

# 2012

## YEAR-END REVIEW AND FORECAST

The U.S. aerospace and defense industry had a productive year and proved to be one of the bright spots in the 2012 economy. Overall sales are projected to increase by 3.4 percent from \$211 billion to \$218 billion, led by strong civil aircraft sales, which will result in the industry's ninth consecutive year of growth. Unsurprisingly, there was a downturn in the shipments of military products, as the federal budget came under pressure across the board and procurement accounts faced reductions. However, overall aerospace exports were up \$10 billion, with positive growth in shipments across most sectors. Employment in the industry also improved by nearly 5,000 jobs, rising to 629,000 – mainly well-paid, high-skilled workers and professionals with technical and scientific proficiency.

Recovery from the recent economic downturn, coupled with airline demand for aftermarket products and services, spurred a modest resurgence in the U.S. Maintenance, Repair and Overhaul (MRO) sector, capturing a significant 32.6 percent share of the \$53.5 billion global MRO market. While the overall industry forecast for 2013 looks to be even better, the fiscal cliff and sequestration are creating uncertainty in both the civil and military sectors. Sequestration in particular would have a significant, negative impact on the military sector, as procurement programs would be slashed by an estimated 10.3 percent. The key market drivers for the civil aircraft market in 2013 will continue to be the price of fuel and the health of the domestic and international economies.





The large civil aircraft market enjoyed several hallmarks in 2012. Production of the Boeing 787 ramped up to 30 aircraft as of October this year at the Washington and South Carolina plants and will continue rising towards 10 per month by the end of next year. Similarly, the 777 line increased to 8.3 aircraft per month in October – an 18.6% increase. Production of the 747-8 nearly tripled this year to two units per month, with similar levels projected for the next several years. This year, for the first time, the 737 line surpassed the 400 mark and will likely increase past 450 units in 2013.

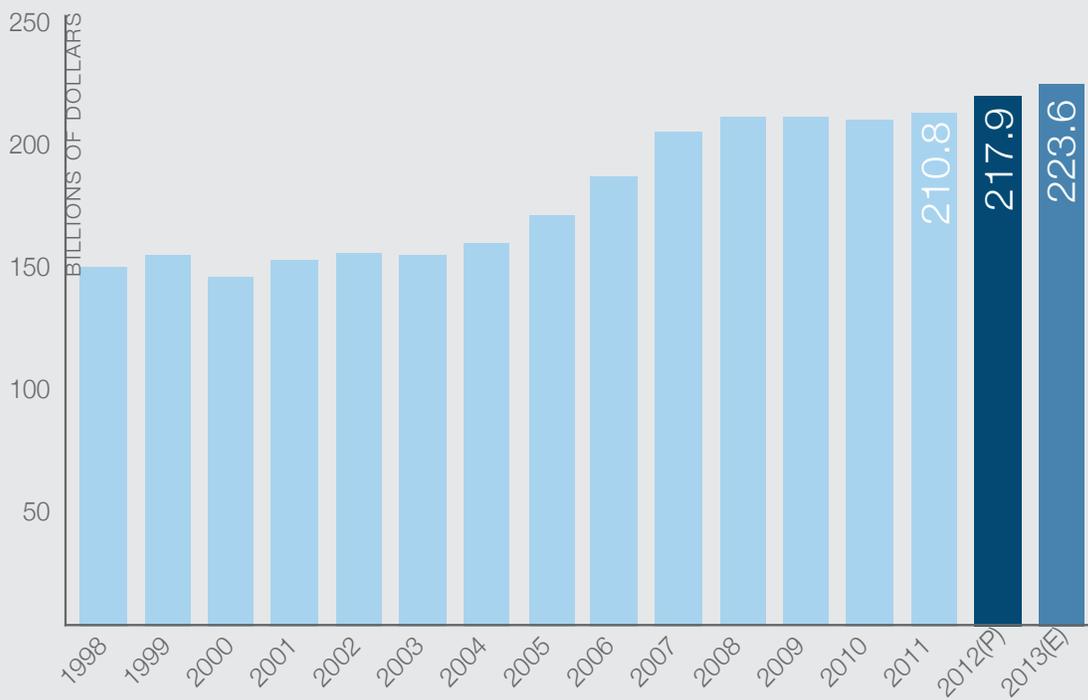
High fuel prices create demand for new fuel-efficient aircraft, while at the same time eroding airlines' ability to purchase new planes. This situation places renewed emphasis on the development of commercially viable alternative fuels, which over time, should become competitive with fossil fuel and reduce reliance on production from the Middle East while lessening the global airline

industry's environmental impact. The United States has been a leader in alternative aviation fuel research and development and has successfully completed test flights using fuels from a variety of feedstocks, including algae and bio-waste. Sustainable alternative jet fuels are moving toward commercial viability faster than forecast.

Abroad, Canada, China, Japan and Russia are all attempting to enter or re-enter the large civil aircraft market. With new competitors emerging, it's more important than ever that NASA and industry aeronautics research is funded to assure that the United States stays ahead in technology. It's also imperative to move toward a global solution on carbon emissions policy within the International Civil Aviation Organization (ICAO), rather than through regional approaches, such as those advocated by the European Union. A multilateral effort led by ICAO would emphasize all producers aiming for comparable goals – preferably through technology development rather than taxes.

The civil Unmanned Aircraft Systems (UAS) market shows great promise and the potential applications are virtually endless. Regulatory standards, certification and operational procedures still need to be resolved for full integration into the National Airspace System. That integration will come about more safely and expeditiously if it is coordinated with the Next Generation Air Transportation System implementation plan.

## Aerospace Industry Sales



## General Aviation

While the last few years have been a challenging time for general aviation, including a major bankruptcy in this sector, the market is still much larger than it was a decade ago and there are few doubts that growth will resume as the world economy recovers. The 2013 forecast calls for moderate growth and the five-year forecast indicates that nearly 80 percent of those looking to purchase GA aircraft between 2013 and 2017 will do so in the latter part of that period. Larger business jet aircraft are leading market sales within the sector – particularly in Asia and the Middle East – and will represent 40 percent of all deliveries over the next 10 years. China is a prominent growth market and it has been estimated that by the end of the decade, the nation could account for 20 percent of all global business jet deliveries, up from today’s seven percent. Light and medium business jets remain an area of concern following the prior downturn and deliveries have been depressed for several key U.S. companies.

## Rotorcraft

The U.S. civil rotorcraft market is still recovering from the economic downturn in 2009 but has seen a steady increase in new deliveries coming from mature production lines and opportunities in Asia. The market encompasses emergency medical service providers, offshore oil and gas exploration and law enforcement applications. Following two years of significant decreases in sales, U.S. civil helicopter shipments are expected to increase to 1,154 units this year, representing a CAGR of 4.2 percent between 2012 and 2014. This steady, upward trajectory is expected to continue as demand deferred during the economic downturn reaches the market. The largest Bell civil model ever launched, the Model 525 Relentless, debuted in 2012 – a testament to the strength of demand from the offshore oil segment.

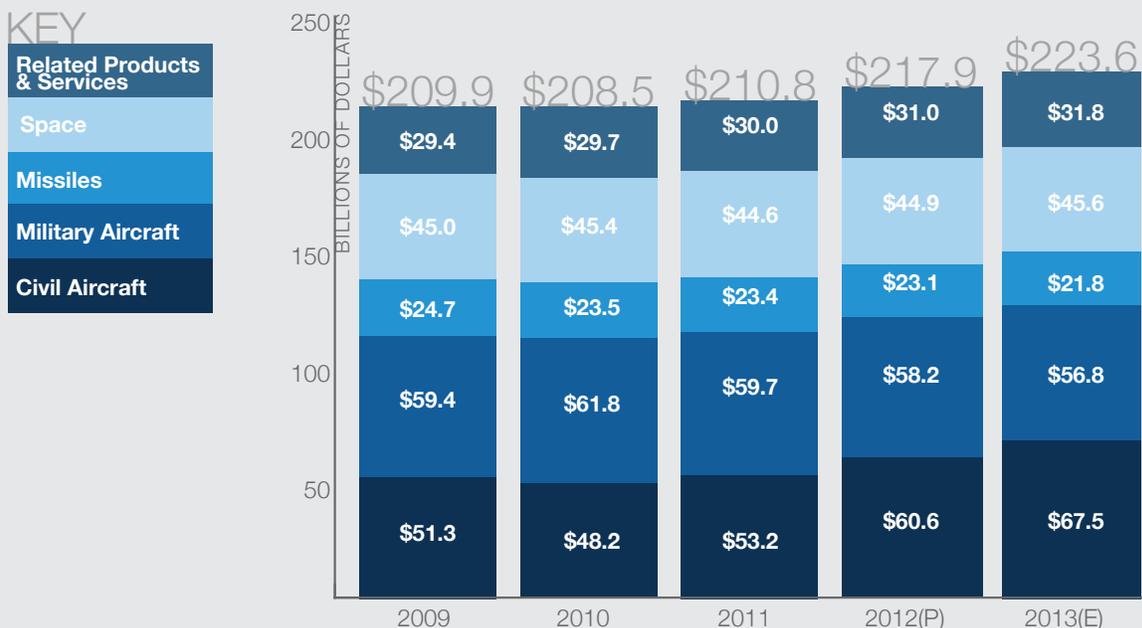


The U.S. military aircraft sector continues to contract, falling 2.4 percent over last year and will further decline by more than 10 percent in 2013. Closure of the F-22 production line and decisions not to fund additional C-17 transport purchases or development of a future strategic lifter, all have had a negative impact. However, the F-35 Joint Strike Fighter program, the KC-46 tanker, the P-8 maritime patrol aircraft and other platforms continue to receive funding, while the C-130J retains the type’s long reign as the world’s premier tactical transport, despite emerging competition from Europe’s Airbus Military A400M.

Aging of U.S. military aircraft remains a significant factor. Anecdotally, ground crews have pointed out that today’s pilots are now flying the exact same equipment as did their fathers – and, in a few cases, their grandfathers. For example, in 2012, the newest B-52 turned 50 years old; those aircraft are anticipated to fly another 20 years. Overall, the current U.S. Air Force fleet, with planes averaging more than 23 years old, is the oldest in USAF history.

Foreign sales of U.S. military aircraft provide an important growth area. As of 2012, no fewer than three key military

## Aerospace Industry Sales By Product Group



aircraft production lines – the C-17, F-15 and F-16 – are being sustained largely by international export demand.

The missile sector will see some modest contraction due to reduced DOD procurement connected with ongoing military operations, as well as declines in RDT&E spending during the past few years. Export demand will continue to be significant with several substantial new air defense contracts signed or in negotiation with Middle Eastern countries.



The U.S. aerospace industry continued to lead the United States in the net export of manufactured goods, with a marked increase in exports of \$10 billion, while imports increased by only \$2 billion. As a result, the favorable balance of trade in aerospace products increased from \$55.8 billion in 2011 to \$63.5 billion in 2012. Interestingly, most of the increase in imports consisted of civil aircraft engines and aircraft parts, of which a large share are exported once incorporated into completed aircraft.

Exports of civil aircraft, engines and parts continue to represent about 88 percent of all aerospace exports and about \$9 billion of the increase in overall exports. Given the large backlog of civil aircraft orders, exports in this sector should continue to increase over at least the next

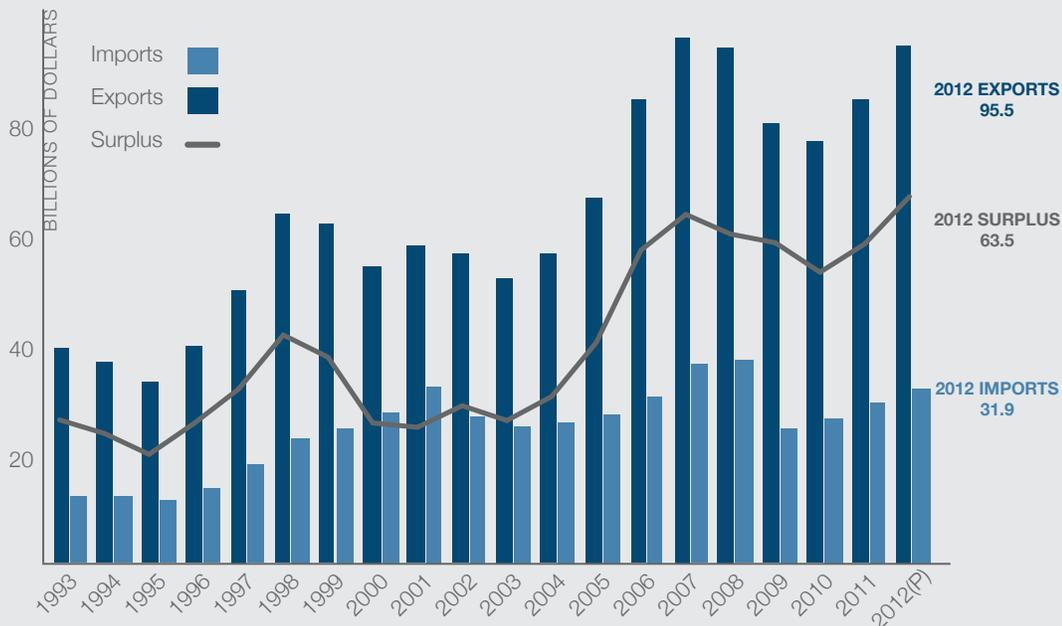
several years. Obviously, converting backlog into deliveries in large part depends on a healthy global economy and continued relatively high oil prices, both factors leading to demand for new civil aircraft.

Demand for U.S. military exports is also anticipated to remain strong for the next few years. A truculent Iran, with increasingly potential nuclear capacity and relatively strong oil prices, has resulted in large, recent purchases of U.S. military aerospace products by Gulf countries. New sales, as well as fulfilling already-consummated sales, will result in strong deliveries over the next several years. Similarly, growing Chinese defense budgets have led to significant, new U.S. sales in South and East Asia – sales that will also guarantee major deliveries. These sales should more than offset softer sales to European countries, which are reducing their defense budgets.

Defense exports can help maintain the U.S. defense industrial base as the Pentagon almost certainly reduces its procurement budget – whether under currently planned reductions or a disastrous sequestration exercise. For exports to play this role, it is critical that the administration move forward with export control reform. An agreement with Congress is also needed to end the practice of treating commercial satellite exports as military items.

In a similar vein, the United States must resolve export issues with respect to UAS if that part of the industry is to avoid a fate similar to that of the U.S. satellite industry, where a dominant position in the market was ceded to competitors because of unique U.S. export controls. Finally, DOD's current efforts to facilitate exports, from building in "exportability" during the early design phase of new weapons systems to improving the process for review, approval and advocacy for defense exports, also must be given the full support of the Pentagon, the administration and Congress.

## Aerospace Foreign Trade



# Space



With the final flights of NASA's Space Shuttle fleet last year, the United States has become reliant on foreign countries for regular access to space. NASA is now moving forward with plans to incentivize development of commercial crew services by private companies, obviating the need to pay Russia \$63 million a seat to send astronauts to or from the International Space Station (ISS). Under this new paradigm, the U.S. government relies on private industry to take on a more active role in this segment of the market, freeing up government resources to make investments in space exploration beyond low Earth orbit.

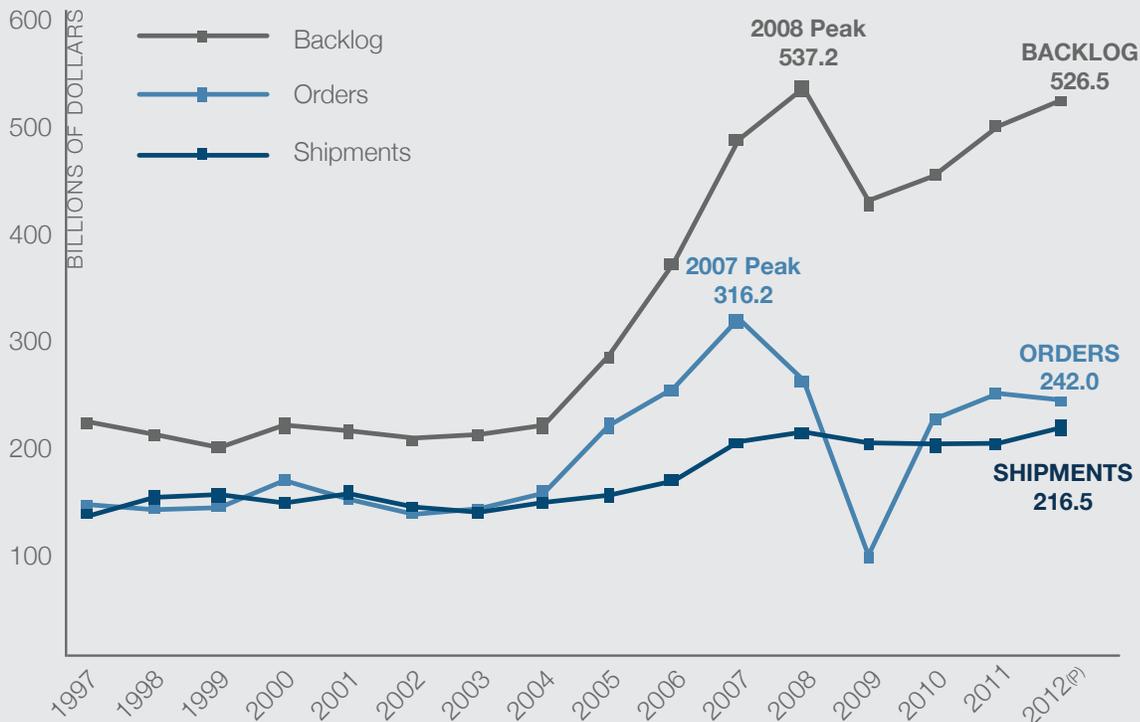
In May, SpaceX launched and successfully completed the first-ever docking of a commercially-operated vehicle with the ISS. Previously, in-space rendezvous and docking had only been performed by government space agencies. This achievement was followed up by the first commer-

cial resupply mission to the ISS in October, moving the United States closer to supplying the ISS only through commercial services.

NASA has had many other noteworthy successes – from the discovery that our galaxy is widely populated with planets – some of them sized similarly to our own and located in areas around stars most likely to have climates hospitable to life – to the tremendous success of the Mars Science Laboratory, Curiosity. Curiosity, which landed using a new “skycrane” technique, is the size of a small car and powered by a nuclear energy source that should allow it to explore further and much longer than any prior rover. NASA has had many other notable successes in its development programs such as the James Webb Space Telescope, the Orion Crew Exploration Vehicle and the Space Launch System.

This impressive progress in space is also at risk if sequestration budget cutbacks go forward. Under sequestration, NASA would take a nearly \$1.5 billion budget hit in fiscal year 2013 – equivalent to an 8.2 percent cut – with similar cuts the following eight years. These cuts would delay progress on the development of private space transportation services as well as NASA's next generation of launch vehicles and spacecraft. NASA's science activities, including any efforts to follow up on its successful Mars exploration program, would also take a hit.

## Aerospace Shipments, Orders and Backlog



Similarly, NOAA's satellite programs would take an initial \$154 million hit from sequestration and also suffer down the road. If the budget cuts go forward, NOAA could be forced to extend what is already projected to be a 17-month gap in polar orbiting weather satellite coverage beginning in 2017. These satellites provide nearly 90 percent of all observation data used to provide three- to seven-day weather forecasts.

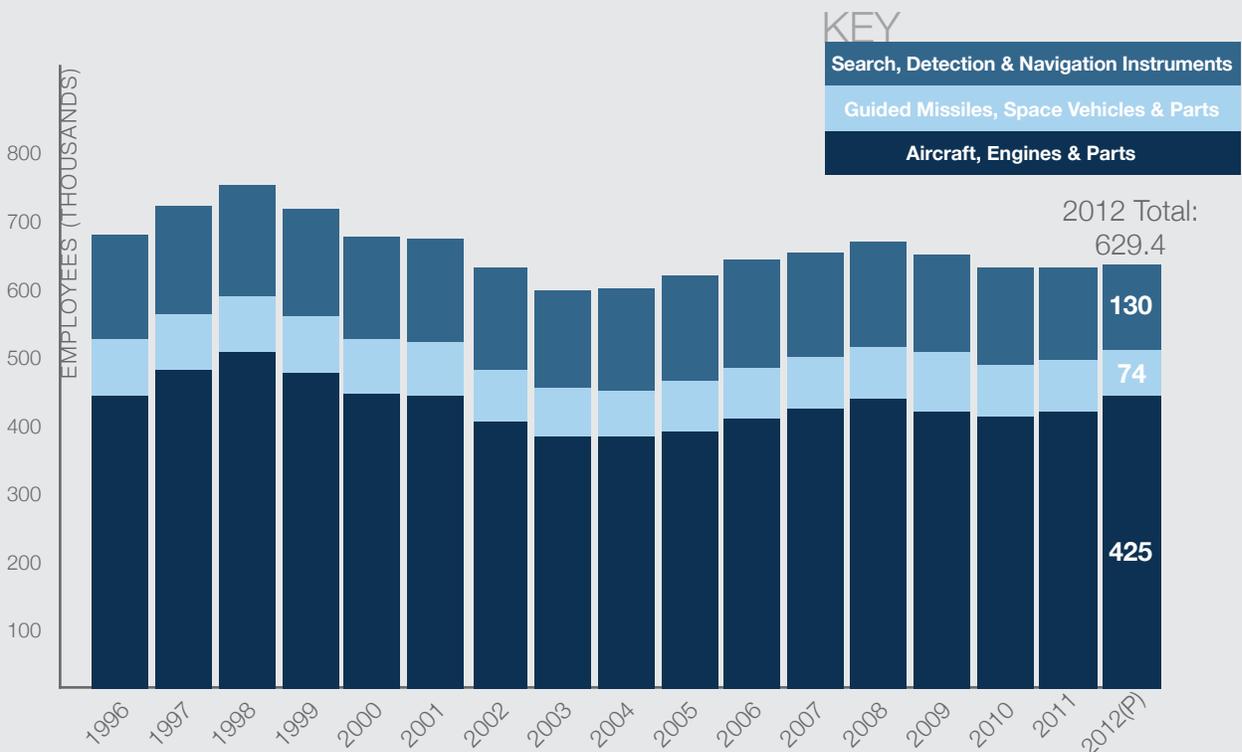
turing techniques, output must continue to increase for the level of the workforce to hold constant. Furthermore, the composition of the workforce will continue to shift toward even more skilled workers and professionals. For that reason, AIA and its member companies continue to support education programs that focus on science, technology, engineering and mathematics, which will become even more important in the years ahead as a large share of the current aerospace workforce approaches retirement age.



Despite layoffs in some facilities supporting military programs, aerospace employment will increase modestly this year from around 625,000 at the end of 2011 to more than 629,000 in the last quarter of 2012, reflecting the increased output of the industry, particularly in the civil aircraft sector. As productivity continues to improve, both because of the use of advanced materials and manufac-

One element of deep concern is the potential impact if sequestration cuts are allowed to proceed. The defense cuts would send a ripple effect through the industry, resulting in thousands of layoffs and the loss of critical knowledge and expertise. It would be extremely difficult to reconstitute lost capabilities in the industrial base as workers shift to different sectors or industries.

## Aerospace Employment





# Summary and Outlook



The overall projections for 2013 are generally positive – excluding the domestic military market – and illustrate the health of the industry. However, much depends on strong and sustained economic recoveries in the U.S. and Europe. Industry strongly supports the critical financing provided by the U.S. Export-Import Bank, as well as continued progress on export control reform with a renewed emphasis on facilitating and promoting defense exports. Continued funding for the deployment of the Next Generation Air Transportation System and obtaining a consensus international framework on emissions reductions at ICAO are also key industry priorities in 2013 and beyond.

Combined with rapid growth in air travel in Asia and the Middle East, volatile fuel prices continue to spur world airlines to replace older, less fuel-efficient aircraft, adding momentum to a growing demand for new aircraft. Moreover, the global air traffic market is expected to increase annually at a rate of five percent over the next 20 years, considerably higher than the global GDP growth rate. Consequently, in order to keep pace with the growing demand for air travel, forecasters predict that by the end of 2031, the world's airlines will take delivery of 34,000 commercial aircraft with a total value of \$4.5 trillion.

Current order books for large civil aircraft manufacturers contain a six- to seven-year backlog. As Boeing continues to increase production rates of both the 787 and 737, shipments of civil aircraft will increase. Civil aircraft, engines and parts manufacturers will find expanding markets in both the U.S. and abroad. It is expected that the business jet market, which has been battered both by difficult market conditions and political headwinds, will improve modestly in 2013. The aftermarket parts and service sector for business jets and large commercial airplanes will continue a solid recovery, growing at a CAGR of four percent, driven by increased flight hours for both categories and expected services predominately for engines and components.

The defense sector appears to be the most problematic in 2013 and beyond, particularly with respect to the domestic market. In the short run, budgets may reduce slowly or be hit with arbitrary and non-strategic sequestration budget cuts, which can cause major disruptions, particularly for the supply chain. They will find that prime contractors will not place long lead-time orders if there is uncertainty as to future requirements. In the longer term, the U.S. national security strategic “pivot” to the Pacific will almost certainly require increases in air and naval power – all of which are integrated and supported by space assets. Long distances and the prospect of contested air space in the Pacific theater will require airpower – fighters; tankers; transports; intelligence, surveillance and reconnaissance platforms; and long-range penetration capability with UAS, bombers, missiles and rockets. A Pacific-oriented strategy without adequate air power will at best be a hollow strategy.

Interestingly, the Air Force now trains more unmanned aircraft system pilots than traditional pilots – a reflection of the strategic shift that began more than a decade ago. The UAS sector continues to see expansion, both in procurement and RDT&E, but significantly slower than the growth rates seen in the midst of the Iraq conflicts and during the Afghanistan surge.

In space, the market continues on a reasonable plateau, driven by ongoing satellite replenishment, demand for launch services and expanded use of commercially-operated space vehicles. But if sequestration or some degree of continued fiscal austerity remains in force, budget cuts to NASA and NOAA could lead to major program delays in the space activities managed by these agencies.

The U.S. aerospace industry continues to provide significant contributions to the country's economy and provides capabilities vital for national security. It generates new technology in fields such as advanced materials, sensors, information processing and sharing, which over time has become widely used in other sectors. It has employees in every state of the union, who are among the most highly-skilled and best paid of any workforce, which in turn generates jobs in every other sector of the economy. Finally, aerospace continues to generate the largest positive trade balance of any U.S. manufacturing sector.

In the following years, our industry will face significant challenges, particularly in the defense sector, as the federal government seeks solutions to an ongoing budget crisis. Our position has been firmly established – we will continue to educate the public and elected officials on the need to maintain an aerospace and defense industry that is Second to None.

# Table I

# Aerospace Industry Sales by Product Group\*

Calendar Years 2002-2013

| Year   | Total Sales | AIRCRAFT |         |          | Missiles | Space   | Related Products & Services |
|--|-------------|----------|---------|----------|----------|---------|-----------------------------|
|  |             | Total    | Civil   | Military |          |         |                             |
| <b>Current Dollars (Billions)</b>              |             |          |         |          |          |         |                             |
| 2002   | \$154.35    | \$78.62  | \$41.34 | \$37.28  | \$15.71  | \$34.62 | \$25.39                     |
| 2003   | 152.59      | 75.96    | 32.44   | 43.52    | 16.93    | 35.86   | 23.84                       |
| 2004   | 157.88      | 78.32    | 32.52   | 45.80    | 19.66    | 35.70   | 24.20                       |
| 2005   | 169.41      | 86.58    | 37.16   | 49.42    | 20.80    | 36.66   | 25.36                       |
| 2006   | 185.26      | 100.19   | 45.85   | 54.34    | 21.03    | 37.56   | 26.48                       |
| 2007   | 204.50      | 112.96   | 52.55   | 60.41    | 22.59    | 39.90   | 29.06                       |
| 2008   | 210.17      | 112.19   | 48.18   | 64.01    | 24.59    | 43.22   | 30.18                       |
| 2009   | 209.86      | 110.69   | 51.30   | 59.39    | 24.70    | 45.03   | 29.44                       |
| 2010   | 208.49      | 109.96   | 48.16   | 61.80    | 23.46    | 45.39   | 29.68                       |
| 2011   | 210.79      | 112.81   | 53.15   | 59.66    | 23.39    | 44.59   | 30.01                       |
| 2012(P)  | 217.87      | 118.82   | 60.59   | 58.24    | 23.13    | 44.90   | 31.01                       |
| 2013(E)  | 223.55      | 124.29   | 67.48   | 56.81    | 21.84    | 45.60   | 31.82                       |
| <b>Constant Dollars<sup>a</sup> (Billions)</b> |             |          |         |          |          |         |                             |
| 2002   | \$160.74    | \$81.88  | \$43.05 | \$38.82  | \$16.36  | \$36.06 | \$26.44                     |
| 2003   | 156.44      | 77.88    | 33.26   | 44.62    | 17.36    | 36.76   | 24.44                       |
| 2004   | 159.79      | 79.27    | 32.91   | 46.36    | 19.90    | 36.13   | 24.50                       |
| 2005   | 169.41      | 86.58    | 37.16   | 49.42    | 20.80    | 36.66   | 25.36                       |
| 2006   | 179.87      | 97.27    | 44.51   | 52.76    | 20.42    | 36.47   | 25.71                       |
| 2007   | 199.83      | 110.38   | 51.35   | 59.03    | 22.07    | 38.99   | 28.39                       |
| 2008   | 205.13      | 109.50   | 47.03   | 62.47    | 24.00    | 42.18   | 29.45                       |
| 2009   | 204.03      | 107.61   | 49.87   | 57.74    | 24.01    | 43.78   | 28.62                       |
| 2010   | 203.39      | 107.27   | 46.98   | 60.29    | 22.89    | 44.28   | 28.95                       |
| 2011   | 205.11      | 109.76   | 51.71   | 58.05    | 22.76    | 43.39   | 29.20                       |
| 2012(P)  | 210.27      | 114.68   | 58.48   | 56.21    | 22.32    | 43.33   | 29.93                       |
| 2013(E)  | 214.65      | 119.34   | 64.80   | 54.55    | 20.97    | 43.79   | 30.55                       |

Source: Aerospace Industries Association, based on company reports; The Budget of the United States Government, National Aeronautics and Space Administration, U.S. Department of Commerce, and Department of Defense.

\* Government purchases reflected as appropriated funding.

a. Based on AIA's aerospace composite price deflator, (2005=100).

E. Estimate.

P. Preliminary.

# Aerospace Industry Sales by Customer\*

## Table II

Calendar Years 2002-2013

| Year   | Total Sales | AEROSPACE PRODUCTS AND SERVICES |                       |                       |                 | Related Products & Services |
|--|-------------|---------------------------------|-----------------------|-----------------------|-----------------|-----------------------------|
|  |             | Total                           | Department of Defense | NASA & Other Agencies | Other Customers |                             |
| <b>Current Dollars (Billions)</b>              |             |                                 |                       |                       |                 |                             |
| 2002   | \$154.35    | \$128.96                        | \$61.70               | \$16.39               | \$50.87         | \$25.39                     |
| 2003   | 152.59      | 128.75                          | 71.28                 | 16.52                 | 40.95           | 23.84                       |
| 2004   | 157.88      | 133.68                          | 75.38                 | 16.98                 | 41.32           | 24.20                       |
| 2005 <sup>a</sup>                              | 169.41      | 144.05                          | 80.71                 | 17.25                 | 46.09           | 25.36                       |
| 2006   | 185.26      | 158.78                          | 84.04                 | 17.22                 | 57.52           | 26.48                       |
| 2007   | 204.50      | 175.45                          | 94.17                 | 17.80                 | 63.48           | 29.06                       |
| 2008   | 210.17      | 179.99                          | 101.47                | 19.51                 | 59.01           | 30.18                       |
| 2009   | 209.86      | 180.41                          | 99.43                 | 20.81                 | 60.17           | 29.44                       |
| 2010   | 208.49      | 178.82                          | 101.23                | 21.10                 | 56.49           | 29.68                       |
| 2011   | 210.79      | 180.78                          | 99.64                 | 21.17                 | 59.97           | 30.01                       |
| 2012(P)  | 217.87      | 186.86                          | 96.24                 | 20.25                 | 70.37           | 31.01                       |
| 2013(E)  | 223.55      | 191.73                          | 93.16                 | 20.81                 | 77.76           | 31.82                       |
| <b>Constant Dollars<sup>a</sup> (Billions)</b> |             |                                 |                       |                       |                 |                             |
| 2002   | \$160.74    | \$134.29                        | \$64.25               | \$17.06               | \$52.98         | \$26.44                     |
| 2003   | 156.44      | 132.00                          | 73.08                 | 16.94                 | 41.98           | 24.44                       |
| 2004   | 159.79      | 135.30                          | 76.29                 | 17.18                 | 41.82           | 24.50                       |
| 2005 <sup>a</sup>                              | 169.41      | 144.05                          | 80.71                 | 17.25                 | 46.09           | 25.36                       |
| 2006   | 179.87      | 154.17                          | 81.60                 | 16.72                 | 55.85           | 25.71                       |
| 2007   | 199.83      | 171.44                          | 92.02                 | 17.39                 | 62.03           | 28.39                       |
| 2008   | 205.13      | 175.67                          | 99.03                 | 19.04                 | 57.59           | 29.45                       |
| 2009   | 204.03      | 175.40                          | 96.67                 | 20.24                 | 58.50           | 28.62                       |
| 2010   | 203.38      | 174.44                          | 98.75                 | 20.58                 | 55.11           | 28.95                       |
| 2011   | 205.10      | 175.90                          | 96.95                 | 20.60                 | 58.35           | 29.20                       |
| 2012(P)  | 210.27      | 180.35                          | 92.88                 | 19.54                 | 67.92           | 29.93                       |
| 2013(E)  | 214.65      | 184.10                          | 89.45                 | 19.98                 | 74.67           | 30.55                       |

Source: Aerospace Industries Association, based on company reports; The Budget of the United States Government, National Aeronautics and Space Administration, U.S. Department of Commerce, and Department of Defense.

\* Government purchases reflected as appropriated funding.

a. Beginning in 2005, NASA sales were reported separately from other agencies.

b. Based on AIA's aerospace composite price deflator, (2005=100).

E. Estimate.

P. Preliminary.

**Table III**Shipments, Orders and Backlog:  
Aircraft & Parts and Search & Navigation Equipment

As of End-of-Year 1993-2012

| <b>Year</b> | <b>Shipments</b> | <b>Orders</b> | <b>Backlog</b> |
|-------------|------------------|---------------|----------------|
| 1993        | 123,850          | 100,815       | 197,198        |
| 1994        | 112,511          | 98,621        | 183,308        |
| 1995        | 110,928          | 115,279       | 187,659        |
| 1996        | 110,840          | 134,142       | 210,961        |
| 1997        | 132,787          | 143,071       | 221,245        |
| 1998        | 150,077          | 138,407       | 209,575        |
| 1999        | 152,728          | 140,329       | 197,176        |
| 2000        | 144,740          | 165,994       | 218,430        |
| 2001        | 153,571          | 148,129       | 212,988        |
| 2002        | 140,889          | 134,045       | 206,144        |
| 2003        | 135,955          | 139,327       | 209,516        |
| 2004        | 145,305          | 154,081       | 218,292        |
| 2005        | 152,081          | 217,910       | 284,121        |
| 2006        | 165,652          | 253,351       | 371,820        |
| 2007        | 202,723          | 319,186       | 488,283        |
| 2008        | 211,943          | 260,809       | 537,149        |
| 2009        | 201,577          | 95,184        | 430,756        |
| 2010        | 200,616          | 223,713       | 453,853        |
| 2011        | 201,174          | 248,359       | 501,038        |
| 2012(P)     | 216,477          | 241,960       | 526,521        |

Source: Aerospace Industries Association, based on U.S. Census Bureau and "Manufacturers' Shipments, Inventories, and Orders." Includes both civil and defense data.

"Manufacturers' Shipments, Inventories, and Orders" and AIA estimates.

P. Preliminary.

# U.S. Civil Transport Aircraft Backlog

## Table IV

Calendar Years 2008-2012

|                               | 2008      | 2009      | 2010      | 2011      | 2012 <sup>a</sup> |
|-------------------------------|-----------|-----------|-----------|-----------|-------------------|
| <b>TOTAL BACKLOG</b>          |           |           |           |           |                   |
| Number of Aircraft            | 3,714     | 3,375     | 3,443     | 3,771     | 4,144             |
| Value (in millions)           | \$278,575 | \$250,476 | \$255,591 | \$293,303 | \$305,383         |
| <b>Boeing:</b>                |           |           |           |           |                   |
| B-737                         | 2,270     | 2,076     | 2,186     | 2,365     | 2,845             |
| B-747                         | 114       | 108       | 107       | 97        | 81                |
| B-767                         | 70        | 59        | 50        | 72        | 71                |
| B-777                         | 350       | 281       | 253       | 380       | 335               |
| B-787                         | 910       | 851       | 847       | 857       | 812               |
| <b>Foreign Order Backlog</b>  |           |           |           |           |                   |
| Percent of Total Backlog      |           |           |           |           |                   |
| Number of Aircraft            | 77.8%     | 79.5%     | 77.8%     | 67.0%     | 64.4%             |
| Value                         | 81.1%     | 82.3%     | 81.2%     | 74.4%     | 71.9%             |
| Number of Aircraft            | 2,891     | 2,682     | 2,679     | 2,528     | 2,669             |
| Value (in millions)           | \$225,793 | \$206,167 | \$207,639 | \$218,112 | \$219,662         |
| <b>Boeing:</b>                |           |           |           |           |                   |
| B-737                         | 1,703     | 1,605     | 1,643     | 1,394     | 1,651             |
| B-747                         | 97        | 94        | 95        | 89        | 76                |
| B-767                         | 42        | 34        | 30        | 26        | 17                |
| B-777                         | 271       | 230       | 221       | 323       | 281               |
| B-787                         | 778       | 719       | 690       | 696       | 644               |
| <b>Domestic Order Backlog</b> |           |           |           |           |                   |
| Percent of Total Backlog      |           |           |           |           |                   |
| Number of Aircraft            | 22.2%     | 20.5%     | 22.2%     | 33.0%     | 35.6%             |
| Value                         | 18.9%     | 17.7%     | 18.8%     | 25.6%     | 28.1%             |
| Number of Aircraft            | 823       | 693       | 764       | 1,243     | 1,475             |
| Value (in millions)           | \$52,782  | \$44,310  | \$47,952  | \$75,191  | \$85,721          |
| <b>Boeing:</b>                |           |           |           |           |                   |
| B-737                         | 567       | 471       | 543       | 971       | 1,194             |
| B-747                         | 17        | 14        | 12        | 8         | 5                 |
| B-767                         | 28        | 25        | 20        | 46        | 54                |
| B-777                         | 79        | 51        | 32        | 57        | 54                |
| B-787                         | 132       | 132       | 157       | 161       | 168               |

Source: Aerospace Industries Association, based on company reports.  
a. As of third quarter.

# Table V Civil Aircraft Shipments

Calendar Years 2002-2013

| Year                               | TOTAL    | Transport Aircraft | Helicopters | General Aviation |
|------------------------------------|----------|--------------------|-------------|------------------|
| <b>Number of Aircraft Shipped</b>  |          |                    |             |                  |
| 2002                               | 2,904    | 379                | 318         | 2,207            |
| 2003                               | 2,935    | 281                | 517         | 2,137            |
| 2004                               | 3,445    | 285                | 805         | 2,355            |
| 2005                               | 4,094    | 290                | 947         | 2,857            |
| 2006                               | 4,443    | 398                | 898         | 3,147            |
| 2007                               | 4,729    | 441                | 1,009       | 3,279            |
| 2008                               | 4,538    | 375                | 1,084       | 3,079            |
| 2009                               | 2,636    | 481                | 570         | 1,585            |
| 2010                               | 2,135    | 462                | 339         | 1,334            |
| 2011                               | 2,365    | 477                | 435         | 1,453            |
| 2012(P)                            | 2,624    | 593                | 478         | 1,553            |
| 2013(E)                            | 2,895    | 671                | 519         | 1,705            |
| <b>Value (millions of dollars)</b> |          |                    |             |                  |
| 2002                               | \$35,078 | \$27,202           | \$157       | \$7,719          |
| 2003                               | 28,180   | 21,380             | 366         | 6,434            |
| 2004                               | 27,256   | 19,925             | 515         | 6,816            |
| 2005                               | 30,848   | 21,365             | 816         | 8,667            |
| 2006                               | 39,675   | 28,465             | 843         | 10,367           |
| 2007                               | 46,657   | 33,386             | 1,330       | 11,941           |
| 2008                               | 43,097   | 28,263             | 1,486       | 13,348           |
| 2009                               | 44,105   | 34,051             | 972         | 9,082            |
| 2010                               | 40,602   | 31,834             | 893         | 7,875            |
| 2011                               | 46,269   | 36,171             | 1,145       | 8,953            |
| 2012(P)                            | 57,292   | 46,621             | 1,154       | 9,517            |
| 2013(E)                            | 64,186   | 52,111             | 1,262       | 10,813           |

Source: Aerospace Industries Association, based on company reports, data from the General Aviation Manufacturers Association, Helicopter Association International and Teal Group.

E. Estimate.

P. Preliminary.

# U.S. Aerospace Balance of Trade

## Table VI

Calendar Years 2008-2012

|                               | 2008     | 2009     | 2010     | 2011     | 2012(P)  |
|-------------------------------|----------|----------|----------|----------|----------|
| <b>BALANCE OF TRADE</b>       |          |          |          |          |          |
| Current Dollars               | \$57,389 | \$56,034 | \$51,152 | \$55,753 | \$63,527 |
| Constant Dollars <sup>a</sup> | 56,011   | 54,477   | 49,899   | 54,249   | 61,312   |
| <b>AEROSPACE EXPORTS</b>      |          |          |          |          |          |
| Current Dollars               | \$95,082 | \$81,166 | \$77,503 | \$85,326 | \$95,460 |
| Constant Dollars <sup>a</sup> | 92,800   | 78,910   | 75,605   | 83,024   | 92,132   |
| <b>AEROSPACE IMPORTS</b>      |          |          |          |          |          |
| Current Dollars               | \$37,694 | \$25,132 | \$26,351 | \$29,573 | \$31,933 |
| Constant Dollars <sup>a</sup> | 36,789   | 24,433   | 25,706   | 28,775   | 30,820   |

Source: Aerospace Industries Association, based on data from the U.S. Department of Commerce and Economic Consulting Services.

a. Based on AIA's aerospace composite price deflator, (2005=100).

P. Preliminary.

Note: Trade balances may not equal the difference between exports and imports due to rounding.

# Table VII U.S. Imports of Aerospace Products

Calendar Years 2008-2012

| (Millions of Dollars)                       | 2008            | 2009            | 2010            | 2011            | 2012(P)         |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>TOTAL IMPORTS</b>                        | <b>\$37,694</b> | <b>\$25,132</b> | <b>\$26,351</b> | <b>\$29,573</b> | <b>\$31,933</b> |
| <b>Aircraft</b>                             | <b>\$12,480</b> | <b>\$9,299</b>  | <b>\$9,041</b>  | <b>\$10,025</b> | <b>\$9,201</b>  |
| <b>Military</b>                             | 51.5            | 0.4             | 61.7            | 124.4           | 137.1           |
| <b>Civil</b>                                | 12,428          | 9,299           | 8,979           | 9,900           | 9,064           |
| Transports                                  | 6,460           | 4,955           | 3,258           | 4,972           | 4,242           |
| General Aviation                            | 4,066           | 2,337           | 2,191           | 2,667           | 2,494           |
| Helicopters                                 | 1,143           | 833             | 838             | 896             | 1,106           |
| Other <sup>a</sup>                          | 758             | 1,173           | 2,692           | 1,365           | 1,222           |
| <b>Aircraft Engines</b>                     | <b>4,328</b>    | <b>3,752</b>    | <b>3,799</b>    | <b>4,101</b>    | <b>4,998</b>    |
| Turbine                                     | 4,195           | 3,616           | 3,700           | 4,035           | 4,943           |
| Piston                                      | 133             | 136             | 99              | 66              | 55              |
| Aircraft and Engine Parts                   | 19,989          | 11,383          | 12,498          | 14,293          | 16,694          |
| Spacecraft, Missiles,<br>Rockets, and Parts | 896             | 698             | 1,013           | 1,154           | 1,041           |

Source: Aerospace Industries Association, based on data from the U.S. Department of Commerce and Economic Consulting Services.

Notes: Import data include non-military aircraft parts and aerospace products previously exported from the United States.

Totals may not equal sum of terms due to rounding.

a. Includes used aircraft, gliders, balloons and airships.

P. Preliminary.

# U.S. Exports of Aerospace Products

## Table VIII

Calendar Years 2008-2012

| (Millions of Dollars)                        | 2008            | 2009            | 2010            | 2011            | 2012(P)         |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>TOTAL EXPORTS</b>                         | <b>\$95,082</b> | <b>\$81,166</b> | <b>\$77,503</b> | <b>\$85,326</b> | <b>\$95,460</b> |
| <b>TOTAL CIVIL EXPORTS</b>                   | <b>\$82,264</b> | <b>\$70,500</b> | <b>\$67,128</b> | <b>\$75,275</b> | <b>\$84,171</b> |
| <b>Complete Aircraft</b>                     | 42,422          | (D)             | (D)             | (D)             | (D)             |
| Transports                                   | 433,326         |                 |                 |                 |                 |
| General Aviation                             | 4,818           |                 |                 |                 |                 |
| Helicopters                                  | 948             |                 |                 |                 |                 |
| Used Aircraft                                | 3,284           |                 |                 |                 |                 |
| Other Aircraft                               | 46              |                 |                 |                 |                 |
| <b>Aircraft Engines</b>                      | 8,505           |                 |                 |                 |                 |
| Turbine                                      | 8,334           |                 |                 |                 |                 |
| Piston                                       | 171             |                 |                 |                 |                 |
| Aircraft & Engine Parts,<br>Including Spares | 30,777          |                 |                 |                 |                 |
| Missiles, Rockets & Parts                    | 25              |                 |                 |                 |                 |
| Spacecraft, Satellites & Parts               | 535             |                 |                 |                 |                 |
| <b>TOTAL MILITARY EXPORTS</b>                | <b>\$12,819</b> | <b>\$10,666</b> | <b>\$10,375</b> | <b>\$10,051</b> | <b>\$11,290</b> |
| <b>Complete Aircraft</b>                     | <b>4,521</b>    | <b>2,235</b>    | <b>1,742</b>    | <b>1,738</b>    | <b>1,948</b>    |
| Transports                                   | 1,548           | 276             | 140             | 614             | 643             |
| Helicopters                                  | 300             | 520             | 832             | 539             | 705             |
| Fighters & Bombers                           | 1,930           | 1,208           | 432             | 324             | 334             |
| Used Aircraft                                | 590             | 93              | 43              | 44              | 106             |
| Other Aircraft                               | 152             | 228             | 294             | 217             | 159             |
| <b>Aircraft Engines</b>                      | <b>423</b>      | <b>517</b>      | <b>357</b>      | <b>478</b>      | <b>399</b>      |
| Turbine                                      | 344             | 381             | 271             | 387             | 343             |
| Piston                                       | 80              | 137             | 86              | 92              | 56              |
| Aircraft & Engine Parts,<br>Including Spares | 6,311           | 6,126           | 6,404           | 6,242           | 6,960           |
| Missiles, Rockets & Parts                    | 1,425           | 1,509           | 1,741           | 1,502           | 1,876           |
| Spacecraft, Satellites & Parts               | 139             | 189             | 133             | 91              | 107             |

Source: Aerospace Industries Association, based on data from the U.S. Department of Commerce and AIA estimates. Note: Totals may not equal sum of terms due to rounding.  
P. Preliminary.

D. Civil aerospace export data suppressed by U.S. Census Bureau beginning first quarter 2009.

# Table IX

## Aerospace Related Employment

Calendar Years 2000-2012

| Period                         | Total Employment | Total | Aircraft | Aircraft Engines & Parts | Other Aircraft Parts & Equipment | Guided Missiles, Space Vehicles & Parts | Search, Detection & Navigation Instruments |
|--------------------------------|------------------|-------|----------|--------------------------|----------------------------------|---|--|
| <b>ALL WORKERS (THOUSANDS)</b> |                  |       |          |                          |                                  |   |  |
| 2000                           | 666.1            | 438.4 | 242.7    | 98.1                     | 97.6                             | 78.4                                    | 149.4                                      |
| 2001                           | 660.7            | 434.5 | 241.3    | 95.6                     | 97.6                             | 76.5                                    | 149.8                                      |
| 2002                           | 618.4            | 396.7 | 220.2    | 87.9                     | 88.6                             | 73.6                                    | 148.1                                      |
| 2003                           | 587.1            | 371.9 | 209.1    | 81.3                     | 81.5                             | 70.2                                    | 145.0                                      |
| 2004                           | 592.0            | 369.9 | 207.2    | 79.2                     | 83.5                             | 71.6                                    | 150.5                                      |
| 2005                           | 611.7            | 380.0 | 211.3    | 81.9                     | 86.8                             | 75.1                                    | 156.6                                      |
| 2006                           | 631.8            | 398.5 | 221.7    | 84.4                     | 92.4                             | 75.5                                    | 157.7                                      |
| 2007                           | 646.8            | 413.6 | 230.2    | 85.3                     | 98.1                             | 75.5                                    | 157.6                                      |
| 2008                           | 659.8            | 428.9 | 237.4    | 87.2                     | 104.3                            | 77.6                                    | 153.3                                      |
| 2009                           | 644.4            | 414.0 | 234.9    | 80.4                     | 98.7                             | 78.3                                    | 152.2                                      |
| 2010                           | 623.6            | 401.7 | 228.2    | 76.6                     | 96.9                             | 75.9                                    | 146.0                                      |
| 2011                           | 624.8            | 412.6 | 235.0    | 77.5                     | 100.1                            | 75.0                                    | 137.2                                      |
| 2012(P)                        | 629.4            | 425.3 | 239.4    | 79.5                     | 106.4                            | 73.8                                    | 130.3                                      |
| 1Q11                           | 620.2            | 404.2 | 230.1    | 76.0                     | 98.1                             | 75.3                                    | 140.7                                      |
| 2Q11                           | 622.3            | 409.0 | 233.1    | 76.9                     | 99.0                             | 75.2                                    | 138.1                                      |
| 3Q11                           | 628.7            | 417.1 | 238.0    | 78.3                     | 100.8                            | 75.3                                    | 136.2                                      |
| 4Q11                           | 628.0            | 420.1 | 238.8    | 78.6                     | 102.8                            | 74.0                                    | 133.8                                      |
| 1Q12                           | 627.4            | 421.8 | 238.2    | 78.9                     | 104.7                            | 73.9                                    | 131.7                                      |
| 2Q12                           | 627.9            | 423.5 | 237.3    | 79.6                     | 106.6                            | 74.1                                    | 130.3                                      |
| 3Q12                           | 632.8            | 430.6 | 242.8    | 79.9                     | 107.9                            | 73.4                                    | 128.8                                      |

Source: Aerospace Industries Association, based on data from the Bureau of Labor Statistics (BLS).

P. Preliminary.

# Net Profit After Taxes

# Table X

Calendar Years 1993-2012

| Year    | Dollars<br>(In Millions) | Aerospace Industry Profits |        |        | All Manufacturing Corporations |        |        |
|---------|--------------------------|----------------------------|--------|--------|--------------------------------|--------|--------|
|         |                          | As a Percent of:           |        |        | Profits as a Percent of:       |        |        |
|         |                          | Sales                      | Assets | Equity | Sales                          | Assets | Equity |
| 1993    | 4,621                    | 3.6                        | 3.5    | 13.2   | 2.8                            | 2.9    | 8.1    |
| 1994    | 5,655                    | 4.7                        | 4.3    | 14.8   | 5.4                            | 5.8    | 15.6   |
| 1995    | 4,633                    | 3.8                        | 3.5    | 11.1   | 5.7                            | 6.2    | 16.2   |
| 1996    | 7,150                    | 5.6                        | 5.1    | 17.1   | 6.0                            | 6.5    | 16.8   |
| 1997    | 7,221                    | 5.2                        | 4.8    | 17.3   | 6.2                            | 6.6    | 16.6   |
| 1998    | 7,701                    | 5.0                        | 4.8    | 18.0   | 6.0                            | 6.1    | 15.7   |
| 1999    | 10,214                   | 6.4                        | 6.0    | 21.2   | 6.2                            | 6.1    | 16.5   |
| 2000    | 7,260 <sup>a</sup>       | 4.7                        | 4.3    | 14.2   | 6.1                            | 5.9    | 15.2   |
| 2001    | 6,565                    | 3.9                        | 3.6    | 11.6   | 0.8                            | 0.8    | 2.0    |
| 2002    | 6,572 <sup>b</sup>       | 4.2                        | 3.7    | 12.2   | 3.3                            | 2.9    | 7.8    |
| 2003    | 7,225                    | 4.2                        | 3.3    | 12.5   | 5.4                            | 4.7    | 12.1   |
| 2004    | 10,291                   | 5.5                        | 4.3    | 15.3   | 7.1                            | 6.4    | 15.8   |
| 2005    | 12,383                   | 6.3                        | 4.6    | 16.5   | 7.4                            | 7.0    | 16.6   |
| 2006    | 14,203                   | 6.8                        | 5.1    | 18.7   | 8.1                            | 7.7    | 17.5   |
| 2007    | 18,658                   | 8.0                        | 6.6    | 24.1   | 7.3                            | 6.7    | 15.2   |
| 2008    | 14,568                   | 6.1                        | 4.7    | 18.6   | 4.2                            | 3.8    | 8.9    |
| 2009    | 16,424                   | 6.8                        | 5.5    | 26.9   | 5.6                            | 4.2    | 10.3   |
| 2010    | 16,516                   | 6.8                        | 5.5    | 23.0   | 8.3                            | 6.6    | 15.1   |
| 2011    | 18,795                   | 7.4                        | 6.1    | 24.3   | 9.2                            | 7.7    | 17.0   |
| 2012(P) | 20,138                   | 7.6                        | 6.1    | 25.5   | 8.9                            | 7.4    | 16.4   |

Source: Aerospace Industries Association, based on data from the Bureau of the Census, Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations.

a. Includes non-operating income (less interest expense) totaling \$4.4 billion.

b. Includes non-operating expenses (less interest expense) totaling \$3.5 billion.

P. Preliminary.



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