

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

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

For the quarterly period ended September 30, 2019
OR

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

Commission File No. 001-35456

ALLISON TRANSMISSION HOLDINGS, INC.

(Exact Name of Registrant as Specified in Its Charter)



Delaware
(State or Other Jurisdiction of Incorporation or
Organization)
One Allison Way

26-0414014
(I.R.S. Employer
Identification Number)

Indianapolis, IN
(Address of Principal Executive Offices)

46222
(Zip Code)

(317) 242-5000

(Registrant's Telephone Number, Including Area Code)

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

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on which Registered
Common stock, \$0.01 par value	ALSN	New York Stock Exchange

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

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

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

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

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

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

As of October 15, 2019, there were 119,231,473 shares of Common Stock outstanding.

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PART I. FINANCIAL INFORMATION

ITEM 1. Financial Statements

Allison Transmission Holdings, Inc.
Condensed Consolidated Balance Sheets
(unaudited, dollars in millions, except share and per share data)

	September 30, 2019	December 31, 2018
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 152	\$ 231
Accounts receivable – net of allowances for doubtful accounts of \$1	329	279
Inventories	209	170
Other current assets	58	45
Total Current Assets	748	725
Property, plant and equipment, net	561	466
Intangible assets, net	1,061	1,066
Goodwill	2,040	1,941
Other non-current assets	61	39
TOTAL ASSETS	\$ 4,471	\$ 4,237
LIABILITIES		
Current Liabilities		
Accounts payable	\$ 185	\$ 169
Product warranty liability	25	26
Current portion of long-term debt	6	—
Deferred revenue	35	34
Other current liabilities	226	197
Total Current Liabilities	477	426
Product warranty liability	29	40
Deferred revenue	103	88
Long-term debt	2,513	2,523
Deferred income taxes	380	329
Other non-current liabilities	226	172
TOTAL LIABILITIES	3,728	3,578
Commitments and contingencies (see NOTE P)		
STOCKHOLDERS' EQUITY		
Common stock, \$0.01 par value, 1,880,000,000 shares authorized, 119,528,870 shares issued and outstanding and 126,251,266 shares issued and outstanding, respectively	1	1
Non-voting common stock, \$0.01 par value, 20,000,000 shares authorized, none issued and outstanding	—	—
Preferred stock, \$0.01 par value, 100,000,000 shares authorized, none issued and outstanding	—	—
Paid in capital	1,799	1,788
Accumulated deficit	(997)	(1,100)
Accumulated other comprehensive loss, net of tax	(60)	(30)
TOTAL STOCKHOLDERS' EQUITY	743	659
TOTAL LIABILITIES & STOCKHOLDERS' EQUITY	\$ 4,471	\$ 4,237

The accompanying notes are an integral part of the condensed consolidated financial statements.

Allison Transmission Holdings, Inc.
Condensed Consolidated Statements of Comprehensive Income
(unaudited, dollars in millions, except per share data)

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Net sales	\$ 669	\$ 692	\$ 2,081	\$ 2,066
Cost of sales	321	324	985	982
Gross profit	348	368	1,096	1,084
Selling, general and administrative	85	89	262	274
Engineering — research and development	39	33	107	94
Operating income	224	246	727	716
Interest expense, net	(32)	(30)	(101)	(90)
Other income, net	2	2	8	5
Income before income taxes	194	218	634	631
Income tax expense	(45)	(51)	(137)	(139)
Net income	\$ 149	\$ 167	\$ 497	\$ 492
Basic earnings per share attributable to common stockholders	\$ 1.24	\$ 1.28	\$ 4.04	\$ 3.66
Diluted earnings per share attributable to common stockholders	\$ 1.23	\$ 1.27	\$ 4.01	\$ 3.64
Comprehensive income, net of tax	\$ 136	\$ 168	\$ 467	\$ 481

The accompanying notes are an integral part of the condensed consolidated financial statements.

Allison Transmission Holdings, Inc.
Condensed Consolidated Statements of Cash Flows
(unaudited, dollars in millions)

	Nine months ended September 30,	
	2019	2018
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income	\$ 497	\$ 492
Adjustments to reconcile net income to net cash provided by operating activities:		
Amortization of intangible assets	65	66
Deferred income taxes	61	46
Depreciation of property, plant and equipment	57	58
Stock-based compensation	10	9
Expenses related to long-term debt refinancing	5	—
Amortization of deferred financing costs	4	5
Allowance for doubtful accounts	1	—
Other	(1)	7
Changes in assets and liabilities:		
Accounts receivable	(40)	(117)
Inventories	(20)	(15)
Accounts payable	2	29
Other assets and liabilities	4	25
Net cash provided by operating activities	<u>645</u>	<u>605</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Business acquisitions	(232)	—
Additions of long-lived assets	(91)	(52)
Net cash used for investing activities	<u>(323)</u>	<u>(52)</u>
CASH FLOWS FROM FINANCING ACTIVITIES:		
Payments on long-term debt	(1,149)	(28)
Issuance of long-term debt	1,148	—
Repurchases of common stock	(331)	(456)
Payments on revolving credit facility	(90)	—
Borrowings on revolving credit facility	90	—
Dividend payments	(55)	(61)
Debt financing fees	(12)	(1)
Taxes paid related to net share settlement of equity awards	(4)	(4)
Proceeds from exercise of stock options	4	21
Net cash used for financing activities	<u>(399)</u>	<u>(529)</u>
Effect of exchange rate changes on cash	(2)	(2)
Net (decrease) increase in cash and cash equivalents	(79)	22
Cash and cash equivalents at beginning of period	231	199
Cash and cash equivalents at end of period	<u>\$ 152</u>	<u>\$ 221</u>
Supplemental disclosures:		
Interest paid	\$ 63	\$ 68
Income taxes paid	\$ 84	\$ 80

The accompanying notes are an integral part of the condensed consolidated financial statements.

Allison Transmission Holdings, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(unaudited, dollars in millions)

	Three months ended						
	Common Stock	Non-voting Common Stock	Preferred Stock	Paid-in Capital	Accumulated (Deficit) Income	Accumulated Other Comprehensive (Loss) Income, net of tax	Stockholders' Equity
Balance at June 30, 2018	\$ 1	\$ —	\$ —	\$ 1,764	\$ (1,136)	\$ (27)	\$ 602
Stock-based compensation	—	—	—	3	—	—	3
Pension and OPEB liability adjustment	—	—	—	—	—	(3)	(3)
Available-for-sale securities and interest rate swaps	—	—	—	—	—	4	4
Issuance of common stock	—	—	—	17	—	—	17
Repurchase of common stock	—	—	—	—	(86)	—	(86)
Dividends on common stock	—	—	—	—	(20)	—	(20)
Net income	—	—	—	—	167	—	167
Balance at September 30, 2018	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,784</u>	<u>\$ (1,075)</u>	<u>\$ (26)</u>	<u>\$ 684</u>
Balance at June 30, 2019	\$ 1	\$ —	\$ —	\$ 1,796	\$ (1,082)	\$ (47)	\$ 668
Stock-based compensation	—	—	—	2	—	—	2
Pension and OPEB liability adjustment	—	—	—	—	—	(2)	(2)
Foreign currency translation adjustment	—	—	—	—	—	(6)	(6)
Available-for-sale securities and interest rate swaps	—	—	—	—	—	(5)	(5)
Issuance of common stock	—	—	—	1	—	—	1
Repurchase of common stock	—	—	—	—	(46)	—	(46)
Dividends on common stock	—	—	—	—	(18)	—	(18)
Net income	—	—	—	—	149	—	149
Balance at September 30, 2019	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,799</u>	<u>\$ (997)</u>	<u>\$ (60)</u>	<u>\$ 743</u>

The accompanying notes are an integral part of the condensed consolidated financial statements.

Allison Transmission Holdings, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(unaudited, dollars in millions)

	Nine months ended						
	Common Stock	Non-voting Common Stock	Preferred Stock	Paid-in Capital	Accumulated (Deficit) Income	Accumulated Other Comprehensive (Loss) Income, net of tax	Stockholders' Equity
Balance at December 31, 2017	\$ 1	\$ —	\$ —	\$ 1,758	\$ (1,055)	\$ (15)	\$ 689
Stock-based compensation	—	—	—	9	—	—	9
Pension and OPEB liability adjustment	—	—	—	—	—	(8)	(8)
Foreign currency translation adjustment	—	—	—	—	—	(5)	(5)
Available-for-sale securities and interest rate swaps	—	—	—	—	—	2	2
Issuance of common stock	—	—	—	17	—	—	17
Repurchase of common stock	—	—	—	—	(456)	—	(456)
Dividends on common stock	—	—	—	—	(61)	—	(61)
Impact of adopting accounting standards	—	—	—	—	5	—	5
Net income	—	—	—	—	492	—	492
Balance at September 30, 2018	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,784</u>	<u>\$ (1,075)</u>	<u>\$ (26)</u>	<u>\$ 684</u>
Balance at December 31, 2018	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,788</u>	<u>\$ (1,100)</u>	<u>\$ (30)</u>	<u>\$ 659</u>
Stock-based compensation	—	—	—	10	—	—	10
Pension and OPEB liability adjustment	—	—	—	—	—	1	1
Foreign currency translation adjustment	—	—	—	—	—	(5)	(5)
Available-for-sale securities and interest rate swaps	—	—	—	—	—	(26)	(26)
Issuance of common stock	—	—	—	1	—	—	1
Repurchase of common stock	—	—	—	—	(331)	—	(331)
Dividends on common stock	—	—	—	—	(55)	—	(55)
Impact of adopting accounting standards	—	—	—	—	(8)	—	(8)
Net income	—	—	—	—	497	—	497
Balance at September 30, 2019	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,799</u>	<u>\$ (997)</u>	<u>\$ (60)</u>	<u>\$ 743</u>

The accompanying notes are an integral part of the condensed consolidated financial statements.

Allison Transmission Holdings, Inc.
Notes to Condensed Consolidated Financial Statements
(UNAUDITED)

NOTE A. OVERVIEW

Overview

Allison Transmission Holdings, Inc. and its subsidiaries (“Allison” or the “Company”) design and manufacture commercial and defense fully-automatic transmissions. The business was founded in 1915 and has been headquartered in Indianapolis, Indiana since inception. Allison was an operating unit of General Motors Corporation from 1929 until 2007, when Allison once again became a stand-alone company. In March 2012, Allison began trading on the New York Stock Exchange under the symbol, “ALSN”.

The Company has 12 different product lines. Although approximately 77% of revenues were generated in North America in 2018, the Company has a global presence by serving customers in Europe, Asia, South America and Africa. The Company serves customers through an independent network of approximately 1,400 independent distributor and dealer locations worldwide.

NOTE B. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation and Principles of Consolidation

The condensed consolidated financial statements have been prepared in accordance with accounting principles for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, the condensed consolidated financial statements do not include all information and footnotes required by accounting principles generally accepted in the United States of America (“GAAP”) for complete financial statements. The information herein reflects all normal recurring material adjustments, which are, in the opinion of management, necessary for the fair statement of the results for the periods presented. The condensed consolidated financial statements herein consist of all wholly-owned domestic and foreign subsidiaries with all significant intercompany transactions eliminated.

These condensed consolidated financial statements present the financial position, results of comprehensive income and cash flows of the Company. The condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements included in the Company’s Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on February 26, 2019. The interim period financial results for the three and nine month periods presented are not necessarily indicative of results to be expected for any other interim period or for the entire year.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities and the reported amounts of revenue and expenses. Estimates include, but are not limited to, sales allowances, government price adjustments, fair market values and future cash flows associated with goodwill, indefinite life intangibles, definite life intangibles, long-lived asset impairment tests, useful lives for depreciation and amortization, warranty liabilities, environmental liabilities, determination of discount and other assumptions for pension and other post-retirement benefit expense, determination of discount rate and period for leases, income taxes and deferred tax valuation allowances, derivative valuation and contingencies. The Company’s accounting policies involve the application of judgments and assumptions made by management that include inherent risks and uncertainties. Actual results could differ materially from these estimates. Changes in estimates are recorded in results of operations in the period that the events or circumstances giving rise to such changes occur.

Business Combinations

The Company uses the acquisition method to account for business combinations. The assets acquired and liabilities assumed are recorded at their respective estimated fair value at the date of acquisition. Any excess purchase price over the fair values of the acquired net assets is recorded as goodwill. Determining the fair values of assets acquired and liabilities assumed requires management's judgment and includes the use of estimates with respect to timing and amount of future cash flows, market rate assumptions, actuarial assumptions, appropriate discount rates and other relevant factors.

Recently Adopted Accounting Pronouncements

In June 2018, the Financial Accounting Standards Board ("FASB") issued authoritative accounting guidance on accounting for nonemployee awards for goods or services received by a company. The Company adopted this guidance effective January 1, 2019. The adoption of this guidance did not have a material impact on the Company's consolidated financial statements.

In February 2018, the FASB issued authoritative accounting guidance on transfers of stranded balances in accumulated other comprehensive loss ("AOCL") to retained earnings. The passage of the U.S. Tax Cuts and Jobs Act by the U.S. federal government in December 2017 and existing GAAP requirements to adjust deferred tax assets and liabilities for changes in tax laws or rates created stranded balances in AOCL on deferred tax assets and liabilities previously recorded as a component to AOCL. The guidance applies to companies affected by these stranded balances and allows a reclassification of these balances to retained earnings. The Company adopted this guidance effective January 1, 2019. As a result of the adoption of this guidance, the Company recorded an adjustment that reclassified \$7 million of AOCL to retained earnings as of January 1, 2019.

In February 2016, the FASB issued authoritative accounting guidance on lease accounting, which guidance was subsequently amended. The guidance requires lessees to present right-of-use assets and lease liabilities on the balance sheet for all leases not considered short-term leases. Short-term leases are leases with a lease term of 12 months or less as long as the leases do not include options to purchase the underlying assets that the lessee is reasonably certain to exercise. The guidance also introduces new disclosure requirements for leasing arrangements. In July 2018, the FASB issued additional authoritative guidance on this topic giving lessees an optional adoption approach under which the impact of the adoption of the guidance would be shown as of the date of adoption. Management elected to adopt the guidance using this optional alternative method. The Company adopted this guidance effective January 1, 2019. The Company recorded non-financial right-of-use ("ROU") assets of \$14 million, including \$1 million of assets transferred from the balance recorded as prepaid lease expense under the prior guidance, and current and non-current lease liabilities of \$4 million and \$9 million, respectively. The adoption of this guidance did not have a material impact on the Company's opening retained earnings. See Note K, "Leases" for further details.

Recently Issued Accounting Pronouncements

In August 2018, the FASB issued authoritative accounting guidance on accounting for implementation costs in hosting arrangements to align these costs with existing guidance for internally developed software. The stage of implementation must be assessed to determine if costs should be capitalized or expensed, and capitalized costs should be expensed during the noncancellable term of the agreement. The guidance will be effective for the Company in fiscal year 2020, and the Company does not plan to early adopt. Management has elected to apply the guidance prospectively upon adoption and does not expect the adoption of this guidance to have a material impact on the Company's consolidated financial statements.

In August 2018, the FASB issued authoritative accounting guidance amending disclosure requirements for the Company's defined benefit pension plans and other postretirement benefit plan. The guidance will be effective for the Company in fiscal year 2021, and the Company does not plan to early adopt. Management is currently evaluating the impact of this guidance on the Company's consolidated financial statements.

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In August 2018, the FASB issued authoritative accounting guidance amending disclosure requirements for certain assets subject to fair value measurement. The guidance allows the Company to reduce the amount of disclosure on transfers between Level 1 and Level 2 assets. The guidance will be effective for the Company in fiscal year 2020, and the Company does not plan to early adopt. Management does not expect the adoption of this guidance to have a material impact on the Company's consolidated financial statements.

In June 2016, the FASB issued authoritative accounting guidance on the presentation of financial assets at the net amount expected to be collected, which guidance was subsequently amended. The guidance also requires the disclosure of financing receivables disaggregated by the year of origination. The guidance will be effective for the Company in fiscal year 2020. Management is currently reviewing accounting policies for estimating credit losses on financial assets, but does not expect the adoption of this guidance to have a material impact on the Company's consolidated financial statements.

NOTE C. REVENUE

Revenue is recognized as each distinct performance obligation within a contract is satisfied. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer. The Company enters into long-term agreements ("LTAs") and distributor agreements with certain customers. The LTAs and distributor agreements do not include committed volumes until underlying purchase orders are issued; therefore, the Company determined that purchase orders are the contract with a customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when the performance obligation is satisfied, as there is no right of return.

Some of the Company's contracts include multiple performance obligations, most commonly the sale of both a transmission and Extended Transmission Coverage ("ETC"). The Company allocates the contract's transaction price to each performance obligation based on the standalone selling price of each distinct good or service in the contract.

The Company may also use volume based discounts and rebates as marketing incentives in the sales of both transmissions and service parts, which are accounted for as variable consideration. The Company records the impact of the incentives as a reduction to revenue when it is determined that the adjustment is not likely to reverse, historically on a quarterly basis. The Company estimates the impact of all other incentives based on the related sales and market conditions in the end market vocation. The Company recorded no adjustments based on variable consideration during the three and nine months ended September 30, 2019 and 2018.

Net sales are made on credit terms, generally 30 days, based on an assessment of the customer's creditworthiness. For certain goods or services, the Company receives consideration prior to satisfying the related performance obligation. Such consideration is recorded as a contract liability in current and non-current Deferred revenue as of September 30, 2019 and December 31, 2018. See Note J, "Deferred Revenue" for more information including the amount of revenue earned during the three and nine months ended September 30, 2019 that had been previously deferred. The Company had no contract assets as of September 30, 2019 and December 31, 2018.

The following presents disaggregated revenue by categories that best depict how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors (dollars in millions):

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
North America On-Highway	\$ 369	\$ 332	\$ 1,144	\$ 1,014
North America Off-Highway	6	12	29	76
Defense	40	42	109	122
Outside North America On-Highway	99	96	299	288
Outside North America Off-Highway	24	46	91	82
Service Parts, Support Equipment and Other	131	164	409	484
Total Net Sales	\$ 669	\$ 692	\$ 2,081	\$ 2,066

NOTE D. INVENTORIES

Inventories consisted of the following components (dollars in millions):

	September 30, 2019	December 31, 2018
Purchased parts and raw materials	\$ 100	\$ 82
Work in progress	17	8
Service parts	56	48
Finished goods	36	32
Total inventories	<u>\$ 209</u>	<u>\$ 170</u>

Inventory components shipped to third parties, primarily cores, parts to re-manufacturers, and parts to contract manufacturers, which the Company has an obligation to buy back, are included in purchased parts and raw materials, with an offsetting liability in Other current liabilities. See NOTE L, "Other Current Liabilities" for more information.

NOTE E. GOODWILL AND OTHER INTANGIBLE ASSETS

As of September 30, 2019 and December 31, 2018, the carrying amount of the Company's Goodwill was \$ 2,040 million and \$ 1,941 million, respectively.

The following presents a summary of other intangible assets (dollars in millions):

	September 30, 2019			December 31, 2018		
	Intangible assets, gross	Accumulated amortization	Intangible assets, net	Intangible assets, gross	Accumulated amortization	Intangible assets, net
Other intangible assets:						
Trade name	\$ 791	\$ —	\$ 791	\$ 790	\$ —	\$ 790
In process research and development	50	—	50	—	—	—
Customer relationships — commercial	839	(653)	186	832	(619)	213
Proprietary technology	479	(463)	16	476	(434)	42
Customer relationships — defense	62	(44)	18	62	(41)	21
Total	<u>\$ 2,221</u>	<u>\$ (1,160)</u>	<u>\$ 1,061</u>	<u>\$ 2,160</u>	<u>\$ (1,094)</u>	<u>\$ 1,066</u>

As of September 30, 2019 and December 31, 2018, the net carrying value of the Company's Goodwill and other intangible assets, net was \$3,101 million and \$3,007 million, respectively. See NOTE T, "Acquisitions" for details on the increase in the Company's Goodwill and other intangible assets, gross.

Amortization expense related to other intangible assets for the next five fiscal years is expected to be (dollars in millions):

	2020	2021	2022	2023	2024
Amortization expense	<u>\$ 51</u>	<u>\$ 46</u>	<u>\$ 45</u>	<u>\$ 43</u>	<u>\$ 8</u>

NOTE F. FAIR VALUE OF FINANCIAL INSTRUMENTS

In accordance with the FASB's authoritative accounting guidance on fair value measurements, fair value is the price (exit price) that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company utilizes market data or assumptions that market participants would use in pricing the asset or liability, including assumptions about risk and the risks inherent in the inputs to the valuation technique. These inputs can be readily observable, market corroborated, or generally unobservable. The Company primarily applies the market approach for recurring fair value measurements and utilizes the best available information that maximizes the use of observable inputs and minimizes the use of unobservable inputs. The Company is able to classify fair value balances based on the observability of those inputs. The accounting guidance establishes a fair value hierarchy that prioritizes the inputs used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurement) and the lowest priority to unobservable inputs (Level 3 measurement). The three levels of the fair value hierarchy defined by the relevant guidance are as follows:

Level 1 — Quoted prices are available in active markets for identical assets or liabilities as of the reporting date. Active markets are those in which transactions for the asset or liability occur in sufficient frequency and volume to provide pricing information on an ongoing basis. Level 1 primarily consists of financial instruments such as exchange-traded derivatives, listed equities and publicly traded bonds.

Level 2 — Pricing inputs are other than quoted prices in active markets included in Level 1, which are either directly or indirectly observable as of the reported date. Level 2 includes financial instruments that are valued using quoted prices in markets that are not active and those financial instruments that are valued using models or other valuation methodologies. These models are primarily industry standard models that consider various assumptions, including quoted forward prices for commodities, time value, volatility factors, and current market and contractual prices for the underlying instruments, as well as other relevant economic measures. Substantially all of these assumptions are observable in the marketplace throughout the full term of the instrument, can be derived from observable data or are supported by observable levels at which transactions are executed in the marketplace.

Level 3 — Pricing inputs include significant inputs that are generally less observable from objective sources. These inputs may be used with internally developed methodologies that result in management's best estimate of fair value. At each balance sheet date, the Company performs an analysis of all instruments subject to authoritative accounting guidance and includes, in Level 3, all of those whose fair value is based on significant unobservable inputs. As of September 30, 2019 and December 31, 2018, the Company did not have any Level 3 financial assets or liabilities.

The Company's assets and liabilities that are measured at fair value include cash equivalents, derivative instruments, assets held in a rabbi trust and a deferred compensation obligation. The Company's cash equivalents consist of short-term U.S. government backed securities. The Company's derivative instruments consist of interest rate swaps. The Company's assets held in the rabbi trust consist principally of publicly available mutual funds and target date retirement funds. The Company's deferred compensation obligation is directly related to the fair value of assets held in the rabbi trust.

The Company's valuation techniques used to calculate the fair value of cash and cash equivalents, assets held in the rabbi trust and the deferred compensation obligation represent a market approach in active markets for identical assets that qualify as Level 1 in the fair value hierarchy. The Company's valuation techniques used to calculate the fair value of derivative instruments represent a market approach with observable inputs that qualify as Level 2 in the fair value hierarchy.

The Company uses valuations from the issuing financial institutions for the fair value measurement of interest rate swaps. The floating-to-fixed interest rate swaps are based on the London Interbank Offered Rate ("LIBOR") which is observable at commonly quoted intervals. The fair values are included in other current and non-current assets and liabilities in the Condensed Consolidated Balance Sheets.

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The following table summarizes the fair value of the Company's financial assets and (liabilities) as of September 30, 2019 and December 31, 2018 (dollars in millions):

	Fair Value Measurements Using					
	Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		TOTAL	
	September 30, 2019	December 31, 2018	September 30, 2019	December 31, 2018	September 30, 2019	December 31, 2018
Cash equivalents	\$ 10	\$ 111	\$ —	\$ —	\$ 10	\$ 111
Rabbi trust assets	11	9	—	—	11	9
Deferred compensation obligation	(11)	(9)	—	—	(11)	(9)
Derivative liabilities	—	—	(41)	(9)	(41)	(9)
Total	\$ 10	\$ 111	\$ (41)	\$ (9)	\$ (31)	\$ 102

NOTE G. DEBT

Long-term debt and maturities are as follows (dollars in millions):

	September 30, 2019	December 31, 2018
Long-term debt:		
Senior Secured Credit Facility Term Loan, variable, due 2022	\$ —	\$ 1,148
Senior Notes, fixed 5.0%, due 2024	1,000	1,000
Senior Secured Credit Facility Term Loan, variable, due 2026	646	—
Senior Notes, fixed 4.75%, due 2027	400	400
Senior Notes, fixed 5.875%, due 2029	500	—
Total long-term debt	\$ 2,546	\$ 2,548
Less: current maturities of long-term debt	6	—
deferred financing costs, net	27	25
Total long-term debt, net	\$ 2,513	\$ 2,523

As of September 30, 2019, the Company had \$ 2,546 million of indebtedness associated with Allison Transmission, Inc.'s ("ATI"), the Company's wholly-owned subsidiary, 5.0% Senior Notes due September 2024 ("5.0% Senior Notes"), ATI's 4.75% Senior Notes due October 2027 ("4.75% Senior Notes"), ATI's 5.875% Senior Notes due June 2029 ("5.875% Senior Notes," and, together with the 5.0% Senior Notes and 4.75% Senior Notes, the "Senior Notes") and the Second Amended and Restated Credit Agreement dated as of March 29, 2019 (the "Credit Agreement"), governing ATI's new term loan facility in the amount of \$646 million due March 2026 ("New Term Loan") and ATI's new revolving credit facility with commitments in the amount of \$600 million due September 2024 ("New Revolving Credit Facility" and, together with the New Term Loan, the "New Senior Secured Credit Facility").

The fair value of the Company's long-term debt obligations as of September 30, 2019 was \$ 2,626 million. The fair value is based on quoted Level 2 market prices of the Company's debt as of September 30, 2019. It is not expected that the Company would be able to repurchase a significant amount of its debt at these levels. The difference between the fair value and carrying value of the long-term debt is driven primarily by trends in the financial markets.

New Senior Secured Credit Facility

In March 2019, the Company and ATI entered into the Credit Agreement to reduce the commitments under the prior term loan due 2022 ("Prior Term Loan") by \$500 million and increase the commitments under the prior \$ 550 million revolving credit facility due 2021 ("Prior Revolving Credit Facility" and, together with the Prior Term Loan, the "Prior Senior Secured Credit Facility") by \$50 million. The New Senior Secured Credit Facility also extended the maturity of the Prior Term Loan from 2022 to 2026 and extended the Prior Revolving Credit Facility termination date from 2021 to 2024. The New Senior Secured Credit Facility replaced the Prior Senior Secured Credit Facility, including the Prior Term Loan and Prior Revolving Credit Facility, on March 29, 2019. The Credit Agreement was treated as a modification to the Prior Senior Secured Credit Facility under GAAP, and thus the Company expensed \$5 million of prior deferred financing fees and \$ 1 million of related third party fees in the Condensed Consolidated Statement of Comprehensive Income for the nine months ended September 30, 2019 and recorded \$5 million as new deferred financing fees in the Condensed Consolidated Balance Sheet in the first quarter of 2019.

In March 2018, ATI entered into an amendment with the term loan lenders under the Prior Senior Secured Credit Facility to lower the applicable margins on the Prior Term Loan by 0.25%. The March 2018 amendment was treated as a modification to the Prior Senior Secured Credit Facility under GAAP, and thus the Company recorded \$1 million as new deferred financing fees in the first quarter of 2018.

The borrowings under the New Senior Secured Credit Facility are collateralized by a lien on substantially all assets of the Company, ATI and each of the existing and future U.S. subsidiary guarantors, with certain exceptions set forth in the Credit Agreement, and ATI's capital stock and all of the capital stock or other equity interests held by the Company, ATI and each of ATI's existing and future U.S. subsidiary guarantors (subject to certain limitations for equity interest of foreign subsidiaries and other exceptions set forth in the Credit Agreement). Interest on the New Term Loan, as of September 30, 2019, is either (a) 2.00% over a LIBOR rate on deposits in U.S. dollars for one-, two-, three- or six-month periods (or twelve-month or shorter periods if, at the time of the borrowing, available from all relevant lenders) (the "LIBOR Rate"), or (b) 1.00% over the greater of the prime lending rate as quoted by the administrative agent, the LIBOR Rate for an interest period of one month plus 1.00% and the federal funds effective rate published by the Federal Reserve Bank of New York plus 0.50%, subject to a 1.00% floor (the "Base Rate"). As of September 30, 2019, the Company elected to pay the lowest all-in rate of LIBOR plus the applicable margin, or 4.05%, on the New Term Loan. The Credit Agreement requires minimum quarterly principal payments on the New Term Loan starting with the fiscal quarter ending September 30, 2019, as well as prepayments from certain net cash proceeds of non-ordinary course asset sales and casualty and condemnation events, the incurrence of certain debt and from a percentage of excess cash flow, if applicable. The minimum required quarterly principal payment on the New Term Loan through its maturity date of March 2026 is \$2 million. As of September 30, 2019, there had been no payments required for certain net cash proceeds of non-ordinary course asset sales and casualty and condemnation events. The remaining principal balance is due upon maturity.

The New Senior Secured Credit Facility also provides a New Revolving Credit Facility, net of an allowance for up to \$ 75 million in outstanding letters of credit commitments. Throughout the nine months ended September 30, 2019, the Company made periodic withdrawals and payments on the New Revolving Credit Facility as part of the Company's debt management plans. The maximum amount outstanding at any time during the nine months ended September 30, 2019 was \$90 million. As of September 30, 2019, the Company had \$ 583 million available under the New Revolving Credit Facility, net of \$17 million in letters of credit. Borrowings under the New Revolving Credit Facility bear interest at a variable base rate plus an applicable margin based on the Company's first lien net leverage ratio. When the Company's first lien net leverage ratio is above 4.00x, interest on the New Revolving Credit Facility is (a) 0.75% over the Base Rate or (b) 1.75% over the LIBOR Rate; when the Company's first lien net leverage ratio is equal to or less than 4.00x and above 3.50x, interest on the New Revolving Credit Facility is (i) 0.50% over the Base Rate or (ii) 1.50% over the LIBOR Rate; and when the Company's first lien net leverage ratio is equal to or below 3.50x, interest on the New Revolving Credit Facility is (y) 0.25% over the Base Rate or (z) 1.25% over the LIBOR Rate. As of September 30, 2019, the applicable margin for the New Revolving Credit Facility was 1.25%. In addition, there is an annual commitment fee, based on the Company's first lien net leverage ratio, on the average unused revolving credit borrowings available under the New Revolving Credit Facility. As of September 30, 2019, the commitment fee is 0.25%. Borrowings under the New Revolving Credit Facility are payable at the option of the Company throughout the term of the New Senior Secured Credit Facility with the balance due in September 2024.

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The New Senior Secured Credit Facility requires the Company to maintain a specified maximum first lien net leverage ratio of 5.50x when revolving loan commitments remain outstanding on the New Revolving Credit Facility at the end of a fiscal quarter. As of September 30, 2019, the Company had no amounts outstanding under the New Revolving Credit Facility; however, the Company would have been in compliance with the maximum first lien net leverage ratio, achieving a 0.44x ratio. Additionally, within the terms of the New Senior Secured Credit Facility, a first lien net leverage ratio at or below 4.00x results in the elimination of excess cash flow payments on the New Senior Secured Credit Facility for the applicable year.

In addition, the Credit Agreement, among other things, includes customary restrictions (subject to certain exceptions) on the Company's ability to incur certain indebtedness, grant certain liens, make certain investments, engage in acquisitions, consolidations and mergers, declare or pay certain dividends or repurchase shares of the Company's common stock. As of September 30, 2019, the Company was in compliance with all covenants under the Credit Agreement.

5.0% Senior Notes

The 5.0% Senior Notes are unsecured and are guaranteed by each of ATI's domestic subsidiaries that is a borrower under or guarantees the New Senior Secured Credit Facility and are unconditionally guaranteed, jointly and severally, by any of ATI's future domestic subsidiaries that are borrowers under or guarantee the New Senior Secured Credit Facility. None of ATI's domestic subsidiaries currently guarantee its obligations under the New Senior Secured Credit Facility, and therefore none of ATI's domestic subsidiaries currently guarantee the 5.0% Senior Notes. The indenture governing the 5.0% Senior Notes contains negative covenants restricting or limiting the Company's ability to, among other things: incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase the Company's capital stock, make certain investments, permit payment or dividend restrictions on certain of the Company's subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of the Company's assets. As of September 30, 2019, the Company was in compliance with all covenants under the indenture governing the 5.0% Senior Notes.

4.75% Senior Notes

The 4.75% Senior Notes are unsecured and are guaranteed by each of ATI's domestic subsidiaries that is a borrower under or guarantees the New Senior Secured Credit Facility and are unconditionally guaranteed, jointly and severally, by any of ATI's future domestic subsidiaries that are borrowers under or guarantee the New Senior Secured Credit Facility. None of ATI's domestic subsidiaries currently guarantee its obligations under the New Senior Secured Credit Facility, and therefore none of ATI's domestic subsidiaries currently guarantee the 4.75% Senior Notes. The indenture governing the 4.75% Senior Notes contains negative covenants restricting or limiting the Company's ability to, among other things: incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase the Company's capital stock, make certain investments, permit payment or dividend restrictions on certain of the Company's subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of the Company's assets. As of September 30, 2019, the Company was in compliance with all covenants under the indenture governing the 4.75% Senior Notes.

5.875% Senior Notes

In March 2019, ATI completed an offering of \$500 million of the 5.875% Senior Notes. The 5.875% Senior Notes were offered in a private placement exempt from registration under the Securities Act of 1933, as amended. The net proceeds from the offering, together with borrowings under the New Senior Secured Credit Facility and cash on hand, were used to repay all of the outstanding borrowings under the Prior Term Loan plus accrued and unpaid interest and related transaction expenses. As a result of the offering, the Company recorded \$6 million as deferred financing fees in the Condensed Consolidated Balance Sheet in the first quarter of 2019.

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The 5.875% Senior Notes are unsecured and are guaranteed by each of ATI's domestic subsidiaries that is a borrower under or guarantees the New Senior Secured Credit Facility and are unconditionally guaranteed, jointly and severally, by any of ATI's future domestic subsidiaries that are borrowers under or guarantee the New Senior Secured Credit Facility. None of ATI's domestic subsidiaries currently guarantee its obligations under the New Senior Secured Credit Facility, and therefore none of ATI's domestic subsidiaries currently guarantee the 5.875% Senior Notes. The indenture governing the 5.875% Senior Notes contains negative covenants restricting or limiting the Company's ability to, among other things: incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase the Company's capital stock, make certain investments, permit payment or dividend restrictions on certain of the Company's subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of the Company's assets. As of September 30, 2019, the Company was in compliance with all covenants under the indenture governing the 5.875% Senior Notes.

NOTE H. DERIVATIVES

The Company is subject to interest rate risk related to the New Senior Secured Credit Facility and enters into interest rate swaps that are based on LIBOR to manage a portion of this exposure. The interest rate swaps are designated as cash flow hedges that qualify for hedge accounting under the hypothetical derivative method. Fair value adjustments are recorded as a component of AOCL in the Condensed Consolidated Balance Sheets. Balances in AOCL are reclassified to earnings when transactions related to the underlying risk are settled. During the first quarter of 2019, the Company entered into \$250 million of interest rate swaps and designated them as cash flow hedges under the hypothetical derivative method. As of September 30, 2019, the Company held interest rate swaps effective from September 2019 to September 2025 with notional values totaling \$250 million and a weighted average LIBOR fixed rate of 3.04%, interest rate swaps effective from September 2019 to September 2022 with notional values totaling \$250 million and a weighted average LIBOR fixed rate of 3.01% and interest rate swaps effective from September 2022 to September 2025 with notional values totaling \$250 million and a weighted average LIBOR fixed rate of 2.82%. See NOTE F "Fair Value of Financial Instruments" for information regarding the fair value of the Company's interest rate swaps.

The following tabular disclosures further describe the Company's interest rate derivatives qualifying and designated for hedge accounting and their impact on the financial condition of the Company (dollars in millions):

	Balance Sheet Location	Fair Value	
		September 30, 2019	December 31, 2018
Derivatives designated as hedging instruments:			
Interest rate swaps	Other current liabilities	\$ 7	\$ 1
	Other non-current liabilities	34	8
Total derivatives designated as hedging instruments		\$ 41	\$ 9

The balance of derivative losses recorded in AOCL as of September 30, 2019 was \$ 41 million. See NOTE O "Accumulated Other Comprehensive Loss" for information regarding activity recorded as a component of AOCL during the three and nine months ended September 30, 2019. As of September 30, 2019, the Company had \$6 million of derivative losses recorded in AOCL expected to be reclassified to earnings within the next twelve months.

NOTE I. PRODUCT WARRANTY LIABILITIES

As of September 30, 2019, current and non-current product warranty liabilities were \$ 25 million and \$29 million, respectively. As of September 30, 2018, current and non-current product warranty liabilities were \$26 million and \$41 million, respectively.

Product warranty liability activities consist of the following (dollars in millions):

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Beginning balance	\$ 59	\$ 65	\$ 66	\$ 55
Payments	(7)	(6)	(19)	(25)
Increase in liability (warranty issued during period)	5	9	16	30
Net adjustments to liability	(3)	(1)	(9)	7
Ending balance	\$ 54	\$ 67	\$ 54	\$ 67

NOTE J. DEFERRED REVENUE

As of September 30, 2019, current and non-current deferred revenue was \$ 35 million and \$ 103 million, respectively. As of September 30, 2018, current and non-current deferred revenue was \$35 million and \$ 89 million, respectively.

Deferred revenue activity consists of the following (dollars in millions):

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Beginning balance	\$ 133	\$ 125	\$ 122	\$ 110
Increases	15	11	44	44
Revenue earned	(10)	(12)	(28)	(30)
Ending balance	\$ 138	\$ 124	\$ 138	\$ 124

Deferred revenue recorded in current and non-current liabilities related to ETC as of September 30, 2019 was \$ 28 million and \$82 million, respectively. Deferred revenue recorded in current and non-current liabilities related to ETC as of September 30, 2018 was \$30 million and \$ 73 million, respectively.

NOTE K. LEASES

Adoption of New Lease Guidance

New authoritative guidance for leases was adopted by the Company effective January 1, 2019 using the optional transition method. Balances as of September 30, 2019 and results for the three and nine months ended September 30, 2019 are presented in conformity with the new authoritative accounting guidance, while prior period balances and results are presented in conformity with prior accounting guidance for leases.

The Company recognized ROU assets for operating leases of \$ 14 million and current and non-current operating lease liabilities of \$ 4 million and \$9 million, respectively, as of January 1, 2019. At the time of adoption, the Company was not party to any finance leases.

The Company elected practical expedients allowed by this guidance which included not reassessing existing or expired contracts for leases, not reassessing existing or expired leases for classification, not reassessing indirect costs for any existing leases and using hindsight when determining lease terms.

Lessee Accounting

Contracts are assessed by the Company to determine if the contract conveys the right to control an identified asset in exchange for consideration during a period of time. The Company classifies all identified leases as operating or finance leases. As of September 30, 2019, the Company was not a party to any finance leases. Contracts that contain leases are assessed to determine if the consideration in the contract is related to a lease component, non-lease component or other components not related to the lease. Lease components are recorded as ROU assets and lease liabilities while any non-lease component is expensed as incurred. The consideration in the contract related to other components not related to the lease is allocated among the lease component and the non-lease component, as applicable, based on the stand-alone selling price of the lease and non-lease components.

Certain lease contracts may contain an option to extend or terminate the lease. The Company considers the economic impact of extension and termination options by contract. If the Company concludes it is reasonably certain an option will be exercised, that option is included in the lease term and impacts the amount recorded as an ROU asset and lease liability upon inception of the contract.

The Company's lease liability is determined by discounting the future cash flows over the lease period. The Company determines its discount rates utilizing current secured financing rates based on the length of the lease period plus the Company's margin over LIBOR on the New Term Loan. The Company believes this rate effectively represents a borrowing rate the Company could obtain on a debt instrument possessing similar terms as the lease. The lease liability is classified between current and non-current liabilities based on the terms of the underlying leases. The weighted average discount rate on operating leases as of September 30, 2019 was 4.35%.

As of December 31, 2018, future undiscounted payments under operating leases (as defined by prior guidance) are expected to be as follows for the next five annual periods and thereafter following December 31, 2018:

	December 31, 2018
2019	\$ 4
2020	3
2021	2
2022	1
2023	1
Thereafter	—
Total	\$ 11

As of September 30, 2019, the Company recorded current and non-current operating lease liabilities of \$ 4 million and \$ 16 million, respectively. The following table reconciles total operating lease liabilities as of September 30, 2019 to future undiscounted cash flows for operating leases:

	September 30, 2019
2019	\$ 1
2020	5
2021	4
2022	3
2023	3
Thereafter	9
Total lease payments	\$ 25
Less: Interest	5
Present value of lease liabilities	\$ 20

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ROU assets are calculated as the related lease liability adjusted for lease incentives, prepayments and the effect of escalating lease payments on period expense. The below table depicts the ROU assets held by the Company based on the underlying asset:

	September 30, 2019
Buildings	\$ 19
Land	1
Vehicles	1
Equipment	—
Total right-of-use assets	<u>\$ 21</u>

The weighted average remaining lease term as of September 30, 2019 was 6.89 years.

Operating lease expense was \$1 million and \$4 million for the three and nine months ended September 30, 2019, respectively, and recorded within Selling, general and administrative expense and Engineering - research and development on the Company's Condensed Consolidated Statements of Comprehensive Income. There was no short-term operating lease expense for the three and nine months ended September 30, 2019.

The calculation of the Company's ROU assets and lease liabilities did not include cash consideration as of September 30, 2019. During the three and nine months ended September 30, 2019, the Company recorded \$2 million and \$10 million of new ROU assets obtained through non-cash transactions, respectively.

NOTE L. OTHER CURRENT LIABILITIES

Other current liabilities consist of the following (dollars in millions):

	As of September 30, 2019	As of December 31, 2018
Payroll and related costs	\$ 76	\$ 81
Accrued interest payable	51	19
Sales allowances	30	39
Vendor buyback obligation	17	15
Taxes payable	11	10
Defense price reduction reserve	9	9
Derivative liabilities	7	1
Lease liability	4	—
Vendor liability	3	5
Non-trade payables	3	3
Other accruals	15	15
Total	<u>\$ 226</u>	<u>\$ 197</u>

NOTE M. EMPLOYEE BENEFIT PLANS

Components of net periodic benefit cost (credit) consist of the following (dollars in millions):

	Pension Plans		Post-retirement Benefits	
	Three months ended September 30,		Three months ended September 30,	
	2019	2018	2019	2018
Net periodic benefit cost:				
Service cost	\$ 2	\$ 3	\$ —	\$ —
Interest cost	1	2	1	1
Expected return on assets	(1)	(2)	—	—
Prior service credit	—	—	(3)	(3)
Net periodic benefit cost (credit)	<u>\$ 2</u>	<u>\$ 3</u>	<u>\$ (2)</u>	<u>\$ (2)</u>

	Pension Plans		Post-retirement Benefits	
	Nine months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Net periodic benefit cost:				
Service cost	\$ 7	\$ 9	\$ 1	\$ 1
Interest cost	5	5	3	3
Expected return on assets	(6)	(6)	—	—
Prior service credit	—	—	(10)	(10)
Net periodic benefit cost (credit)	<u>\$ 6</u>	<u>\$ 8</u>	<u>\$ (6)</u>	<u>\$ (6)</u>

The components of net periodic benefit cost (credit) other than the service cost component are included in Other income, net in the Condensed Consolidated Statements of Comprehensive Income.

NOTE N. INCOME TAXES

For the three and nine months ended September 30, 2019, the Company recorded total tax expense of \$ 45 million and \$ 137 million, respectively. The effective tax rate for the three and nine months ended September 30, 2019 was 23% and 22%, respectively. For the three and nine months ended September 30, 2018, the Company recorded total tax expense of \$51 million and \$ 139 million, respectively. The effective tax rate for the three and nine months ended September 30, 2018 was 23% and 22%, respectively.

The need to establish a valuation allowance against the deferred tax assets is assessed periodically based on a more-likely-than-not realization threshold, in accordance with authoritative accounting guidance. Appropriate consideration is given to all positive and negative evidence related to that realization. This assessment considers, among other matters, the nature, frequency and severity of recent losses, forecasts of future profitability, the duration of statutory carry-forward periods, experience with tax attributes expiring unused, and tax planning alternatives. The weight given to these considerations depends upon the degree to which they can be objectively verified.

The Company continues to provide for a valuation allowance on certain of its foreign deferred tax assets and an anticipated capital loss carryforward. The Company has determined, based on the evaluation of both objective and subjective evidence available, that this valuation allowance is necessary and that it is more likely than not that the deferred tax assets are not fully realizable.

In accordance with the FASB's authoritative guidance on accounting for income taxes, the Company has recorded a liability for unrecognized tax benefits related to a 2010 Research and Development Credit as of September 30, 2019 and December 31, 2018. The accounting guidance prescribes a recognition threshold and measurement attributes for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The Company's returns will remain subject to examination by the various taxing authorities for the duration of the applicable statute of limitations (generally three years from the later of the date of filing or the due date of the return).

NOTE O. ACCUMULATED OTHER COMPREHENSIVE LOSS

The following tables reconcile changes in AOCL by component (net of tax, dollars in millions):

	Three months ended			
	Pension and OPEB liability adjustment	Available- for-sale securities and interest rate swaps	Foreign currency items	Total
AOCL as of June 30, 2018	\$ 3	\$ (2)	\$ (28)	\$ (27)
Other comprehensive income before reclassifications	—	4	—	4
Amounts reclassified from AOCL	(3)	—	—	(3)
Income tax	—	—	—	—
Net current period other comprehensive (loss) income	\$ (3)	\$ 4	\$ —	\$ 1
AOCL as of September 30, 2018	\$ —	\$ 2	\$ (28)	\$ (26)
AOCL as of June 30, 2019	\$ 12	\$ (28)	\$ (31)	\$ (47)
Other comprehensive loss before reclassifications	—	(7)	(6)	(13)
Amounts reclassified from AOCL	(3)	—	—	(3)
Income tax	1	2	—	3
Net current period other comprehensive loss	\$ (2)	\$ (5)	\$ (6)	\$ (13)
AOCL as of September 30, 2019	<u>\$ 10</u>	<u>\$ (33)</u>	<u>\$ (37)</u>	<u>\$ (60)</u>

	Nine months ended			
	Pension and OPEB liability adjustment	Available- for-sale securities and interest rate swaps	Foreign currency items	Total
AOCL as of December 31, 2017	\$ 8	\$ —	\$ (23)	\$ (15)
Other comprehensive income (loss) before reclassifications	—	2	(5)	(3)
Amounts reclassified from AOCL	(10)	—	—	(10)
Income tax	2	—	—	2
Net current period other comprehensive (loss) income	\$ (8)	\$ 2	\$ (5)	\$ (11)
AOCL as of September 30, 2018	\$ —	\$ 2	\$ (28)	\$ (26)
AOCL as of December 31, 2018	\$ 9	\$ (7)	\$ (32)	\$ (30)
Other comprehensive loss before reclassifications	—	(32)	(5)	(37)
Amounts reclassified from AOCL	(10)	—	—	(10)
Income tax	3	7	—	10
Reclassification of stranded tax effects	8	(1)	—	7
Net current period other comprehensive income (loss)	\$ 1	\$ (26)	\$ (5)	\$ (30)
AOCL as of September 30, 2019	<u>\$ 10</u>	<u>\$ (33)</u>	<u>\$ (37)</u>	<u>\$ (60)</u>

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In accordance with the FASB's new authoritative guidance regarding the reclassification of certain tax effects from accumulated other comprehensive income, the Company reclassified approximately \$7 million, as of January 1, 2019, from accumulated other comprehensive loss to retained earnings for the stranded tax effects resulting from the U.S. Tax Cuts and Jobs Act. This reclassification had zero net effect on total stockholders' equity. The Company utilizes the portfolio securities approach when releasing income tax effects from accumulated other comprehensive loss for its investment securities.

AOCL Components	Amounts reclassified from AOCL		Affected line item in the Condensed Consolidated Statements of Comprehensive Income
	Three months ended September 30, 2019	Three months ended September 30, 2018	
Amortization of benefit items:			
Prior service cost	\$ 3	\$ 3	Other income, net
Total reclassifications, before tax	\$ 3	\$ 3	Income before income taxes
Income tax expense	(1)	—	Income tax expense
Total reclassifications	\$ 2	\$ 3	Net of tax

AOCL Components	Amounts reclassified from AOCL		Affected line item in the Condensed Consolidated Statements of Comprehensive Income
	Nine months ended September 30, 2019	Nine months ended September 30, 2018	
Amortization of benefit items:			
Prior service cost	\$ 10	\$ 10	Other income, net
Total reclassifications, before tax	\$ 10	\$ 10	Income before income taxes
Income tax expense	(3)	(2)	Income tax expense
Total reclassifications	\$ 7	\$ 8	Net of tax

Prior service cost and actuarial loss are included in the computation of the Company's net periodic benefit cost. See NOTE M, "Employee Benefit Plans" for additional details.

NOTE P. COMMITMENTS AND CONTINGENCIES

Environmental Matters

The Company has an agreement with the Environmental Protection Agency ("EPA") to perform remedial activities at the Company's Indianapolis, Indiana manufacturing facilities related to historical soil and groundwater contamination. As of September 30, 2019, the Company had a liability recorded in the amount of \$12 million. As the Company successfully remediates certain activities, it will continue to review its remaining obligation with the EPA.

Claims, Disputes, and Litigation

The Company is party to various legal actions and administrative proceedings and subject to various claims arising in the ordinary course of business. These proceedings primarily involve commercial claims, product liability claims, personal injury claims and workers' compensation claims. The Company believes that the ultimate liability, if any, in excess of amounts already provided for in the condensed consolidated financial statements or covered by insurance on the disposition of these matters will not have a material adverse effect on the financial position, results of operations or cash flows of the Company.

NOTE Q. EARNINGS PER SHARE

The Company presents both basic and diluted earnings per share ("EPS") amounts. Basic EPS is calculated by dividing net income by the weighted average number of common shares outstanding during the reporting period. Diluted EPS is calculated by dividing net income by the weighted average number of common shares and common equivalent shares outstanding during the reporting period that are calculated using the treasury stock method for stock-based awards. The treasury stock method assumes that the Company uses the proceeds from the exercise of awards to repurchase common stock at the average market price during the period. The assumed proceeds under the treasury stock method include the purchase price that the grantee will pay in the future and compensation cost for future service that the Company has not yet recognized. For the three and nine months ended both September 30, 2019 and September 30, 2018, there were no outstanding stock options excluded from the diluted EPS calculation because they were anti-dilutive.

The following table reconciles the numerators and denominators used to calculate basic EPS and diluted EPS (in millions, except per share data):

	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Net income	\$ 149	\$ 167	\$ 497	\$ 492
Weighted average shares of common stock outstanding	120	130	123	135
Dilutive effect of stock-based awards	1	1	1	—
Diluted weighted average shares of common stock outstanding	121	131	124	135
Basic earnings per share attributable to common stockholders	\$ 1.24	\$ 1.28	\$ 4.04	\$ 3.66
Diluted earnings per share attributable to common stockholders	\$ 1.23	\$ 1.27	\$ 4.01	\$ 3.64

NOTE R. COMMON STOCK

The Company's current stock repurchase program ("Repurchase Program") was announced on November 14, 2016 when the Board of Directors authorized the Company to repurchase up to \$1,000 million of its common stock on the open market or through privately negotiated transactions. On November 8, 2017, the Board of Directors authorized the Company to repurchase an additional \$500 million of its common stock, on July 30, 2018, the Board of Directors authorized the Company to repurchase an additional \$500 million of its common stock and on May 9, 2019, the Board of Directors authorized the Company to repurchase an additional \$1,000 million of its common stock, bringing the total amount authorized under the Repurchase Program to \$3,000 million. The Repurchase Program has no termination date. The timing and amount of stock purchases are subject to market conditions and corporate needs. The Repurchase Program may be modified, suspended or discontinued at any time at the Company's discretion.

During the three and nine months ended September 30, 2019, the Company repurchased approximately \$ 46 million and \$331 million, respectively, of its common stock under the Repurchase Program, leaving \$1,114 million of authorized repurchases remaining under the Repurchase Program as of September 30, 2019.

NOTE S. CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

On May 7, 2019, the Company entered into a stock repurchase agreement with Ashe Capital Management, LP to repurchase 4,977,043 shares of the Company's common stock for approximately \$232 million. William Harker, a member of the Company's Board of Directors until May 9, 2019, is the President and Co-Founder of Ashe Capital Management, LP. The shares were repurchased under the Repurchase Program. The purchase was funded with cash on hand and borrowings under the New Revolving Credit Facility. The shares were subsequently retired.

NOTE T. ACQUISITIONS

Walker Die Casting Acquisition

On September 9, 2019, the Company acquired the assets of Walker Die Casting, Inc. ("Walker Die Casting"), an aluminum castings company, and C&R Tool and Engineering, Inc. ("C&R Tool and Engineering"), a supplier of metal-working tools, for approximately \$103 million in cash, which included the effective settlement of pre-existing accounts payable of approximately \$4 million. Walker Die Casting is an essential component supplier for the Company's core on-highway transmission products. The acquired business was integrated into the Company's single operating segment.

The preliminary purchase price of \$99 million resulted in the recognition of property, plant and equipment, goodwill, inventory, intangible assets and other net assets of \$53 million, \$21 million, \$18 million, \$4 million and \$3 million, respectively. The intangible assets consist of customer relationships and tradename of \$3 million and \$1 million, respectively. The amount allocated to goodwill is deductible for income tax purposes. Goodwill represents the excess of the consideration transferred over the preliminary estimate of fair values of the assets acquired and liabilities assumed and is primarily attributable to intangible assets, such as the assembled workforce, which are not separately recognizable. The Company is currently completing its fair value assessment of the acquired assets and liabilities with the assistance of third-party valuation specialists and any adjustments identified in the measurement period, which will not exceed one year from the acquisition date, will be accounted for prospectively. For the period ended September 30, 2019, the results of Walker Die Casting and C&R Tool and Engineering as of and after the date of acquisition have been included in the Company's condensed consolidated financial statements as of and for the three and nine months ended September 30, 2019, and net sales have been included in the Company's Service Parts, Support Equipment and Other end market.

AxleTech Electric Vehicle Systems Division Acquisition

On April 16, 2019, the Company acquired, from AxleTech, a technology company that engineers, designs, manufactures, sells and services powertrain solutions for on-highway and off-highway heavy-duty vehicles, all of the assets related to its electric vehicle systems division, which designs and manufactures fully integrated electrified-axle propulsion solutions for medium- and heavy-duty trucks and transit buses, for approximately \$124 million in cash. The acquisition aligns with the Company's strategy to advance its position in propulsion solutions. The Company has accounted for this acquisition in accordance with authoritative accounting guidance on business combinations. The acquired business was integrated into the Company's single operating segment.

The preliminary purchase price allocation for this transaction resulted in the recognition of goodwill, intangible assets, inventory and property, plant and equipment of \$66 million, \$56 million, \$1 million and \$1 million, respectively. The intangible assets consist of in-process research and development, customer relationships and developed technology of \$50 million, \$3 million and \$3 million. The amount allocated to goodwill is deductible for income tax purposes. Goodwill represents the excess of the consideration transferred over the preliminary estimate of fair values of the assets acquired and liabilities assumed and is primarily attributable to intangible assets, such as the assembled workforce, which are not separately recognizable. The Company is currently completing its fair value assessment of the acquired assets and liabilities with the assistance of third-party valuation specialists and any adjustments identified in the measurement period, which will not exceed one year from the acquisition date, will be accounted for prospectively.

Vantage Power Limited Acquisition

On April 12, 2019, the Company acquired all of the outstanding shares of Vantage Power Limited, a privately owned company based in the United Kingdom which designs and manufactures powertrain electrification and connectivity technologies applicable to a broad range of commercial vehicle end markets. The Company paid approximately \$9 million in cash on April 12, 2019 and may pay up to an additional \$8 million over the next three years based on specified conditions being met. The Company has accounted for this acquisition in accordance with authoritative accounting guidance on business combinations. The acquired business was integrated into the Company's single operating segment as a wholly-owned subsidiary.

NOTE U. SUBSEQUENT EVENTS

On October 11, 2019, the Company and ATI entered into an amendment with the term loan lenders under the New Senior Secured Credit Facility to lower the applicable interest rate margins on the New Term Loan by 25 basis points.

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

The following discussion and analysis is intended to help the reader understand our business, financial condition, results of operations, liquidity and capital resources. You should read this discussion in conjunction with our condensed consolidated interim financial statements and the related notes contained elsewhere in this Quarterly Report on Form 10-Q.

The statements in this discussion regarding industry trends, our expectations regarding our future performance, liquidity and capital resources and other non-historical statements are forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described in "Cautionary Note Regarding Forward-Looking Statements" and Part II, Item 1A "Risk Factors" below and in Part I, Item 1A "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission ("SEC") on February 26, 2019. Our actual results may differ materially from those contained in or implied by any forward-looking statements.

Overview

Allison Transmission Holdings, Inc. and its subsidiaries ("Allison", "our" or "we") design and manufacture commercial and defense fully-automatic transmissions. The business was founded in 1915 and has been headquartered in Indianapolis, Indiana since inception. Allison was an operating unit of General Motors Corporation from 1929 until 2007, when Allison once again became a stand-alone company. In March 2012, Allison began trading on the New York Stock Exchange under the symbol, "ALSN".

We have 12 different product lines. Although approximately 77% of revenues were generated in North America in 2018, we have a global presence by serving customers in Europe, Asia, South America and Africa. We serve customers through an independent network of approximately 1,400 independent distributor and dealer locations worldwide.

Recent Developments

On October 11, 2019, we entered into an amendment with the term loan lenders under Allison Transmission, Inc.'s ("ATI") Second Amended and Restated Credit Agreement dated as of March 29, 2019 ("Credit Agreement") to lower the applicable interest rate margins on the new term loan facility in the amount of \$646 million due March 2026 ("New Term Loan") by 25 basis points.

Trends Impacting Our Business

Our net sales are driven by commercial vehicle production, which tends to be highly correlated to macroeconomic conditions. For the full year 2019, we expect lower demand in the Service Parts, Support Equipment and Other and North America Off-Highway end markets, partially offset by increased demand in the North America On-Highway end market, price increases on certain products and continued execution of our growth initiatives.

Third Quarter Net Sales by End Market (dollars in millions)

End Market	Q3 2019 Net Sales	Q3 2018 Net Sales	% Variance
North America On-Highway	\$ 369	\$ 332	11%
North America Off-Highway	6	12	(50)%
Defense	40	42	(5)%
Outside North America On-Highway	99	96	3%
Outside North America Off-Highway	24	46	(48)%
Service Parts, Support Equipment and Other	131	164	(20)%
Total Net Sales	\$ 669	\$ 692	(3)%

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North America On-Highway end market net sales were up 11% for the third quarter 2019 compared to the third quarter 2018, principally driven by higher demand for Rugged Duty Series and Highway Series models, led by the continued execution of our growth initiatives and market share gains in Class 4/5 truck.

North America Off-Highway end market net sales were down \$6 million for the third quarter 2019 compared to the third quarter 2018, principally driven by lower demand from hydraulic fracturing applications.

Defense end market net sales were down 5% for the third quarter 2019 compared to the third quarter 2018, principally driven by lower Wheeled vehicle demand.

Outside North America On-Highway end market net sales were up 3% for the third quarter 2019 compared to the third quarter 2018, principally driven by higher demand in Europe and South America, partially offset by lower demand in Asia.

Outside North America Off-Highway end market net sales were down \$22 million for the third quarter 2019 compared to the third quarter 2018, principally driven by lower demand in the mining and energy sectors.

Service Parts, Support Equipment and Other end market net sales were down 20% for the third quarter 2019 compared to the third quarter 2018, principally driven by lower demand for North America service parts.

Key Components of our Results of Operations

Net sales

We generate our net sales primarily from the sale of transmissions, transmission parts, support equipment, other parts, defense kits, engineering services, royalties and extended transmission coverage to a wide array of original equipment manufacturers, distributors and the U.S. government. Sales are recorded net of provisions for customer allowances and other rebates. Engineering services are recorded as net sales in accordance with the terms of the contract. The associated costs are recorded in cost of sales. We also have royalty agreements with third parties that provide net sales as a result of joint efforts in developing marketable products.

Cost of sales

Our primary components of cost of sales are purchased parts, the overhead expense related to our manufacturing operations and direct labor associated with the manufacture and assembly of transmissions and parts. For the nine months ended September 30, 2019, direct material costs were approximately 70%, overhead costs were approximately 23%, and direct labor costs were approximately 7% of total cost of sales. We are subject to changes in our cost of sales caused by movements in underlying commodity prices. We seek to hedge against this risk by using long-term agreements ("LTAs"), as appropriate. See Part I, Item 3 "Quantitative and Qualitative Disclosures about Market Risk—Commodity Price Risk" included below.

Selling, general and administrative

The principal components of our selling, general and administrative expenses are salaries and benefits for our office personnel, advertising and promotional expenses, product warranty expense, expenses relating to certain information technology systems and amortization of our intangibles.

Engineering — research and development

We incur costs in connection with research and development programs that are expected to contribute to future earnings. Such costs are expensed as incurred.

Non-GAAP Financial Measures

We use Adjusted Earnings before Interest, Taxes, Depreciation, and Amortization (“EBITDA”) and Adjusted EBITDA as a percent of net sales to measure our operating profitability. We believe that Adjusted EBITDA and Adjusted EBITDA as a percent of net sales provide management, investors and creditors with useful measures of the operational results of our business and increase the period-to-period comparability of our operating profitability and comparability with other companies. Adjusted EBITDA as a percent of net sales is also used in the calculation of management’s incentive compensation program. The most directly comparable U.S. generally accepted accounting principles (“GAAP”) measure to Adjusted EBITDA and Adjusted EBITDA as a percent of net sales is Net income and Net income as a percent of net sales, respectively. Adjusted EBITDA is calculated as earnings before interest expense, income tax expense, amortization of intangible assets, depreciation of property, plant and equipment and other adjustments as defined by the Credit Agreement governing ATI’s, our wholly-owned subsidiary, New Term Loan (together with ATI’s new revolving credit facility with commitments in the amount of \$600 million due September 2024 (“New Revolving Credit Facility”) defined as the “New Senior Secured Credit Facility”). Adjusted EBITDA as a percent of net sales is calculated as Adjusted EBITDA divided by net sales.

We use Adjusted free cash flow to evaluate the amount of cash generated by our business that, after the capital investment needed to maintain and grow our business and certain mandatory debt service requirements, can be used for repayment of debt, stockholder distributions and strategic opportunities, including investing in our business. We believe that Adjusted free cash flow enhances the understanding of the cash flows of our business for management, investors and creditors. Adjusted free cash flow is also used in the calculation of management’s incentive compensation program. The most directly comparable GAAP measure to Adjusted free cash flow is Net cash provided by operating activities. Adjusted free cash flow is calculated as Net cash provided by operating activities after additions of long-lived assets.

The following is a reconciliation of Net income and Net income as a percent of net sales to Adjusted EBITDA and Adjusted EBITDA as a percent of net sales and a reconciliation of Net cash provided by operating activities to Adjusted free cash flow:

(unaudited, dollars in millions)	Three months ended September 30,		Nine months ended September 30,	
	2019	2018	2019	2018
Net income (GAAP)	\$ 149	\$ 167	\$ 497	\$ 492
plus:				
Income tax expense	45	51	137	139
Interest expense, net	32	30	101	90
Amortization of intangible assets	22	22	65	66
Depreciation of property, plant and equipment	20	19	57	58
Stock-based compensation expense (a)	2	3	10	9
UAW Local 933 retirement incentive (b)	(1)	—	(1)	7
Expenses related to long-term debt refinancing (c)	—	—	1	—
Unrealized loss on foreign exchange (d)	—	3	—	6
Adjusted EBITDA (Non-GAAP)	\$ 269	\$ 295	\$ 867	\$ 867
Net sales (GAAP)	\$ 669	\$ 692	\$ 2,081	\$ 2,066
Net income as a percent of net sales (GAAP)	22.3%	24.1%	23.9%	23.8%
Adjusted EBITDA as a percent of net sales (Non-GAAP)	40.2%	42.6%	41.7%	42.0%
Net cash provided by operating activities (GAAP)	\$ 212	\$ 239	\$ 645	\$ 605
Deductions to reconcile to Adjusted free cash flow:				
Additions of long-lived assets	(47)	(23)	(91)	(52)
Adjusted free cash flow (Non-GAAP)	\$ 165	\$ 216	\$ 554	\$ 553

- (a) Represents stock-based compensation expense (recorded in Cost of sales, Selling, general and administrative, and Engineering - research and development).
- (b) Represents a charge (recorded in Cost of sales) related to a retirement incentive program for certain employees represented by the International Union, United Automobile, Aerospace and Agricultural

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- Implement Workers of America ("UAW") pursuant to the UAW Local 933 collective bargaining agreement effective through November 2023.
- (c) Represents expenses (recorded in Other income, net) related to the refinancing of the prior term loan due 2022 and prior revolving credit facility due 2021 (together, the "Prior Senior Secured Credit Facility") in the first quarter of 2019.
 - (d) Represents losses (recorded in Other income, net) on intercompany financing transactions related to investments in plant assets for our India facility.

Results of Operations

Comparison of three months ended September 30, 2019 and 2018

The following table sets forth certain financial information for the three months ended September 30, 2019 and 2018. The following table and discussion should be read in conjunction with the information contained in our condensed consolidated financial statements and the notes thereto included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

<i>(unaudited, dollars in millions)</i>	Three months ended September 30,			
	2019	% of net sales	2018	% of net sales
Net sales	\$ 669	100%	\$ 692	100%
Cost of sales	321	48	324	47
Gross profit	348	52	368	53
Operating expenses:				
Selling, general and administrative	85	13	89	13
Engineering — research and development	39	6	33	5
Total operating expenses	124	19	122	18
Operating income	224	33	246	35
Interest expense, net	(32)	(4)	(30)	(4)
Other income, net	2	—	2	—
Income before income taxes	194	29	218	31
Income tax expense	(45)	(7)	(51)	(7)
Net income	\$ 149	22%	\$ 167	24%

Net sales

Net sales for the quarter ended September 30, 2019 were \$669 million compared to \$692 million for the quarter ended September 30, 2018, a decrease of 3%. The decrease was principally driven by a \$33 million, or 20%, decrease in net sales in the Service Parts, Support Equipment and Other end market principally driven by lower demand for North America service parts, a \$22 million, or 48%, decrease in net sales in the Outside North America Off-Highway end market principally driven by lower demand in the mining and energy sectors, a \$6 million, or 50%, decrease in net sales in the North America Off-Highway end market principally driven by lower demand from hydraulic fracturing applications and a \$2 million, or 5%, decrease in net sales in the Defense end market principally driven by lower Wheeled vehicle demand, partially offset by a \$37 million, or 11%, increase in net sales in the North America On-Highway end market principally driven by higher demand for Rugged Duty Series and Highway Series models, led by the continued execution of our growth initiatives and market share gains in Class 4/5 truck, and a \$3 million, or 3%, increase in net sales in the Outside North America On-Highway end market principally driven by higher demand in Europe and South America, partially offset by lower demand in Asia.

Cost of sales

Cost of sales for the quarter ended September 30, 2019 was \$321 million compared to \$324 million for the quarter ended September 30, 2018, a decrease of 1%. The decrease was principally driven by decreased direct material expense commensurate with decreased net sales, partially offset by higher manufacturing expenses commensurate with increased on-highway volume.

Gross profit

Gross profit for the quarter ended September 30, 2019 was \$348 million compared to \$368 million for the quarter ended September 30, 2018, a decrease of 5%. The decrease was principally driven by \$20 million related to decreased net sales and \$8 million of higher manufacturing expenses commensurate with increased on-highway volume, partially offset by \$5 million of price increases on certain products and \$3 million of lower material costs. Gross profit as a percent of net sales for the three months ended September 30, 2019 decreased 120 basis points compared to the same period in 2018 principally driven by decreased net sales and higher manufacturing expenses, partially offset by price increases on certain products and favorable material costs.

Selling, general and administrative

Selling, general and administrative expenses for the quarter ended September 30, 2019 were \$85 million compared to \$89 million for the quarter ended September 30, 2018, a decrease of 4%. The decrease was principally driven by \$4 million of lower 2019 product warranty expense and \$3 million of favorable 2019 product warranty adjustments, partially offset by increased commercial activities spending.

Engineering — research and development

Engineering expenses for the quarter ended September 30, 2019 were \$39 million compared to \$33 million for the quarter ended September 30, 2018, an increase of 18%. The increase was principally driven by increased product initiatives spending.

Interest expense, net

Interest expense, net for the quarter ended September 30, 2019 was \$32 million compared to \$30 million for the quarter ended September 30, 2018, an increase of 7%. The increase was principally driven by higher interest rates related to long-term debt refinancing that extended maturities at fixed interest rates, including \$7 million of interest expense on ATI's 5.875% Senior Notes due June 2029 ("5.875% Senior Notes") issued in the first quarter of 2019, partially offset by \$4 million of lower interest expense on ATI's New Term Loan due primarily to the repayment of \$500 million of principal in the first quarter of 2019 in connection with entering into the New Senior Secured Credit Facility.

Other income, net

Other income, net for the quarter ended both September 30, 2019 and September 30, 2018 was \$2 million.

Income tax expense

Income tax expense for the three months ended September 30, 2019 was \$45 million, resulting in an effective tax rate of 23%, compared to \$51 million of income tax expense and an effective tax rate of 23% for the three months ended September 30, 2018. The decrease in income tax expense was principally driven by decreased taxable income.

Comparison of nine months ended September 30, 2019 and 2018

The following table sets forth certain financial information for the nine months ended September 30, 2019 and 2018. The following table and discussion should be read in conjunction with the information contained in our condensed consolidated financial statements and the notes thereto included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

<i>(unaudited, dollars in millions)</i>	Nine months ended September 30,			
	2019	% of net sales	2018	% of net sales
Net sales	\$ 2,081	100%	\$ 2,066	100%
Cost of sales	985	47	982	48
Gross profit	1,096	53	1,084	52
Operating expenses:				
Selling, general and administrative	262	13	274	13
Engineering — research and development	107	5	94	4
Total operating expenses	369	18	368	17
Operating income	727	35	716	35
Interest expense, net	(101)	(5)	(90)	(4)
Other income, net	8	—	5	—
Income before income taxes	634	30	631	31
Income tax expense	(137)	(6)	(139)	(7)
Net income	\$ 497	24%	\$ 492	24%

Net sales

Net sales for the nine months ended September 30, 2019 were \$2,081 million compared to \$2,066 million for the nine months ended September 30, 2018, an increase of 1%. The increase was principally driven by a \$130 million, or 13%, increase in net sales in the North America On-Highway end market principally driven by higher demand led by the continued execution of our growth initiatives and market share gains in Class 4/5 truck, an \$11 million, or 4%, increase in net sales in the Outside North America On-Highway end market principally driven by higher demand in Europe and South America, partially offset by lower demand in Asia, and a \$9 million, or 11%, increase in net sales in the Outside North America Off-Highway end market principally driven by higher demand in the energy sector partially offset by lower demand in the mining and construction sectors, partially offset by a \$75 million, or 15%, decrease in net sales in the Service Parts, Support Equipment and Other end market principally driven by lower demand for North America service parts, a \$47 million, or 62%, decrease in net sales in the North America Off-Highway end market principally driven by lower demand from hydraulic fracturing applications and an \$13 million, or 11%, decrease in net sales in the Defense end market principally driven by lower Tracked and Wheeled vehicle demand.

Cost of sales

Cost of sales for the nine months ended September 30, 2019 was \$985 million compared to \$982 million for the nine months ended September 30, 2018. The increase was principally driven by higher manufacturing expenses, partially offset by a \$7 million reduction in expenses related to a retirement incentive program for certain UAW Local 933 employees.

Gross profit

Gross profit for the nine months ended September 30, 2019 was \$1,096 million compared to \$1,084 million for the nine months ended September 30, 2018, an increase of 1%. The increase was principally driven by \$12 million of price increases and on certain products and a \$7 million reduction in expenses related to a retirement incentive program for certain UAW Local 933 employees, partially offset by higher manufacturing expenses. Gross profit as a percent of net sales for the nine months ended September 30, 2019 increased 20 basis points compared to the same period in 2018 principally driven by price increases on certain products and a reduction in expenses related to the retirement incentive program.

Selling, general and administrative

Selling, general and administrative expenses for the nine months ended September 30, 2019 were \$262 million compared to \$274 million for the nine months ended September 30, 2018, a decrease of 4%. The decrease was principally driven by \$15 million of lower 2019 product warranty expense, \$9 million of favorable 2019 product warranty adjustments and \$7 million of unfavorable 2018 product warranty adjustments that did not recur in 2019, partially offset by increased commercial activities spending and \$4 million of higher incentive compensation expense.

Engineering — research and development

Engineering expenses for the nine months ended September 30, 2019 were \$107 million compared to \$94 million for the nine months ended September 30, 2018, an increase of 14%. The increase was principally driven by increased product initiatives spending.

Interest expense, net

Interest expense, net for the nine months ended September 30, 2019 was \$101 million compared to \$90 million for the nine months ended September 30, 2018, an increase of 12%. The increase was principally driven by higher interest rates related to long-term debt refinancing that extended maturities at fixed interest rates, including \$15 million of interest expense on ATI's 5.875% Senior Notes issued in the first quarter of 2019 and \$5 million of expenses related to long-term debt refinancing, partially offset by \$6 million of lower interest expense on ATI's New Term Loan due primarily to the repayment of \$500 million of principal in the first quarter of 2019 in connection with entering into the New Senior Secured Credit Facility.

Other income, net

Other income, net for the nine months ended September 30, 2019 was \$8 million compared to \$5 million for the nine months ended September 30, 2018. The change was principally driven by a favorable change in foreign exchange.

Income tax expense

Income tax expense for the nine months ended September 30, 2019 was \$137 million, resulting in an effective tax rate of 22%, compared to \$139 million of income tax expense and an effective tax rate of 22% for the nine months ended September 30, 2018.

Liquidity and Capital Resources

We generate cash primarily from our operations to fund our operating, investing and financing activities. Our principal uses of cash are operating expenses, capital expenditures, debt service, stock repurchases, dividends on common stock, strategic growth initiatives, including acquisitions, and working capital needs. We had total available cash and cash equivalents of \$152 million and \$231 million as of September 30, 2019 and December 31, 2018, respectively. Of the available cash and cash equivalents, \$142 million and \$120 million was deposited in operating accounts as of September 30, 2019 and December 31, 2018, respectively, while \$10 million and \$111 million was invested in U.S. government backed securities as of September 30, 2019 and December 31, 2018, respectively.

As of September 30, 2019, the total of cash and cash equivalents held by foreign subsidiaries was \$67 million, the majority of which was located in China and Europe. We manage our worldwide cash requirements considering available funds among the subsidiaries through which we conduct our business and the cost effectiveness with which those funds can be accessed. As a result, we do not currently anticipate any local liquidity restrictions will preclude us from funding our targeted expectations or operating needs with local resources.

We have not recognized any deferred tax liabilities associated with earnings in foreign subsidiaries, except for our subsidiaries located in China and Hong Kong, as they are intended to be permanently reinvested and used to support foreign operations. We have a deferred tax liability of \$2 million for the tax liability associated with the remittance of previously taxed income and unremitted earnings for our subsidiaries located in China and Hong Kong. The U.S. Tax Cuts and Jobs Act requirement of a one-time repatriation tax on foreign earnings and profits resulted in us recording a \$6 million liability for the deemed repatriation to be paid to the U.S. Government in 2017. In the future, the U.S. Tax Cuts and Jobs Act provides for tax free repatriations of earnings and profits generated by foreign subsidiaries through a 100% dividends received deduction. The remaining deferred tax liabilities, if recorded, related to unremitted earnings that are indefinitely reinvested and are not material.

Our liquidity requirements are significant, primarily due to our debt service requirements. As of September 30, 2019, we had \$646 million of indebtedness associated with ATI's New Term Loan, \$1,000 million of indebtedness associated with ATI's 5.0% Senior Notes due 2024 ("5.0% Senior Notes"), \$400 million of indebtedness associated with ATI's 4.75% Senior Notes due 2027 ("4.75% Senior Notes") and \$500 million of indebtedness associated with ATI's 5.875% Senior Notes (together with the 5.0% Senior Notes and 4.75% Senior Notes, the "Senior Notes"). The minimum required quarterly principal payment on ATI's New Term Loan through its maturity date of March 2026 is \$2 million. There are no required quarterly principal payments on ATI's Senior Notes.

Our ability to make payments on and refinance our indebtedness and to fund planned capital expenditures and growth initiatives will depend on our ability to generate cash in the future. This is subject to general economic, financial, competitive, legislative, regulatory and other factors that may be beyond our control. We made \$2 million and \$92 million of principal payments on the New Senior Secured Credit Facility during the three and nine months ended September 30, 2019. We made no principal payments and \$28 million of principal payments on the Prior Senior Secured Credit Facility during the three and nine months ended September 30, 2018.

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The New Senior Secured Credit Facility provides for a \$600 million New Revolving Credit Facility, net of an allowance for up to \$75 million in outstanding letters of credit commitments. Throughout the nine months ended September 30, 2019, the Company made periodic withdrawals and payments on the New Revolving Credit Facility as part of the Company's debt management plans. The maximum amount outstanding at any time during the nine months ended September 30, 2019 was \$90 million. As of September 30, 2019, we had \$583 million available under the New Revolving Credit Facility, net of \$17 million in letters of credit. As of September 30, 2019, we had no amounts outstanding under the New Revolving Credit Facility. If we have commitments outstanding on the New Revolving Credit Facility at the end of a fiscal quarter, the New Senior Secured Credit Facility requires us to maintain a specified maximum first lien net leverage ratio of 5.50x. Additionally, within the terms of the New Senior Secured Credit Facility, a first lien net leverage ratio at or below 4.00x results in the elimination of excess cash flow payments on the New Senior Secured Credit Facility for the applicable year. As of September 30, 2019, our first lien net leverage ratio was 0.4 4x. The New Senior Secured Credit Facility also provides certain financial incentives based on our first lien net leverage ratio. A first lien net leverage ratio at or below 4.00x and above 3.50x results in a 25 basis point reduction to the applicable margin on the New Revolving Credit Facility. A first lien net leverage ratio at or below 3.50x results in an additional 25 basis point reduction to the applicable margin on the New Revolving Credit Facility. These reductions remain in effect as long as we achieve a first lien net leverage ratio at or below the related threshold.

In addition, the Credit Agreement includes, among other things, customary restrictions (subject to certain exceptions) on our ability to incur certain indebtedness, grant certain liens, make certain investments, engage in acquisitions, consolidations and mergers, declare or pay certain dividends, and repurchase shares of our common stock. The indentures governing the Senior Notes contain negative covenants restricting or limiting our ability to, among other things, incur or guarantee additional indebtedness, incur liens, pay dividends on, redeem or repurchase our capital stock, make certain investments, permit payment or dividend restrictions on certain of our subsidiaries, sell assets, engage in certain transactions with affiliates, and consolidate or merge or sell all or substantially all of our assets. As of September 30, 2019, we are in compliance with all covenants under the New Senior Secured Credit Facility and indentures governing the Senior Notes.

Our credit ratings are reviewed by Moody's Investors Service ("Moody's") and Fitch Ratings ("Fitch"). Moody's rates our corporate credit at 'Ba2', New Term Loan at 'Baa3', 5.0% Senior Notes at 'Ba3', 4.75% Senior Notes at 'Ba3' and 5.875% Senior Notes at 'Ba3'. Fitch rates our corporate credit at 'BB', New Term Loan at 'BB+', 5.0% Senior Notes at 'BB', 4.75% Senior Notes at 'BB' and 5.875% Senior Notes at 'BB'.

On November 14, 2016, our Board of Directors authorized us to purchase up to \$1,000 million of our common stock under a stock repurchase program ("Repurchase Program"). On November 8, 2017 our Board of Directors increased the authorization by \$500 million, on July 30, 2018 our Board of Directors increased the authorization by an additional \$500 million and on May 9, 2019, the Board of Directors authorized the Company to repurchase an additional \$1,000 million, bringing the total amount authorized under the Repurchase Program to \$3,000 million. For the three and nine months ended September 30, 2019, we repurchased approximately \$46 million and \$331 million, respectively, of our common stock under the Repurchase Program. As of September 30, 2019, we had \$1,114 million available under the Repurchase Program.

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The following table shows our sources and uses of funds for the nine months ended September 30, 2019 and 2018 (in millions):

<i>Statements of Cash Flows Data</i>	Nine months ended September 30,	
	2019	2018
Cash flows provided by operating activities	\$ 645	\$ 605
Cash flows used for investing activities	\$ (323)	\$ (52)
Cash flows used for financing activities	\$ (399)	\$ (529)

Generally, cash provided by operating activities has been adequate to fund our operations. Due to fluctuations in our cash flows and the growth in our operations, it may be necessary from time to time in the future to borrow under the New Senior Secured Credit Facility to meet cash demands. We anticipate cash provided by operating activities, cash and cash equivalents and borrowing capacity under the New Senior Secured Credit Facility will be sufficient to meet our cash requirements for the next twelve months.

Cash provided by operating activities

Operating activities for the nine months ended September 30, 2019 generated \$645 million of cash compared to \$605 million for the nine months ended September 30, 2018. The increase was principally driven by lower operating working capital requirements, increased gross profit and decreased cash interest expense, partially offset by increased cash income taxes.

Cash used for investing activities

Investing activities for the nine months ended September 30, 2019 used \$323 million of cash compared to \$52 million for the nine months ended September 30, 2018. The increase was principally driven by \$232 million in cash paid for business acquisitions and a \$39 million increase in capital expenditures. The increase in capital expenditures was principally driven by increased spending related to investments in productivity and replacement programs and engineering and testing capabilities.

Cash used for financing activities

Financing activities for the nine months ended September 30, 2019 used \$399 million of cash compared to \$529 million for the nine months ended September 30, 2018. The decrease was principally driven by \$125 million of decreased stock repurchases, \$27 million of lower net payments on long-term debt and \$6 million less of dividends paid, partially offset by an increase of \$11 million in long-term debt restructuring payments.

Contingencies

We are a party to various legal actions and administrative proceedings and subject to various claims arising in the ordinary course of business, including those relating to commercial transactions, product liability, personal injury and workers' compensation, safety, health, taxes, environmental and other matters. For more information, see NOTE P, "Commitments and Contingencies" of our condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Critical Accounting Policies and Significant Accounting Estimates

A discussion of our critical accounting policies and significant accounting estimates is included in Part II, Item 7 “Management’s Discussion and Analysis” in our Annual Report on Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on February 26, 2019. The preparation of the condensed consolidated financial statements in accordance with GAAP requires management to make estimates and assumptions that affect the reported amounts of some assets and liabilities and, in some instances, the reported amounts of revenues and expenses during the applicable reporting period. Actual results could differ materially from these estimates. Changes in estimates are recorded in results of operations in the period that the events or circumstances giving rise to such changes occur. Within the context of these critical accounting estimates, we are not currently aware of any reasonably likely events or circumstances that would result in different policies or estimates being reported for the three and nine months ended September 30, 2019.

Off-Balance Sheet Arrangements

We are not a party to any off-balance sheet arrangements.

Recently Issued Accounting Pronouncements

See NOTE B, “Summary of Significant Accounting Policies” in Part I, Item 1, of this Quarterly Report on Form 10-Q.

Cautionary Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements. The words “believe,” “expect,” “anticipate,” “intend,” “estimate” and other expressions that are predictions of or indicate future events and trends and that do not relate to historical matters identify forward-looking statements. You should not place undue reliance on these forward-looking statements. Although forward-looking statements reflect management’s good faith beliefs, reliance should not be placed on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which may cause actual results, performance or achievements to differ materially from anticipated future results, performance or achievements expressed or implied by such forward-looking statements. Forward-looking statements speak only as of the date the statements are made. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events, changed circumstances or otherwise. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to: risks related to our substantial indebtedness; our participation in markets that are competitive; the highly cyclical industries in which certain of our end users operate; uncertainty in the global regulatory and business environments in which we operate; our ability to prepare for, respond to and successfully achieve our objectives relating to technological and market developments, competitive threats and changing customer needs; the concentration of our net sales in our top five customers and the loss of any one of these; the failure of markets outside North America to increase adoption of fully-automatic transmissions; the success of our research and development efforts, the outcome of which is uncertain; our failure to identify, consummate or effectively integrate acquisitions; U.S. and foreign defense spending; general economic and industry conditions; increases in cost, disruption of supply or shortage of raw materials or components used in our products; the discovery of defects in our products, resulting in delays in new model launches, recall campaigns and/or increased warranty costs and reduction in future sales or damage to our brand and reputation; risks associated with our international operations, including increased trade protectionism; labor strikes, work stoppages or similar labor disputes, which could significantly disrupt our operations or those of our principal customers; and our intention to pay dividends and repurchase shares of our common stock.

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Important factors that could cause actual results to differ materially from our expectations are disclosed in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on February 26, 2019. All written and oral forward-looking statements attributable to us, or persons acting on our behalf, are expressly qualified in their entirety by these cautionary statements as well as other cautionary statements that are made from time to time in our public communications. You should evaluate all forward-looking statements made in this Quarterly Report on Form 10-Q in the context of these risks and uncertainties.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk

Our exposure to market risk consists of changes in interest rates, foreign currency rate fluctuations and movements in commodity prices.

Interest Rate Risk

We are subject to interest rate market risk in connection with a portion of our long-term debt. Our principal interest rate exposure relates to outstanding amounts under our New Senior Secured Credit Facility. Our New Senior Secured Credit Facility provides for variable rate borrowings of up to \$1,229 million including \$583 million under our New Revolving Credit Facility, net of \$17 million of letters of credit. A one-eighth percent increase or decrease in assumed interest rates for the New Senior Secured Credit Facility, if fully drawn, as of September 30, 2019 would have an impact of approximately \$1 million on interest expense. As of September 30, 2019, we had no outstanding borrowings against the New Revolving Credit Facility.

From time to time, we enter into interest rate swap agreements to hedge our variable interest rate debt. During the first quarter of 2019, we entered into \$250 million of interest rate swaps and designated them as cash flow hedges under the hypothetical derivative method. As of September 30, 2019, we held interest rate swaps effective from September 2019 to September 2022 with notional values totaling \$250 million and a weighted average LIBOR fixed rate of 3.01%, interest rate swaps effective from September 2019 to September 2025 with notional values totaling \$250 million and a weighted average LIBOR fixed rate of 3.04% and interest rate swaps effective from September 2022 to September 2025 with notional values totaling \$250 million and a weighted average LIBOR fixed rate of 2.82%.

Exchange Rate Risk

While our net sales and costs are denominated primarily in U.S. Dollars, net sales, costs, assets and liabilities are generated in other currencies including Japanese Yen, Euro, Indian Rupee, Brazilian Real, Chinese Yuan Renminbi, Canadian Dollar and Hungarian Forint. The expansion of our business outside North America may further increase the risk that cash flows resulting from these activities may be adversely affected by changes in currency exchange rates.

Assuming current levels of foreign currency transactions, a 10% aggregate increase or decrease in the Japanese Yen, Euro, Indian Rupee and Chinese Yuan Renminbi would correspondingly change our earnings, net of tax, by an estimated \$6 million per year. We believe our other exposure to foreign currencies is immaterial.

Commodity Price Risk

We are subject to changes in our cost of sales caused by movements in underlying commodity prices. Approximately 70% of our cost of sales consists of purchased components with significant raw material content. A substantial portion of the purchased parts are made of aluminum and steel. The cost of aluminum parts includes an adjustment factor on future purchases for fluctuations in aluminum prices based on accepted industry indices. In addition, a substantial amount of steel-based contracts also include an index-based component. As our costs change, we are able to pass through a portion of the changes in commodity prices to certain of our customers according to our LTAs. We historically have not entered into long-term purchase contracts related to the purchase of aluminum and steel.

Assuming current levels of commodity purchases, a 10% variation in the price of aluminum and steel would correspondingly change our earnings by approximately \$6 million and \$7 million per year, respectively.

Many of our LTAs have incorporated a cost-sharing arrangement related to potential future commodity price fluctuations. For purposes of the sensitivity analysis above, the impact of these cost sharing arrangements has not been included.

ITEM 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) as of the end of the period covered by this report. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Based on the evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures as of the end of the period covered by this Quarterly Report on Form 10-Q were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the period covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

From time to time, we are a party to various legal actions in the normal course of our business, including those related to commercial transactions, product liability, personal injury and workers' compensation, safety, health, taxes, environmental and other matters. See NOTE P, "Commitments and Contingencies" in the notes to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Item 1A. Risk Factors

There have been no material changes from our risk factors as previously reported in Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on February 26, 2019.

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

The following table sets forth information related to our repurchases of our common stock on a monthly basis in the three months ended September 30, 2019:

	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(1)	Approximate Dollar Value of Shares that May Yet Be Purchased Under Plans(1)
July 1– July 31, 2019	—	\$ —	—	\$1,159,713,801
August 1 – August 31, 2019	584,371	\$ 43.26	584,371	\$1,134,435,810
September 1 – September 30, 2019	444,731	\$ 46.17	444,731	\$1,113,900,620
Total	<u>1,029,102</u>	\$ 44.52	<u>1,029,102</u>	

- (1) These values reflect repurchases made under the Repurchase Program approved by the Board of Directors on November 14, 2016 and the increases approved by the Board of Directors on November 8, 2017, July 30, 2018 and May 9, 2019 which, in the aggregate, authorized total repurchases of \$3,000 million. The Repurchase Program has no termination date.

Item 6. Exhibits

(a) Exhibits

<u>Exhibit Number</u>	<u>Description</u>
10.1	Amendment No. 1, dated October 11, 2019, to the Second Amended and Restated Credit Agreement, dated as of March 29, 2019, among Allison Transmission Holdings, Inc., Allison Transmission, Inc., as Borrower, the several banks and other financial institutions or entities from time to time parties thereto as Lenders, Citibank, N.A., as Administrative Agent and as of the 2019 refinancing term Lender and the other agents and arrangers party thereto (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed October 15, 2019)
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	Certification of Periodic Report by Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith)
101	The following financial information from the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in Inline XBRL (eXtensible Business Reporting Language): (i) the Condensed Consolidated Balance Sheets; (ii) the Condensed Consolidated Statements of Comprehensive Income; (iii) the Condensed Consolidated Statements of Cash Flows; and (iv) the Notes to Condensed Consolidated Financial Statements
104	Cover Page Interactive Data File – The cover page from the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, formatted in Inline XBRL and contained in Exhibit 101

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.

ALLISON TRANSMISSION HOLDINGS, INC.

Date: October 31, 2019

By: /s/ David S. Graziosi

Name: David S. Graziosi
Title: President and Chief Executive Officer
(Principal Executive Officer)

Date: October 31, 2019

By: /s/ G. Frederick Bohley

Name: G. Frederick Bohley
Title: Senior Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer and Principal Accounting Officer)

**CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES
EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002**

I, David S. Graziosi, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Allison Transmission Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of 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.

Dated: October 31, 2019

/s/ David S. Graziosi

Name: David S. Graziosi
Title: President and Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO RULE 13a-14(a)/15d-14(a) OF THE SECURITIES
EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE
SARBANES-OXLEY ACT OF 2002**

I, G. Frederick Bohley, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Allison Transmission Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of 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.

Dated: October 31, 2019

/s/ G. Frederick Bohley

Name: G. Frederick Bohley

Title: Senior Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Allison Transmission Holdings, Inc. (the "Company") on Form 10-Q for the quarter ending September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, David S. Graziosi, President and Chief Executive Officer of the Company, and G. Frederick Bohley, Senior Vice President, Chief Financial Officer and Treasurer of the Company, certify, pursuant to 18 U.S.C. § 1350 as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, 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.

Dated: October 31, 2019

/s/ David S. Graziosi
David S. Graziosi
President and Chief Executive Officer
(Principal Executive Officer)

Dated: October 31, 2019

/s/ G. Frederick Bohley
G. Frederick Bohley
Senior Vice President, Chief Financial Officer and Treasurer
(Principal Financial Officer)