and liabilities and recorded a $20 income tax benefit during the three months ended December 30, 2017. In addition, the Tax Act includes a one-time mandatory repatriation transition tax on the net accumulated earnings and profits of our foreign subsidiaries. We have performed a provisional estimate of this tax and recorded a $6,886 income tax provision during the three months ended December 30, 2017. These amounts are provisional based on incomplete information and use of estimates at future balance sheet dates which are needed to finalize the calculation.

We analyzed the Tax Act for all tax provisions expected to be effective in fiscal year 2018, and there are no anticipated effects of the Tax Act where we have not yet recorded a reasonable estimate of the accounting effect as of December 30, 2017.

The full-year estimated annual effective tax rate, which excludes the impact of discrete items, was 17.3% as of December 30, 2017, as compared to 21.8% as of December 31, 2016. This decrease is primarily due to the reduction of the U.S. federal statutory rate from 35.0% to 24.5%, a blended rate based upon our fiscal year, partially offset by higher income before taxes.

As of December 30, 2017, the liability for unrecognized tax benefits was $6,771, of which $4,173 would favorably affect our effective tax rate, if recognized. As of September 30, 2017, the liability for unrecognized tax benefits was $5,849, of which $3,234 would favorably affect our effective tax rate, if recognized. As of December 30, 2017, we do not expect significant changes in the amount of unrecognized tax benefits during the next twelve months.

NOTE 12 SHAREHOLDERS' EQUITY

Tangible Equity Units

During the third quarter of fiscal year 2016, we issued 1,150 TEUs in a registered public offering primarily to finance the acquisition of PCB, to repay amounts outstanding under our existing revolving credit facility and to pay related costs, fees and expenses. Total proceeds, net of underwriting discounts, commissions and other expenses were $110,926. Each TEU has a stated amount of $100 per TEU and is comprised of a prepaid stock purchase contract and a senior amortizing note having a final installment payment date of July 1, 2019. We allocated the proceeds from the issuance of the TEUs between equity and debt based on the relative fair values of the respective components of each TEU. The fair value of the prepaid stock purchase contracts, net of underwriting discounts, commissions and other expenses, was recorded in additional paid-in capital in the Consolidated Balance Sheets. The fair value of the senior amortizing note, net of underwriting discounts, commissions and other expenses, was split between current maturities of long-term debt, net and long-term debt, less current maturities, net in the Consolidated Balance Sheets. Underwriting discounts, commissions and other costs directly associated with the TEU-related debt will be amortized using the effective interest rate method over the three year term of the instrument.

The aggregate values assigned upon issuance to each component of the TEUs, based on the relative fair value of the respective components, were as follows:

	Equity Component	Debt Component	Total
Fair value price per TEU [1]	$ 76.19	$ 23.81	$ 100.00
Gross proceeds	$ 87,614	$ 27,386	$ 115,000
Less: Underwriting discounts and commissions	(2,628)	(822)	(3,450)
Less: Other expenses [2]	(475)	(149)	(624)
Issuance of TEUs, net	$ 84,511	$ 26,415	$ 110,926

[1] The fair value price allocation between equity and debt for each TEU was determined using a discounted cash flow model.

[2] Other expenses include direct and incremental costs related to the issuance of the TEUs.

Equity Component

Unless converted earlier at the option of the holder, each prepaid stock purchase contract will automatically settle on July 1, 2019. If converted prior to the automatic settlement date at the option of the holder, the minimum of 1.9841 shares of our common stock are delivered to the holder of each prepaid stock purchase contract. On the automatic settlement date, a minimum of 1.9841 shares and a maximum of 2.3810 shares of our common stock, subject to adjustment based upon the applicable market value discussed below, will be delivered to the holder of each prepaid stock purchase contract at the settlement date.

The number of shares of our common stock issuable upon settlement of each purchase contract on July 1, 2019 will be determined as follows:

- if the applicable market value is equal to or greater than the threshold appreciation price of $50.40 per share, holders will receive 1.9841 shares of common stock per purchase contract, or the minimum settlement rate;
- if the applicable market value is greater than the reference price of $42.00 per share, but less than the threshold appreciation price of $50.40 per share, holders will receive a number of shares of common stock equal to $100 per TEU divided by the applicable market value; or
- if the applicable market value is less than or equal to the reference price of $42.00 per share, holders will receive 2.3810 shares of common stock per purchase contract, or the maximum settlement rate.

The "applicable market value" is defined as the average of the daily volume-weighted average price of the common stock on each of the 20 consecutive trading days beginning on, and including, the 23rd scheduled trading day immediately preceding July 1, 2019.

During the fourth quarter of fiscal year 2017, certain holders of our TEUs elected to early convert the equity component on 473 of our outstanding TEUs at the minimum conversion rate of 1.9841 which resulted in the issuance of 939 shares of our common stock. During the three months ended December 30, 2017, no holders of our TEUs elected to early convert the equity component of our outstanding TEUs. There were 677 units of the equity component of TEUs outstanding as of both December 30, 2017 and September 30, 2017.

Debt Component
The amortizing senior note was issued with an initial principal amount of $27,386 or $23.8136 per TEU. Equal quarterly cash installments of $2.1875 per amortizing note will be paid, which in the aggregate will be equivalent to a 8.75% cash distribution per year with respect to each $100 stated amount per TEU. Each installment will constitute a payment of interest and partial repayment of principal.

Earnings Per Common Share
The TEUs have a dilutive effect on our earnings per share. The 1.9841 minimum shares to be issued are included in the calculation of basic weighted average shares outstanding. The 0.3969 difference between the minimum shares and the 2.3810 maximum shares are potentially dilutive, and accordingly, are included in our diluted earnings per share on a pro rata basis to the extent the applicable market value is higher than the reference price but less than the threshold appreciation price. See Note 13 for additional information regarding the calculation of earnings per share.

Capped Calls
In connection with the pricing of the TEUs sold in our public offering in fiscal year 2016, we purchased capped calls from third party banking institutions (Capped Calls) for $7,935. The initial Capped Calls were for 2,282 equivalent shares of our common stock with a strike price of $50.40, a cap price of $58.80 and an expiration date of July 1, 2019 (Capped Call Expiration). The value of the Capped Calls is settled with shares of our common stock, based on the approximate market value of our common stock at such time, and may be settled as the TEUs are early converted or settled upon Capped Call Expiration.

During the fourth quarter of fiscal year 2017, we settled approximately 10% of the Capped Calls, which resulted in us receiving and retiring 12 shares of our common stock. During the three months ended December 30, 2017, no Capped Calls were settled. As of December 30, 2017, the range of shares of our common stock to be received under the outstanding Capped Calls was 0 to 293 shares, which will be realized if our stock price closes at or below $50.40 or at $58.80, respectively, upon Capped Call Expiration. Settlement of the Capped Calls prior to Capped Call Expiration may be for fewer shares than the maximum of 293 shares.

NOTE 13 EARNINGS PER SHARE

Basic earnings per share is computed by dividing net income by the daily weighted average number of common shares outstanding during the applicable period. The TEUs are assumed to be settled at the minimum settlement amount of 1.9841 shares per TEU when calculating weighted-average common shares outstanding for purposes of basic earnings per share.

Using the treasury stock method, diluted earnings per share includes the potentially dilutive effect of common shares issued in connection with outstanding stock-based compensation options and grants. The potentially dilutive effect of common shares issued in connection with outstanding stock options is determined based on the average market price for the period. For diluted earnings per share, the TEUs are assumed to be settled at a conversion factor based on our daily volume-weighted average price per share of our common stock for the 20 consecutive trading days preceding the end of the current fiscal quarter not to exceed 2.3810 shares of common stock per TEU.

Under the treasury stock method, shares associated with certain stock options have been excluded from the diluted weighted average shares outstanding calculation because the exercise of those options would lead to a net reduction in common shares outstanding or anti-dilution. As a result, stock options to acquire 496 and 663 weighted common shares have been excluded from the diluted weighted average common shares outstanding calculation for the three months ended December 30, 2017 and December 31, 2016, respectively.

In connection with the pricing of the TEUs, we purchased Capped Calls. The Capped Calls will not be reflected in the calculation of diluted earnings per share until settled as they are anti-dilutive. See Note 12 for additional information on our equity instruments.

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Basic and diluted earnings per share were calculated as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Net income	$ 33,151	$ 1,705
Weighted average common shares outstanding	19,124	18,969
Effect of dilutive securities		
Stock-based compensation	130	105
Weighted average dilutive common shares outstanding	19,254	19,074
Earnings per share		
Basic	$ 1.73	$ 0.09
Diluted	1.72	0.09

NOTE 14 OTHER COMPREHENSIVE INCOME (LOSS)

Other comprehensive income (loss), a component of shareholders' equity, consists of foreign currency translation adjustments, gains or losses on derivative instruments and defined benefit pension plan adjustments.

Income tax expense or benefit allocated to each component of other comprehensive income (loss) was as follows:

	Three Months Ended		
	December 30, 2017		
	Pre-tax	Tax	Net
Foreign currency translation gain (loss) adjustments	$ 2,499	$ —	$ 2,499
Derivative instruments			
Unrealized net gain (loss)	1,389	(359)	1,030
Net (gain) loss reclassified to earnings	139	(36)	103
Defined benefit pension plan			
Unrealized net gain (loss)	530	(160)	370
Net (gain) loss reclassified to earnings	130	(39)	91
Currency exchange rate gain (loss)	(87)	—	(87)
Other comprehensive income (loss)	$ 4,600	$ (594)	$ 4,006

	Three Months Ended		
	December 31, 2016		
	Pre-tax	Tax	Net
Foreign currency translation gain (loss) adjustments	$ (9,802)	$ —	$ (9,802)
Derivative instruments			
Unrealized net gain (loss)	6,509	(2,351)	4,158
Net (gain) loss reclassified to earnings	(419)	151	(268)
Defined benefit pension plan			
Unrealized net gain (loss)	183	(55)	128
Net (gain) loss reclassified to earnings	244	(74)	170
Currency exchange rate gain (loss)	697	—	697
Other comprehensive income (loss)	$ (2,588)	$ (2,329)	$ (4,917)

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The changes in the net of tax balances of each component of AOCI were as follows:

	Three Months Ended December 30, 2017 Adjustments			
	Foreign Currency Translation	Unrealized Derivative Instrument	Defined Benefit Pension Plan	Total
Balance, September 30, 2017	$ 3,946	$ 1,953	$ (6,452)	$ (553)
Other comprehensive net gain (loss) reclassifications	2,499	1,030	283	3,812
Net (gain) loss reclassified to earnings	—	103	91	194
Other comprehensive income (loss)	2,499	1,133	374	4,006
Balance, December 30, 2017	$ 6,445	$ 3,086	$ (6,078)	$ 3,453

	Three Months Ended December 31, 2016 Adjustments			
	Foreign Currency Translation	Unrealized Derivative Instrument	Defined Benefit Pension Plan	Total
Balance, October 1, 2016	$ 673	$ (255)	$ (10,791)	$ (10,373)
Other comprehensive net gain (loss) reclassifications	(9,802)	4,158	825	(4,819)
Net (gain) loss reclassified to earnings	—	(268)	170	(98)
Other comprehensive income (loss)	(9,802)	3,890	995	(4,917)
Balance, December 31, 2016	$ (9,129)	$ 3,635	$ (9,796)	$ (15,290)

The effect on certain line items in the Consolidated Statements of Income of amounts reclassified out of AOCI was as follows:

	Three Months Ended		Affected Line Item in the Consolidated Statements of Income
	December 30, 2017	December 31, 2016	
Derivative instruments			
Currency exchange contracts gain (loss)	$ (158)	$ 419	Revenue
Interest rate swap contracts gain (loss)	19	—	Interest expense, net
Income tax benefit (expense)	36	(151)	Income tax provision (benefit)
Total net gain (loss) on derivative instruments	(103)	268	Net income
Defined benefit pension plan			
Actuarial loss	(71)	(133)	Cost of sales
Actuarial loss	(37)	(69)	Selling and marketing
Actuarial loss	(22)	(42)	General and administrative
Total actuarial loss	(130)	(244)	Income before income taxes
Income tax benefit	39	74	Income tax provision (benefit)
Total net loss on pension plan	(91)	(170)	Net income
Total net of tax reclassifications out of AOCI included in net income	$ (194)	$ 98	

NOTE 15 BUSINESS SEGMENT INFORMATION

Our Chief Executive Officer (the Chief Operating Decision Maker) regularly reviews financial information for our two operating segments, Test and Sensors. Test provides testing equipment, systems and services to the ground vehicles, materials and structures sectors. Sensors provides high performance sensors for acceleration, position, vibration, motion, pressure and force measurement.

In evaluating each segment's performance, our Chief Executive Officer focuses on income from operations. This measure excludes interest income and expense, income taxes and other non-operating items. Corporate expenses, including costs associated with various support functions such as human resources, information technology, legal, finance, and accounting, and general and administrative costs, are allocated to the reportable segments on the basis of revenue. The accounting policies of the reportable segments are the same as those described in Note 1 to the Consolidated Financial Statements found in our Annual Report on Form 10-K for the fiscal year ended September 30, 2017.

On January 5, 2017, we announced the division of our Test segment into two separate business units, "Materials Test Systems" and "Vehicles and Structure Test Systems." The division of our Test segment will result in us having three operating segments once discrete financial information is made available to our Chief Operating Decision Maker. We will continue to report only the Test and Sensors segments until such time. We continue to evaluate the timing of such implementation.

Financial information by reportable segment is as follows:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Revenue		
Test	$ 118,203	$ 131,126
Sensors	75,959	68,153
Total revenue	$ 194,162	$ 199,279
Income (Loss) from Operations		
Test	$ 5,609	$ 11,716
Sensors	10,888	(1,426)
Total income (loss) from operations	$ 16,497	$ 10,290

NOTE 16 RESTRUCTURING AND RELATED COSTS

During the fourth quarter of fiscal year 2017, we initiated a series of Test workforce reductions and facility closures intended to increase organizational effectiveness, gain manufacturing efficiencies and provide cost savings that can be reinvested in our growth initiatives. As a result, in the three months ended December 30, 2017, we recorded $93 of pre-tax severance and related expense and $162 of pre-tax facility closure costs. As of December 30, 2017, we have incurred a total of $3,177 of pre-tax expense, including $2,992 and $185 of pre-tax expense related to severance and facility closure costs, respectively. For the remainder of fiscal year 2018, we expect to incur $1,000 to $3,000 of additional pre-tax severance and related expenses and facility closure costs related to these actions. The majority of the expenses are expected to be paid in fiscal year 2018.

During the fourth quarter of fiscal year 2017, in an effort to reduce costs and create economic efficiencies in Sensors, we initiated plans to close our Machida, Japan sales office in the second quarter of fiscal year 2018. In the three months ended December 30, 2017, we recorded an immaterial adjustment to the severance and related expense reported in the fourth quarter of fiscal year 2017. As of December 30, 2017, we have incurred a total of $112 of pre-tax severance and related expense. We expect to incur additional pre-tax severance and related expense of approximately $74. The majority of the expenses are expected to be paid in fiscal year 2018.

Fiscal Year 2016 Restructuring
During fiscal year 2016, we initiated plans to reduce costs in Sensors by closing our Machida, Japan manufacturing facility in the third quarter of fiscal year 2017. We incurred $0 and $563 in the three months ended December 30, 2017 and December 31, 2016, respectively. As of December 30, 2017, we have incurred a total of $1,964 of pre-tax expense, including $1,444 and $520 related to severance and facility closure costs, respectively. The remaining severance and facility closing costs are expected to be paid during the third quarter of fiscal year 2018.

Fiscal Year 2014 Restructuring
During fiscal year 2014, we initiated workforce and other cost reduction actions at certain of our Test locations in the U.S. and Europe. No restructuring expenses were recognized during the three months ended December 30, 2017 or December 31, 2016 related to these restructuring actions.

Restructuring expense included in our Consolidated Statements of Income for all restructuring actions was as follows:

	Three Months Ended					
	December 30, 2017			December 31, 2016		
	Test	Sensors	Total	Test	Sensors	Total
Cost of sales	$ 120	$ —	$ 120	$ —	$ 326	$ 326
Selling and marketing	—	(9)	(9)	—	81	81
General and administrative	135	—	135	—	156	156
Research and development	—	—	—	—	—	—
Total restructuring expense	$ 255	$ (9)	$ 246	$ —	$ 563	$ 563

Restructuring expense accruals included in the Consolidated Balance Sheets for all restructuring actions were as follows:

	2017		2016	2014	
	Test	Sensors	Sensors	Test	Total
Balance, September 30, 2017	$ 2,899	$ 120	$ 209	$ 734	$ 3,962
Restructuring expense	255	(9)	—	—	246
Payments	(662)	—	—	(99)	(761)
Other adjustments	(41)	—	—	—	(41)
Currency translation	—	—	(1)	9	8
Balance, December 30, 2017	$ 2,451	$ 111	$ 208	$ 644	$ 3,414

Restructuring expense accruals included in the Consolidated Balance Sheets were as follows:

	December 30, 2017	September 30, 2017
Accrued payroll and related costs	$ 2,914	$ 3,485
Other accrued liabilities	218	98
Other long-term liabilities	282	379
Total severance and related costs	$ 3,414	$ 3,962

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

Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is designed to provide a reader of our financial statements with a narrative from the perspective of management on our financial condition, results of operations, liquidity and certain other factors that may affect our future results. Our MD&A is presented in nine sections:

- Overview
- Financial Results
- Cash Flow Comparison
- Liquidity and Capital Resources
- Off-balance Sheet Arrangements
- Critical Accounting Policies
- Recently Issued Accounting Pronouncements
- Other Matters
- Forward-looking Statements

Our MD&A should be read in conjunction with the Consolidated Financial Statements and related Notes included in Item 1 of Part I of this Quarterly Report on Form 10-Q. All dollar and share amounts are in thousands, unless otherwise noted.

Overview

MTS Systems Corporation is a leading global supplier of high performance test systems and sensors. Our testing hardware and software solutions help customers accelerate and improve design, development and manufacturing processes and are used for determining the mechanical behavior of materials, products and structures. Our high performance sensors provide controls for a variety of applications measuring acceleration, position, vibration, motion, pressure, force and sound. As of September 30, 2017, we had 3,500 employees and revenue of $787,955 for fiscal year 2017.

Our goal is to sustain profitable enterprise growth, consistently generate strong cash flow and deliver a strong return on invested capital to our shareholders by leveraging our leadership position in the research and development and industrial global end markets for high-performance test systems and sensors. Our desire is to be the innovation leader in creating test and measurement solutions and to provide total customer satisfaction. We believe we can create value for our customers by helping to enhance the precision, improve the reliability and create superior safety for their products, while reducing the delivery time to market for their products. Our competitive advantages include our proprietary technology and advanced application expertise, our expansive global footprint with long-term customer relationships, our large installed base of testing equipment and our expanded presence in the rapidly growing sensors market. We believe these competitive advantages position us well in both the test and sensors markets to deliver profitable growth in the years ahead.

We are working toward our goals of sustained five to seven percent growth in annual revenue; three to four points of expanded earnings before interest, taxes, depreciation and amortization (EBITDA); and mid-teens for return on invested capital (ROIC). We believe the growth in our end markets, combined with four primary opportunities we are currently pursuing, will support these goals:

- Realize growth within the rapidly expanding Sensors market through an increase in our global market share and new product development;
- Expand Test services offerings into our large installed base of Test equipment;
- Capitalize on growth opportunities in the Test materials sector spurred by new manufacturing processes, focus on light-weight materials in aerospace and ground vehicle markets, and trends in energy exploration; and
- Adapt our industry-leading ground vehicle testing applications to align with emerging trends in vehicle electrification, autonomous vehicles, and simulation.

We believe that our business model supports our growth objectives, provided that we continue to move aggressively to build our infrastructure, expand our offerings and execute on opportunities with our key customers around the world. In order to accelerate our revenue growth over the next five years, investments in infrastructure, sales support and field service capacity and capability are essential.

Tax Cuts and Jobs Act

The Tax Cuts and Jobs Act (the Tax Act) was signed into law on December 22, 2017. The Tax Act made numerous changes to U.S. federal corporate tax law and reduced our effective tax rate for fiscal year 2018 and future periods. Effective January 1, 2018, the Tax Act lowers the U.S. corporate tax rate from 35% to 21% and prompts various other changes to U.S. federal corporate tax law, including the establishment of a territorial-style system for taxing foreign-source income of domestic multinational corporations. We are in the process of quantifying the tax impacts of the Tax Act and have recorded an estimate of

the impact in our first quarter of fiscal year 2018 results. See Note 11 to the Consolidated Financial Statements included in Item 1 of Part I of this Quarterly Report on Form 10-Q for further discussion of the impact of the Tax Act.

Foreign Currency
Approximately 70% of our revenue has historically been derived from customers outside of the U.S. Our financial results are principally exposed to changes in exchange rates between the U.S. dollar and the Euro, the Japanese yen and the Chinese yuan. A change in foreign exchange rates could positively or negatively affect our reported financial results. The discussion below quantifies the impact of foreign currency translation on our financial results for the periods discussed.

Terms
The terms "MTS," "we," "us," the "Company," or "our" in this Quarterly Report on Form 10-Q, unless the context otherwise requires, refer to MTS Systems Corporation and its wholly owned subsidiaries.

Financial Results

Total Company

Results of Operations
The following table compares results of operations, separately identifying the estimated impact of currency translation and restructuring costs incurred in fiscal year 2018.

	Three Months Ended				
		Estimated			
	December 30, 2017	Business Change	Restructuring	Currency Translation	December 31, 2016
Revenue	$ 194,162	$ (9,252)	$ —	$ 4,135	$ 199,279
Cost of sales	116,234	(12,608)	120	2,907	125,815
Gross profit	77,928	3,356	(120)	1,228	73,464
Gross margin	*40.1%*				*36.9%*
Operating expenses					
Selling and marketing	32,028	822	(9)	745	30,470
General and administrative	20,562	(3,835)	135	239	24,023
Research and development	8,841	94	—	66	8,681
Total operating expenses	61,431	(2,919)	126	1,050	63,174
Income from operations	$ 16,497	$ 6,275	$ (246)	$ 178	$ 10,290

See Note 16 to the Consolidated Financial Statements included in Item 1 of Part I of this Quarterly Report on Form 10-Q for additional information on restructuring and related costs. In the fourth quarter of fiscal year 2016, we completed the acquisition of PCB Group, Inc. (PCB). As a result of the PCB acquisition, we incurred certain non-recurring costs during fiscal year 2017 including acquisition integration costs and a fair value adjustment on acquired PCB inventory.

Revenue	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Revenue	$ 194,162	$ 199,279	$ (5,117)	(2.6)%

Revenue for the three months ended December 30, 2017 declined by 2.6% primarily due to a decrease in Test revenue, partially offset by revenue growth in our Sensors business and the favorable impact of currency translation. Test revenue decreased $12,923 primarily driven by lower equipment order volume in the first half of fiscal year 2017. Current year Test revenue was also impacted by higher custom project backlog weighting which takes longer to convert into revenue. Sensors revenue increased $7,806 primarily driven by strong demand in the Sensors position sector and continued momentum from new revenue opportunities in the Sensors test sector. Excluding the impact of currency translation, revenue decreased 4.6%.

Gross Profit

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Gross profit	$ 77,928	$ 73,464	$ 4,464	6.1%
Gross margin	*40.1%*	*36.9%*	*3.2* ppts	

Gross profit for the three months ended December 30, 2017 increased 6.1% primarily due to the prior year impact from the PCB acquisition driven by a fair value adjustment on acquired inventory of $7,724 and increased current year revenue volume in Sensors, partially offset by reduced revenue volume in Test. Gross margin rate increased 3.2 percentage points primarily due to the prior year impact from the PCB acquisition driven by a fair value adjustment on acquired inventory and favorable leverage on increased Sensors revenue volume, partially offset by investments to support the Test project pipeline and unfavorable leverage on lower Test revenue volume. Excluding the impact of currency translation, the prior year fair value adjustment on acquired PCB inventory, prior year PCB acquisition integration expenses, and restructuring costs incurred in both fiscal years, gross profit declined 5.9% and the gross margin rate declined 0.6 percentage points.

Selling and Marketing Expense

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Selling and marketing	$ 32,028	$ 30,470	$ 1,558	5.1%
% of Revenue	*16.5%*	*15.3%*		

Selling and marketing expense for the three months ended December 30, 2017 increased by 5.1% primarily due to higher compensation expenses in Sensors and the unfavorable impact of currency translation. Excluding the impact of currency translation, prior year PCB acquisition integration expenses, and restructuring costs incurred in both fiscal years, selling and marketing expense increased 3.3%.

General and Administrative Expense

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
General and administrative	$ 20,562	$ 24,023	$ (3,461)	(14.4)%
% of Revenue	*10.6%*	*12.1%*		

General and administrative expense for the three months ended December 30, 2017 declined by 14.4% primarily due to prior year non-recurring China Code of Conduct investigation expenses of $1,976, prior year PCB acquisition integration expenses of $1,503, and decreased professional fees, partially offset by the unfavorable impact of currency translation. Excluding the impact of currency translation, prior year PCB acquisition integration expenses, prior year China investigation expenses and restructuring costs incurred in both fiscal years, general and administrative expense decreased 1.0%.

Research and Development Expense

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Research and development	$ 8,841	$ 8,681	$ 160	1.8%
% of Revenue	*4.6%*	*4.4%*		

Research and development (R&D) expense for the three months ended December 30, 2017 increased by 1.8%, primarily due to continued investments in Sensors product development, partially offset by prior year focused R&D spending to meet certain Test market needs. Excluding the impact of currency translation, R&D expense increased 1.1%.

Income from Operations	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Income from operations	$ 16,497	$ 10,290	$ 6,207	60.3%
% of Revenue	*8.5%*	*5.2%*		

Income from operations for the three months ended December 30, 2017 increased by 60.3% primarily due to the prior year impact from the PCB acquisition driven by a fair value adjustment on acquired PCB inventory of $7,724 and non-recurring PCB acquisition integration expenses of $1,688, prior year China investigation expenses of $1,976, increased gross profit from leverage on volume growth in Sensors, and prior year restructuring costs of $563, partially offset by decreased Test gross profit from unfavorable leverage on revenue. Excluding the impact of currency translation, the prior year fair value adjustment on acquired PCB inventory, prior year non-recurring PCB acquisition integration expenses, prior year China investigation expenses, and restructuring costs incurred in both fiscal years, income from operations decreased 25.5%.

Interest Expense, Net	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Interest expense, net	$ 6,804	$ 7,280	$ (476)	(6.5)%

Interest expense, net for the three months ended December 30, 2017 decreased primarily due to reduced interest rates on the tranche B term loan facility as a result of the debt repricing completed in the fourth quarter of fiscal year 2017, as well as lower current year average debt outstanding.

Other Income (Expense), Net	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Other income (expense), net	$ (223)	$ (829)	$ 606	73.1%

The increase in other income (expense), net for the three months ended December 30, 2017 was primarily driven by a decrease in losses on foreign currency transactions.

Income Tax Provision (Benefit)	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Income tax provision (benefit)	$ (23,681)	$ 476	$ (24,157)	(5,075.0)%
Effective rate	*(250.1)%*	*21.8%*		

The effective tax rate for the three months ended December 30, 2017 decreased due to certain discrete benefits of $25,378 for the estimated impact of the Tax Act. The discrete benefits primarily related to $32,264 of estimated benefit from the remeasurement of our estimated net deferred tax liabilities, partially offset by $6,886 of estimated expense associated with the mandatory deemed repatriation tax. Excluding the impact of these discrete benefits, the effective tax rate for the three months ended December 30, 2017 would have been 17.9% and decreased compared to the prior year primarily due to the lower U.S. corporate tax rate under the Tax Act.

Net Income	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Net income	$ 33,151	$ 1,705	$ 31,446	1,844.3%
Diluted earnings per share	*$ 1.72*	*$ 0.09*	$ 1.63	1,811.1%

Net income and diluted earnings per share for the three months ended December 30, 2017 increased due to a reduction in the effective tax rate and discrete benefits stemming from the Tax Act, as well as increased gross profit and lower operating expenses.

Segment Results

Test Segment

Results of Operations

The following table compares results of operations for Test, separately identifying the estimated impact of currency translation and restructuring costs incurred in fiscal year 2018.

	Three Months Ended				
		Estimated			
	December 30, 2017	Business Change	Restructuring	Currency Translation	December 31, 2016
Revenue	$ 118,203	$ (15,202)	$ —	$ 2,279	$ 131,126
Cost of sales	79,064	(7,238)	120	1,890	84,292
Gross profit	39,139	(7,964)	(120)	389	46,834
Gross margin	*33.1%*				*35.7%*
Operating expenses					
Selling and marketing	17,762	280	—	412	17,070
General and administrative	11,091	(2,130)	135	149	12,937
Research and development	4,677	(440)	—	6	5,111
Total operating expenses	33,530	(2,290)	135	567	35,118
Income from operations	$ 5,609	$ (5,674)	$ (255)	$ (178)	$ 11,716

Revenue

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Revenue	$ 118,203	$ 131,126	$ (12,923)	(9.9)%

Revenue for the three months ended December 30, 2017 decreased by 9.9% primarily driven by lower equipment order volume in the first half of fiscal year 2017. Current year Test revenue was also impacted by higher custom project backlog weighting which takes longer to convert into revenue. This was partially offset by the favorable impact of currency translation and growth in service revenue. Excluding the impact of currency translation, revenue decreased 11.6%.

Gross Profit

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Gross profit	$ 39,139	$ 46,834	$ (7,695)	(16.4)%
Gross margin	*33.1%*	*35.7%*	*(2.6)*	ppts

Gross profit for the three months ended December 30, 2017 declined by 16.4%. Gross margin rate declined 2.6 percentage points primarily due to increased costs from investments to support the project pipeline, unfavorable leverage on lower revenue volume and the unfavorable impact of currency translation, partially offset by project execution. Excluding the impact of currency translation and restructuring costs, gross profit declined 17.0% and gross margin rate declined 2.2 percentage points.

Selling and Marketing Expense

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Selling and marketing	$ 17,762	$ 17,070	$ 692	4.1%
% of Revenue	*15.0%*	*13.0%*		

Selling and marketing expense for the three months ended December 30, 2017 increased by 4.1% primarily due to increased compensation expenses and the unfavorable impact of currency translation. Excluding the impact of currency translation, selling and marketing expense increased 1.6%.

General and Administrative Expense	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
General and administrative	$ 11,091	$ 12,937	$ (1,846)	(14.3)%
% of Revenue	*9.4%*	*9.9%*		

General and administrative expense for the three months ended December 30, 2017 declined by 14.3% primarily due to prior year China investigation expenses of $1,976 and increased professional fees, partially offset by the unfavorable impact of currency translation. Excluding the impact of currency translation, prior year China investigation expenses, and restructuring costs, general and administrative expense decreased 1.4%.

Research and Development Expense	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Research and development	$ 4,677	$ 5,111	$ (434)	(8.5)%
% of Revenue	*4.0%*	*3.9%*		

R&D expense for the three months ended December 30, 2017 declined by 8.5% primarily due to prior year focused R&D spending to meet certain Test market needs. Excluding the impact of currency translation, R&D expense decreased 8.6%.

Income from Operations	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Income from operations	$ 5,609	$ 11,716	$ (6,107)	(52.1)%
% of Revenue	*4.7%*	*8.9%*		

Income from operations for the three months ended December 30, 2017 declined by 52.1% primarily due to the decrease in gross profit driven by lower equipment order volume in the first half of fiscal year 2017, partially offset by prior year China investigation expenses of $1,976. Excluding the impact of currency translation, prior year China investigation expenses and restructuring costs, income from operations decreased 55.9%.

Sensors Segment

Results of Operations

The following table compares results of operations for Sensors, separately identifying the estimated impact of currency translation and restructuring costs incurred in fiscal year 2018.

	Three Months Ended				
		Estimated			
	December 30, 2017	Business Change	Restructuring	Currency Translation	December 31, 2016
Revenue	$ 75,959	$ 5,950	$ —	$ 1,856	$ 68,153
Cost of sales	37,170	(5,370)	—	1,017	41,523
Gross profit	38,789	11,320	—	839	26,630
Gross margin	*51.1%*				*39.1%*
Operating expenses					
Selling and marketing	14,266	542	(9)	333	13,400
General and administrative	9,471	(1,705)	—	90	11,086
Research and development	4,164	534	—	60	3,570
Total operating expenses	27,901	(629)	(9)	483	28,056
Income (loss) from operations	$ 10,888	$ 11,949	$ 9	$ 356	$ (1,426)

Revenue

	Three Months Ended		Increased /(Decreased)	
	December 30, 2017	December 31, 2016	$	%
Revenue	$ 75,959	$ 68,153	$ 7,806	11.5%

Revenue increased by 11.5% during the three months ended December 30, 2017 primarily driven by strong demand in the Sensors position sector, continued momentum from new revenue opportunities in the Sensors test sector, and the favorable impact of currency translation, partially offset by continued weakness in the Sensors industrial sector. Excluding the impact of currency translation, revenue increased 8.7%.

Gross Profit

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Gross profit	$ 38,789	$ 26,630	$ 12,159	45.7%
Gross margin	*51.1%*	*39.1%*	*12.0* ppts	

Gross profit increased by 45.7% and the gross margin rate increased 12.0 percentage points during the three months ended December 30, 2017 primarily due to the prior year fair value adjustment on acquired PCB inventory of $7,724, prior year non-recurring PCB acquisition integration expenses, leverage on increased revenue volume, the favorable impact of currency translation, and prior year restructuring costs. Excluding the impact of currency translation, the prior year fair value adjustment on acquired PCB inventory of $7,724, prior year non-recurring PCB acquisition integration expenses, and prior year restructuring costs, gross profit increased 9.1% and the gross margin rate increased 0.2 percentage points.

Selling and Marketing Expense

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Selling and marketing	$ 14,266	$ 13,400	$ 866	6.5%
% of Revenue	*18.8%*	*19.7%*		

Selling and marketing expense for the three months ended December 30, 2017 increased by 6.5% primarily driven by increased compensation and commission expenses and the unfavorable impact of currency translation. Excluding the impact of currency translation, prior year PCB acquisition integration expenses, and restructuring costs incurred in both years, selling and marketing expense increased 5.3%.

General and Administrative Expense

	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
General and administrative	$ 9,471	$ 11,086	$ (1,615)	(14.6)%
% of Revenue	*12.5%*	*16.3%*		

General and administrative expense for the three months ended December 30, 2017 declined by 14.6% primarily driven by prior year PCB acquisition integration expenses of $1,503, prior year restructuring costs and a decrease in incentive compensation. Excluding the impact of currency translation, prior year PCB acquisition integration expenses and prior year restructuring costs, general and administrative expense decreased 0.5%.

Research and Development Expense	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Research and development	$ 4,164	$ 3,570	$ 594	16.6%
% of Revenue	*5.5%*	*5.2%*		

R&D expense increased 16.6% for the three months ended December 30, 2017, primarily driven by continued investment in product development and increased compensation expenses. Excluding the impact of currency translation, R&D expense increased 15.0%.

Income (Loss) from Operations	Three Months Ended		Increased / (Decreased)	
	December 30, 2017	December 31, 2016	$	%
Income (loss) from operations	$ 10,888	$ (1,426)	$ 12,314	863.5%
% of Revenue	*14.3%*	*(2.1)%*		

Income (loss) from operations increased $12,314 in the three months ended December 30, 2017 primarily due to the prior year fair value adjustment on acquired PCB inventory of $7,724, prior year non-recurring PCB acquisition integration costs of $1,688, higher gross profit from leverage on increased revenue volume, and prior year restructuring costs of $563, partially offset by increased compensation expenses. Excluding the impact of currency translation, the prior year fair value adjustment on acquired PCB inventory, prior year PCB acquisition integration expenses, and restructuring costs incurred in both fiscal years, income from operations increased 23.1%.

Cash Flow Comparison
The following table summarizes our cash flows from total operations:

	Three Months Ended	
	December 30, 2017	December 31, 2016
Total cash provided by (used in):		
Operating activities	$ 9,223	$ 28,932
Investing activities	(2,732)	(4,629)
Financing activities	(22,759)	(8,738)
Effect of exchange rate changes on cash	1,606	(4,396)
Increase (decrease) during the period	(14,662)	11,169
Cash and cash equivalents balance, beginning of period	108,733	84,780
Cash and cash equivalents balance, end of period	$ 94,071	$ 95,949

Operating Activities
The decrease in cash provided by operating activities was primarily due to a decrease in working capital associated with fluctuations in the timing of cash receipts for advanced payments from customers, payments received on accounts receivable and unbilled accounts receivable, payments for inventory and reduced payments for accounts payable. These were partially offset by an increase in other assets and liabilities primarily driven by an increase in income taxes payable, as well as an increase in net income offset by an decrease in deferred income taxes due to the remeasurement of our estimated deferred tax liabilities as a result of the Tax Act.

Investing Activities
The decrease in cash used in investing activities was primarily due to the timing of investments in property and equipment in the current year.

Financing Activities
The increase in cash used in financing activities was primarily due to the annual required excess cash flow payment on the tranche B term loan made in the first quarter of fiscal year 2018, partially offset by borrowing on our revolving credit facility.

Liquidity and Capital Resources
We had cash and cash equivalents of $94,071 as of December 30, 2017. Of this amount, $12,947 was located in North America, $30,442 in Europe and $50,682 in Asia. Repatriation of certain foreign earnings is restricted by local law. The North American balance was primarily invested in bank deposits. The balances in Europe and Asia were primarily invested in money market funds and bank deposits. In accordance with our investment policy, we place cash equivalent investments with issuers who have high-quality investment credit ratings. In addition, we limit the amount of investment exposure we have with any particular issuer. Our investment objectives are to preserve principal, maintain liquidity and achieve the best available return consistent with our primary objectives of safety and liquidity. As of December 30, 2017, we held no short-term investments.

As of December 30, 2017, our capital structure was comprised of $64,098 in short-term debt, $393,381 in long-term debt and $461,580 in shareholders' equity. The Consolidated Balance Sheets also include $15,432 of unamortized debt issuance costs as of December 30, 2017. Total interest-bearing debt at December 30, 2017 was $457,479. On July 5, 2016, we entered into a credit agreement with a consortium of financial institutions (the Credit Agreement). The Credit Agreement provides for senior secured credit facilities consisting of a Revolving Credit Facility and a Term Facility. The maturity date of the Revolving Credit Facility is July 5, 2021 and the maturity date of the loans under the Term Facility is July 5, 2023, unless a term loan lender agrees to extend the maturity date pursuant to a loan modification agreement made in accordance with the terms of the Credit Agreement.

The Credit Agreement also requires mandatory prepayments on our Term Facility in certain circumstances, including a required prepayment of a certain percentage of our excess cash flow for each fiscal year, beginning with fiscal year 2017.

Under the Credit Agreement, we are subject to customary affirmative and negative covenants, including, among others, restrictions on our ability to incur debt, create liens, dispose of assets, make investments, loans, advances, guarantees and acquisitions, enter into transactions with affiliates, and enter into any restrictive agreements and customary events of default (including payment defaults, covenant defaults, change of control defaults and bankruptcy defaults). The Credit Agreement also contains financial covenants, including the ratio of consolidated total indebtedness to adjusted consolidated earnings before interest, taxes, depreciation and amortization (Adjusted EBITDA), as defined in the Credit Agreement, as well as the ratio of Adjusted EBITDA to consolidated interest expense. These covenants restrict our ability to pay dividends and purchase outstanding shares of common stock. As of December 30, 2017 and September 30, 2017, we were in compliance with these financial covenants.

Shareholders' equity increased by $32,803 during the three months ended December 30, 2017 primarily due to $33,151 net income, $4,006 other comprehensive income and $1,515 stock-based compensation, partially offset by $5,337 dividends declared and $744 purchases and retirements of our common stock.

Off-balance Sheet Arrangements
As of December 30, 2017, we did not have any off-balance sheet arrangements that have, or are reasonably likely to have, a current or future material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors.

Critical Accounting Policies
The Consolidated Financial Statements have been prepared in accordance with GAAP, which require us to make estimates and assumptions in certain circumstances that affect amounts reported. The preparation of these financial statements requires us to make estimates and assumptions, giving due consideration to materiality, that affect the reported amounts of assets and liabilities, revenues and expenses and related disclosures of any contingent assets and liabilities at the date of the financial statements. We regularly review our estimates and assumptions, which are based on historical experience and on various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. For further information, see "Summary of Significant Accounting Policies" under Note 1 to the Consolidated Financial Statements included in Item 8 of our Annual Report on Form 10-K for the fiscal year ended September 30, 2017.

Recently Issued Accounting Pronouncements
Information regarding new accounting pronouncements is included in Note 2 to the Consolidated Financial Statements included in Item 1 of Part I of this Quarterly Report on Form 10-Q.

Other Matters
Dividends
Our dividend policy is to maintain a payout ratio that allows dividends to increase in conjunction with the long-term growth of earnings per share, while sustaining dividends through economic cycles. Our dividend practice is to target, over time, a payout ratio of approximately 25% of net earnings per share. We have historically paid dividends to holders of our common stock on a

quarterly basis. The declaration and payment of future dividends will depend on many factors, including, but not limited to, our earnings, financial condition, debt repayment obligations, business developments needs and regulatory consideration and are at the discretion of our Board of Directors.

Forward-looking Statements

Statements contained in this Quarterly Report on Form 10-Q including, but not limited to, the discussion under Item 2, Management's Discussion and Analysis of Financial Condition and Results of Operations, that are not statements of historical fact are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 (the Act). In addition, certain statements in our future filings with the SEC, in press releases, and in oral and written statements made by us or with our approval that are not statements of historical fact constitute forward-looking statements within the meaning of the Act. Examples of forward-looking statements include, but are not limited to: (i) projections of revenue, ROIC, EBITDA, income or loss, earnings or loss per share, the payment or nonpayment of dividends, capital structure, the adequacy of our liquidity and reserves, the anticipated level of expenditures required and other statements concerning future financial performance; (ii) statements of our plans and objectives by our management or Board of Directors, including those relating to products or services, merger or acquisition activity and the potential impact of newly acquired businesses; (iii) statements of assumptions underlying such statements; (iv) statements regarding business relationships with vendors, customers or collaborators or statements relating to our order cancellation history, our ability to convert our backlog of undelivered orders into revenue, the timing of purchases, competitive advantages and growth in end markets; (v) statements regarding our ability to report additional operating segments, to raise capital in a timely manner or to compete acquisitions in the future; (vi) statements regarding products, their characteristics, fluctuations in the costs of raw materials for products, our geographic footprint, performance, sales potential or effect in the hands of customers; and (vii) statements regarding the estimated tax benefits we receive under the Tax Act and our expectations concerning recorded adjustments. Words such as "believes," "anticipates," "expects," "intends," "targeted," "should," "potential," "goals," "strategy," and similar expressions are intended to identify forward-looking statements, but are not the exclusive means of identifying such statements.

Forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from those in such statements. Factors that could cause actual results to differ from those discussed in the forward-looking statements include, but are not limited to, those described in Item 1A of Part I of our Annual Report on Form 10-K for the fiscal year ended September 30, 2017 and in Item 1A of Part II of this Current Report on Form 10-Q. The performance of our business and our securities may be adversely affected by these factors and by other factors common to other businesses and investments, or to the general economy. Forward-looking statements are qualified by some or all of these risk factors. Therefore, you should consider these forward-looking statements with caution and form your own critical and independent conclusions about the likely effect of these risk factors on our future performance. Forward-looking statements speak only as of the date on which statements are made, and we undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which such statement is made to reflect the occurrence of unanticipated events or circumstances. Readers should carefully review the disclosures and the risk factors described in our Annual Report on Form 10-K for the fiscal year ended September 30, 2017 and other documents we file from time to time with the SEC, including our reports on Forms 10-Q and 8-K.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Foreign Currency Exchange Risk

Approximately 70% of our revenue has historically been derived from customers outside of the U.S. Our international subsidiaries have functional currencies other than our U.S. dollar reporting currency and, occasionally, transact business in currencies other than their functional currencies. These non-functional currency transactions expose us to market risk on assets, liabilities and cash flows recognized on these transactions.

The strengthening of the U.S. dollar relative to foreign currencies decreases the value of foreign currency-denominated revenue and earnings when translated into U.S. dollars resulting in an unfavorable currency translation impact on revenue and earnings. Conversely, a weakening of the U.S. dollar increases the value of foreign currency-denominated revenue and earnings resulting in a favorable currency translation impact on revenue and earnings.

A hypothetical 10% appreciation or depreciation in foreign currencies against the U.S. dollar, assuming all other variables are held constant, would result in an increase or decrease in revenue of approximately $6,832 for the three months ended December 30, 2017.

We have operational procedures to mitigate these non-functional currency exposures. We also utilize foreign currency exchange contracts to exchange currencies at set exchange rates on future dates to offset expected gains or losses on specifically identified exposures.

Mark-to-market gains and losses on derivatives designated as cash flow hedges in our currency hedging program are recorded within accumulated other comprehensive income (loss) in the Consolidated Balance Sheets. We recognize gains and losses associated with the fair value of cash flow hedges at the time a gain or loss is recognized on the hedged exposure in the Consolidated Statements of Income or at the time the cash flow hedge is determined to be ineffective. The associated mark-to-market gains and losses are reclassified from accumulated other comprehensive income (loss) to the same line item in the Consolidated Statements of Income in which the underlying hedged transaction is reported. Net gains and losses on foreign currency transactions, included in the accompanying Consolidated Statements of Income, were net losses of $392 and $667 in the three months ended December 30, 2017 and December 31, 2016, respectively. See Note 7 to the Consolidated Financial Statements included in Item 1 of Part I of this Quarterly Report on Form 10-Q for additional information on our cash flow hedge currency exchange contracts.

Interest Rates

We are directly exposed to changes in market interest rates on cash, cash equivalents, short-term investments and long-term debt, and are indirectly exposed to the impact of market interest rates on overall business activity.

On floating-rate investments, increases and decreases in market interest rates will increase or decrease future interest income, respectively. On floating-rate debt, increases or decreases in market interest rates will increase or decrease future interest expense, respectively. On fixed-rate investments, increases or decreases in market interest rates do not impact future interest income but may decrease or increase the fair market value of the investments, respectively. On fixed-rate debt, increases or decreases in market interest rates do not impact future interest expense but may decrease or increase the fair market value of the debt, respectively.

As of December 30, 2017, we had cash and cash equivalents of $94,071, some of which was invested in interest-bearing bank deposits or money market funds. The interest-bearing bank deposits and money market funds have interest rates that reset every 1 to 89 days and generate interest income that will vary based on changes in short-term interest rates. A hypothetical decrease of 100 basis points in market interest rates, assuming all other variables were held constant, would decrease interest income by approximately $68 for the three months ended December 30, 2017.

Secured floating rate credit facilities require interest payments to be calculated at a floating rate and are therefore impacted by increases or decreases in market interest rates. We have swapped a portion of our floating-rate debt to a fixed-rate such that the interest expense on this debt will not vary with changes in short-term interest rates. See Note 7 to the Consolidated Financial Statements included in Item 1 of Part I of this Quarterly Report on Form 10-Q for information on our interest rate swaps. A hypothetical increase of 100 basis points in floating interest rates, assuming all other variables were held constant, would result in an approximately $1,728 increase in future annual interest expense.

Item 4. Controls and Procedures

Our management, including our Chief Executive Officer and Chief Financial Officer, have conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)), as of December 30, 2017. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 30, 2017, our disclosure controls and procedures were effective.

There were no changes in the Company's internal control over financial reporting during the first quarter of fiscal year 2018 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings

We are or may be involved in various legal proceedings from time-to-time arising from the normal course of business. We are not presently a party to any litigation the outcome of which we believe, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, cash flows or financial condition.

Item 1A. Risk Factors

A discussion of our risk factors can be found in Item 1A of Part I of our Annual Report on Form 10-K for the fiscal year ended September 30, 2017. The information below includes additional risks relating to the enactment of U.S. federal income tax legislation, the Tax Cuts and Jobs Act, on December 22, 2017. The risks described below and in our Annual Report on Form 10-K are not the only risks we face. Additional risks not currently known to us, or that we currently deem to be immaterial, may also adversely affect our business, financial condition or results of operations in future periods.

The final impacts of the Tax Cuts and Jobs Act could be materially different from our current estimates.
The Tax Cuts and Jobs Act (the Tax Act) was signed into law on December 22, 2017. The new law made numerous changes to U.S. federal corporate tax law and is expected to reduce our effective tax rate for fiscal year 2018 and future periods. Effective January 1, 2018, the Tax Act lowers the U.S. corporate tax rate from 35% to 21% and prompts various other changes to U.S. federal corporate tax law, including the establishment of a territorial-style system for taxing foreign-source income of domestic multinational corporations. The tax benefit recorded for the three months ended December 30, 2017 involves significant judgment and assumptions as to the impact of the Tax Act. Our estimated impact of the new law is based on management's current knowledge and assumptions. Recognized impacts could be materially different from current estimates based on our actual results in fiscal year 2018. We expect to record any adjustments in the next year in accordance with the guidance provided in the SEC Staff Accounting Bulletin No. 118, and these adjustments could be material. The full impact of the Tax Act on our business, operations and financial statements cannot be predicted at this time, and we make no assurances in this regard.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds
(Dollars and shares in thousands, except per share data)

The following table presents repurchases of our equity securities we made during the fiscal quarter ended December 30, 2017.

	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares that May Yet be Purchased Under the Plans or Programs
October 1, 2017 - November 4, 2017	—	$ —	—	438
November 5, 2017 - December 2, 2017	—	$ —	—	438
December 3, 2017 - December 30, 2017	—	$ —	—	438
Total	—	$ —	—	

We purchase common stock from time-to-time to mitigate dilution related to new shares issued as equity for employee compensation such as stock options, restricted stock units, performance restricted stock units and employee stock purchase plan activity, as well as to return to shareholders capital not immediately required to fund ongoing operations.

Share Purchase Plan
Our Board of Directors approved, and on February 11, 2011 announced, a 2,000 share purchase authorization. Authority over pricing and timing under the authorization has been delegated to management. The share purchase authorization has no expiration date. We made no share purchases during the first quarter of fiscal year 2018. As of December 30, 2017, there were 438 shares available for purchase under the existing authorization.

Capped Calls
In connection with the pricing of the TEUs sold in our public offering in fiscal year 2016, we purchased capped calls from third party banking institutions (Capped Calls) for $7,935. During the first quarter of fiscal year 2018, we did not settle any of the Capped Calls. As of December 30, 2017 the range of shares of our common stock to be received under the outstanding Capped Calls was 0 to 293 shares, subject to market conditions. See Note 12 to the Consolidated Financial Statements included in Part I of this Quarterly Report on Form 10-Q.

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Item 6. Exhibits

Exhibit Number	Description
31.1	Certification of the Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
31.2	Certification of the Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32.1	Certification of the Chief Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32.2	Certification of the Chief Financial Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith).
101.INS*	XBRL Instance Document (filed herewith).
101.SCH*	XBRL Taxonomy Extension Schema Document (filed herewith).
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document (filed herewith).
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document (filed herewith).
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document (filed herewith).
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document (filed herewith).

*	XBRL (Extensible Business Reporting Language) information is furnished and not filed or a part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, as amended, is deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and otherwise is not subject to liability under these sections.

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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.

		MTS SYSTEMS CORPORATION
Date:	February 5, 2018	/s/ JEFFREY A. GRAVES
		Jeffrey A. Graves
		President and Chief Executive Officer
		(Principal Executive Officer)
Date:	February 5, 2018	/s/ BRIAN T. ROSS
		Brian T. Ross
		Senior Vice President and Chief Financial Officer
		(Principal Financial Officer and Principal Accounting Officer)

Exhibit 31.1

SARBANES-OXLEY SECTION 302 CERTIFICATION

I, Jeffrey A. Graves, certify that:

1. I have reviewed this quarterly report on Form 10-Q of MTS Systems Corporation;

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 the registrant's board of directors (or persons performing the 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: February 5, 2018

/s/ JEFFREY A. GRAVES

Jeffrey A. Graves
President and Chief Executive Officer

Exhibit 31.2

SARBANES-OXLEY SECTION 302 CERTIFICATION

I, Brian T. Ross, certify that:

1. I have reviewed this quarterly report on Form 10-Q of MTS Systems Corporation;

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 the registrant's board of directors (or persons performing the 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: February 5, 2018

/s/ BRIAN T. ROSS

Brian T. Ross

Senior Vice President and Chief Financial Officer

Exhibit 32.1

MTS SYSTEMS CORPORATION
CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002 (18 U.S.C. 1350)

The undersigned, Jeffrey A. Graves, the Chief Executive Officer of MTS Systems Corporation (the "Company"), has executed this Certification in connection with the filing with the Securities and Exchange Commission of the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended December 30, 2017 (the "Report").

The undersigned hereby certifies that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 5, 2018

/s/ JEFFREY A. GRAVES

Jeffrey A. Graves
President and Chief Executive Officer

This certification accompanies the Report pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and shall not be deemed "filed" by the Company for purposes of Section 18 of the Securities and Exchange Act of 1934, as amended.

Exhibit 32.2

MTS SYSTEMS CORPORATION
CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002 (18 U.S.C. 1350)

The undersigned, Brian T. Ross, the Chief Financial Officer of MTS Systems Corporation (the "Company"), has executed this Certification in connection with the filing with the Securities and Exchange Commission of the Company's Quarterly Report on Form 10-Q for the fiscal quarter ended December 30, 2017 (the "Report").

The undersigned hereby certifies that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 5, 2018

/s/ BRIAN T. ROSS

Brian T. Ross
Senior Vice President and Chief Financial Officer

This certification accompanies the Report pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and shall not be deemed "filed" by the Company for purposes of Section 18 of the Securities and Exchange Act of 1934, as amended.