ASTRONICS CORP
Form 10-K
March 01, 2019
FALSE2018FYATRONoYesNoLarge Accelerated
FilerFALSEFALSEFALSE847,000,00024,430,8018,165,432--12-3100000080630.010.0140,000,00040,000,00025,978,03722,

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-K

---

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

For the Fiscal Year Ended December 31, 2018
Commission File Number 0-7087

Astronics Corporation
(Exact Name of Registrant as Specified in its Charter)

New York	**16-0959303**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

130 Commerce Way, East Aurora, N.Y. 14052
(Address of principal executive office)
Registrant's telephone number, including area code (716) 805-1599
Securities registered pursuant to Section 12(b) of the Act: None
Securities registered pursuant to Section 12(g) of the Act:
$.01 par value Common Stock; $.01 par value Class B Stock
(Title of Class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ¨ No x
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ¨ No x

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 x No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See definition of "large accelerated filer", an "accelerated filer", a "non-accelerated filer" and a "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	x	Accelerated filer	¨
Non-accelerated filer	¨	Smaller Reporting Company	¨

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ¨ No x
As of February 14, 2019, 32,596,233 shares were outstanding, consisting of 24,430,801 shares of Common Stock $.01 par value and 8,165,432 shares of Class B Stock $.01 par value. The aggregate market value, as of the last business day of the
Company's most recently completed second fiscal quarter, of the shares of Common Stock and Class B Stock of Astronics Corporation held by non-affiliates was approximately $847,000,000 (assuming conversion of all of the outstanding Class B Stock into Common Stock and assuming the affiliates of the Registrant to be its directors, executive officers and persons known to the Registrant to beneficially own more than 10% of the outstanding capital stock of the Corporation).

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Company's Proxy Statement for the 2019 Annual Meeting of Shareholders to be held May 30, 2019 are incorporated by reference into Part III of this Report.

1

Table of Contents
ASTRONICS CORPORATION
Index to Annual Report
on Form 10-K
Year Ended December 31, 2018

FORWARD LOOKING STATEMENTS

Information included or incorporated by reference in this report that does not consist of historical facts, including statements accompanied by or containing words such as “may,” “will,” “should,” “believes,” “expects,” “expected,” “intends,” “projects,” “approximate,” “estimates,” “predicts,” “potential,” “outlook,” “forecast,” “anticipates,” “presume” and “assume,” a forward-looking statements. Such forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements are not guarantees of future performance and are subject to several factors, risks and uncertainties, the impact or occurrence of which could cause actual results to differ materially from the expected results described in the forward-looking statements. Certain of these factors, risks and uncertainties are discussed in the sections of this report entitled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” New factors, risks and uncertainties may emerge from time to time that may affect the forward-looking statements made herein. Given these factors, risks and uncertainties, investors should not place undue reliance on forward-looking statements as predictive of future results. We disclaim any obligation to update the forward-looking statements made in this report.

PART I

ITEM 1. *BUSINESS*

Astronics Corporation (“Astronics” or the “Company”) is a leading provider of advanced technologies to the global aerospace, defense and electronics industries. Our products and services include advanced, high-performance electrical power generation, distribution and motion systems, lighting and safety systems, avionics products, systems and certification, aircraft structures and automated test systems.

We have operations in the United States (“U.S.”), Canada and France. We design and build our products through our wholly owned subsidiaries Astronics Advanced Electronic Systems Corp. (“AES”); Astronics AeroSat Corporation (“AeroSat”); Armstrong Aerospace, Inc. (“Armstrong”); Astronics Test Systems, Inc. (“ATS”); Ballard Technology, Inc. (“Ballard”); Astronics Connectivity Systems and Certification Corp. (“CSC”); Astronics Custom Control Concepts Inc. (“CCC”); Astronics DME LLC (“DME”); Luminescent Systems, Inc. (“LSI”); Luminescent Systems Canada, Inc. (“LSI Canada”); Max-Viz, Inc. (“Max-Viz”); Peco, Inc. (“Peco”); and PGA Electronic s.a. (“PGA”).

Acquisitions

On April 3, 2017, Astronics Custom Control Concepts Inc., a wholly owned subsidiary of the Company acquired substantially all the assets and certain liabilities of Custom Control Concepts LLC, located in Kent, Washington. CCC is a provider of cabin management and in-flight entertainment systems for a range of aircraft. The total consideration for the transaction was $10.2 million, net of $0.5 million in cash acquired. CCC is included in our Aerospace segment.

On December 1, 2017, Astronics acquired substantially all of the assets of Telefonix Inc. and a related company, Product Development Technologies, LLC and its subsidiaries, to become CSC, primarily located in Waukegan and Lake Zurich, Illinois. CSC designs and manufactures advanced in-flight entertainment and connectivity equipment, and provides industry leading design consultancy services for the global aerospace industry. The Company's products include wireless access points, file servers, content loaders and passenger control units. The total consideration for the transaction was $103.8 million, net of $0.2 million in cash acquired. CSC is included in our Aerospace segment.

Divestiture

On February 13, 2019, the Company completed a divestiture of its semiconductor test business within the Test Systems segment. The total cash proceeds of the divestiture amounted to approximately $103.5 million, consisting of $100 million cash at closing, plus approximately $3.5 million related to the sale of certain related inventory. The Company expects to record a pre-tax gain on the sale of approximately $80 million in the first quarter of 2019. The income tax expense relating to the gain is estimated to be $22 million.

The transaction also includes two elements of contingent earnouts. The “First Earnout” is calculated based on a multiple of all future sales of existing and certain future derivative products to existing and future customers in each annual period from 2019 through 2022. The First Earnout may not exceed $35 million in total. The “Second Earnout” is calculated based on a multiple of future sales related to an existing product and program with an existing customer exceeding an annual threshold for each annual period from 2019 through 2022. The Second Earnout is not capped. For the Second Earnout, if the applicable sales in an annual period do not exceed the annual threshold, no amounts will be paid relative to such annual period; the sales in such annual period do not carry over to the next annual period. Due to the degree of uncertainty associated with estimating the future sales levels of the divested business and its underlying programs, and the lack of reliable predictive market information, the Company will recognize such earnout proceeds, if received, as additional gain on sale when such proceeds are realized or realizable.

Products and Customers

Our Aerospace segment designs and manufactures products for the global aerospace industry. Product lines include lighting and safety systems, electrical power generation, distribution and motions systems, aircraft structures, avionics products, systems certification, and other products. Our Aerospace customers are the airframe manufacturers (“OEM”) that build aircraft for the commercial, military and general aviation markets, suppliers to those OEM’s, aircraft operators such as airlines and branches of the U.S. Department of Defense as well as the Federal Aviation Administration and airport operators. During 2018, this segment’s sales were divided 80% to the commercial transport market, 10% to the military aircraft market, 6% to the business jet market and 4% to other markets. Most of this segment’s sales are a result of contracts or purchase orders received from customers, placed on a day-to-day basis or for single year procurements rather than long-term multi-year contract commitments. On occasion, the Company does receive contractual commitments or blanket purchase orders from our customers covering multiple-year deliveries of hardware to our customers.

Our Test Systems segment designs, develops, manufactures and maintains automated test systems that support the aerospace, communications and weapons test systems as well as training and simulation devices for both commercial and military applications. In the Test Systems segment, Astronics' products are sold to a global customer base including OEMs and prime government contractors for both electronics and military products. During 2018, this segment's sales were divided 66% to the semiconductor market and 34% to the aerospace & defense market.
Sales by segment, geographic region, major customer and foreign operations are provided in Note 19 of Item 8, Financial Statements and Supplementary Data in this report.
We have a significant concentration of business with two major customers; Panasonic Avionics Corporation ("Panasonic") and The Boeing Company ("Boeing"). Sales to Panasonic accounted for 14.4% of sales in 2018, 19.1% of sales in 2017, and 21.6% of sales in 2016. Sales to Boeing accounted for 14.3% of sales in 2018, 16.8% of sales in 2017, and 15.2% of sales in 2016.

Strategy

Our strategy is to increase our value by developing technologies and capabilities either internally or through acquisition, and use those capabilities to provide innovative solutions to the aerospace & defense and other markets where our technology can be beneficial.

Practices as to Maintaining Working Capital

Liquidity is discussed in Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations, in the Liquidity and Capital Resources section of this report.

Competitive Conditions

We experience considerable competition in the market sectors we serve, principally with respect to product performance and price, from various competitors, many of which are substantially larger and have greater resources. Success in the markets we serve depends upon product innovation, customer support, responsiveness and cost management. We continue to invest in developing the technologies and engineering support critical to competing in our markets.

Government Contracts

All U.S. government contracts, including subcontracts where the U.S. government is the ultimate customer, may be subject to termination at the election of the government. Our revenue stream relies on military spending. Approximately 14% of our consolidated sales were made to the military aircraft and military test systems markets combined.

Raw Materials

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

Seasonality

Our business is typically not seasonal.

Backlog

At December 31, 2018, our consolidated backlog was $416 million. Excluding backlog related to the divested semiconductor business, our backlog was $403 million at December 31, 2018. At December 31, 2017, our backlog was $394 million. Backlog in the Aerospace segment was $326 million at December 31, 2018, of which $306 million is expected to be realized in 2019. Backlog in the Test Systems segment, exclusive of the backlog associated with the divested semiconductor business, was $77 million at December 31, 2018, of which $46 million is expected to be realized in 2019.

Patents

We have a number of patents. While the aggregate protection of these patents is of value, our only material business that is dependent upon the protection afforded by these patents is our cabin power distribution products. Our patents and patent applications relate to electroluminescence, instrument panels, cord reels and handsets, and a broad patent covering the cabin power distribution technology. We regard our expertise and techniques as proprietary and rely upon trade secret laws and contractual arrangements to protect our rights. We have trademark protection in our major markets.

Research, Development and Engineering Activities

We are engaged in a variety of engineering and design activities as well as basic research and development activities directed to the substantial improvement or new application of our existing technologies. These costs are expensed when incurred and included in cost of sales. Research, development and engineering costs amounted to approximately $114.3 million in 2018, $95.0 million in 2017 and $88.9 million in 2016.

Employees

We employed approximately 2,700 employees at December 31, 2018. We consider our relations with our employees to be good. We have approximately 200 hourly production employees at Peco who are subject to collective bargaining agreements.

Available information

We file our financial information and other materials as electronically required with the Securities and Exchange Commission ("SEC"). These materials can be accessed electronically via the Internet at www.sec.gov. Such materials and other information about the Company are also available through our website at www.astronics.com.

ITEM 1A. ***RISK FACTORS***

The loss of Panasonic or Boeing as major customers or a significant reduction in business with either of those customers would reduce our sales and earnings. In 2018, we had a concentration of sales to Panasonic and Boeing representing approximately 14.4% and 14.3% of our sales, respectively. The loss of either of these customers or a significant reduction in business with them would significantly reduce our sales and earnings.

A write-off of all or part of our goodwill or other intangible assets could adversely affect our operating results and net worth. At December 31, 2018, goodwill and net intangible assets were approximately 16.1% and 17.2% of our total assets, respectively. Our goodwill and other intangible assets may increase in the future since our strategy includes growing through acquisitions. We may have to write-off all or part of our goodwill or purchased intangible assets if their value becomes impaired. Although this write-off would be a non-cash charge, it could reduce our earnings and net worth significantly.

The markets we serve are cyclical and sensitive to domestic and foreign economic conditions and events, which may cause our operating results to fluctuate. Demand for our products is, to a large extent, dependent on the demand and success of our customers' products where we are a supplier to an OEM. In our Aerospace segment, demand by the business jet markets for our products is dependent upon several factors, including capital investment, product innovations, economic growth and wealth creation and technology upgrades. In addition, the commercial airline industry is highly cyclical and sensitive to fuel price increases, labor disputes, global economic conditions, availability of capital to fund new aircraft purchases and upgrades of existing aircraft and passenger demand. A change in any of these factors could result in a reduction in the amount of air travel and the ability of airlines to invest in new aircraft or to upgrade existing aircraft. These factors would reduce orders for new aircraft and would likely reduce airlines' spending for cabin upgrades for which we supply products, thus reducing our sales and profits. A reduction in air travel may also result in our commercial airline customers being unable to pay our invoices on a timely basis or not at all.

We are a supplier on various new aircraft programs just entering or expected to begin production in the future. As with any new program, there is risk as to whether the aircraft or program will be successful and accepted by the market. As is customary for our business, we purchase inventory and invest in specific capital equipment to support our production requirements generally based on delivery schedules provided by our customer. If a program or aircraft is not successful, we may have to write-off all or a part of the inventory, accounts receivable and capital equipment related to the program. A write-off of these assets could result in a significant reduction of earnings and cause covenant violations relating to our debt agreements. This could result in our being unable to borrow additional funds under our bank credit facility or being obliged to refinance or renegotiate the terms of our bank indebtedness.

In our Test Systems segment, the market for our products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. In any one reporting period, a single customer or several customers may contribute an even larger percentage of our consolidated sales. In addition, our ability to increase sales will depend, in part, on our ability to obtain orders from current or new significant customers. The opportunities to obtain orders from these customers may be limited, which may impair our ability to grow sales. We expect that sales of our Test Systems products will continue to be concentrated with a limited number of significant customers for the foreseeable future. Additionally, demand for some of our test products is dependent upon government funding levels for our products, our ability to compete successfully for those contracts and our ability to develop products to satisfy the demands of our customers.

Our products are sold in highly competitive markets. Some of our competitors are larger, more diversified corporations and have greater financial, marketing, production and research and development resources. As a result, they may be better able to withstand the effects of periodic economic downturns. Our operations and financial performance will be negatively impacted if our competitors:

•develop products that are superior to our products;
•develop products that are more competitively priced than our products;
•develop methods of more efficiently and effectively providing products and services; or
•adapt more quickly than we do to new technologies or evolving customer requirements.

We believe that the principal points of competition in our markets are product quality, price, design and engineering capabilities, product development, conformity to customer specifications, quality of support after the sale, timeliness of delivery and effectiveness of the distribution organization. Maintaining and improving our competitive position will require continued investment in manufacturing, engineering, quality standards, marketing, customer service and support and our distribution networks. If we do not maintain sufficient resources to make these investments, or are not successful in maintaining our competitive position, our operations and financial performance will suffer.

Our future success depends to a significant degree upon the continued contributions of our management team and technical personnel. The loss of members of our management team could have a material and adverse effect on our business. In addition, competition for qualified technical personnel in our industry is intense, and we believe that our future growth and success will depend on our ability to attract, train and retain such personnel.

We may incur losses and liabilities as a result of our acquisition strategy. Growth by acquisition involves risks that could adversely affect our financial condition and operating results, including:

•diversion of management time and attention from our core business;
•the potential exposure to unanticipated liabilities;
•the potential that expected benefits or synergies are not realized and that operating costs increase;
•the risks associated with incurring additional acquisition indebtedness, including that additional indebtedness could limit our cash flow availability for operations and our flexibility;
•difficulties in integrating the operations and personnel of acquired companies; and
•the potential loss of key employees, suppliers or customers of acquired businesses.

In addition, any acquisition, once successfully integrated, could negatively impact our financial performance if it does not perform as planned, does not increase earnings, or does not prove otherwise to be beneficial to us.

We currently are involved or may become involved in the future, in legal proceedings that, if adversely adjudicated or settled, could materially impact our financial condition. As an aerospace company, we may become a party to litigation in the ordinary course of our business, including, among others, matters alleging product liability, warranty claims, breach of commercial or government contract or other legal actions. In general, litigation claims can be expensive and time consuming to bring or defend against and could result in settlements or damages that could significantly impact results of operations and financial condition.

We are a defendant in actions filed in the Regional State Court of Mannheim, Germany (Lufthansa Technik AG v. Astronics Advanced Electronics Systems Corp.) relating to an allegation of patent infringement. On December 29, 2010, Lufthansa Technik AG ("Lufthansa") filed a Statement of Claim in the Regional State Court of Mannheim, Germany. Lufthansa's claim asserts that our subsidiary, AES, sold, marketed, and brought into use in Germany a power supply system that infringes upon a German patent held by Lufthansa. Lufthansa sought an order requiring AES to stop selling and marketing the allegedly infringing power supply system, a recall of allegedly infringing products sold to commercial customers in Germany since November 26, 2003, and compensation for damages related to direct sales of the allegedly infringing power supply system in Germany (referred to as "direct sales"). The claim does not specify an estimate of damages and a related damages claim is being pursued by Lufthansa in separate court proceedings in an action filed in July 2017, as further discussed below.

In February 2015, the Regional State Court of Mannheim, Germany rendered its decision that the patent was infringed. The judgment does not require AES to recall products that are already installed in aircraft or have been sold to other end users. On

July 15, 2015, Lufthansa advised AES of their intention to enforce the accounting provisions of the decision, which required AES to provide certain financial information regarding direct sales of the infringing product in Germany to enable Lufthansa to make an estimate of requested damages. Additionally, if Lufthansa provides the required bank guarantee specified in the decision, the Company may be required to offer a recall of products that are in the distribution channels in Germany. No such bank guarantee has been issued to date. As of December 31, 2018 there are no products subject to the order in the distribution channels in Germany.

The Company appealed to the Higher Regional Court of Karlsruhe. On November 15, 2016, the Court issued its ruling and upheld the lower court’s decision. The Company submitted a petition to grant AES leave for appeal to the German Federal Supreme Court. On April 18, 2018, the German Federal Supreme Court granted Astronics’ petition in part, namely with respect to the part concerning the amount of damages. On January 8, 2019, Federal Supreme Court held the hearing on the appeal. A decision on the Company's appeal is expected in late March 2019.

In July 2017, Lufthansa filed an action in the Regional State Court of Mannheim for payment of damages caused by the alleged patent infringement of AES, related to direct sales of the allegedly infringing product in Germany (associated with the original December 2010 action discussed above). In this action, which was served on AES on April 11, 2018, Lufthansa claims payment of approximately $6.2 million plus interest. According to AES's assessment, this claim is significantly higher than justified. We estimate AES’s potential exposure to be approximately $1 million to $3 million, and have recorded a reserve of $1 million associated with this matter. Such amount is recorded within Other Accrued Expenses and Selling, General and Administrative Expenses in the accompanying financial statements as of and for the year ended December 31, 2018. An oral hearing in this matter has been scheduled for March 15, 2019. A first instance decision in this matter is expected in mid-2019.

On December 29, 2017, Lufthansa filed another infringement action against AES in the Regional State Court of Mannheim claiming that sales by AES to its international customers have infringed Lufthansa's patent if AES's customers later shipped the products to Germany (referred to as “indirect sales”). This action, therefore, addresses sales other than those covered by the action filed on December 29, 2010, discussed above. In this action, served on April 11, 2018, Lufthansa seeks an injunction, an order obliging AES to provide information and accounting and a finding that AES owes damages for the attacked indirect sales. AES will vigorously defend against the action. No amount of claimed damages has been specified by Lufthansa and such amount is not quantifiable at this time. An oral hearing in this matter has been scheduled for March 15, 2019. A first instance decision is in this matter is expected in mid-2019. As loss exposure is neither probable nor estimable at this time, the Company has not recorded any liability with respect to this litigation as of December 31, 2018.

In December 2017, Lufthansa filed patent infringement cases in the United Kingdom and France against AES. The Lufthansa patent expired in May 2018. In those cases, Lufthansa accuses AES of having manufactured, used, sold and offered for sale a power supply system, and offered and supplied parts for a power supply system, that infringed upon a Lufthansa patent in those respective countries. As loss exposure is neither probable nor estimable at this time, the Company has not recorded any liability with respect to these matters as of December 31, 2018.

On November 26, 2014, Lufthansa filed a complaint in the United States District for the Western District of Washington. Lufthansa’s complaint in that action alleges that AES manufactures, uses, sells and offers for sale a power supply system that infringes upon a U.S. patent held by Lufthansa. The patent at issue in the U.S. action is based on technology similar to that involved in the German action. On April 25, 2016, the Court issued its ruling on claim construction, holding that the sole independent claim in the patent is indefinite, rendering all claims in the patent indefinite. Based on this ruling, AES filed a motion for summary judgment on the grounds that the Court’s ruling that the patent is indefinite renders the patent invalid and unenforceable. On July 20, 2016, the U.S. District Court granted the motion for summary judgment and issued an order dismissing all claims against AES with prejudice.

Lufthansa appealed the District Court's decision to the United States Court of Appeals for the Federal Circuit. On October 19, 2017, the Federal Circuit affirmed the district court’s decision, holding that the sole independent claim of the patent is indefinite, rending all claims on the patent indefinite. Lufthansa did not file a petition for en banc rehearing or petition the U.S. Supreme Court for a writ of certiorari. Therefore, there is no longer a risk of exposure from that lawsuit.

Other than these proceedings, we are not party to any significant pending legal proceedings that management believes will result in a material adverse effect on our financial condition or results of operations.

The amount of debt we have outstanding, as well as any debt we may incur in the future, could have an adverse effect on our operational and financial flexibility. As of December 31, 2018, we had approximately $234.0 million of debt outstanding, of which $232.1 million is long-term debt. Changes to our level of debt subsequent to December 31, 2018 could have significant consequences to our business, including the following:

•Depending on interest rates and debt maturities, a substantial portion of our cash flow from operations could be dedicated to paying principal and interest on our debt, thereby reducing funds available for our acquisition strategy, capital expenditures or other purposes;

•A significant amount of additional debt could make us more vulnerable to changes in economic conditions or increases in prevailing interest rates;

•Our ability to obtain additional financing for acquisitions, capital expenditures or for other purposes could be impaired;

•The increase in the amount of debt we have outstanding increases the risk of non-compliance with some of the covenants in our debt agreements which require us to maintain specified financial ratios; and

•We may be more leveraged than some of our competitors, which may result in a competitive disadvantage.

We are subject to debt covenant restrictions. Our credit facility contains certain financial and other restrictive covenants. A significant decline in our operating income could cause us to violate our covenants. A covenant violation would require a waiver by the lenders or an alternative financing arrangement be achieved. This could result in our being unable to borrow under our bank credit facility or being obliged to refinance and renegotiate the terms of our bank indebtedness. Historically both choices have been available to us, however, it is difficult to predict the availability of these options in the future.

We are subject to financing and interest rate exposure risks that could adversely affect our business, liquidity and operating results. Changes in the availability, terms and cost of capital, and increases in interest rates could cause our cost of doing business to increase and place us at a competitive disadvantage. At December 31, 2018, approximately 3% of our debt was at fixed interest rates with the remainder subject to variable interest rates.

Our future operating results could be impacted by estimates used to calculate impairment losses on long lived assets. The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make significant and subjective estimates and assumptions that may affect the reported amounts of long lived assets in the financial statements. These estimates are integral in the determination of whether a potential non-cash impairment loss exists as well as the calculation of that loss. Actual future results could differ from those estimates.

Future terror attacks, war, or other civil disturbances could negatively impact our business. Continued terror attacks, war or other disturbances could lead to economic instability and decreases in demand for our products, which could negatively impact our business, financial condition and results of operations. Terrorist attacks world-wide have caused instability from time to time in global financial markets and the aviation industry. The long-term effects of terrorist attacks on us are unknown. These attacks and the U.S. government's continued efforts against terrorist organizations may lead to additional armed hostilities or to further acts of terrorism and civil disturbance in the U.S. or elsewhere, which may further contribute to economic instability.

Our business and operations could be adversely impacted in the event of a failure of our information technology infrastructure or adversely impacted by a successful cyber-attack. We are dependent on various information technologies throughout our company to administer, store and support multiple business activities. We routinely experience various cybersecurity threats, threats to our information technology infrastructure, unauthorized attempts to gain access to our company sensitive information, and denial-of-service attacks as do our customers, suppliers and subcontractors. We conduct regular periodic training of our employees as to the protection of sensitive information which includes security awareness training intended to prevent the success of "phishing" attacks.

The threats we face vary from attacks common to most industries to more advanced and persistent, highly organized adversaries, including nation states, which target us and other defense contractors because we protect sensitive information. If we are unable to protect sensitive information, our customers or governmental authorities could question the adequacy of our threat mitigation and detection processes and procedures, and depending on the severity of the incident, our customers' data, our employees' data, our intellectual property, and other third party data (such as subcontractors, suppliers and vendors) could be compromised. As a consequence of their persistence, sophistication and volume, we may not be successful in defending against all such attacks. Due to the evolving nature of these security threats, the impact of any future incident cannot be predicted.

Although we work cooperatively with our customers, suppliers, and subcontractors to seek to minimize the impact of cyber threats, other security threats or business disruptions, we must rely on the safeguards put in place by these entities, which may affect the security of our information. These entities have varying levels of cyber security expertise and safeguards and their relationships with U.S. government contractors, such as Astronics, may increase the likelihood that they are targeted by the same cyber threats we face.

Our inability to adequately enforce and protect our intellectual property or defend against assertions of infringement could prevent or restrict our ability to compete. We rely on patents, trademarks and proprietary knowledge and technology, both internally developed and acquired, in order to maintain a competitive advantage. Our inability to defend against the unauthorized use of these rights and assets could have an adverse effect on our results of operations and financial condition. Litigation may be necessary to protect our intellectual property rights or defend against claims of infringement. This litigation could result in significant costs and divert our management's focus away from operations.

If we are unable to adapt to technological change, demand for our products may be reduced. The technologies related to our products have undergone, and in the future may undergo, significant changes. To succeed in the future, we will need to continue to design, develop, manufacture, assemble, test, market and support new products and enhancements on a timely and cost effective basis. Our competitors may develop technologies and products that are more effective than those we develop or that render our technology and products obsolete or uncompetitive. Furthermore, our products could become unmarketable if new industry standards emerge. We may have to modify our products significantly in the future to remain competitive, and new products we introduce may not be accepted by our customers.

Our new product development efforts may not be successful, which would result in a reduction in our sales and earnings. We may experience difficulties that could delay or prevent the successful development of new products or product enhancements, and new products or product enhancements may not be accepted by our customers. In addition, the development expenses we incur may exceed our cost estimates, and new products we develop may not generate sales sufficient to offset our costs. If any of these events occur, our sales and profits could be adversely affected.

We depend on government contracts and subcontracts with defense prime contractors and sub-contractors that may not be fully funded, may be terminated, or may be awarded to our competitors. The failure to be awarded these contracts, the failure to receive funding or the termination of one or more of these contracts could reduce our sales. Sales to the U.S. government and its prime contractors and subcontractors represent a significant portion of our business. The funding of these programs is generally subject to annual congressional appropriations, and congressional priorities are subject to change. In addition, government expenditures for defense programs may decline or these defense programs may be terminated. A decline in governmental expenditures or the termination of existing contracts may result in a reduction in the volume of contracts awarded to us. We have resources applied to specific government contracts and if any of those contracts were terminated, we may incur substantial costs redeploying those resources.

If our subcontractors or suppliers fail to perform their contractual obligations, our prime contract performance and our ability to obtain future business could be materially and adversely impacted. Many of our contracts involve subcontracts with other companies upon which we rely to perform a portion of the services we must provide to our customers. There is a risk that we may have disputes with our subcontractors, including disputes regarding the quality and timeliness of work performed by the subcontractor or customer concerns about the subcontractor. Failure by our subcontractors to satisfactorily provide, on a timely basis, the agreed-upon supplies or perform the agreed-upon services may materially and adversely impact our ability to perform our obligations with our customer. Subcontractor performance deficiencies could result in a customer terminating our contract for default. A default termination could expose us to liability and substantially impair our ability to compete for future contracts and orders. In addition, a delay in our ability to obtain components and equipment parts from our suppliers may affect our ability to meet our customers' needs and may have an adverse effect upon our profitability.

Our results of operations are affected by our fixed-price contracts, which could subject us to losses in the event that we have cost overruns. For the year ended December 31, 2018, fixed-price contracts represented almost all of the Company's sales. On fixed-price contracts, we agree to perform the scope of work specified in the contract for a predetermined price. Depending on the fixed price negotiated, these contacts may provide us with an opportunity to achieve higher profits based on the relationship between our costs and the contract's fixed price. However, we bear the risk that increased or unexpected costs may reduce our profit.

Some of our contracts contain late delivery penalties. Failure to deliver in a timely manner due to supplier problems, development schedule slides, manufacturing difficulties, or similar schedule related events could have a material adverse effect on our business.

The failure of our products may damage our reputation, necessitate a product recall or result in claims against us that exceed our insurance coverage, thereby requiring us to pay significant damages. Defects in the design and manufacture of our products may necessitate a product recall. We include complex system design and components in our products that could contain errors or defects, particularly when we incorporate new technology into our products. If any of our products are defective, we could be required to redesign or recall those products or pay substantial damages or warranty claims. Such an event could result in significant expenses, disrupt sales and affect our reputation and that of our products. We are also exposed to product liability claims. We carry aircraft and non-aircraft product liability insurance consistent with industry norms. However, this insurance coverage may not be sufficient to fully cover the payment of any potential claim. A product recall or a product liability claim not covered by insurance could have a material adverse effect on our business, financial condition and results of operations.

Changes in discount rates and other estimates could affect our future earnings and equity. Our goodwill asset impairment evaluations are determined using valuations that involve several assumptions, including discount rates, cash flow estimates, growth rates and terminal values. Certain of these assumptions, particularly the discount rate, are based on market conditions and are outside of our control. Changes in these assumptions could affect our future earnings and equity.

Additionally, pension obligations and the related costs are determined using actual results and actuarial valuations that involve several assumptions. The most critical assumption is the discount rate. Other assumptions include mortality, salary increases and retirement age. The discount rate assumptions are based on current market conditions and are outside of our control. Changes in these assumptions could affect our future earnings and equity.

Contracting in the defense industry is subject to significant regulation, including rules related to bidding, billing and accounting kickbacks and false claims, and any non-compliance could subject us to fines and penalties or possible debarment. Like all government contractors, we are subject to risks associated with this contracting. These risks include the potential for substantial civil and criminal fines and penalties. These fines and penalties could be imposed for failing to follow procurement integrity and bidding rules, employing improper billing practices or otherwise failing to follow cost accounting standards, receiving or paying kickbacks or filing false claims. We have been, and expect to continue to be, subjected to audits and investigations by government agencies. The failure to comply with the terms of our government contracts could harm our business reputation. It could also result in suspension or debarment from future government contracts.

If we fail to meet expectations of securities analysts or investors due to fluctuations in our sales or operating results, our stock price could decline significantly. Our sales and earnings may fluctuate from quarter to quarter due to a number of factors, including delays or cancellations of programs. It is likely that in some future quarters our operating results may fall below the expectations of securities analysts or investors. In this event, the trading price of our stock could decline significantly.

Our operations in foreign countries expose us to political and currency risks and adverse changes in local legal and regulatory environments. In 2018, approximately 8.8% of our sales were made by our subsidiaries in France and Canada. Net assets held by these subsidiaries total $45.0 million at December 31, 2018. Our financial results may be adversely affected by fluctuations in foreign currencies and by the translation of the financial statements of our foreign subsidiaries from local currencies into U.S. dollars. We expect international operations and export sales to continue to contribute to our earnings for the foreseeable future. Both the sales from international operations and export sales are subject in varying degrees to risks inherent in doing business outside of the U.S. Such risks include the possibility of unfavorable circumstances arising from host country laws or regulations, changes in tariff and trade barriers and import or export licensing requirements, and political or economic reprioritization, insurrection, civil disturbance or war.

Government regulations could limit our ability to sell our products outside the U.S. and could otherwise adversely affect our business. Certain of our sales are subject to compliance with U.S. export regulations. Our failure to obtain, or fully adhere to the limitations contained in, the requisite licenses, meet registration standards or comply with other government export regulations would hinder our ability to generate sales of our products outside the U.S. Compliance with these government regulations may also subject us to additional fees and operating costs. The absence of comparable restrictions on competitors in other countries may adversely affect our competitive position. In order to sell our products in European Union countries, we must satisfy certain technical requirements. If we are unable to comply with those requirements with respect to a significant quantity of our products, our sales in Europe would be restricted. Doing business internationally also subjects us to numerous U.S. and foreign laws and regulations, including regulations relating to import-export control, technology transfer restrictions, foreign corrupt practices and anti-boycott provisions. Our failure, or failure by an authorized agent or representative that is attributable to us, to comply with these laws and regulations could result in administrative, civil or criminal liabilities and could, in the extreme case, result in monetary penalties, suspension or debarment from government contracts or suspension of our export privileges, which would have a material adverse effect on us.

Our stock price is volatile. For the year ended December 31, 2018, our stock price ranged from a low of $28.46 to a high of $41.18. The price of our common stock has been and likely will continue to be subject to wide fluctuations in response to a number of events and factors, such as:

•quarterly variations in operating results;

•variances of our quarterly results of operations from securities analyst estimates;

•changes in financial estimates;
•announcements of technological innovations and new products;
•news reports relating to trends in our markets; and
•the cancellation of major contracts or programs with our customers.
In addition, the stock market in general, and the market prices for companies in the aerospace & defense industry in particular, have experienced significant price and volume fluctuations that often have been unrelated to the operating performance of the companies affected by these fluctuations. These broad market fluctuations may adversely affect the market price of our common stock, regardless of our operating performance.

ITEM 1B. ***UNRESOLVED STAFF COMMENTS***

None

ITEM 2. ***PROPERTIES***

On December 31, 2018, we own or lease 1.2 million square feet of space, distributed by segment as follows:

	Owned	**Leased**	**Total**
Aerospace	779,000	308,000	1,087,000
Test Systems	—	149,000	149,000
Total Square Feet	779,000	457,000	1,236,000

We have principal manufacturing facilities in the United States, Canada, and France.
Upon the expiration of our current leases, we believe that we will be able to either secure renewal terms or enter into leases for or purchases of alternative locations at market terms. We believe that our properties have been adequately maintained and are generally in good condition.

ITEM 3. ***LEGAL PROCEEDINGS***

On December 29, 2010, Lufthansa Technik AG (“Lufthansa”) filed a Statement of Claim in the Regional State Court of Mannheim, Germany. Lufthansa’s claim asserts that our subsidiary, AES, sold, marketed, and brought into use in Germany a power supply system that infringes upon a German patent held by Lufthansa. Lufthansa sought an order requiring AES to stop selling and marketing the allegedly infringing power supply system, a recall of allegedly infringing products sold to commercial customers in Germany since November 26, 2003, and compensation for damages related to direct sales of the allegedly infringing power supply system in Germany (referred to as “direct sales”). The claim does not specify an estimate of damages and a related damages claim is being pursued by Lufthansa in separate court proceedings in an action filed in July 2017, as further discussed below.
In February 2015, the Regional State Court of Mannheim, Germany rendered its decision that the patent was infringed. The judgment does not require AES to recall products that are already installed in aircraft or have been sold to other end users. On July 15, 2015, Lufthansa advised AES of their intention to enforce the accounting provisions of the decision, which required AES to provide certain financial information regarding direct sales of the infringing product in Germany to enable Lufthansa to make an estimate of requested damages. Additionally, if Lufthansa provides the required bank guarantee specified in the decision, the Company may be required to offer a recall of products that are in the distribution channels in Germany. No such bank guarantee has been issued to date. As of December 31, 2018 there are no products subject to the order in the distribution channels in Germany.
The Company appealed to the Higher Regional Court of Karlsruhe. On November 15, 2016, the Court issued its ruling and upheld the lower court’s decision. The Company submitted a petition to grant AES leave for appeal to the German Federal Supreme Court. On April 18, 2018, the German Federal Supreme Court granted Astronics’ petition in part, namely with respect to the part concerning the amount of damages. On January 8, 2019, Federal Supreme Court held the hearing on the appeal. A decision on the Company's appeal is expected in late March 2019.
In July 2017, Lufthansa filed an action in the Regional State Court of Mannheim for payment of damages caused by the alleged patent infringement of AES, related to direct sales of the allegedly infringing product in Germany (associated with the original December 2010 action discussed above). In this action, which was served on AES on April 11, 2018, Lufthansa claims payment of approximately $6.2 million plus interest. According to AES's assessment, this claim is significantly higher than justified. We

13

estimate AES's potential exposure to be approximately $1 million to $3 million, and have recorded a reserve of $1 million associated with this matter. Such amount is recorded within Other Accrued Expenses and Selling, General and Administrative Expenses in the accompanying financial statements as of and for the year ended December 31, 2018. An oral hearing in this matter has been scheduled for March 15, 2019. A first instance decision in this matter is expected in mid-2019.

On December 29, 2017, Lufthansa filed another infringement action against AES in the Regional State Court of Mannheim claiming that sales by AES to its international customers have infringed Lufthansa's patent if AES's customers later shipped the products to Germany (referred to as "indirect sales"). This action, therefore, addresses sales other than those covered by the action filed on December 29, 2010, discussed above. In this action, served on April 11, 2018, Lufthansa seeks an injunction, an order obliging AES to provide information and accounting and a finding that AES owes damages for the attacked indirect sales. AES will vigorously defend against the action. No amount of claimed damages has been specified by Lufthansa and such amount is not quantifiable at this time. An oral hearing in this matter has been scheduled for March 15, 2019. A first instance decision is in this matter is expected in mid-2019. As loss exposure is neither probable nor estimable at this time, the Company has not recorded any liability with respect to this litigation as of December 31, 2018.

In December 2017, Lufthansa filed patent infringement cases in the United Kingdom and France against AES. The Lufthansa patent expired in May 2018. In those cases, Lufthansa accuses AES of having manufactured, used, sold and offered for sale a power supply system, and offered and supplied parts for a power supply system, that infringed upon a Lufthansa patent in those respective countries. As loss exposure is neither probable nor estimable at this time, the Company has not recorded any liability with respect to these matters as of December 31, 2018.

On November 26, 2014, Lufthansa filed a complaint in the United States District for the Western District of Washington. Lufthansa's complaint in that action alleges that AES manufactures, uses, sells and offers for sale a power supply system that infringes upon a U.S. patent held by Lufthansa. The patent at issue in the U.S. action is based on technology similar to that involved in the German action. On April 25, 2016, the Court issued its ruling on claim construction, holding that the sole independent claim in the patent is indefinite, rendering all claims in the patent indefinite. Based on this ruling, AES filed a motion for summary judgment on the grounds that the Court's ruling that the patent is indefinite renders the patent invalid and unenforceable. On July 20, 2016, the U.S. District Court granted the motion for summary judgment and issued an order dismissing all claims against AES with prejudice.

Lufthansa appealed the District Court's decision to the United States Court of Appeals for the Federal Circuit. On October 19, 2017, the Federal Circuit affirmed the district court's decision, holding that the sole independent claim of the patent is indefinite, rending all claims on the patent indefinite. Lufthansa did not file a petition for en banc rehearing or petition the U.S. Supreme Court for a writ of certiorari. Therefore, there is no longer a risk of exposure from that lawsuit.

Other than these proceedings, we are not party to any significant pending legal proceedings that management believes will result in a material adverse effect on our financial condition or results of operations.

ITEM 4. ***MINE SAFETY DISCLOSURES***

Not Applicable

PART II

ITEM 5. ***MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES***

The table below sets forth the range of prices for the Company's Common Stock, traded on the NASDAQ National Market System, for each quarterly period during the last two years. The approximate number of shareholders of record as of February 14, 2019, was 766 for Common Stock and 2,205 for Class B Stock.

2018	High	Low
First	$ 41.18	$ 30.94
Second	$ 34.23	$ 29.40
Third	$ 40.10	$ 31.60
Fourth	$ 37.80	$ 28.46

2017	High	Low
First	$ 30.23	$ 25.03
Second	$ 28.95	$ 25.85
Third	$ 27.34	$ 21.85
Fourth	$ 38.15	$ 26.22

The Company has not paid any cash dividends in the three-year period ended December 31, 2018. The Company has no plans to pay cash dividends as it plans to retain all cash from operations as a source of capital to finance working capital and growth in the business.

On September 29, 2018, the Company announced a three-for-twenty distribution of Class B Stock to holders of both Common and Class B Stock. Stockholders received three shares of Class B Stock for every twenty shares of Common and Class B Stock held on the record date of October 12, 2018. Fractional shares were paid in cash. All share quantities, share prices and per share data reported throughout this report have been adjusted to reflect the impact of this distribution.

On February 24, 2016, the Company's Board of Directors authorized the repurchase of up to $50 million of common stock (the "Buyback Program"). The Buyback Program allowed the Company to purchase shares of its common stock in accordance with applicable securities laws on the open market or through privately negotiated transactions. The Company has repurchased approximately 1,675,000 shares and has completed that program. On December 12, 2017, the Company's Board of Directors authorized an additional repurchase of up to $50 million of common stock. No amounts have been repurchased under the new program as of December 31, 2018.

The following graph and table shows the performance of the Company's common stock compared with the S&P 500 Index — Total Return and the NASDAQ US and Foreign Companies for a $100 investment made December 31, 2013:

		2013	2014	2015	2016	2017	2018
Astronics Corp.	Return %	—	30.51	(15.99)	(1.75)	22.55	(13.30)
	Cum $	100.00	130.51	109.64	107.72	132.01	114.45
S&P 500 Index - Total Returns	Return %	—	13.69	1.38	11.96	21.83	(4.38)
	Cum $	100.00	113.69	115.26	129.05	157.22	150.33
NASDAQ Stock Market (US and Foreign Companies)	Return %	—	14.43	6.99	8.80	8.43	(2.95)
	Cum $	100.00	114.43	122.43	133.21	144.44	140.17

ITEM 6. ***SELECTED FINANCIAL DATA***

Five-Year Performance Highlights

(Amounts in thousands, except for employees and per share data)	**2018**	**2017 (5)**	**2016**	**2015 (4)**	**2014 (3)**
RESULTS OF OPERATIONS:					
Sales	$ 803,256	$ 624,464	$ 633,123	$ 692,279	$ 661,039
Net Income	$ 46,803	$ 19,679	$ 48,424	$ 66,974	$ 56,170
Impairment Loss (6)	$ —	$ 16,237	$ —	$ —	$ —
Net Margin	5.8 %	3.2 %	7.6 %	9.7 %	8.5 %
Diluted Earnings Per Share (1)	$ 1.41	$ 0.58	$ 1.40	$ 1.93	$ 1.63
Weighted Average Shares Outstanding – Diluted (1)	33,136	33,718	34,537	34,706	34,466
Return on Average Equity	13.1%	5.9 %	15.2%	25.3%	28.1%
YEAR-END FINANCIAL POSITION:					
Working Capital (2)	$ 246,079	$ 212,438	$ 168,513	$ 145,735	$ 136,602
Total Assets	$ 774,640	$ 735,956	$ 604,344	$ 609,243	$ 562,910
Indebtedness	$ 233,982	$ 271,767	$ 148,120	$ 169,789	$ 183,008
Shareholders' Equity	$ 386,625	$ 329,927	$ 337,449	$ 300,225	$ 228,177
Book Value Per Share (1)	$ 11.86	$ 10.22	$ 10.13	$ 8.93	$ 6.84
OTHER YEAR-END DATA:					
Depreciation and Amortization	$ 35,032	$ 27,063	$ 25,790	$ 25,309	$ 27,254
Capital Expenditures	$ 16,317	$ 13,478	$ 13,037	$ 18,641	$ 40,882
Shares Outstanding (1)	32,593	32,269	33,328	33,635	33,353
Number of Employees	2,690	2,516	2,304	2,304	2,041

1.Diluted Earnings Per Share, Weighted Average Shares Outstanding - Diluted, Book Value Per Share and Shares Outstanding have been adjusted for the impact of the October 12, 2018 fifteen percent Class B stock distribution,

October 11, 2016 fifteen percent Class B stock distribution, October 8, 2015 fifteen percent Class B stock distribution and the September 5, 2014 twenty percent Class B stock distribution.
2.Working capital is calculated as the difference between Current Assets and Current Liabilities.
3.Information includes the results of ATS, acquired on February 28, 2014, from the acquisition date forward.
4.Information includes the results of Armstrong, acquired on January 14, 2015, from the acquisition date forward.
5.Information includes the results of CCC acquired on April 3, 2017 and CSC acquired December 1, 2017, each from the acquisition date forward.
6.The Company recorded a $16.2 million goodwill impairment charge during the fourth quarter of 2017.

ITEM 7. *MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS*

OVERVIEW

Astronics, through its subsidiaries, designs and manufactures advanced, high-performance electrical power generation, distribution and motion systems, lighting and safety systems, avionics products, systems and certification, aircraft structures and automated test systems.

Our strategy is to increase our value by developing technologies and capabilities either internally or through acquisition, and use those capabilities to provide innovative solutions to the aerospace & defense and other markets where our technology can be beneficial.

We have two reportable segments, Aerospace and Test Systems. Our Aerospace segment has thirteen principal operating facilities with one located in New York State, Florida, Oregon, Quebec, Canada and Montierchaume, France; two located in

New Hampshire; and three located in each of Illinois and Washington State. Our Test Systems segment has facilities located in Florida and California.

Our Aerospace segment serves three primary markets. They are the military, commercial transport and business jet markets. Our Test Systems segment serves the aerospace & defense markets.

Important factors affecting our growth and profitability are the rate at which new aircraft are produced, government funding of military programs, our ability to have our products designed into new aircraft and the rates at which aircraft owners, including commercial airlines, refurbish or install upgrades to their aircraft. New aircraft build rates and aircraft owners spending on upgrades and refurbishments is cyclical and dependent on the strength of the global economy. Once designed into a new aircraft, the spare parts business is frequently retained by the Company. Future growth and profitability of the test business is dependent on developing and procuring new and follow-on business in the semiconductor market as well as with the military. The nature of our Test Systems business is such that it pursues large multi-year projects. There can be significant periods of time between orders in this business which may result in large fluctuations of sales and profit levels and backlog from period to period.

Each of the markets that we serve presents opportunities that we expect will provide growth for the Company over the long-term. We continue to look for opportunities in all of our markets to capitalize on our core competencies to expand our existing business and to grow through strategic acquisitions.

Challenges which continue to face us include improving shareholder value through increasing profitability. Increasing profitability is dependent on many things, primarily sales growth and the Company’s ability to control operating expenses and to identify means of creating improved productivity. Sales are driven by increased build rates for existing aircraft, market acceptance and economic success of new aircraft and our products, continued government funding of defense programs, the Company’s ability to obtain production contracts for parts we currently supply or have been selected to design and develop for new aircraft platforms and continually identifying and winning new business for our Test Systems segment. Our semiconductor test products are highly dependent on winning new and follow-on programs with our current customers as well as developing new customers. This product line was divested on February 13, 2019, as further discussed below. Reduced aircraft build rates driven by a weak economy, tight credit markets, reduced air passenger travel and an increasing supply of used aircraft on the market would likely result in reduced demand for our products, which will result in lower profits. Reduction of defense spending may result in fewer opportunities for us to compete, which could result in lower profits in the future. Many of our newer development programs are based on new and unproven technology and at the same time we are challenged to develop the technology on a schedule that is consistent with specific programs. We will continue to address these challenges by working to improve operating efficiencies and focusing on executing on the growth opportunities currently in front of us.

ACQUISITIONS

On December 1, 2017, Astronics acquired substantially all of the assets of Telefonix Inc. and a related company Product Development Technologies, LLC and its subsidiaries, to become CSC, located primarily in Waukegan and Lake Zurich, Illinois. CSC designs and manufactures advanced in-flight entertainment and connectivity equipment, and provides industry leading design consultancy services for the global aerospace industry. Under the terms of the Agreement, the total consideration for the transaction was $103.8 million, net of $0.2 million in cash acquired. CSC is included in our Aerospace segment.

On April 3, 2017, Astronics Custom Control Concepts Inc., a wholly owned subsidiary of the Company acquired substantially all the assets and certain liabilities of CCC, located in Kent, Washington. CCC is a provider of cabin management and in-flight entertainment systems for a range of aircraft. The total consideration for the transaction was $10.2 million, net of $0.5 million in cash acquired. CCC is included in our Aerospace segment.

DIVESTITURE

On February 13, 2019, the Company completed a divestiture of its semiconductor test business within the Test Systems segment. The total cash proceeds of the divestiture amounted to approximately $103.5 million, consisting of $100 million cash at closing, plus approximately $3.5 million related to the sale of certain related inventory. The Company expects to record a pre-tax gain on the sale of approximately $80 million in the first quarter of 2019. The income tax expense relating to the gain is estimated to be $22 million.

The transaction also includes two elements of contingent earnouts. The “First Earnout” is calculated based on a multiple of all future sales of existing and certain future derivative products to existing and future customers in each annual period from 2019 through 2022. The First Earnout may not exceed $35 million in total. The “Second Earnout” is calculated based on a multiple of future sales related to an existing product and program with an existing customer exceeding an annual threshold for each annual period from 2019 through 2022. The Second Earnout is not capped. For the Second Earnout, if the applicable sales in an annual period do not exceed the annual threshold, no amounts will be paid relative to such annual period; the sales in such annual period do not carry over to the next annual period. Due to the degree of uncertainty associated with estimating the future sales levels of the divested business and its underlying programs, and the lack of reliable predictive market information, the Company will recognize such earnout proceeds, if received, as additional gain on sale when such proceeds are realized or realizable.

MARKETS

Commercial Transport Market

Sales to the commercial transport market include sales of electrical power generation, distribution and motion products, lighting & safety products, avionics products, systems certification and structures products. Sales to this market totaled approximately $536.3 million or 66.7% of our consolidated sales in 2018.

Maintaining and growing sales to the commercial transport market will depend on airlines' capital spending budgets for cabin upgrades as well as the purchase of new aircraft by global airlines. This spending by the airlines is impacted by their profits, cash flow and available financing as well as competitive pressures between the airlines to improve the travel experience for their passengers. We expect that new aircraft will be equipped with more passenger and aircraft connectivity and in-seat power than previous generation aircraft. This market has experienced strong growth from airlines installing in-seat passenger power systems on their existing and newly delivered aircraft. Our ability to maintain and grow sales to this market depends on our ability to maintain our technological advantages over our competitors and maintain our relationships with major in-flight entertainment suppliers and global airlines.

Military Aerospace Market

Sales to the military aerospace market include sales of lighting & safety products, avionics products, electrical power & motion products and other products. Sales to this market totaled approximately 8.5% of our consolidated sales and amounted to $68.1 million in 2018.

The military market is dependent on governmental funding which can change from year to year. Risks are that overall spending may be reduced in the future, specific programs may be eliminated or that we fail to win new business through the competitive bid process. Astronics does not have significant reliance on any one program such that cancellation of a particular program will cause material financial loss. We believe that we will continue to have opportunities similar to past years regarding this market.

Business Jet Market

Sales to the business jet aerospace market include sales of lighting & safety products, avionics products, and electrical power & motion products. Sales to this market totaled approximately 5.4% of our consolidated sales in 2018 and amounted to $43.1 million.

Sales to the business jet market are driven by our ship set content on new aircraft and build rates of new aircraft. Business jet OEM build rates continue to be significantly impacted by slow global wealth creation and corporate profitability which have been negatively affected during the past several years by global economic uncertainty among prospective buyers. We continue to see opportunities on new aircraft currently in the design phase to employ our lighting & safety, electrical power and avionics technologies in the business jet market. There is risk involved in the development of any new aircraft including the risk that the aircraft will not ultimately be produced or that it will be produced in lower quantities than originally expected and thus impacting our return on our engineering and development efforts.

Other Aerospace

Sales of our other aerospace products include sales of airfield lighting products and other Peco products. Sales to this market totaled approximately 3.5% of our total sales or $28.1 million in 2018.

Tests Systems Products

Our Test Systems segment accounted for approximately 15.9% of our consolidated sales in 2018 and amounted to $127.6 million. Sales to the semiconductor market were approximately $84.3 million. Sales to the aerospace & defense market were approximately $43.4 million in 2018.

CRITICAL ACCOUNTING POLICIES

Our financial statements and accompanying notes are prepared in accordance with U.S. generally accepted accounting principles. The preparation of the Company's financial statements requires management to make estimates, assumptions and

judgments that affect the amounts reported. These estimates, assumptions and judgments are affected by management's application of accounting policies, which are discussed in the Notes to Consolidated Financial Statements, Note 1 of Item 8, Financial Statements and Supplementary Data of this report. The critical accounting policies have been reviewed with the Audit Committee of our Board of Directors.

Revenue Recognition

Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers* ("ASU 2014-09") was adopted on January 1, 2018 using the modified retrospective method, which required the recognition of the cumulative effect of the transition as an adjustment to retained earnings.

Revenue is recognized when, or as, the Company transfers control of promised products or services to a customer in an amount that reflects the consideration the Company expects to be entitled in exchange for transferring those products or services.

Payment terms and conditions vary by contract, although terms generally include a requirement of payment within a range from 30 to 60 days, or in certain cases, up-front deposits. In circumstances where the timing of revenue recognition differs from the timing of invoicing, the Company has determined that the Company's contracts generally do not include a significant financing component. Taxes collected from customers, which are subsequently remitted to governmental authorities, are excluded from sales.

The Company recognizes an asset for the incremental, material costs of obtaining a contract with a customer if the Company expects the benefit of those costs to be longer than one year and the costs are expected to be recovered. As of December 31, 2018, the Company does not have such incremental, material costs on any open contracts with an original expected duration of greater than one year, and therefore such costs are expensed as incurred. These incremental costs include, but are not limited to, sales commissions incurred to obtain a contract with a customer.

The Company recognizes an asset for certain costs to fulfill a contract if it is determined that the costs relate directly to a contract or anticipated contracts that can be specifically identified, generate or enhance resources that will be used in satisfying performance obligations in the future, and are expected to be recovered. Such costs are amortized on a systematic basis that is consistent with the transfer to the customer of the goods to which the asset relates. Start-up costs are expensed as incurred. Capitalized fulfillment costs are included in Inventories in the accompanying Consolidated Balance Sheets. Should future orders not materialize or it is determined the costs are no longer probable of recovery, the capitalized costs are written off. Capitalized fulfillment costs were $9.6 million as of December 31, 2018. These costs were associated with a contract that is included in the divestiture of the semiconductor business and as such, the balance is included in Assets Held for Sale in the accompanying consolidated balance sheet at December 31, 2018. Amortization of fulfillment costs recognized within Cost of Products Sold was approximately $1.0 million for the year ended December 31, 2018.

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer, and is the unit of account. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The majority of our contracts have a single performance obligation as the promise to transfer the individual goods or services is not separately identifiable from other promises in the contracts which are, therefore, not distinct. Promised goods or services that are immaterial in the context of the contract are not separately assessed as performance obligations.

Some of our contracts have multiple performance obligations, most commonly due to the contract covering multiple phases of the product lifecycle (development, production, maintenance and support). For contracts with multiple performance obligations, the contract's transaction price is allocated to each performance obligation using our best estimate of the standalone selling price of each distinct good or service in the contract. The primary method used to estimate standalone selling price is the expected cost plus margin approach, under which expected costs are forecast to satisfy a performance obligation and then an appropriate margin is added for that distinct good or service. Shipping and handling activities that occur after the customer has obtained control of the good are considered fulfillment activities, not performance obligations.

Some of our contracts offer price discounts or free units after a specified volume has been purchased. The Company evaluates these options to determine whether they provide a material right to the customer, representing a separate performance obligation. If the option provides a material right to the customer, revenue is allocated to these rights and recognized when those future goods or services are transferred, or when the option expires.

Contract modifications are routine in the performance of our contracts. Contracts are often modified to account for changes in contract specifications or requirements. Contract modifications are for goods or services that are distinct, and, therefore, are accounted for as new contracts. The aggregate effect of all modifications as of the period beginning January 1, 2018 has been reflected when identifying the satisfied and unsatisfied performance obligations, determining the transaction price and allocating the transaction price. Contracts modified prior to January 1, 2018 have not been retrospectively restated.

The vast majority of the Company's revenue from contracts with customers is recognized at a point in time, when the customer obtains control of the promised product, which is generally upon delivery and acceptance by the customer. These contracts may provide credits or incentives, which may be accounted for as variable consideration. Variable consideration is estimated at the most likely amount to predict the consideration to which the Company will be entitled, and only to the extent it is probable that a subsequent change in estimate will not result in a significant revenue reversal when estimating the amount of revenue to recognize. Variable consideration is treated as a change to the sales transaction price and based on an assessment of all information (i.e., historical, current and forecasted) that is reasonably available to the Company, and estimated at contract inception and updated at the end of each reporting period as additional information becomes available. Most of our contracts do not contain rights to return product; where this right does exist, it is evaluated as possible variable consideration.

For contracts with customers in which the Company satisfies a promise to the customer to provide a product that has no alternative use to the Company and the Company has enforceable rights to payment for progress completed to date inclusive of profit, the Company satisfies the performance obligation and recognizes revenue over time, using costs incurred to date relative to total estimated costs at completion to measure progress toward satisfying our performance obligations. Incurred cost represents work performed, which corresponds with, and thereby best depicts, the transfer of control to the customer. Contract costs include labor, material and overhead.

The Company also recognizes revenue from service contracts (including service-type warranties) over time. The Company recognizes revenue over time during the term of the agreement as the customer is simultaneously receiving and consuming the benefits provided throughout the Company's performance. Therefore, due to control transferring over time, the Company typically recognizes revenue on a straight-line basis throughout the contract period.

Reviews for Impairment of Long-Lived Assets

Goodwill Impairment Testing

Our goodwill is the result of the excess of purchase price over net assets acquired from acquisitions. As of December 31, 2018, we had approximately $125.0 million of goodwill. As of December 31, 2017, we had approximately $125.6 million of goodwill.

We identify our reporting units by assessing whether the components of our operating segments constitute businesses for which discrete financial information is available and segment management regularly reviews the operating results of those components. The Test Systems operating segment is its own reporting unit while the other reporting units are one level below our Aerospace operating segment.

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

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

Quantitative testing first requires a comparison of the fair value of each reporting unit to the carrying value. We use the discounted cash flow method to estimate the fair value of each of our reporting units. The discounted cash flow method incorporates various assumptions, the most significant being projected sales growth rates, operating profit margins and cash flows, the terminal growth rate and the discount rate. Management projects sales growth rates, operating margins and cash flows based on each reporting unit's current business, expected developments and operational strategies. If the carrying value of the reporting unit exceeds its fair value, goodwill is considered impaired and any loss must be measured. Goodwill impairment is measured as the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying value of goodwill.

We performed quantitative assessments for the nine reporting units which had goodwill as of the first day of the fourth quarter and concluded that it is more likely than not that their fair values exceed their carrying values. Based on our quantitative assessments of our reporting units, we concluded that goodwill was not impaired in 2018.

Amortized Intangible Asset Impairment Testing
Amortizable intangible assets with a carrying value of $133.4 million at December 31, 2018 and $153.5 million at December 31, 2017 are amortized over their assigned useful lives. We test these long-lived assets for impairment when events or changes in circumstances indicate that the carrying amount of those assets may not be recoverable. The recoverability test consists of comparing the projected undiscounted cash flows associated with the asset to its carrying amount. An impairment loss would then be recognized for the carrying amount in excess of its fair value. There were no impairment charges in 2018, 2017 or 2016.

Depreciable Asset Impairment Testing
Property, plant and equipment with a carrying value of $120.9 million at December 31, 2018 and $125.8 million at December 31, 2017 are depreciated over their assigned useful lives. We test these long-lived assets for impairment when events or changes in circumstances indicate that the carrying amount of those assets may not be recoverable. The recoverability test consists of comparing the projected undiscounted cash flows, with its carrying amount. An impairment loss would then be recognized for the carrying amount in excess of its fair value. There were no impairment charges in 2018, 2017 or 2016.

Inventory Valuation
We record valuation reserves to provide for excess, slow moving or obsolete inventory or to reduce inventory to the lower of cost or net realizable value. In determining the appropriate reserve, management considers the age of inventory on hand, the overall inventory levels in relation to forecasted demands as well as reserving for specifically identified inventory that we believe is no longer salable. At December 31, 2018, our reserve for inventory valuation was $20.8 million, or 12.0% of gross inventory, inclusive of inventory and its associated reserves held for sale. At December 31, 2017, our reserve for inventory valuation was $18.0 million, or 10.7% of gross inventory.

Acquisitions
The Company accounts for its acquisitions under ASC Topic 805, *Business Combinations and Reorganizations* (“ASC Topic 805”). ASC Topic 805 provides guidance on how the acquirer recognizes and measures the consideration transferred, identifiable assets acquired, liabilities assumed, non-controlling interests, and goodwill acquired in a business combination. ASC Topic 805 also expands required disclosures surrounding the nature and financial effects of business combinations. Acquisition costs are expensed as incurred. Acquisition related expenses were insignificant in 2018, $0.3 million in 2017, and insignificant in 2016.

When the Company acquires a business, we allocate the purchase price to the assets acquired and liabilities assumed in the transaction at their respective estimated fair values. We record any premium over the fair value of net assets acquired as goodwill. The allocation of the purchase price involves judgments and estimates both in characterizing the assets and in determining their fair value. The way we characterize the assets has important implications, as long-lived assets with definitive lives, for example, are depreciated or amortized, whereas goodwill is tested annually for impairment, as explained previously. With respect to determining the fair value of assets, the most subjective estimates involve valuations of long-lived assets, such as property, plant, and equipment as well as identified intangible assets. We use all available information to make these fair value determinations and engage independent valuation specialists to assist in the fair value determination of the acquired long-lived assets. The fair values of long-lived assets are determined using valuation techniques that use discounted cash flow methods, independent market appraisals and other acceptable valuation techniques.

With respect to determining the fair value of the purchase price, the most subjective estimates involve valuations of contingent consideration. Significant judgment is necessary to determine the fair value of the purchase price when the transaction includes an earn-out provision. We engage valuation specialists to assist in the determination of the fair value of contingent consideration. Key assumptions used to value the contingent consideration include future projections and discount rates.

See Note 20 in the Notes to the Consolidated Financial Statements in Item 8, Financial Statements and Supplementary Data, regarding the acquisitions in 2017.

CONSOLIDATED RESULTS OF OPERATIONS AND OUTLOOK

(In thousands, except percentages)	2018	2017 (1)	2016
Sales	$ 803,256	$ 624,464	$ 633,123
Gross Margin	22.5%	22.0%	25.2%
Impairment Loss	$ —	$ 16,237	$ —
SG&A Expenses as a Percentage of Sales	14.6%	14.2%	13.4%
Interest Expense	$ 9,710	$ 5,369	$ 4,354
Effective Tax Rate	10.5%	21.3%	29.6%
Net Income	$ 46,803	$ 19,679	$ 48,424

(1) Our results of operations for 2017 include the operations of CCC, beginning April 3, 2017, and the operations of CSC, beginning December 1, 2017 (collectively, the "Acquired Businesses").

A discussion by segment can be found at "Segment Results of Operations and Outlook" in this MD&A.

CONSOLIDATED OVERVIEW OF OPERATIONS

2018 Compared With 2017

Consolidated sales were $803.3 million, up 28.6%, or $178.8 million, from the same period last year. Organic sales increased $94.0 million, or 15.0%. Acquired sales for 2018 were $84.8 million and all related to the Aerospace segment. Aerospace segment sales of $675.6 million were up 26.4%, or $141.0 million, and Test Systems segment sales were up 42.0% to $127.6 million.

Consolidated cost of products sold increased $135.2 million to $622.6 million in 2018 from $487.4 million in the prior year. The increase was due primarily to the cost associated with the higher organic sales volume, coupled with the cost of products sold related to the Acquired Businesses.

Selling, general and administrative ("SG&A") expenses were $117.0 million, or 14.6% or sales, compared with $88.8 million, or 14.2% of sales, for the prior year period. The $28.3 million increase was due primarily to the incremental SG&A costs of the Acquired Businesses, which added $20.9 million. This included $7.4 million of incremental intangible asset amortization expense in 2018. Corporate overhead expenses increased $2.6 million due primarily to increased staffing and infrastructure development.

Interest expense increased in 2018 compared to 2017 due primarily to increased average debt levels.

2017 Compared With 2016

Consolidated sales for 2017 decreased by $8.7 million, or 1.4%, to $624.5 million. Aerospace segment sales of $534.6 million were consistent with 2016 sales of $534.0 million, while Test Systems segment sales were down 9.3% to $89.9 million. Sales from the Acquired Businesses contributed $15.5 million in 2017.

Consolidated cost of products sold increased $13.7 million to $487.4 million in 2017 from $473.7 million in the prior year. The increase was due primarily to the incremental cost of products sold associated with the Acquired Businesses of $19.8 million, and increased E&D costs offset by lower organic sales volume. E&D costs increased 6.8% to $95.0 million in 2017 primarily due to the Acquired Businesses, compared with $88.9 million in 2016. The incremental E&D costs of the Acquired Businesses totaled $5.7 million. As a percent of sales, E&D was 15.2% and 14.0% in 2017 and 2016, respectively.

SG&A expenses increased $4.2 million in 2017 compared with 2016. As a percent of sales, SG&A expenses were 14.2% and 13.4% for 2017 and 2016, respectively. The increase was due primarily to the incremental SG&A costs of

the Acquired Businesses of $4.6 million, which included $1.8 million of intangible asset amortization expense.
Interest expense decreased in 2017 compared to 2016 due to decreased debt levels.

Income Taxes

Our effective tax rates for 2018, 2017 and 2016 were 10.5%, 21.3% and 29.6%, respectively. Our tax rate is affected by recurring items, such as tax rates in foreign jurisdictions and the relative amount of income we earn in those jurisdictions, which we expect to be fairly consistent in the near term. It is also affected by discrete items that may occur in any given year, but are not consistent from year to year. In addition to state income taxes, the following items had the most significant impact on the difference between our statutory U.S. federal income tax rate (21% in 2018 and 35% in 2017 and 2016) and our effective tax rate:

2018:

1.Recognition of approximately $3.2 million of 2018 U.S. R&D tax credits.

2017:

1.Recognition of approximately $2.9 million of 2017 U.S. R&D tax credits.
2.Permanent differences, primarily the impact of the Domestic Production Activities Deduction.
3.Provisional amounts related to the Federal tax expense on deemed repatriation of foreign earnings ($1.3 million), partially offset by revaluation of the deferred tax balances ($0.9 million) as a result of a reduction in the Federal tax rate from tax law changes enacted in 2017.

2016:

1.Recognition of approximately $2.6 million of 2016 U.S. R&D tax credits.
2.Permanent differences, primarily the impact of the Domestic Production Activities Deduction.

2019 Outlook

Consolidated sales in 2019 are expected to be in the range of $760 million to $805 million. Excluding sales of the disposed semiconductor business from 2018 sales, the mid-point of the range represents consolidated organic growth of 8%. Approximately $710 million to $745 million is expected from the Aerospace segment, an increase at the mid-point of about 8% over 2018. Test Systems segment sales for 2019 are expected to be in the range of $50 million to $60 million, the mid-point representing an increase of 14% over Test Systems sales in 2018 after backing out the disposed semiconductor business.

On February 13, 2019, Astronics completed the sale of its semiconductor test business. The Company expects to record a pre-tax gain on the sale of approximately $80 million in the first quarter of 2019. The income tax expense relating to the gain is estimated to be $22 million.

At December 31, 2018, our consolidated backlog was $416 million. Excluding backlog related to the divested semiconductor business, our backlog was $403 million at December 31, 2018. At December 31, 2017, our backlog was $394 million. Backlog in the Aerospace segment was $326 million at December 31, 2018, of which $306 million is expected to be realized in 2019. Backlog in the Test Systems segment, exclusive of the backlog associated with the divested semiconductor business, was $77 million at December 31, 2018, of which $46 million is expected to be realized in 2019.

The effective tax rate for 2019, excluding the impact of the gain on the sale of the semiconductor business, is expected to be approximately 18% to 22%.

Capital equipment spending in 2019 is expected to be in the range of $22.0 million to $28.0 million.

SEGMENT RESULTS OF OPERATIONS AND OUTLOOK

Operating profit, as presented below, is sales less cost of products sold and other operating expenses excluding interest expense, corporate expenses and other non-operating sales and expenses. Cost of products sold and operating expenses are directly attributable to the respective segment. Operating profit is reconciled to earnings before income taxes in Note 19 of Item 8, Financial Statements and Supplementary Data, of this report.

AEROSPACE SEGMENT

(In thousands, except percentages)	2018	2017	2016
Sales	$ 675,625	$ 534,603	$ 534,041
Operating Profit	$ 69,761	$ 38,888	$ 77,966
Operating Margin	10.3%	7.3%	14.6%

	2018	2017
Total Assets	$ 647,870	$ 621,047
Backlog	$ 326,047	$ 298,604

Sales by Market	2018	2017	2016
Commercial Transport	$ 536,269	$ 414,523	$ 435,552
Military	68,138	61,270	54,556
Business Jet	43,090	41,298	25,407
Other	28,128	17,512	18,526
Total	$ 675,625	$ 534,603	$ 534,041

Sales by Product Line	2018	2017	2016
Electrical Power & Motion	$ 303,180	$ 264,286	$ 288,465
Lighting & Safety	174,383	158,663	156,871
Avionics	131,849	53,960	32,761
Systems Certification	13,951	14,333	16,531
Structures	24,134	25,849	20,887
Other	28,128	17,512	18,526
Total	$ 675,625	$ 534,603	$ 534,041

2018 Compared With 2017

Aerospace segment sales increased by $141.0 million, or 26.4%, to $675.6 million, when compared with the prior-year period of $534.6 million. Organic sales increased $56.2 million, or 10.5%, to $590.8 million, while acquired sales were $84.8 million.

Avionics sales increased by $77.9 million, driven primarily by the acquisitions, which contributed incremental sales of $72.5 million. Electrical Power & Motion sales increased $38.9 million, or 14.7%, due to higher sales of in-seat power and seat motion products. Lighting & Safety sales increased $15.7 million due to a general increase in volume. Sales of Other products were up $10.6 million, due to the CSC business. The increases were slightly offset by a decrease in Structures sales of $1.7 million.

Aerospace operating profit for 2018 was $69.8 million, or 10.3% of sales, compared with $38.9 million, or 7.3% of sales, in the same period of 2017. Aerospace operating profit benefited from higher organic sales and profits of CSC, offset partially by increased operating losses of CCC, AeroSat and Armstrong which improved by $3.8 million to $34.7 million compared with the prior year, excluding Armstrong's 2017 goodwill impairment charge. For the year, intangible asset amortization expense was $9.2 million related to the Acquired Businesses. Operating profit in the prior year was negatively impacted by the $16.2 million impairment at Armstrong.

2017 Compared With 2016

Aerospace segment sales increased by $0.6 million, or 0.1%, to $534.6 million, when compared with the prior year, primarily due to the addition of the Acquired Businesses which added $15.5 million.

Electrical Power & Motion sales decreased $24.2 million, or 8.4%, due to lower sales of cabin power products due to a combination of lower volume and pricing. Systems Certifications sales decreased $2.2 million and Other products decreased $1.0 million from lower project activity. These declines were offset by increased Avionics sales, up $21.2 million of which $15.0 million was from the Acquired Businesses and $5.3 million was from increased sales of databus and in-flight entertainment systems. Structures sales increased by $5.0 million.

Aerospace operating profit for 2017 was $38.9 million, or 7.3% of sales, compared with $78.0 million, or 14.6% of sales, in the same period last year. Aerospace operating profit was negatively impacted by lower sales volume and market pricing pressures primarily related to cabin power products, coupled with the $16.2 million goodwill impairment at Armstrong and an operating loss of $8.4 million from CCC. E&D costs for Aerospace were $85.3 million (inclusive of $5.6 million related to the Acquired Businesses) and $78.5 million in 2017 and 2016, respectively.

2019 Outlook for Aerospace – We expect 2019 Aerospace segment sales to be in the range of $710 million to $745 million. The Aerospace segment's backlog at December 31, 2018 was $326 million, compared to $299 million at December 31, 2017. Approximately $306 million of the backlog at December 31, 2018 is expected to be shipped over the next 12 months.

TEST SYSTEMS SEGMENT

(In thousands, except percentages)	**2018**	**2017**	**2016**
Sales	$ 127,631	$ 89,861	$ 99,082
Operating Profit	$ 10,718	$ 7,359	$ 8,507
Operating Margin	8.4%	8.2%	8.6%

	2018 (1)	**2017**
Total Assets	$ 97,056	$ 90,859
Backlog	$ 89,470	$ 95,086

(1) $89.5 million backlog includes $12.2 million related to the divested semiconductor business.

Sales by Market	**2018**		**2017**		**2016**	
Semiconductor	$	84,254	$	31,999	$	37,939
Aerospace & Defense	43,377		57,862		61,143	
Total	$	127,631	$	89,861	$	99,082

2018 Compared With 2017

Sales in 2018 increased 42.0% to $127.6 million compared with sales of $89.9 million for 2017. The growth was driven by a $52.3 million increase in sales to the Semiconductor market, offset by a decrease in Aerospace & Defense sales of $14.5 million.

Operating profit was $10.7 million, or 8.4% of sales, compared with $7.4 million, or 8.2% of sales, in 2017. This was primarily due to increased sales volume partially offset by approximately $2.0 million in increased engineering costs and elevated initial costs associated with new products.

2017 Compared With 2016

Sales in 2017 decreased 9.3% to $89.9 million compared with sales of $99.1 million for 2016, due to lower shipments to both the Semiconductor and Aerospace & Defense markets. Sales to the Semiconductor market decreased $5.9 million and sales to the Aerospace & Defense market decreased $3.3 million compared with 2016.

Operating profit was $7.4 million, or 8.2% of sales, compared with $8.5 million, or 8.6% of sales, in 2016. This is primarily due to decreased sales volume. E&D costs were $9.7 million in 2017, compared with $10.4 million in 2016.

2019 Outlook for Test Systems – We expect 2019 Test System segment sales to be in the range of $50 million to $60 million. The Test System segment's backlog at December 31, 2018, excluding backlog related to the divested semiconductor business, was $77 million, compared with $95 million at December 31, 2017.
Approximately $46 million in backlog is expected to ship in 2019.

OFF BALANCE SHEET ARRANGEMENTS

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

CONTRACTUAL OBLIGATIONS

The following table represents contractual obligations as of December 31, 2018:

	Payments Due by Period				
(In thousands)	**Total**	**2019**	**2020-2021**	**2022-2023**	**After 2023**
Long-term Debt	$ 233,982	$ 1,870	$ 4,200	$ 227,912	$ —
Purchase Obligations	155,022	141,747	13,275	—	—
Interest on Long-term Debt	36,326	8,980	17,663	9,683	—
Supplemental Retirement Plan and Post Retirement Obligations	23,106	418	827	798	21,063
Operating Leases	23,225	4,717	7,584	5,650	5,274
Other Long-term Liabilities	115	10	25	32	48
Total Contractual Obligations	$ 471,776	$ 157,742	$ 43,574	$ 244,075	$ 26,385

<u>*Notes to Contractual Obligations Table*</u>

Long-term Debt — See Item 8, Financial Statements and Supplementary Data, Note 8, Long-Term Debt and Note Payable in this report. The timing of the payments above consider the amendment to the revolving credit facility as discussed in Note 8.

Interest on Long-term Debt — Future interest payments have been calculated using the applicable interest rate of each debt facility based on actual borrowings as of December 31, 2018. Actual future borrowings and rates may differ from these estimates.

Purchase Obligations — Purchase obligations are comprised of the Company’s commitments for goods and services in the normal course of business.

Operating Leases — Operating lease obligations are primarily related to facility leases for AES, AeroSat, Armstrong, ATS, Ballard, CCC, CSC, and LSI Canada.

LIQUIDITY AND CAPITAL RESOURCES

(In thousands)	**2018**	**2017**	**2016**
Net cash provided (used) by:			
Operating Activities	$ 54,881	$ 37,783	$ 48,854
	$ (19,667)	$ (129,561)	$ (14,622)

Investing Activities						
Financing Activities	$	(36,134)	$	91,425	$	(34,806)

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

Operating Activities

Cash provided by operating activities was $54.9 million in 2018 compared with $37.8 million in 2017. The increase of $17.1 million in 2018 was primarily a result of increased net income in 2018 when compared with 2017, offset with a change in net operating assets.

Cash provided by operating activities was $37.8 million in 2017 compared with $48.9 million in 2016. The decrease of $11.1 million in 2017 was primarily a result of decreased net income and net operating assets in 2017 when compared with 2016.

Cash provided by operating activities was $48.9 million in 2016 compared with $78.5 million in 2015. The decrease of $29.6 million in 2016 was primarily a result of decreased net income and net operating assets in 2016 when compared with 2015, partially offset by an increased deferred income tax benefit in 2016.

Our cash flows from operations are primarily dependent on our net income adjusted for non-cash expenses and the timing of collections of receivables, level of inventory and payments to suppliers and employees. Sales and operating results of our Aerospace segment are influenced by the build rates of new aircraft, which are subject to general economic conditions, airline passenger travel and spending for government and military programs. Our Test Systems segment sales depends in part on capital expenditures of the aerospace & defense industry which, in turn, depend on current and future demand for those products. A reduction in demand for our customers' products would adversely affect our operating results and cash flows.

Investing Activities

Cash used for investing activities in 2018 was $19.7 million, primarily related to purchases of property, plant, and equipment ("PP&E") of $16.3 million.

Cash used for investing activities in 2017 was $129.6 million, primarily related to the acquisitions of CCC and CSC of $114.0 million and purchases of PP&E of $13.5 million.

Cash used for investing activities in 2016 was $14.6 million, primarily related to purchases of PP&E of $13.0 million.

Our expectation for 2019 is that we will invest between $22.0 million and $28.0 million for PP&E. Future requirements for PP&E depend on numerous factors, including expansion of existing product lines and introduction of new products. Management believes that our cash flow from operations and current borrowing arrangements will provide for these capital expenditures. We expect to continue to evaluate acquisition opportunities in the future.

Financing Activities

Our ability to maintain sufficient liquidity is highly dependent upon achieving expected operating results. Failure to achieve expected operating results could have a material adverse effect on our liquidity, our ability to obtain financing, and our operations in the future.

On February 24, 2016, the Company's Board of Directors authorized the repurchase of up to $50 million of common stock (the "Buyback Program"). The Buyback Program allowed the Company to purchase shares of its common stock in accordance with applicable securities laws on the open market or through privately negotiated transactions. The Company has repurchased approximately 1,675,000 shares and has completed that program. On December 12, 2017, the Company's Board of Directors authorized an additional repurchase of up to $50 million of common stock. No amounts have been repurchased under the new program as of December 31, 2018.

The Company's Fourth Amended and Restated Credit Agreement (the "Original Facility") provided for a $350 million revolving credit line with the option to increase the line by up to $150 million. The maturity date of the Original Facility was January 13, 2021. On February 16, 2018, the Company modified and extended the Original Facility by entering into the Fifth Amended and Restated Credit Agreement (the "Agreement"), which provides for a $500 million revolving credit line with the option to increase the line by up to $150 million. A new lender was added to the facility as well. The outstanding balance of the Original Facility were rolled into the Agreement on the date of closing. The maturity date of the loans under the Agreement is February 16, 2023. At December 31, 2018, there was $227.0 million outstanding on the revolving credit facility and there remains $271.9 million available, net of outstanding letters of credit. The credit facility allocates up to $20 million of the $500 million revolving credit line for the issuance of letters of credit, including certain existing letters of credit. At December 31, 2018, outstanding letters of credit totaled $1.1 million.

The maximum permitted leverage ratio of funded debt to Adjusted EBITDA (as defined in the Agreement) was 3.75 to 1, increasing to 4.50 to 1 for up to four fiscal quarters following the closing of an acquisition permitted under the Agreement, subject to limitations. The Company's leverage ratio was 2.04 to 1 at December 31, 2018. The Company will pay interest on the unpaid principal amount of the facility at a rate equal to one-, three- or six-month LIBOR plus between 1.00% and 1.50% based upon the Company's leverage ratio. The Company will also pay a commitment fee to the Lenders in an amount equal to between 0.10% and 0.20% on the undrawn portion of the credit facility, based upon the Company's leverage ratio.

The Company's obligations under the Credit Agreement as amended are jointly and severally guaranteed by each domestic subsidiary of the Company other than a non-material subsidiary. The obligations are secured by a first priority lien on substantially all of the Company's and the guarantors' assets.

In the event of voluntary or involuntary bankruptcy of the Company or any subsidiary, all unpaid principal and other amounts owing under the Credit Agreement automatically become due and payable. Other events of default, such as failure to make payments as they become due and breach of financial and other covenants, change of control, judgments over a certain amount, and cross default under other agreements give the Agent the option to declare all such amounts immediately due and payable.

The primary financing activities in 2018 related to net repayments on our senior facility of $35.0 million. The primary financing activities in 2017 related to net borrowings on our senior facility of $126.0 million and $32.4 million in share repurchases under our original Buyback Program, using cash generated from operations. The primary financing activities in 2016 related to net payments on our senior facility of $19.0 million and $17.6 million in share repurchases under our original Buyback Program, using cash generated from operations.

The Company's cash needs for working capital, debt service, capital equipment, and acquisition opportunities during 2019 is expected to be met by cash flows from operations and cash balances and, if necessary, utilization of the revolving credit facility.

DIVIDENDS

Management believes that it should retain the capital generated from operating activities for investment in advancing technologies, acquisitions and debt retirement. Accordingly, there are no plans to institute a cash dividend program.

BACKLOG

At December 31, 2018, our consolidated backlog was $416 million. Excluding backlog related to the divested semiconductor business, our backlog was $403 million at December 31, 2018. At December 31, 2017, our backlog was $394 million. Backlog in the Aerospace segment was $326 million at December 31, 2018, of which $306 million is expected to be realized in 2019. Backlog in the Test Systems segment, exclusive of the backlog associated with the divested semiconductor business, was $77 million at December 31, 2018, of which $46 million is expected to be realized in 2019.

RELATED-PARTY TRANSACTIONS

Information regarding certain relationships and related transactions is incorporated herein by reference to the information included in the Company's 2019 Proxy Statement which will be filed with the Commission within 120 days after the end of the Company's 2018 fiscal year.

RECENT ACCOUNTING PRONOUNCEMENTS

See Note 1 of the Consolidated Financial Statements at Item 8 of this report.

ITEM 7A. ***QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK***

The Company has limited exposure to fluctuation in Canadian and Euro currency exchange rates to the U.S. dollar. Over 90% of the Company's consolidated sales are transacted in U.S. dollars. Net assets held in or measured in Canadian dollars amounted to $9.8 million at December 31, 2018. Annual disbursements transacted in Canadian dollars were approximately $14.7 million in 2018. A 10% change in the value of the U.S. dollar versus the Canadian dollar would have had a $0.4 million impact to 2018 net income; however it could be significant in the future. Net assets held in or measured in Euros amounted to $35.2 million at December 31, 2018. Disbursements transacted in Euros in 2018 were approximately $45.1 million. A 10% change in the value of the U.S. dollar versus the Euros would have had a $0.1 million impact to 2018 net income; however it could be significant in the future. Risk due to fluctuation in interest rates is a function of the Company's floating rate debt obligations, which total approximately $227.0 million at December 31, 2018. A change of 1% in interest rates of all variable rate debt would impact annual net income by approximately $2.3 million, before income taxes.

ITEM 8. ***FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA***

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of Astronics Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Astronics Corporation (the Company) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income, cash flows, and shareholders' equity for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedule listed in the Index at Item 15(a)(2) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with US generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 28, 2019 expressed an unqualified opinion thereon.

Adoption of ASU No. 2014-09

As discussed in Note 1 to the consolidated financial statements, the Company changed its method for recognizing revenue as a result of the adoption of Accounting Standards Update (ASU) No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, and the amendments in ASUs 2015-14, 2016-08, 2016-10 and 2016-12, effective January 1, 2018.

Basis for Opinion

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

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

/s/ Ernst & Young LLP

We have served as the Company's auditor since 1992.

Buffalo, New York

February 28, 2019

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) and 15d-15(f) of the Exchange Act. Under the supervision and with the participation of our management, including the Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2018 based upon the framework in Internal Control – Integrated Framework originally issued in 2013 by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on that evaluation, our management concluded that our internal control over financial reporting is effective as of December 31, 2018.

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

By:	/s/ Peter J. Gundermann	February 28, 2019
	Peter J. Gundermann	
	President & Chief Executive Officer	
	(Principal Executive Officer)	
	/s/ David C. Burney	February 28, 2019
	David C. Burney	
	Executive Vice President and Chief Financial Officer	
	(Principal Financial Officer)	

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of Astronics Corporation

Opinion on Internal Control over Financial Reporting

We have audited Astronics Corporation's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control–Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Astronics Corporation (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income, cash flows, and shareholders' equity for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedule listed in the Index at Item 15(a)(2) and our report dated February 28, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

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

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

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

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ Ernst & Young LLP
Buffalo, New York
February 28, 2019

ASTRONICS CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS

(In thousands, except per share data)	Year Ended December 31, 2018		2017		2016	
Sales	$	803,256	$	624,464	$	633,123
Cost of Products Sold	622,560		487,351		473,656	
Gross Profit	180,696		137,113		159,467	
Impairment Loss	—		16,237		—	
Selling, General and Administrative Expenses	117,033		88,775		84,585	
Income from Operations	63,663		32,101		74,882	
Other Expense, Net of Other Income	1,671		1,741		1,743	
Interest Expense, Net of Interest Income	9,710		5,369		4,354	
Income Before Income Taxes	52,282		24,991		68,785	
Provision for Income Taxes	5,479		5,312		20,361	
Net Income	$	46,803	$	19,679	$	48,424
Basic Earnings Per Share	$	1.45	$	0.60	$	1.44
Diluted Earnings Per Share	$	1.41	$	0.58	$	1.40

See notes to consolidated financial statements.

ASTRONICS CORPORATION
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31,		
(In thousands)	2018	2017	2016
Net Income	$ 46,803	$ 19,679	$ 48,424
Other Comprehensive Income (Loss):			
Foreign Currency Translation Adjustments	(2,691)	4,132	(626)
Retirement Liability Adjustment – Net of Tax	4,087	(1,990)	196
Other Comprehensive Income (Loss)	1,396	2,142	(430)
Comprehensive Income	$ 48,199	$ 21,821	$ 47,994

See notes to consolidated financial statements.
34

ASTRONICS CORPORATION
CONSOLIDATED BALANCE SHEETS

(In thousands, except share and per share data)	December 31, 2018		2017	
ASSETS				
Current Assets:				
Cash and Cash Equivalents	$	16,622	$	17,914
Accounts Receivable, Net of Allowance for Doubtful Accounts	182,308		132,633	
Inventories	138,685		150,196	
Prepaid Expenses and Other Current Assets	17,198		14,586	
Assets Held for Sale	19,358		—	
Total Current Assets	374,171		315,329	
Property, Plant and Equipment, Net of Accumulated Depreciation	120,862		125,830	
Other Assets	21,272		15,659	
Intangible Assets, Net of Accumulated Amortization	133,383		153,493	
Goodwill	124,952		125,645	
Total Assets	$	774,640	$	735,956
LIABILITIES AND SHAREHOLDERS' EQUITY				
Current Liabilities:				
Current Maturities of Long-term Debt	$	1,870	$	2,689
Accounts Payable	50,664		41,846	
Accrued Payroll and Employee Benefits	31,732		24,890	
Accrued Income Taxes	312		261	
Other Accrued Expenses	15,728		13,598	
Customer Advanced Payments and Deferred Revenue	26,880		19,607	
Liabilities Held for Sale	906		—	

Total Current Liabilities	128,092	102,891
Long-term Debt	232,112	269,078
Supplemental Retirement Plan and Other Liabilities for Pension Benefits	22,689	26,030
Other Liabilities	1,923	2,909
Deferred Income Taxes	3,199	5,121
Total Liabilities	388,015	406,029
Shareholders' Equity:		
Common Stock, $.01 par value, Authorized 40,000,000 Shares 25,978,037 Shares Issued and 24,303,323 Outstanding at December 31, 2018 22,860,742 Shares Issued and 21,186,028 Outstanding at December 31, 2017	260	229
Convertible Class B Stock, $.01 par value, Authorized 15,000,000 Shares 8,289,794 Shares Issued and Outstanding at December 31, 2018 11,083,060 Shares Issued and Outstanding at December 31, 2017	83	111
Additional Paid-in Capital	73,044	67,748
Accumulated Other Comprehensive Loss	(13,329)	(13,352)
Retained Earnings	376,567	325,191
Treasury Stock; 1,674,714 Shares at December 31, 2018, 1,674,714 Shares at December 31, 2017	(50,000)	(50,000)
Total Shareholders' Equity	386,625	329,927

Total Liabilities and Shareholders' Equity	$	774,640	$	735,956

See notes to consolidated financial statements.

ASTRONICS CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
(In thousands)	2018	2017	2016
Cash Flows from Operating Activities			
Net Income	$ 46,803	$ 19,679	$ 48,424
Adjustments to Reconcile Net Income to Cash Provided By Operating Activities, Excluding the Effects of Acquisitions:			
Depreciation and Amortization	35,032	27,063	25,790
Provision for Non-Cash Losses on Inventory and Receivables	3,271	2,973	2,404
Equity-based Compensation Expense	3,098	2,598	2,281
Deferred Tax Benefit	(2,680)	(5,494)	(4,756)
Impairment Loss	—	16,237	—
Other	(668)	(937)	165
Cash Flows from Changes in Operating Assets and Liabilities, net of the Effects from Acquisitions of Businesses:			
Accounts Receivable	(47,291)	(9,844)	(14,622)
Inventories	(14,695)	(18,116)	(2,671)

Prepaid Expenses and Other Current Assets	464	(2,132)	108
Accounts Payable	9,171	10,439	(2,000)
Accrued Expenses	9,177	(702)	(174)
Income Taxes Payable	(4,460)	(376)	7,926
Customer Advanced Payments and Deferred Revenue	15,735	(4,918)	(15,539)
Supplemental Retirement Plan and Other Liabilities	1,924	1,313	1,518
Cash Provided By Operating Activities	54,881	37,783	48,854
Cash Flows from Investing Activities			
Acquisitions of Business, Net of Cash Acquired	—	(114,039)	—
Capital Expenditures	(16,317)	(13,478)	(13,037)
Other	(3,350)	(2,044)	(1,585)
Cash Used For Investing Activities	(19,667)	(129,561)	(14,622)
Cash Flows from Financing Activities			
Proceeds From Long-term Debt	35,015	147,086	20,000
Principal Payments on Long-term Debt	(72,834)	(23,720)	(41,835)
Purchase of Outstanding Shares for Treasury	—	(32,382)	(17,618)
	(516)	—	—

Debt Acquisition Costs						
Proceeds from Exercise of Stock Options	2,201		441		3,813	
Excess Tax Benefit from Exercise of Stock Options	—		—		834	
Cash (Used for) Provided by Financing Activities	(36,134)		91,425		(34,806)	
Effect of Exchange Rates on Cash	(372)		366		(86)	
(Decrease) Increase in Cash and Cash Equivalents	(1,292)		13		(660)	
Cash and Cash Equivalents at Beginning of Year	17,914		17,901		18,561	
Cash and Cash Equivalents at End of Year	$	16,622	$	17,914	$	17,901
Supplemental Cash Flow Information:						
Interest Paid	$	9,710	$	4,775	$	4,536
Income Taxes Paid, Net of Refunds	$	12,218	$	10,777	$	15,898

See notes to consolidated financial statements.

ASTRONICS CORPORATION
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

	Year Ended December 31,					
(In thousands)	2018		2017		2016	
Common Stock						
Beginning of Year	$	229	$	220	$	194
Exercise of Stock Options and Equity-based Compensation Expense – Net of Taxes	1		—		1	
Class B Stock Converted to Common Stock	30		9		25	
End of Year	$	260	$	229	$	220
Convertible Class B Stock						
Beginning of Year	$	111	$	120	$	143
Exercise of Stock Options and Equity-based Compensation Expense – Net of Taxes	2		—		2	
Class B Stock Converted to Common Stock	(30)		(9)		(25)	
End of Year	$	83	$	111	$	120
Additional Paid in Capital						
Beginning of Year	$	67,748	$	64,709	$	57,784
Exercise of Stock Options and Equity-based Compensation Expense – Net of Taxes	5,296		3,039		6,925	
End of Year	$	73,044	$	67,748	$	64,709
Accumulated Other Comprehensive Loss						

Beginning of Year	$	(13,352)	$	(15,494)	$	(15,064)
Adoption of ASU 2018-02	(1,373)		—		—	
Foreign Currency Translation Adjustments	(2,691)		4,132		(626)	
Retirement Liability Adjustment – Net of Taxes	4,087		(1,990)		196	
End of Year	$	(13,329)	$	(13,352)	$	(15,494)
Retained Earnings						
Beginning of Year	$	325,191	$	305,512	$	257,168
Adoption of ASU 2014-09	3,268		—		—	
Adoption of ASU 2018-02	1,373		—		—	
Net income	46,803		19,679		48,424	
Cash Paid in Lieu of Fractional Shares from Stock Distribution	(68)		—		(80)	
End of Year	$	376,567	$	325,191	$	305,512
Treasury Stock						
Beginning of Year	$	(50,000)	$	(17,618)	$	—
Purchase of Shares	—		(32,382)		(17,618)	
End of Year	$	(50,000)	$	(50,000)	$	(17,618)
Total Shareholders' Equity	$	386,625	$	329,927	$	337,449

See notes to consolidated financial statements.

ASTRONICS CORPORATION
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY, CONTINUED

	Year Ended December 31,		
(Share data, in thousands)	2018	2017	2016
Common Stock			
Beginning of Year	22,861	21,955	19,349
Exercise of Stock Options	166	26	151
Class B Stock Converted to Common Stock	2,951	880	2,455
End of Year	25,978	22,861	21,955
Convertible Class B Stock			
Beginning of Year	11,083	11,896	14,286
Exercise of Stock Options	158	67	65
Class B Stock Converted to Common Stock	(2,951)	(880)	(2,455)
End of Year	8,290	11,083	11,896
Treasury Stock			
Beginning of Year	1,675	523	—
Purchase of Shares	—	1,152	523
End of Year	1,675	1,675	523

See notes to consolidated financial statements.
38

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 — SUMMARY OF SIGNIFICANT ACCOUNTING PRINCIPLES AND PRACTICES

Description of the Business

Astronics Corporation (“Astronics” or the “Company”) is a leading provider of advanced technologies to the global aerospace, defense and electronics industries. Our products and services include advanced, high-performance electrical power generation, distribution and motion systems, lighting and safety systems, avionics products, systems and certification, aircraft structures and automated test systems.

We have operations in the United States (“U.S.”), Canada and France. We design and build our products through our wholly owned subsidiaries Astronics Advanced Electronic Systems Corp. (“AES”); Astronics AeroSat Corporation (“AeroSat”); Armstrong Aerospace, Inc. (“Armstrong”); Astronics Test Systems, Inc. (“ATS”); Ballard Technology, Inc. (“Ballard”); Astronics Connectivity Systems and Certification Corp. (“CSC”); Astronics Custom Control Concepts Inc. (“CCC”); Astronics DME LLC (“DME”); Luminescent Systems, Inc. (“LSI”); Luminescent Systems Canada, Inc. (“LSI Canada”); Max-Viz, Inc. (“Max-Viz”); Peco, Inc. (“Peco”); and PGA Electronic s.a. (“PGA”).

At December 31, 2018, the Company has two reportable segments, Aerospace and Test Systems. The Aerospace segment designs and manufactures products for the global aerospace industry. Our Test Systems segment designs, develops, manufactures and maintains automated test systems that support the aerospace, communications and weapons test systems as well as training and simulation devices for both commercial and military applications.

On April 3, 2017, Astronics Custom Control Concepts Inc., a wholly owned subsidiary of the Company acquired substantially all the assets and certain liabilities of Custom Control Concepts LLC, located in Kent, Washington. CCC is a provider of cabin management and in-flight entertainment systems for a range of aircraft. The total consideration for the transaction was $10.2 million, net of $0.5 million in cash acquired. CCC is included in our Aerospace segment.

On December 1, 2017, Astronics acquired substantially all of the assets of Telefonix Inc. and a related company Product Development Technologies, LLC and its subsidiaries, to become CSC, located in Waukegan and Lake Zurich, Illinois. CSC designs and manufactures advanced in-flight entertainment and connectivity equipment, and provides industry leading design consultancy services for the global aerospace industry. Under the terms of the Agreement, the total consideration for the transaction was $103.8 million, net of $0.2 million in cash acquired. CSC is included in our Aerospace segment.

On February 13, 2019, the Company completed a divestiture of its semiconductor test business within the Test Systems segment. The total cash proceeds of the divestiture amounted to approximately $103.5 million, consisting of $100 million cash at closing, plus approximately $3.5 million related to the sale of certain related inventory. The Company expects to record a pre-tax gain on the sale of approximately $80 million in the first quarter of 2019. The income tax expense relating to the gain is estimated to be $22 million.

The transaction also includes two elements of contingent earnouts. The “First Earnout” is calculated based on a multiple of all future sales of existing and certain future derivative products to existing and future customers in each annual period from 2019 through 2022. The First Earnout may not exceed $35 million in total. The “Second Earnout” is calculated based on a multiple of future sales related to an existing product and program with an existing customer exceeding an annual threshold for each annual period from 2019 through 2022. The Second Earnout is not capped. For the Second Earnout, if the applicable sales in an annual period do not exceed the annual threshold, no amounts will be paid relative to such annual period; the sales in such annual period do not carry over to the next annual period. Due to the degree of uncertainty associated with estimating the future sales levels of the divested business and its underlying programs, and the lack of reliable predictive market information, the Company will recognize such earnout proceeds, if received, as additional gain on sale when such proceeds are realized or realizable.

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All intercompany transactions and balances have been eliminated.

Acquisitions are accounted for under the acquisition method and, accordingly, the operating results for the acquired companies are included in the consolidated statements of operations from the respective dates of acquisition.

For additional information on the acquired businesses, see Note 20.

Cost of Products Sold, Engineering and Development and Selling, General and Administrative Expenses
Cost of products sold includes the costs to manufacture products such as direct materials and labor and manufacturing overhead as well as all engineering and developmental costs. The Company is engaged in a variety of engineering and design activities as well as basic research and development activities directed to the substantial improvement or new application of the Company's existing technologies. These costs are expensed when incurred and included in cost of products sold. Research and development, design and related engineering expenses amounted to $114.3 million in 2018, $95.0 million in 2017 and $88.9 million in 2016. Selling, general and administrative ("SG&A") expenses include costs primarily related to our sales, marketing and administrative departments. Interest expense is shown net of interest income. Interest income was insignificant for the years ended December 31, 2018, 2017 and 2016.

Shipping and Handling
Shipping and handling costs are included in costs of products sold.

Equity-Based Compensation
The Company accounts for its stock options following Accounting Standards Codification ("ASC") Topic 718, *Compensation – Stock Compensation* ("ASC Topic 718"). This Topic requires all equity-based payments to employees, including grants of employee stock options and restricted stock units ("RSU's"), to be recognized in the statement of earnings based on the grant date fair value of the award. For awards with graded vesting, the Company uses a straight-line method of attributing the value of stock-based compensation expense, subject to minimum levels of expense, based on vesting. The Company accounts for forfeitures as they occur.
Under ASC Topic 718, stock compensation expense recognized during the period is based on the value of the portion of share-based payment awards that is ultimately expected to vest during the period. Vesting requirements vary for directors, officers and key employees. In general, options granted to outside directors vest six months from the date of grant and options granted to officers and key employees vest with graded vesting over a five-year period, 20% each year, from the date of grant. In general, RSU's granted to officers and key employees cliff vest in three years.
Equity-based compensation expense is included in selling, general and administrative expenses.

Cash and Cash Equivalents
All highly liquid instruments with a maturity of three months or less at the time of purchase are considered cash equivalents.

Accounts Receivable and Allowance for Doubtful Accounts
Accounts receivable are composed of trade and contract receivables recorded at either the invoiced amount or costs in excess of billings, are expected to be collected within one year, and do not bear interest. The Company will record a valuation allowance to account for potentially uncollectible accounts receivable. The allowance is determined based on our knowledge of the business, specific customers, review of the receivables' aging and a specific identification of accounts where collection is at risk. Account balances are charged against the allowance after all means of collections have been exhausted and recovery is considered remote. The Company typically does not require collateral.

Inventories
We record our inventories at the lower of cost or net realizable value. We determine the cost basis of our inventory on a first-in, first-out or weighted average basis using a standard cost methodology that approximates actual cost. The Company records valuation reserves to provide for excess, slow moving or obsolete inventory. In determining the appropriate reserve, the Company considers the age of inventory on hand, the overall inventory levels in relation to forecasted demands as well as reserving for specifically identified inventory that the Company believes is no longer salable.

Property, Plant and Equipment
Depreciation of property, plant and equipment is computed using the straight-line method for financial reporting purposes and using accelerated methods for income tax purposes. Estimated useful lives of the assets are as follows: buildings, 25-40 years; machinery and equipment, 4-10 years. Leased buildings and associated leasehold improvements are amortized over the shorter of the terms of the lease or the estimated useful lives of the assets, with the amortization of such assets included within depreciation expense.

The cost of properties sold or otherwise disposed of and the accumulated depreciation thereon are eliminated from the accounts and the resulting gain or loss, as well as maintenance and repair expenses, is reflected within operating income. Replacements and improvements are capitalized.
Depreciation expense was approximately $15.0 million, $14.1 million and $14.3 million in 2018, 2017 and 2016, respectively.
Buildings acquired under capital leases amounted to $3.4 million ($8.2 million, net of $4.8 million of accumulated amortization) and $10.3 million ($15.5 million, net of $5.2 million accumulated amortization) at December 31, 2018 and 2017, respectively. Future minimum lease payments associated with these capital leases are expected to be $2.0 million in 2019, $2.1 million in 2020, $2.2 million in 2021, and $0.9 million in 2022.
Long-Lived Assets
Long-lived assets to be held and used are initially recorded at cost. The carrying value of these assets is evaluated for recoverability whenever adverse effects or changes in circumstances indicate that the carrying amount may not be recoverable. Impairments are recognized if future undiscounted cash flows from operations are not expected to be sufficient to recover long-lived assets. The carrying amounts are then reduced to fair value, which is typically determined by using a discounted cash flow model.
Assets of Business Held for Sale
Assets held for sale are to be reported at lower of its carrying amount or fair value less cost to sell. Judgment is required in estimating the sales price of assets held for sale and the time required to sell the assets. These estimates are based upon available market data and operating cash flows of the assets held for sale.
As of December 31, 2018, the Company’s Board of Directors had approved a plan to sell the semiconductor test business within the Test Systems segment. Accordingly, the assets and liabilities associated with these operations have been classified as held for sale in the accompanying consolidated Balance Sheet at December 31, 2018. The carrying value of the disposal group was lower than its fair value, less costs to sell, and accordingly, no impairment loss was required at December 31, 2018.
Goodwill
The Company tests goodwill at the reporting unit level on an annual basis or more frequently if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. The Company has twelve reporting units, however only nine reporting units have goodwill and were subject to the goodwill impairment test as of the first day of our fourth quarter.
We may elect to perform a qualitative assessment that considers economic, industry and company-specific factors for all or selected reporting units. If, after completing the assessment, it is determined that it is more likely than not that the fair value of a reporting unit is less than its carrying value, we proceed to a quantitative test. We may also elect to perform a quantitative test instead of a qualitative test for any or all of our reporting units.
Quantitative testing requires a comparison of the fair value of each reporting unit to its carrying value. We use the discounted cash flow method to estimate the fair value of our reporting units. The discounted cash flow method incorporates various assumptions, the most significant being projected sales growth rates, operating margins and cash flows, the terminal growth rate and the weighted average cost of capital. If the carrying value of the reporting unit exceeds its fair value, goodwill is considered impaired and any loss must be measured. Accordingly, goodwill impairment is measured as the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying value of goodwill.
See Note 7 for further information regarding the goodwill impairment charges in 2017 relating to our Armstrong reporting unit. There were no impairment charges in 2018 or 2016.
Intangible Assets
Acquired intangibles are generally valued based upon future economic benefits such as earnings and cash flows. Acquired identifiable intangible assets are recorded at fair value and are amortized over their estimated useful lives. Acquired intangible assets with an indefinite life are not amortized, but are reviewed for impairment at least annually or more frequently whenever events or changes in circumstances indicate that the carrying amounts of those assets are below their estimated fair values.
Impairment is tested under ASC Topic 350, *Intangibles - Goodwill and Other,* as amended by Accounting Standards Update (“ASU”) 2012-2, by first performing a qualitative analysis in a manner similar to the testing methodology of

goodwill discussed

previously. The qualitative factors applied under this new provision indicated no impairment to the Company's indefinite lived intangible assets in 2018, 2017 or 2016.

Financial Instruments

The Company's financial instruments consist primarily of cash and cash equivalents, accounts receivable, accounts payable, notes payable and long-term debt. The Company performs periodic credit evaluations of its customers' financial condition and generally does not require collateral. The Company does not hold or issue financial instruments for trading purposes. Due to their short-term nature, the carrying values of cash and equivalents, accounts receivable, accounts payable, and notes payable approximate fair value. The carrying value of the Company's variable rate long-term debt instruments also approximates fair value due to the variable rate feature of these instruments.

The Company holds a long-term, strategic investment in a company to promote business and strategic objectives. This investment is included in Other Assets on the Consolidated Balance Sheets. As further discussed below, the Company adopted ASU 2016-01 on January 1, 2018. As this investment has no readily determinable fair value, we have elected the practicability exception, under which the investment is measured at cost, less impairment, plus or minus observable price changes from orderly transactions of an identical or similar investment of the same issuer. Prior to 2018, this security was accounted for using the cost method of accounting, measured at cost less other-than-temporary impairment.

Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles ("U.S. GAAP") requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent liabilities and the reported amounts of sales and expenses during the reporting periods in the financial statements and accompanying notes. Actual results could differ from those estimates.

Foreign Currency Translation

The Company accounts for its foreign currency translation in accordance with ASC Topic 830, *Foreign Currency Translation*. The aggregate transaction gain included in operations was insignificant in 2018, 2017, and 2016.

Dividends

The Company has not paid any cash dividends in the three-year period ended December 31, 2018.

Loss Contingencies

Loss contingencies may from time to time arise from situations such as claims and other legal actions. Loss contingencies are recorded as liabilities when it is probable that a liability has been incurred and the amount of the loss is reasonably estimable. Disclosure is required when there is a reasonable possibility that the ultimate loss will exceed the recorded provision. Contingent liabilities are often resolved over long time periods. In recording liabilities for probable losses, management is required to make estimates and judgments regarding the amount or range of the probable loss. Management continually assesses the adequacy of estimated loss contingencies and, if necessary, adjusts the amounts recorded as better information becomes known.

Acquisitions

The Company accounts for its acquisitions under ASC Topic 805, *Business Combinations and Reorganizations* ("ASC Topic 805"). ASC Topic 805 provides guidance on how the acquirer recognizes and measures the consideration transferred, identifiable assets acquired, liabilities assumed, non-controlling interests, and goodwill acquired in a business combination. ASC Topic 805 also expands required disclosures surrounding the nature and financial effects of business combinations. See Note 20 regarding the acquisitions in 2017.

Newly Adopted and Recent Accounting Pronouncements

In May 2014, the FASB issued Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers* ("ASU 2014-09"), that, together with several subsequent updates, outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance. ASU 2014-09 is based on the principle that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. ASU 2014-09 also provides for enhanced disclosure requirements surrounding revenue recognition. Prior to the adoption of ASU 2014-09, revenue on a significant portion of our contracts had been recognized at the time of shipment of goods, transfer of title and customer acceptance, as required. Our revenue transactions generally consist of a single performance obligation to transfer promised goods and are not accounted for under industry-specific guidance. We have retained much of the same accounting treatment used to recognize revenue under the prior standard. However, the adoption of ASU 2014-09 required us to accelerate the recognition of revenue as compared to the prior standard for certain contracts, in cases where we produce products unique to those customers, and for which we would have an enforceable right of payment, inclusive of profit, for production completed to date. In some cases, revenue which qualified for accelerated recognition under the prior standard did not qualify for acceleration under ASU 2014-09; in these cases the revenue treatment was changed to reflect recognition at the time of transfer of control.

We adopted ASU 2014-09 on January 1, 2018 using the modified retrospective method, which required the recognition of the cumulative effect of the transition as an adjustment to retained earnings. The Company elected to apply the standard only to open contracts as of January 1, 2018. Based on the application of the changes described above, we recognized a transition adjustment of $3.3 million, net of tax effects, which increased our January 1, 2018 retained earnings. Based on our existing operations, ASU 2014-09 has not had a material impact to net earnings for the year ended December 31, 2018. Refer to Note 2 for additional information and a discussion of the Company's policies with respect to revenue recognition.

During the first quarter of 2018, the Company early-adopted ASU No. 2018-02, *Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*, which allows for a reclassification from accumulated other comprehensive income (loss) to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. The Company applied the guidance as of the beginning of the period of adoption and reclassified approximately $1.4 million from accumulated other comprehensive loss to retained earnings due to the change in federal corporate tax rate.

On January 1, 2018 ASU 2016-01, *Financial Instruments - Recognition and Measurement of Financial Assets and Financial Liabilities*, became effective for the Company. This ASU requires entities to carry all investments in equity securities, including other ownership interests such as partnerships, unincorporated joint ventures, and limited liability companies, at fair value with changes in fair value recognized within net income. This ASU does not apply to equity method investments, investments that result in consolidation of the investee or investments in certain investment companies. For investments in equity securities without a readily determinable fair value, an entity is permitted to elect a practicability exception, under which the investment will be measured at cost, less impairment, plus or minus observable price changes from orderly transactions of an identical or similar investment of the same issuer. Additionally, this ASU eliminated the requirement to assess whether an impairment of an equity investment is other than temporary. The impairment model for equity investments subject to this election is now a single-step model whereby an entity performs a qualitative assessment to identify impairment. If the qualitative assessment indicates that an impairment exists, the entity would estimate the fair value of the investment and recognize in net income an impairment loss equal to the difference between the fair value and the carrying amount of the equity investment.The Company’s non-marketable equity securities formerly classified as cost method investments are measured and recorded using the measurement alternative. The Company has elected the practicability exception whereby these investments are measured at cost, less impairment, plus or minus observable price changes from orderly transactions of identical or similar investments of the same issuer.

In February 2016, the FASB issued ASU No. 2016-02, *Leases*. ASU 2016-02 required entities to adopt the new standard using a modified retrospective method and initially apply the related guidance at the beginning of the earliest period presented in the financial statements. During July 2018, the FASB issued ASU 2018-11, which allows for an additional and optional transition method under which an entity would record a cumulative-effect adjustment at the beginning of the period of adoption (“cumulative-effect method”). We will adopt this guidance as of January 1, 2019 using the cumulative-effect method. We anticipate an increase in our assets and liabilities due to the recognition of the required right-of-use asset and corresponding lease obligations for leases that are currently classified as operating

leases. While the adoption will result in an increase to assets and liabilities on the balance sheet, we estimate that the impact to both will not exceed 3% of our consolidated total assets. In addition, we do not expect that the adoption will result in a material impact to our consolidated statement of operations.
In January 2017, the FASB issued ASU No. 2017-01, *Clarifying the Definition of a Business*, which narrows the existing definition of a business and provides a framework for evaluating whether a transaction should be accounted for as an acquisition (or disposal) of assets or a business. The ASU requires an entity to evaluate if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets; if so, the set of transferred assets and activities (collectively, the set) is not a business. To be considered a business, the set would need to

include an input and a substantive process that together significantly contribute to the ability to create outputs. The standard also narrows the definition of outputs. The definition of a business affects areas of accounting such as acquisitions, disposals and goodwill. Under the new guidance, fewer acquired sets are expected to be considered businesses. This ASU was effective for fiscal years beginning after December 15, 2017 on a prospective basis with early adoption permitted.

In March 2017, the FASB issued ASU No. 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. This ASU changes how employers that sponsor defined benefit pension and/or other postretirement benefit plans present the net periodic benefit cost in the income statement. This ASU was adopted as of January 1, 2018 on a retrospective basis. Under the new standard, only the service cost component of net periodic benefit cost would be included in operating expenses. All other net periodic benefit costs components (such as interest cost, prior service cost amortization and actuarial gain/loss amortization) would be reported outside of operating income. These include components totaling $2.0 million, $1.7 million and $1.7 million, for the years ended December 31, 2018, 2017, and 2016, respectively, that are no longer be included within operating expenses and instead are reported outside of income from operations under the new standard, within other expense, net of other income in the accompanying Consolidated Statements of Operations.

In May 2017, the FASB issued ASU No. 2017-09, *Scope of Modification Accounting*, that clarifies when changes to the terms or conditions of a share-based payment award must be accounted for as a modification. The general model for accounting for modifications of share-based payment awards is to record the incremental value arising from the changes as additional compensation cost. Under the new standard, fewer changes to the terms of an award would require accounting under this modification model. This ASU was adopted as of January 1, 2018. As the Company has not made changes to the terms or conditions of its issued share-based payment awards, this ASU had no impact on our consolidated results of operations and financial condition.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*. The new standard removes the disclosure requirements for the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy. The provisions of this ASU are effective for years beginning after December 15, 2019, with early adoption permitted. We do not expect this ASU to have a significant impact on our consolidated financial statements, as it only includes changes to disclosure requirements.

In August 2018, the FASB issued ASU 2018-14, *Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans*. The new standard includes updates to the disclosure requirements for defined benefit plans including several additions, deletions and modifications to the disclosure requirements. The provisions of this ASU are effective for years beginning after December 15, 2020, with early adoption permitted. We are currently evaluating the impact of this ASU.

NOTE 2 — REVENUE

ASU 2014-09 was adopted on January 1, 2018 using the modified retrospective method, which required the recognition of the cumulative effect of the transition as an adjustment to retained earnings.

Revenue is recognized when, or as, the Company transfers control of promised products or services to a customer in an amount that reflects the consideration the Company expects to be entitled in exchange for transferring those products or services. Sales shown on the Company's Consolidated Statements of Operations are from contracts with customers.

Payment terms and conditions vary by contract, although terms generally include a requirement of payment within a range from 30 to 60 days after the performance obligation has been satisfied; or in certain cases, up-front deposits. In circumstances where the timing of revenue recognition differs from the timing of invoicing, the Company has determined that the Company's contracts generally do not include a significant financing component. Taxes collected from customers, which are subsequently remitted to governmental authorities, are excluded from sales.

The Company recognizes an asset for the incremental, material costs of obtaining a contract with a customer if the Company expects the benefit of those costs to be longer than one year and the costs are expected to be recovered. As of December 31, 2018, the Company does not have material incremental costs on any open contracts with an original expected duration of greater than one year, and therefore such costs are expensed as incurred. These incremental costs

include, but are not limited to, sales commissions incurred to obtain a contract with a customer.
The Company recognizes an asset for certain, material costs to fulfill a contract if it is determined that the costs relate directly to a contract or anticipated contracts that can be specifically identified, generate or enhance resources that will be used in satisfying performance obligations in the future, and are expected to be recovered. Such costs are amortized on a systematic basis that is consistent with the transfer to the customer of the goods to which the asset relates.
Start-up costs are expensed as incurred. Capitalized fulfillment costs are included in Inventories in the accompanying Consolidated Balance Sheets. Should

future orders not materialize or it is determined the costs are no longer probable of recovery, the capitalized costs are written off. Capitalized fulfillment costs were $9.6 million as of December 31, 2018. These costs were associated with a contract that is included in the divestiture of the semiconductor business and as such, the balance is included in Assets Held for Sale in the accompanying consolidated balance sheet at December 31, 2018. Amortization of fulfillment costs recognized within Cost of Products Sold was approximately $1.0 million for the year ended December 31, 2018.

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer, and is the unit of account. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The majority of our contracts have a single performance obligation as the promise to transfer the individual goods or services is not separately identifiable from other promises in the contracts which are, therefore, not distinct. Promised goods or services that are immaterial in the context of the contract are not separately assessed as performance obligations.

Some of our contracts have multiple performance obligations, most commonly due to the contract covering multiple phases of the product lifecycle (development, production, maintenance and support). For contracts with multiple performance obligations, the contract's transaction price is allocated to each performance obligation using our best estimate of the standalone selling price of each distinct good or service in the contract. The primary method used to estimate standalone selling price is the expected cost plus margin approach, under which expected costs are forecast to satisfy a performance obligation and then an appropriate margin is added for that distinct good or service. Shipping and handling activities that occur after the customer has obtained control of the good are considered fulfillment activities, not performance obligations.

Some of our contracts offer price discounts or free units after a specified volume has been purchased. The Company evaluates these options to determine whether they provide a material right to the customer, representing a separate performance obligation. If the option provides a material right to the customer, revenue is allocated to these rights and recognized when those future goods or services are transferred, or when the option expires.

Contract modifications are routine in the performance of our contracts. Contracts are often modified to account for changes in contract specifications or requirements. Contract modifications are for goods or services that are distinct, and, therefore, are accounted for as new contracts. The aggregate effect of all modifications as of the period beginning January 1, 2018 has been reflected when identifying the satisfied and unsatisfied performance obligations, determining the transaction price and allocating the transaction price. Contracts modified prior to January 1, 2018 have not been retrospectively restated.

The vast majority of the Company's revenue from contracts with customers is recognized at a point in time, when the customer obtains control of the promised product, which is generally upon delivery and acceptance by the customer. These contracts may provide credits or incentives, which may be accounted for as variable consideration. Variable consideration is estimated at the most likely amount to predict the consideration to which the Company will be entitled, and only to the extent it is probable that a subsequent change in estimate will not result in a significant revenue reversal when estimating the amount of revenue to recognize. Variable consideration is treated as a change to the sales transaction price and based on an assessment of all information (i.e., historical, current and forecasted) that is reasonably available to the Company, and estimated at contract inception and updated at the end of each reporting period as additional information becomes available. Most of our contracts do not contain rights to return product; where this right does exist, it is evaluated as possible variable consideration.

For contracts that are subject to the requirement to accrue anticipated losses, the company recognizes the entire anticipated loss in the period that the loss becomes probable.

For contracts with customers in which the Company satisfies a promise to the customer to provide a product that has no alternative use to the Company and the Company has enforceable rights to payment for progress completed to date inclusive of profit, the Company satisfies the performance obligation and recognizes revenue over time, using costs incurred to date relative to total estimated costs at completion to measure progress toward satisfying our performance obligations. Incurred cost represents work performed, which corresponds with, and thereby best depicts, the transfer of control to the customer. Contract costs include labor, material and overhead.

The Company also recognizes revenue from service contracts (including service-type warranties) over time. The Company recognizes revenue over time during the term of the agreement as the customer is simultaneously receiving

and consuming the benefits provided throughout the Company's performance. Therefore, due to control transferring over time, the Company typically recognizes revenue on a straight-line basis throughout the contract period.
On December 31, 2018, we had $415.5 million of remaining performance obligations, which we refer to as total backlog, inclusive of $12.2 million in backlog associated with the divested semiconductor business. We expect to recognize approximately $352.4 million of our remaining performance obligations as revenue in 2019.

We recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of retained earnings. The comparative information has not been restated and continues to be reported under the accounting standards in effect for those periods.
The cumulative effect of the changes made to our consolidated January 1, 2018 balance sheet for the adoption of ASU 2014-09, were as follows:

(In thousands)	Balance at December 31, 2017		Adjustments Due to ASU 2014-09		Balance at January 1, 2018	
Assets						
Accounts Receivable, Net of Allowance for Doubtful Accounts	$	132,633	$	4,005	$	136,638
Inventories	$	150,196	$	(7,957)	$	142,239
Liabilities						
Accrued Income Taxes	$	261	$	1,028	$	1,289
Customer Advance Payments and Deferred Revenue	$	19,607	$	(8,176)	$	11,431
Deferred Income Taxes	$	5,121	$	(72)	$	5,049
Equity						
Retained Earnings	$	325,191	$	3,268	$	328,459

In accordance with the new revenue standard requirements, the disclosure of the impact of adoption on our consolidated income statement and balance sheet at December 31 is as follows:

(In thousands)	2018					
Income Statement	As Reported		Effect of Change Higher/(Lower)		Balances Without Adoption of ASU 2014-09	
Sales						
Aerospace	$	675,625	$	(1,796)	$	677,421
Test Systems	$	127,631	$	1,633	$	125,998
Costs and Expenses						
Cost of Products Sold	$	622,560	$	(610)	$	623,170
Provision for (Benefit from)	$	5,479	$	119	$	5,360

Income Taxes			
Net Income	$ 46,803	$ 328	$ 46,475

(In thousands)	2018		
Balance Sheet	**As Reported**	**Effect of Change Higher/(Lower)**	**Balances Without Adoption of ASU 2014-09**
Assets			
Accounts Receivable, Net of Allowance for Doubtful Accounts	$ 182,308	$ 11,277	$ 171,031
Inventories	$ 138,685	$ (7,345)	$ 146,030
Liabilities			
Accrued (Prepaid) Income Taxes	$ 312	$ 1,947	$ (1,635)
Customer Advance Payments and Deferred Revenue	$ 26,880	$ (740)	$ 27,620
Deferred Income Taxes	$ 3,199	$ (871)	$ 4,070
Equity			
Retained Earnings	$ 376,567	$ 3,596	$ 372,971

Costs in excess of billings includes unbilled amounts resulting from revenues under contracts with customers that are satisfied over time and when the cost-to-cost measurement method of revenue recognition is utilized and revenue recognized exceeds the amount billed to the customer, and right to payment is not just subject to the passage of time. Amounts may not exceed their net realizable value. Costs in excess of billings are classified as current assets, within Accounts Receivable, Net of Allowance for Doubtful Accounts on our Consolidated Balance Sheet.

Billings in excess of cost includes billings in excess of revenue recognized as well as deferred revenue, which includes advanced payments, up-front payments, and progress billing payments. Billings in excess of cost are classified as current liabilities, reported in our Consolidated Balance Sheet within Customer Advance Payments and Deferred Revenue. To determine the revenue recognized in the period from the beginning balance of billings in excess of cost, the contract liability as of the beginning of the period is recognized as revenue on a contract-by-contract basis when the Company satisfies the performance obligation related to the individual contract. Once the beginning contract liability balance for an individual contract has been fully recognized as revenue, any additional payments received in the period are recognized as revenue once the related costs have been incurred.

We recognized $8.1 million during the year ended December 31, 2018 in revenues that were included in the contract liability balance at January 1, 2018.

The Company's contract assets and contract liabilities consist of costs and profits in excess of billings and billings in excess of cost and profits, respectively. Non-current contract liabilities are reported in our Consolidated Balance Sheet within Other Liabilities. The following table presents the beginning and ending balances of contract assets and contract liabilities:

(In thousands)	Contract Assets		Contract Liabilities	
Beginning Balance, January 1, 2018 (1)	$	24,423	$	11,431
Ending Balance, December 31, 2018	$	33,030	$	27,347

(1) Due to the adoption of ASU 2014-09 effective January 1, 2018, the Company recorded a transition adjustment to the opening balance of Contract Assets and Contract Liabilities at January 1, 2018. Refer to the cumulative effect of the changes table above for further explanation of the changes made to our consolidated January 1, 2018 balance sheet.

The following table presents our revenue disaggregated by Market Segments as of December 31 as follows:

(In thousands)	2018		2017		2016	
Aerospace Segment						
Commercial Transport	$	536,269	$	414,523	$	435,552
Military	68,138		61,270		54,556	
Business Jet	43,090		41,298		25,407	
Other	28,128		17,512		18,526	
Aerospace Total	675,625		534,603		534,041	
Test Systems Segment						
Semiconductor	84,254		31,999		37,939	

Aerospace & Defense	43,377		57,862		61,143	
Test Systems Total	127,631		89,861		99,082	
Total	$	803,256	$	624,464	$	633,123

47

The following table presents our revenue disaggregated by Product Lines as of December 31 as follows:

(In thousands)	2018		2017		2016	
Aerospace Segment						
Electrical Power & Motion	$	303,180	$	264,286	$	288,465
Lighting & Safety	174,383		158,663		156,871	
Avionics	131,849		53,960		32,761	
Systems Certification	13,951		14,333		16,531	
Structures	24,134		25,849		20,887	
Other	28,128		17,512		18,526	
Aerospace Total	675,625		534,603		534,041	
Test Systems	127,631		89,861		99,082	
Total	$	803,256	$	624,464	$	633,123

NOTE 3 — ACCOUNTS RECEIVABLE

Accounts receivable at December 31 consists of:

(In thousands)	2018		2017	
Trade Accounts Receivable	$	150,764	$	114,461
Unbilled Recoverable Costs and Accrued Profits	33,030		19,132	
Total Receivables, Gross	183,794		133,593	
Less Allowance for Doubtful Accounts	(1,486)		(960)	
Total Receivables, Net	$	182,308	$	132,633

NOTE 4 — INVENTORIES

Inventories at December 31 are as follows:

(In thousands)	2018		2017	
	$	33,100	$	35,193

Finished Goods				
Work in Progress	27,409		33,219	
Raw Material	78,176		81,784	
Total Inventories	$	138,685	$	150,196

Additionally, net Inventories of $14,385 are classified in Assets Held for Sale at December 31, 2018. Refer to Note 21.

At December 31, 2018, the Company's reserve for inventory valuation was $20.8 million, or 12.0% of gross inventory, inclusive of inventory and its associated reserves held for sale. At December 31, 2017, the Company's reserve for inventory valuation was $18.0 million, or 10.7% of gross inventory.

NOTE 5 — PROPERTY, PLANT AND EQUIPMENT

Property, Plant and Equipment at December 31 are as follows:

(In thousands)	2018		2017	
Land	$	11,191	$	11,237
Building and Improvements	83,812		81,872	
Machinery and Equipment	106,327		105,827	
Construction in Progress	6,404		9,761	
Total Property, Plant and Equipment, Gross	$	207,734	$	208,697
Less Accumulated Depreciation	86,872		82,867	
Total Property, Plant and Equipment, Net	$	120,862	$	125,830

Additionally, net Property, Plant and Equipment of $3,521 is classified in Assets Held for Sale at December 31, 2018. Refer to Note 21.

NOTE 6 — INTANGIBLE ASSETS

The following table summarizes acquired intangible assets at December 31 as follows:

		2018				2017			
(In thousands)	Weighted Average Life	Gross Carrying Amount		Accumulated Amortization		Gross Carrying Amount		Accumulated Amortization	
Patents	11 Years	$	2,146	$	1,716	$	2,146	$	1,629
Non-compete Agreement	4 Years	10,900		4,680		10,900		1,687	
Trade Names	10 Years	11,454		5,182		11,492		4,114	
Completed and Unpatented Technology	10 Years	36,406		14,964		38,114		11,931	
Backlog	1 Years	8,790		8,790		14,424		12,184	
Customer Relationships	15 Years	136,894		37,875		137,967		30,005	
Total Intangible Assets	13 Years	$	206,590	$	73,207	$	215,043	$	61,550

Additionally, net Intangible Assets of $651 are classified in Assets Held for Sale at December 31, 2018. Refer to Note 21.

Amortization is computed on the straight-line method for financial reporting purposes, with the exception of backlog, which is amortized based on the expected realization period of the acquired backlog. Amortization expense for intangibles was $19.4 million, $12.3 million and $10.8 million for 2018, 2017 and 2016, respectively.

Based upon acquired intangible assets at December 31, 2018, amortization expense for each of the next five years is estimated to be:

(In thousands)	
2019	$ 16,582
2020	$ 15,909
2021	$ 14,000
2022	$ 13,576
2023	$ 12,409

NOTE 7 — GOODWILL

The following table summarizes the changes in the carrying amount of goodwill at December 31 as follows:

(In thousands)	2018		2017	
Balance at Beginning of the Year	$	125,645	$	115,207
Acquisition	(241)		25,740	
Impairment Charge	—		(16,237)	
Foreign Currency Translations and Other	(452)		935	
Balance at End of the Year	$	124,952	$	125,645
Goodwill, Gross	$	157,731	$	158,424
Accumulated Impairment Losses	(32,779)		(32,779)	
Goodwill, Net	$	124,952	$	125,645

All goodwill relates to the Aerospace segment. As discussed in Note 1, goodwill is not amortized but is periodically tested for impairment. For the nine reporting units with goodwill on the first day of our fourth quarter, the Company performed a quantitative assessment of the goodwill's carrying value. The 2018 assessment indicated no impairment to the carrying value of goodwill in any of the Company's reporting units and no impairment charge was recognized.

In the year ending December 31, 2017, the Company recorded an impairment charge of approximately $16.2 million in the consolidated statement of operations associated to the Armstrong reporting unit, which represented all of Armstrong's goodwill. The impairment loss was incurred in the Aerospace segment and is reported on the Impairment Loss line of the Consolidated Statements of Operations. There was no impairment to the carrying value of goodwill in 2016.

NOTE 8 — LONG-TERM DEBT AND NOTES PAYABLE

Long-term Debt at December 31 is as follows:

(In thousands)	2018		2017	
Revolving Credit Line issued under the Fifth Amended and Restated Credit Agreement dated February 21, 2018. Interest is at LIBOR plus between 1.00% and 1.50%	$	227,000	$	262,000

(3.70% at December 31, 2018).				
Other Bank Debt	338		807	
Capital Lease Obligations	6,644		8,960	
Total Debt	233,982		271,767	
Less Current Maturities	1,870		2,689	
Total Long-term Debt	$	232,112	$	269,078

Principal maturities of long-term debt are approximately:

(In thousands)

2019	$	1,870
2020	2,133	
2021	2,067	
2022	912	
2023	227,000	
Thereafter	—	
Total Debt	$	233,982

The Company's Fourth Amended and Restated Credit Agreement (the “Original Facility”) provided for a $350 million revolving credit line with the option to increase the line by up to $150 million. The maturity date of the Original Facility was January 13, 2021. On February 16, 2018, the Company modified and extended the Original Facility by entering into the Fifth Amended and Restated Credit Agreement (the “Agreement”), which provides for a $500 million revolving credit line with the option to increase the line by up to $150 million. A new lender was added to the facility as well. The outstanding balance of the Original Facility were rolled into the Agreement on the date of closing. The maturity date of the loans under the Agreement is February

50

16, 2023. At December 31, 2018, there was $227.0 million outstanding on the revolving credit facility and there remains $271.9 million available, net of outstanding letters of credit. The credit facility allocates up to $20 million of the $500 million revolving credit line for the issuance of letters of credit, including certain existing letters of credit. At December 31, 2018, outstanding letters of credit totaled $1.1 million.
The maximum permitted leverage ratio of funded debt to Adjusted EBITDA (as defined in the Agreement) was 3.75 to 1, increasing to 4.50 to 1 for up to four fiscal quarters following the closing of an acquisition permitted under the Agreement, subject to limitations. The Company's leverage ratio was 2.04 to 1 at December 31, 2018. The Company will pay interest on the unpaid principal amount of the facility at a rate equal to one-, three- or six-month LIBOR plus between 1.00% and 1.50% based upon the Company’s leverage ratio. The Company will also pay a commitment fee to the Lenders in an amount equal to between 0.10% and 0.20% on the undrawn portion of the credit facility, based upon the Company’s leverage ratio.
The Company’s obligations under the Credit Agreement as amended are jointly and severally guaranteed by each domestic subsidiary of the Company other than a non-material subsidiary. The obligations are secured by a first priority lien on substantially all of the Company’s and the guarantors’ assets.
In the event of voluntary or involuntary bankruptcy of the Company or any subsidiary, all unpaid principal and other amounts owing under the Credit Agreement automatically become due and payable. Other events of default, such as failure to make payments as they become due and breach of financial and other covenants, change of control, judgments over a certain amount, and cross default under other agreements give the Agent the option to declare all such amounts immediately due and payable.

NOTE 9 — WARRANTY

In the ordinary course of business, the Company warrants its products against defects in design, materials and workmanship typically over periods ranging from twelve to sixty months. The Company determines warranty reserves needed by product line based on experience and current facts and circumstances. Activity in the warranty accrual, which is included in other accrued expenses on the Consolidated Balance Sheets, is summarized as follows:

(In thousands)	**2018**		**2017**		**2016**	
Balance at Beginning of the Year	$	5,136	$	4,675	$	5,741
Warranty Liabilities Acquired	—		511		—	
Warranties Issued	2,806		1,782		2,281	
Reassessed Warranty Exposure	(370)		540		(966)	
Warranties Settled	(2,545)		(2,372)		(2,381)	
Balance at End of the Year	$	5,027	$	5,136	$	4,675

NOTE 10 — INCOME TAXES

The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the financial reporting and tax basis of assets and liabilities. Deferred tax assets are reduced, if deemed necessary, by a valuation allowance for the amount of tax benefits which are not expected to be realized. Investment tax credits are recognized on the flow through method.
The provision (benefit) for income taxes at December 31 consists of the following:

(In thousands)	2018		2017		2016	
Current						
U.S. Federal	$	7,540	$	8,436	$	21,667
State	(504)		2,054		2,899	
Foreign	1,123		316		551	
Deferred						
U.S. Federal	(1,799)		(3,850)		(2,871)	
State	(1,584)		(326)		(1,140)	
Foreign	703		(1,318)		(745)	
Total	$	5,479	$	5,312	$	20,361

51

The effective tax rates differ from the statutory federal income tax rate as follows:

	2018	2017	2016
Statutory Federal Income Tax Rate	21.0 %	35.0 %	35.0 %
Permanent Items			
Stock Compensation Expense	(0.9)%	1.1 %	1.1 %
Domestic Production Activity Deduction	— %	(4.7)%	(3.3)%
Other	0.4 %	0.5 %	0.2 %
Foreign Tax Benefits	0.5 %	(5.6)%	(1.1)%
State Income Tax, Net of Federal Income Tax Effect	2.8 %	4.5 %	1.8 %
Revised State Filing Tax Benefit, Net of Federal Income Tax Effect, Net of Reserve	(6.7)%	— %	— %
Research and Development Tax Credits	(6.2)%	(11.5)%	(3.7)%
Tax Expense on Deemed Repatriation of Foreign Earnings	(0.8)%	5.6 %	— %
Revaluation of Deferred Taxes for Federal Tax Rate Change	(0.1)%	(3.5)%	— %
Other	0.5 %	(0.1)%	(0.4)%
Effective Tax Rate	10.5 %	21.3 %	29.6 %

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

Significant components of the Company's deferred tax assets and liabilities at December 31, are as follows:

(In thousands)	2018	2017

Deferred Tax Assets:		
Asset Reserves	$ 8,808	$ 7,596
Deferred Compensation	5,628	6,091
Capital Lease Basis Difference	1,743	1,002
State Investment and Research and Development Tax Credit Carryforwards, Net of Federal Tax	1,066	1,379
Customer Advanced Payments and Deferred Revenue	875	1,007
State Net Operating Loss Carryforwards and Other	8,281	8,115
Total Gross Deferred Tax Assets	26,401	25,190
Valuation Allowance for Foreign Tax Credit, State Deferred Tax Assets and Tax Credit Carryforwards, Net of Federal Tax	(8,098)	(7,823)
Deferred Tax Assets	18,303	17,367
Deferred Tax Liabilities:		
Depreciation	11,687	9,267
Goodwill and Intangible Assets	4,438	7,275
Other	3,812	3,130
Deferred Tax Liabilities	19,937	19,672

Net Deferred Tax Liabilities	$	(1,634)	$	(2,305)

The net deferred tax assets and liabilities presented in the Consolidated Balance Sheets are as follows at December 31:

(In thousands)	**2018**		**2017**	
Other Assets — Long-term	$	3,999	$	2,816
Assets Held for Sale	(1,528)		—	
Deferred Tax Liabilities — Long-term	(3,199)		(5,121)	
Liabilities Held for Sale	(906)		—	
Net Deferred Tax Liabilities	$	(1,634)	$	(2,305)

52

At December 31, 2018, state tax credit carryforwards amounted to approximately $1.3 million, of which $0.7 million will expire from 2018 through 2032 and $0.6 million will carryforward until utilized. At December 31, 2018, state net operating loss carryforwards which the Company expects to utilize amounted to approximately $10.8 million and expire at various dates between 2027 and 2037.

Due to the uncertainty as to the Company's ability to generate sufficient taxable income in certain states in the future and utilize certain of the Company's state operating loss carryforwards before they expire, the Company has recorded a valuation allowance accordingly. These state net operating loss carryforwards amount to approximately $85.5 million and expire at various dates from 2021 through 2038. The Company adopted ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting* during 2017 and beginning with 2017, the excess tax benefits associated with stock option exercises are no longer recorded directly to shareholders' equity, but rather, are recorded in the provision for income taxes, when realized. A benefit of approximately $0.7 million and $0.5 million was recorded in the provision for incomes taxes for the year ended December 31, 2018 and 2017, respectively. Amounts recorded directly to shareholders' equity amounted to approximately $0.8 million for the year end December 31, 2016.

At December 31, 2018, estimated foreign tax credit carryforwards, which the Company expects not to utilize, amounted to approximately $0.3 million. Due to the uncertainty as to the Company's ability to generate any general limitation foreign source income in the future and utilize these foreign tax credits, the Company has recorded a valuation allowance accordingly.

During the year ended December 31, 2018, the Company, determined that a revised state filing position could be taken which would reduce the taxable income apportioned for state income tax purposes. Based on the assessment performed, the Company concluded that amended state income tax returns would be filed for the open tax years of 2014 through 2017 to reflect this revised tax position and claim the associated tax benefits. The Company will also claim the benefit of the revised filing position for 2018 when it files the associated 2018 tax return. In addition, the revised state tax filing position also resulted in a deferred tax benefit due to the revaluation of deferred tax liabilities. Accordingly, the Company recognized the tax benefits, and related tax reserves, for the revised state filing position during the year ended December 31, 2018.

The Company has analyzed its filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years in these jurisdictions. Should the Company need to accrue a liability for uncertain tax benefits, any interest associated with that liability would be recorded as interest expense. Penalties, if any, would be recorded as operating expenses. During the year ended December 31, 2018, reserves for uncertain tax positions were recorded in association with revised state income tax filing positions pursuant to ASC Topic 740-10. No reserves for uncertain income tax positions were deemed necessary for the years ended December 31, 2017 or 2016. A reconciliation of the total amounts of unrecognized tax benefits, excluding interest and penalties, is as follows:

(in thousands)	2018	2017	2016
Balance at Beginning of the Year	$ —	$ —	$ —
Decreases as a Result of Tax Positions Taken in Prior Years	—	—	—
Increases as a Result of Tax Positions Taken in the Current	2,197	—	—

Year			
Balance at End of the Year	2,197	$ —	$ —

There are no penalties or interest liabilities accrued as of December 31, 2018 or 2017, nor are any material penalties or interest costs included in expense for each of the years ended December 31, 2018, 2017 and 2016. The years under which we conducted our evaluation coincided with the tax years currently still subject to examination by major federal and state tax jurisdictions, those being 2015 through 2018 for federal purposes and 2014 through 2018 for state purposes.

Pretax income from the Company's foreign subsidiaries amounted to $7.3 million, $1.1 million and $1.6 million for 2018, 2017 and 2016, respectively. The balance of pretax earnings for each of those years were domestic.

On December 22, 2017, the President of the United States signed into law the Tax Cuts and Jobs Act (the "Act"). The legislation significantly changed U.S. tax law by, among other things, lowering corporate income tax rates, implementing a territorial tax system and imposing a repatriation tax on deemed repatriated earnings of foreign subsidiaries. The Act permanently reduced the U.S. corporate income tax rate from a maximum of 35% to a 21% rate, effective January 1, 2018.

The Company uses the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to reverse. As a result of the reduction in the U.S. corporate income tax rate from 35% to 21% under the Tax Cuts and Jobs Act, the Company revalued its ending net deferred tax liabilities at December 31, 2017 and recognized a $0.1 million tax benefit and a provisional $0.9 million tax benefit in the Company's consolidated statement of income for the years ended December 31, 2018 and 2017 respectively.

The Tax Cuts and Jobs Act provided for a one-time deemed mandatory repatriation of post-1986 undistributed foreign subsidiary earnings and profits ("E&P") through the year ended December 31, 2018. The Company had an estimated $10.3 million of undistributed foreign E&P subject to the deemed mandatory repatriation and recognized a provisional $1.4 million of income tax expense in the Company's consolidated statement of income for the year ended December 31, 2017. The Company made an adjustment to its provisional amounts included in its consolidated financial statements for the year ended December 31, 2017 resulting in a benefit of approximately $0.4 million recorded during the year ended December 31, 2018. No additional provision for U.S. federal or foreign taxes has been made as the foreign subsidiaries' undistributed earnings (approximately $20.9 million at December 31, 2018) are considered to be permanently reinvested. It is not practicable to determine the amount of other taxes that would be payable if these amounts were repatriated to the U.S.

While the Tax Cuts and Jobs Act provides for a territorial tax system, beginning in 2018, it includes the foreign-derived intangible income ("FDII") and global intangible low-taxed income ("GILTI") provisions. The Company elected to account for GILTI tax in the period in which it is incurred. The GILTI provisions require the Company to include in its U.S. income tax return foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary's tangible assets. The GILTI tax expense resulted from required allocations of interest expense and stewardship expenses to the GILTI income, which created a U.S. foreign tax credit limitation. The FDII provisions allow for a deduction equal to a percentage of the foreign-derived intangible income of a domestic corporation. As a result of these provisions, net, the Company recorded tax expense of approximately $0.2 million during the year ended December 31, 2018.

The Base Erosion and Anti-Abuse Tax ("BEAT") provisions in the Tax Cuts and Jobs Act eliminates the deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax if greater than regular tax. The Company does not expect it will be subject to this tax and therefore has not included any tax impacts of BEAT in its consolidated financial statements for the year ended December 31, 2018.

On December 22, 2017, the SEC staff issued Staff Accounting Bulletin No. 118 ("SAB 118") to address the application of U.S. GAAP in situations when a registrant does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the Tax Cuts and Jobs Act. The Company had recognized the provisional tax impacts related to deemed repatriated earnings and the revaluation of deferred tax assets and liabilities and included these amounts in its consolidated financial statements for the year ended December 31, 2017. The accounting for these income tax effects of the Tax Cuts and Jobs Act was completed during the fourth quarter of 2018 and the provisional tax impacts were adjusted for the year ended December 31, 2018.

NOTE 11 — PROFIT SHARING/401(k) PLAN

The Company offers eligible domestic full-time employees participation in certain profit sharing/401(k) plans. The plans provide for a discretionary annual company contribution. In addition, employees may contribute a portion of their salary to the plans which is partially matched by the Company. The plans may be amended or terminated at any time.

Total charges to income before income taxes for these plans were approximately $8.3 million, $7.4 million and $6.7 million in 2018, 2017 and 2016, respectively.

NOTE 12 — RETIREMENT PLANS AND RELATED POST RETIREMENT BENEFITS

The Company has two non-qualified supplemental retirement defined benefit plans ("SERP" and "SERP II") for certain current and retired executive officers. The accumulated benefit obligation of the plans as of December 31, 2018 and 2017 amounts to $21.0 million and $22.7 million, respectively.

The Plans provide for benefits based upon average annual compensation and years of service and in the case of SERP, there are offsets for social security and profit sharing benefits. It is the Company's intent to fund the plans as plan benefits become payable, since no assets exist at December 31, 2018 or 2017 for either of the plans.

The Company accounts for the funded status (i.e., the difference between the fair value of plan assets and the projected benefit obligations) of its pension plans in accordance with the recognition and disclosure provisions of ASC Topic 715, *Compensation, Retirement Benefits*, which requires the Company to recognize the funded status in its balance sheet, with a corresponding adjustment to AOCI, net of tax. These amounts will be subsequently recognized as net periodic pension cost pursuant to the Company's historical policy for amortizing such amounts. Further, actuarial gains and losses that arise in subsequent periods and are not recognized as net periodic pension cost in the same periods will be recognized as a component of AOCI. Those amounts will be subsequently recognized as a component of net periodic pension cost on the same basis as the amounts recognized in AOCI.

Unrecognized prior service costs of $2.5 million ($3.1 million net of $0.6 million in taxes) and unrecognized actuarial losses of $3.2 million ($4.1 million net of $0.9 million in taxes) are included in AOCI at December 31, 2018 and have not yet been recognized in net periodic pension cost. The prior service cost included in AOCI that is expected to be recognized in net periodic pension cost during the fiscal year-ended December 31, 2019 is $0.3 million ($0.4 million net of $0.1 million in taxes). The actuarial loss included in AOCI expected to be recognized in net periodic pension cost during the fiscal year-ended December 31, 2019 is $0.2 million ($0.3 million net of $0.1 million in taxes).
The reconciliation of the beginning and ending balances of the projected benefit obligation of the plans for the years ended December 31 is as follows:

(In thousands)	2018		2017	
Funded Status				
Projected Benefit Obligation				
Beginning of the Year — January 1	$	25,141	$	21,533
Service Cost	200		186	
Interest Cost	899		897	
Actuarial (Gain) Loss	(3,922)		2,873	
Benefits Paid	(348)		(348)	
End of the Year — December 31	$	21,970	$	25,141

The assumptions used to calculate the projected benefit obligation as of December 31 are as follows:

	2018	2017
Discount Rate	4.20%	3.60%
Future Average Compensation Increases	2.00%	2.00% - 3.00%

The plans are unfunded at December 31, 2018 and are recognized in the accompanying Consolidated Balance Sheets as a current accrued pension liability of $0.4 million and a long-term accrued pension liability of $21.6 million. This also is the expected future contribution to the plan, since the plan is unfunded.
The following table summarizes the components of the net periodic cost for the years ended December 31:

(In thousands)	2018		2017		2016	
Net Periodic Cost						
Service Cost — Benefits Earned During Period	$	200	$	186	$	173
Interest Cost	899		897		901	
Amortization of Prior Service Cost	386		387		413	
	629		369		343	

Amortization of Losses						
Net Periodic Cost	$	2,114	$	1,839	$	1,830

The assumptions used to determine the net periodic cost are as follows:

	2018	2017	2016
Discount Rate	3.60%	4.20%	4.45%
Future Average Compensation Increases	2.00% - 3.00%	3.00% - 5.00%	3.00% - 5.00%

The Company expects the benefits to be paid in each of the next five years to be $0.3 million and $4.1 million in the aggregate for the next five years after that. This also is the expected Company contribution to the plans.
Participants in SERP are entitled to paid medical, dental and long-term care insurance benefits upon retirement under the plan. The measurement date for determining the plan obligation and cost is December 31.

The reconciliation of the beginning and ending balances of the accumulated postretirement benefit obligation for the years ended December 31, is as follows:

(In thousands)	2018		2017	
Funded Status				
Accumulated Postretirement Benefit Obligation				
Beginning of the Year — January 1	$	1,307	$	1,021
Service Cost	16		7	
Interest Cost	46		41	
Actuarial (Gain) Loss	(162)		307	
Benefits Paid	(71)		(69)	
End of the Year — December 31	$	1,136	$	1,307

The assumptions used to calculate the accumulated post-retirement benefit obligation as of December 31 are as follows:

	2018	2017
Discount Rate	4.20%	3.60%

The following table summarizes the components of the net periodic cost for the years ended December 31 as follows:

(In thousands)	2018		2017		2016	
Net Periodic Cost						
Service Cost — Benefits Earned During Period	$	16	$	7	$	5
Interest Cost	46		41		40	
Amortization of Prior Service Cost	16		16		24	
Amortization of Losses	59		31		22	
Net Periodic Cost	$	137	$	95	$	91

The assumptions used to determine the net periodic cost are as follows:

	2018	2017	2016
Discount Rate	3.60%	4.20%	4.45%
Future Average Healthcare	5.38%	5.50%	5.72%

Benefit
Increases

Unrecognized prior service of less than $0.1 million and unrecognized actuarial losses of $0.4 million for medical, dental and long-term care insurance benefits (net of taxes of $0.1 million) are included in AOCI at December 31, 2018 and have not been recognized in net periodic cost. The Company estimates that the prior service costs and net losses in AOCI as of December 31, 2018 that will be recognized as components of net periodic benefit cost during the year ended December 31, 2019 for the Plan will be insignificant. For measurement purposes, a 5.2% increase in the cost of health care benefits was assumed for 2019 and 2020, respectively, and a range between 4.3% and 6.1% from 2020 through 2070. A one percentage point increase or decrease in this rate would change the post retirement benefit obligation by less than $0.1 million. The plan is recognized in the accompanying Consolidated Balance Sheets as a current accrued pension liability of less than $0.1 million and a long-term accrued pension liability of $1.1 million. The Company expects the benefits to be paid in each of the next five years to be less than $0.1 million per year and approximately $0.4 million in the aggregate for the next five years after that. This also is the expected Company contribution to the plan, as it is unfunded.

The Company is a participating employer in a trustee-managed multiemployer defined benefit pension plan for employees who participate in collective bargaining agreements. The plan generally provides retirement benefits to employees based on years of service to the Company. Contributions are based on the hours worked and are expensed on a current basis. The Plan is 91.9% funded as of January 1, 2018. The Company's contributions to the plan were $1.1 million in each of 2018, 2017 and 2016. These contributions represent less than 1% of total contributions to the plan.

NOTE 13 — SHAREHOLDERS' EQUITY

Share Buyback Program

On February 24, 2016, the Company's Board of Directors authorized the repurchase of up to $50 million of common stock (the "Buyback Program"). The Buyback Program allowed the Company to purchase shares of its common stock in accordance with applicable securities laws on the open market or through privately negotiated transactions. The Company has repurchased approximately 1,675,000 shares and has completed that program. On December 12, 2017, the Company's Board of Directors authorized an additional repurchase of up to $50 million of common stock. No amounts have been repurchased under the new program as of December 31, 2018.

Reserved Common Stock

At December 31, 2018, approximately 12.9 million shares of common stock were reserved for issuance upon conversion of the Class B stock, exercise of stock options and purchases under the Employee Stock Purchase Plan. Class B Stock is identical to Common Stock, except Class B Stock has ten votes per share, is automatically converted to Common Stock on a one-for-one basis when sold or transferred other than via gift, devise or bequest and cannot receive dividends unless an equal or greater amount of dividends is declared on Common Stock.

Comprehensive Income and Accumulated Other Comprehensive Income (Loss)

Comprehensive income consists of net income and the after-tax impact of retirement liability adjustments. No income tax effect is recorded for currency translation adjustments.

The components of accumulated other comprehensive income (loss) are as follows:

(In thousands)	**2018**		**2017**	
Foreign Currency Translation Adjustments	$	(7,156)	$	(4,465)
Retirement Liability Adjustment – Before Tax	(7,814)		(12,988)	
Tax Benefit	1,641		4,101	
Retirement Liability Adjustment – After Tax	(6,173)		(8,887)	
Accumulated Other Comprehensive Loss	$	(13,329)	$	(13,352)

The components of other comprehensive income (loss) are as follows:

(In thousands)	**2018**		**2017**		**2016**	
Foreign Currency Translation Adjustments	$	(2,691)	$	4,132	$	(626)
Retirement Liability Adjustment	5,174		(2,377)		301	
Tax (Expense) Benefit	(1,087)		387		(105)	
Retirement Liability	4,087		(1,990)		196	

Adjustment						
Other Comprehensive Income (Loss)	$	1,396	$	2,142	$	(430)

NOTE 14 — EARNINGS PER SHARE

Earnings per share computations are based upon the following table:

(In thousands, except per share data)	2018		2017		2016	
Net Income	$	46,803	$	19,679	$	48,424
Basic Earnings Weighted Average Shares	32,351		32,874		33,537	
Net Effect of Dilutive Stock Options	785		844		1,000	
Diluted Earnings Weighted Average Shares	33,136		33,718		34,537	
Basic Earnings Per Share	$	1.45	$	0.60	$	1.44
Diluted Earnings Per Share	$	1.41	$	0.58	$	1.40

The above information has been adjusted to reflect the impact of the three-for-twenty distribution of Class B Stock for shareholders of record on October 12, 2018.

57

Stock options with exercise prices greater than the average market price of the underlying common shares are excluded from the computation of diluted earnings per share because they are out-of-the-money and the effect of their inclusion would be anti-dilutive. The number of common shares excluded from the computation was approximately 0.2 million for the year ended December 31, 2018, 0.1 million for the year ended December 31, 2017, and 0.2 million for the year ended December 31, 2016.

NOTE 15 — EQUITY COMPENSATION

The Company has equity compensation plans that authorize the issuance of restricted stock units or options for shares of Common Stock to directors, officers and key employees. Equity-based compensation is designed to reward long-term contributions to the Company and provide incentives for recipients to remain with the Company. The exercise price of stock options, determined by a committee of the Board of Directors, may not be less than the fair market value of the Common Stock on the grant date. Options become exercisable over periods not exceeding ten years. The Company's practice has been to issue new shares upon the exercise of the options.

The Company established Incentive Stock Option Plans for the purpose of attracting and retaining executive officers and key employees, and to align management's interest with those of the shareholders. Generally, the options must be exercised within 10 years from the grant date and vest ratably over a five-year period. The exercise price for the options is equal to the share price at the date of grant. At December 31, 2018, the Company had options outstanding for 931,193 shares under the plans.

The Company established the Directors Stock Option Plans for the purpose of attracting and retaining the services of experienced and knowledgeable outside directors, and to align their interest with those of the shareholders. The options must be exercised within ten years from the grant date. The exercise price for the option is equal to the share price at the date of grant and vests six months from the grant date. At December 31, 2018, the Company had options outstanding for 199,245 shares under the plans.

During 2017, the Company established the Long Term Incentive Plan for the purpose of attracting and retaining executive officers and key employees, and to align management's interest with those of the shareholders. The Plan contemplates the use of a mix of equity award types, and contains, with certain exceptions, a three-year pro-rata vesting schedule for time-based awards. The Long Term Incentive Plan was amended on December 14, 2018 to provide a six-month pro-rata vesting schedule for directors. For stock options, the exercise price is equal to the share price on the date of grant. Upon inception, the remaining options available for future grant under the 2011 Incentive Stock Option Plan and the Directors Stock Option Plans were rolled in the Long Term Incentive Plan, and no further grants may be made out of those plans. At December 31, 2018, the Company had stock options and RSU's outstanding of 240,500 shares under the Long Term Incentive Plan, and there were 1,518,848 shares available for future grant under this plan.

Stock compensation expense recognized during the period is based on the value of the portion of share-based payment awards that is ultimately expected to vest during the period. Vesting requirements vary for directors, officers and key employees. In general, options granted to outside directors vest six months from the date of grant and options granted to officers and key employees straight line vest over a five-year period from the date of grant. RSUs granted to officers and key employees cliff vest three years from the date of grant.

The following table provides compensation expense information based on the fair value of stock options and RSU's for the years ended December 31 as follows:

(In thousands)	2018		2017		2016	
Equity-based Compensation Expense	$	3,098	$	2,598	$	2,281
Tax Benefit	(179)		(140)		(145)	
Equity-based Compensation Expense, Net of Tax	$	2,919	$	2,458	$	2,136

Stock Options

	2018	2017	2016
Weighted Average Fair Value of the Options Granted	$ 14.64	$ 15.30	$ 14.65

58

The weighted average fair value for these options was estimated at the date of grant using a Black-Scholes option pricing model with the following weighted-average assumptions:

	2018	**2017**	**2016**
Risk-free Interest Rate	2.63% – 2.87%	2.05% – 2.36%	1.08% – 2.34%
Dividend Yield	—%	—%	—%
Volatility Factor	0.39 – 0.39	0.40 – 0.41	0.40 – 0.45
Expected Life in Years	5.0 – 8.0	5.0 – 8.0	4.0 – 8.0

To determine expected volatility, the Company uses historical volatility based on weekly closing prices of its Common Stock and considers currently available information to determine if future volatility is expected to differ over the expected terms of the options granted. The risk-free rate is based on the U.S. Treasury yield curve at the time of grant for the appropriate term of the options granted. Expected dividends are based on the Company's history and expectation of dividend payouts. The expected term of stock options is based on vesting schedules, expected exercise patterns and contractual terms.

A summary of the Company's stock option activity and related information for the years ended December 31 is as follows:

	2018			**2017**			**2016**		
(Aggregate intrinsic value in thousands)	**Options**	**Weighted Average Exercise Price**	**Aggregate Intrinsic Value**	**Options**	**Weighted Average Exercise Price**	**Aggregate Intrinsic Value**	**Options**	**Weighted Average Exercise Price**	**Aggregate Intrinsic Value**
Outstanding at January 1	1,506,604	$ 14.65	$ 23,801	1,539,017	$ 12.91	$ 35,630	1,661,700	$ 10.96	$ 30,675
Options Granted	120,270	$ 32.33	$ (226)	118,612	$ 33.40	$ 315	120,635	$ 29.82	$ (48)
Options Exercised	(274,941)	$ 3.89	$ (7,303)	(131,904)	$ 9.77	$ (3,467)	(217,083)	$ 6.26	$ (5,029)
Options Forfeited	(24,014)	$ 34.13	$ 88	(19,121)	$ 24.27	$ (225)	(26,235)	$ 22.57	$ (180)
Outstanding at December 31	1,327,919	$ 18.13	$ 16,360	1,506,604	$ 14.65	$ 32,253	1,539,017	$ 12.91	$ 25,418
Exercisable at December 31	1,043,596	$ 14.27	$ 16,885	1,252,315	$ 11.17	$ 31,177	1,255,295	$ 9.59	$ 24,898

The aggregate intrinsic value in the preceding table represents the total pretax option holder's intrinsic value, based on the Company's closing stock price of Common Stock which would have been received by the option holders had all option holders exercised their options as of that date. The Company's closing stock price of Common Stock was $30.45, $36.06 and $29.43 as of December 31, 2018, 2017 and 2016, respectively.

The weighted average fair value of options vested during 2018, 2017 and 2016 was $16.54, $12.39 and $10.48, respectively. The total fair value of options that vested during the year amounted to $1.4 million, $1.6 million and $1.4 million for the years ended December 31, 2018, 2017 and 2016, respectively. At December 31, 2018, total compensation costs related to non-vested awards not yet recognized amounts to $4.9 million and will be recognized over a weighted average period of 2.27 years.

The following is a summary of weighted average exercise prices and contractual lives for outstanding and exercisable stock options as of December 31, 2018:

	Outstanding			Exercisable		
Exercise Price Range	Shares	Weighted Average Remaining Life in Years	Weighted Average Exercise Price	Shares	Weighted Average Remaining Life in Years	Weighted Average Exercise Price
\$ 2.67 – \$ 3.19	309,199	0.9	\$ 2.86	309,199	0.9	\$ 2.86
\$ 7.68 – \$ 13.63	410,646	3.0	\$ 10.04	410,646	3.0	\$ 10.04
\$ 22.69 – \$ 35.82	589,821	7.6	\$ 30.90	305,498	6.6	\$ 29.59
\$ 45.89 – \$ 45.89	18,253	6.2	\$ 45.89	18,253	6.2	\$ 45.89
	1,327,919	4.0	\$ 18.13	1,043,596	3.5	\$ 14.27

Restricted Stock Units

The fair value of each RSU granted is equal to the fair market value of the Company's Common Stock on the date of grant. The RSU's cliff vest three years from the date of grant. There were 43,930 RSU's granted in 2018 at a weighted-average price of \$34.11. No awards were vested during 2018, and forfeitures during the year were insignificant. Included in total equity-based compensation expense for the year ended December 31, 2018 was \$0.4 million related to RSU's. At December 31, 2018, total compensation costs related to non-vested awards not yet recognized amounts to \$1.1 million and will be recognized over a weighted average period of approximately 2 years.

59

Employee Stock Purchase Plan
In addition to the stock options and RSU's discussed above, the Company has established the Employee Stock Purchase Plan to encourage employees to invest in Astronics Corporation. The plan provides employees the opportunity to invest up to the IRS annual maximum of approximately $21,250 in Astronics common stock at a price equal to 85% of the fair market value of the Astronics common stock, determined each October 1. Employees are allowed to enroll annually. Employees indicate the number of shares they wish to obtain through the program and their intention to pay for the shares through payroll deductions over the annual cycle of October 1 through September 30. Employees can withdraw anytime during the annual cycle, and all money withheld from the employees pay is returned with interest. If an employee remains enrolled in the program, enough money will have been withheld from the employees' pay during the year to pay for all the shares that the employee opted for under the program. At December 31, 2018, employees had subscribed to purchase 127,344 shares at $32.13 per share. The weighted average fair value of the options was approximately $8.48, $5.15 and $8.59 for options granted during the year ended December 31, 2018, 2017 and 2016, respectively.
The fair value for the options granted under the Employee Stock Purchase Plan was estimated at the date of grant using a Black-Scholes option pricing model with the following weighted-average assumptions:

	2018	**2017**	**2016**
Risk-free Interest Rate	2.60%	1.31%	0.63%
Dividend Yield	—%	—%	—%
Volatility Factor	0.33	0.26	0.45
Expected Life in Years	1.0	1.0	1.0

NOTE 16 — FAIR VALUE
ASC Topic 820, *Fair Value Measurements and Disclosures*, ("ASC Topic 820") defines fair value, establishes a framework for measuring fair value and expands the related disclosure requirements. This statement applies under other accounting pronouncements that require or permit fair value measurements. The statement indicates, among other things, that a fair value measurement assumes that the transaction to sell an asset or transfer a liability occurs in the principal market for the asset or liability or, in the absence of a principal market, the most advantageous market for the asset or liability. ASC Topic 820 defines fair value based upon an exit price model. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment, and involves consideration of factors specific to the asset or liability.
ASC Topic 820 establishes a valuation hierarchy for disclosure of the inputs to valuation used to measure fair value. This hierarchy prioritizes the inputs into three broad levels as follows:
Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities.
Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument.
Level 3 inputs are unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value.
On a Recurring Basis:
A financial asset or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement. There were no financial assets or liabilities carried at fair value measured on a recurring basis at December 31, 2018 or 2017.
On a Non-recurring Basis:

In accordance with the provisions of ASC Topic 350, *Intangibles – Goodwill and Other,* the Company estimates the fair value of reporting units, utilizing unobservable Level 3 inputs. Level 3 inputs require significant management judgment due to the absence of quoted market prices or observable inputs for assets of a similar nature. The Company utilizes a discounted cash flow method to estimate the fair value of reporting units utilizing unobservable inputs. The fair value measurement of the reporting unit under the step-one analysis of the quantitative goodwill impairment test are classified as Level 3 inputs. There were no impairment charges to goodwill in any of the Company's reporting units in 2018.

As a result of the annual goodwill impairment test for 2017, the Company recorded an impairment charge of $16.2 million related to the Armstrong reporting unit. Due to the adoption of ASU No. 2017-04 on January 1, 2017, the goodwill impairment was calculated as the amount by which the reporting unit's carrying value exceeded its fair value, not to exceed the carrying value of goodwill. There were no impairment charges to goodwill in any of the Company's reporting units in 2016.

Long-lived assets are evaluated for recoverability whenever adverse effects or changes in circumstances indicate that the carrying value may not be recoverable. The recoverability test consists of comparing the undiscounted projected cash flows with the carrying amount. Should the carrying amount exceed undiscounted projected cash flows, an impairment loss would be recognized to the extent the carrying amount exceeds fair value. There were no impairment charges to any of the Company's long-lived assets in either of the Company's segments in 2018, 2017 or 2016.

The CCC and CSC intangible assets were valued using a discounted cash flow methodology, as of their respective acquisitions dates, and are classified as Level 3 inputs.

Due to their short-term nature, the carrying value of cash and equivalents, accounts receivable, accounts payable, and notes payable approximate fair value. The carrying value of the Company's variable rate long-term debt instruments also approximates fair value due to the variable rate feature of these instruments.

NOTE 17 — SELECTED QUARTERLY FINANCIAL INFORMATION

The following table summarizes selected quarterly financial information for 2018 and 2017:

	Quarter Ended							
(Unaudited)	**Dec. 31,**	**Sep. 29,**	**June 30,**	**March 31,**	**Dec. 31,**	**Sep. 30,**	**July 1,**	**April 1,**
(In thousands, except for per share data)	**2018**	**2018**	**2018**	**2018**	**2017**	**2017**	**2017**	**2017**
Sales	$ 202,917	$ 212,674	$ 208,606	$ 179,059	$ 171,318	$ 149,636	$ 151,114	$ 152,396
Gross Profit (sales less cost of products sold)	$ 47,672	$ 46,320	$ 49,572	$ 37,132	$ 32,153	$ 32,493	$ 34,150	$ 38,317
Impairment Loss	$ —	$ —	$ —	$ —	$ 16,237	$ —	$ —	$ —
Income (Loss) Before Income Taxes	$ 15,594	$ 15,580	$ 17,182	$ 3,926	$ (9,715)	$ 8,646	$ 10,569	$ 15,491
Net Income (Loss)	$ 12,485	$ 16,999	$ 14,025	$ 3,294	$ (5,653)	$ 6,060	$ 7,685	$ 11,587
Basic Earnings (Loss) Per Share	$ 0.38	$ 0.53	$ 0.43	$ 0.10	$ (0.18)	$ 0.19	$ 0.23	$ 0.35
Diluted Earnings (Loss) Per Share	$ 0.37	$ 0.52	$ 0.42	$ 0.10	$ (0.18)	$ 0.18	$ 0.22	$ 0.33

NOTE 18 — COMMITMENTS AND CONTINGENCIES

The Company leases certain facilities and equipment under various lease contracts with terms that meet the accounting definition of operating leases. These arrangements may include fair value renewal or purchase options. Rental expense for the years ended December 31, 2018, 2017 and 2016 was $5.0 million, $3.5 million and $3.9 million, respectively. The following table represents future minimum lease payment commitments as of December 31, 2018:

(In thousands)		
2019	$	4,717
2020	4,133	
2021	3,451	
2022	3,163	
2023	2,487	
	$	17,951

From time to time the Company may enter into purchase agreements with suppliers under which there is a commitment to buy a minimum amount of product. Purchase commitments outstanding at December 31, 2018 were $155.0 million. These commitments are not reflected as liabilities in the Company’s Consolidated Balance Sheets.

Legal Proceedings

On December 29, 2010, Lufthansa Technik AG ("Lufthansa") filed a Statement of Claim in the Regional State Court of Mannheim, Germany. Lufthansa's claim asserts that our subsidiary, AES, sold, marketed, and brought into use in Germany a power supply system that infringes upon a German patent held by Lufthansa. Lufthansa sought an order requiring AES to stop selling and marketing the allegedly infringing power supply system, a recall of allegedly infringing products sold to commercial customers in Germany since November 26, 2003, and compensation for damages related to direct sales of the allegedly infringing power supply system in Germany (referred to as "direct sales"). The claim does not specify an estimate of damages and a related damages claim is being pursued by Lufthansa in separate court proceedings in an action filed in July 2017, as further discussed below.

In February 2015, the Regional State Court of Mannheim, Germany rendered its decision that the patent was infringed. The judgment does not require AES to recall products that are already installed in aircraft or have been sold to other end users. On July 15, 2015, Lufthansa advised AES of their intention to enforce the accounting provisions of the decision, which required AES to provide certain financial information regarding direct sales of the infringing product in Germany to enable Lufthansa to make an estimate of requested damages. Additionally, if Lufthansa provides the required bank guarantee specified in the decision, the Company may be required to offer a recall of products that are in the distribution channels in Germany. No such bank guarantee has been issued to date. As of December 31, 2018 there are no products subject to the order in the distribution channels in Germany.

The Company appealed to the Higher Regional Court of Karlsruhe. On November 15, 2016, the Court issued its ruling and upheld the lower court's decision. The Company submitted a petition to grant AES leave for appeal to the German Federal Supreme Court. On April 18, 2018, the German Federal Supreme Court granted Astronics' petition in part, namely with respect to the part concerning the amount of damages. On January 8, 2019, Federal Supreme Court held the hearing on the appeal. A decision on the Company's appeal is expected in late March 2019.

In July 2017, Lufthansa filed an action in the Regional State Court of Mannheim for payment of damages caused by the alleged patent infringement of AES, related to direct sales of the allegedly infringing product in Germany (associated with the original December 2010 action discussed above). In this action, which was served on AES on April 11, 2018, Lufthansa claims payment of approximately $6.2 million plus interest. According to AES's assessment, this claim is significantly higher than justified. We estimate AES's potential exposure to be approximately $1 million to $3 million, and have recorded a reserve of $1 million associated with this matter. Such amount is recorded within Other Accrued Expenses and Selling, General and Administrative Expenses in the accompanying financial statements as of and for the year ended December 31, 2018. An oral hearing in this matter has been scheduled for March 15, 2019. A first instance decision in this matter is expected in mid-2019.

On December 29, 2017, Lufthansa filed another infringement action against AES in the Regional State Court of Mannheim claiming that sales by AES to its international customers have infringed Lufthansa's patent if AES's customers later shipped the products to Germany (referred to as "indirect sales"). This action, therefore, addresses sales other than those covered by the action filed on December 29, 2010, discussed above. In this action, served on April 11, 2018, Lufthansa seeks an injunction, an order obliging AES to provide information and accounting and a finding that AES owes damages for the attacked indirect sales. AES will vigorously defend against the action. No amount of claimed damages has been specified by Lufthansa and such amount is not quantifiable at this time. An oral hearing in this matter has been scheduled for March 15, 2019. A first instance decision is in this matter is expected in mid-2019. As loss exposure is neither probable nor estimable at this time, the Company has not recorded any liability with respect to this litigation as of December 31, 2018.

In December 2017, Lufthansa filed patent infringement cases in the United Kingdom and France against AES. The Lufthansa patent expired in May 2018. In those cases, Lufthansa accuses AES of having manufactured, used, sold and offered for sale a power supply system, and offered and supplied parts for a power supply system, that infringed upon a Lufthansa patent in those respective countries. As loss exposure is neither probable nor estimable at this time, the Company has not recorded any liability with respect to these matters as of December 31, 2018.

On November 26, 2014, Lufthansa filed a complaint in the United States District for the Western District of Washington. Lufthansa's complaint in that action alleges that AES manufactures, uses, sells and offers for sale a power supply system that infringes upon a U.S. patent held by Lufthansa. The patent at issue in the U.S. action is based on technology similar to that involved in the German action. On April 25, 2016, the Court issued its ruling on claim construction, holding that the sole independent claim in the patent is indefinite, rendering all claims in the patent indefinite. Based on this ruling, AES filed a motion for summary judgment on the grounds that the Court’s ruling that the patent is indefinite renders the patent invalid and unenforceable. On July 20, 2016, the U.S. District Court granted the motion for summary judgment and issued an order dismissing all claims against AES with prejudice.

Lufthansa appealed the District Court's decision to the United States Court of Appeals for the Federal Circuit. On October 19, 2017, the Federal Circuit affirmed the district court's decision, holding that the sole independent claim of the patent is indefinite, rending all claims on the patent indefinite. Lufthansa did not file a petition for en banc rehearing or petition the U.S. Supreme Court for a writ of certiorari. Therefore, there is no longer a risk of exposure from that lawsuit.

NOTE 19 — SEGMENTS

Segment information and reconciliations to consolidated amounts for the years ended December 31 are as follows:

(In thousands)	2018	2017	2016
Sales:			
Aerospace	$ 675,744	$ 534,724	$ 534,408
Less Inter-segment Sales	(119)	(121)	(367)
Total Aerospace Sales	675,625	534,603	534,041
Test Systems	127,679	89,861	99,082
Less Inter-segment Sales	(48)	—	—
Test Systems	127,631	89,861	99,082
Total Consolidated Sales	$ 803,256	$ 624,464	$ 633,123
Operating Profit and Margins:			
Aerospace	$ 69,761	$ 38,888	$ 77,966
	10.3 %	7.3 %	14.6 %
Test Systems	10,718	7,359	8,507
	8.4 %	8.2 %	8.6 %
Total Operating Profit	$ 80,479	$ 46,247	$ 86,473
	10.0 %	7.4 %	13.7 %
Deductions from Operating Profit:			
Interest Expense, Net of Interest Income	$ (9,710)	$ (5,369)	$ (4,354)
Corporate and Other Expenses, Net	(18,487)	(15,887)	(13,334)
Income before Income Taxes	$ 52,282	$ 24,991	$ 68,785

Depreciation and Amortization:			
Aerospace	$ 29,947	$ 22,111	$ 19,873
Test Systems	4,500	4,302	5,273
Corporate	585	650	644
Total Depreciation and Amortization	$ 35,032	$ 27,063	$ 25,790
Assets:			
Aerospace	$ 647,870	$ 621,047	$ 500,892
Test Systems	97,056	90,859	76,575
Corporate	29,714	24,050	26,877
Total Assets	$ 774,640	$ 735,956	$ 604,344
Capital Expenditures:			
Aerospace	$ 14,680	$ 10,656	$ 9,511
Test Systems	1,370	2,721	3,345
Corporate	267	101	181
Total Capital Expenditures	$ 16,317	$ 13,478	$ 13,037

Operating profit is sales less cost of products sold and other operating expenses, excluding interest expense and other corporate expenses. Cost of products sold and other operating expenses are directly identifiable to the respective segment.

For the years ended December 31, 2018 and December, 31 2016, there were no goodwill or purchased intangible asset impairment losses in either the Aerospace or Test System segment. In 2017, there was a goodwill impairment loss of $16.2

63

million recorded in the Aerospace segment. In the Aerospace segment, goodwill amounted to $125.0 million and $125.6 million at December 31, 2018 and 2017, respectively. In the Test Systems segment, there was no goodwill as of December 31, 2018 and 2017.

The following table summarizes the Company's sales into the following geographic regions for the years ended December 31:

(In thousands)	2018		2017		2016	
United States	$	575,830	$	482,219	$	504,270
North America (excluding United States)	10,834		6,198		12,331	
Asia	112,135		58,732		52,171	
Europe	98,193		73,677		61,200	
South America	1,973		1,280		577	
Other	4,291		2,358		2,574	
Total	$	803,256	$	624,464	$	633,123

The following table summarizes the Company's property, plant and equipment by country for the years ended December 31:

(In thousands)	2018		2017	
United States	$	110,738	$	116,026
France	9,241		9,094	
Canada	883		710	
Total	$	120,862	$	125,830

Sales recorded by the Company's foreign operations were $70.6 million, $53.9 million and $50.1 million in 2018, 2017 and 2016, respectively. Net income from these locations was $5.5 million, $2.2 million and $1.8 million in 2018, 2017 and 2016, respectively. Net assets held outside of the U.S. total $45.0 million and $47.4 million at December 31, 2018 and 2017, respectively. The exchange loss included in determining net income was $0.3 million in 2018 and an insignificant gain in 2017. Cumulative translation adjustments amounted to $(7.2) million and $(4.5) million at December 31, 2018 and 2017, respectively.

The Company has a significant concentration of business with two major customers; Panasonic Aviation Corporation ("Panasonic") and The Boeing Company ("Boeing"). The following is information relating to the activity with those customers:

	2018	2017	2016
Percent of Consolidated Sales			
Panasonic	14.4%	19.1%	21.6%
Boeing	14.3%	16.8%	15.2%

(In thousands)	2018	2017

Accounts Receivable at December 31,				
Panasonic	$	14,994	$	10,200
Boeing	$	24,649	$	12,969

Sales to Panasonic are in the Aerospace segment. Sales to Boeing occur in both segments.

64

NOTE 20 — ACQUISITIONS

Astronics Connectivity Systems and Certification Corp.

On December 1, 2017, Astronics completed the acquisition of substantially all of the assets and liabilities of Telefonix Inc., including 100% of the stock of a related company, Product Development Technologies, LLC and its subsidiaries. The combined group designs and manufactures advanced in-flight entertainment and connectivity equipment, and provides industry leading design consultancy services for the global aerospace industry. The company's products include wireless access points, file servers, content loaders, passenger control units and cord reels, as well as engineering services for its customers. We purchased the assets of these companies for $103.8 million, net of $0.2 million in cash acquired. All of the goodwill and purchased intangible assets are expected to be deductible for tax purposes over 15 years. The acquired companies are included in our Aerospace reporting segment. Adjustments made to the preliminary purchase price valuation during the measurement period were not significant. The purchase price allocation for this acquisition has been finalized.

The following is a summary of the sales and amounts included in income from operations for CSC included in the consolidated financial statements of the Company from the date of acquisition to December 31, 2017 (in thousands):

Sales	$ 6,174
Operating Loss	$ (499)

The following summary, prepared on a pro forma basis, combines the consolidated results of operations of the Company with those of CSC as if the acquisition took place on January 1, 2017. The pro forma consolidated results include the impact of certain adjustments, including increased interest expense on acquisition debt, amortization of purchased intangible assets and income taxes.

	Unaudited			
(In thousands, except earnings per share)	2017		2016	
Sales	$	683,541	$	686,143
Net income	$	18,302	$	41,672
Basic earnings per share	$	0.56	$	1.24
Diluted earnings per share	$	0.54	$	1.21

The pro forma results are not necessarily indicative of what actually would have occurred if the acquisition had been in effect for the year ended December 31, 2017 and 2016. In addition, they are not intended to be a projection of future results.

Astronics Custom Control Concepts, Inc.

On April 3, 2017, Astronics Custom Control Concepts Inc., a wholly owned subsidiary of the Company, acquired substantially all the assets and certain liabilities of Custom Control Concepts LLC ("CCC"), located in Kent, Washington. CCC is a provider of cabin management and in-flight entertainment systems for a range of aircraft. The total consideration for the transaction was $10.2 million, net of $0.5 million in cash acquired. All of the goodwill and purchased intangible assets are expected to be deductible for tax purposes over 15 years. CCC is included in our Aerospace segment. The purchase price allocation for this acquisition has been finalized.

NOTE 21 — DIVESTITURE ACTIVITIES

As of December 31, 2018, the Company's Board of Directors approved a plan to sell the semiconductor test business within the Test Systems segment. Accordingly, the assets and liabilities associated with these operations have been classified as held for sale in the accompanying consolidated Balance Sheet at December 31, 2018. The carrying value of the disposal group was lower than its fair value, less costs to sell, and accordingly, no impairment loss was required at December 31, 2018.

The following is a summary of the assets and liabilities held for sale as of December 31:

(In thousands)	2018	
Assets Held for Sale		
Inventories	$	14,385
Prepaid Expenses and Other Current Assets	87	
Net Property, Plant and Equipment	3,521	
Other Assets	714	
Intangible Assets, Net of Accumulated Amortization	651	
Total Assets Held for Sale	$	19,358
Liabilities Held for Sale		
Deferred Income Taxes	$	906

On February 13, 2019, the Company completed the divestiture. The total proceeds of the divestiture amounted to $103.5 million, including $100.0 million in cash proceeds and approximately $3.5 million related to the sale of certain inventory. The Company expects to record a pre-tax gain on the sale of approximately $80 million in the first quarter of 2019. The income tax expense relating to the gain is estimated to be $22 million.

The transaction also includes two elements of contingent earnouts. The “First Earnout” is calculated based on a multiple of all future sales of existing and certain future derivative products to existing and future customers in each annual period from 2019 through 2022. The First Earnout may not exceed $35 million in total. The “Second Earnout” is calculated based on a multiple of future sales related to an existing product and program with an existing customer exceeding an annual threshold for each annual period from 2019 through 2022. The Second Earnout is not capped. For the Second Earnout, if the applicable sales in an annual period do not exceed the annual threshold, no amounts will be paid relative to such annual period; the sales in such annual period do not carry over to the next annual period. Due to the degree of uncertainty associated with estimating the future sales levels of the divested business and its underlying programs, and the lack of reliable predictive market information, the Company will recognize such earnout proceeds, if received, as additional gain on sale when such proceeds are realized or realizable.

ITEM 9. ***CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE***

Not applicable.

ITEM 9A. ***CONTROLS AND PROCEDURES***

Disclosure Controls and Procedures

The Company carried out an evaluation, under the supervision and with the participation of Company Management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company's disclosure controls and procedures as defined in Exchange Act Rules 13a-15(e) and 15d-15(e). Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that these disclosure controls and procedures are effective as of the end of the period covered by this report, to ensure that information required to be disclosed in reports filed or submitted under the Exchange Act is made known to them on a timely basis, and that these disclosure controls and procedures are effective to ensure such information is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms.

Management's Report on Internal Control over Financial Reporting

See the report appearing under Item 8, Financial Statements and Supplemental Data, Managements Report on Internal Control Over Financial Reporting.

Changes in Internal Control over Financial Reporting

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

ITEM 9B. ***OTHER INFORMATION***

None

PART III

ITEM 10. *DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE*

The information regarding directors is contained under the captions "Election of Directors" and "Security Ownership of Certain Beneficial Owners and Management" and is incorporated herein by reference to the 2019 Proxy to be filed within 120 days of the end of our fiscal year is incorporated herein by reference.

The executive officers of the Company, their ages, their positions and offices with the Company, and the date each assumed their office with the Company as of December 31, 2018, are as follows:

Name and Age of Executive Officer	Positions and Offices with Astronics	Year First Elected Officer
Peter J. Gundermann Age 56	President, Chief Executive Officer and Director of the Company	2001
David C. Burney Age 56	Executive Vice President, Secretary and Chief Financial Officer of the Company	2003
Mark A. Peabody Age 59	Astronics Advanced Electronic Systems President and Executive Vice President of Astronics Corporation	2010
James S. Kramer Age 55	Luminescent Systems Inc. President and Executive Vice President of Astronics Corporation	2010

The principal occupation and employment for all executives listed above for the past five years has been with the Company.

The Company has adopted a Code of Business Conduct and Ethics that applies to the Chief Executive Officer, Chief Financial Officer as well as other directors, officers and employees of the Company. This Code of Business Conduct and Ethics is available upon request without charge by contacting Astronics Corporation at (716) 805-1599. The Code of Business Conduct and Ethics is also available on the Investors section of the Company's website at www.astronics.com.

ITEM 11. ***EXECUTIVE COMPENSATION***

The information contained under the caption "Executive Compensation" and "Summary Compensation Table" in the Company's definitive Proxy Statement to be filed within 120 days of the end of our fiscal year is incorporated herein by reference.

ITEM 12. ***SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS***

The information contained under the captions "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" and "Executive Compensation" in the Company's definitive Proxy Statement to be filed within 120 days of the end of our fiscal year is incorporated herein by reference.

ITEM 13. ***CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE***

The information contained under the captions "Certain Relationships and Related Transactions and Director Independence" and "Proposal One: Election of Directors" in the Company's definitive Proxy Statement to be filed within 120 days of the end of our fiscal year is incorporated herein by reference.

ITEM 14. ***PRINCIPAL ACCOUNTANT FEES AND SERVICES***

The information contained under the caption "Audit and Non-Audit Fees" in the Company's definitive Proxy Statement to be filed within 120 days of the end of our fiscal year is incorporated herein by reference.

PART IV
ITEM 15. ***EXHIBITS AND FINANCIAL STATEMENT SCHEDULES***

a.The documents filed as a part of this report are as follows:
1.*The following financial statements are included:*
i.Consolidated Statements of Operations for the years ended December 31, 2018, 2017 and 2016
ii.Consolidated Statements of Comprehensive Income for the years ended December 31, 2018, 2017 and 2016
iii.Consolidated Balance Sheets as of December 31, 2018 and 2017
iv.Consolidated Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016
v.Consolidated Statements of Shareholders' Equity for the years ended December 31, 2018, 2017 and 2016
vi.Notes to Consolidated Financial Statements
vii.Reports of Independent Registered Public Accounting Firm
viii.Management's Report on Internal Control Over Financial Reporting
2. *Financial Statement Schedule*
Schedule II. Valuation and Qualifying Accounts
All other consolidated financial statement schedules are omitted because they are inapplicable, not required, or the information is included elsewhere in the consolidated financial statements or the notes thereto.
3. *Exhibits*

Exhibit No.	Description
3 (a)	Restated Certificate of Incorporation, incorporated by reference to the registrant's 2013 Annual Report on Form 10-K, Exhibit 3(a), filed March 7, 2014 (File No. 000-07087).
(b)	By-Laws, as amended, incorporated by reference to the registrant's 2008 Annual Report on Form 10-K, Exhibit 3(b), filed March 11, 2009 (File No. 000-07087).
(c)	Certificate of Amendment of the Certificate of Incorporation of Astronics Corporation, incorporated by reference to the registrant's Form 8-K, Exhibit 3.1, filed July 1, 2016 (File No. 000-07087).
10.1*	Restated Thrift and Profit Sharing Retirement Plan, incorporated by reference to the registrant's 2010 Annual Report

	on Form 10-K, Exhibit 10.1, filed March 3, 2011 (File No. 000-07087).
10.2*	2001 Stock Option Plan, incorporated by reference to the registrant’s 2010 Annual Report on Form 10-K, Exhibit 10.4, filed March 3, 2011 (File No. 000-07087).
10.3*	Non-Qualified Supplemental Retirement Plan, incorporated by reference to the registrant’s 2010 Annual Report on Form 10-K, Exhibit 10.5, filed March 3, 2011 (File No. 000-07087).
10.4*	Employment Termination Benefits Agreement dated December 16, 2003 between Astronics Corporation and Peter J. Gundermann, President and Chief Executive Officer of Astronics Corporation, incorporated by reference to the registrant’s 2010 Annual Report

	on Form 10-K, Exhibit 10.6, filed March 3, 2011 (File No. 000-07087).
10.5*	Employment Termination Benefits Agreement dated December 16, 2003 between Astronics Corporation and David C. Burney, Vice President and Chief Financial Officer of Astronics Corporation, incorporated by reference to the registrant’s 2010 Annual Report on Form 10-K, Exhibit 10.7, filed March 3, 2011 (File No. 000-07087).
10.6*	2005 Director Stock Option Plan, incorporated by reference to the registrant’s 2010 Annual Report on Form 10-K, Exhibit 10.8, filed March 3, 2011 (File No. 000-07087).
10.7*	Supplemental Retirement Plan, Amended and Restated, March 6, 2012, incorporated by reference to the

	registrant's 2012 Annual Report on Form 10-K, Exhibit 10.10, filed February 22, 2013 (File No. 000-07087).
10.8*	First Amendment of the Employment Termination Benefits Agreement dated December 30, 2008 between Astronics Corporation and Peter J. Gundermann, President and Chief Executive Officer of Astronics, incorporated by reference to the registrant's 2008 Annual Report on Form 10-K, Exhibit 10.11, filed March 11, 2009 (File No. 000-07087).
10.9*	First Amendment of the Employment Termination Benefits Agreement dated December 30, 2008 between Astronics Corporation and David C. Burney, Vice President and Chief Financial Officer

	of Astronics Corporation, incorporated by reference to the registrant's 2008 Annual Report on Form 10-K, Exhibit 10.12, filed March 11, 2009 (File No. 000-07087).
10.10*	Employment Termination Benefits Agreement Dated February 18, 2005 between Astronics Corporation and Mark A. Peabody, Executive Vice President of Astronics Advanced Electronic Systems, Inc., incorporated by reference to the registrant's 2010 Annual Report on Form 10-K, Exhibit 10.13, filed March 3, 2011 (File No. 000-07087).
10.11*	First Amendment of the Employment Termination Benefits Agreement dated December 31, 2008 between Astronics Corporation and Mark A. Peabody, Executive Vice President of

	Astronics Advanced Electronic Systems, Inc., incorporated by reference to the registrant's 2010 Annual Report on Form 10-K, Exhibit 10.14, filed March 3, 2011 (File No. 000-07087).
10.12*	Form of Indemnification Agreement as executed by each of Astronics Corporation's Directors and Executive Officers, incorporated by reference to the registrant's 2010 Annual Report on Form 10-K, Exhibit 10.15, filed March 3, 2011 (File No. 000-07087).
10.13*	2011 Employee Stock Option Plan, incorporated by reference to the registrant's Form S-8, Exhibit 4.1 filed on August 4, 2011 (File No. 000-07087).
10.14*	Supplemental Retirement Plan II, incorporated by reference to the registrant's 2012 Annual Report on Form 10-K,

Exhibit 10.18, filed February 22, 2013 (File No. 000-07087).

10.15	Fourth Amended and Restated Credit Agreement entered into by and among Astronics Corporation, HSBC Bank USA, National Association, Bank of America, N.A. and Manufacturers and Traders Trust Company, incorporated by reference to the registrant's Form 8-K, Exhibit 10.1, filed September 26, 2014 (File No. 000-07087).
10.16	Amendment No.1 to the Fourth Amended and Restated Credit Agreement entered into by and among Astronics Corporation, HSBC Bank USA, National Association, Bank of America, N.A., Manufacturers and Traders Trust Company and Wells Fargo Bank, incorporated by reference to the registrant's Form 8-K, Exhibit 10.1, filed January 15, 2016 (File No. 000-07087).
10.17*	Astronics Corporation 2017 Long Term Incentive Plan (incorporated by reference as Exhibit A to the Registrant's Definitive Proxy Statement on Schedule 14A, as filed with the Commission on April 17, 2017).
10.18	Asset Purchase Agreement dated as of

	March 16, 2017 by and between UJB Acquisition Corp. and Custom Control Concepts LLC filed as Exhibit 10.1 on Form 8-K filed on April 6, 2017 (File No. 000-07087).
10.19	Asset Purchase Agreement entered as of October 26, 2017, by and among Talon Acquisition Corp., Telefonix, Incorporated, Product Development Technologies, LLC, and Paul Burke filed as Exhibit 10.1 on Form 8-K filed on October 27, 2017 (File No. 000-07087).
10.20	Fifth Amended and Restated Credit Agreement entered into by and among Astronics Corporation, HSBC Bank USA, National Association, HSBC Securities (USA) Inc. and Merrill Lynch, Pierce, Fenner & Smith Inc., and Suntrust Bank, filed as Exhibit 10.1 on Form 8-K filed on February 21, 2018 (File No. 000-07087).
10.21	Amended and Restated Asset Purchase Agreement dated as of February 13, 2019 by and Among Astronics Test Systems, Inc., Astronics Corporation and Advantest Test Solutions, Inc., filed as Exhibit 10.1 on Form

	8-K filed on February 19, 2019 (File No. 000-07087).
21**	Subsidiaries of the Registrant; filed herewith.
23**	Consent of Independent Registered Public Accounting Firm; filed herewith.
31.1**	Certification of Chief Executive Officer pursuant to Exchange Act Rule 13a-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002; filed herewith.
31.2**	Certification of Chief Financial Officer pursuant to Exchange Act Rule 13a-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002; filed herewith.
32**	Certification pursuant to 18 U.S.C. Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002; filed herewith.
101.INS**	XBRL Instance Document
101.SCH**	XBRL Taxonomy Extension Schema Document
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document

101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document

* Identifies a management contract or compensatory plan or arrangement as required by Item 15(a)(3) of Form 10-K.

** Submitted electronically herewith

SCHEDULE II
Valuation and Qualifying Accounts

Year	Description	Balance at the Beginning of Period		Additions Charged to Cost and Expense		Write-Offs/Other		Balance at End of Period	
(In thousands)									
2018	Allowance for Doubtful Accounts	$	960	$	589	$	(63)	$	1,486
	Reserve for Inventory Valuation	18,013		2,682		131		20,826	
	Deferred Tax Valuation Allowance	7,823		275		—		8,098	
2017	Allowance for Doubtful Accounts	$	602	$	87	$	271	$	960
	Reserve for Inventory Valuation	15,410		2,885		(282)		18,013	
	Deferred Tax Valuation Allowance	3,816		4,007		—		7,823	
2016	Allowance for Doubtful Accounts	$	312	$	388	$	(98)	$	602
	Reserve for Inventory Valuation	14,594		2,015		(1,199)		15,410	
	Deferred Tax Valuation Allowance	2,640		1,176		—		3,816	

ITEM 16. ***FORM 10-K SUMMARY***

None.

73

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned; thereunto duly authorized, on February 28, 2019.

Astronics Corporation

By	/s/ Peter J. Gundermann	By	/s/ David C. Burney
Peter J. Gundermann President and Chief Executive Officer			David C. Burney, Executive Vice President, Chief Financial Officer

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

Signature	Title	Date
/s/ Peter J. Gundermann Peter J. Gundermann	President and Chief Executive Officer (Principal Executive Officer)	February 28, 2019
/s/ David C. Burney David C. Burney	Executive Vice President, Chief Financial Officer (Principal Financial Officer)	February 28, 2019
/s/ Nancy L. Hedges Nancy L. Hedges	Corporate Controller and Principal Accounting Officer	February 28, 2019
/s/ Raymond W. Boushie Raymond W. Boushie	Director	February 28, 2019
/s/ Robert T. Brady Robert T. Brady	Director	February 28, 2019

/s/ John B. Drenning John B. Drenning	Director	February 28, 2019
/s/ Jeffry D. Frisby Jeffry D. Frisby	Director	February 28, 2019
/s/ Peter J. Gundermann Peter J. Gundermann	Director	February 28, 2019
/s/ Warren C. Johnson Warren C. Johnson	Director	February 28, 2019
/s/ Kevin T. Keane Kevin T. Keane	Director	February 28, 2019
/s/ Neil Kim Neil Kim	Director	February 28, 2019
/s/ Mark J. Moran Mark J. Moran	Director	February 28, 2019