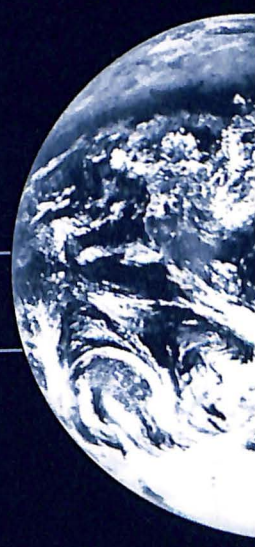


AEROSPACE FACTS & FIGURES

1 9 9 6 - 1 9 9 7



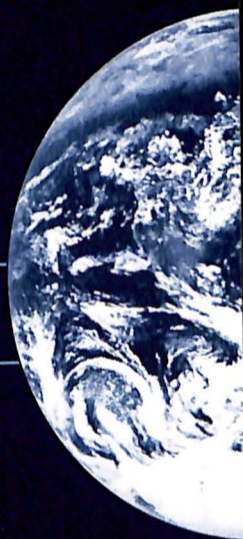
AEROSPACE FA

1 9 9 6 - 1

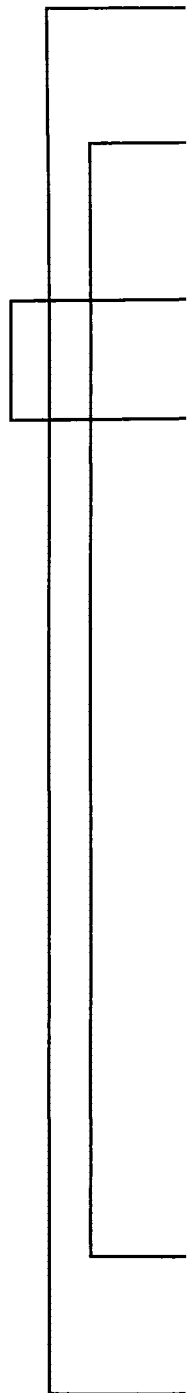


FACTS & FIGURES

9 9 7



AEROSPACE FACTS & FIGURES 1996-97



Compiled by:
Economic Data Service
Aerospace Research Center
Aerospace Industries Association of America, Inc.

Director, Research Center
David H. Vadas
Manager, Economic Data Service
David H. Napier
Editorial Consultant
James J. Haggerty
Design
Rings-Leighton, Ltd.

Published by:
Aerospace Industries Association of America, Inc.
1250 Eye Street, N.W., #1200
Washington, D.C. 20005-3924
FAX (202) 371-8470

For information about orders, call (202) 371-8561
For information about content, call (202) 371-8563

Copyright © 1996
by Aerospace Industries Association of America, Inc.
Library of Congress Catalog No. 46-25007
International Standard Book No. 0898-4425

ACKNOWLEDGMENTS

Air Transport Association of America

Council of Economic Advisers

Export-Import Bank of the United States

Exxon International Company

General Aviation Manufacturers Association

Helicopter Association International

International Civil Aviation Organization

National Aeronautics and Space Administration

National Science Foundation

Office of Management and Budget

U.S. Department of Commerce (Bureau of Economic Analysis;
Bureau of the Census; International Trade Administration)

U.S. Department of Defense (Air Force; Army; Ballistic Missile
Defense Organization; Comptroller; Directorate for Information,
Operations, and Reports; Navy)

U.S. Department of Labor (Bureau of Labor Statistics)

U.S. Department of Transportation (Federal Aviation Administration,
Office of Airline Statistics)

CONTENTS

FOREWORD	6
AEROSPACE SUMMARY	8
AIRCRAFT PRODUCTION	26
MISSILE PROGRAMS	48
SPACE PROGRAMS	58
AIR TRANSPORTATION	74
RESEARCH AND DEVELOPMENT	100
FOREIGN TRADE	116
EMPLOYMENT	138
FINANCE	154
GLOSSARY	164
INDEX	171
AIA MEMBERS	176

Innovative engineering and quality manufacture are consistently on display in "U.S.-made" aircraft, space vehicles, and other aerospace products in service around the globe. Exports—once a negligible source of income—provide about one-third of all sales for U.S. aerospace manufacturers. Exports are also a significant source of jobs for U.S. aerospace workers—and workers in related industries.

Despite years of painful adjustments to changed economic conditions, the U.S. aerospace industry continues to look forward and to push the boundaries of technology and quality. The industry is poised to take full advantage of the growing commercial space market and the resurgence in demand for commercial aircraft. In the world marketplace of the nineties, U.S. aerospace products represent American industry at its best.



FOREWORD

The aerospace year 1995 was something of a paradox, a year of continued decline in industry activity but at the same time a year of auspicious signals heralding improved business prospects in the years to come.

Analysis of the indicators prompted an Aerospace Industries Association (AIA) year-end statement that the long aerospace recession was bottoming out, that the industry was in the early stages of a new business upturn, and that the activity curve was expected to continue upward. However, the expected business

resurgence affects only one of the industry's three main areas of activity: civil aircraft manufacture. Government-funded activities in defense and civil space will remain areas of uncertainty and provide only moderate levels of industry workload into the new century.

In 1995, sales, earnings, and employment, the primary yardsticks of industry workload, were all substantially below the previous year's level. The aerospace work force was further reduced by seven percent, to a level almost 40 percent below the industry employment peak of 1989. Aerospace exports and

trade balance also declined, but the industry's performance in international trade was considered excellent in view of a generally depressed global market.

The principal indicator of activity upturn was the flow of new orders in 1995. Total orders increased by roughly 20 percent over the previous year's level. That brought a slight (one percent) but very welcome increase in the industry's overall backlog, the first upturn in six years. However, the backlog was predominantly orders for civil systems, which constituted more than 60 percent of the total.

Looking to the next decade, AIA sees sharply different levels of activity among its three principal workload areas.

Defense is the most uncertain and most troublesome area. Defense procurement funding was still on a downward curve in 1995 and it was not expected to bottom out until Fiscal Year (FY) 1997. Funding for modernization of the downsized defense force has fallen victim to the dictates of reducing the national budget deficit, with the result that the main thrust of modernization procurement has been deferred until FY 2000-2001.



Since it often takes two to five (or more) years from the placement of an initial order to delivery of an aerospace system, the industry will have to cope with the uncertainties of defense contracting for some years to come. By the best scenario, we can expect to see in place by 2005 an adequately funded defense modernization program and a stable production effort of moderate scale.

The space outlook is also mixed but on the whole optimistic. Administration projections contemplate continuing decline in government funding for civil space activities through 2000, but the outlook is brighter for commercial space. Driven principally by rapidly expanding activity in satellite communications, commercial space has been growing at a 20 percent-a-year rate in the 1990s. Analysts expect continued growth. AIA believes that commercial space gains over the 1995-2005 decade will at least offset the indicated decline in government funding and that the net result will be a slightly climbing curve.

The brightest outlook among the industry's main workload areas is for commercial aircraft manufacture, where a consensus of industry projections indicates a total market of more than \$1 trillion over the 20-year span from 1995 to 2015. From the standpoint of jetliner sales (which generally lag two to four years behind orders), AIA envisions the start of an upswing in 1996, followed by gradual annual increases. In the first decade of the new century, the industry's output will reach record levels—levels that could eventually be as high as double the average for the past 20 years.

When the industry is able to solidify the still-important defense element of its business and can officially declare the difficult period of industry transition ended, the industry that emerges will be quite different from the defense-oriented industry of the Cold War. The U.S. aerospace industry will be smaller, leaner, and more efficient; financially and technologically sound; driven primarily by commercial rather than defense workload; and still the leader of the aerospace manufacturing world.

All that will happen only if our companies successfully manage the remaining transitional years, maintain their technological capabilities, and continue to improve their collective competitiveness. The effective manner in which they have coped with a decade of transition inspires the belief that they will meet those challenges.



Don Fuqua
President
Aerospace Industries Association

AEROSPACE SUMMARY

In terms of sales, 1995 was one more year of decline for the aerospace industry—the fifth in a row when sales are calculated in inflation-adjusted constant dollars. However, the industry experienced a large increase in new orders despite continuing decline in military contract awards. Significant orders for commercial jetliners indicated that the recession in the commercial transport sector had ended and that commercial sales would turn up in the near future.

Here is a breakdown of the industry's 1995 performance:

Sales. Overall industry sales amounted to \$106.3 billion, which

compares with \$110.6 billion in the previous year. Even after eight straight years of declining defense sales, the Department of Defense (DoD) remained the aerospace industry's principal customer with more than 38 percent of total sales. Defense sales amounted to \$41.3 billion, down from \$43.8 billion in the previous year. Sales to non-U.S. government customers came to \$36 billion, down from 1994's \$36.4 billion.

As usual, aircraft sales predominated in a breakdown

of sales by product group. Sales of aircraft, engines, and parts, civil and military combined, totaled \$55.1 billion, or 52 percent of total sales; the figure compares with \$57.6 billion in 1994. The aircraft sales total was compounded of \$31.1 billion for military aircraft and \$24 billion for civil aircraft.

The only product group to record an increase in 1995 was space systems, with sales of \$27.3 billion or 25.7 percent of the total. Space sales were up slightly from 1994's \$26.9 billion.

Sales of missile systems, parts, and services continued on the downward trend in evidence since 1990, down to \$6.3 billion from \$7.6 billion in 1994. Sales of "related products and services" came to \$17.7 billion, down from \$18.4 billion.

For 1995, aerospace industry sales amounted to 1.5 percent of the Gross Domestic Product (down from 1.6 percent) and 3 percent of total sales by all U.S. manufacturing industries (down from 3.3 percent).



Earnings. In 1995, the aerospace industry reported net income after taxes of \$4.6 billion, down from \$5.7 billion recorded in the previous year. Year-to-year comparability is difficult, however, because of the many factors that have impacted net income such as: company consolidations, accounting changes, tax adjustments, and lower rates of investment in R&D and plant and equipment.

As a percentage of sales, the profit amounted to 3.8 percent, compared with the average for all U.S. manufacturing industries of 5.7 percent and with the industry's 1994 aerospace profit-to-sales ratio of 4.7 percent. As a percentage of assets, the 1995 figure was 3.5 percent, down from 4.3 percent in the previous year.

The aerospace balance sheet, reported by the Bureau of the Census, showed an increase in net working capital from \$15.7 billion in 1994 to \$18.8 billion. Total assets were approximately the same as in 1994, \$132.3 billion.

Orders and Backlog. Net new orders for aerospace systems totaled \$104.7 billion, up from \$88.7 billion in 1994; the 1995 figure marked the second year in which new orders moved upward after four straight years of decline. The increase was due entirely to gains in the civil sector where orders totaled \$57.9 billion (up from \$35.4 billion). Military orders came to \$46.8 billion (down from \$53.3 billion).

The industry's backlog turned upward after five years of decline. The overall backlog at year-end 1995 was \$194.6 billion, up from \$192.6 billion. At \$117.2 billion (up from \$108.1 billion), the civil backlog accounted for more than 60 percent of the total. The military component of the backlog was \$77.4 billion (down from \$84.4 billion).

Civil Aircraft Production. Data compiled by Aerospace Industries Association (AIA) shows that U.S. manufacturers produced 1,625 civil aircraft in 1995 with a total value of \$18.3 billion. That represents a gain of 80 units over 1994, but the gain was entirely in the general aviation category; production of commercial transports and civil helicopters was down in terms of units shipped.

Commercial transport production, which normally accounts for upwards of 80 percent of the total sales volume for all civil aircraft, accounted for \$15.3 billion (83 percent of the total) in 1995. The industry built 256 jetliners, down from 309 in 1994. The majority (137 planes) went to foreign customers; domestic shipments totaled 119 transports.

Civil helicopter shipments increased in terms of dollar value but fewer units were built than in 1994. The rotary wing segment of the industry turned out 292 helicopters (down from 308) with a total value of \$194 million (up from \$185 million). Civil helicopter sales were predom-



inantly exports (210 units); only 82 helicopters were shipped to domestic customers.

General aviation production continued on the upward curve that began in 1993 after a long, steep decline from the peak year 1978. Dollar value of 1995 general aviation shipments was \$2.8 billion, which compares with \$2.4 billion in the previous year. The industry produced 1,077 planes, up from 928 in 1994. The bulk of general aviation production (714 units) went to U.S. customers; 363 units were exported.

At year-end 1995, the backlog of civil transport aircraft on order was 1,291 aircraft, up from 1,126 at the end of 1994; dollar value for the 1995 backlog was not available. Foreign orders (701) constituted 54 percent of the unit total.

Military Aircraft Production. The Bureau of the Census reported 1995 sales of military aircraft at \$22.8 billion, which compares with \$23.7 billion in the previous year. Although a breakdown of deliveries by type and military service was not available at publication time, DoD procurement data provide a general idea of military aircraft acquisitions.

In Fiscal Year (FY) 1996, DoD procured 181 aircraft for use by U.S. armed forces versus only 139 planned for FY 1997. Aircraft types procured or planned include the Air Force's C-17 airlifter, E-8B surveillance aircraft, and F-15E fighter; the Navy's F/A-18 strike fighter, V-22 tiltrotor transport, and T-45 trainer; and the Army's UH-60 helicopter.

Foreign Trade. Although the industry maintained a high level of export sales, a generally depressed global market caused both exports and trade balance to decline for the third straight year.

Aerospace exports totaled \$33.1 billion in 1995, which compares with \$37.4 billion in the previous year. At \$21.6 billion, the aerospace trade balance was down some 14 percent from 1994's \$25 billion. Aerospace imports at \$11.5 billion were down from the previous year's \$12.4 billion.

As is usually the case, civil exports accounted for most of the export volume—76 percent. The overall export decline was occasioned largely by lower levels of civil transport sales. Only 42 percent of the 1995 civil export sales volume was in sales of airline transports; in 1994 the figure was 53 percent and in earlier years of the 1990s it had ranged as high as 61 percent.

Space Programs. Space sales, as reported by AIA, came to \$27.3 billion, up in current dollar terms from 1994's \$26.9 billion but actually a slight decline when converted to inflation-adjusted constant dollars. The AIA data include civil and military space systems and parts, plus government contracts for RDT&E (Research, Development, Test, and Evaluation).

Using a different reporting basis that excludes launch vehicle propulsion systems, spacecraft orbital adjustment engines/motors, and RDT&E, the Bureau of the Census reported a slight gain in overall sales as deliveries of International Space Station hardware offset a decline in

military space sales. Census reported overall sales of \$11.1 billion in 1995, up from \$10.6 billion in 1994. Civil sales, including commercial sales and government-sponsored civil space activity, came to \$6.3 billion, almost 60 percent of the total. Military space sales, at \$4.8 billion, were down from 1994's \$5.7 billion.

Missile Programs. Missile sector sales continued to decline in 1995. AIA reported sales (including RDT&E) of \$6.3 billion, which compares with \$7.6 billion in 1994. The Bureau of the Census, whose figures do not include propulsion units, reported sales of \$4.7 billion, down from \$5.3 billion in the previous year and the lowest sales level since the early 1950's.

Net new orders for missiles and parts (again excluding propulsion units) amounted to \$3.2 billion; this was an increase over 1994's \$2.8 billion, but the latter figure was the lowest in more than 25 years. Despite the gain in orders, the missile backlog at year-end 1995 continued on the downward slide in evidence since 1987; the backlog was \$4.8 billion, down from \$5.8 billion at the end of 1994.

Research and Development. In calendar year 1995, total U.S. funding for research and development (R&D) amounted to \$170.9 billion, up from \$168.1 billion in 1994, according to the National Science Foundation. Industry funding, at \$100.8 billion, represented more than 58 percent of the total. Federal outlays (\$61.3 billion) constituted 36 percent. The great bulk of U.S. R&D was performed by industry (71 percent).

In FY 1996, federal R&D outlays remained more or less constant (\$68.5 billion in FY 1996 and \$68.4 billion in FY 1995), according to estimates by the Office of Management and Budget (OMB). For FY 1997, OMB estimated total outlays at \$69.1 billion, a small increase in current dollars but a slight decrease in constant dollars. DoD outlays for R&D account for more than half the total (\$34.9 billion). National Aeronautics and Space Administration (NASA) outlays are estimated at \$8.8 billion.

The most recent R&D numbers available specifically for the aerospace industry show that total aerospace industrial R&D funding in 1994 amounted to \$14.3 billion, \$8.8 billion from federal funding and \$5.5 billion from company funds.

Employment. Aerospace industry employment in 1995 fell to its lowest level since 1958, but the rate of reduction slowed significantly. Indications of a rebound in the commercial aircraft manufacturing industry suggested an end to the overall employment decline.

On an annual average basis, the work force was reduced by seven percent to a total of 795,000. This marked the sixth straight year of decline since the industry's peak employment level (1,314,000) in 1989. The cumulative manpower loss represented almost 40 percent of the peak total.

**STANDARD INDUSTRIAL CLASSIFICATIONS APPLICABLE TO THE
AEROSPACE INDUSTRY**

3721	AIRCRAFT	3764	SPACE PROPULSION UNITS AND PARTS
	37211 Military aircraft		37645 Complete missile or space vehicle engines and/or propulsion units
	37215 Civilian aircraft		37646 Research and development on complete missile or space vehicle engines and/or propulsion units
	37217 Modification, conversion, and overhaul of previously accepted aircraft		37647 Services on complete guided missile or space vehicle engines and/or propulsion units, nec
	37218 Aeronautical services on complete aircraft, nec		37648 Missile and space vehicle engine and/or propulsion unit parts and accessories
3724	AIRCRAFT ENGINES AND ENGINE PARTS	3769	SPACE VEHICLE EQUIPMENT, NEC
	37241 Aircraft engines for military aircraft		37692 Missile and space vehicle components, parts and subassemblies, nec
	37242 Aircraft engines for civilian aircraft		37694 Research and development on missile and space vehicle parts and components, nec
	37243 Aeronautical services on aircraft engines	3669	COMMUNICATIONS EQUIPMENT, NEC
	37244 Aircraft engine parts and accessories		36691 Alarm systems
3728	AIRCRAFT PARTS AND AUXILIARY EQUIPMENT, NEC		36692 Traffic control equipment
	37281 Aircraft parts and auxiliary equipment, nec		36693 Intercommunication equipment
	37282 Aircraft propellers and helicopter rotors	3812	SEARCH, DETECTION, NAVIGATION, GUIDANCE, AERONAUTICAL AND NAUTICAL SYSTEMS, INSTRUMENTS, AND EQUIPMENT
	37283 Research and development on aircraft parts		38121 Aeronautical, nautical, and navigational instruments, not sending or receiving radio signals
3761	GUIDED MISSILES AND SPACE VEHICLES		38122 Search, detection, navigation, and guidance systems and equipment
	37611 Complete guided missiles (excluding propulsion systems)	3829	MEASURING AND CONTROLLING DEVICES, NEC
	37612 Complete space vehicles (excluding propulsion systems)		38291 Aircraft engine instruments, except flight
	37613 Research and development on complete guided missiles		
	37614 Research and development on complete space vehicles		
	37615 All other services on complete guided missiles and space vehicles		
3663	RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT		
	36631 Communication systems and equipment, except broadcast		

Source: Office of Management and Budget, "Standard Industrial Classification Manual, 1987."

NOTE: The Standard Industrial Classification (SIC) is a system developed by the U.S. Government to define the industrial composition of the economy, facilitating comparability of statistics. It is revised periodically to reflect the changing industrial composition of the economy.

NEC: Not elsewhere classified.

AEROSPACE INDUSTRY SALES BY CUSTOMER

Calendar Years 1981–1995
(Millions of Dollars)

Year	TOTAL SALES	Aerospace Products and Services				Related Products and Services
		Total	U.S. Government		Other Customers	
			Dept. of Defense	NASA and Other Agencies		
CURRENT DOLLARS						
1981	\$ 63,974	\$ 53,090	\$27,244	\$ 4,709	\$21,137	\$10,884
1982	67,756	56,366	34,016	4,899	17,451	11,390
1983	79,975	66,646	41,558	5,910	19,178	13,329
1984	83,486	69,572	45,969	6,063	17,540	13,914
1985	96,571	80,476	53,178	6,262	21,036	16,095
1986	106,183	88,486	59,161	6,236	23,089	17,697
1987	110,008	91,673	61,817	6,813	23,043	18,335
1988	114,562	95,468	61,327	7,899	26,242	19,094
1989	120,534	100,445	61,199	9,601	29,645	20,089
1990	134,375	111,979	60,502	11,097	40,379	22,396
1991	139,248	116,040	55,922 ^r	11,739	48,379	23,208
1992	138,591	115,493	52,202	12,408	50,882	23,099
1993 ^r	123,183	102,653	47,017	12,255	43,380	20,531
1994 ^r	110,558	92,132	43,795	11,932	36,405	18,426
1995	106,326	88,605	41,321	11,280	36,004	17,721
CONSTANT DOLLARS^a						
1981	\$ 80,470	\$ 66,780	\$34,269	\$ 5,923	\$26,587	\$13,691
1982	77,083	64,125	38,699	5,573	19,853	12,958
1983	86,741	72,284	45,074	6,410	20,800	14,457
1984	83,653	69,711	46,061	6,075	17,575	13,942
1985	97,843	81,536	53,878	6,344	21,313	16,307
1986	106,396	88,663	59,280	6,248	23,135	17,732
1987	110,008	91,673	61,817	6,813	23,043	18,335
1988	112,426	93,688	60,184	7,752	25,753	18,738
1989	113,604	94,670	57,680	9,049	27,941	18,934
1990	121,606	101,338	54,753	10,043	36,542	20,268
1991	121,508	101,257	48,798 ^r	10,243	42,216	20,251
1992 ^r	117,251	97,710	44,164	10,497	43,047	19,542
1993 ^r	101,636	84,697	38,793	10,111	35,792	16,940
1994 ^r	89,160	74,300	35,319	9,623	29,359	14,860
1995	84,319	70,266	32,768	8,945	28,552	14,053

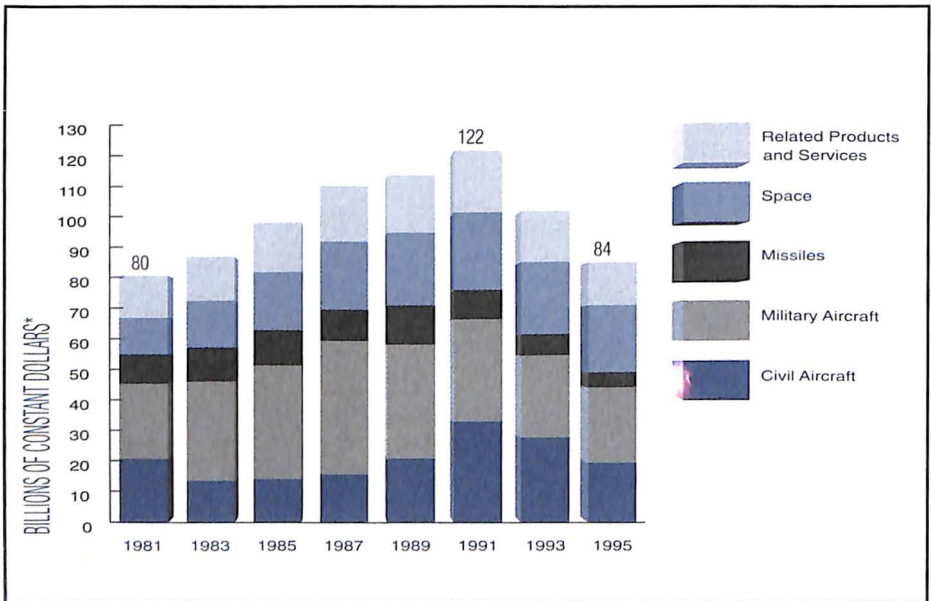
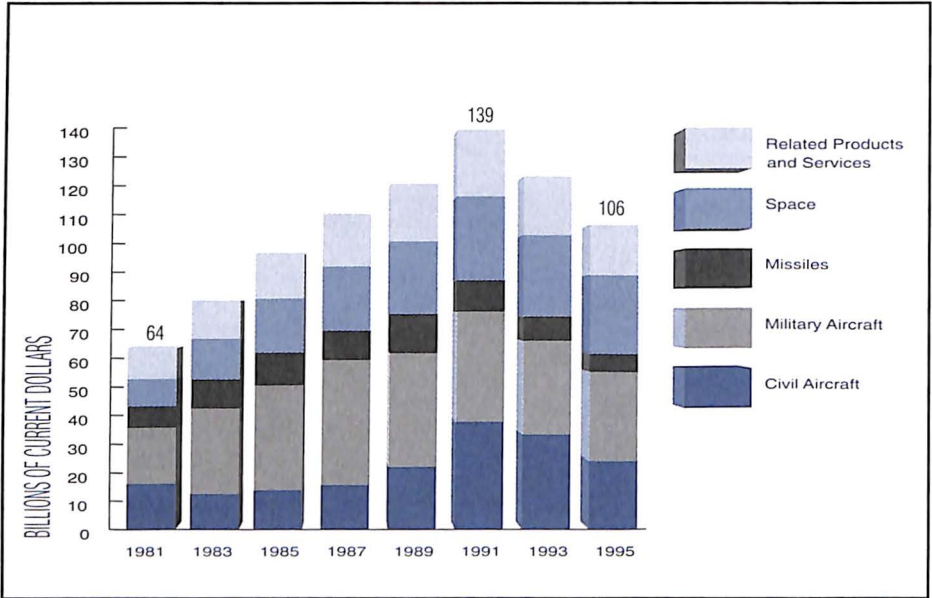
Source: Aerospace Industries Association.

NOTE: See Glossary for explanation of "Aerospace Industry," "Aerospace Sales," "Other Customers," and "Related Products and Services."

^a Based on AIA's aerospace composite price deflator, 1987=100

^r Revised.

AEROSPACE SALES BY PRODUCT GROUP



Source: Aerospace Industries Association
 *Based on AIA's aerospace composite price deflator (1987=100)

AEROSPACE INDUSTRY SALES BY PRODUCT GROUP

Calendar Years 1981–1995

(Millions of Dollars)

Year	TOTAL SALES	Aircraft			Missiles	Space	Related Products & Services
		Total	Civil	Military			
CURRENT DOLLARS							
1981	\$ 63,974	\$36,062	\$16,427	\$19,635	\$ 7,640	\$ 9,388	\$10,884
1982	67,756	35,484	10,982	24,502	10,368	10,514	11,390
1983	79,975	42,431	12,373	30,058	10,269	13,946	13,329
1984	83,486	41,905	10,690	31,215	11,335	16,332	13,914
1985	96,571	50,482	13,730	36,752	11,438	18,556	16,095
1986	106,183	56,405	15,718	40,687	11,964	20,117	17,697
1987	110,008	59,188	15,465	43,723	10,219	22,266	18,335
1988	114,562	60,886	19,019	41,867	10,270	24,312	19,094
1989	120,534	61,550	21,903	39,646	13,622	25,274	20,089
1990	134,375	71,353	31,262	40,091	14,180	26,446	22,396
1991	139,248	75,918	37,443	38,475	10,970	29,152	23,208
1992	138,591	73,905	39,897	34,008	11,757	29,831	23,099
1993 ^r	123,183	65,829	33,116	32,713	8,451	28,372	20,531
1994 ^r	110,558	57,648	25,596	32,052	7,563	26,921	18,426
1995	106,326	55,058	23,965	31,092	6,261	27,287	17,721
CONSTANT DOLLARS^a							
1981	\$ 80,470	\$45,361	\$20,663	\$24,698	\$ 9,610	\$11,809	\$13,691
1982	77,083	40,369	12,494	27,875	11,795	11,961	12,958
1983	86,741	46,021	13,420	32,601	11,138	15,126	14,457
1984	83,653	41,989	10,711	31,278	11,358	16,365	13,942
1985	97,843	51,147	13,911	37,236	11,589	18,800	16,307
1986	106,396	56,518	15,749	40,769	11,988	20,157	17,732
1987	110,008	59,188	15,465	43,723	10,219	22,266	18,335
1988	112,426	59,751	18,664	41,086	10,079	23,859	18,738
1989	113,604	58,011	20,644	37,367	12,839	23,821	18,934
1990	121,606	64,573	28,291	36,281	12,833	23,933	20,268
1991	121,508	66,246	32,673	33,573	9,572	25,438	20,251
1992 ^r	117,251	62,525	33,754	28,772	9,947	25,238	19,542
1993 ^r	101,636	54,314	27,323	26,991	6,973	23,409	16,940
1994 ^r	89,160	46,490	20,642	25,848	6,099	21,710	14,860
1995	84,319	43,662	19,005	24,657	4,965	21,639	14,053

Source: Aerospace Industries Association.

NOTE: See Glossary for explanation of "Aerospace Industry," "Aerospace Sales," "Other Customers," and "Related Products and Services."

a Based on AIA's aerospace composite deflator, 1987=100.

r Revised.

**SALES OF MAJOR AEROSPACE COMPANIES
AS REPORTED BY THE BUREAU OF THE CENSUS**

Calendar Years 1981–1995
(Millions of Dollars)

Year	GRAND TOTAL	TOTAL		Aircraft, En- gines, & Parts		Missiles, Space, & Rocket Propul- sion	Other Aerospace		Non- Aero- space
		Mili- tary	Non- Mil.	Mili- tary	Non- Mil.		Mili- tary	Non- Mil.	
CURRENT DOLLARS									
1981	\$ 69,944	\$33,876	\$36,068	\$14,575	\$18,999	\$ 9,722	\$ 7,634	\$3,905	\$15,109
1982	75,487	43,281	32,206	17,743	14,143	11,980	9,408	5,454	16,759
1983	83,453	50,525	32,928	19,809	16,070	12,745	12,310	3,179	19,340
1984	88,941	57,047	31,894	23,268	14,017	13,624	12,245	3,257	22,530
1985	100,522	65,098	35,424	25,758	18,182	16,741	14,491	3,675	21,675
1986	105,577	68,303	37,274	27,043	20,714	17,535	16,287	3,520	20,478
1987	110,301	70,194	40,107	27,806	21,256	20,715	15,786	3,429	21,309
1988	113,548	69,448	44,100	25,068	25,674	21,514	16,382	2,946	21,964
1989	122,148	71,647	50,501	24,287	29,539	22,643	16,908	3,605	25,167
1990	136,646	73,616	63,030	27,667	38,622	22,040	15,773	4,342	28,202
1991	123,862	67,089	56,773	25,385	43,155	23,311	13,472	4,281	14,258
1992	118,736	61,410	57,326	23,509	44,160	21,349	12,153	3,377	14,188
1993 ^f	109,926	56,102	53,824	20,099	40,987	18,134	11,936	3,592	15,178
1994 ^f	104,296	58,012	46,284	23,652	30,901	18,406	11,981	4,417	14,939
1995	101,153	52,456	48,697	22,813	30,719	18,219	11,921	4,462	13,019
CONSTANT DOLLARS^a									
1981	\$ 87,980	\$42,611	\$45,369	\$18,333	\$23,898	\$12,229	\$ 9,603	\$4,912	\$19,005
1982	85,878	49,239	36,639	20,185	16,090	13,629	10,703	6,205	19,066
1983	90,513	54,799	35,714	21,485	17,430	13,823	13,351	3,448	20,976
1984	89,119	57,161	31,958	23,315	14,405	13,651	12,270	3,264	22,575
1985	101,846	65,955	35,891	26,097	18,421	16,961	14,682	3,723	21,960
1986	105,789	68,440	37,349	27,097	20,756	17,570	16,320	3,527	20,519
1987	110,301	70,194	40,107	27,806	21,256	20,715	15,786	3,429	21,309
1988	111,431	68,153	43,278	24,601	25,195	21,113	16,077	2,891	21,554
1989	115,125	67,528	47,598	22,891	27,840	21,341	15,936	3,398	23,720
1990	123,662	66,621	57,041	25,038	34,952	19,946	14,274	3,929	25,522
1991	108,082	58,542	49,540	22,151	37,657	20,341	11,756	3,736	12,442
1992 ^f	100,453	51,954	48,499	19,889	37,360	18,062	1,282	2,857	12,003
1993 ^f	90,698	46,289	44,409	16,583	33,818	14,962	9,848	2,964	12,523
1994 ^f	84,110	46,784	37,326	19,074	24,920	14,844	9,662	3,562	12,048
1995	80,216	41,599	38,618	18,091	24,361	14,478	9,454	3,538	10,324

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

^a Based on AIA's aerospace composite price deflator, 1987=100.

^r Revised.

ORDERS AND BACKLOG OF MAJOR AEROSPACE COMPANIES AS REPORTED BY THE BUREAU OF THE CENSUS

Calendar Years 1981–1995
(Millions of Dollars)

Year	GRAND TOTAL	TOTAL		Aircraft, En- gines, & Parts		Missiles, Space, & Rocket Propul- sion	Other Aerospace		Non- Aero- space	
		Mili- tary	Non- Mil.	Mili- tary	Non- Mil.		Mili- tary	Non- Mil.		
NET NEW ORDERS										
1981	\$ 74,922	\$ 43,147	\$ 31,775	\$ 19,228	\$ 15,208	\$ 12,172	\$ 9,367	\$ 1,925	\$ 14,803	
1982 ^a	89,168 ^a	60,759 ^a	28,409 ^a	24,186	9,589	13,858	13,570	3,636	20,058	
1983	91,647	62,053	29,594	26,231	12,368	14,248	14,342	3,508	20,950	
1984	104,863	69,654	35,209	29,894	17,208	16,485	13,673	3,838	23,765	
1985	110,968	70,978	39,990	28,201	21,471	20,328	14,488	3,042	23,168	
1986	110,836	70,132	40,704	24,124	23,833	20,445	16,836	3,510	22,088	
1987	121,224	67,594	53,630	19,347	33,000	26,272	14,178	4,379	24,048	
1988	147,128	69,209	77,919	24,242	57,906	20,240	18,423	3,044	23,273	
1989	173,635	79,992	93,643	28,818	67,773	26,820	17,814	3,945	28,465	
1990	145,965	56,405	89,560	17,735	64,651	20,207	12,945	3,556	26,871	
1991	122,485	63,017	59,468	26,675	40,815	24,955	11,329	4,360	14,351	
1992	100,306	57,383	42,923	16,631	30,110	22,849	11,201	3,256	13,259	
1993 ^r	79,770	49,541	30,229	19,518	16,090	14,919	11,121	4,629	13,493	
1994 ^r	88,706	53,268	35,438	23,352	20,166	13,705	12,924	5,395	13,164	
1995	104,707	46,802	57,905	19,786	35,617	18,309	11,466	5,045	14,484	
BACKLOG AS OF DECEMBER 31										
1981	\$ 94,710	\$ 54,751	\$ 39,959	\$ 26,867	\$ 29,045	\$ 11,255	\$ 9,701	\$ 2,482	\$ 12,925	
1982 ^a	108,391 ^a	72,229 ^a	36,162 ^a	33,309	24,845	13,125	13,864	1,790	16,538	
1983	116,585	83,757	32,828	38,824	21,548	14,962	18,483	3,690	19,078	
1984	132,507	96,364	36,143	45,450	24,739	17,823	19,911	4,271	20,313	
1985	142,953	102,244	40,709	47,893	28,298	21,410	19,908	3,638	21,806	
1986	148,212	104,073	44,139	44,974	31,417	24,320	20,457	3,628	23,416	
1987	158,650	99,474	59,176	36,514	43,501	30,544	18,937	4,604	24,550	
1988	191,518	99,117	92,401	35,515	75,765	29,078	20,584	4,734	25,842	
1989	252,401	114,070	138,331	44,026	115,124	33,771	24,186	7,652	27,642	
1990	250,079	88,471	161,608	33,788	139,152	31,648	18,501	4,999	21,991	
1991	245,241	89,517	155,724	39,149	134,527	32,657	17,213	4,907	16,788	
1992	236,076	92,139	143,937	44,255	124,322	32,933	14,886	4,859	14,821	
1993 ^r	211,814	91,751	120,063	46,177	96,228	29,511	16,668	7,958	15,272	
1994 ^r	192,561	84,445	108,116	44,624	85,305	24,746	15,599	8,043	14,244	
1995	194,649	77,405	117,244	41,515	90,365	25,619	16,029	8,214	12,906	

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

^a 1979 and 1982 Orders and Backlog Totals are final revisions for which product group detail is not available.

^r Revised.

AEROSPACE SALES AND THE NATIONAL ECONOMY

Calendar Years 1981-1995

(Billions of Dollars)

Year	Gross Domestic Product ^r	Industry Sales			Aerospace Sales As Percent of			
		Manufacturing ^r	Durable Goods ^r	Aero-space	GDP ^r	Manufacturing	Durable Goods	
CURRENT DOLLARS								
1981	\$3,115.9	\$2,017.5	\$1,004.7	\$ 64.0	2.1 %	3.2%	6.4 %	
1982	3,242.1	1,960.2	950.5	67.8	2.1	3.5	7.1	
1983	3,514.5	2,070.6	1,025.8	80.0	2.3	3.9	7.8	
1984	3,902.4	2,288.2	1,175.3	83.5	2.1	3.6	7.1	
1985	4,180.7	2,334.5	1,215.3	96.6	2.3	4.1	7.9 ^r	
1986	4,422.2	2,335.9	1,238.9	106.2	2.4	4.5	8.6	
1987	4,692.3	2,475.9	1,297.5	110.0	2.3	4.4	8.5	
1988	5,049.6	2,682.5	1,415.9	114.6	2.3	4.3	8.1	
1989	5,438.7	2,792.7	1,460.4	120.5	2.2	4.3	8.3	
1990	5,743.8	2,873.5	1,468.6	134.4	2.3	4.7	9.1 ^r	
1991	5,916.7	2,826.2	1,429.9	139.2	2.4	4.9	9.7	
1992	6,244.4	2,934.1	1,506.6	138.6	2.2	4.7	9.2	
1993	6,550.2	3,102.2	1,631.8	123.2 ^r	1.9	4.0	7.5 ^r	
1994	6,931.4	3,370.0	1,812.7	110.6 ^r	1.6	3.3	6.1	
1995	7,245.8	3,599.0	1,944.6	106.3	1.5	3.0	5.5	
CONSTANT DOLLARS^a								
					Real Annual Growth^b			
					GDP^r	Mfg.^r	Durs.^r	Aero.
1981	\$3,949.2	\$2,557.0	\$1,273.4	\$ 80.5	1.7%	(1.0)%	(1.7)%	3.9%
1982	3,868.9	2,339.1	1,134.2	77.1	(2.0)	(8.5)	(10.9)	(4.2)
1983	4,030.4	2,374.5	1,176.4	86.7	4.2	1.5	3.7	12.5
1984	4,288.4	2,514.5	1,291.5	83.7	6.4	5.9	9.8	(3.6)
1985	4,428.7	2,473.0	1,287.4	97.8	3.3	(1.7)	(0.3)	17.0
1986	4,563.7	2,410.6	1,278.5	106.4	3.0	(2.5)	(0.7)	8.7
1987	4,692.3	2,475.9	1,297.5	110.0	2.8	2.7	1.5	3.4
1988	4,860.1	2,581.8	1,362.8	112.4	3.6	4.3	5.0	2.2
1989	5,012.6	2,573.9	1,346.0	113.6	3.1	(0.3)	(1.2)	1.0
1990	5,069.5	2,536.2	1,296.2	121.6	1.1	(1.5)	(3.7)	7.0
1991	5,031.2	2,403.2	1,215.9	121.5	(0.8)	(5.2)	(6.2)	(0.1)
1992	5,164.9	2,426.9	1,246.2	117.3 ^r	2.7	1.0	2.5	(3.5) ^r
1993	5,303.8	2,511.9	1,321.3	101.6 ^r	2.7	3.5	6.0	(13.3) ^r
1994	5,496.7	2,672.5	1,437.5	89.2 ^r	3.6	6.4	8.8	(12.3) ^r
1995	5,652.0	2,807.3	1,516.8	84.3	2.8	5.0	5.5	(5.4)

Source: Council of Economic Advisors, "Economic Indicators" (Monthly); Bureau of Census; and Aerospace Industries Association.

a Aerospace industry constant dollar sales based on AIA's aerospace composite price deflator, 1987=100. Others based on GDP implicit price deflator, 1987=100.

b Parentheses indicate negative real annual growth.

r Revised.

**GROSS DOMESTIC PRODUCT,
FEDERAL BUDGET, AND DEFENSE BUDGET**

Fiscal Years 1964–1997
(Billions of Dollars)

Year	Fiscal Year GDP	Federal Budget Outlays		Defense Outlays ^c as percent of	
		Net Total ^a	National Defense ^b	GDP	Federal Budget
1964	\$ 625.3	\$ 118.5	\$ 54.8	8.8%	46.2%
1965	671.0	118.2	50.6	7.5	42.8
1966	735.4	134.5	58.1	7.9	43.2
1967	793.3	157.5	71.4	9.0	45.4
1968	847.2	178.1	81.9	9.7	46.0
1969	925.7	183.6	82.5	8.9	44.9
1970	985.4	195.6	81.7	8.3	41.8
1971	1,050.9	210.2	78.9	7.5	37.5
1972	1,147.8	230.7	79.2	6.9	34.3
1973	1,274.0	245.7	76.7	6.0	31.2
1974	1,403.6	269.4	79.3	5.7	29.5
1975	1,509.8	332.3	86.5	5.7	26.0
1976	1,684.2	371.8	89.6	5.3	24.1
Tr. Qtr.	445.0	96.0	22.3	5.0	23.2
1977	1,917.2	409.2	97.2	5.1	23.8
1978	2,155.0	458.7	104.5	4.8	22.8
1979	2,429.5	503.5	116.3	4.8	23.1
1980	2,644.1	590.9	134.0	5.1	22.7
1981	2,964.4	678.2	157.5	5.3	23.2
1982	3,122.2	745.8	185.3	5.9	24.8
1983	3,316.5	808.4	209.9	6.3	26.0
1984	3,695.0	851.8	227.4	6.2	26.7
1985	3,967.7	946.4	252.7 ^b	6.4	26.7
1986	4,219.0	990.3	273.4	6.5	27.6
1987	4,452.4	1,003.9	282.0	6.3	28.1
1988	4,808.4	1,064.1	290.4	6.0	27.3
1989	5,173.3	1,143.2	303.6	5.9	26.6
1990	5,481.5	1,252.5 ^f	299.3	5.5	23.9
1991	5,676.4	1,323.6 ^f	273.3 ^c	4.8	20.6 ^f
1992	5,921.5	1,380.9	298.4 ^c	5.0	21.6
1993	6,258.6	1,408.7	291.1 ^c	4.7	20.7
1994	6,633.6	1,460.8 ^f	281.6	4.2	19.3
1995	7,004.5	1,519.1	272.1	3.9	17.9
1996 ^E	7,336.0	1,572.4	265.6	3.6	16.9
1997 ^E	7,707.6	1,635.3	258.7	3.4	15.8

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

a "Net Total" is government-wide total less intragovernmental transactions.

b "National Defense" includes the military budget of DoD and other defense-related activities. Beginning in 1985, the Federal Budget reflects establishment of a military retirement trust fund. Data for prior years adjusted for comparable treatment of military retired pay.

c 1991–1993 reflects transfers from the Defense Cooperation Account funded by foreign government and private cash contributions reducing total U.S.-funded military outlays.

E Estimate.

r Revised.

Tr. Qtr. See Glossary.

FEDERAL OUTLAYS DEFENSE, NASA, AND AEROSPACE PRODUCTS & SERVICES

Fiscal Years 1972–1997
(Millions of Dollars)

Year	TOTAL National Defense	TOTAL NASA	Federal Outlays for Aerospace Products & Services			Aero- space as Percent of Total National Defense and NASA
			TOTAL	DoD ^a	NASA	
1972	\$ 79,174	\$ 3,423	\$12,309	\$ 8,936	\$ 3,373	14.9%
1973	76,681	3,315	11,360	8,089	3,271	14.2
1974	79,347	3,256	11,168	7,987	3,181	13.5
1975	86,509	3,267	11,544	8,373	3,181	12.9
1976	89,619	3,669	12,364	8,816	3,548	13.3
Tr.Qtr.	22,269	951	2,855	1,959	926	12.3
1977	97,241	3,945	13,229	9,389	3,840	13.1
1978	104,495	3,983	13,926	10,067	3,859	12.8
1979	116,342	4,197	16,686	12,622	4,064	13.8
1980	133,995	4,852	20,269	15,558	4,711	14.6
1981	157,513	5,421	24,276	19,002	5,274	14.9
1982	185,309	6,035	29,501	23,575	5,926	15.4
1983	209,903	6,664	35,364	28,808	6,556	16.3
1984	227,413	7,048	39,663	32,723	6,940	16.9
1985	252,748	7,318	44,483	37,335	7,148	17.1
1986	273,375	7,404	49,773	42,558	7,215	17.7
1987	281,999	7,591	51,871	44,429	7,442	17.9
1988	290,361	9,092	48,848	39,922	8,926	16.3
1989	303,559	11,036	52,933	42,072	10,861	16.8
1990	299,331	12,429	53,194	40,992	12,202	17.1
1991 ^b	273,292	13,878	53,630	40,089	13,541	18.7
1992 ^b	298,350	13,961	50,569	37,085	13,484	16.2
1993 ^b	291,086	14,305	45,496	31,763	13,733	14.9
1994	281,642 ^r	13,695	41,082	27,774	13,308	13.9
1995	272,066	13,378	36,696	23,638	13,058	12.9
1996 ^E	265,556	14,190	35,356	21,352	14,004	12.6
1997 ^E	258,723	13,699	32,006	18,489	13,517	11.7

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually); Department of Defense, "Status of Funds" (Annual Summaries); and NASA, "Pocket Statistics" (Annually).

NOTE: "National Defense" includes the military budget of the Department of Defense and other defense-related activities. "TOTAL NASA" includes all categories of the NASA budget; NASA construction is not included in "Aerospace Products and Services." See additional explanation with following table.

a Outlays for aircraft and missile procurement. Does not include RDT&E, which DoD has not reported by product group since 1977, and which, for comparability, has been subtracted from data previously reported in this table for earlier years. Also included are revisions to missile procurement data.

b 1991–1993 reflects transfers from the Defense Cooperation Account funded by foreign government and private cash contributions reducing total U.S.-funded military outlays.

E Estimate. Latest year reflects Administration's budget proposal.

r Revised.

Tr.Qtr. See Glossary.

FEDERAL OUTLAYS FOR AEROSPACE PRODUCTS AND SERVICES

Fiscal Years 1967–1997
(Millions of Dollars)

Year	TOTAL	Department of Defense ^a			NASA ^b
		TOTAL	Aircraft	Missiles	
1967	\$15,478	\$10,341	\$ 8,411	\$ 1,930	\$ 5,137
1968	16,279	11,681	9,462	2,219	4,598
1969	15,872	11,686	9,177	2,509	4,186
1970	14,559	10,860	7,948	2,912	3,699
1971	12,918	9,580	6,549	3,031	3,338
1972	12,309	8,936	5,927	3,009	3,373
1973	11,360	8,089	5,066	3,023	3,271
1974	11,168	7,987	5,006	2,981	3,181
1975	11,554	8,373	5,484	2,889	3,181
1976	12,364	8,816	6,520	2,296	3,548
Tr.Qtr.	2,885	1,959	1,557	402	926
1977	13,229	9,389	6,608	2,781	3,840
1978	13,926	10,067	6,971	3,096	3,859
1979	16,686	12,622	8,836	3,786	4,064
1980	20,269	15,558	11,124	4,434	4,711
1981	24,276	19,002	13,193	5,809	5,274
1982	29,501	23,575	16,793	6,782	5,926
1983	35,364	28,808	21,013	7,795	6,556
1984	39,663	32,723	23,196	9,527	6,940
1985	44,483	37,335	26,586	10,749	7,148
1986	49,773	42,558	30,828	11,730	7,215
1987	51,871	44,429	32,956	11,473 ^c	7,442
1988	48,848	39,922	28,246	11,676	8,926
1989	52,933	42,072	27,569	14,503	10,861
1990	53,194	40,992	26,142	14,851	12,202
1991	53,630	40,089	25,689	14,400	13,541
1992	50,569	37,085	23,581	13,504	13,484
1993	45,496	31,763	20,359	11,404	13,733
1994	41,082	27,774	18,840	8,934	13,308
1995	36,696	23,638	16,125	7,513	13,058
1996 ^E	35,356	21,352	14,919	6,433	14,044
1997 ^E	32,006	18,489	13,008	5,481	13,517

Source: Department of Defense, "Status of Funds" (Annual Summaries); Office of Management and Budget, "The Budget of the United States Government" (Annually); and NASA, "Pocket Statistics" (Annually).

- a Outlays for aircraft and missile procurement. Does not include RDT&E, which DoD has not reported by product group since 1977, and which for comparability, has been subtracted from data previously reported in this table for earlier years.
- b Includes Research & Development and Research & Program Management, and effective with 1984 data, Space Flight, Control, and Data Communications; excludes Construction of Facilities.
- c Beginning in 1978, DoD combined Navy Missile Procurement with torpedoes and other related products into Navy Weapons Procurement, of which missiles comprise approximately 80 percent.

E Estimate. Latest year reflects Administration's budget proposal.

Tr.Qtr. See Glossary.

DEPARTMENT OF DEFENSE
TOTAL MILITARY OUTLAYS BY FUNCTIONAL TITLE^a
Fiscal Years 1988–1997
(Millions of Dollars)

	1988	1989	1990	1991
TOTAL	\$281,935	\$294,880	\$289,755	\$262,389 ^d
Procurement—TOTAL	<u>\$ 77,166</u>	<u>\$ 81,620</u>	<u>\$ 80,972</u>	<u>\$ 82,028</u>
Aircraft	28,246	27,569	26,142	25,689
Missiles ^b	11,676	14,503	14,851	14,400
Ships	8,878	10,587	11,016	11,512
Weapons ^b	4,727	4,384	3,873	3,716
Ammunition	2,250	1,993	2,003	2,103
Other ^c	21,389	22,585	23,088	24,609
Military Personnel—TOTAL	<u>76,337</u>	<u>80,676</u>	<u>75,622</u>	<u>83,439</u>
Active Forces	67,642	71,571	66,541	74,571
Reserve Forces	8,694	9,104	9,081	8,868
RDT&E	34,792	37,002	37,458	34,589
Operations & Maintenance	84,475	87,001	88,340	101,769
Military Construction	5,874	5,275	5,080	3,497
Family Housing	3,082	3,257	3,501	3,296
Other ^d	210	50	(1,218)	(46,229) ^d

Source: Department of Defense, "Status of Funds" (Annual Summaries) and Office of Management and Budget, "The Budget of the United States Government" (Annually).

NOTE: Data in parentheses are credit items. Detail may not add to totals because of rounding.

- a Includes all items in the DoD military budget; excludes the DoD civil budget for the Army Corps of Engineers and other non-defense related activities.
- b Beginning in 1978, DoD combined Navy Missiles Procurement with torpedoes and other related products into Navy Weapons Procurement. Missiles comprise approximately 80 percent of the value of this category.
- c Includes Communications and Electronics.
- d 1991–1993 reflects transfers from the Defense Cooperation Account funded by foreign government and private contributions reducing total U.S.-funded military outlays.
- e Estimate. Latest year reflects Administration's budget proposal.
- r Revised.

DEPARTMENT OF DEFENSE
TOTAL MILITARY OUTLAYS BY FUNCTIONAL TITLE^a (Continued)
Fiscal Years 1988–1997
(Millions of Dollars)

1992	1993	1994	1995	1996 ^E	1997 ^E
\$286,892 ^d	\$278,561 ^d	\$268,611	\$259,442	\$254,258	\$247,451
<u>\$ 74,881</u>	<u>\$ 69,936</u>	<u>\$ 61,758</u>	<u>\$ 54,982</u>	<u>\$ 48,131</u>	<u>\$ 44,195</u>
23,581	20,359	18,840	16,125	14,919	13,008
13,504	11,404	8,934	7,513	6,433	5,481
11,035	10,136	9,132	8,780	7,225	6,890
3,324	3,061	1,795	1,783	1,766	1,728
1,996	1,383	997	1,339	1,495	1,259
21,442	23,593	22,061	19,441	16,293	15,829
<u>81,171</u>	<u>75,904</u>	<u>73,137</u>	<u>70,809</u>	<u>67,449</u>	<u>69,561</u>
71,433	66,494	63,686	61,606	58,361	60,540
9,738	9,410	9,449	9,203	9,088	9,021
34,632	36,968	34,762	34,594	34,434	34,213
91,984	94,094	87,880	90,881	91,690	89,010
4,262	4,831	4,979	6,823	6,524	6,238
3,271	3,255	3,316	3,571	4,028	4,047
(3,308) ^d	(6,428) ^d	2,779	(2,218)	2,002	187

**FEDERAL PRICE DEFLATORS FOR GDP, DEFENSE, PPI, AND CPI
(1965-1997)**

Year	GDP		Federal Government Defense Purchases		PPI, Capital Equip- ment	CPI, (Urban) All items
	FY GDP	CY GDP	Durable Goods	Goods & Services		
	(FY 1987 =100)	(CY 1987 =100)	(CY 1987 =100)	(CY 1987 =100)	(CY 1982 =100)	(CY 82-84 =100)
1965	28.27	28.4	NA	NA	33.8	31.5
1966	29.07	29.4	NA	NA	34.6	32.4
1967	30.06	30.3	NA	NA	35.8	33.4
1968	31.20	31.8	NA	NA	37.0	34.8
1969	32.79	33.4	NA	NA	38.3	36.7
1970	34.57	35.2	NA	NA	40.1	38.8
1971	36.34	37.1	NA	NA	41.7	40.5
1972	38.23	38.8	38.8	36.9	42.8	41.8
1973	40.22	41.3	41.8	40.5	44.2	44.4
1974	43.27	44.9	44.3	44.5	50.5	49.3
1975	47.58	49.2	47.1	48.5	58.2	53.8
1976	51.22	52.3	51.7	51.9	62.1	56.9
1977	55.38	55.9	55.5	55.6	66.1	60.6
1978	59.57	60.3	60.4	59.8	71.3	65.2
1979	64.74	65.5	67.7	65.8	77.5	72.6
1980	70.58	71.7	72.6	73.5	85.8	82.4
1981	77.76	78.9	82.0	81.1	94.6	90.9
1982	83.55	83.8	92.1	87.6	100.0	96.5
1983	87.02	87.2	98.4	91.6	102.8	99.6
1984	90.85	91.0	102.3	94.8	105.2	103.9
1985	94.32	94.4	103.0	97.3	107.5	107.6
1986	97.12	96.9	103.9	98.6	109.7	109.6
1987	100.00	100.0	100.0	100.0	111.7	113.6
1988	103.63	103.9	101.2	103.0	114.3	118.3
1989	108.23	108.5	103.0	106.6	118.8	124.0
1990	112.00	113.3	104.6	110.7	122.9	130.7
1991	116.70	117.6	106.9	114.7	126.7	136.2
1992	120.10	120.9	107.9	120.2	129.1	140.3
1993	123.00	123.5	110.6 ^r	124.7 ^r	131.4	144.5
1994 ^r	125.40	126.1	114.9	125.6	134.1	148.2
1995	127.70	128.2	117.9	129.9	136.7	152.4
1996 ^E	130.20	131.0	NA	NA	NA	156.6
1997 ^E	133.10	133.8	NA	NA	NA	161.3

Source: Bureau of Economic Analysis, "Current Business Statistics" (Monthly) and Price Measurement Branch; Council of Economic Advisers, "Economic Report of the President" (Annually); and Office of Management and Budget, "The Budget of the United States Government" (Annually).

^E Estimate.

NA Not Available.

^r Revised.

Key: PPI = Producer Price Index for Capital Equipment.

CPI = Consumer Price Index, All Items, All Urban Consumers for 1978 and subsequent years. Previous years, All Urban Wage Earners.

GDP = Gross Domestic Product.

PRICE DEFLATORS FOR AEROSPACE INDUSTRY
Calendar Years 1972–1995

Year	Aerospace Deflators (1987 = 100)					
	Composite	SIC 3721	SIC 3724	SIC 3728	SIC 3761	SIC 3764,9
1972	33.7	39.9	30.1	36.6	39.7	34.4
1973	37.7	41.2	30.9	38.1	39.4	35.6
1974	41.5	44.8	34.9	44.0	41.6	40.5
1975	46.6	48.3	42.3	51.6	45.2	49.2
1976	51.0	52.8	45.9	56.5	50.4	53.8
1977	54.6	56.2	49.1	58.7	55.6	58.2
1978	57.5	59.3	54.6	55.2	60.7	63.6
1979	63.5	65.3	60.9	58.9	69.7	70.0
1980	70.6	72.9	66.3	65.3	78.9	78.5
1981	79.5	80.8	77.0	74.9	87.1	89.5
1982	87.9	89.8	85.2	84.3	93.4	97.2
1983	92.2	94.4	89.5	87.9	98.6	101.5
1984	99.8	105.9	98.1	93.6	100.7	102.9
1985 ^a	98.7	100.7	99.2	94.4	102.4	103.2
1986	99.8	100.6	99.3	97.9	103.5	102.4
1987	100.0	100.0	100.0	100.0	100.0	100.0
1988	101.9	102.2	103.0	103.5	95.0	100.3
1989	106.1	111.0	105.8	106.8	91.4	100.6
1990	110.5	116.8	111.7	109.8	91.5	98.1
1991	114.6	121.3	117.0	113.6	94.4	94.6
1992 ^b	118.2 ^r	125.2	122.7	118.0	93.1	83.5
1993	121.2 ^r	129.5	124.7	120.9	94.4 ^r	84.5 ^r
1994	124.0 ^r	133.9	128.0	123.5	94.3 ^r	80.7 ^r
1995	126.1	138.3	129.9	124.4	93.5	77.3

Source: Aerospace Industries Association, based on data from: Bureau of Labor Statistics, Producer Price Indices; Bureau of Economic Analysis, Chain-Type Price Indexes and Implicit Price Deflators; and International Trade Administration.

a The International Trade Administration has discontinued its reporting of the Aerospace Deflators with 1986. Subsequent composite deflators computed by AIA and deflators for 1985 and 1986 revised for consistency.

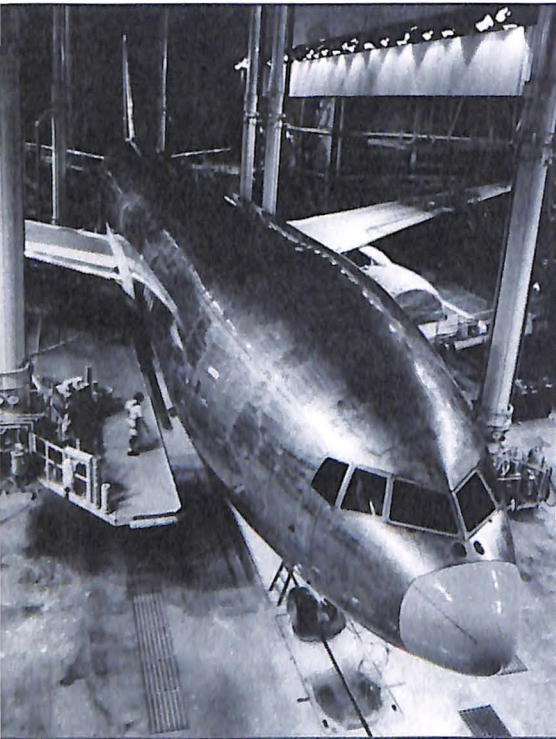
b The Bureau of Economic Analysis discontinued its reporting in 1995 of the National Defense Purchases Deflators (used in AIA's Composite calculations). 1992-1994 revised using 1992 fixed weights and BEA's Chain-Type Price Indexes for National Defense Investment and Consumption Expenditures.

r Revised.

Key: SIC = Standard Industrial Classification, SIC 3721 = Aircraft; SIC 3724 = Aircraft Engines and Engine Parts; SIC 3728 = Aircraft Parts; SIC 3761 = Missiles and Space Vehicles; SIC 3764 = Space Propulsion; SIC 3769 = Space Equipment not elsewhere classified.

AIRCRAFT PRODUCTION

Aircraft sales declined in 1995, but at a lower rate than in 1993 and 1994. As usual, sales of aircraft were the largest single component of the aerospace industry's overall sales volume. Aircraft sales, including engines and parts, totaled \$53.5 billion, down from \$54.6 billion in the previous year, according to data supplied by the Bureau of the Census. The dip was compounded of a 3.5 percent decline in military aircraft sales (down \$839 million to \$22.8 billion) and a slight decrease in civil sales (down \$182 million to \$30.7 billion). In inflation-adjusted constant dollar terms, the overall sales volume marked the fifth consecutive year of decline.



However, there were signs that the aircraft production recession was bottoming out. Along with the lower rate of decline of sales, Census figures showed a substantial gain in new orders and an increase in backlog as well, as the long-awaited resumption of airline re-equipment programs got underway. Net new orders received in 1995 totaled \$55.4 billion, an increase over 1994 of 27 percent despite further decline in the military aircraft account.

Orders for civil aircraft, engines, and parts came to \$35.6 billion, which represents a gain of more than 76 percent over 1994's \$20.2 billion. Orders for military aircraft, engines, and parts, at \$19.8 billion, were down from the previous year's \$23.4 billion.

The year-end 1995 backlog of orders for aircraft, engines, and parts also climbed, although a big jump in the civil backlog was largely offset by a sharp drop in military orders on the books. Total backlog was \$131.9 billion, which compares with \$129.9 billion in 1994. The civil aircraft, engines, and parts backlog, at \$90.4 billion, represented more than two-thirds of the total; the figure compares with \$85.3 billion in the previous year. Orders on the books for military aircraft, engines, and parts totaled

\$41.5 billion, down from 1994's \$44.6 billion.

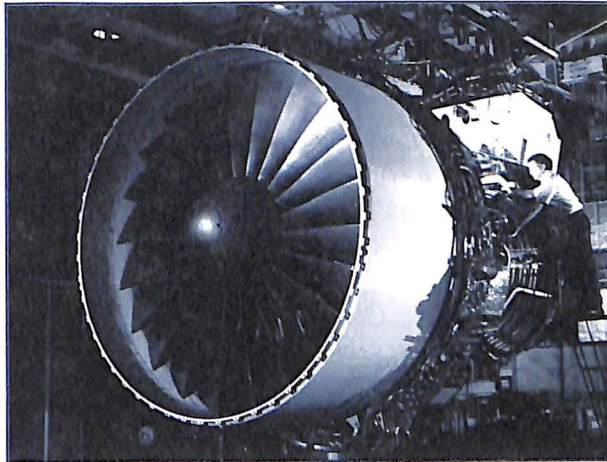
Aerospace Industries Association data shows that commercial transport manufacture accounted for \$15.3 billion, or 83 percent, of the \$18.3 billion total value of civil aircraft shipments in 1995. The industry built 256 transports, the lowest number produced since 1984. The civil transport backlog at year-end consisted of orders for 1,291 aircraft, compared with 1,126 at the end of the previous year; foreign orders accounted for 701 aircraft, or 54 percent of the total.

Overall, U.S. manufacturers produced 1,625 civil aircraft, which represents an increase of 80 units over 1994. The gain was entirely in general aviation shipments, which increased from 928 to 1,077 units, the highest number since 1990; their dollar value was \$2.8 billion, the highest figure since 1981. This marked the best performance in recent years for the long-depressed general aviation segment of the industry.

Civil helicopter production was down, but up in dollar value over the previous year. The rotary-wing segment of the industry produced 292 civil helicopters worth \$194 million; the comparable figures for 1994 were 308 helicopters valued at \$185 million. The decline in numbers was due to a big drop in sales of helicopters to domestic customers, which came to only 82; 210 helicopters, or 72 percent of the total shipped, were exported.

In FY 1996, the Department of Defense procured 181 aircraft for use by U.S. armed forces. The largest procurement, in dollar value terms, was \$2.5 billion for eight Air Force C-17 transports. Among other large procurements were \$797 million for 18 Navy F/A-18 C/D fighters; \$743 million for the Air Force B-2 bomber; \$459 million for two Air Force E-8B surveillance aircraft; \$421 million for the Army AH-64 Apache helicopter; \$392 million for 60 Army UH-60 helicopters; \$352 million for six Air Force F-15E fighters; and \$315 million for 12 Navy T-45 trainers.

Planned procurement for FY 1997 amounted to only 139 aircraft, among them 12 F/A-18E/F fighters valued at \$2.2 billion; eight C-17 transports, \$2.1 billion; four V-22 tiltrotor transports, \$559 million; two E-8B JSTARS (Joint Surveillance Target Attack Radar System) aircraft, \$529 million; \$380 million for production of the AH-64 helicopter; and \$305 million for 10 AV-8B fighter aircraft.



SALES OF AIRCRAFT, ENGINES, AND PARTS

Calendar Years 1981–1995

(Millions of Dollars)

Year	GRAND TOTAL	TOTAL		Complete Aircraft & Parts		Aircraft Engines & Parts	
		Military	Non-Mil.	Military	Non-Mil.	Military	Non-Mil.
CURRENT DOLLARS							
1981	\$33,574	\$14,575	\$18,999	\$10,725	\$14,349	\$3,850	\$ 4,650
1982	31,886	17,743	14,143	13,541	9,678	4,202	4,465
1983	35,879	19,809	16,070	15,651	11,666	4,158	4,404
1984	37,285	23,268	14,017	18,218	10,039	5,050	3,978
1985	43,940	25,758	18,182	21,642	12,607	4,116	5,575
1986	47,757	27,043	20,714	23,089	14,876	3,954	5,838
1987	49,062	27,806	21,256	22,168	14,862	5,638	6,394
1988	50,742	25,068	25,674	19,030	16,681	6,038	8,993
1989	53,825	24,287	29,538	18,256	20,140	6,031	9,398
1990	66,289	27,667	38,622	22,023	27,872	5,644	10,750
1991	68,540	25,385	43,155	19,710	33,215	5,675	9,940
1992	67,669	23,509	44,160	18,411	35,595	5,098	8,565
1993 ^r	61,086	20,099	40,987	16,118	32,780	3,981	8,207
1994 ^r	54,553	23,652	30,901	20,127	23,176	3,525	7,725
1995	53,532	22,813	30,719	19,584	21,909	3,229	8,810
CONSTANT DOLLARS^a							
1981	\$42,231	\$18,333	\$23,898	\$13,491	\$18,049	\$4,843	\$ 5,849
1982	36,275	20,185	16,090	15,405	11,010	4,780	5,080
1983	38,914	21,485	17,430	16,975	12,653	4,510	4,777
1984	37,360	23,315	14,045	18,255	10,059	5,060	3,986
1985	44,519	26,097	18,421	21,927	12,773	4,170	5,648
1986	47,853	27,097	20,756	23,135	14,906	3,962	5,850
1987	49,062	27,806	21,256	22,168	14,862	5,638	6,394
1988	49,796	24,601	25,195	18,675	16,370	5,925	8,825
1989	50,730	22,891	27,840	17,206	18,982	5,684	8,858
1990	59,990	25,038	34,952	19,930	25,224	5,108	9,729
1991	59,808	22,151	37,657	17,199	28,433	4,952	8,674
1992 ^r	57,250	19,889	37,360	15,576	30,114	4,313	7,246
1993 ^r	50,401	16,583	33,818	13,299	27,046	3,285	6,771
1994 ^r	43,994	19,074	24,920	16,231	18,690	2,843	6,230
1995	42,452	18,091	24,361	15,531	17,374	2,561	6,987

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

^a Based on AIA's aerospace composite price deflator, 1987=100.

^r Revised.

ORDERS AND BACKLOG OF AIRCRAFT, ENGINES, AND PARTS

Calendar Years 1981–1995
(Millions of Current Dollars)

Year	GRAND TOTAL	TOTAL		Complete Aircraft & Parts		Aircraft Engines & Parts	
		Mili- tary	Non- Mil.	Mili- tary	Non- Mil.	Mili- tary	Non- Mil.
NET NEW ORDERS							
1981	\$ 34,436	\$19,228	\$ 15,208	\$14,042	\$ 9,918	\$5,186	\$ 5,290
1982	33,775	24,186	9,589	19,632	6,523	4,554	3,066
1983	33,599	26,231	12,368	21,494	7,596	4,737	4,772
1984	47,102	29,894	17,208	23,312	14,064	6,582	3,144
1985	49,942	28,201	21,741	24,526	15,689	3,675	6,052
1986	47,957	24,124	23,833	19,852	17,592	4,272	6,241
1987	52,347	19,347	33,000	15,070	24,083	4,277	8,917
1988	82,148	24,242	57,906	17,493	41,762	6,749	16,144
1989	96,591	28,818	67,773	23,569	52,619	5,249	15,154
1990	82,386	17,735	64,651	12,766	52,371	4,969	12,280
1991	67,490	26,675	40,815	22,140	30,745	4,535	10,070
1992	49,741	19,631	30,110	16,391	20,548	3,240	9,562
1993 ^r	35,608	19,518	16,090	15,853	11,238	3,665	4,852
1994 ^r	43,518	23,352	20,166	19,806	12,854	3,546	7,312
1995	55,403	19,786	35,617	16,235	26,982	3,551	8,635
BACKLOG AS OF DECEMBER 31							
1981	\$ 55,912	\$26,867	\$ 29,045	\$21,201	\$ 21,706	\$5,666	\$ 7,339
1982	58,154	33,309	24,845	27,291	18,905	6,018	5,940
1983	60,372	38,824	21,548	32,227	15,241	6,597	6,307
1984	70,189	45,450	24,739	37,321	19,266	8,129	5,473
1985	76,191	47,893	28,298	40,205	22,348	7,688	5,950
1986	76,391	44,974	31,417	36,968	25,064	8,006	6,353
1987	80,015	36,514	43,501	29,869	34,625	6,645	8,876
1988	111,280	35,515	75,765	28,186	59,679	7,329	16,086
1989	159,150	44,026	115,124	36,888	95,108	7,138	20,016
1990	172,940	33,788	139,152	27,259	119,123	6,529	20,029
1991	173,676	39,149	134,527	32,795	116,139	6,354	18,388
1992	168,577	44,255	124,322	39,748	107,686	4,507	16,636
1993 ^r	142,405	46,177	96,228	41,732	82,772	4,445	13,456
1994 ^r	129,929	44,624	85,305	40,206	72,295	4,418	13,010
1995	131,880	41,515	90,365	36,777	77,510	4,738	12,855

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).
r Revised

U.S. AIRCRAFT PRODUCTION—CIVIL
Calendar Years 1969–1995

Year	TOTAL	Domestic Shipments			Export Shipments		
		Trans- ports	Heli- copters	General Aviation	Trans- ports	Heli- copters	General Aviation
1969	13,505	332	282	9,996	182	252	2,461
1970	8,076	127	150	5,246	184	332	2,037
1971	8,158	50	171	5,900	173	298	1,566
1972	10,576	79	319	7,702	148	256	2,072
1973	14,709	143	342	10,482	151	428	3,163
1974	15,326	91	433	9,903	241	395	4,263
1975	15,251	127	528	10,804	188	336	3,268
1976	16,429	64 ^a	442	12,232	158	315	3,218
1977	17,913	54	527	13,441	101	321	3,469
1978	18,962	130	536	14,346	111	368	3,471
1979	18,460	176	570	13,177	200	459	3,878
1980	13,634	150	841	8,703	237	525	3,178
1981	10,916	132	619	6,840	255	453	2,617
1982	5,085	111	333	3,326	121	254	940
1983	3,356	133	187	2,172	129	216	519
1984	2,999	102	143	2,013	83	233	425
1985	2,691	126	247	1,545	152	137	484
1986	2,156	171	120	1,031	159	210	464
1987	1,800	187	116	598	170	242	487
1988	1,949	206	103	500	217	280	643
1989	2,448	138	221	225	260	294	1,310
1990	2,268	215	254	335	306	349	809
1991	2,181	204	253	487	385	318	534
1992	1,790	180	112	541	387	212	358
1993	1,630	130	83	631	278	175	333
1994	1,545	87	154	543	222	154	385
1995	1,625	119	82	714	137	210	363

Source: Aerospace Industries Association, based on company reports; General Aviation Manufacturers Association; and Department of Commerce, International Trade Administration.

a Prior to 1976, includes the C-130 military transport.

U.S. AIRCRAFT PRODUCTION—MILITARY
Calendar Years 1969–1995

Year	TOTAL	U.S. Military Agencies	Exports		
			Total	FMS ^a	Direct ^b
1969	4,290	3,644	646	NA	NA
1970	3,720	3,085	635	NA	NA
1971	2,914	2,232	682	NA	NA
1972	2,530	1,993	537	124	413
1973	1,821	1,243	578	129	449
1974	1,513	799	714	365	349
1975	1,779	844	935	525	410
1976	1,318	625	693	518	175
1977	1,134	454	680	408	272
1978	996	467	529	256	273
1979	837	531	306	203	103
1980	1,047	625	422	194	228
1981	1,062	703	359	215	144
1982	1,159	690	469	68	401
1983	1,053	766	287	70	217
1984	936	561	375	71	304
1985	919	643	276	134	142
1986	1,107	708	399	110	289
1987	1,210	725	485	133	352
1988	1,305	687	618	138	480
1989	1,261	614	647	92	555
1990	1,053	664	387	99	290
1991	911	556	355	94	261
1992	753	422	331	122	209
1993	955 ^c	437	518	146	372 ^c
1994 ^r	764	418	346	69	277
1995	810 ^d	353	457	78	379 ^d

Source: Aerospace Industries Association, based on USAF, USN, and USA survey responses and Department of Commerce, International Trade Administration.

a Also includes acceptances of NATO AWACS aircraft.

b Military aircraft exported via commercial contracts, directly from manufacturers to foreign governments.

c The number of small (450 kg–2000 kg), new aircraft exported doubled in 1993 to 340 worth \$18 million.

d Includes 358 small (450 kg–2000 kg), new aircraft worth \$14.7 million.

NA Not available.

r Revised.

CIVIL AIRCRAFT SHIPMENTS
Calendar Years 1981–1995

Year	TOTAL	Transport Aircraft ^a	Helicopters	General Aviation
NUMBER OF AIRCRAFT SHIPPED				
1981	10,916	387	1,072	9,457
1982	5,085	232	587	4,266
1983	3,356	262	403	2,691 ^b
1984	2,999	185	376	2,438
1985	2,691	278	384	2,029
1986	2,155	330	330	1,495
1987	1,800	357	358	1,085
1988	1,949	423	383	1,143
1989	2,448	398	515	1,535
1990	2,268	521	603	1,144
1991	2,181	589	571	1,021
1992	1,790	567	324	899
1993	1,630	408	258	964
1994	1,545	309	308	928
1995	1,625	256	292	1,077
VALUE—Millions of Dollars				
1981	\$13,223	\$ 9,706	\$597	\$2,920
1982	8,610	6,246	365	1,999
1983	9,773	8,000	303	1,470 ^b
1984	7,717	5,689	330	1,698
1985	10,385	8,448	506	1,431
1986	11,858	10,308	288	1,262
1987	12,148	10,507	277	1,364
1988	15,855	13,603	334	1,918
1989	17,129	15,074	251	1,804
1990	24,477	22,215	254	2,008
1991	29,035	26,856	211	1,968
1992	30,728	28,750	142	1,836
1993	26,389	24,133	113	2,144
1994	20,666	18,124 ^E	185	2,357
1995	18,299	15,263 ^E	194	2,842

Source: Aerospace Industries Association, based on company reports and General Aviation Manufacturers' Association.

a U.S.-manufactured fixed-wing aircraft over 33,000 pounds empty weight, including all jet transports plus the four-engine turboprop-powered Lockheed L-100.

b Includes 3 off-the-shelf Gulfstream G-III's delivered to the U.S. Air Force for C-20 VIP transports.

E Estimated.

CIVIL TRANSPORT AIRCRAFT BACKLOG^a

As of December 31, 1991-1995

Company and Model	1991	1992	1993	1994	1995
TOTAL AIRCRAFT ON ORDER (Domestic and Foreign Orders)	1,829	1,493	1,356	1,126	1,291
Value (Millions of Dollars)	\$108,833	\$96,724	\$77,735	\$67,709 ^E	NA
Boeing—TOTAL	<u>1,456</u>	<u>1,210</u>	<u>1,153</u>	<u>959</u>	<u>1,079</u>
B-737	615	488	463	391	491
B-747	234	214	156	111	121
B-757	333	241	246	182	132
B-767	188	145	141	128	118
B-777	6	122	147	147	217
McDonnell Douglas—TOTAL . .	<u>373</u>	<u>283</u>	<u>203</u>	<u>167</u>	<u>212</u>
MD-11	138	97	60	45	21
MD-80/90	235	186	143	122	141
MD-95	—	—	—	—	50
TOTAL FOREIGN ORDERS	1,073	884	661	539	701
Value (Millions of Dollars)	\$ 72,733	\$66,795	\$50,409	\$42,962 ^E	NA
Boeing—TOTAL	<u>844</u>	<u>687</u>	<u>511</u>	<u>415</u>	<u>570</u>
B-737	329	228	152	132	199
B-747	205	192	143	103	112
B-757	144	91	48	28	21
B-767	114	88	66	50	58
B-777	52	88	102	102	180
McDonnell Douglas—TOTAL . .	<u>229</u>	<u>197</u>	<u>150</u>	<u>124</u>	<u>131</u>
MD-11	101	76	56	39	14
MD-80/90	128	121	94	85	117
MD-95	—	—	—	—	—

Source: Aerospace Industries Association, based on company reports.

NOTE: Boeing's unfilled orders not reported on a firm order basis beginning with 1993.

a Unfilled firm orders excluding options for U.S.-manufactured transport aircraft over 33,000 pounds. Includes new transports contracted for lease from the manufacturer.

E Estimate.

NA Not available.

SHIPMENTS OF CIVIL TRANSPORT AIRCRAFT^a

Calendar Years 1991–1995

Company and Model	1991	1992	1993	1994	1995
TOTAL					
Number of Aircraft Shipped ...	589	567	408	309	256
Value (Millions of Dollars)	\$26,856	\$28,750	\$24,133	\$18,124 ^E	\$15,263 ^E
Boeing—TOTAL					
B-737	<u>420</u>	<u>441</u>	<u>330</u>	<u>270</u>	<u>206</u>
B-747	214	218	152	121	89
B-747	64	61	56	40	25
B-757	80	99	71	69	43
B-767	62	63	51	40	36
B-777	—	—	—	—	13
McDonnell Douglas—TOTAL ..					
MD-11	<u>169</u>	<u>126</u>	<u>78</u>	<u>39</u>	<u>50</u>
MD-11	31	42	36	17	18
MD-80	138	84	42	22	18
MD-90	—	—	—	—	14

Source: Aerospace Industries Association, based on company reports.

^a U.S.-manufactured fixed-wing aircraft over 33,000 lbs.

^E Estimated.

SPECIFICATIONS OF U.S. CIVIL JET TRANSPORT AIRCRAFT^a

On Order or in Production as of 1995

Number of Engines and Crew, and Model Designation ^b	Initial Service	Standard Mixed Class	Operating Empty Weight (000's lbs)	Maximum Takeoff Gross Weight (000's lbs)	Range (Nautical Miles) ^c	Engine Manufacturer ^d and Model
FOUR ENGINES/CREW OF 2						
747-400*	1989	380-585	400-410	875	6,060 -7,200	GE CF6-80C2, P&W PW4000, or RR RB211-524
THREE ENGINES/CREW OF 2						
MD-11*	1989	298-410	288	625	6,920	GE CF6-80C2-DF1 or P&W PW4360
MD-11ER*	TBD	298-410	289	630	7,210	GE CF6-80C2-DF1 or P&W PW4360
TWO ENGINES/CREW OF 2						
737-300	1984	128-149	72-74	125-139	1,600 -2,500	CFMI CFM56-3C-1
737-400	1988	146-168	76-78	139-150	2,000 -2,500	CFMI CFM56-3C-1
737-500	1990	108-132	70-71	116-134	1,500 -2,800	CFMI CFM56-3C-1
757	1983	194-231	128	220-255	2,500 -3,900	RR RB211-535 or P&W PW2000
767-200*	1982	181-285	186-188	395	6,600	P&W PW4000 or GE CF6-80C2
767-300*	1986	218-325	199-202	412	6,200	P&W PW4000, GE CF6-80C2, or RR RB211-524
777-200*	1995	305-440	295-320	506-633	4,000 -7,200	RR Trent, GE GE90, or P&W PW4000
777-300*	1998	368-550	353	660	5,380	RR Trent, GE GE90, or P&W PW4000
MD-80 series:						
MD-81	1980	155	80	142	1,584	P&W JT8D-209 or P&W JT8D-217A
MD-82	1981	155	80	149	2,076	P&W JT8D-217C
MD-83	1985	155	81	160	2,534	P&W JT8D-219
MD-87	1987	130	76	140	2,405	P&W JT8D-217C
MD-88	1987	155	82	160	2,534	P&W JT8D-219C or P&W JT8D-217C
MD-90	1995	155	88	156	2,296	IAE V2500-D5
MD-95	1999	129	66	114	1,779	BMW-RR BR715

Source: Aerospace Industries Association, based on company reports.

a All jet-powered passenger transport aircraft 33,000 pounds or more empty weight.

b The Boeing Company manufacturers models: 737, 747, 757, 767, & 777 and McDonnell Douglas Corporation manufacturers models: MD-11, MD-80, MD-90, and MD-95.

c Full passenger load and baggage.

d P&W = Pratt & Whitney; GE = General Electric; RR = Rolls-Royce; CFMI = General Electric/Snecma; IAE = International Aero Engines; BMW = Bayerische Motoren Werke.

TBD To be decided.

* Wide-body aircraft.

SPECIFICATIONS OF U.S. CIVIL HELICOPTERS
In Production as of 1995

Company	Commercial Model	Number of Places	Useful Load (Lbs.)	Range with Useful Load (N.Miles)	External Cargo Payload (Lbs.)
Enstrom Helicopter	F-28 Series	3	1,030	241	1,000
	280 Series	3	1,015	260	1,000
	480 Series	5	1,175	415	1,000
Hiller	UH-12E	3	1,341	232	1,000
Kaman	K-1200	1	NA	NA	6,000
McDonnell Douglas Helicopter	500 Series	5	1,519	367	2,069
	520 Series	5	1,764	207	2,364
	530 Series	5	1,509	237	2,159
	900 Series	8	2,565	NA	3,000
Robinson Helicopter	R22	2	546	209	—
	R44	4	1,000	210	—
Schweizer Aircraft	300C	3	950	201	1,050
	300CB	2	662	NA	—
	330	4	1,110	300	1,000
Sikorsky Aircraft	S-76B	14	4,111	350	3,300
	S-76C	14	4,570	453	3,300

Source: Helicopter Association International, "1996 Helicopter Annual" (Annually).
 NA Not available.

CIVIL HELICOPTER SHIPMENTS^a
Calendar Years 1991–1995

Company and Model	1991	1992	1993	1994	1995
CIVIL SHIPMENTS	571	324	258	308	292
Value (Millions of Dollars) ...	\$211	\$142	\$113	\$185	\$194
Bell—TOTAL	<u>4</u>	<u>1</u>	<u>2</u>	<u>—</u>	<u>—</u>
212	—	—	—	—	—
214 series	—	1	2	—	—
412	4	—	—	—	—
Enstrom—TOTAL	<u>17</u>	<u>6</u>	<u>10</u>	<u>17</u>	<u>11</u>
F-28 series	8	3	(b)	(b)	(b)
280 series	9	3	8 ^b	13 ^b	3 ^b
480 series	—	—	2	4	8
Hiller^c—TOTAL	<u>2</u>	<u>3</u>	<u>—</u>	<u>—</u>	<u>1</u>
UH12E	2	3	—	—	1
Kaman—TOTAL	<u>—</u>	<u>—</u>	<u>—</u>	<u>5</u>	<u>6</u>
K-1200	—	—	—	5	6
McDonnell Douglas—TOTAL ..	<u>50</u>	<u>51</u>	<u>26</u>	<u>36</u>	<u>34</u>
500 series	42	23	5	3	12
520N series	3	17	21	9	10
530 series	5	11	—	22	—
900 series	—	—	—	2	12
Robinson—TOTAL	<u>402</u>	<u>212</u>	<u>166</u>	<u>195</u>	<u>179</u>
R22	402	212	135	89	83
R44	—	—	31	106	96
Schweizer—TOTAL	<u>78</u>	<u>39</u>	<u>45</u>	<u>40</u>	<u>47</u>
300C	78	39	40	35	22
300CB	—	—	—	—	21
330	—	—	5	5	4
Sikorsky—TOTAL	<u>18</u>	<u>12</u>	<u>9</u>	<u>15</u>	<u>14</u>
S-76	18	12	9	15	14

Source: Aerospace Industries Association, based on company reports.

NOTE: All data exclude production by foreign licensees.

a Domestic and export helicopter shipments for non-military use. Helicopters in military configuration exported to foreign governments and purchased under commercial contract are reported elsewhere. Models which may be shipped in either a civil or a military configuration appear in both tables.

b Reporting of F-28 and 280 series combined.

c Formerly reported as Rogerson.

DIRECT EXPORT SHIPMENTS OF MILITARY HELICOPTERS^a
Calendar Years 1991–1995

Manufacturer and Model	1991	1992	1993	1994	1995
DIRECT MILITARY EXPORT SHIPMENTS	45	51	64 ^r	30	21
Value (Millions of Dollars)	\$489	\$460	\$429	\$248	\$142
Boeing Vertol CH-47/414/352 ...	9	6	—	—	2
Robinson R22	—	10	—	—	—
Sikorsky S-70C	36	24	64 ^r	29	19
Sikorsky S-80M	—	11	—	1	—

Source: Aerospace Industries Association, company reports.

a Shipments of helicopters in military configuration exported directly from U.S. manufacturers to foreign governments. Military helicopters exported via Foreign Military Sales (FMS) are reported with Dept. of Defense (DoD) aircraft acceptance data elsewhere in this chapter. Some models reported on this page may be shipped in either military or civil configuration; see Civil Helicopter Shipments table for additional data.

r Revised.

GENERAL AVIATION AIRCRAFT SHIPMENTS

By Selected Manufacturers
Calendar Years 1991–1995

	1991	1992	1993	1994	1995
NUMBER OF AIRCRAFT SHIPPED	1,021	899	964	928	1,077
Single-Engine, Piston	564	510	516	444	515
Multi-Engine, Piston	49	41	39	55	61
Turboprop	222	177	211	207	255
Turbojet	186	171	198	222	246
VALUE OF SHIPMENTS^a (Millions of Dollars)	\$1,968	\$1,836	\$2,144	\$2,357	\$2,842
Piston	\$ 93	\$ 92	\$ 76	\$ 94	\$ 123
Turboprop	527	460	595	595	653
Turbojet	1,348	1,284	1,473	1,681	2,066
Number of Aircraft By Selected Manufacturer					
American Champion	NA	NA	38	22	46
American General	82	51	30	—	—
Aviat	71	63	56	47	42
Bellanca	1	3	4	2	1
Cessna	176	140	173	172	200
Classic	8	9	7	4	7
Commander	NA	25	31	22	25
Fairchild	10	14	20	16	7
Gulfstream	29	25	26	22	26
Lake	11	9	3	—	—
Learjet	25	23	38	36	43
Maule	66	33	70	65	68
Mooney	88	69	64	71	84
Piper	41	85	99	132	165
Raytheon ^b	402	348	305	317	363
Taylorcraft	11	2	—	—	—

Source: General Aviation Manufacturers' Association.

a Manufacturers' net billing price.

b Formerly reported as Beech.

NA Not available.

MILITARY AIRCRAFT ACCEPTED BY U.S. MILITARY AGENCIES

Number and Flyaway Value
Calendar Years 1981–1995

Year	TOTAL	Bomber/ Patrol/ Command/ Control	Fighter/ Attack	Trans- port/ Tanker	Trainer	Heli- copter	Other
NUMBER							
1981	918	19	649	17	60	158	15
1982	758	26	478	14	60	172	8
1983	836	34	421	22	120	233	6
1984	632	34	298	18	30	240	12
1985	777	34	409	25	—	306	3
1986	818	52	424	76	—	266	—
1987	858	74	483	36	—	265	—
1988	842	55	509	31	—	247	—
1989	706	24	408	21	—	253	—
1990	763	24	454	25	—	260	—
1991	650	17	395	23	—	215	—
1992	544	10	312	30	37	155	—
1993	583	11	293	25	56	198	—
1994	487 ^r	6	167	40	114	157 ^r	3
1995	431	4	103	32	102	175	15
FLYAWAY VALUE—Millions of Dollars							
1981	\$ 8,446	\$ 526	\$ 6,518	\$ 509	\$ 32	\$ 825	\$ 19
1982	8,605	886	6,383	410	42	872	12
1983	9,640	1,259	6,708	575	79	1,009	10
1984	9,308	1,270	5,774	627	18	1,597	22
1985	14,122	3,640	7,923	838	—	1,715	6
1986	20,903	8,177	8,004	2,665	—	2,057	—
1987	21,459	8,569	8,900	2,218	—	1,772	—
1988	16,031	2,911	8,953	2,314	—	1,853	—
1989	11,968	1,423	7,735	743	—	2,067	—
1990	13,036	1,499	8,731	605	—	2,201	—
1991	11,754	1,023	8,517	437	—	1,777	—
1992	11,482	613	7,673	1,346	267	1,583	—
1993	12,101	1,530	6,400	1,553	484	2,134	—
1994	13,000 ^r	3,861	3,661 ^r	3,298	477 ^r	1,686 ^r	17
1995	11,763	3,585	3,017	2,749	440	1,874	98

Source: Aerospace Industries Association, based on USAF, USN, and USA survey responses.

NOTE: Data represent new U.S.-manufactured aircraft, excluding gliders and targets. Values include spares, spare parts, and support equipment that are procured with the aircraft. Includes aircraft accepted for shipment to foreign governments for military assistance programs and foreign military sales.

^r Revised.

MILITARY AIRCRAFT ACCEPTANCES BY UNITED STATES AIR FORCE^a

Calendar Years 1994–1995
(Costs in Millions of Dollars)

Type and Model	Number		Flyaway Cost ^b		Weapon System Cost ^c	
	1994	1995	1994 ^r	1995	1994 ^r	1995
AIR FORCE—TOTAL	138	83	\$8,099	\$6,685	\$10,251	\$8,051
Bomber—TOTAL	4	4	\$3,627	\$3,585	\$4,647	\$4,593
B-2	4	4	3,627	3,585	4,647 ^E	4,593
Fighter/Attack—TOTAL	70	23	1,325	470	1,813	611
F-15	9	—	322	—	473	—
F-16	61	23	1,002	470	1,340	611
Transports/Tankers—TOTAL	29	24	3,017	2,512	3,636	2,697
C-17	7	6	2,332	1,950	2,836	2,076
C-130 variants	22	18	685	562	800	621
Trainer—TOTAL	35	32	131	118	155	150
T-1A	35	32	131	118	155	150

Source: Department of the Air Force.

a Air Force acceptances for own use; excludes FMS/MAP shipments.

b Flyaway Cost includes airframe, engines, electronics, communications, armament, other installed equipment, and non-recurring costs associated with the manufacture of aircraft.

c Weapon system cost includes flyaway costs, peculiar ground equipment, training equipment, and technical data.

E Estimate.

r Revised.

MILITARY AIRCRAFT ACCEPTANCES BY UNITED STATES ARMY^a

Calendar Years 1994–1995

Type and Model	Number		Flyaway Cost ^b		Weapon System Cost ^c	
	1994	1995	1994	1995	1994	1995
ARMY—TOTAL	130	138	\$453	\$574	\$485	\$610
Helicopters—TOTAL	63	68	\$381	\$431	\$412	\$467
AH-64A	—	4	—	32 ^E	—	32 ^E
UH-60L	63	64	381	399	412	435
Transports/Tankers—TOTAL	1	—	4	—	4	—
C-26	1	—	4	—	4	—
Trainer—TOTAL	63	55	51	45	52	45
TH-67	63	55	51	45	52	45
Other—TOTAL	3	15	17	98	17	98
RC-12	3	15	17	98	17	98

Source: Department of the Army.

a Army acceptances for own use; excludes FMS/MAP shipments.

b Flyaway cost includes airframes, engines, electronics, communications, armament and other installed equipment.

c Weapon System Cost includes flyaway cost, initial spares, ground equipment, training equipment and other support items.

E Estimate.

MILITARY AIRCRAFT ACCEPTANCES BY UNITED STATES NAVY^a

Calendar Years 1994–1995
(Costs in Millions of Dollars)

Type and Model	Number		Flyaway Cost ^b		Weapon System Cost ^c	
	1994	1995	1994	1995	1994	1995
NAVY—TOTAL	150 ^r	132	\$3,466 ^r	\$3,108	\$4,858 ^r	\$3,681
Patrol—TOTAL	<u>2</u>	<u>—</u>	\$ <u>233</u>	\$ <u>—</u>	\$ <u>333</u>	\$ <u>—</u>
E-2C	2	—	233	—	333	—
Fighter/Attack—TOTAL	<u>63</u>	<u>43</u>	<u>1,738</u>	<u>1,505</u>	<u>2,677</u>	<u>1,816</u>
F-14	4	1	233	62	342	93
F/A-18	46	36	1,227	1,282	1,961	1,454
AV-8B	13	26	278	161	374	269
Transports/Tankers—TOTAL	<u>10</u>	<u>8</u>	<u>278</u>	<u>237</u>	<u>308</u>	<u>257</u>
C-20G	5	—	142	—	158	—
C-130T	3	6	75	169	84	186
KC-130	2	2	61	68	66	71
Trainers—TOTAL	<u>16</u>	<u>15</u>	<u>295^r</u>	<u>277</u>	<u>460^r</u>	<u>357</u>
T-45A	16	15	295 ^r	277	460 ^r	357
Helicopters—TOTAL	<u>59^r</u>	<u>66</u>	<u>922^r</u>	<u>1,089</u>	<u>1,080^r</u>	<u>1,251</u>
AH-1W	22 ^r	24	213 ^r	214	233 ^r	286
CH-53	4	7	90	387	96	420
HH-60H	2 ^r	14	42 ^r	294	44 ^r	311
MH-53	13	—	314	—	361	—
SH-60B	12	11	204 ^r	194	264 ^r	234
SH-60F	6 ^r	—	59 ^r	—	82 ^r	—

Source: Department of the Navy.

a Navy acceptances for own use; excludes FMS shipments.

b Flyaway Cost includes airframe, engines, electronics, communications, armament, other installed equipment, non-recurring costs, and ancillary equipment.

c Weapons System Cost (Investment Cost) includes flyaway cost, initial spares, ground equipment, training equipment, and other support items.

r Revised.

**MILITARY AIRCRAFT ACCEPTANCES
FOR REIMBURSABLE PROGRAMS^a**

Calendar Years 1994–1995
(Millions of Dollars)

Accepting Agency, Type, and Model	Number of Aircraft Accepted		Flyaway Cost ^b	
	1994	1995	1994	1995
TOTAL ACCEPTANCES FOR REIMBURSABLE PROGRAMS	69 ^f	78	\$982 ^f	\$1,396
AIR FORCE—TOTAL	34	27	\$599	\$ 712
Fighter Attack—TOTAL	<u>34</u>	<u>27</u>	<u>599</u>	<u>712</u>
F-15	—	5	—	270
F-16	34	22	599	442
NAVY—TOTAL	7 ^f	19	\$ 67 ^f	\$ 425
Fighter/Attack—TOTAL	—	<u>10</u>	—	<u>330</u>
AV-8B	—	3	—	80 ^E
F/A-18	—	7	—	250 ^E
Helicopters—TOTAL	<u>7^f</u>	<u>9</u>	<u>67^f</u>	<u>95</u>
AH-1	7 ^f	9	67 ^f	95
ARMY—TOTAL	28	32	\$316	\$ 259
Helicopters—TOTAL	<u>28</u>	<u>32</u>	<u>316</u>	<u>259</u>
AH-64	26	32	301	259 ^E
UH-60	2	—	15	—

Source: Aerospace Industries Association, based on USAF, USN, and USA survey responses.

a Foreign government aircraft purchases through the Department of Defense Foreign Military Sales program.

b Flyaway cost includes airframes, engines, electronics, communications, armament, other installed equipment, and non-recurring costs associated with the manufacture of the aircraft.

E Estimate.

f Revised.

MILITARY AIRCRAFT PROGRAM PROCUREMENT

Fiscal Years 1995, 1996, and 1997
(Millions of Dollars^a)

Agency and Model	1995		1996 ^E		1997 ^E	
	No.	Cost	No.	Cost	No.	Cost
AIR FORCE						
B-1B	—	\$ 110.1	—	\$ 54.4	—	\$ 16.6
B-2 Spirit	—	345.1	—	742.5	1	105.1
C-17 Globemaster III	6	2,305.9	8	2,492.2	8	2,142.8
C-130 Hercules	—	21.0	2	88.0	1	62.9
Civil Air Patrol Aircraft	14	1.4	27	2.6	27	2.6
Drug Interdiction	—	11.8	—	—	—	—
E-8B JSTARS	2	623.6	2	458.5	2	528.9
F-15E Eagle	—	20.3	6	351.7	4	179.7
F-16 Falcon	—	79.7	6	155.1	4	111.2
F-22	—	—	—	—	—	52.9
HH-60G	—	—	—	—	8	107.9
JPATS ^b	3	92.7	3	29.2	12	67.1
T-1A Jayhawk	32	146.4	—	4.3	—	4.5
Unmanned Aerial Vehicles ^b	7	172.4	—	101.5	2	59.9
VCX (C-20)	—	—	—	—	2	113.8
WC-130	—	—	3	131.8	—	—
ARMY						
AH-64 Apache	—	\$ 122.6	—	\$ 420.9	—	\$ 379.5
C-XX	2	10.9	—	22.3	—	—
New Training Helicopter	—	0.5	—	0.4	—	—
OH-58D Kiowa Warrior	—	217.6	—	64.3	—	9.1
TIARA	—	—	—	23.6	—	25.8
UH-60 Black Hawk	60	306.7	60	391.8	28	236.3
NAVY						
AH-1W Sea Cobra	12	\$ 140.4	6	\$ 72.7	—	\$ —
AV-8B Harrier	4	131.0	8	243.2	10	304.9
CH/MH-53E Super Stallion	2	39.2	—	—	—	—
E-2C Hawkeye	4	282.4	3	207.6	2	141.3
EA-6B Prowler	—	38.8	—	160.0	—	100.6
F/A-18C/D	24	1,008.4	18	796.9	—	—
F/A-18E/F Hornet	—	—	—	229.7	12	2,154.7
HH-60H	—	34.7	—	23.0	—	—
SH-60B Seahawk	—	—	—	13.3	—	6.4
SH-60F CV ASW	—	7.5	—	—	—	—
T-39N	—	—	17	43.6	—	—
T-45 Goshawk	12	238.1	12	314.6	12	299.1
V-22 Osprey	—	—	—	6.6	4	558.7

Source: Department of Defense Budget, "Program Acquisition Costs by Weapon System" (Annually) and "Procurement Programs (P-1)" (Annually).

NOTE: See Research and Development Chapter for aircraft program RDT&E authorization data.

a Total Obligational Authority for procurement, excluding initial spares.

b Navy and Air Force funding.

E Estimate. Latest year reflects Administration's budget proposal.

ACTIVE U.S. MILITARY AIRCRAFT^a IN CONTINENTAL U.S.

Fiscal Years 1980–1999

Year	Total ^a	Fixed-Wing Aircraft				Helicopters
		Total	Jet	Turboprop	Piston	
1980	18,969	11,362	8,794	1,869	699	7,607
1981	19,363	11,645	9,111	1,943	591	7,718
1982	21,728	12,063	9,647	1,900	516	9,665
1983	18,652	11,603	9,495	1,745	363	7,049
1984	18,833	11,661	9,551	1,777	333	7,172
1985	19,333	11,929	9,640	1,881	408	7,404
1986	20,157	11,919	9,730	1,803	386	8,238
1987	20,514	12,054	9,819	1,865	370	8,460
1988	21,010	12,481	9,954	2,222	305	8,529
1989	19,223	11,893	9,501	2,131	261	7,330
1990	20,017	12,817	10,360	2,199	258	7,200
1991	19,966	12,587	10,221	2,119	247	7,379
1992	19,210	11,936	9,672	2,035	229	7,274
1993	17,231	9,681	7,651	1,852	178	7,550
1994 ^L	17,018	9,803	7,786	1,835	182	7,215
1995 ^E	16,207	9,277	7,294	1,754	229	6,930
1996 ^E	15,425	9,114	7,111	1,733	270	6,311
1997 ^E	14,645	8,949	6,988	1,688	273	5,696
1998 ^E	14,309	8,858	6,918	1,668	272	5,451
1999 ^E	14,199	8,849	6,919	1,660	270	5,350

Source: Office of the Secretary of Defense, as reported in "FAA Aviation Forecasts" (Annually).

^a Includes Army, Air Force, Navy, and Marine regular service aircraft, as well as Reserve and National Guard Aircraft.^E Estimate.

**DEPARTMENT OF DEFENSE
OUTLAYS FOR AIRCRAFT PROCUREMENT**

By Agency
Fiscal Years 1962-1997
(Millions of Dollars)

Year	TOTAL AIRCRAFT PROCUREMENT	Air Force	Navy	Army
1962	\$ 6,659	\$ 4,387	\$ 2,102	\$ 170
1963	6,309	3,747	2,328	234
1964	6,053	3,894	1,859	300
1965	5,200	3,115	1,739	346
1966	6,635	4,074	2,021	540
1967	8,411	4,842	2,607	962
1968	9,462	5,079	3,244	1,139
1969	9,177	5,230	2,821	1,126
1970	7,948	4,623	2,488	837
1971	6,631	3,960	2,125	546
1972	5,927	3,191	2,347	389
1973	5,066	2,396	2,557	113
1974	5,006	2,078	2,806	122
1975	5,484	2,211	3,137	136
1976	6,520	3,323	3,061	136
Tr. Qtr.	1,557	859	672	26
1977	6,608	3,586	2,721	301
1978	6,971	3,989	2,602	380
1979	8,836	5,138	3,140	558
1980	11,124	6,647	3,689	787
1981	13,193	7,941	4,397	855
1982	16,793	9,624	5,872	1,297
1983	21,013	11,799	7,490	1,724
1984	23,196	12,992	8,040	2,165
1985	26,586	15,619	8,263	2,705
1986	30,828	18,919	8,922	2,987
1987	32,956	20,036	9,614	3,306
1988	28,246	15,961	9,407	2,878
1989	27,569	14,662	10,073	2,834
1990	26,142	14,303	10,031	2,808
1991	25,689	13,794	9,055	2,840
1992	23,581	13,154	7,907	2,520
1993	20,359	11,438	7,246	1,675
1994	18,840	10,303	6,826	1,711
1995	16,125	8,891	5,685	1,549
1996 ^E	14,919	8,467	5,152	1,300
1997 ^E	13,008	7,058	4,826	1,124

Source: Office of Management and Budget, "Budget of the United States Government" (Annually)

NOTE: Detail may not add to totals because of rounding

^E Estimate. Latest year reflects Administration's budget proposal.

Tr. Qtr. See Glossary

SPECIFICATIONS OF U.S. MILITARY AIRCRAFT

On Order or in Production as of 1995

Primary Mission, DoD Designation, & Popular Name	Manufacturer	U.S. Military Service	Crew	Empty Weight (000's lbs)	Engines	Performance Typical for Primary Mission	Remarks
ATTACK							
AV-8B Harrier II	MDC/B Ae	USMC	1	13	1xRR F402	Mach 0.91	VTOL
BOMBERS							
B-2 Spirit	NGC	USAF	2	154	4xGE F118	6,000+ n.m.	Radar eluding strategic bomber
FIGHTERS							
F-15E Eagle	MDC	USAF	2	37	2xP&W F100	Mach 2.5 class	Dual role fighter/long range interception
F-16A/B Fighting Falcon	LM	USAF	1-2	17	1xP&W F100	Mach 2+ class	Multirole fighter; fully fly-by-wire; missiles, guns.
F-16C/D Fighting Falcon	LM	USAF	1-2	19	1xP&W F100/ 1xGE F110	Mach 2+ class	Provisions for AMRAAM, LANTIRN, Harpoon, HARM
F/A-18C/D Hornet	MDC/NGC	USN/USMC	1-2	23	2xGE F404	Mach 1.8 class	Multi-mission night strike fighter
F/A-18E/F Hornet	MDC/NGC	USN/USMC	1-2	31	2xGE F414	Mach 1.8 class	Multi-mission night strike fighter
F-22A	LM Boeing	USAF	1	30	2xPW F119	Mach 2+ class	Air superiority with near-precision ground attack
COMMAND/CONTROL AND PATROL							
E-2C Hawkeye	NGC	USN	5	40	2xAll T56	6 hr. mission duration	AEW command & control; active & passive detection
RC-12 PQ	Raytheon	Army	2	9	2xP&W PT6A	4 hr. loiter	Electronic intercept
CARGO-TRANSPORT							
C-12R	Raytheon	Army	2	8	2xP&W PT6A	268 mph; 788 n.m.	Utility/transport
C-17A Globemaster III	MDC	USAF	3	267	4xP&W F117	Mach 0.77; 3,000 n.m.	102 troops or 172,000 lbs.
C-20F/G/H	Gulfstream	All	2	42-43	2xRR Tay	Mach. 0.80; 4,200 n.m.	Versions of Gulfstream IV
C-26B	Fairchild	USAF/Army	2	9	2xGA TPE 331	285 mph; 2,000 mi.	US version of SA227-DC Metro 23
C/HC-130H Hercules	LM	USAF/USN	4	74-78	4xAll T56	370 mph; 3,450 mi.	64-92 troops or 39-41,000 lbs.
C-130J	LM	USAF	3	78	4xAll AE2100	400 mph; 4,150 mi.	
KC-130J	LM	USN	5-7	80	4xAll T56	9,200 gals.	Tanker
MC-130H Combat Talon II	LM	USAF	5	76	4xAll T56	370 mph; 3,450 mi.	Support requirements of SOF
V-22 Osprey	Bell Boeing	USMC/SOF	3	33	2xAll T406	Max 316 mph; 2,100 n.m.	With internal fuel tanks, engines tilt for VTOL
TRAINING							
Beech MKII	Raytheon	USN/USAF	2	6	1xP&W PT6A	311 mph	JPATS winner
T-1A Jayhawk	Raytheon	USAF	2	10	2xP&W J7-15D	Max 538 mph	Tanker/transport trainer
T-45A Goshawk	MDC/B Ae	USN	2	9	1xRR F405	Mach 1.04 at 25,000 ft.	Next generation trainer
TH-67 Creek	Bell	Army	1	2	1xAll 250	Max 135 mph; 405 mi.	Rotary wing trainer
HELICOPTERS							
AH-1W Super Cobra	Bell	USMC	2	10	2xGE T700	Max 218 mph; 395 mi.	TOW, hellfire, sidewinder, sidearm
AH-64 Apache	MDC	Army	2	11	2xGE T700	Max 197 mph; 445 mi.	Attack helicopter
CH-53E	Sikorsky	USN	3-8	33-36	3xGE T64	Max 196 mph; 710 mi.	55 passengers, aux. tanks/minesweeping
HH-60H Jayhawk	Sikorsky	USN	4-12	14	2xGE T700	Max 184 mph; 500 mi.	Combat strike and rescue
MH-60G Pave Hawk	Sikorsky	USAF/Army	3	12	2xGE T700	Max 184 mph; 1,380 mi.	11 troops; combat, search; rescue
OH-58D Kiowa Warrior	Bell	Army	2	3	1xAll T703	Max 127 mph; 220 mi.	Armed attack/reconnaissance
SH-2G Super Sea-Sprite	Kaman	USN	3-4	9	2xGE T700	Max 159 mph; 500 mi.	LAMPS Mk.1 helicopter
SH-60B Seahawk	Sikorsky	USN	4	15	2xGE T700	Max 171 mph; 640 mi.	ASW
SH-60F Seahawk	Sikorsky	USN	4	14	2xGE T700	Max 177 mph; 789 mi.	ASW
UH-60 Black Hawk	Sikorsky	Army/USAF	3	11	2xGE T700	Max 184 mph; 373 mi.	UTIAS

Source: Aerospace Industries Association, based on company reports.

KEY: All = Allison Gas Turbine; BAe = British Aerospace; GA = Garrett Engine; GE = General Electric; LM = Lockheed Martin; MDC = McDonnell Douglas; NGC = Northrop Grumman; P&W = Pratt & Whitney; RR = Rolls Royce.

MISSILE PROGRAMS

Industry sales of missile systems declined for the third consecutive year in 1995 according to data compiled by the Bureau of the Census. The sales volume of missile systems and parts (excluding propulsion) was \$4.7 billion, which compares with \$5.3 billion in the previous year. In inflation-adjusted constant dollar terms, the 1995 total represented the lowest sales level since the early 1950's.

Net new orders for missile systems (again excluding propulsion units) came to \$3.2 billion, a moderate increase over 1994's \$2.8 billion, but the 1994 figure was the lowest in more than 25 years.

Despite the gain in orders, the missile backlog as of year-end 1995 continued on the downward slide that had begun in 1988; it was \$4.8 billion, down from \$5.8 billion at the end of the previous year.

The downward trend in missile procurement is evidenced in the historical summary of Department of Defense (DoD) outlays. From a Fiscal Year (FY) 1990 peak of \$14.9 billion, outlays declined every year since to \$6.4 billion

in FY 1996. The trend continues with planned outlays in FY 1997 of \$5.1 billion. A breakdown allocates \$3 billion to the Air Force, \$1.6 billion to the Navy, and \$892 million to the Army.

Missile procurement data for FY 1996 reflects the dramatic reductions in missile acquisition occasioned by the revised defense restructuring program. Where DoD was at one time funding each of several missile programs at more than \$1 billion a year, the greatest expenditures for single missile programs in FY 1996 were



\$503.3 million for the Navy's Trident II Fleet Ballistic Missile; \$336.2 million for the Patriot long-range air defense missile, which is jointly funded by the Army and the Ballistic Missile Defense Organization (BMDO); \$247.2 million for the Air Force/Navy Advanced Medium Range Air-to-Air Missile (AM-RAAM); and \$239.4 million for the Army's Hellfire antiarmor weapon.

Missile programs in production or in operational service during 1995/96 and planned for funding under FY 1997 appropriations include:

Air Force: AMRAAM, for which DoD requested \$152.7 million.

Navy: Trident II Fleet Ballistic Missile, \$321 million; the Standard air defense missile, \$197.5 million; Tomahawk cruise missile, \$88.5 million; RAM (Rolling Airframe Missile), \$48.7 million.

Army: the Hellfire helicopter-launched antiarmor missile, \$357.6 million; the AAWS-M (Advanced Antitank Weapon System-Medium), \$190.3 million; the ATACMS (Army Tactical Missile System), \$92.8 million; the MLRS (Multiple Launch Rocket System), \$24.4 million; the TOW antitank missile, \$13.6 million; the Avenger mobile antiaircraft weapon system, \$12.6 million.

BMDO: the Patriot air defense system, \$263.2 million.



MISSILE PROGRAM PROCUREMENT

Fiscal Years 1995, 1996, and 1997

(Millions of Dollars^a)

Agency and Model	1995		1996 ^E		1997 ^E	
	No.	Cost	No.	Cost	No.	Cost
AIR FORCE						
AGM-130	102	\$ 67.6	100	\$106.3	—	\$ —
AMRAAM ^b	519	308.0	406	247.2	170	152.7
HAVE NAP	36	26.3	54	37.0	—	—
JDAM	—	—	—	—	1,085	23.0
NAVY						
Harpoon	58	\$ 66.8	30	\$ 43.1	—	\$ —
JSOW ^b	—	—	—	25.5	100	72.5
RAM	240	66.4	230	67.2	140	48.7
Standard	202	240.4	64	125.4	127	197.5
Tomahawk	274	264.5	100	111.5	120	88.5
Trident II	18	666.1	6	503.3	7	321.0
ARMY						
AAWS-M ^c	872	\$212.6	1,010	\$200.9	1,168	\$190.3
ATACMS	148	112.8	120	121.3	97	92.8
Avenger ^c	—	17.7	—	30.5	—	12.6
Hellfire	1,600	127.5	1,102	239.4	2,840	357.6
MLRS	—	25.9	1,326	44.6	852	24.4
TOW 2 ^b	1,541	36.7	—	12.0	—	13.6
BMDO						
Patriot ^f	—	\$269.4	—	\$336.2	—	\$263.2

Source: Department of Defense, "Program Acquisition Costs by Weapon System" (Annually).
 NOTE: See Research and Development Chapter for missile program RDT&E authorization data.
 a Total Obligational Authority excluding initial spares and RDT&E.
 b Navy and Air Force funding.
 c Army and Navy funding.
 d Army and Marine Corps funding.
 E Estimate. Latest year reflects Administration's budget proposal.
 f Army and BMDO funding.
 NA Not available.

**DEPARTMENT OF DEFENSE
OUTLAYS FOR MISSILE PROCUREMENT**

By Agency
Fiscal Years 1962-1997
(Millions of Dollars)

Year	TOTAL MISSILE PROCUREMENT	Air Force	Navy	Army
1962	\$ 3,442	\$2,385	\$ 593	\$ 464
1963	3,817	2,676	718	423
1964	3,577	2,100	981	496
1965	2,096	1,320	522	254
1966	2,069	1,313	512	244
1967	1,930	1,278	432	220
1968	2,219	1,388	436	395
1969	2,509	1,382	534	593
1970	2,912	1,467	702	743
1971	3,140	1,497	791	852
1972	3,009	1,334	831	844
1973	3,023	1,454	628	941
1974	2,981	1,537	541	903
1975	2,889	1,602	615	672
1976	2,296	1,549	584	163
Tr. Qtr.	402	347	148	(93)
1977	2,781	1,501	905	374
1978	3,096 ^a	1,376	1,302 ^a	418
1979	3,786	1,537	1,702	547
1980	4,434	1,810	1,973	651
1981	5,809	2,366	2,297	1,146
1982	6,782	3,069	2,444	1,269
1983	7,795	3,383	2,812	1,600
1984	9,527	4,640	2,809	2,079
1985	10,749	5,409	2,941	2,399
1986	11,731	6,473	2,780	2,478
1987	11,473	6,002	3,157	2,314
1988	11,676	6,046	3,392	2,239
1989	14,503	7,349	4,445	2,709
1990	14,851	7,951	4,446	2,453
1991	14,400	6,906	4,954	2,540
1992	13,504	6,409	4,694	2,401
1993	11,404	5,424	3,794	2,187
1994	8,934	4,312	3,238	1,384
1995	7,513	3,845	2,694	974
1996 ^E	6,433	3,289	2,118	1,026
1997 ^E	5,081	2,975	1,614	892

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Beginning 1978, DoD combined Navy Missile Procurement with torpedoes and other related products into Navy Weapons Procurement. Missiles comprise approximately 80 percent of the value of this category.

E Estimate. Latest year reflects Administration's budget proposal.

Tr. Qtr. See Glossary

MAJOR MISSILE PROGRAMS RESEARCH, DEVELOPMENT, PRODUCTION, OPERATION

Program	Agency	Status	Systems Contractor	Propulsion Manufacturer	Guidance Manufacturer
AIR-TO-AIR					
AMRAAM-120A	USAF/USN	P,O	Hughes/Ray	Alliant/ Aerojet	Hughes/Ray
Phoenix-54A	USN	O	Hughes/Ray	Alliant	Hughes
Phoenix-54C	USN	O	Hughes/Ray	Alliant	Hughes/Ray
Sidewinder-9J	USAF	O	LM	Alliant/ Aerojet	LM
Sidewinder-9L	USN/USAF	O	NASC	Bermite/TKC/ Alliant	Raytheon/ LM
Sidewinder-9M	USN/USAF	O	NASC	TKC/Alliant	Ray/LM
Sidewinder-9N	USAF	O	LM	Alliant/ Aerojet	LM
Sidewinder-9P	USAF	O	LM	Alliant/ Aerojet	LM
Sidewinder-9S	USN	O	NASC	TKC/Alliant	LM/Ray
Sidewinder-9X	USN	D	Ray/Hughes	—	GEC
Sparrow-7F	USN/USAF	O	Ray/Hughes	Alliant/Hughes	Ray/Hughes
Sparrow-7M	USN/USAF	P	Ray/Hughes	Alliant	Ray/Hughes
Sparrow-7P	USN	P,O	Ray/Hughes	Alliant	Ray/Hughes
Sparrow-7R	USN	P	Ray/Hughes	Alliant	Ray/Hughes
AIR-TO-SURFACE					
AGM-129	USAF	O	Hughes/MDC	WI	Kearfott
AGM-130A/B	USAF	D	Rockwell	Alliant	RI/GEC
AGM-142	USAF	O	LM/Rafael	Rafael	GEC
AGM-86B/C	USAF	P,O	Boeing	WI	Litton/RI/ Interstate
GATS/GAM	USAF	P	NGC	—	Honeywell
GBU-15	USAF	P	Rockwell	—	Rockwell
HARM-88A/B	USN/USAF	P	TI	TKC/Alliant	TI
Harpoon-84A/C/D	USN	P,O	MDC	TCAE	TI/IBM/LSI/ Northrop
JASSM	USN/USAF	D	LM/MDC	—	Hughes/Ray
JDAM	USAF/USN	D	MDC	—	Honeywell
JSOW	USN	D	TI	—	Kearfott
Maverick-65A/B	USAF	O	Hughes	TKC/Aerojet	Hughes
Maverick-65D	USAF	O	Hughes/Ray	TKC/Aerojet	Hughes/Ray
Maverick-65E	USMC	O	Hughes	TKC/Aerojet	Hughes
Maverick-65F	USN	O	Hughes/Ray	TKC/Aerojet	Hughes/Ray
Paveway	USN/USAF	P	TI	—	GEC
Shrike-45A/B	USN/USAF	O	NWC/PMTC	Aerojet/ Alliant	Texas Instruments
Sidearm 1-122A	USMC	O	Motorola	TKC/Alliant	Motorola
SLAM-84E	USN	P	MDC	TCAE	MDC/Hughes/RI/HI
SRAM-69A	USAF	O	Boeing	TKC/LM	Kearfott
Standard ARM-78D	USN/USAF	O	Hughes	NOSIH	Hughes

* Also Surface-to-Surface

(Continued on next page)

MAJOR MISSILE PROGRAMS (Continued)

Program	Agency	Status	Systems Contractor	Propulsion Manufacturer	Guidance Manufacturer
AIR-TO-SURFACE (Cont'd.)					
Walleye 1-62	USN	O	LM	—	LM/Hughes
Walleye 1ER-62	USN	R,D	NAC	—	NAC
Walleye 2-62	USN	O	NAC	—	NAC
Walleye 2 (ER/DL)-62	USN	O	NAC	—	NAC
WCMD	USAF	D	LM/Alliant/TI	—	HI/Litton/ Kearfott/ Simmonds
ANTI-SUBMARINE					
VLA-44A	USN	P,O	LM	TKC	LM
SURFACE-TO-AIR					
Chaparral-72A	Army	O	LM	Alliant/ Bermite	GE/Raytheon
Chaparral-72C/E/H	Army	O	LM	ARC/Alliant	LM
Chaparral-72G/J	Army	P,O	LM	Alliant	Hughes/LM
Hawk-23B	Army	P,O	Raytheon	Aerojet	Raytheon
MEADS	Army	D	LM	—	Hughes/Ray
Patriot-104	Army	P	Raytheon	TKC	Raytheon
PAC-3	Army	D	LM	ARC	LM/RI/HI
RAM-116A	USN	P,O	Hughes	TKC/Alliant	Hughes
Roland-115	Army	O	Hughes/ Boeing	Alliant	Hughes/ Boeing
Sea Sparrow-7M	USN	P,O	Ray/Hughes	Alliant	Ray/Hughes
Sea Sparrow-Evolved	USN	D	Hughes	Alliant/Raufoss	Hughes
Standard 1 MR	USN	O	Hughes	Aerojet/NOSIH	Hughes/HI
Standard 2 MR	USN	P,O	Hughes/Ray	ARC	Hughes/HI
Standard 1 ER	USN	O	Hughes/Ray	ARC/NOSIH	Hughes/HI
Standard 2 ER	USN	P,O	Hughes/Ray	ARC/TKC	Hughes/Ray/HI
Standard 2-IV	USN	P	Hughes/Ray	ARC/UTC	Hughes/Ray/HI
Stinger-92A	Army/USMC	P,O	Hughes/Ray	ARC	Hughes/Ray/HI
Stinger-92E	All	P,O	Hughes	ARC	Hughes
THAAD	Army	D	LM	UTC	—

(Continued on next page)

MAJOR MISSILE PROGRAMS (Continued)

Program	Agency	Status	Systems Contractor	Propulsion Manufacturer	Guidance Manufacturer
SURFACE-TO-SURFACE					
*Harpoon-84A/C/D	USN	P,O	MDC	TCAE/TKC	TI/IBM/LSI/NGC
Minuteman 2-30F	USAF	O	AFLC	TKC/Aerojet/Alliant/ARC	Rockwell Autonetics
Minuteman 3-30G/P	USAF	O	AFLC	TKC/Aerojet/ARC/UTC	Rockwell Autonetics
Peacekeeper (MX)-118A	USAF	O	BMO	TKC/Avco/RI Aerojet/LM/Alliant	RI/NGC/Honeywell/Litton
Tomahawk (SLCM)	USN	P,O	Hughes	WI/UTC	Hughes
Trident 1 (C-4)	USN	O	LM	Alliant/TKC/ARC	LM/Draper/Ray/Hughes/Kearfott
Trident 2 (D-5)	USN	P,O	LM	Alliant/TKC/UTC/ARC	LM/Draper/Ray/Hughes/Kearfott/RI

BATTLEFIELD SUPPORT AND ANTIARMOR

ATACMS	Army	P,O	LM	ARC	Honeywell
Dragon-47	Army	P,O	MDC	MDC	MDC
EFOGM	Army	O	Raytheon	ARC	—
HELLFIRE-114A/C/F	Army/USMC	P,O	RI/LM	Alliant/TKC	LM/RI
HELLFIRE II-114K	Army/USMC	P,O	LM/RI	Alliant/TKC	—
Longbow HELLFIRE 114L	Army/USMC	P	LM/NGC	Alliant/TKC	LM/NGC/GEC
Javelin	Army/USMC	P,O	TI/LM	ARC	GEC
MLRS-26,-270	Army	P,O	LM	ARC	—
Shillelagh-51C	Army	O	LM	Alliant	LM
SMAW	USMC	P,O	MDC	MDC	—
TOW-71A	Army	O	Hughes	Alliant	Emerson El.
ITOW-71C	Army	P,O	Hughes	Alliant	Emerson El.
TOW2-71D	Army	P,O	Hughes	Alliant/TKC	Emerson El./TI
TOW2A-71E	Army	P,O	Hughes	Alliant/TKC	Emerson El./TI
TOW2B-71F	Army	P	Hughes	Alliant	Emerson El./TI

Source: Aerospace Industries Association, based on company reports.

Status: R-Research; D-Development; P-Production; O-Operational.

* Also Air-to-Surface

Abb:	AFLC	Air Force Logistics Cmd	MDC	McDonnell Douglas	Ray	Raytheon
	ARC	Atlantic Research	NAC	Naval Avionics Center		Rockwell
	BMO	Ballistic Missile Office	NASC	Naval Air Systems Command	AE	Teledyne Ryan Aeronautical
	GE	General Electric	NGC	Northrop Grumman	II	Texas Instruments
	GEC	General Electric Co PLC	NOSH	Naval Ordnance Station,	TKC	Thiokol
	HI	Honeywell		Indian Head	UTC	United Technologies
	LSI	Lear Siegler	NWC	Naval Weapons Center	WI	Williams International
	LM	Lockheed Martin	PMTC	Pacific Missile Test Center		

**ORDERS, SALES, AND BACKLOG
MISSILE SYSTEMS AND PARTS^a**

Calendar Years 1981–1995
(Millions of Dollars)

Year	SALES—Current Dollars	SALES—Constant Dollars ^b
1981	\$ 4,662	\$ 5,864
1982	5,676	6,457
1983	5,991	6,498
1984	6,094	6,106
1985	7,975	8,080
1986	8,236	8,253
1987	9,671	9,671
1988	9,485	9,308
1989	9,283	8,749
1990	9,102	8,237
1991	8,989	7,844
1992	9,032	7,641 ^r
1993	7,713	6,364 ^r
1994 ^r	5,294	4,269
1995	4,732	3,753

Year	NET NEW ORDERS	BACKLOG AS OF DECEMBER 31
1981	\$ 6,030	\$ 6,749
1982	6,034	7,107
1983	7,231	8,406
1984	7,731	10,043
1985	8,122	10,190
1986	11,023	12,754
1987	11,482	14,302
1988	9,437	14,255
1989	8,998	14,005
1990	7,917	12,956
1991	8,072	12,571
1992	9,234	11,814
1993	4,775	9,305 ^r
1994 ^r	2,785	5,823
1995	3,178	4,833

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA17D (Annually).

a Excludes engines and propulsion units where separable.

b Based on AIA's aerospace composite price deflator (1987=100).

r Revised.

BALLISTIC MISSILE DEFENSE ORGANIZATION FUNDING BY PROJECT NUMBER

Fiscal Years 1993–1997
(Millions of Dollars)

Project Number and Title	1993	1994	1995	1996 ^E	1997 ^E
1102	Microwave Radar	10	—	—	—
1104	Signal Processing	22	7	—	—
1106	Sensor Studies & Experiments	156	110	—	—
1110	Sensor Integration	57	28	—	—
1151	Passive Sensors	21	9	112	189
1155	Phenomenology	87	57	78	57
1161	Advanced Sensor Technology	—	—	13	22
1170	TMD Risk Reduction	—	—	24	41
1201	Interceptor Component Technology	18	19	—	—
1202	Interceptor Integration Technology	183	37	—	—
1204	Interceptor Studies & Analysis	8	—	—	—
1209	Endoatmospheric Interceptor Technology	25	3	—	—
1210	Leap Technology Demonstration	32	76	—	—
1212	D-2 HVG Projectile	10	—	—	—
1262	Mead Technology	10	4	—	20
1265	Boost Phase Int/Exo	—	16	41	—
1266	Sea-Based Theater Wide Defense	—	5	75	195
1267	Ground-Based Interceptor	—	—	137	283
1270	Advanced Interceptors	—	—	15	33
1301	Free Electron Laser	14	—	—	—
1302	Chemical Laser Technology	69	54	—	—
1303	Neutral Particle Beam Technology	39	12	—	—
1305	Acquisition, Tracking, Pointing & Fire Control Technology	21	7	—	—
1307	Directed Energy Demonstration	21	2	—	—
1360	Directed Energy Programs	—	—	41	75
1460	BMC3	—	—	27	81
1501	Survivability Technology	29	6	—	—
1502	Lethality & Target Hardening	37	30	—	—
1503	Power & Power Conditioning	41	7	—	—
1504	Materials & Structures	24	9	—	—
1602	New Concepts Development	40	32	—	—
1651	Innovative Science & Technology	84	38	44	48
1660	Statutory & Mandated Programs	—	—	40	46
1700	Flight Test/Launch Activities	64	—	—	—
1701	Flight Test	30	27	—	—
1702	Special Test Activities	33	5	—	—

(Continued on next page)

**BALLISTIC MISSILE DEFENSE ORGANIZATION
FUNDING BY PROJECT NUMBER (Continued)**

Fiscal Years 1993–1997
(Millions of Dollars)

Project Number and Title	1993	1994	1995	1996 ^E	1997 ^E
2102 Space & Missile Tracking System	208	—	—	—	—
2106 ACTS	88	42	—	—	—
2154 TMD Ground-Based Radar	209	258	170	—	—
2160 TMD Existing System Modifications	—	—	16	20	24
2202 Ground-Based Exoatmospheric Interceptor Development	87	54	—	—	—
2205 Brilliant Pebbles	207	—	—	—	—
2208 ERINT	116	97	—	—	—
2257 PATRIOT	170	239	597	667	597
2259 ACES/ADP	58	61	43	53	37
2260 THAAD	273	429	479	568	482
2262 Corps SAM	22	16	14	—	—
2263 Sea-Based Area TBMD	65	150	154	299	311
2300 Command Center	49	24	—	—	—
2358 HAWK System BMC3	—	30	31	27	19
3100 System Engineering	124	53	—	—	—
3152 NMD System Engineering	—	—	21	57	28
3153 Architecture Analysis/BMC3 Initiatives Environment, Siting, & Facilities	—	—	11	12	10
3157	—	—	5	9	7
3160 Readiness Planning	—	—	14	22	25
3200 Systems Analysis	124	81	—	—	—
3251 System Engineering & Technical Support C4I Concepts	—	—	50	48	56
3261	—	—	20	69	51
3265 User Interface	—	—	20	18	17
3270 Threat & Countermeasures	—	—	29	28	31
3300 Test & Evaluation Support	478	322	—	—	—
3352 Modeling & Simulations	—	—	89	86	83
3354 Targets Support	—	—	65	19	24
3359 System Test & Evaluation	—	—	41	64	68
3360 Test Resources	—	—	43	41	45
4000 Management	273	242	157	147	149
Other programs ^a	66	29	—	10	9
TOTAL DETAILED PROJECTS	\$3,710	\$2,728	\$2,714	\$3,352	\$2,799

Source: Ballistic Missile Defense Organization, "1996 Report to the Congress on Ballistic Missile Defense" (Annually).

a Projects with five year funding under \$20 million herein combined.

E Estimate. Represents Administration's budget request.

SPACE PROGRAMS

Sales of space systems, as reported by the Bureau of the Census, gained moderately in 1995, as deliveries of hardware components for the International Space Station increased significantly, offsetting a decline in military space sales.

Sales totaled \$11.1 billion in 1995, up from \$10.6 billion in the previous year. This figure includes civil, commercial, and military programs, but does not include propulsion systems.

Civil sales, at \$6.3 billion, accounted for almost 60 percent of the total; the figure compares with \$4.9 billion in 1994. Military space sales, at \$4.8 billion, were down from 1994's \$5.7 billion.

Census reported similar gains in its summary of orders for space systems received in 1995. Net new orders totaled \$12.8 billion, a very large (41 percent) gain over 1994's \$9.0 billion. The gain was entirely in civil orders, which increased to \$8.1 billion from the previous year's \$4.1 billion. Military orders declined for the third straight year, to \$4.7 billion (down from \$4.9 billion).

The industry's year-end backlog of orders for space systems (again excluding propulsion units) increased to a record level \$14.6 billion. The civil backlog, at \$8.8 billion, was up 42 percent over 1994's \$6.2 billion. The military backlog was \$5.9 billion (down from \$6.7 billion).

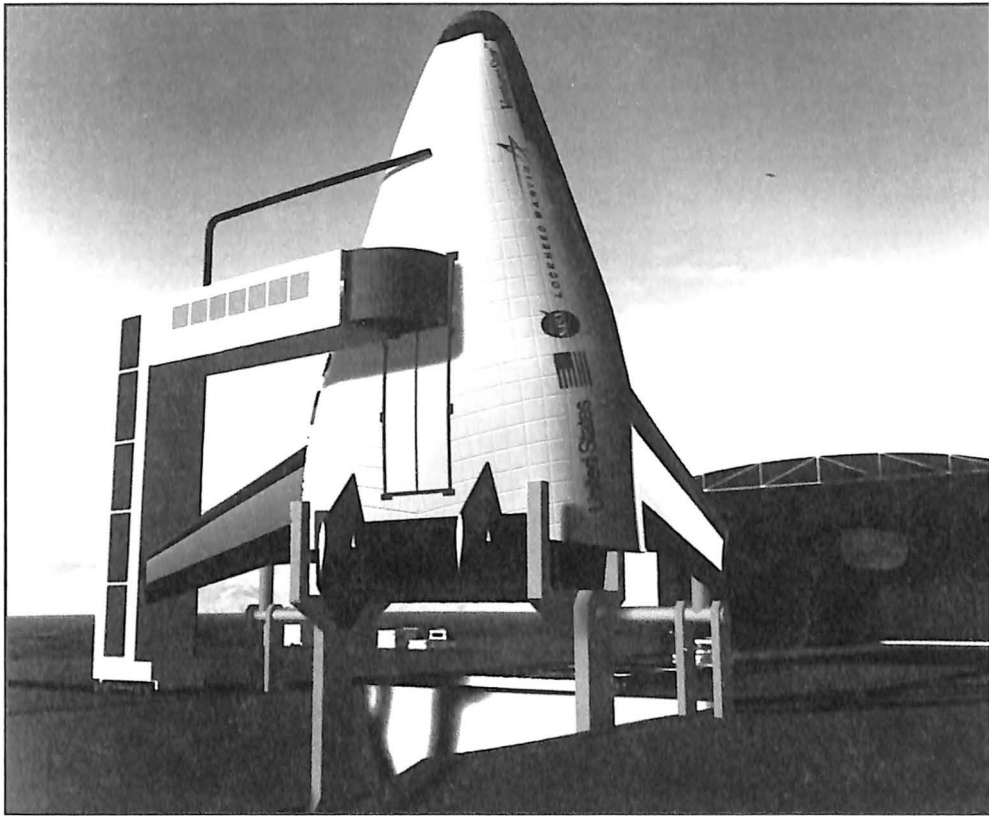
Census separately reported sales, orders, and backlog for propulsion units, but the data provide only a loose approximation of trends because they include missile systems propulsion units as well as space propulsion. Total sales came to \$2.4 billion, down from \$2.5 billion in the previous year. In both military and civil sales, the figures were down slightly from 1994's sales: military, \$1.1 billion, down \$21 million; civil, \$1.3 billion, down \$87 million.

Net new orders for propulsion systems increased in 1995 to \$2.4 billion, which compares with \$1.9 billion in 1994; once again the gain was entirely in the civil area. The backlog increased slightly (by \$126 million) to \$6.2 billion.

The federal government investment in space had risen steadily for nearly two decades until 1992, when funding declined. In 1995 the downward trend was interrupted by a moderate increase in funding. The annual *Aeronautics and Space Report of the President* estimated total federal outlays for space activities at \$24.6 billion in Fiscal Year 1995, which compares with \$23.8 billion in the previous year.

National Aeronautics and Space Administration (NASA) outlays topped those of the Department of Defense (DoD) for the second consecutive year after 11 years in which DoD spent more on space than NASA. NASA outlays in 1995 amounted to \$12.6 billion, up from \$12.4 billion in the previous year. DoD outlays totaled \$11.5 billion, up from \$11 billion.

NASA and DoD combined accounted for 98 percent of all federal space outlays. Other agencies spent a total of \$477 million, up from \$454 million. The 1995 breakdown: Department of Commerce, \$330 million; Department of Energy, \$70 million; and others, \$77 million.



ORDERS, SALES, AND BACKLOG
SPACE VEHICLE SYSTEMS^a
 Calendar Years 1981–1995
 (Millions of Dollars)

Year	SALES—Current Dollars			SALES—Constant Dollars ^b		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1981	\$ 3,856	\$1,736	\$2,120	\$ 4,850	\$2,184	\$2,667
1982	4,749	2,606	2,143	5,403	2,965	2,438
1983	4,940	2,420	2,520	5,358	2,625	2,733
1984	5,225	3,019	2,206	5,235	3,025	2,210
1985	6,300	4,241	2,059	6,383	4,297	2,086
1986	6,304	4,579	1,725	6,317	4,588	1,728
1987	8,051	5,248	2,803	8,051	5,248	2,803
1988	8,622	6,190	2,432	8,461	6,075	2,387
1989	9,758	6,457	3,301	9,197	6,086	3,111
1990	9,691	6,556	3,135	8,770	5,933	2,837
1991	10,515	6,770	3,745	9,175	5,908	3,268
1992	9,266	5,887	3,379	7,839 ^r	4,981 ^r	2,859 ^r
1993 ^r	7,317	4,175	3,142	6,037	3,445	2,592
1994 ^r	10,594	5,707	4,887	8,544	4,602	3,941
1995	11,077	4,782	6,295	8,784	3,792	4,992

Year	NET NEW ORDERS			BACKLOG AS OF DECEMBER 31		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1981	\$ 5,062	\$2,878	\$2,184	\$ 3,163	\$2,166	\$ 997
1982	5,842	2,718	3,124	4,254	2,277	1,977
1983	5,399	3,016	2,383	4,865	2,733	2,132
1984	4,984	3,385	1,599	4,624	3,099	1,525
1985	8,383	6,083	2,300	6,707	4,941	1,766
1986	7,437	5,666	1,771	8,063	6,028	2,035
1987	11,455	9,000	2,455	12,393	9,460	2,933
1988	7,296	4,561	2,735	10,838	7,880	2,958
1989	11,709	8,107	3,602	13,356	9,192	4,164
1990	9,598	6,256	3,342	12,462	8,130	4,332
1991	11,222	5,468	5,754	11,664	6,221	5,443
1992	10,491	6,773	3,718	12,809	7,622	5,187
1993 ^r	8,436	5,106	3,330	13,663	7,384	6,279
1994 ^r	9,041	4,896	4,145	12,888	6,732	6,156
1995	12,775	4,674	8,101	14,625	5,872	8,753

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

a Excludes engines and propulsion units where separable.

b Based on AIA's aerospace composite price deflator, 1987=100.

r Revised.

**ORDERS, SALES, AND BACKLOG
ENGINES AND PROPULSION UNITS FOR
MISSILES AND SPACE VEHICLES**

Calendar Years 1981–1995
(Millions of Dollars)

Year	SALES—Current Dollars			SALES—Constant Dollars ^a		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1981	\$1,204	\$ 786	\$ 418	\$1,514	\$ 989	\$ 526
1982	1,555	899	656	1,769	1,023	746
1983	1,814	951	863	1,967	1,031	936
1984	2,305	1,116	1,189	2,310	1,118	1,191
1985	2,466	1,256	1,210	2,498	1,273	1,226
1986	2,995	1,796	1,199	3,001	1,800	1,201
1987	2,993	1,563	1,430	2,993	1,563	1,430
1988	3,407	1,830	1,577	3,343	1,796	1,548
1989	3,602	1,771	1,831	3,395	1,669	1,726
1990	3,247	1,911	1,336	2,938	1,729	1,209
1991	3,807	1,869	1,938	3,322	1,631	1,691
1992	3,051	1,577	1,474	2,581 ^r	1,334 ^r	1,247 ^r
1993	3,104	1,619	1,485	2,561 ^r	1,336 ^r	1,225 ^r
1994 ^r	2,518	1,123	1,395	2,031	906	1,125
1995	2,410	1,102	1,308	1,911	874	1,037

Year	NET NEW ORDERS			BACKLOG AS OF DECEMBER 31		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1981	\$1,284	\$ 746	\$ 538	\$1,343	\$ 828	\$ 515
1982	2,112	1,134	978	1,901	1,063	838
1983	1,618	942	676	1,691	1,052	639
1984	3,770	2,258	1,512	3,156	2,194	962
1985	3,823	1,323	2,500	4,513	2,261	2,252
1986	1,985	1,224	761	3,503	1,689	1,814
1987	3,335	1,995	1,340	3,849	2,121	1,728
1988	3,507	1,623	1,884	3,985	1,998	1,987
1989	6,113	2,475	3,638	6,410	2,595	3,815
1990	2,692	1,891	801	6,230	2,887	3,343
1991	5,661	1,087	4,574	8,422	2,327	6,095
1992	3,124	2,097	1,027	8,310	2,729	5,581
1993	1,708	710	998	6,543 ^r	1,903	4,640 ^r
1994 ^r	1,879	484	1,395	6,035	1,390	4,645
1995	2,357	294	2,062	6,161	792	5,369

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

^a Based on AIA's aerospace composite price deflator, 1987=100.

^r Revised

U.S. GOVERNMENT SPACECRAFT RECORD^a
Calendar Years 1957–1995

Year	Earth Orbit ^b		Earth Escape ^b		Year	Earth Orbit ^b		Earth Escape ^b	
	Success	Failure	Success	Failure		Success	Failure	Success	Failure
1957	—	1	—	—	1977	27	2	2	—
1958	5	8	—	4	1978	34	2	7	—
1959	9	9	1	2	1979	18	—	—	—
1960	16	12	1	2	1980	16	4	—	—
1961	35	12	—	2	1981	20	1	—	—
1962	55	12	4	1	1982	21	—	—	—
1963	62	11	—	—	1983	31	—	—	—
1964	69	8	4	—	1984	35	3	—	—
1965	93	7	4	1	1985	37	1	—	—
1966	94	12	7	1 ^c	1986	11	4	—	—
1967	78	4	10	—	1987	9	1	—	—
1968	61	15	3	—	1988	16	1	—	—
1969	58	1	8	1	1989	24	—	2	—
1970	36	1	3	—	1990	40	—	1	—
1971	45	2	8	1	1991	32 ^d	—	—	—
1972	33	2	8	—	1992	26 ^d	—	1	—
1973	23	2	3	—	1993	28 ^d	1	1	—
1974	27	2	1	—	1994	31 ^d	1	1	—
1975	30	4	4	—	1995 ^f	17 ^d	1	—	—
1976	33	—	1	—					
					TOTAL	1,335	147	85	15

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

- a Payloads, rather than launchings; some launches account for multiple spacecraft. Includes spacecraft from cooperating countries launched on U.S. launch vehicles.
- b The criterion of success is attainment of Earth orbit or Earth escape rather than judgement of mission success. "Escape" flights include all that were intended to go at least an altitude equal to the lunar distance from the Earth.
- c This Earth-escape failure did attain Earth orbit and therefore is included in the Earth-orbit success totals.
- d Excludes commercial satellites.
- f Through September 30.

**WORLDWIDE SPACE LAUNCHINGS^a
WHICH ATTAINED EARTH ORBIT OR BEYOND**

Calendar Years 1957–1995

Country	Total 1957– 1995	1991	1992	1993	1994 ^r	1995 ^b
TOTAL	3,723	95	100	78	90	53
U.S.S.R.	2,491	62	55	45	49	24
United States	1,042	20	31	24	26	18
European Space Agency	73	9	7	7	6	9
Japan	49	2	2	1	2	1
People's Republic of China ..	37	1	3	1	5	—
India	8	1	2	—	2	—
Israel	3	—	—	—	—	1
Other ^c	20	—	—	—	—	—

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

a Number of launchings rather than spacecraft; some launches orbited multiple spacecraft.

b Through September 30.

c Includes 10 by France, 8 by Italy (5 were U.S. spacecraft), 1 by Australia, and 1 by the United Kingdom.

r Revised.

U.S. SPACE LAUNCH VEHICLES

As of 1995

Vehicle and Initial Launch & First Launch of this Modification	Stages	Thrust (Kilo- newtons)	Maximum Payload (Kg) ¹		
			185-Km Orbit	Geo- synch.- Transfer Orbit	Circular Sun- Synch. Orbit
Pegasus (1990)	1. Orion 50S*	484.9	380	—	210
	2. Orion 50*	118.2	280 ^b		
	3. Orion 38*	31.9			
Pegasus XL (1994) ²	1. Orion 50S-XL*	743.3	460	—	335
	2. Orion 50-XL*	201.5	350 ^b		
	3. Orion 38*	31.9			
Taurus (1994)	0. Castor 120*	1,687.7	1,400	255	1,020
	1. Orion 50S*	580.5	1,080 ^b		
	2. Orion 50*	138.6			
	3. Orion 38*	31.9			
Delta II 7900 Series (1960; 1990)	1. RS-270/A plus 9 Hercules GEM*	1,043.0 4,388.4	5,089 3,890 ^b	1,842 ^c	3,175
	2. AJ10-118K	42.9			
	3. Star 48B*	66.4			
Atlas E (1958; 1968)	1. Atlas MA-3	1,739.5	820 ^b 1,860 ^{bd}	— —	— 910 ^d
Atlas I (1966; 1990)	1. Atlas MA-5	1,952.0	—	2,255	—
	2. 2 Centaur I	146.8			
Atlas II (1966; 1991)	1. Atlas MA-5A	2,110.0	6,580	2,810	4,300
	2. 2 Centaur II	146.8	5,510 ^b		
Atlas IIA (1966; 1992)	1. Atlas MA-5A	2,110.0	6,828	3,062	4,750
	2. 2 Centaur II	185.1	6,170 ^b		
Atlas IIAS (1966; 1994)	1. Atlas MA-5A plus 4 Castor IV*	2,110.0 1,734.4	8,640 7,300 ^b	3,606	5,800
	2. 2 Centaur II	185.1			

(Continued on next page)

U.S. SPACE LAUNCH VEHICLES

As of 1995 (Continued)

Vehicle and Initial Launch & First Launch of this Modification	Stages	Thrust (Kilo-newtons)	Maximum Payload (Kg) ^a		
			185-Km Orbit	24-Hour Polar Orbit	Circular Sun-Synch. Orbit
Titan II (1964; 1988)	1. 2 LR-87	2,090.0	1,905 ^b	—	—
	2. LR-91	440.0			
Titan III (1964; 1989)	0. 2 5 1/2-segment, 3.05-m. dia*	12,420.0	14,515	5,000 ^f	—
	1. 2 LR-87	2,429.0			
	2. LR-91	462.8			
Titan IV (1989)	0. 2 7-segment, 3.05-m. dia*	14,000.0	17,700	6,350 ^f	—
	1. 2 LR-87	2,429.0			
	2. LR-91	462.8			
Titan IV/Centaur (1994)	0. 2 7-segment, 4.3-m. dia*	14,000.0	—	5,760	—
	1. 2 LR-87	2,429.0			
	2. LR-91	462.5			
	4. SRMU	73.4			
Space Shuttle (reusable) (1981)	0. 3 main engines (SSMEs) fire in parallel with solid- fueled rocket boosters (SRBs)	5,006.1	24,900 ^g	5,900 ^h	—
	1. 2 SRBs mounted on external tank (ET) fire in parallel with SSMEs	23,580.0			
	2. 2 OMS	53.4			

Source: NASA, "Aeronautics and Space Report of the President" (Annually) and NASA Historian's office.

* Solid propellant; all others are liquid.

a Due east launch except as indicated.

b Polar launch.

c With Star 48B.

d With TE-M-364-4 upper stage.

f With appropriate upper stage.

g In full performance configuration (280-420 km orbit).

h With IUS or TOS.

z First launch was a failure.

FEDERAL SPACE ACTIVITIES OUTLAYS

Fiscal Years 1961–1995
(Millions of Current Dollars)

Year	TOTAL	NASA ^a	DoD	Energy	Commerce	Other ^b
1961	\$ 1,468	\$ 694	\$ 710	\$ 64	\$ —	\$ —
1962	2,387	1,226	1,029	130	1	1
1963	4,079	2,517	1,368	181	12	1
1964	5,930	4,131	1,564	220	12	3
1965	6,886	5,035	1,592	232	24	3
1966	7,719	5,858	1,637	188	28	7
1967	7,237	5,337	1,673	184	39	5
1968	6,667	4,595	1,890	147	29	6
1969	6,326	4,078	2,095	118	31	5
1970	5,453	3,565	1,756	103	24	5
1971	4,999	3,171	1,693	97	30	8
1972	4,772	3,195	1,470	60	37	10
1973	4,719	3,069	1,557	51	29	13
1974	4,854	2,960	1,777	39	64	14
1975	4,891	2,951	1,831	34	64	11
1976	5,314	3,336	1,864	26	71	16
Tr. Qtr.	1,361	869	458	8	23	4
1977	5,559	3,600	1,833	22	87	18
1978	6,188	3,582	2,457	29	101	20
1979	6,808	3,744	2,892	55	97	21
1980	7,668	4,340	3,162	49	89	28
1981	9,166	4,877	4,131	47	81	30
1982	10,466	5,463	4,772	60	142	30
1983	12,590	6,101	6,247	40	178	25
1984	14,726	6,461	8,000	33	209	22
1985	17,255	6,607	10,441	34	155	17
1986	18,581	6,756	11,449	35	317	25
1987	21,844	7,254	14,264	37	262	26
1988	23,414	8,451	14,397	199	334	33
1989	25,143	10,195	14,504	97	306	41
1990	25,671	12,292	12,962	79	279	60
1991	28,360	13,351	14,432	251	266	60
1992	27,865	12,838	14,437	223	298	69
1993	27,398 ^r	13,092	13,779	165	295 ^r	67
1994	23,790	12,363	10,973	83	297	74
1995 ^E	24,564	12,593	11,494	70	330	77

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Excludes amounts for air transportation.

b Departments of Interior and Agriculture, and the National Science Foundation. NSF funding transferred to NASA after 1982.

E Estimated.

r Revised.

Tr. Qtr. See Glossary

FEDERAL SPACE ACTIVITIES OUTLAYS IN CONSTANT DOLLARS

Fiscal Years 1961–1995
(Millions of Constant Dollars^a)

Year	TOTAL	NASA ^b	DoD	Energy	Commerce	Other ^c
1961	\$ 5,584	\$ 2,640	\$ 2,701	\$243	\$ —	\$ —
1962	8,910	4,576	3,840	485	4	3
1963	14,973	9,239	5,020	664	45	4
1964	21,454	14,947	5,657	796	45	9
1965	24,358	17,810	5,631	821	85	11
1966	26,551	20,151	5,633	648	97	23
1967	24,076	17,753	5,566	611	128	18
1968	21,369	14,729	6,058	470	93	18
1969	19,293	12,437	6,389	358	95	14
1970	15,774	10,313	5,080	297	69	15
1971	13,756	8,726	4,659	268	82	22
1972	12,482	8,357	3,845	156	98	26
1973	11,734	7,632	3,871	127	73	31
1974	11,218	6,842	4,107	90	148	32
1975	10,279	6,202	3,848	72	134	23
1976	10,375	6,514	3,640	50	139	32
Tr. Qtr.	2,553	1,630	859	15	43	8
1977	10,038	6,500	3,309	40	157	32
1978	10,388	6,014	4,125	48	169	33
1979	10,516	5,783	4,467	84	150	32
1980	10,864	6,149	4,480	69	126	39
1981	11,787	6,272	5,312	60	104	39
1982	12,527	6,539	5,711	71	170	35
1983	14,468	7,011	7,178	46	205	29
1984	16,209	7,112	8,806	37	230	25
1985	18,294	7,005	11,070	36	165	18
1986	19,132	6,956	11,788	36	326	26
1987	21,844	7,254	14,264	37	262	26
1988	22,594	8,154	13,893	192	322	32
1989	23,231	9,420	13,401	90	283	38
1990	22,921	10,975	11,573	71	249	54
1991	24,302	11,440	12,367	215	228	51
1992	23,201	10,689	12,021	186	248	57
1993	22,275 ^r	10,644	11,202	134	240 ^r	54
1994	18,971	9,859	8,750	66	237	59
1995 ^E	19,236	9,861	9,001	55	258	60

Source: AIA, derived from NASA, "Aeronautics and Space Report of the President" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Based on fiscal year GDP implicit price deflator, 1987 = 100.

b Excludes amounts for air transportation.

c Departments of Interior and Agriculture, and the National Science Foundation. NSF funding transferred to NASA after 1982.

E Estimated.

r Revised.

Tr. Qtr. See Glossary.

FEDERAL SPACE ACTIVITIES BUDGET AUTHORITY

Fiscal Years 1961–1995

(Millions of Dollars)

Year	TOTAL	NASA ^a	DoD	Energy	Commerce	Other ^b
1961	\$ 1,809	\$ 926	\$ 814	\$ 68	\$ —	\$ 1
1962	3,295	1,797	1,298	148	51	1
1963	5,435	3,626	1,550	214	43	2
1964	6,831	5,016	1,599	210	3	3
1965	6,956	5,138	1,574	229	12	3
1966	6,971	5,065	1,689	187	27	3
1967	6,710	4,830	1,664	184	29	3
1968	6,529	4,430	1,922	145	28	4
1969	5,976	3,822	2,013	118	20	3
1970	5,340	3,547	1,678	103	8	4
1971	4,740 ^r	3,101	1,512	95	27	5
1972	4,575	3,071	1,407	55	31	11
1973	4,825	3,093	1,623	54	40	15
1974	4,641 ^r	2,759	1,766	42	60	14
1975	4,913 ^r	2,915	1,892	30	64	12
1976	5,319 ^r	3,225	1,983	23	72	16
Tr. Qtr.	1,341	849	460	5	22	5
1977	5,983	3,440	2,412	22	91	18
1978	6,518	3,623	2,738	34	103	20
1979	7,243 ^r	4,030	3,036	59	98	20
1980	8,689	4,680	3,848	40	93	28
1981	9,978	4,992	4,828	41	87	30
1982	12,442 ^r	5,528	6,679	61	145	29
1983	15,589	6,328	9,019	39	178	25
1984	17,345 ^r	6,858 ^r	10,195	34	236	22
1985	20,167	6,925	12,768	34	423	17
1986	21,660 ^r	7,165	14,126	35	309	25
1987	26,450 ^r	9,809	16,287	48	278	28
1988	26,627 ^r	8,322 ^r	17,679	241	352	33 ^r
1989	28,447 ^r	10,097 ^r	17,906	97	301	46
1990	27,463 ^r	11,460 ^r	15,616	79	243	65
1991	27,793 ^r	13,046 ^r	14,181	251	251	64
1992	28,846 ^r	13,199	15,023	223	327	74
1993	27,729 ^r	13,064 ^r	14,106	165	324	70
1994	26,649	13,022	13,166	74	312	75
1995 ^E	23,676	12,543	10,644	60	352	77

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Excludes amounts for air transportation.

b Departments of Interior and Agriculture, and the National Science Foundation, and the Environmental Protection Agency. NSF funding transferred to NASA after 1982.

E Estimated.

r Revised.

Tr. Qtr. See Glossary.

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
BUDGET AUTHORITY**
Fiscal Years 1968–1997
(Millions of Current Dollars)

Year	TOTAL	Research and Development	Space Flight Control and Data Communications ^a	Construction of Facilities	Research & Program Management ^b
1968	\$ 4,589	\$3,912	\$ —	\$ 38	\$ 639
1969	3,995	3,314	—	33	648
1970	3,749	2,993	—	53	703
1971	3,312	2,556	—	26	730
1972	3,308	2,523	—	53	732
1973	3,408	2,599	—	79	730
1974	3,040	2,194	—	101	745
1975	3,231	2,323	—	143	765
1976	3,552	2,678	—	82	792
Tr.Qtr.	932	700	—	11	221
1977	3,819	2,856	—	118	845
1978	4,064	3,012	—	162	890
1979	4,559	3,477	—	148	934
1980	5,243	4,088	—	159	996
1981	5,522	4,334	—	117	1,071
1982	6,020	4,772	—	114	1,134
1983	6,875	5,539	—	139	1,197
1984	7,316	2,064 ^a	3,772	223	1,256
1985	7,573	2,468	3,594	178	1,332
1986	7,807	2,619	3,670	176	1,342
1987	10,923	3,154	6,100	217	1,453
1988	9,062	3,280	3,806	213	1,763
1989	10,969	4,213	4,555	275	1,927
1990	12,324	5,225	4,645	218	2,023
1991	14,016	6,024	5,271	498	2,212
1992	14,317	6,848	5,352	525	1,576
1993	14,310	7,074	5,059	526	1,652
1994	14,570	7,534	4,835	493	1,708
Year	TOTAL	Science, Aeronautics, & Technology	Human Space Flight	Other ^b	Mission Support
1995 ^c	\$13,854	\$5,936	\$5,515	\$(130)	\$2,533
1996 ^E	13,822	5,846	5,457	17	2,502
1997 ^E	13,805	5,862	5,363	18	2,562

Source: Office of Management and Budget, "Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Separate budget category beginning in 1984; funds formerly included under Research and Development.

b Includes trust funds, Office of the Inspector General, & GSA building delegation.

c 1995 features major budget account restructuring.

E Estimate. Latest year reflects Administration's budget proposal.

Tr.Qtr. See Glossary.

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
OUTLAYS**

Fiscal Years 1971–1997
(Millions of Current Dollars)

Year	TOTAL	Research and Development	Space Flight Control and Data Communications ^a	Construction of Facilities	Research & Program Management ^b
1971	\$ 3,382	\$2,630	\$ —	\$ 44	\$ 708
1972	3,423	2,623	—	50	749
1973	3,315	2,541	—	45	729
1974	3,256	2,422	—	75	760
1975	3,267	2,420	—	85	761
1976	3,669	2,749	—	121	799
Tr. Qtr.	951	731	—	26	195
1977	3,945	2,980	—	105	860
1978	3,983	2,989	—	124	870
1979	4,197	3,139	—	133	925
1980	4,852	3,701	—	140	1,010
1981	5,421	4,223	—	147	1,051
1982	6,035	4,796	—	109	1,130
1983	6,664	5,316	—	108	1,240
1984	7,048	2,792 ^d	2,915	109	1,232
1985	7,318	2,118	3,707	170	1,323
1986	7,404	2,615	3,267	189	1,332
1987	7,591	2,436	3,597	149	1,409
1988	9,092	2,916	4,362	166	1,648
1989	11,052	3,922	5,030	190	1,909
1990	12,429	5,094	5,117	218	2,000
1991	13,878	5,765	5,590	326	2,196
1992	13,961	6,579	5,118	463	1,802
1993	14,306	7,086	5,025	557	1,638
1994	13,695	6,758	4,899	371	1,666
1995 ^c	5,098	3,286	1,409	305	98
1996 ^{cE}	1,280	748	380	129	23
1997 ^{cE}	201	5	32	164	—

Year	TOTAL	Science, Aeronautics, & Technology	Human Space Flight	Other ^b	Mission Support
1995 ^c	\$ 8,280	\$2,708	\$3,528	\$ 15	\$2,029
1996 ^{cE}	12,910	5,413	5,070	17	2,410
1997 ^{cE}	13,498	5,633	5,385	18	2,462

Source: Office of Management and Budget, "Budget of the United States Government" (Annually).
 NOTE: Detail may not add to totals because of rounding.
 a Separate budget category beginning in 1984, funds formerly included under Research and Development.
 b Includes trust funds, Office of Inspector General, & GSA building delegation.
 c 1995 featured major budget account restructuring. Note 1995, 1996, and 1997 outlays split between old and new account structure.
 E Estimate. Latest year reflects Administration's budget proposal.
 Tr. Qtr. See Glossary.

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
OUTLAYS IN CONSTANT DOLLARS**

Fiscal Years 1971–1997
(Millions of Constant Dollars^a)

Year	TOTAL	Research and Development	Space Flight Control and Data Communications ^b	Construction of Facilities	Research & Program Management ^c
1971	\$ 9,307	\$ 7,237	\$ —	\$121	\$1,948
1972	8,954	6,861	—	131	1,959
1973	8,242	6,318	—	112	1,813
1974	7,525	5,597	—	173	1,756
1975	6,866	5,086	—	179	1,599
1976	7,163	5,367	—	236	1,560
Tr. Qtr.	1,784	1,371	—	49	366
1977	7,124	5,381	—	190	1,553
1978	6,686	5,018	—	208	1,460
1979	6,483	4,849	—	205	1,429
1980	6,874	5,244	—	198	1,431
1981	6,971	5,431	—	189	1,352
1982	7,223	5,740	—	130	1,352
1983	7,658	6,109	—	124	1,425
1984	7,758	3,073 ^b	3,209	120	1,356
1985	7,759	2,246	3,930	180	1,403
1986	7,624	2,693	3,364	195	1,371
1987	7,591	2,436	3,597	149	1,409
1988	8,774	2,814	4,209	160	1,590
1989	10,212	3,624	4,648	176	1,764
1990	11,097	4,548	4,569	195	1,786
1991	11,892	4,940	4,790	279	1,882
1992	11,624	5,478	4,261	386	1,500
1993	11,631	5,761	4,085	453	1,332
1994	10,921	5,389	3,907	296	1,329
1995 ^d	3,992	2,573	1,103	239	77
1996 ^{dE}	983	577	292	99	18
1997 ^{dE}	151	4	24	123	—

Year	TOTAL	Science, Aeronautics, & Technology	Human Space Flight	Other ^c	Mission Support
1995 ^d	\$ 6,484	\$ 2,121	\$2,763	\$ 12	\$1,589
1996 ^{dE}	9,916	4,157	3,894	13	1,851
1997 ^{dE}	10,141	4,232	4,046	14	1,850

Source: AIA, derived from Office of Management and Budget, "Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Based on fiscal year GDP implicit price deflator, (1987=100).

b Separate budget category beginning in 1984; funds formerly included under Research and Development.

c Includes trust funds, Office of Inspector General, & GSA building delegation.

d 1995 featured major budget account restructuring. Note: 1995, 1996, and 1997 outlays split between old and new account structure.

E Estimate. Latest year reflects Administration's budget proposal.

r Revised.

Tr. Qtr. See Glossary.

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
BUDGET AUTHORITY BY MAJOR BUDGET ACCOUNT
FOR SELECTED PROGRAMS**

Fiscal Years 1996–1997
(Millions of Dollars)

	1996 ^E	1997 ^E
HUMAN SPACE FLIGHT	\$5,457	\$5,363
Space Station	\$1,864	\$1,802
U.S.-Russian Cooperative Space Activities	129	138
Space Shuttle— Total	<u>3,149</u>	<u>3,151</u>
Shuttle Operations	2,485	2,515
Safety & Obsolescence Upgrades	663	636
Payload & Utilization Operations	315	272
SCIENCE, AERONAUTICS, & TECHNOLOGY	\$5,846	\$5,862
Space Science	\$2,033	\$1,857
Life & Microgravity Sciences & Applications	489	499
Mission To Planet Earth	1,289	1,402
Space Access & Technology	641	725
Aeronautical Research & Technology	846	858
Mission Communication Services	441	421
Academic Programs	107	101
MISSION SUPPORT	\$2,502	\$2,562
Safety, Reliability, & Quality Assurance	\$ 38	\$ 37
Space Communication Services	269	291
Research & Program Management	2,053	2,079
Construction of Facilities	142	155
INSPECTOR GENERAL	\$ 16	\$ 17

Source: "NASA Budget Briefing Background Material" (Annually).

Note: Detail may not add to totals because of rounding.

E Estimate. Latest year reflects Administration's budget proposal.

**DEPARTMENT OF DEFENSE SPACE PROGRAMS
PROCUREMENT (INCLUDING INITIAL SPARES) AND RDT&E**
Fiscal Years 1995, 1996, and 1997
(Millions of Dollars^a)

Agency and Program	1995		1996 ^E		1997 ^E	
	Pro- cure- ment	RDT&E	Pro- cure- ment	RDT&E	Pro- cure- ment	RDT&E
AIR FORCE						
DSCS ^b	\$113.2	\$ 31.2	\$ 83.5	\$ 18.4	\$103.9	\$ 17.1
Defense Support Program .	354.2	60.6	64.7	34.9	71.0	29.4
Medium Launch Vehicle .	131.6	19.7	178.4	20.7	175.6	13.4
Milstar	—	598.9	—	582.9	—	727.3
NAVSTAR GPS	209.6	35.3	154.2	46.7	198.6	79.4
Space Boosters	348.6	143.2	427.2	126.3	489.6	105.5
NAVY						
FSC	\$131.3	\$ 20.6	\$ 87.4	\$ 19.6	\$113.2	\$ 20.0

Source: Department of Defense, "Program Acquisition Costs by Weapon System" (Annually).

a Total Obligational Authority.

b Army and Air Force funding.

E Estimate. Latest year reflects Administration's budget proposal.

NA Not available.

KEY: DSCS = Defense Satellite Communications System

FSC = Fleet Satellite Communications

GPS = Global Positioning System

AIR TRANSPORTATION

The year 1995 was the turnaround year for the world's airlines after five years of net losses. Although financial problems not directly related to flight operations lingered on for some individual airlines, the scheduled airline members of the International Civil Aviation Organization (ICAO) experienced an increase of more than 10 percent in total operating revenues and recorded the first net profit since 1989.

ICAO data showed total operating revenues of \$274 billion (up from \$247.4 billion in 1994), an operating result (profit) of \$14 billion

(up from \$8.4 billion), and a net result of \$4.5 billion, which compares with a \$100 million loss in 1994 and aggregate losses of more than \$20 billion in 1990-94. Although the net gain signals a reversal of an adverse trend, it does not mean instant opulence for the world's airlines, because a number of them remained burdened by heavy debt and high debt-servicing costs.



From the operating standpoint, however, the long-awaited upturn in air traffic continued in 1995 the resurgence begun in 1994. Total ton-miles performed by ICAO airlines (including passengers, baggage, freight, and mail) amounted to 200.2 billion, up from 187.2 billion in the previous year. The airlines boarded 1.3 billion passengers (up from 1.2 billion) and carried 23.3 million tons of freight (up from 21.9 million). The passenger load factor for the year was 67 percent, up from 66 percent in 1994.

The U.S. scheduled airlines recorded a 1995 operating profit of \$5.9 billion, which compares with \$2.7 billion in 1994; it was the third

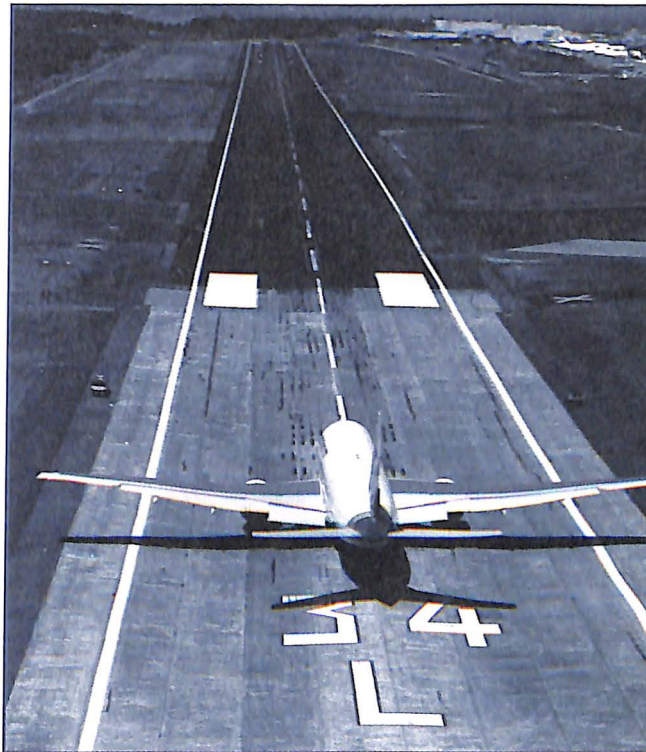
straight operating profit after three prior years of heavy losses (more than \$6 billion). The 1995 profit was compounded of revenues totaling \$93.9 billion and expenses of \$88 billion; the comparable figures for the previous year were revenues of \$88.3 billion and expenses of \$85.6 billion.

Domestic operations accounted for more than 75 percent of the U.S. airlines' total revenues; they amounted to \$70.7 billion, up from \$65.9 billion in 1994. International operations generated revenues of \$23.2 billion, up from \$22.4 billion.

U.S. air carriers experienced traffic gains in both domestic and international operations. In 1995, scheduled airlines flew a record 70.95 billion revenue ton-miles, compared with 67.99 billion in 1994. Passenger ton-miles totaled more than 54 billion (up from 51.9 billion) and cargo ton-miles came to 16.9 billion (up from 16.1 billion).

Domestic operations accounted for 91 percent of the 547.4 million passenger enplanements in 1995; the breakdown was 498.6 million domestic and 48.8 million international enplanements. Total revenue passenger-miles flown by U.S. carriers came to 540 billion, compared with 519 billion in the previous year. The revenue passenger load factor reached all-time highs in 1995: 65.4 percent for domestic service, up from 64.7 percent and 71.8 percent international service, up from 70.6 percent.

The world airlines' fleet of turbine-powered aircraft increased by 1,694 units in 1995, according to the annual survey sponsored by Exxon International. The total number of aircraft in service at year-end 1995 was 20,041, compared with 18,347 at the end of the previous year. The number of in-service planes built in the U.S. was 11,775 or 58.8 percent; the percentage has been declining steadily from a 1980 high of 69.8 percent.



OPERATING REVENUES AND EXPENSES OF WORLD SCHEDULED AIRLINES^a

Calendar Years 1992–1995
(Millions of U.S. Dollars)

	1992	1993	1994	1995 ^p
OPERATING REVENUES:				
Scheduled Services:				
Passenger	\$165,140	\$171,440	\$185,170	
Freight	20,110	20,270	23,800	
Mail	<u>2,340</u>	<u>2,220</u>	<u>2,360</u>	
Total Scheduled Services	\$187,590	\$193,930	\$211,390	NA
Non-Scheduled Services	7,870	8,230	10,150	
Incidental	<u>22,340</u>	<u>23,840</u>	<u>25,860</u>	
Total Operating Revenues	\$217,800	\$226,000	\$247,400	\$274,000
OPERATING EXPENSES:				
Flight Operations	\$ 57,360	\$ 59,270	\$ 60,910	
Maintenance & Overhaul	23,830	22,530	23,990	
Depreciation & Amortization	15,380	15,580	18,050	
User Charges & Station Expenses	37,880	38,740	41,410	NA
Passenger Services	23,630	23,580	25,610	
Ticketing, Sales & Promotion	36,050	36,590	37,510	
General, Administrative & Other ..	<u>25,470</u>	<u>27,410</u>	<u>31,520</u>	
Total Operating Expenses	\$219,600	\$223,700	\$239,000	\$260,000
OPERATING RESULT	\$ (1,800)	\$ 2,300	\$ 8,400	\$ 14,000
Percent of Revenue	-0.8%	1.0%	3.4%	5.1%
NET RESULT^b	\$ (7,900)	\$ (4,400)	\$ (100)	\$ 4,500
Percent of Revenue	-3.6% ^r	-1.9%	-0.0%	1.6%

Source: International Civil Aviation Organization, "Civil Aviation Statistics of the World" (Annually).

a Excludes domestic operations in the Commonwealth of Independent States.

b Net Result equals Operating Result minus non-operating items, including interest, income taxes, retirement of property and equipment, affiliated companies, and subsidiaries.

NA Not available.

p Preliminary.

r Revised.

(l) Denotes loss.

**TRAFFIC STATISTICS
WORLD AIRLINE SCHEDULED SERVICE^a**

Calendar Years 1970–1995

Year	Passen- gers Carried	Freight Tons Carried	Passen- ger- Miles Per- formed	Seat- Miles Avail- able	Passen- ger Load Factor	Ton-Miles Performed		
						Freight	Mail	TOTAL (Passen- gers & Baggage, Freight, Mail)
						(Millions)	(Billions)	(Percent)
1970	383	6.7	286	522	55 %	8,180	2,150	38,810
1971	411	7.4	307	568	54	9,060	1,990	41,420
1972	450	8.0	348	609	57	10,290	1,900	46,690
1973 ^f	489	9.1	384	667	58	12,010	1,970	51,910
1974	515	9.5	408	688	59	13,020 ^r	1,980	55,270
1975	534	9.6	433	733	59	13,270	1,990	58,070 ^f
1976	576	10.3	475	789	60	14,750	2,080	63,880
1977	610	11.1	508	837	61	16,180 ^f	2,170 ^f	68,790
1978	679	11.7	582	902	65	17,770	2,240	77,770
1979	754	12.1	659	999	66	19,190	2,350	86,890 ^f
1980	748	12.2	677	1,071	63	20,120	2,520	89,710
1981	752	12.0	695	1,091	64	21,150	2,600	92,800
1982	766	12.8	710	1,115	64	21,600	2,650	94,830
1983	798	13.5	739	1,151	64	24,050	2,740	100,270
1984	848	14.8	794	1,226 ^f	65	27,170	2,950	109,050 ^f
1985	899	15.1	850 ^f	1,293	66	27,290	3,010	114,860
1986	960	16.2	902	1,389	65	29,580	3,110	122,470
1987	1,028	17.7	988 ^f	1,471	67	33,100	3,220	134,570
1988 ^f	1,082	19.0	1,060	1,568	68	36,480	3,310	145,280
1989 ^f	1,109	19.9	1,102	1,621	68	39,130	3,460	152,770
1990 ^f	1,165	20.3	1,177	1,740	68	40,270	3,650	161,110
1991	1,135	19.2	1,146	1,726	66	40,090 ^f	3,490	157,920 ^f
1992 ^f	1,145	19.4	1,198	1,818	66	42,860	3,510	165,700
1993 ^f	1,141	19.7	1,211	1,872	65	46,270	3,580	171,030
1994	1,231	21.9	1,303	1,966	66	52,900	3,700	187,190
1995 ^p	1,288	23.3	1,386	2,072	67	57,490	3,830	200,230

Source: International Civil Aviation Organization (ICAO).

a Includes international and domestic traffic on scheduled service performed by the airlines of the 184 states which were members of ICAO in 1995.

p Preliminary.

r Revised.

OPERATING REVENUES AND EXPENSES OF U.S. AIR CARRIERS^a DOMESTIC AND INTERNATIONAL OPERATIONS

Calendar Years 1964–1995

(Millions of Dollars)

Year	TOTAL OPERATIONS ^b			Domestic Operations			International Operations		
	Operating Revenues	Operating Expenses	Operating Profit (or Loss)	Operating Revenues	Operating Expenses	Operating Profit (or Loss)	Operating Revenues	Operating Expenses	Operating Profit (or Loss)
1964	\$ 4,251	\$ 3,781	\$ 470	\$ 3,169	\$ 2,849	\$ 320	\$ 1,082	\$ 932	\$ 150
1965	4,958	4,286	672	3,691	3,239	452	1,267	1,047	220
1966	5,745	4,970	775	4,171	3,670	502	1,574	1,300	274
1967	6,865	6,157	708	4,981	4,560	421	1,884	1,597	287
1968	7,753	7,248	505	5,691	5,397	295	2,062	1,852	210
1969	8,791	8,403	387	6,936	6,613	322	1,855	1,790	65
1970	9,290	9,247	43	7,180	7,181	(1)	2,109	2,066	44
1971	10,046	9,717	328	7,753	7,496	257	2,292	2,221	71
1972	11,163	10,578	584	8,652	8,158	493	2,512	2,420	91
1973	12,419	11,834	585	9,694	9,200	494	2,725	2,633	91
1974	14,703	13,978	725	11,546	10,761	785	3,157	3,218	(60)
1975	15,356	15,229	128	12,020	11,903	117	3,336	3,326	11
1976	17,503	16,781	721	13,899	13,324	575	3,605	3,457	147
1977	19,926	19,018	908	15,822	15,166	657	4,104	3,852	252
1978	22,892	21,527	1,366	18,189	17,172	1,018	4,703	4,355	348
1979	27,227	27,028	199	21,652	21,523	129	5,575	5,505	69
1980	33,728	33,949	(222)	26,404	26,409	(6)	6,543	6,766	(223)
1981	36,211	36,612	(401)	28,788	29,051	(264)	6,390	6,574	(184)
1982	36,066	36,804	(739)	28,728	29,478	(750)	6,435	6,452	(17)
1983	38,593	38,231	362	31,014	31,186	(171)	7,163	6,693	470
1984	44,060	41,946	2,114	35,394	33,812	1,582	7,975	7,485	490
1985	48,580	47,207	1,372	37,629	36,611	1,018	8,302	7,984	319
1986	50,086	48,855	1,231	41,001	39,984	1,060	8,621	8,458	163
1987	56,787	54,339	2,448	45,658	43,925	1,733	10,925	10,226	698
1988	63,679	60,236	3,443	50,187	47,739	2,448	13,402	12,403	998
1989	69,225	67,413	1,812	54,314	52,460	1,855	14,911	14,954	(43)
1990	75,984	77,898	(1,913)	57,994	58,983	(989)	17,990	18,914	(924)
1991	75,158	76,943	(1,785)	56,230	56,758	(528)	18,928	20,185	(1,257)
1992	78,140	80,585	(2,444)	57,654	58,801	(1,147)	20,486	21,784	(1,298)
1993	84,559	83,121	1,438	63,233	61,157	2,076	21,326	21,964	(637)
1994	88,313	85,600	2,713	65,949	63,758	2,191	22,364	21,842	522
1995 ^p	93,927	88,038	5,889	70,710	65,909	4,801	23,216	22,129	1,088

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Scheduled and non-scheduled service for all certificated route air carriers. Excludes supplemental air carriers, commuters, and air taxis.

b For 1980 and subsequent years, includes 'Other' operations not reported as 'Domestic' or 'International.'

p Preliminary

U.S. AIR CARRIERS
TOTAL ASSETS AND INVESTMENT IN EQUIPMENT

Calendar Years 1969–1995
(Millions of Dollars)

Year	TOTAL Assets	Value of Flight Equipment	Value of Ground Property & Equipment & Other ^a	Less: Reserves for Depreciation & Overhaul	Equals: Net Value of Owned Operating Property & Equipment	Investment in Operating Property and Equipment as a Percent of Total Assets
1969	\$12,069	\$ 9,943	\$ 1,516	\$ 3,560	\$ 7,899	65.4 %
1970	12,913	10,950	1,951	4,120	8,782	68.0
1971	12,998	11,221	2,028	4,649	8,600	66.2
1972	13,635	11,918	2,225	5,115	9,028	66.2
1973	14,464	12,908	2,424	5,693	9,639	66.6
1974	15,200	13,538	2,539	6,252	9,826	64.6
1975	15,064	14,035	2,635	6,823	9,847	65.4
1976	15,454	14,399	2,792	7,585	9,605	62.2
1977	16,869	14,822	2,997	8,141	9,679	57.4
1978	20,745	16,127	3,367	8,799	10,696	51.6
1979	24,907	18,561	3,985	9,746	12,800	51.4
1980	28,900	20,859	4,682	10,309	15,233	52.7
1981	30,513	22,375	5,175	11,028	16,521	54.1
1982	31,525	23,786	5,424	11,405	17,804	56.5
1983	35,213	26,588	6,191	12,910	19,868	56.4
1984	36,769	28,509	6,061	14,043	20,527	55.8
1985	40,978	30,402	6,772	15,467	21,707	53.0
1986	47,105	31,750	8,468	14,764	25,454	54.0
1987	51,436	33,177	9,223	15,580	26,820	52.1
1988	56,047	35,781	10,248	17,450	28,579	51.0
1989	62,454	38,812	11,903	19,018	31,697	50.8
1990	67,769	40,215	13,523	20,593	33,144	48.9
1991	70,332	42,897	14,285	22,009	35,173	50.0
1992	75,426	48,563	15,219	24,445	39,337	52.2
1993	82,399	51,513	15,438	24,949	42,003	51.0
1994	84,442	51,951	15,844	26,476	41,319	48.9
1995 ^p	88,948	55,452	16,559	28,692	43,319	48.7

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

a Includes land and construction in progress.

p Preliminary.

SOURCES OF OPERATING REVENUES OF U.S. AIR CARRIERS^a DOMESTIC AND INTERNATIONAL OPERATIONS

Calendar Years 1981–1995

(Millions of Dollars)

Year	TOTAL Operating Revenues	Passenger Service ^b	Mail	Freight ^b & Air Express	Excess Baggage	Other ^c
DOMESTIC OPERATIONS						
1981	\$28,788	\$25,504	\$ 497	\$1,659	\$36	\$1,091
1982	28,728	25,440	524	1,505	42	1,218
1983	31,014	27,519	516	1,602	52	1,326
1984	35,393	31,437	552	1,716	70	1,618
1985	37,629	33,343	733	1,581	78	1,895
1986	41,001	33,814	679	4,278	85	2,159
1987	45,658	37,492	704	4,952	67	2,443
1988	50,187	41,002	789	5,807	72	2,518
1989	54,314	43,670	767	5,408	70	4,399
1990	57,994	46,282	747	4,276	76	6,613
1991	56,230	44,594	734	4,487	78	6,337
1992	57,654	45,246	937	4,655	87	6,729
1993	63,233	49,289	974	5,266	91	7,612
1994	65,949	50,504	971	5,844	98	8,531
1995 ^P	70,710	53,906	1,044	6,469	92	9,199
INTERNATIONAL OPERATIONS						
1981	\$ 6,390	\$ 4,916	\$ 165	\$ 984	\$25	\$ 299
1982	6,435	4,959	177	990	25	283
1983	7,163	5,605	152	999	23	384
1984	7,975	6,074	158	1,169	27	546
1985	8,302	6,451	161	1,130	28	532
1986	8,621	6,551	154	1,451	28	437
1987	10,925	8,374	180	1,783	33	555
1988	13,402	10,357	183	2,150	39	672
1989	14,911	11,181	188	2,417	47	1,078
1990	17,990	13,468	223	2,602	43	1,654
1991	18,928	14,103	223	3,134	50	1,419
1992	20,486	15,664	247	2,980	47	1,547
1993	21,326	15,915	237	3,220	49	1,905
1994	22,364	16,300	212	3,606	46	2,201
1995 ^P	23,216	16,799	216	3,833	48	2,322

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Scheduled and non-scheduled service for all certificated route air carriers. Excludes supplemental air carriers, commuters, and air taxis.

b Scheduled and charter.

c Includes subsidy, reservation cancellation fees, miscellaneous operating revenues, and other transport-related revenues.

p Preliminary.

OPERATING EXPENSES OF U.S. AIR CARRIERS^a
DOMESTIC AND INTERNATIONAL OPERATIONS

Calendar Years 1981–1995
(Millions of Dollars)

Year	TOTAL Operating Expenses	Flying Opera- tions	Mainte- nance	Passen- ger Service	Aircraft & Traffic Ser- vicing	Promo- tion and Sales	Depreci- ation & Amorti- zation	Other ^b
DOMESTIC OPERATIONS								
1981	\$29,051	\$12,037	\$2,822	\$2,522	\$ 4,497	\$3,708	\$1,723	\$1,742
1982	29,478	11,529	2,709	2,668	4,665	4,160	1,876	1,869
1983	31,186	11,370	2,878	2,983	5,104	4,764	2,107	1,980
1984	33,812	12,161	3,176	3,192	5,369	5,310	2,223	2,380
1985	36,611	12,684	3,604	3,464	5,781	6,089	2,318	2,670
1986	39,934	11,368	4,475	3,793	7,680	6,820	2,652	3,171
1987	43,925	12,509	4,951	4,169	8,575	7,399	2,855	3,468
1988	47,739	13,176	5,643	4,444	9,527	8,235	2,977	3,737
1989	52,460	14,749	6,184	4,775	9,449	8,718	3,078	5,507
1990	58,983	18,166	6,921	5,220	9,094	9,102	3,273	7,207
1991	56,758	16,831	6,682	5,068	9,140	8,856	3,217	6,964
1992	58,801	17,203	6,884	5,327	9,783	8,936	3,340	7,328
1993	61,157	17,622	7,025	5,241	10,172	9,387	3,621	8,089
1994	63,758	17,912	7,312	5,305	10,543	9,882	3,782	9,023
1995 ^p	65,909	18,888	7,625	5,272	11,035	9,955	3,752	9,382
INTERNATIONAL OPERATIONS								
1981	\$ 6,574	\$ 2,757	\$ 540	\$ 583	\$ 932	\$ 945	\$ 382	\$ 435
1982	6,452	2,596	512	577	893	954	396	525
1983	6,693	2,490	548	664	936	1,162	389	505
1984	7,485	2,629	677	749	975	1,308	446	701
1985	7,984	2,738	768	852	1,069	1,414	482	662
1986	8,458	2,402	901	877	1,386	1,665	518	711
1987	10,226	2,836	1,096	1,059	1,749	2,094	533	860
1988	12,403	3,230	1,332	1,280	2,193	2,742	618	1,009
1989	14,954	3,919	1,724	1,454	2,483	3,108	746	1,520
1990	18,878	5,454	2,051	1,738	2,657	3,833	887	2,295
1991	20,185	5,636	2,152	1,861	2,831	4,602	892	2,210
1992	21,784	5,843	2,148	2,204	3,255	5,229	1,033	2,073
1993	21,964	5,928	1,967	2,175	3,072	5,339	1,077	2,406
1994	21,842	5,842	2,064	2,311	3,336	4,335	1,237	2,716
1995 ^p	22,129	6,131	2,238	2,467	3,727	3,522	1,101	2,943

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Scheduled and non-scheduled service for all certificated route air carriers. Excludes supplemental air carriers, commuters, and air taxis.

b General and administrative and other transport-related expenses.

p Preliminary.

TRAFFIC STATISTICS
U.S. AIR CARRIER SCHEDULED SERVICE^a
 Calendar Years 1964-1995

Year	Revenue Ton-Miles (Millions)			Total Available Ton-Miles (Millions)	Total Revenue Load Factor	Aircraft Revenue Miles (Millions)	Average Overall Flight Stage Length (Miles)	Average Available Seats per Aircraft Mile
	Passen- ger	Cargo ^b	Total					
1964	5,630	1,803	7,434	15,514	47.9%	1,189	301	93
1965	6,629	2,356	8,986	18,408	48.8	1,354	322	96
1966	7,736	2,949	10,686	20,939	51.0	1,482	339	98
1967	9,561	3,475	13,036	26,968	48.3	1,834	371	101
1968	11,023	4,226	15,249	33,221	45.9	2,146	401	107
1969	12,197	4,701	16,898	38,664	43.7	2,385	443	112
1970	13,171	4,994	18,166	41,693	43.6	2,426	473	117
1971	13,565	5,120	18,685	44,139	42.3	2,378	476	125
1972	15,241	5,506	20,746	45,583	45.5	2,376	471	129
1973	16,196	6,046	22,242	49,019	45.4	2,448	477	135
1974	16,292	6,133	22,425	46,848	47.9	2,258	478	140
1975	16,281	5,905	22,186	47,254	46.9	2,241	476	143
1976	17,899	6,222	24,121	49,325	48.9	2,320	480	146
1977	19,322	6,587	25,909	52,284	49.6	2,419	490	149
1978	22,678	7,001	29,679	54,765	54.2	2,520	502	152
1979	26,202	7,189	33,390	60,844	54.9	2,791	517	154
1980	25,519	7,084	32,603	62,983	51.8	2,816	526	158
1981	24,889	7,060	31,949	61,186	52.2	2,703	519	161
1982	25,964	6,886	32,850	62,401	52.6	2,699	544	167
1983	28,183	7,573	35,756	65,385	54.7	2,809	558	169
1984	30,512	8,185	38,697	72,223	53.6	3,134	575	168
1985	33,640	7,689	41,329	76,059	54.3	3,320	569	168
1986	36,655	9,026	45,681	85,140	53.7	3,725	580	168
1987	40,453	10,016	50,469	92,209	54.7	3,988	606	167
1988	42,330	11,469	53,800	97,899	55.0	4,141	618	169
1989	43,271	12,187	55,458	100,082	55.4	4,193	633	169
1990	45,793	12,549	58,342	107,559	54.2	4,491	649	170
1991	44,795	12,130	56,925	105,599	53.9	4,416	651	169
1992	47,855	13,199	61,054	112,749	54.2	4,661	661	169
1993	48,968	14,120	63,088	115,473	54.6	4,846	669	166
1994 ^r	51,938	16,052	67,989	120,798	56.3	5,033	668	163
1995	54,040	16,911	70,951	126,084	56.3	5,289	657	160

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Traffic Statistics Monthly" (Monthly).

NOTE: Detail may not add to totals because of rounding.

a Includes international and domestic operations.

b Includes freight, air express, U.S. and foreign mail

r Revised

PASSENGER STATISTICS
U.S. AIR CARRIER SCHEDULED SERVICE
DOMESTIC AND INTERNATIONAL OPERATIONS
 Calendar Years 1981–1995

Year	Revenue Passenger Enplanements (Thousands)	Average Passenger Trip-Length (Miles)	Revenue Passenger Miles (Millions)	Available Seat Miles (Millions)	Revenue Passenger Load Factor ^a
DOMESTIC OPERATIONS					
1981	265,304	749	198,715	346,172	57.4
1982	274,342	766	210,149	359,528	58.5
1983	296,721	765	226,909	379,150	59.8
1984	321,047	759	243,692	422,507	57.7
1985	357,109	758	270,584	445,826	60.7
1986	393,864	767	302,090	497,991	60.7
1987	416,831	779	324,637	526,958	61.6
1988	419,210	786	329,309	536,663	61.4
1989	416,331	793	329,975	530,079	62.3
1990	423,565	803	340,231	563,065	60.4
1991	412,360	806	332,566	543,638	61.2
1992	431,693	806	347,931	557,989	62.4
1993	443,172	799	354,177	571,489	62.0
1994 ^r	481,755	787	378,990	585,438	64.7
1995	498,611	791	394,450	603,450	65.4
INTERNATIONAL OPERATIONS					
1981	20,672	2,427	50,173	78,725	63.7
1982	19,760	2,505	49,495	80,591	61.4
1983	21,917	2,506	54,920	85,388	64.3
1984	23,636	2,599	61,424	92,817	66.2
1985	24,913	2,642	65,819	101,963	64.6
1986	25,082	2,570	64,456	109,445	58.9
1987	30,847	2,588	79,834	121,763	65.6
1988	35,404	2,655	93,992	140,140	67.1
1989	37,361	2,750	102,739	154,297	66.6
1990	41,995	2,803	117,695	170,310	69.1
1991	39,941	2,889	115,389	171,561	67.3
1992	43,415	3,009	130,622	194,784	67.1
1993	45,348	2,988	135,508	200,151	67.7
1994 ^r	47,093	2,981	140,391	198,893	70.6
1995	48,773	2,992	145,950	203,162	71.8

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Traffic Statistics Monthly" (Monthly).

a. Revenue passenger miles as a percent of available seat miles.

r. Revised.

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET**(By Model, 1991–1995)**

	1991	1992	1993	1994	1995 ^a
TOTAL AIRCRAFT IN SERVICE	15,181	16,100	17,284	18,347	20,041
Turbojets—TOTAL	<u>9,819</u>	<u>10,504</u>	<u>11,345</u>	<u>12,000</u>	<u>12,810</u>
Aerospatiale SE-210 Caravelle	38	34	29	28	27
Aerospatiale SN-601 Corvette	2	—	—	—	—
Airbus A300	331	346	374	391	414
Airbus A310	193	207	222	217	218
Airbus A320	247	354	413	463	510
Airbus A321	—	—	—	17	35
Airbus A330	—	—	1	10	38
Airbus A340	—	—	20	44	60
Antonov 72/74	—	—	—	—	4
Antonov 124	7	7	13	13	11
Avro RJ-70/85/100	(b)	(b)	12	30	51
B.Ae./Aerospatiale Concorde	14	14	14	13	13
B.Ae. 146	166 ^b	173 ^b	185	196	204
B.Ae. One-Eleven	146	143	121	120	112
B.Ae. Trident	32	9	9	9	—
B.Ae. (HS) 125	17	19	23	22	19
Beech 400 Beechjet	1	3	2	2	2
Boeing 707/720	198	176	151	151	123
Boeing 727	1,515	1,457	1,390	1,373	1,346
Boeing 737	2,019	2,189	2,363	2,476	2,569
Boeing 747	806	865	918	957	963
Boeing 757	380	497	566	629	697
Boeing 767	399	462	515	550	580
Boeing 777	—	—	—	—	13
Canadair CL-601 Challenger	2	2	4	2	2
Canadair Regional Jet	—	2	23	49	83
Cessna Citation I/II/III	44	35	31	36	44
Convair 880/990	—	1	1	1	—
Dassault Falcon 10/20/50	43	41	46	60	66
Dassault Mercure	11	8	8	5	—
Fokker F-28 Fellowship	197	191	190	185	185
Fokker 70	—	—	—	—	23
Fokker 100	93	150	220	253	267
Gulfstream II/III/IV G-1159	16	17	17	16	15
Ilyushin IL-62	39	33	49	84	106
Ilyushin IL-76	61	64	83	154	209
Ilyushin IL-86	—	—	12	37	51
Ilyushin IL-96	—	—	—	5	5
Israel Aircraft 1121/1124	2	—	12	13	13
Learjet	34	37	28	39	49
Lockheed L-1011 Tristar	227	214	213	208	190
Lockheed L-1329 Jetstar	5	4	4	4	3
MBB Hansa HFB-320	—	—	—	3	13
McDonnell Douglas DC-8	257	261	264	270	274
McDonnell Douglas DC-9	741	741	767	791	787
McDonnell Douglas DC-10	361	361	354	347	335
McDonnell Douglas MD-11	36	73	107	127	146
McDonnell Douglas MD-80	908	1,032	1,067	989	1,115
McDonnell Douglas MD-90	—	—	—	—	14
Rockwell Sabreliner 60	3	2	1	—	—

(Continued on next page)

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET

(By Model, 1991–1995, continued)

	1991	1992	1993	1994	1995
Turbojets (continued)					
Tupolev Tu-134	54	82	138	155	192
Tupolev Tu-154	156	131	225	283	379
Tupolev Tu-204	—	—	—	5	4
Yakovlev Yak-40/42	48	64	140	168	231
Turbine-Powered					
Helicopters—TOTAL	<u>188</u>	<u>176</u>	<u>242</u>	<u>295</u>	<u>774</u>
Aerospatiale SA-315 Lama	—	—	—	—	2
Aerospatiale SA-316 Alouette III	4	—	—	—	3
Aerospatiale SA-318 Alouette II	3	2	1	1	1
Aerospatiale SA-319 Alouette III Astazou	4	2	—	—	—
Aerospatiale SA-341 Gazelle ..	1	1	—	—	—
Aerospatiale (Nurtanio) SA-330 Puma	18	18	28	17	22
Aerospatiale AS-332 Super Puma	5	5	5	16	69
Aerospatiale AS-350 Ecureuil/ Astar	10	7	3	4	40
Aerospatiale AS-355 Ecureuil 2/ Twinstar	4	4	8	8	15
Aerospatiale SA-365 Dauphin II	10	10	13	17	24
Agusta A109	—	3	—	1	1
Bell (Agusta/Fuji) 204	5	3	3	2	5
Bell 205	2	2	2	1	19
Bell 206 Jetranger/Longranger ..	33	33	36	54	145
Bell 212	15	16	20	21	105
Bell 214	—	—	—	4	12
Bell 222 UT	—	—	—	1	1
Bell 412	4	6	17	16	25
Boeing 107	—	—	—	—	16
Boeing Vertol BV-234	—	—	—	—	9
Hughes (Kawasaki) 500/369D ..	1	—	—	—	12
Kamov Ka-32	—	—	—	—	2
MBB BK-117	—	—	—	—	2
MBB/Nurtanio Bo.105	33	33	41	41	58
Mil Mi-8	—	—	—	17	18
Sikorsky S-55T	5	5	5	5	4
Sikorsky S-58T	4	4	4	1	1
Sikorsky S-61	10	10	33	42	81
Sikorsky S-62	—	—	—	1	1
Sikorsky S-64	—	—	—	—	5
Sikorsky S-76	11	12	23	25	72
Westland 30	3	—	—	—	—

(Continued on next page)

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET

(By Model, 1991-1995, continued)

	1991	1992	1993	1994	1995
Turboprops—TOTAL	<u>5,174</u>	<u>5,420</u>	<u>5,697</u>	<u>6,052</u>	<u>6,457</u>
Aerospatale N.262/Mohawk 298	14	15	10	12	13
Aerospatale/Aeritalia ATR 42 ..	210	227	242	245	259
Aerospatale/Aeritalia ATR 72 ..	48	76	103	138	158
Airtech CN-235	24	23	24	24	25
Antonov An-12	20	19	25	23	46
Antonov An-22	—	2	2	2	2
Antonov An-24/26/28/30/32	216	171	258	307	400
B.Ae. ATP	41	46	50	53	52
B.Ae. Vanguard	4	4	3	2	1
B.Ae. Viscount	27	25	23	25	24
B.Ae. (HP-137) Jetstream 31	205	309	296	306	296
B.Ae. Jetstream 41	—	2	18	30	66
B.Ae. HS-748	130	123	115	122	126
Beech 18 Turbo	20	17	1	21	21
Beech 90 King Air	28	30	38	30	35
Beech 99	122	130	139	140	143
Beech 100 King Air	24	31	38	44	46
Beech 200/300 Super King Air ..	76	87	94	101	121
Beech T300	7	2	4	5	5
Beech 1900C/D	191	224	251	291	371
Bristol 175 Britannia	6	5	5	3	1
Canadair CL-44	11	8	8	4	2
CASA/Nurtanio C-212 Aviocar ..	109	104	102	107	114
Cessna 208 Caravan I	312	307	312	380	458
Cessna F406 Caravan II	21	23	19	21	35
Cessna 425/441 Conquest I/II ..	4	4	5	7	4
Convair 580/600/640	92	99	98	110	111
DHC-2/3 Turbo Beaver/Otter ..	4	4	6	9	17
DHC-5 Buffalo	1	1	1	1	1
DHC-6 Twin Otter	428	437	419	405	395
DHC-7 Dash 7	79	80	84	73	70
DHC-8 Dash 8	254	307	341	358	365
Dornier DO-228	96	112	116	126	106
Dornier DO-328	—	—	3	15	42
Douglas DC-3T Turbo Express ..	1	—	—	2	2
Embraer EMB-110 Bandeirante ..	174	181	189	188	192
Embraer EMB-120 Brasilia	225	251	267	276	254
Fokker/Fairchild F-27/FH-227 Friendship	389	378	354	348	315
Fokker 50	121	134	152	164	171
GAF Nomad	8	12	11	22	18
Grumman G-21 Turbo Goose ..	1	1	1	1	1
Grumman G-73 Turbo Mallard ..	4	5	6	5	5
Grumman G-159 Gulfstream I ..	33	31	33	41	39

(Continued on next page)

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET

(By Model, 1991–1995, continued)

	1991	1992	1993	1994	1995
Turboprops (continued)					
Handley Page Herald	17	16	15	16	15
Harbin YU-12 II	5	26	33	40	41
IAI Arava	1	1	1	2	2
Ilyushin IL-18	42	31	29	33	33
Ilyushin IL-114	—	—	—	—	2
LET L-410	17	51	19	25	61
Lockheed L-188 Electra	67	65	56	65	51
Lockheed L-100/L-382 Hercules ..	54	56	53	14	56
Mitsubishi MU-2B	8	5	6	7	14
Nihon AMC YS-11	94	92	85	85	81
Pilatus Britten-Norman BN-2T Turbo Islander	3	2	2	2	2
Pilatus PC-6 Turbo Porter	—	—	—	—	25
Piper PA-31T/42 Cheyenne	25	19	19	17	16
Piper T-1040	12	13	11	10	12
PZL (Antonov) An-28	—	3	3	1	6
Rockwell Turbo Commander	15	12	11	9	9
Saab SF-340A/B	265	312	347	347	355
Saab 2000	—	—	—	5	22
Shorts SC-5 Belfast	5	5	4	2	2
Shorts SC-7 Skyliner/Skyvan	25	24	25	31	35
Shorts 330	51	55	56	62	50
Shorts 360	139	147	148	108	106
Swearingen Merlin	36	36	49	49	38
Swearingen Metro	338	357	377	396	423
Transall C-160	8	8	6	6	6
Xian (Antonov) Y-7	67	65	61	65	66
TOTAL AIRCRAFT IN SERVICE ..	15,181	16,100	17,284	18,347	20,041
Number Manufactured in U.S. ..	9,517	10,064	10,523	10,913	11,775
Percent Manufactured in U.S. ..	62.7 %	62.5 %	60.9 %	59.5 %	58.8 %
Turbojet Aircraft in Service	9,819	10,504	11,345	12,000	12,810
Number Manufactured in U.S. ..	7,950	8,427	8,759	8,949	9,265
Percent Manufactured in U.S. ..	81.0 %	80.2 %	77.2 %	74.6 %	72.3 %
Turboprop Aircraft in Service	5,174	5,420	5,697	6,052	6,457
Number Manufactured in U.S. ..	1,483	1,549	1,624	1,793	2,002
Percent Manufactured in U.S. ..	28.7 %	28.6 %	28.5 %	29.6 %	31.0 %
Turbine-Powered Helicopters					
In Service	188	176	242	295	774
Number Manufactured in U.S. ..	84	88	140	171	508
Percent Manufactured in U.S. ..	44.7 %	50.0 %	57.9 %	58.0 %	65.6 %

Source: Exxon International Company, "Air World Survey," compiled by Aviation Data Service, Inc. (Annually).

NOTE: The "Air World Survey" covers aircraft in airline service as of December 31. Excludes air taxi operators.

a Includes aircraft operated in the Commonwealth of Independent State countries. Formerly grouped under Aeroflot and excluded from the summary.

b RJ-70 combined with B.Ae. 146.

**PERCENT OF CIVIL TURBOJET ENGINE MARKET
BY MANUFACTURER AND AIRCRAFT MODEL**

as of December 1995

Aircraft Manufacturer and Model	Total Installed Engines	Engine Manufacturers					
		P&W	GE	RR	CFM	IAE	Other
TOTAL ENGINES	37,347	15,605	4,298	3,544	4,474	418	9,008
PERCENT SHARE	100.0%	41.8%	11.5%	9.5%	12.0%	1.1%	24.1%
Airbus A300 ^a	292	19%	81%	—%	—%	—%	—%
Airbus A300B4-200 ...	272	11	89	—	—	—	—
Airbus A300B4-600R .	292	51	49	—	—	—	—
Airbus A310 ^a	158	35	65	—	—	—	—
Airbus A310-300	296	40	60	—	—	—	—
Airbus A320 ^a	36	—	—	—	100	—	—
Airbus A320-200	978	—	—	—	63	37	—
Airbus A321	72	—	—	—	58	42	—
Airbus A330	76	55	21	24	—	—	—
Airbus A340	244	—	—	—	100	—	—
Antonov AN-72	16	—	—	—	—	—	100
Antonov AN-74	12	—	—	—	—	—	100
Antonov AN-124	152	—	—	—	—	—	100
AS Corvette	8	100	—	—	—	—	—
AS Caravelle	56	75	—	25	—	—	—
AS/B Ae Concorde	52	—	—	100	—	—	—
Avro Int'l RJ	204	—	—	—	—	—	100
BAe 1-11	264	—	—	100	—	—	—
BAe 146	828	—	—	—	—	—	100
BAe HS Trident	9	—	—	100	—	—	—
BAe HS 125	48	4	—	33	—	—	63
Beech 400 Beechjet ..	4	100	—	—	—	—	—
Boeing B-707 ^a	152	97	—	3	—	—	—
Boeing B-707-320C ...	520	100	—	—	—	—	—
Boeing B-720	24	100	—	—	—	—	—
Boeing B-727 series ^a ..	975	87	—	13	—	—	—
Boeing B-727 ^b	339	100	—	—	—	—	—
Boeing B-727 Adv F ..	363	100	—	—	—	—	—
Boeing B-727-200 ^b ...	435	100	—	—	—	—	—
Boeing B-727-200 ADV	2,259	100	—	—	—	—	—
Boeing B-737 ^a	280	79	—	—	21	—	—
Boeing B-737-200	330	100	—	—	—	—	—
Boeing B-737-200 ADV	1,396	100	—	—	—	—	—
Boeing B-737-300	1,774	—	—	—	100	—	—
Boeing B-737-400	752	—	—	—	100	—	—
Boeing B-737-500	586	—	—	—	100	—	—
Boeing B-747 ^a	1,524	45	45	10	—	—	—
Boeing B-747-100	564	94	—	6	—	—	—
Boeing B-747-200B ...	776	70	16	14	—	—	—
Boeing B-747-400	1,080	40	32	28	—	—	—
Boeing B-757 ^a	164	44	—	56	—	—	—
Boeing B-757-200	1,200	43	—	57	—	—	—
Boeing B-767 ^a	372	28	72	—	—	—	—
Boeing B-767-200ER ..	248	49	51	—	—	—	—
Boeing B-767-300ER ..	556	40	52	8	—	—	—
Boeing B-777	26	77	23	—	—	—	—
Canadair Regional Jet .	164	—	100	—	—	—	—

(Continued on next page)

**PERCENT OF CIVIL TURBOJET ENGINE MARKET
BY MANUFACTURER AND AIRCRAFT MODEL (continued)**
as of December 1995

Aircraft Manufacturer and Model	Total Installed Engines	Engine Manufacturers					
		P&W	GE	RR	CFM	IAE	Other
Canadair CL 600/601	4	—%	50 %	—%	—%	—%	50 %
Cessna 500s	82	100	—	—	—	—	—
Cessna 650	20	—	—	—	—	—	100
Convair CV 880/990	8	—	100	—	—	—	—
Dassault Falcon	144	—	86	—	—	—	14
Dassault Mercure 100	10	100	—	—	—	—	—
Fokker F-28 ^a	156	—	—	100	—	—	—
Fokker F-28-4000	212	—	—	100	—	—	—
Fokker 70	44	—	—	100	—	—	—
Fokker 100	542	—	—	100	—	—	—
Gulfstream II/III/IV	32	—	—	100	—	—	—
IAI 1124	26	—	—	—	—	—	100
Ilyushin IL-62 ^a	280	—	—	—	—	—	100
Ilyushin IL-62M	604	—	—	—	—	—	100
Ilyushin IL-76 ^a	588	—	—	—	—	—	100
Ilyushin IL-76MD	668	—	—	—	—	—	100
Ilyushin IL-76TD	428	—	—	—	—	—	100
Ilyushin IL-86	380	—	—	—	—	—	100
Ilyushin IL-96	36	—	—	—	—	—	100
Learjet 23/24/25	38	—	100	—	—	—	—
Learjet 35/36/55	76	—	—	—	—	—	100
Lockheed JetStar	28	71	—	—	—	—	29
Lockheed L-1011	624	—	—	100	—	—	—
MBB Hansa Jet	26	—	100	—	—	—	—
Douglas DC-8	1,026	66	—	—	34	—	—
Douglas DC-9 ^a	582	100	—	—	—	—	—
Douglas DC-9-30	1,032	100	—	—	—	—	—
Douglas DC-10 ^a	321	38	62	—	—	—	—
Douglas DC-10-10	312	—	100	—	—	—	—
Douglas DC-10-30	420	—	100	—	—	—	—
MDC MD-11 series ^a	99	27	73	—	—	—	—
MDC MD-11 ^b	339	47	53	—	—	—	—
MDC MD-80s ^a	144	100	—	—	—	—	—
MDC MD-81	240	100	—	—	—	—	—
MDC MD-82	1,110	100	—	—	—	—	—
MDC MD-83	428	100	—	—	—	—	—
MDC MD-88	306	100	—	—	—	—	—
MDC MD-90	24	—	—	—	—	100	—
Tupolev TU-134 ^a	302	—	—	—	—	—	100
Tupolev TU-134A	760	—	—	—	—	—	100
Tupolev TU-154 ^a	762	—	—	—	—	—	100
Tupolev TU-154B2	933	—	—	—	—	—	100
Tupolev TU-154M	594	—	—	—	—	—	100
Tupolev TU-204	22	—	—	—	—	—	100
Yakovlev YAK-40	891	—	—	—	—	—	100
Yakovlev YAK-42	366	—	—	—	—	—	100

Source: Aerospace Industries Association, based on data from Aviation Data Service.

a Data for major (100 or more aircraft) series excluded and reported separately.

b Series bearing same designation as model number, but qualifies for separate reporting as a major series.

KEY: AS = Aerospace; BAe = British Aerospace; CFM = CFM International; GE = General Electric;
IAE = International Aero Engines; IAI = Israel Aircraft Industries; MBB = Messerschmitt Bolkow Blohm;
MDC = McDonnell Douglas; P&W = Pratt & Whitney; RR = Rolls-Royce.

ACTIVE^a U.S. AIR CARRIER FLEET
By Type of Aircraft, Number of Engines, and Model
Active as of December 1991–1995

	1991	1992	1993	1994	1995
TOTAL	6,054	7,320	7,297	7,370	7,411
Turbojets—TOTAL	4,167	4,446	4,584	4,636	4,834
Four-Engine—TOTAL	410	389	410	420	435
Boeing 707	27	20	13	16	6
Boeing 747	184	178	183	186	189
B. Ae./AVRO 146	17	23	20	15	21
McDonnell Douglas DC-8	182	168	194	203	219
Three-Engine—TOTAL	<u>1,376</u>	<u>1,381</u>	<u>1,292</u>	<u>1,236</u>	<u>1,210</u>
Boeing 727	1,073	1,029	953	906	877
Lockheed L-1011	100	113	100	86	97
McDonnell Douglas DC-10/MD-11	203	239	239	244	236
Twin-Engine—TOTAL	<u>2,381</u>	<u>2,676</u>	<u>2,882</u>	<u>2,980</u>	<u>3,189</u>
Airbus A-300	63	58	58	63	53
Airbus A-310	42	21	27	17	23
Airbus A-320	35	54	75	86	104
Boeing 737	835	915	1,013	1,012	1,055
Boeing 757	234	328	375	395	440
Boeing 767	136	170	187	194	210
Boeing 777	—	—	—	—	7
B. Ae. BAC-111	1	—	—	—	—
Canadair CL-600	—	—	5	—	35
Cessna C500/C501	—	2	3	—	—
Cessna C650	—	1	—	—	—
Dassault Falcon	2	—	—	—	—
Fokker F-28	75	117	129	148	155
Grumman G-1159	3	1	—	—	—
Gulfstream GIII	—	—	—	2	2
Israel Aircraft 1121	—	1	—	—	—
Learjet LR-25	2	3	—	—	—
Learjet LR-35	—	3	1	2	3
McDonnell Douglas DC-9/MD-80	953	1,002	1,009	1,061	1,102
Turboprops—TOTAL	1,598	1,894	1,868	1,782	1,715
Four-Engine—TOTAL	<u>75</u>	<u>17</u>	<u>102</u>	<u>87</u>	<u>81</u>
Canadair CL44D	—	5	1	1	1
De Havilland DHC-7	33	40	38	27	16
Lockheed 188 Electra	24	44	45	41	43
Lockheed 382	18	18	18	18	21
Twin-Engine—TOTAL	<u>1,523</u>	<u>1,787</u>	<u>1,751</u>	<u>1,695</u>	<u>1,634</u>
Beech BE65	—	16	—	—	—
Beech BE90	—	1	3	1	1
Beech BE95	—	—	—	1	—
Beech BE99	32	39	29	41	36
Beech BE100	1	4	1	1	1

(Continued on next page)

ACTIVE^a U.S. AIR CARRIER FLEET (Continued)

By Type of Aircraft, Number of Engines, and Model
Active as of December 1991–1995

	1991	1992	1993	1994	1995
Twin-Engine (continued)					
Beech BE200	8	11	9	7	4
Beech BE1900	167	231	251	281	289
B.Ae. ATP	10	10	9	9	10
B.Ae. Jetstream	214	240	247	237	174
CASA C212 Aviocar	13	—	1	1	1
Cessna C425	—	1	2	—	—
Cessna C441	2	2	—	2	2
Convair 580/600/640	37	19	16	29	34
DeHavilland DHC-6	69	74	67	53	44
DeHavilland DHC-8	81	115	120	142	137
Dornier DO228	31	13	13	7	—
Dornier DO328	—	—	—	—	33
Embraer EMB110	23	16	14	15	14
Embraer EMB120	167	195	217	223	217
Fairchild/Fokker F-27/FH-227 ...	50	53	50	37	35
Grumman G-73	4	5	—	5	5
Grumman G-159	2	1	—	—	—
McKinnon G-21	—	—	2	2	2
Mitsubishi MU-2	1	10	—	—	—
Nihon YS-11	22	31	25	25	11
Nord ND-262/STC-262	—	1	—	—	—
Piper PA31T	8	99	79	1	5
Piper 42	1	1	—	1	1
Saab-Fairchild SF340	153	195	209	202	219
Shorts SC-7	2	6	6	5	3
Shorts SD-3	93	88	74	63	38
SNAIS ATR-42	101	108	108	111	110
SNAIS ATR-72	—	14	27	44	51
Swearingen SA-226	31	14	14	11	13
Swearingen SA-227	200	174	158	138	144
Single-Engine—TOTAL	NA	NA	15	—	—
Piston-Engine—TOTAL	283	847	721	824	744
Four-Engine—TOTAL	<u>26</u>	<u>20</u>	<u>22</u>	<u>19</u>	<u>15</u>
Douglas DC-6	25	19	21	18	15
Douglas DC-7	1	1	1	1	—
Three-Engine—TOTAL	<u>5</u>	<u>5</u>	<u>—</u>	<u>5</u>	<u>1</u>
Pilatus Britten-Norman BN2A-MK-3 Turbo Islander ...	5	5	—	5	1
Twin-Engine—TOTAL	252	415	293	335	329
Single-Engine—TOTAL	NA	407	406	465	399
Helicopters—TOTAL	6	133	124	128	118

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).

NOTE: Effective 1978, includes certificated route air carriers, supplemental air carriers (charters), multi-engine aircraft in passenger service of commuters, and all aircraft over 12,500 pounds operated by air taxis, commercial operators, and travel clubs.

a "Active aircraft" equals the average number of aircraft reported in operation during the last quarter of the year.

NA Not Available

i Revised

JET FUEL COSTS AND CONSUMPTION BY U.S. AIR CARRIERS^a
Calendar Years 1977–1995

Year	Gallons Consumed (Millions)	Total Cost (Millions)	Cost Per Gallon (Cents)	Cost Index (1982 = 100)	Cost of Fuel as Percent of Cash Operating Expenses
1977	10,282.0	\$ 3,729.8	36.3¢	37.0	20.1%
1978	10,627.1	4,178.2	39.3	40.1	19.7
1979	11,278.1	6,503.0	57.7	58.8	24.4
1980	10,874.0	9,769.5	89.8	91.6	29.7
1981	10,087.8	10,498.0	104.1	106.1	29.3
1982	9,942.1	9,755.2	98.1	100.0	27.4
1983	10,214.4	9,073.1	88.8	90.5	24.5
1984	11,050.4	9,361.7	84.7	86.3	23.8
1985	11,675.1	9,326.7	79.9	81.4	22.2
1986	12,643.0	6,995.8	55.3	56.4	16.3
1987	13,629.5	7,593.8	55.7	56.8	16.0
1988	14,204.8	7,557.2	53.2	54.2	14.4
1989	14,103.9	8,472.7	60.1	61.2	14.9
1990	14,841.1	11,465.2	77.3	78.7	17.6
1991	13,798.4	9,329.5	67.6	68.9	14.8
1992	14,172.0	8,907.9	62.9	64.1	13.5
1993	14,165.0	8,452.9	59.7	60.8	12.7
1994	14,153.4	7,722.7	54.6	55.6	11.7
1995	14,100.2	7,764.2	55.1	56.1	11.6

Source: Air Transport Association of America, "Airline Cost Index" (Quarterly).
 a Majors and Nationals excluding Air Florida, Capitol, Transamerica, and World.

U.S. CIVIL AND JOINT-USE AIRCRAFT FACILITIES^a
BY TYPE AND STATE
 As of December 31, 1995

State	TOTAL ^a	Public ^b	Paved	Lighted	State	TOTAL ^a	Public ^b	Paved	Lighted
Alabama	239	100	153	100	Nevada	121	57	59	33
Alaska	547	407	64	158	New Hampshire .	94	27	50	18
Arizona	278	76	160	72	New Jersey	348	53	153	49
Arkansas	253	100	172	95	New Mexico	165	66	80	49
California	934	266	678	249	New York	535	168	216	132
Colorado	378	80	174	84	North Carolina ..	354	117	156	115
Connecticut ...	136	25	87	27	North Dakota ...	436	95	88	97
Delaware	35	10	13	12	Ohio	744	188	290	186
Dist. of Col. ...	17	2	16	4	Oklahoma	415	156	214	132
Florida	770	130	334	149	Oregon	399	101	163	76
Georgia	402	111	193	115	Pennsylvania	784	145	312	134
Hawaii	46	13	38	14	Rhode Island	26	8	20	7
Idaho	223	121	80	47	South Carolina ..	165	69	79	66
Illinois	898	128	288	161	South Dakota ...	156	74	67	74
Indiana	598	115	170	118	Tennessee	252	85	149	85
Iowa	301	123	172	135	Texas	1,679	388	833	424
Kansas	385	147	136	130	Utah	124	47	83	45
Kentucky	179	66	110	59	Vermont	73	16	17	11
Louisiana	426	88	249	78	Virginia	366	69	158	85
Maine	151	67	52	33	Washington	422	133	213	135
Maryland	202	37	79	47	West Virginia ...	105	40	64	32
Massachusetts .	228	51	124	43	Wisconsin	488	136	177	139
Michigan	469	228	195	185	Wyoming	103	41	53	37
Minnesota	476	157	145	139	50 States—Total .	18,148	5,375	8,147	4,815
Mississippi	221	84	125	81	Puerto Rico	32	11	27	10
Missouri	497	145	229	140	Virgin Islands ...	9	2	3	2
Montana	241	123	103	87	S. Pacific ^c	35	27	18	11
Nebraska	300	96	114	92	TOTAL	18,224	5,415	8,195	4,838

FACILITIES BY CLASS

Class	Total ^a	Public ^b	Private
Airports	13,145	5,130	8,015
Heliports	4,561	85	4,476
Stolports	83	6	77
Seaplane Bases	435	194	241
Total Facilities	18,224	5,415	12,809

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).

a Included in these data are facilities having joint civil-military use.

b "Public" refers to use, whether publicly or privately owned.

c American Samoa, Guam, and Trust Territories.

HELIPORTS/HELIPADS^a IN THE UNITED STATES
BY STATE
 As of 1995

State	Total Helipads in State	Private Use		Public Use	
		Heliports & Helistops	Helipads at Airports	Heliports & Helistops	Helipads at Airports
Alabama	70	68	—	1	1
Alaska	26	16	1	6	3
Arizona	96	91	1	—	4
Arkansas	76	73	1	—	2
California	408	389	3	—	16
Colorado	157	154	—	—	3
Connecticut	80	74	1	2	3
Delaware	12	10	—	1	1
District of Columbia ...	19	19	—	—	—
Florida	260	257	1	1	1
Georgia	107	106	—	—	1
Hawaii	18	16	—	—	2
Idaho	33	31	1	—	1
Illinois	238	224	3	11	—
Indiana	112	106	3	2	1
Iowa	79	78	—	—	1
Kansas	33	29	—	—	4
Kentucky	49	49	—	—	—
Louisiana	216	209	2	4	1
Maine	16	15	—	—	1
Maryland	55	51	1	2	1
Massachusetts	132	127	—	2	3
Michigan	81	78	1	2	—
Minnesota	43	38	1	—	4
Mississippi	47	47	—	—	—
Missouri	115	110	1	3	1
Montana	21	19	—	2	—
Nebraska	31	29	1	—	1
Nevada	26	26	—	—	—
New Hampshire	42	41	—	—	1

(Continued on next page)

**HELIPORTS/HELIPADS^a IN THE UNITED STATES
BY STATE (Continued)
As of 1995**

State	Total Helipads in State	Private Use		Public Use	
		Heliports & Helistops	Helipads at Airports	Heliports & Helistops	Helipads at Airports
New Jersey	232	227	—	3	2
New Mexico	21	19	1	1	—
New York	143	132	—	7	4
North Carolina	62	59	—	3	—
North Dakota	14	13	—	—	1
Ohio	204	185	1	15	3
Oklahoma	89	84	—	5	—
Oregon	87	83	2	2	—
Pennsylvania	285	274	1	7	3
Rhode Island	16	15	—	1	—
South Carolina	27	25	—	—	2
South Dakota	13	13	—	—	—
Tennessee	85	81	2	1	1
Texas	404	389	3	5	7
Utah	40	37	—	—	3
Vermont	17	17	—	—	—
Virginia	116	113	—	—	3
Washington	107	101	3	1	2
West Virginia	32	28	—	—	4
Wisconsin	68	68	—	—	—
Wyoming	18	17	—	—	1
Total U.S.	4,778	4,560	35	90	93

Source: Helicopter Association International, "1996 Helicopter Annual" (Annually).

NOTE: 95.4 percent of all U.S. helicopter landing areas are private, while 4.6 percent are public.

a Excludes temporary heliports, offshore heliports, and infrequently used helicopter landing sites.

ACTIVE U.S. CIVIL AIRCRAFT^a

As of December 31, 1963–1994
(in thousands)

Year	TOTAL	Air Carrier ^b	General Aviation Aircraft					
			TOTAL	Fixed-Wing Aircraft			Rotorcraft ^c	Other ^d
				Multi-Engine	Single-Engine			
					4-place & over	3-place & less		
1963	87.2	2.079	85.1	9.7	42.6	31.0	1.2	0.6
1964	90.8	2.057	88.7	10.6	45.8	30.4	1.3	0.6
1965	97.6	2.125	95.4	12.0	49.8	31.4	1.5	0.8
1966	107.0	2.272	104.7	13.5	53.0	35.7	1.6	0.9
1967	116.6	2.452	114.2	14.7	56.9	39.7	1.9	1.1
1968	126.8	2.586	124.2	16.8	61.0	42.8	2.4	1.3
1969	133.5	2.690	130.8	18.1	63.7	45.0	2.6	1.4
1970	134.4	2.679	131.7	18.3	64.8	44.9	2.3	1.6
1971	133.8	2.642	131.1	17.9	64.5	44.8	2.4	1.7
1972	147.6	2.583	145.0	19.8	71.0	49.4	2.8	1.9
1973	156.1	2.599	153.5	21.9	74.8	51.4	3.1	2.3
1974	164.0	2.472	161.5	23.4	78.9	53.0	3.6	2.5
1975	171.0	2.495	168.5	24.6	82.6	54.4	4.1	2.8
1976	180.8	2.492	178.3	25.7	88.2	56.7	4.5	3.2
1977	186.8	2.473	184.3	26.7	92.0	57.3	4.7	3.6
1978	201.3	2.545	198.8	28.8	101.5	59.2	5.3	4.0
1979	213.9	3.609	210.3	31.3	106.0	62.4	5.9	4.8
1980	214.9	3.808	211.0	31.7	107.9	60.5	6.0	4.9
1981	217.2	3.973	213.2	33.3	108.0	59.9	7.0	5.0
1982	213.9	4.027	209.8	34.2	106.5	57.7	6.2	6.2
1983	217.5	4.203	213.3	34.6	107.1	59.1	6.5	5.9
1984	225.3	4.370	220.9	35.6	109.9	62.0	7.1	6.3
1985	201.2	4.678	196.5	31.3	98.5	54.9	6.0	5.8
1986	210.2	4.909	205.3	32.0	102.0	58.3	6.5	6.5
1987	208.0	5.253	202.7	30.8	100.4	59.3	5.9	6.3
1988	201.9	5.660	196.2	30.1	98.1	55.6	6.0	6.4
1989	210.8	5.778	205.0	31.9	100.5	58.4	7.0	7.2
1990	204.1	6.083	198.0	30.5	97.6	56.4	6.9	6.6
1991	204.6	6.054	198.5	30.5	98.5	55.7	6.3	7.6
1992	191.7	7.320	184.4	27.3	90	52.5	5.8	7.8
1993	183.3	7.297	176.0	23.9	89.4	41.3	4.5	16.2
1994	178.0	7.360	170.6	23.3	84.3	39.0	4.4	19.0

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).
 a "Active aircraft" must have a current U.S. registration and have flown during the calendar year. Prior to 1971, only a current U.S. registration was necessary.
 b Effective 1978, includes certificated route air carriers, supplemental air carriers (charters), multi-engine aircraft in commuter passenger service, and all aircraft over 12,500 pounds operated by air taxis, commercial operators, and travel clubs.
 c Includes autogiros; excludes air carrier helicopters.
 d Includes gliders, dirigibles, balloons, and experimental aircraft.

**ACTIVE U.S. CIVIL AIRCRAFT
BY PRIMARY USE AND TYPE OF AIRCRAFT**

As of December 31, 1994

Primary Use ^a	TOTAL	Fixed-Wing			Rotor- craft ^b	Other ^c
		Turbojet	Turboprop	Piston		
TOTAL—ALL AIRCRAFT . . .	177,960	8,709	5,989	139,723	4,518	19,021
Air Carrier—TOTAL	<u>7,360</u>	<u>4,636</u>	<u>1,782</u>	<u>814</u>	<u>128</u>	<u>—</u>
Large	5,396	4,632	708	56	—	—
Small	1,964	4	1,074	758	128	—
General Aviation—TOTAL . . .	<u>170,600</u>	<u>4,073</u>	<u>4,207</u>	<u>138,909</u>	<u>4,390</u>	<u>19,021</u>
Executive	9,652	3,231	2,132	3,747	427	116
Business	25,554	136	579	23,608	386	845
Air Taxi ^d	3,927	274	563	2,414	676	—
Instructional	14,568	31	179	13,216	472	670
Personal	100,839	125	341	85,093	356	14,924
Aerial Application	4,215	4	237	3,418	516	41
Aerial Observation	4,936	—	12	3,906	971	46
Sight Seeing	1,336	—	16	498	163	660
External Load	133	—	—	—	126	7
Other Work	1,214	1	39	1,049	21	103
Other	4,226	271	111	1,959	275	1,610

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually) and General Aviation Manufacturers Association, "General Aviation Statistical Databook" (Annually).

NOTE: Detail may not add to totals because of estimating procedures.

a Definitions of "primary use" categories available in Glossary of "FAA Statistical Handbook."

b Includes helicopters and autogiros.

c Includes gliders, dirigibles, and balloons.

d Limited to Air taxis under 12,500 pounds. Otherwise, aircraft included in "Air Carrier."

**U.S. GENERAL AVIATION
TYPE OF AIRCRAFT AND HOURS FLOWN
Calendar Years 1990-1994**

	1990	1991	1992	1993 ^a	1994
Number of Active Aircraft by Type (in thousands)					
All Aircraft—TOTAL	<u>198.0</u>	<u>198.5</u>	<u>184.4</u>	<u>176.0</u>	<u>170.6</u>
Fixed-Wing:	184.5	184.6	170.8	155.3	147.2
Piston:	175.2	175.3	162.1	147.1	138.9
Single-Engine	154.0	154.1	143.6	130.7	123.3
Twin-Engine	21.1	21.1	18.5	16.4	15.5
Other	0.1	0.1	0.1	0.0	0.1
Turboprop:	5.3	4.9	4.7	4.4	4.2
Twin-Engine	4.9	4.4	4.1	3.6	3.6
Other	0.4	0.5	0.6	0.7 ^r	0.6
Turbojet:	4.1	4.4	4.0	3.9	4.1
Twin-Engine	3.7	4.1	3.8	3.7	3.9
Other	0.4	0.3	0.2	0.2	0.2
Rotorcraft:	6.9	6.3	5.8	4.5	4.4
Piston	3.2	2.5	2.2	1.6	1.4
Turbine	3.7	3.8	3.5	2.9	3.0
Balloons, Dirigibles, and Gliders ..	6.6	6.7	7.8	5.2	6.2
Experimental	NA	NA	NA	10.9	12.9

Hours Flown by Type of Aircraft (in thousands)

All Aircraft—TOTAL	<u>32,096</u>	<u>30,067</u>	<u>26,493</u>	<u>24,340</u>	<u>23,866</u>
Fixed-Wing: Piston	25,832	24,102	21,251	19,029	18,370
Turboprop	2,319	1,513	1,478	1,227	1,106
Turbojet	1,396	1,236	1,072	1,165	1,241
Rotorcraft: Piston	716	585	416	370	340
Turbine	1,493	2,172	1,866	1,462	1,666
Balloons, Dirigibles, and Gliders ..	341	459	410	376	424
Experimental	NA	NA	NA	711	718

Average Hours Flown Annually by Type

All Aircraft—TOTAL	<u>162.1</u>	<u>149.1</u>	<u>140.4</u>	<u>134.4^r</u>	<u>135.8</u>
Fixed-Wing: Piston	147.4	137.5	130.4	129.3 ^r	132.1
Turboprop	437.5	307.7	314.1	227.5 ^r	263.6
Turbojet	340.6	289.7	270.7	298.4 ^r	309.4
Rotorcraft: Piston	223.7	233.7	184.6	218.8 ^r	252.7
Turbine	403.6	592.2	491.3	506.0 ^r	571.4
Balloons, Dirigibles, and Gliders ..	51.6	61.4	50.9	71.7 ^r	68.7
Experimental	NA	NA	NA	65.0	53.4

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually) and the Federal Aviation Administration, Office of Management Systems.

NOTE: Detail may not add to totals because of rounding and/or estimating procedures.

^a Beginning in 1993, commuters were excluded from the survey.

NA Not available.

^r Revised.

**U.S. GENERAL AVIATION
ACTIVE AIRCRAFT AND HOURS FLOWN
BY PRIMARY USE
Calendar Years 1990–1994**

Primary Use ^a	1990	1991	1992	1993	1994
ACTIVE AIRCRAFT AS OF DECEMBER 31 (in thousands)					
TOTAL	<u>198.0</u>	<u>198.5</u>	<u>184.4</u>	<u>176.0</u>	<u>170.6</u>
Executive	10.1	10.0	9.4	9.9	9.6
Business	33.1	31.6	28.9	27.8	25.6
Commuter ^b	1.2	0.7	0.8	(c)	(c)
Air Taxi ^b	5.8	5.5	4.7	3.8	3.9
Instructional	18.6	17.9	16.0	15.6	14.6
Personal	112.6	115.1	108.7	102.1	100.8
Aerial Application	6.2	7.0	5.1	5.0	4.2
Aerial Observation	4.9	5.1	5.6	4.8	4.9
Sight Seeing	NA	NA	NA	1.6	1.3
External Load	NA	NA	NA	0.1	0.1
Other Work	1.4	1.7	1.7	1.0	1.2
Other	4.1	3.9	3.5	4.2	4.2
HOURS FLOWN (in thousands)					
TOTAL	<u>32,096</u>	<u>30,067</u>	<u>26,493</u>	<u>24,340</u>	<u>23,866</u>
Executive	2,913	2,617	2,262	2,659	2,548
Business	4,417	4,154	3,537	3,345	3,055
Commuter ^b	1,333	570	693	(c)	(c)
Air Taxi ^b	2,249	2,241	2,009	1,452	1,670
Instructional	7,244	6,141	5,340	4,680	4,156
Personal	9,276	9,685	8,592	7,938	8,116
Aerial Application	1,872	1,911	1,296	1,167	1,210
Aerial Observation	1,745	1,797	1,730	1,750	1,750
Sight Seeing	NA	NA	NA	412	323
External Load	NA	NA	NA	105	172
Other Work	572	471	343	175	226
Other	475	473	358	656	640

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).

NOTE: Detail may not add to totals because of rounding and estimating procedures.

a Definitions of "primary use" categories available in Glossary of "FAA Statistical Handbook."

b Limited to single-engine commuters or air taxis under 12,500 pounds.

c Beginning in 1993, commuters were excluded from the survey.

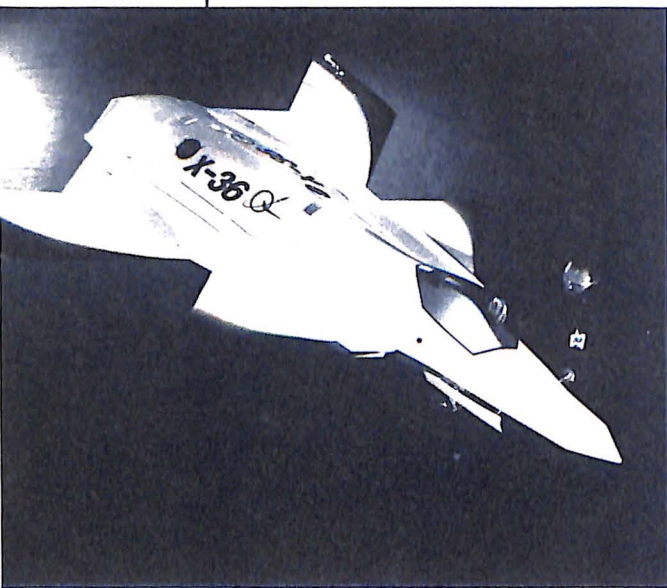
NA Not available.

RESEARCH AND DEVELOPMENT

Federal outlays for research and development (R&D) have been falling for four straight years in real terms. Total federal outlays for R&D increased in Fiscal Year (FY) 1996 to \$68.5 billion from the previous year's \$68.4 billion, according to estimates by the Office of Management and Budget (OMB). It was, however, only a technical increase in current dollar terms; adjusted for inflation (constant dollars) it represented a slight decrease (1.8 percent) and continued the downward trend in evidence since 1993.

For FY 1997, OMB estimates total federal outlays for R&D at

\$69.1 billion, once again a small increase in current dollars but a decrease in constant dollars. The Department of Defense (DoD) will spend more than half the total (\$34.9 billion); that figure is down slightly from 1996's \$35.2 billion. R&D outlays for the National Aeronautics and Space Administration in FY 1997 are estimated at \$8.8 billion (down from \$9.1 billion). Planned Department of Energy outlays are \$6.1 billion (down from \$6.3 billion). All other federal agencies combined will invest \$19.2 billion



in R&D, up substantially from \$17.9 billion in the previous year.

In calendar year 1995, total U.S. funding for R&D amounted to \$170.9 billion, up from \$168.1 billion in 1994, according to the National Science Foundation's (NSF) annual survey. Industry funding, at \$100.8 billion, represented 59 percent of the total; federal funding (\$61.3 billion) constituted 36 percent; colleges and universities (\$5.6 billion), 3.3 percent; and nonprofit institutions (\$3.2 billion), less than two percent. The great bulk of U.S. R&D was performed by industry (71 percent).

For 1996, NSF estimates total R&D funding from all sources at \$175.4 billion, with industry supplying \$105.5 billion, 60 percent of the total.

Calendar year 1994 is the latest year for which the NSF is able to supply data on aerospace industrial R&D. In that year, total aerospace industrial R&D funding amounted to \$14.3 billion, \$8.8 billion from government funding and \$5.5 billion invested by aerospace companies. The total compares with \$15.1 billion invested in aerospace industrial R&D in 1993.

With respect to R&D funding as a percentage of net sales, the aerospace industry once again recorded a significantly higher percentage than the average for all U.S. manufacturing industries. Aerospace investment in R&D (federal and company funds) amounted to 13.8 percent of net sales in 1994, up from 12.5 percent in 1993; that compares

with an all-industry average of 3.6 percent in 1994. Company funding as a percentage of net sales was 5.3 percent, the all-industry average 2.9 percent.

In FY 1995, DoD prime contract awards for Research, Development, Test, and Evaluation (RDT&E) totaled \$21.5 billion, down slightly from the previous year's \$21.8 billion. The largest single category of awards in terms of dollar value was for aircraft RDT&E at \$5.8 billion, the same as in FY 1994. In other areas of effort, missile and space system awards accounted for \$5.3 billion (down from \$5.7 billion); electronics and communications equipment, \$3.5 billion (down from \$3.6 billion); and all other areas combined, \$7.0 billion (up from \$6.7 billion).

In a geographical breakdown of DoD prime contract awards for RDT&E, the South Atlantic region (\$6.0 billion) headed the list for the second straight year, once again topping the previous leader, the Pacific region (\$4.4 billion). The New England region (\$2.2 billion) placed third, followed by the Mountain (\$1.9 billion), the Middle Atlantic (\$1.9 billion), and the West North Central (\$1.7 billion) regions.



**TOTAL U.S. FUNDS FOR RESEARCH AND DEVELOPMENT
BY SOURCE AND PERFORMER^a**

Calendar Years 1993–1996
(Millions of Dollars)

Source of Funds	TOTAL, All Perform- ers	Performer				
		Federal Govern- ment	Indus- try	Colleges & Univer- sities	Federally- Funded Research & Devel- opment Centers	Non- Profit Insti- tutions
1993^f						
All Sources—TOTAL . . .	\$165,048	\$16,663	\$117,400	\$19,940	\$5,295	\$5,750
Federal Government . . .	60,323	16,663	22,809	11,956	5,295	3,600
Industry	96,702	—	94,591	1,361	—	750
Colleges & Universities . .	5,137	—	—	5,137	—	—
Nonprofit Institutions . . .	2,886	—	—	1,486	—	1,400
1994						
All Sources—TOTAL . . .	\$168,085	\$16,139	\$119,594	\$21,081	\$5,271	\$6,000
Federal Government . . .	60,234	16,139	22,463	12,661	5,271	3,700
Industry	99,361	—	97,131	1,430	—	800
Colleges & Universities . .	5,400	—	—	5,400	—	—
Nonprofit Institutions . . .	3,090	—	—	1,590	—	1,500
1995^P						
All Sources—TOTAL . . .	\$170,850	\$16,400	\$121,000	\$21,900	\$5,400	\$6,150
Federal Government . . .	61,300	16,400	22,500	13,200	5,400	3,800
Industry	100,800	—	98,500	1,500	—	800
Colleges & Universities . .	5,600	—	—	5,600	—	—
Nonprofit Institutions . . .	3,150	—	—	1,600	—	1,550
1996^E						
All Sources—TOTAL . . .	\$175,400	\$16,200	\$125,300	\$22,400	\$5,400	\$6,100
Federal Government . . .	61,000	16,200	22,300	13,400	5,400	3,700
Industry	105,450	—	103,000	1,600	—	850
Colleges & Universities . .	5,800	—	—	5,800	—	—
Nonprofit Institutions . . .	3,150	—	—	1,600	—	1,550

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).
^a Source/performer detail not available by industry.
^E Estimate.
^P Preliminary.
^r Revised.

**FEDERAL OUTLAYS FOR CONDUCT OF
RESEARCH AND DEVELOPMENT**

Fiscal Years 1983–1997
(Millions of Dollars)

Year	TOTAL	DoD	NASA	Energy ^a	Other ^b
CURRENT DOLLARS					
1983	\$35,900	\$20,566	\$2,538	\$4,924	\$ 7,872
1984	40,986	23,850	3,538	5,182	8,416
1985	47,216	28,165	2,969	6,954	9,128
1986	52,141	33,396	3,431	5,392	9,922
1987	53,256	34,732	3,250	5,262	10,012
1988	56,100	35,605	3,832	5,332	11,331
1989	60,760	37,819	4,975	5,681	12,285
1990	63,810	38,247	6,325	5,957	13,281
1991	62,183	35,330	7,072	5,892	13,889
1992	64,728	35,504	7,617	6,043	15,564
1993	68,378	37,666	8,088	6,036	16,588
1994	68,453	35,474	7,878	5,904	19,197
1995	68,432	35,356	8,992	6,195	17,889
1996 ^E	68,516	35,203	9,145	6,273	17,895
1997 ^E	69,088	34,945	8,804	6,106	19,233
CONSTANT DOLLARS^c					
1983	\$41,255	\$23,634	\$2,917	\$5,658	\$ 9,046
1984	45,114	26,252	3,894	5,704	9,264
1985	50,059	29,861	3,148	7,373	9,678
1986	53,687	34,386	3,533	5,552	10,216
1987	53,256	34,732	3,250	5,262	10,012
1988	54,135	34,358	3,698	5,145	10,934
1989	56,140	34,943	4,597	5,249	11,351
1990	56,973	34,149	5,647	5,319	11,858
1991	53,284	30,274	6,060	5,049	11,901
1992	53,895	29,562	6,342	5,032	12,959
1993	55,592	30,623	6,576	4,907	13,486
1994	54,588	28,289	6,282	4,708	15,309
1995	53,588	27,687	7,042	4,851	14,009
1996 ^E	52,624	27,038	7,024	4,818	13,744
1997 ^E	51,907	26,255	6,615	4,588	14,450

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Includes defense and nondefense-related atomic energy R&D with nondefense energy R&D.

b Includes but not limited to NSF, NIH, DoT, & Agriculture.

c Based on Fiscal Year GDP implicit price deflator, (1987=100).

E Estimate. Latest year reflects Administration's budget proposal.

FUNDS FOR INDUSTRIAL RESEARCH AND DEVELOPMENT ALL INDUSTRIES AND THE AEROSPACE INDUSTRY

By Funding Source
Calendar Years 1980-1994
(Millions of Dollars)

Year	All Industries ^a			Aerospace Industry ^b		
	Total	Federal Funds	Company Funds ^c	Total	Federal Funds	Company Funds ^c
CURRENT DOLLARS						
1980	\$ 44,505	\$14,029	\$30,476	\$ 9,198	\$ 6,628	\$2,570
1981	51,810	16,382	35,428	11,968	8,528	3,440
1982	58,650	18,545	40,105	14,451	10,265	4,186
1983	65,268	20,680	44,588	15,406	11,396	4,010
1984	74,800	23,396	51,404	18,858	14,094	4,764
1985	84,239	27,196	57,043	22,231	16,582	5,649
1986	87,823	27,891	59,932	21,050	14,984	6,066
1987	92,155	30,752	61,403	24,458	18,519	5,939
1988	97,015	30,343	66,672	24,168	18,402	5,766
1989	102,055	28,554	73,501	22,331	16,828	5,503
1990	109,727	28,125	81,602	20,635	15,248	5,387
1991	116,952	26,372	90,580	16,629	11,096	5,533
1992	119,110	24,722	94,388	17,158	10,287	6,871
1993 ^f	117,400	22,809	94,591	15,056	9,372	5,684
1994	119,595	22,463	97,131	14,260	8,794	5,466
CONSTANT DOLLARS^d						
1980	\$ 62,062	\$19,564	\$42,499	\$12,827	\$ 9,243	\$3,584
1981	65,699	20,774	44,925	15,176	10,814	4,362
1982	70,021	22,141	47,881	17,253	12,255	4,998
1983	74,883	23,726	51,156	17,676	13,075	4,601
1984	82,153	25,696	56,457	20,712	15,479	5,232
1985	89,265	28,818	60,446	23,557	17,571	5,986
1986	90,614	28,777	61,837	21,719	15,460	6,259
1987	92,155	30,752	61,403	24,458	18,519	5,939
1988	93,418	29,218	64,200	23,272	17,720	5,552
1989	94,060	26,317	67,743	20,582	15,510	5,072
1990	96,846	24,823	72,023	18,213	13,458	4,755
1991	99,449	22,425	77,024	14,140	9,435	4,705
1992	98,519	20,448	78,071	14,192	8,509	5,683
1993 ^f	95,061	18,469	76,592	12,191	7,589	4,602
1994	94,841	17,814	77,027	11,308	6,974	4,335

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).

NOTE: Detail may not add to totals because of rounding.

- a Includes all manufacturing industries, plus those non-manufacturing industries known to conduct or finance research and development.
- b Companies classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, and parts.
- c Company funds include all funds for industrial R&D work performed within company facilities except funds provided by the Federal Government. Excluded are company-financed research and development contracted to outside organizations such as research institutions, universities and colleges, or other non-profit organizations.
- d Based on GDP implicit price deflator, (1987=100).
- f Revised.

**RESEARCH AND DEVELOPMENT FUNDS AS PERCENT OF NET SALES
ALL MANUFACTURING INDUSTRIES AND THE AEROSPACE INDUSTRY**

Calendar Years 1978–1994

Year	All Manufacturing Industries ^a		Aerospace Industry ^b	
	Total Funds	Company Funds	Total Funds	Company Funds
1978	2.9%	2.0%	13.3%	3.2%
1979	2.6	1.9	12.9	3.5
1980	3.0	2.1	13.7	3.8
1981	3.1	2.2	16.0	4.6
1982	3.8	2.6	17.1	5.1
1983	3.9	2.6	15.2	4.1
1984	3.9	2.6	15.4	4.0
1985	4.4	3.0	14.9	3.9
1986	4.7	3.2	13.4	4.0
1987	4.6	3.1	14.7	3.6
1988	4.5	3.1	16.3	3.9
1989	4.3	3.1	13.5	3.3
1990	4.2	3.1	11.8	3.1
1991	4.2	3.2	12.1	4.0
1992	4.2	3.3	11.8	4.7
1993	3.8	3.1	12.5 ^r	4.7 ^r
1994	3.6	2.9	13.8	5.3

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).

^a Includes all manufacturing industries known to conduct or finance research and development.

^b Companies classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, and parts.

^r Revised.

**FUNDS FOR INDUSTRIAL RESEARCH AND DEVELOPMENT
IN THE AEROSPACE INDUSTRY**

By Type of Research and Funding Source
Calendar Years 1964–1994
(Millions of Dollars)

Year	TOTAL AERO- SPACE	Basic Research			Applied Research			Development		
		Total	Federal Funds	Com- pany Funds	Total	Federal Funds	Com- pany Funds	Total	Federal Funds	Com- pany Funds
1964	\$ 5,078	\$ 67	\$ 34	\$ 28	\$ 766	\$ 607	\$ 159	\$ 4,244	\$ 3,948	\$ 296
1965	5,148	71	41	30	735	563	172	4,342	3,921	421
1966	5,526	69	36	33	773	563	210	4,685	4,162	523
1967	5,669	71	33	38	726	490	236	4,871	4,071	800
1968	5,765	68	26	42	677	426	251	5,021	4,145	876
1969	5,882	65	24	41	597	347	250	5,220	4,216	1,004
1970	5,219	63	20	43	565	352	213	4,591	3,718	873
1971	4,881	54	37	17	461	279	182	4,365	3,583	782
1972	4,950	60	44	16	451	267	184	4,438	3,722	716
1973	5,052	50	21	29	512	308	204	4,491	3,633	858
1974	5,278	51	19	32	609	360	249	4,617	3,735	882
1975	5,713	54	17	37	614	381	233	5,044	4,119	925
1976	6,339	54	21	33	666	365	301	5,619	4,521	1,098
1977	7,033	56	25	31	753	419	334	6,223	5,017	1,206
1979 ^a	8,041	86	44	42	880	499	381	7,076	5,314	1,762
1981 ^a	11,968	131	60	71	1,484	897	587	10,353	7,738	2,615
1983	13,853	146	NA	NA	3,466	NA	NA	10,241	7,668	2,573
1984	16,033	247	NA	NA	3,067	NA	NA	12,718	9,870	2,848
1985	17,619	304	162	142	3,785	2,776	1,009	13,530	10,483	3,047
1986	21,050	311	208	103	3,198	1,571	1,627	17,541	13,205	4,336
1987	24,488	425	335	90	2,949	1,709	1,239	21,115	16,475	4,640
1988	25,900	366	263	104	2,997	1,915	1,082	22,537	17,700	4,838
1989	25,638	668	553	116	3,081	2,113	968	21,889	16,967	4,921
1990	25,356	658	519	139	3,340	1,931	1,409	21,358	16,766	4,592
1991	16,983	364	302	62	2,091	1,105	986	14,528	10,043 ^b	4,485
1992 ^r	17,158	270	235	35	1,739	976	763	15,148	9,076	6,072
1993 ^r	15,056	NA	NA	NA	1,453	825	628	NA	NA	NA
1994	14,260	NA	NA	NA	NA	NA	NA	12,787	7,978	4,809

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).

NOTE: Detail may not add to totals because of rounding.

^a Break-outs by Research Type and Funding Source available only for odd-numbered years between 1977 and 1981.

^b Computed by AIA as difference between total and company funds. Figure withheld by NSF because of imputation of more than 50 percent.

NA Not available.

^r Revised.

EMPLOYMENT AND COST OF R&D SCIENTISTS AND ENGINEERS
ALL INDUSTRIES AND AEROSPACE INDUSTRY
 Calendar Years 1979–1995

Year	Employment ^d			Cost Per R&D Scientist and Engineer ^d	
	All Industries ^b (Thousands)	Aerospace ^c (Thousands)	Aerospace as a Percent of All Industries	All Industries ^b	Aerospace ^c
1979	423.9	86.5	20.4 %	\$ 87,400	\$ 93,300
1980	450.6	85.9	19.1	94,900	101,600
1981	487.8	95.2	19.5	103,900	128,400
1982	509.8	91.1	17.9	111,600	148,800
1983	540.9	103.1	19.1	116,000	143,600
1984	584.1	111.5	19.1	124,000	156,000
1985	622.5	130.2	20.9	130,200	161,700
1986	671.0	144.8	21.6	128,500	149,800
1987	695.8	136.3	19.6	128,800	180,400
1988	708.6	136.4	19.2	132,300	193,300
1989	722.5	134.8	18.7	134,500	207,300
1990	743.6	115.3	15.5	141,300	213,700
1991	773.4	100.2	13.0	148,600	177,000
1992	779.3	92.9	11.9	157,912	180,552
1993	764.7	97.9	12.8	153,336 ^f	176,450 ^f
1994 ^f	768.5	72.8	9.5	157,601	217,219
1995	749.2	58.5	7.8	NA	NA

Source: National Science Foundation.

- a Employment as of January. Scientists and engineers working less than full time have been included in terms of their full time equivalent number.
- b All manufacturing industries and those non-manufacturing industries known to conduct or finance research and development.
- c Standard Industrial Classification codes 372 and 376.
- d The arithmetic mean of the numbers of R&D scientists and engineers reported for January in two consecutive years, divided into the total R&D expenditures of each industry during the earlier year.

NA Not available.

f Revised.

FEDERAL AERONAUTICS RESEARCH AND DEVELOPMENT

Fiscal Years 1977-1995
(Millions of Dollars)

Year	TOTAL	NASA ^a	DoD ^b	DoT ^c
BUDGET AUTHORITY				
1977	\$ 2,727	\$ 378	\$2,256	\$ 93
1978	3,338	437	2,807	94
1979	2,850	519	2,240	91
1980	2,991	560	2,336	95
1981	3,286	526	2,653	106
1982	3,581	516	2,984	81
1983	3,871	547	3,221	103
1984	4,087	600	3,224	263
1985	4,355	648	3,422	265
1986	6,660	601	4,927	1,132
1987	5,824	698	4,179	946
1988	6,974	723	4,989	1,262
1989	10,656	872	8,240	1,544
1990	10,690	932	7,867	1,891
1991	9,417	968	6,149	2,300
1992	11,110	1,117	7,366	2,627
1993 ^r	11,359	1,245	7,582	2,532
1994	10,703	1,546	6,848	2,309
1995 ^E	10,641	1,310	7,119	2,212
OUTLAYS				
1982 ^d	\$ 3,309	\$ 563	\$2,657	\$ 89
1983	3,554	563	2,920	71
1984	3,727	586	2,995	146
1985	4,010	643	3,101	266
1986	6,071	648	4,373	1,050
1987	5,866	622	4,182	1,062
1988	6,340	679	4,448	1,213
1989	8,491	855	6,420	1,216
1990	10,009	889	7,649	1,471
1991	9,501	1,017	6,793	1,691
1992	10,011	1,122	6,790	2,099
1993	11,162 ^r	1,212	7,572 ^r	2,378
1994	11,137	1,330	7,203	2,604
1995 ^E	11,140	1,153	7,072	2,915

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

^a Research and Development, Construction of Facilities, Research and Program Management.^b Research, Development, Test, and Evaluation of aircraft and related equipment.^c Federal Aviation Administration: Research, Engineering, and Development; and Facilities, Engineering and Development.^d First year outlays data available.^e Estimate.^r Revised.

**FEDERAL AERONAUTICS RESEARCH AND DEVELOPMENT
IN CONSTANT DOLLARS**

Fiscal Years 1977-1995
(Millions of Constant Dollars^a)

Year	TOTAL	NASA ^b	DoD ^c	DoT ^d
BUDGET AUTHORITY				
1977	\$4,924	\$ 683	\$4,074	\$ 168
1978	5,603	734	4,712	158
1979	4,402	802	3,460	141
1980	4,238	793	3,310	135
1981	4,226	676	3,412	136
1982	4,286	618	3,572	97
1983	4,448	629	3,701	118
1984	4,499	660	3,549	289
1985	4,617	687	3,628	281
1986	6,857	619	5,073	1,166
1987	5,824	698	4,179	946
1988	6,730	698	4,814	1,218
1989	9,846	806	7,613	1,427
1990	9,545	832	7,024	1,688
1991	8,069	829	5,269	1,971
1992	9,251	930	6,133	2,187
1993 ^f	9,235	1,012	6,164	2,059
1994	8,535	1,233	5,461	1,841
1995 ^E	8,333	1,026	5,575	1,732
OUTLAYS				
1982 ^f	\$3,961	\$ 674	\$3,180	\$ 107
1983	4,084	647	3,356	82
1984	4,102	645	3,297	161
1985	4,251	682	3,288	282
1986	6,251	667	4,503	1,081
1987	5,866	622	4,182	1,062
1988	6,118	655	4,292	1,171
1989	7,845	790	5,932	1,124
1990	8,937	794	6,829	1,313
1991	8,141	871	5,821	1,449
1992	8,336	934	5,654	1,748
1993	9,075 ^f	985	6,156 ^f	1,933
1994	8,881 ^f	1,061	5,744 ^f	2,077
1995 ^E	8,724	903	5,538	2,283

Source: AIA, derived from NASA, "Aeronautics and Space Report of the President" (Annually).

a Based on Fiscal Year GDP implicit price deflator, 1987=100.

b Research and Development, Construction of Facilities, Research and Program Management.

c Research, Development, Test, and Evaluation of aircraft and related equipment.

d Federal Aviation Administration: Research, Engineering, and Development; and Facilities, Engineering, and Development.

e Estimate.

f First year outlays data available.

r Revised.

**DEPARTMENT OF DEFENSE
APPROPRIATIONS FOR
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**

Fiscal Years 1995–1997
(Millions of Dollars)

	1995	1996 ^E	1997 ^E
TOTAL—APPROPRIATIONS FOR RDT&E	\$35,515	\$34,332	\$32,656

BY APPROPRIATION

Army	\$ 5,481	\$ 4,444	\$ 4,241
Navy	8,695	8,205	7,717
Air Force	12,057	12,598	11,656
Defense Agencies	9,025	8,803	8,750
Director of Test & Evaluation, Defense	233	259	267
Director of Operational Test & Evaluation	23	23	23

RECAP OF BUDGET ACTIVITIES

Research	\$ 1,227	\$ 1,214	\$ 1,267
Exploratory Development	3,070	2,816	2,957
Advanced Development	4,339	3,796	3,796
Demonstration and Validation	4,325	4,229	4,000
Engineering & Manufacturing Development	8,930	8,759	8,837
RDT&E Management Support	3,436	3,305	3,214
Operational Systems Development	10,188	10,213	8,582

RECAP OF FYDP PROGRAMS

Strategic Forces	\$ 146	\$ 132	\$ 105
General Purpose Forces	3,674	3,266	2,427
Intelligence and Communications	5,954	6,364	5,622
Airlift/Sealift	23	18	5
Research and Development (FYDP Program 6)	25,479	24,378	24,333
Central Supply and Maintenance	31	23	22
Training Medical and Other	1	1	2
Administration and Associated Activities	6	6	6
Support of Other Nations	2	4	4
Special Operations Forces	201	140	126

Source: Department of Defense Budget, "RDT&E Programs (R-1)" (Annually).

NOTE: Detail may not add to totals because of rounding.

E Estimate. Latest year reflects Administration's budget proposal.

DEPARTMENT OF DEFENSE
OUTLAYS FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
Fiscal Years 1972–1997
(Millions of Dollars)

Year	TOTAL, All RDT&E Functions	Air Force	Navy	Army	Other
1972	\$ 7,881	\$ 3,205	\$2,427	\$1,779	\$ 470
1973	8,157	3,362	2,404	1,912	479
1974	8,582	3,240	2,623	2,190	529
1975	8,866	3,308	3,021	1,964	573
1976	8,923	3,338	3,215	1,842	528
Tr. Qtr.	2,203	830	778	437	161
1977	9,795	3,618	3,481	2,069	627
1978	10,508	3,626	3,825	2,342	715
1979	11,152	4,080	3,826	2,409	837
1980	13,127	5,017	4,382	2,707	1,021
1981	15,278	6,341	4,783	2,958	1,196
1982	17,729	7,794	5,240	3,230	1,465
1983	20,554	9,182	5,854	3,658	1,861
1984	23,117	10,353	6,662	3,812	2,289
1985	27,103	11,573	8,054	3,950	3,527
1986	32,283	13,417	9,667	3,984	5,215
1987	33,596	13,347	9,176	4,721	6,352
1988	34,792	14,302	8,828	4,624	7,038
1989	37,002	14,912	9,291	4,966	7,833
1990	37,458	14,443	9,160	5,513	8,342
1991	34,589	13,050	7,586	5,559	8,371
1992	34,632	11,998	7,826	5,978	8,830
1993	36,967	12,338	8,944	6,218	9,467
1994	34,786	12,513	7,990	5,746	8,537
1995	34,708	12,051	9,229	5,081	8,347
1996 ^E	34,501	11,796	8,338	5,066	9,301
1997 ^E	34,225	13,014	7,731	4,535	8,945

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

^E Estimate. Latest year reflects Administration's budget proposal.

Tr. Qtr. See Glossary.

**DEPARTMENT OF DEFENSE
PRIME CONTRACT AWARDS
FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**
Fiscal Years 1991–1995
(Millions of Dollars)

Program Categories	1991	1992	1993	1994	1995
TOTAL—RDT&E	<u>\$20,898</u>	<u>\$21,730</u>	<u>\$22,292</u>	<u>\$21,824</u>	<u>\$21,549</u>
Research	1,063	1,195	1,377	1,052	1,621
Exploratory Development	2,288	2,159	2,203	2,181	2,331
Other Development	16,424	16,975	17,251	17,468	17,597 ^a
Management & Support	1,124	1,401	1,461	1,123	(a)
Aircraft—TOTAL	<u>\$ 3,143</u>	<u>\$ 4,022</u>	<u>\$ 5,114</u>	<u>\$ 5,809</u>	<u>\$ 5,770</u>
Research	13	18	13	10	10
Exploratory Development	83	74	86	81	119
Other Development	3,002	3,873	4,942	5,615	5,641 ^a
Management & Support	45	58	73	102	(a)
Missile and Space Systems—TOTAL ..	<u>6,649</u>	<u>5,730</u>	<u>5,871</u>	<u>5,727</u>	<u>5,319</u>
Research	95	98	339	114	184
Exploratory Development	710	489	456	395	471
Other Development	5,759	5,084	5,011	5,160	4,663 ^a
Management & Support	86	59	65	58	(a)
Electronics & Communications Equipment—TOTAL	<u>3,814</u>	<u>4,265</u>	<u>3,914</u>	<u>3,567</u>	<u>3,495</u>
Research	127	147	158	108	196
Exploratory Development	299	369	337	340	350
Other Development	3,323	3,723	3,374	3,069	2,949 ^a
Management & Support	64	27	46	50	(a)
All Other—TOTAL^a	<u>7,292</u>	<u>7,713</u>	<u>7,392</u>	<u>6,721</u>	<u>6,965</u>
Research	827	933	867	820	1,231
Exploratory Development	1,196	1,228	1,324	1,365	1,390
Other Development	4,341	4,295	3,924	3,624	4,344 ^a
Management & Support	928	1,258	1,277	912	(a)

Source: Department of Defense, "Prime Contract Awards by Service Category and Federal Supply Classification" (Annually).

NOTE: Detail may not add to totals because of rounding.

a "Management & Support" combined with "Other Development" beginning in FY 1995.

b "All Other" includes ships, tank-automotive, weapons, ammunition, services, and other.

() Reflects net cancellations.

**DEPARTMENT OF DEFENSE
NET VALUE OF PRIME CONTRACT AWARDS OVER \$25,000
FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**

By Region and Type of Contractor
Fiscal Year 1995

REGION	TOTAL	Type of Contractor		
		Educational Institutions	Other Non-Profit Institutions ^a	Business Firms
TOTAL—Millions of Dollars	\$20,941	\$447	\$1,852	\$18,642
New England	\$ 2,160	\$ 54	\$ 748	\$ 1,358
Middle Atlantic	1,879	43	196	1,639
East North Central	720	51	59	609
West North Central	1,670	13	8	1,649
South Atlantic	5,974	95	693	5,186
East South Central	937	9	3	925
West South Central	1,298	39	36	1,224
Mountain	1,946	52	2	1,892
Pacific ^b	4,357	91	108	4,159
PERCENT OF TOTAL	100.0%	100.0%	100.0%	100.0%
New England	10.3%	12.1%	40.4%	7.3%
Middle Atlantic	9.0	9.7	10.6	8.8
East North Central	3.4	11.5	3.2	3.3
West North Central	8.0	2.9	0.4	8.8
South Atlantic	28.5	21.2	37.4	27.8
East South Central	4.5	2.0	0.1	5.0
West South Central	6.2	8.6	1.9	6.6
Mountain	9.3	11.7	0.1	10.2
Pacific ^b	20.8	20.3	5.8	22.3

Source: Department of Defense, "Prime Contract Awards by Region and State" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Includes contracts with other government agencies.

b Includes Alaska and Hawaii.

**MISSILE PROGRAMS
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**

By Agency and Model
Fiscal Years 1995, 1996, and 1997
(Millions of Dollars^a)

Agency and Model	1995	1996 ^E	1997 ^E
AIR FORCE			
AMRAAM ^b	\$ 79.6	\$ 49.3	\$ 28.2
*JASSM ^b	—	24.1	198.6
JDAM ^b	89.6	117.2	73.8
JSOW ^b	169.2	121.2	109.8
*WCMD	26.3	50.3	56.3
NAVY			
Harpoon	\$ 59.0	\$ 52.0	\$ 22.3
RAM	17.8	25.2	20.0
Standard	14.3	22.0	1.6
Tomahawk	83.0	165.3	136.4
Trident II	22.0	17.4	12.3
ARMY			
AAWS-M	\$ 29.6	\$ 1.0	\$ —
ATACMS	36.3	26.4	4.9
*BAT	115.1	195.7	180.4
Longbow Hellfire	35.5	—	—
MLRS	57.8	70.9	64.3
BMD ORGANIZATION			
BMD	\$2,444.0	\$3,010.1	\$2,534.2

Source: Department of Defense Budget, "Program Acquisition Costs by Weapon System" (Annually).

NOTE: See Missile Programs Chapter for missile program procurement authorization data.

- a Total Obligational Authority.
- b Navy and Air Force funding.
- E Estimate. Latest year reflects Administration's budget proposal.
- NA Not available.
- * Programs in R&D only.

Missile Program Acronyms:

AAWS-M	—Advanced Anti-Tank Weapon System-Medium	AMRAAM	—Advanced Medium Range Air-to-Air Missile
ATACMS	—Army TACTical Missile System	BAT	—Brilliant Anti-Tank submunition
BMD	—Ballistic Missile Defense	JASSM	—Joint Air-to-Surface Standoff Missile
JDAM	—Joint Direct Attack Munition	JSOW	—Joint Standoff Weapon
MLRS	—Multiple Launch Rocket System	RAM	—Rolling Airframe Missile
WCMD	—Wind Corrected Munitions Dispenser		

**MILITARY AIRCRAFT PROGRAMS
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**

By Agency and Model
Fiscal Years 1995, 1996, and 1997
(Millions of Dollars^a)

Agency and Model	1995	1996 ^E	1997 ^E
AIR FORCE			
B-2 Spirit	\$ 365.5	\$ 589.2	\$ 528.5
C-17 Globemaster III	184.4	70.7	87.5
C-130J	4.8	—	—
E-8B JSTARS	166.3	167.1	207.3
F-15E Eagle	108.6	162.1	143.1
F-16 Falcon	133.2	166.1	142.2
*F-22	2,280.6	2,164.9	2,003.0
HH-60G	—	5.1	3.3
JPATS ^b	39.7	46.2	66.5
NAVY			
AV-8B Harrier	\$ 9.6	\$ 26.2	\$ 16.9
E-2C Hawkeye	47.7	61.2	65.0
EA-6B Prowler	24.5	5.0	—
F/A-18 Hornet	1,248.7	823.8	360.5
*JSF ^b	182.0	193.2	581.8
T-45 Goshawk	0.6	1.3	0.5
V-22 Osprey	452.7	736.8	576.8
ARMY			
Longbow Apache	\$ 169.6	\$ 23.0	\$ 5.9
*RAH-66 Comanche	474.9	292.2	288.6
DEFENSE AIRBORNE RECONNAISSANCE OFFICE			
UAVS	\$ 318.0	\$ 290.7	\$ 249.0

Source: Department of Defense Budget, "Program Acquisition Costs by Weapon System" (Annually).

NOTE: See Aircraft Production Chapter for aircraft program procurement authorization data.

a Total Obligational Authority.

b Air Force and Navy funding.

E Estimate. Latest year reflects Administration's budget proposal.

* Programs in R&D only.

FOREIGN TRADE



In 1995, aerospace exports declined for the third straight year and the aerospace balance of trade similarly declined. The declines, however, were not reflections of reduced U.S. competitiveness but rather the fact that the global aerospace market has generally been depressed.

Aerospace exports amounted to \$33.1 billion, down from \$37.4 billion in 1994. At \$21.6 billion, the aerospace trade balance was down 14 percent from 1994's \$25 billion. Aerospace imports, at \$11.5 billion, were down from the previous year's \$12.4 billion.

Aerospace exports constituted 5.7 percent of all U.S. merchandise exports in 1995; the figure compares with 7.3 percent in 1994 and 8.5 percent in 1993. As usual, civil exports accounted for most of the export volume—76 percent. The civil export total of \$25 billion compares with \$30 billion in 1994.

In terms of dollar value, 42 percent of the civil export volume was in sales of airline transports; the figure was 53 percent in 1994 and in the early 1990s it had ranged as high as 60 percent. Military exports showed an increase after three years of decline; they totaled \$8 billion, up from \$7.3 billion.

A breakdown of civil exports shows sales of complete aircraft at \$12.3 billion, down from the previous year's \$17.7 billion. Aircraft and engine parts exports came to \$10.6 billion (up from \$9.6 billion) and aircraft engine exports totaled \$1.8 billion (down from \$2.4 billion).

At \$10.6 billion, jetliner exports were sharply down from 1994's \$15.9 billion and the drop constituted the principal reason for the overall decline in export volume. However, the decline was not in-

dicative of a trend; a flow of new orders for transports in 1995 heralded resumption of airline re-equipment programs and an early upturn in jetliner sales.

Complete aircraft exports also included shipments of general aviation aircraft valued at \$593 million (down from \$598 million); \$876 million in used aircraft (down from \$1.1 billion); \$170 million in civil helicopters (up from \$82 million); and \$466 million in a category listed as "other, including spacecraft."

The \$8 billion total for military exports included \$1.3 billion in complete aircraft; \$4.6 billion in aircraft and engine parts; \$1.5 billion in missiles, rockets, and parts; and \$191 million in aircraft engines.

The principal customers for U.S. exports in 1995 were Japan (\$3.6 billion), United Kingdom (\$2.7 billion), South Korea (\$2.4 billion), and Canada (\$2.3 billion).

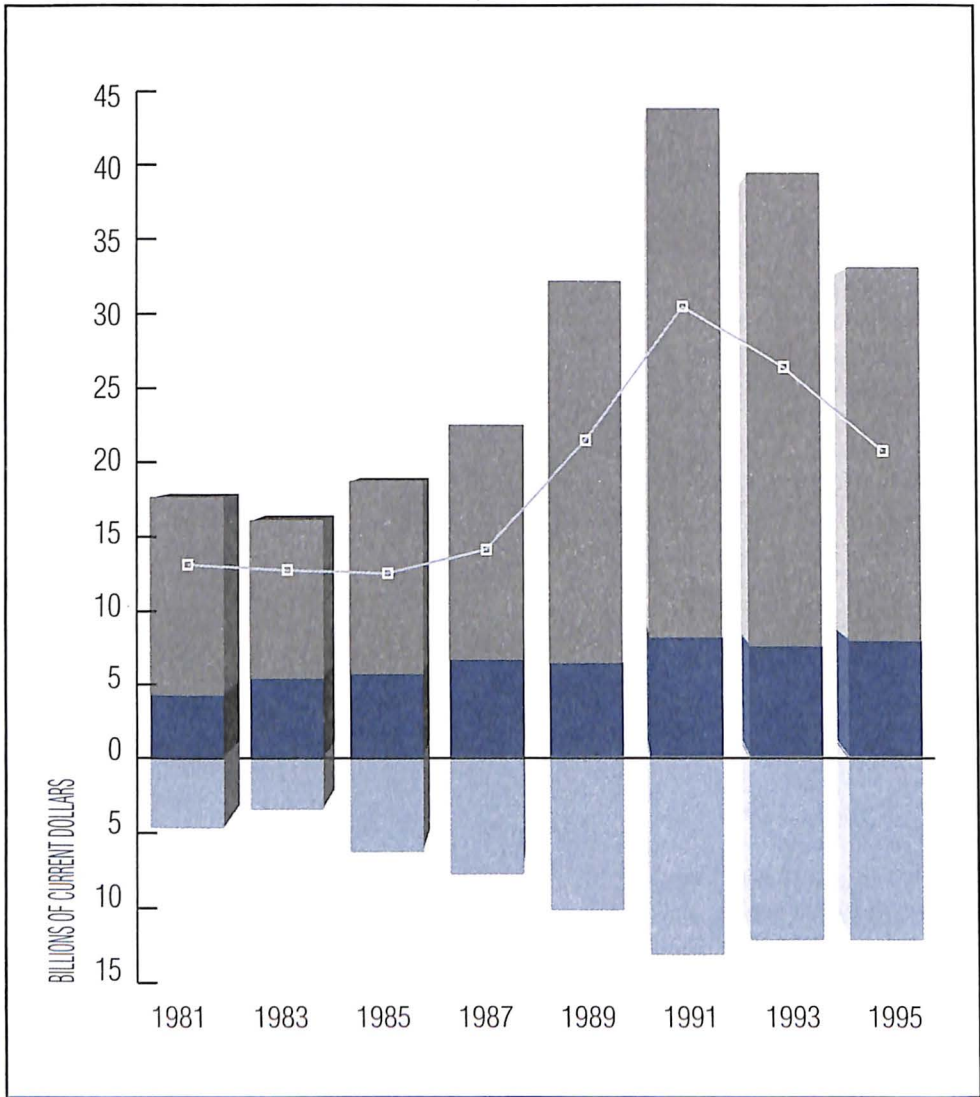
Civil imports in 1995 totaled \$8.3 billion (down from \$8.8 billion) and included complete aircraft valued at \$3.5 billion (down from \$3.8 billion); aircraft and engine parts, \$3.9 billion (up from \$3.6 billion); and aircraft engines, \$931 million (down from \$1.4 billion).

Among \$3.2 billion worth of military aerospace imports were aircraft and engine parts valued at \$2.2 billion (up \$79 million); aircraft engines, \$907 million (down from \$1.4 billion); and complete aircraft, \$64 million (up from \$22 million).

The principal suppliers of aerospace imports to the U.S. were France (\$3.1 billion), Canada (\$2.5 billion), United Kingdom (\$2.2 billion), and Germany (\$826 million).



AEROSPACE EXPORTS, IMPORTS, AND TRADE BALANCE



Source: Aerospace Industries Association

- Trade Balance -
- Civil Exports [Grey Box]
- Military Exports [Dark Blue Box]
- Imports [Light Blue Box]

U.S. TOTAL AND AEROSPACE FOREIGN TRADE^a
Calendar Years 1964–1995
(Millions of Dollars)

Year	Total U.S. Merchandise Trade			Aerospace		
	Trade Balance	Exports	Imports	Trade Balance	Exports	Imports
1964	\$ 7,006	\$ 25,690	\$ 18,684	\$ 1,518	\$ 1,608	\$ 90
1965	5,334	26,699	21,366	1,459	1,618	159
1966	3,837	29,379	25,542	1,370	1,673	303
1967	4,122	30,934	26,812	1,961	2,248	287
1968	837	34,063	33,226	2,661	2,994	333
1969	1,289	37,332	36,043	2,831	3,138	307
1970	3,225	43,176	39,952	3,097	3,405	308
1971	(1,476) ^b	44,087	45,563	3,830	4,203	373
1972	(5,729)	49,854	55,583	3,230	3,795	565
1973	2,390	71,865	69,476	4,360	5,142	782
1974	(3,884)	99,437	103,321	6,350	7,095	745
1975	9,551	108,856	99,305	7,045	7,792	747
1976	(7,820)	116,794	124,614	7,267	7,843	576
1977	(28,353)	123,182	151,534	6,850	7,581	731
1978	(30,205)	145,847	176,052	9,058	10,001	943
1979	(23,922)	186,363	210,285	10,123	11,747	1,624
1980	(19,696)	225,566	245,262	11,952	15,506	3,554
1981	(22,267)	238,715	260,982	13,134	17,634	4,500
1982	(27,510)	216,442	243,952	11,035	15,603	4,568
1983	(52,409)	205,639	258,048	12,619	16,065	3,446
1984	(106,703)	223,976	330,678	10,082	15,008	4,926
1985	(117,712)	218,815	336,526	12,593	18,725	6,132
1986	(138,279)	227,159	365,438	11,826	19,728	7,902
1987	(152,119)	254,122	406,241	14,575	22,480	7,905
1988	(118,526)	322,426	440,952	17,860	26,947	9,087
1989	(109,399)	363,812	473,211	22,083	32,111	10,028
1990	(101,718)	393,592	495,311	27,282	39,083	11,801
1991	(66,723)	421,730	488,453	30,785	43,788	13,003
1992	(84,501)	448,164	532,665	31,356	45,018	13,662
1993	(115,568)	465,091	580,659	27,235	39,418	12,183
1994 ^r	(150,630)	512,626	663,256	25,010	37,373	12,363
1995	(158,703)	584,742	743,445	21,561	33,071	11,509

Source: Bureau of the Census, Foreign Trade Division and Aerospace Industries Association, based on data from International Trade Administration.

NOTE: The Commerce Department began reporting international trade using the Harmonized Tariff Schedules of the United States in 1989. Previous years based on the Tariff Schedules of the United States Annotated.

a Total U.S. and aerospace foreign trade are reported as (1) exports of domestic merchandise, including Department of Defense shipments and undocumented exports to Canada, f.a.s. (= free alongside ship) basis, (2) imports for consumption, customs value basis.

b First U.S. trade deficit since 1888.

r Revised.

TOTAL U.S. EXPORTS AND EXPORTS OF AEROSPACE PRODUCTS

Calendar Years 1964–1995

(Millions of Dollars)

Year	TOTAL Exports of U.S. Merchandise ^a	Exports of Aerospace Products				
		TOTAL	Percent of Total U.S. Exports	Civil		Military
				Total	Trans- ports	
1964	\$ 25,690	\$ 1,608	6.3%	\$ 764	\$ 211	\$ 844
1965	26,699	1,618	6.1	854	353	764
1966	29,379	1,673	5.7	1,035	421	638
1967	30,934	2,248	7.3	1,380	611	868
1968	34,063	2,994	8.8	2,289	1,200	705
1969	37,332	3,138	8.4	2,027	947	1,111
1970	43,176	3,405	7.9	2,516	1,283	889
1971	44,087	4,203	9.5	3,080	1,567	1,123
1972	49,854	3,795	7.6	2,954	1,119	841
1973	71,865	5,142	7.2	3,788	1,664	1,354
1974	99,437	7,095	7.1	5,273	2,655	1,822
1975	108,856	7,792	7.2	5,324	2,397	2,468
1976	116,794	7,843	6.7	5,677	2,468	2,166
1977	123,182	7,581	6.2	5,049	1,936	2,532
1978	145,847	10,001	6.9	6,018	2,558	3,983
1979	186,363	11,747	6.3	9,772	4,998	1,975
1980	225,566	15,506	6.9	13,248	6,727	2,258
1981	238,715	17,634	7.4	13,312	7,180	4,322
1982	216,442	15,603	7.2	9,608	3,834	5,995
1983	205,639	16,065	7.8	10,595	4,683	5,470
1984	223,976	15,008	6.7	9,659	3,195	5,350
1985	218,815	18,725	8.6	12,942	5,518	5,783
1986	227,159	19,728	8.7	14,851	6,276	4,875
1987	254,122	22,480	8.8	15,768	6,377	6,714
1988	322,426	26,947	8.4	20,298	8,766	6,651
1989	363,812	32,111	8.8	25,619	12,313	6,492
1990	393,592	39,083	9.9	31,517	16,691	7,566
1991	421,730	43,788	10.4	35,548	20,881	8,239
1992	448,164	45,018	10.0	36,906 ^r	22,379	8,111 ^r
1993	465,091	39,418	8.5	31,823 ^r	18,146	7,596 ^r
1994	512,626 ^r	37,373	7.3	30,050 ^r	15,931	7,322 ^r
1995	584,742	33,071	5.7	25,079	10,606	7,991

Source: Bureau of the Census, Foreign Trade Division and Aerospace Industries Association, based on data from International Trade Administration.

NOTE: International trade reported using Harmonized Tariff Schedules after 1988.

a Includes DoD shipments and undocumented exports to Canada, free alongside ship basis.

r Revised.

U.S. EXPORTS OF AEROSPACE PRODUCTS^a BY MAJOR COUNTRIES OF DESTINATION

Calendar Years 1991–1995
(Millions of Dollars)

Major Countries of Destination	1991	1992	1993	1994	1995
Australia	\$1,596	\$1,746	\$ 543	\$ 812	\$ 635
Belgium/Luxembourg	826	506	654	343	442
Brazil	1,491	1,032	627	483	584
Canada	2,211	2,254	1,872	1,827	2,259
China	1,244	2,247	2,384	2,047	1,250
France	4,359	3,912	3,339	2,857	1,846
Germany	3,939	3,044	1,764	1,612	1,701
Israel	738	957	967	994	604
Italy	1,051	1,214	547	1,003	1,014
Japan	3,910	4,505	3,581	4,099	3,587
Korea, South	1,716	1,716	1,588	1,782	2,358
Malaysia	657	856	1,517	990	287
Mexico	608	991	554	631	175
Netherlands	1,458	1,234	1,162	1,643	2,096
Singapore	1,278	1,067	1,485	1,839	1,544
Spain	972	776	417	528	348
Sweden	1,081	632	386	234	473
Taiwan	1,324	1,380	2,133	1,790	1,961
Turkey	580	800	1,223	886	457
United Kingdom	3,961	3,483	3,533	3,601	2,700

Source: U.S. Department of Commerce, International Trade Administration.

a Includes all civil products, free alongside ship basis; excludes military products whose country of destination are not reported.

U.S. IMPORTS OF AEROSPACE PRODUCTS^a BY MAJOR COUNTRIES OF ORIGIN

Calendar Years 1991–1995
(Millions of Dollars)

Major Countries of Origin	1991	1992	1993	1994	1995
Brazil	\$ 186	\$ 164	\$ 119	\$ 73	\$ 110
Canada	2,734	2,432	2,072	2,443	2,461
France	3,558	4,220	4,249	4,087	3,072
Germany, West	523	614	478	699	826
Israel	291	230	203	257	354
Italy	598	585	368	274	348
Japan	661	655	538	583	671
Netherlands	761	915	707	505	308
Singapore	99	110	142	180	164
Sweden	332	234	135	96	185
United Kingdom	2,499	2,805	2,523	2,546	2,236

Source: U.S. Department of Commerce, International Trade Administration.

a Includes civil and military products, c.i.f. (Cost, Insurance, and Freight) basis.

U.S. EXPORTS OF AEROSPACE PRODUCTS

Calendar Years 1992–1995
(Millions of Dollars)

Aerospace Exports	1992	1993	1994	1995
TOTAL	\$45,018	\$39,418	\$37,373	\$33,071
TOTAL CIVIL^f	\$36,906	\$31,823	\$30,050	\$25,079
Complete Aircraft—TOTAL^f	<u>\$24,336</u>	<u>\$19,846</u>	<u>\$17,737</u>	<u>\$12,275</u>
Transports	22,379	18,146	15,931	10,606
General Aviation ^a	581	551	598	593
Helicopters	118	120	82	170
Used Aircraft ^f	1,241	1,012	1,111	876
Other, Incl. Spacecraft ^{br}	194	303	314	466
Aircraft Engines—TOTAL	<u>2,346</u>	<u>2,333</u>	<u>2,386</u>	<u>1,750</u>
Turbine Engines	2,271	2,246	2,292	1,661
Piston Engines	74	87	94	89
Aircraft and Engine Parts Incl. Spares—TOTAL	<u>10,048</u>	<u>9,358^r</u>	<u>9,628</u>	<u>10,618</u>
Aircraft Parts & Accessories	6,545	6,206	6,319	7,059
Aircraft Engine Parts	3,503	3,152	3,309	3,559
TOTAL MILITARY^f	\$ 8,111	\$ 7,596	\$ 7,322	\$ 7,991
Complete Aircraft—TOTAL^c	<u>\$ 2,083</u>	<u>\$ 1,460</u>	<u>\$ 1,094</u>	<u>\$ 1,339</u>
Fighters & Fighter Bombers	1,288	764	248	228
Transports	149	—	140	453
Helicopters	422	607	410	563
Used Aircraft ^f	174	57	268	63
Other, Incl. Spacecraft ^{br}	220	300	303	431
Aircraft Engines—TOTAL	<u>229</u>	<u>190</u>	<u>251</u>	<u>191</u>
Turbine Engines	199	155	188	131
Piston Engines	30	35	63	60
Aircraft and Engine Parts Incl. Spares—TOTAL	<u>4,208</u>	<u>4,448</u>	<u>4,692</u>	<u>4,582</u>
Aircraft Parts & Accessories	3,603	3,857	4,163	3,934
Aircraft Engine Parts	605	591	530	648
Guided Missiles, Rockets, & Parts—TOTAL	<u>1,422</u>	<u>1,230</u>	<u>1,009</u>	<u>1,481</u>
Guided Missiles & Rockets	576	485	340	702
Missile & Rocket Parts	839	745	669	759
Missile & Rocket Engines	6	1	1	20
Missile & Rocket Engine Parts ..	—	—	—	—

Source: Aerospace Industries Association, based on data from International Trade Administration.

a All fixed-wing aircraft under 33,000 pounds.

b Products within this category are not designated civil or military by the Harmonized Tariff Schedules. Historically, aircraft herein have been predominantly civil. Also, spacecraft not included in "Complete Aircraft - Total."

c Includes aircraft exported under Military Assistance Programs and Foreign Military Sales.

r Revised.

U.S. IMPORTS OF AEROSPACE PRODUCTS

Calendar Years 1992-1995

(Millions of Dollars)

Aerospace Imports	1992	1993	1994	1995
TOTAL	\$13,662	\$12,183	\$12,363	\$11,509
TOTAL CIVIL	\$ 9,719	\$ 8,628 ^r	\$ 8,792	\$ 8,296
Complete Aircraft—TOTAL	<u>\$ 3,866</u>	<u>\$ 3,725</u>	<u>\$ 3,787</u>	<u>\$ 3,492</u>
Transports	2,007	2,005	1,361	972
General Aviation	1,375	1,238	1,711	1,449
Helicopters	179	231	317	300
Other, Including Used Aircraft, & Gliders, Balloons, & Airships ^a ..	305	251	398	771
Aircraft Engines—TOTAL	<u>1,346</u>	<u>1,312</u>	<u>1,400</u>	<u>931</u>
Turbine Engines ^b	1,330	1,291	1,346	887
Piston Engines	16	20	55	44
Aircraft & Engine Parts—TOTAL ...	<u>4,507</u>	<u>3,590</u>	<u>3,605</u>	<u>3,873</u>
Aircraft Parts and Accessories ^b ...	2,726	2,059	2,093	2,252
Turbine Engine Parts ^b	1,516	1,309	1,231	1,416
Piston Engine Parts	46	39	51	63
Spacecraft, Other Parts & Accessories ^c	220	183	230	142
TOTAL MILITARY	\$ 3,943	\$ 3,555	\$ 3,571	\$ 3,213
Complete Aircraft—TOTAL	\$ 54 ^r	\$ 13	\$ 22	\$ 64
Aircraft Engines—TOTAL	<u>1,368</u>	<u>1,313</u>	<u>1,386</u>	<u>907</u>
Turbine Engines ^b	1,330	1,291	1,346	887
Piston Engines Including Parts	38	22	40	20
Aircraft & Engine Parts—TOTAL ...	<u>2,521</u>	<u>2,229</u>	<u>2,163</u>	<u>2,242</u>
Aircraft Parts ^b	717	655	635	613
Turbine Engine Parts ^b	1,484	1,285	1,212	1,391
Spacecraft, Missiles, Rockets, Other Parts, & Accessories ^{bc} ...	320	289	317	238

Source: Aerospace Industries Association, based on data from International Trade Administration.

NOTE: International trade reported using Harmonized Tariff Schedules after 1989.

a Products within this category are not designated civil or military by the Harmonized Tariff Schedules. Historically, these products have been predominantly civil.

b Category contains products whose use (civil or military) is unspecified by the Harmonized Tariff Schedules. Figures for those products distributed equally between civil and military.

c Includes satellites, propulsion engines, and parachutes.

r Revised.

U.S. EXPORTS OF MILITARY AIRCRAFT^a
Calendar Years 1991–1995

	1991	1992	1993	1994	1995
TOTAL NUMBER OF AIRCRAFT ...	490	428	632	437	516
Fighters and Fighter Bombers	16	65	47	14	16
Transports	40	4	—	3	7
Helicopters	72	61	93	88	47
New Aircraft, NEC	227	201	378	241	387
Used or Rebuilt Aircraft	135	97	114	91	59
TOTAL VALUE (Millions of Dollars) .	\$1,784	\$2,083	\$1,460	\$1,094	\$1,339
Fighters and Fighter Bombers	\$ 323	\$1,288	\$ 764	\$ 248	\$ 228
Transports	633	149	—	140	453
Helicopters	587	422	607	410	563
New Aircraft, NEC	97	51	32	28	33
Used or Rebuilt Aircraft	144	174	57	268	63

Source: Aerospace Industries Association, based on data from the International Trade Administration.

^a Includes aircraft exported under Military Assistance Programs and Foreign Military Sales.

NEC Not elsewhere classified.

U.S. EXPORTS OF CIVIL AIRCRAFT

Calendar Years 1991-1995

Civil Aircraft Exports	1991	1992	1993	1994	1995
TOTAL NUMBER OF AIRCRAFT^{ar}	2,883	1,898	1,480	1,400	1,323
Helicopters—TOTAL	<u>318</u>	<u>212</u>	<u>175</u>	<u>154</u>	<u>210</u>
Under 2,200 lbs	246	175	143	118	159
Over 2,200 lbs	72	37	32	36	51
General Aviation—TOTAL	<u>534</u>	<u>358</u>	<u>333</u>	<u>385</u>	<u>363</u>
Single-Engine	345	186	97	125	132
Multi-Engine, Under 4,400 lbs	22	19	104	124	95
Multi-Engine, 4,400-10,000 lbs	98	93	74	67	76
Multi-Engine, 10,000-33,000 lbs	69	60	58	69	60
Transports—TOTAL	<u>385</u>	<u>387</u>	<u>278</u>	<u>222</u>	<u>137</u>
Passenger Aircraft, Over 33,000 lbs	371	376	272	216	128
Cargo Aircraft, Over 33,000 lbs	5	1	2	4	7
Other, Over 33,000 lbs, Incl. Pass./Cargo Combi	9	10	4	2	2
Other Aircraft—TOTAL^{ar}	<u>1,646</u>	<u>941</u>	<u>694</u>	<u>639</u>	<u>613</u>
Used or Rebuilt Aircraft ^r	1,646	941	694	639	613
Other Aircraft, Including Balloons, Gliders, & Kites ^f	1,508	551	558	524	398
TOTAL VALUE (Millions of Dollars)^r	\$22,388	\$24,336	\$19,846	\$17,737	\$12,275
Helicopters—TOTAL	<u>\$ 168</u>	<u>\$ 118</u>	<u>\$ 120</u>	<u>\$ 82</u>	<u>\$ 170</u>
Under 2,200 lbs	40	35	37	24	34
Over 2,200 lbs	129	83	83	58	137
General Aviation—TOTAL	<u>576</u>	<u>581</u>	<u>551</u>	<u>598</u>	<u>593</u>
Single-Engine	40	61	36	46	74
Multi-Engine, Under 4,400 lbs	8	12	22	23	22
Multi-Engine, 4,400-10,000 lbs	249	213	169	182	176
Multi-Engine, 10,000-33,000 lbs	279	295	324	348	321
Transports—TOTAL	<u>20,881</u>	<u>22,379</u>	<u>18,146</u>	<u>15,931</u>	<u>10,606</u>
Passenger Aircraft, Over 33,000 lbs	19,349	21,252	17,237	15,063	9,354
Cargo Aircraft, Over 33,000 lbs	405	37	299	556	930
Other, Over 33,000 lbs, Incl. 1950 Pass./Cargo Combi	1,127	1,090	611	312	321
Other Aircraft—TOTAL^r	<u>764</u>	<u>1,259</u>	<u>1,029</u>	<u>1,126</u>	<u>906</u>
Used or Rebuilt Aircraft ^r	734	1,241	1,012	1,111	876
Other Aircraft, Including Balloons, Gliders, & Kites ^f	29	17	17	14	29

Source: Aerospace Industries Association, based on data from International Trade Administration.

NOTE: International trade reported using Harmonized Tariff Schedules after 1988.

a Numbers of gliders, balloons, & kites excluded from civil aircraft totals.

r Revised.

U.S. IMPORTS OF COMPLETE AIRCRAFT
Calendar Years 1992-1995

Aircraft Imports	1992	1993	1994	1995
TOTAL NUMBER OF AIRCRAFT	1,024	1,384	1,762	1,609
Civil Aircraft—TOTAL^r	<u>961</u>	<u>1,345</u>	<u>1,695</u>	<u>1,492</u>
New Complete Aircraft:				
Helicopters	148	159	216	206
General Aviation:				
Single-Engine	67	96	105	117
Multi-Engine, Under 4,400 lbs	7	—	8	5
Multi-Engine, 4,400-10,000 lbs	18	6	2	2
Multi-Engine, Turbojet/Turbofan, 10,000-33,000 lbs	52	66	82	72
Multi-Engine, Other, Including Turboshaft, 10,000-33,000 lbs	72	44	64	63
Transports, Multi-Engine, Over 33,000 lbs	64	54	38	22
Other Civil Aircraft:				
Gliders ^{ar}	128	132	102	137
Balloons & Airships ^a	18	60	53	98
Others including Kites ^a	223	485	714	509
Used or Rebuilt ^r	164	243	311	261
Military Aircraft—TOTAL^r	<u>63</u>	<u>39</u>	<u>67</u>	<u>117</u>
New Complete Aircraft ^r	12	6	25	75
Used or Rebuilt	51	33	42	42

(Continued on next page)

U.S. IMPORTS OF COMPLETE AIRCRAFT

(Continued)

Aircraft Imports	1992	1993	1994	1995
VALUE (Millions of Dollars)	\$3,920.7	\$3,738.3	\$3,808.8	\$3,556.5
Civil Aircraft—TOTAL^r	<u>\$3,866.4</u>	<u>\$3,725.4</u>	<u>\$3,787.2</u>	<u>\$3,492.6</u>
New Complete Aircraft:				
Helicopters	179.2	231.4	316.7	300.2
General Aviation:				
Single-Engine	24.6	28.6	65.9	48.5
Multi-Engine, Under 4,400 lbs	3.1	—	2.8	0.3
Multi-Engine, 4,400-10,000 lbs	75.7	14.8	2.4	3.0
Multi-Engine, Turbojet/Turbofan, 10,000-33,000 lbs	612.0	792.3	1,030.4	902.4
Multi-Engine, Other, Including Turbohaft, 10,000-33,000 lbs	659.5	402.1	609.4	494.6
Transports, Multi-Engine, Over 33,000 lbs	2,006.9	2,005.1	1,361.3	972.1
Other Civil Aircraft:				
Gliders ^{ar}	1.9	1.4	1.2	1.0
Balloons & Airships ^a	1.4	3.2	4.7	11.5
Others including Kites ^a	0.7	1.1	2.3	2.0
Used or Rebuilt ^r	301.2	245.4	389.9	756.9
Military Aircraft—TOTAL^r	<u>\$ 54.3</u>	<u>\$ 12.8</u>	<u>\$ 21.6</u>	<u>\$ 63.9</u>
New Complete Aircraft ^r	49.3	10.5	15.3	63.0
Used or Rebuilt	5.0	2.3	6.3	0.9

Source: Aerospace Industries Association, based on data from International Trade Administration.

a Products within this category are not designated civil or military by the Harmonized Tariff Schedules. Historically, these products have been predominantly civil.

r Revised.

U.S. EXPORTS OF COMMERCIAL TRANSPORT AIRCRAFT^a

Calendar Years 1991–1995

Region of Destination	1991	1992	1993	1994	1995
TOTAL NUMBER EXPORTED ...	385	387	278	222	137
Canada & Greenland	3	7	2	—	3
Latin America & Caribbean	32	40	14	8	5
Europe	228	171	89	82	52
Middle East	16	17	13	13	1
Asia	83	120	146	108	71
Oceania	14	23	8	7	2
Africa	9	9	6	4	3
TOTAL VALUE					
(Millions of Dollars)	\$20,881	\$22,379	\$18,146	\$15,931	\$10,606
Canada & Greenland	\$ 221	\$ 610	\$ 114	\$ —	\$ 280
Latin America & Caribbean	1,472	1,904	805	420	390
Europe	10,461	8,105	5,130	5,451	3,502
Middle East	648	625	517	957	157
Asia	6,382	9,201	10,840	8,451	6,049
Oceania	1,177	1,461	351	510	126
Africa	520	471	389	144	102

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a Airframe weight exceeding 33,000 pounds.

U.S. EXPORTS OF CIVIL HELICOPTERS^a

Calendar Years 1991–1995

Region of Destination	1991	1992	1993	1994	1995
TOTAL NUMBER EXPORTED	318	212	175	154	210
Canada & Greenland	20	8	11	5	9
Latin America & Caribbean	45	46	67	43	36
Europe	125	91	61	62	55
Middle East	2	3	2	2	4
Asia	66	39	21	26	50
Oceania	38	19	13	11	25
Africa	22	6	—	5	31
TOTAL VALUE (Millions of Dollars)	\$168.4	\$117.7	\$120.1	\$82.1	\$170.4
Canada & Greenland	\$ 7.9	\$ 5.0	\$ 6.2	\$ 1.9	\$ 7.9
Latin America & Caribbean	19.6	26.2	24.8	20.0	21.1
Europe	56.3	38.2	62.2	18.7	24.3
Middle East	16.5	2.2	0.5	0.6	9.3
Asia	59.2	42.5	24.4	30.8	83.6
Oceania	5.7	2.3	1.9	9.0	19.0
Africa	3.1	1.3	—	1.2	5.3

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a Excludes used helicopters.

U.S. IMPORTS OF CIVIL HELICOPTERS^a

Calendar Years 1991–1995

Country of Origin	1991	1992	1993	1994	1995
TOTAL NUMBER IMPORTED	244	148	159	216	206
Canada	146	104	114	169	172
France	57	25	22	29	11
Germany	30	16	18	14	15
Italy	10	1	3	2	7
Others ^b	1	2	2	2	1
TOTAL VALUE (Millions of Dollars)	\$288.8	\$179.2	\$231.4	\$316.7	\$300.2
Canada	\$182.1	\$147.4	\$176.1	\$274.6	\$262.9
France	53.6	14.0	28.6	29.6	10.3
Germany	35.6	14.8	15.0	11.7	14.9
Italy	16.9	2.1	9.1	0.0	12.1
Others ^b	0.7	0.9	2.5	0.8	0.0

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a Excludes used helicopters.

b Includes 1 from New Zealand in 1991; 2 from Japan in 1992; 1 from Japan and 1 from Russia in 1993; 2 from United Kingdom in 1994; and 1 from Israel in 1995.

U.S. EXPORTS OF GENERAL AVIATION AIRCRAFT^a

Calendar Years 1991–1995

Region of Destination	1991	1992	1993	1994	1995
TOTAL NUMBER EXPORTED ..	534	358	333	385	363
Canada & Greenland	9	21	20	29	32
Latin America & Caribbean	80	78	59	81	70
Europe	317	142	115	94	135
Middle East	11	13	16	28	10
Asia	54	47	77	91	38
Oceania	18	22	15	25	39
Africa	45	35	31	37	39
TOTAL VALUE					
(Millions of Dollars)	\$576.0	\$580.8	\$550.5	\$598.2	\$593.4
Canada & Greenland	\$ 31.2	\$ 55.3	\$ 27.5	\$ 44.9	\$ 75.8
Latin America & Caribbean	142.9	191.8	117.5	203.1	123.0
Europe	253.1	169.5	163.4	128.1	122.6
Middle East	21.7	17.9	65.2	13.0	31.2
Asia	95.0	36.3	106.8	112.6	140.7
Oceania	6.9	41.0	27.2	51.7	47.0
Africa	25.2	69.0	42.9	44.9	53.1

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a All fixed-wing aircraft under 33,000 pounds.

U.S. IMPORTS OF GENERAL AVIATION AIRCRAFT^a
Calendar Years 1991-1995

Country of Origin	1991	1992	1993	1994	1995
TOTAL NUMBER IMPORTED ...	254	216	212	261	259
Brazil	24	21	15	7	11
Canada	42	50	33	50	32
France	92	81	66	63	40
Germany, West	(b)	4	14	41	52
Israel	8	5	7	5	3
Japan	—	—	2	—	—
Poland	(b)	4	20	23	23
Russia	(b)	5	20	14	18
United Kingdom	48	37	26	40	44
Other	40	9	9	18	36
TOTAL VALUE (Millions of Dollars)	\$1,566.8	\$1,374.9	\$1,237.8	\$1,711.0	\$1,448.8
Brazil	\$ 152.2	\$ 136.3	\$ 94.2	\$ 49.5	\$ 74.7
Canada	469.8	527.2	466.2	625.4	494.6
France	469.9	388.9	410.4	556.3	278.8
Germany, West	(b)	0.6	2.2	156.8	242.5
Israel	51.7	33.6	45.9	29.7	21.4
Japan	—	—	1.0	—	—
Poland	(b)	0.3	1.9	1.9	2.2
Russia	(b)	0.6	2.0	1.7	1.0
United Kingdom	276.9	235.1	201.6	277.7	276.5
Other	146.3	52.3	12.4	172.4	57.0

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a All fixed-wing aircraft under 33,000 pounds.

b Previously included in Other.

U.S. EXPORTS OF AIRCRAFT ENGINES

Calendar Years 1993–1995
(Values in Millions of Dollars)

	1993		1994		1995	
	Number	Value	Number	Value	Number	Value
TOTAL	10,633	\$2,524	9,226	\$2,637	11,918	\$1,941
Turbine Engines	<u>3,020</u>	<u>\$2,401</u>	<u>2,428</u>	<u>\$2,480</u>	<u>4,025</u>	<u>\$1,792</u>
Civil	2,283	2,246	1,903	2,292	2,734	1,661
Military	737	155	525	188	1,291	131
Piston Engines	<u>7,613</u>	<u>123</u>	<u>6,798</u>	<u>157</u>	<u>7,893</u>	<u>148</u>
Civil, New, Under 500 HP ..	703	13	895	20	637	17
Civil, New, Over 500 HP ..	98	5	123	3	224	7
Civil, Used	3,792	69	2,462	70	2,668	66
Military	3,020	35	3,318	63	4,364	60

Source: Aerospace Industries Association, based on data from the International Trade Administration.

U.S. IMPORTS OF AIRCRAFT ENGINES^a

Calendar Years 1993–1995
(Values in Millions of Dollars)

	1993		1994		1995	
	Number	Value	Number	Value	Number	Value
TOTAL	4,918	\$2,614	6,757	\$2,775	7,523	\$1,828
Turbine Engines	2,401	\$2,583	2,297	\$2,691	2,718	\$1,774
Piston Engines	<u>2,517</u>	<u>31</u>	<u>4,460</u>	<u>84</u>	<u>4,805</u>	<u>55</u>
Military	2,182	11	2,475	30	3,241	11
Civil, New, Small	124	1	165	1	227	1
Civil, New, Large	33	6	1,545	42	1,155	33
Civil, Used	178	14	275	12	182	10

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a New and used.

**EXPORT-IMPORT BANK LENDING AUTHORITY
AND GROSS AUTHORIZATIONS SUMMARY**

Fiscal Years 1984-1995
(Millions of Dollars)

LOANS

Year	Lending Authority	Authorizations Summary		
		Direct Loans ^a		
		TOTAL	Direct Credits	Other ^b
1984	\$ 3,865	\$ 1,465	\$1,122	\$ 343
1985	3,865	659	320	339
1986	1,059	578	371	207
1987	680	599	332	267
1988	693	685	465	220
1989	719	695	517	202
1990	614	614	318	296
1991	750	777	425	352
1992	(c)	817	661	156
1993	(c)	1,748	1,635	113
1994	(c)	3,016	2,980	37
1995	(c)	1,598	1,271	327

GUARANTEES AND INSURANCE

Year	Lending Authority	Authorizations Summary		
		TOTAL	Guarantees	Insurance
1984	\$10,000	\$ 7,151	\$1,333	\$5,818
1985	10,000	7,850	1,320	6,530
1986	11,484 ^d	5,508	1,128	4,380
1987	11,355	7,958	1,514	6,444
1988	13,406	5,735	601	5,134
1989	17,901	5,637	1,292	4,345
1990	10,191	8,174	3,333	4,841
1991	11,349	10,588	6,034	4,554
1992	(c)	11,521	7,301	4,220
1993	(c)	13,324	9,095	4,229
1994	(c)	11,870	7,609	4,261
1995	(c)	10,267	5,712	4,555

Source: Export-Import Bank of the United States.

- a The value of Direct Loans may exceed Lending Authority because of the inclusion in Direct Loans of the full amount of Certificates of Loan, portions of which are subsequently sold to commercial banks.
- b Includes discount loans, medium term, and small business credits.
- c No lending limit set on the value of loans or guarantees and insurance beginning with 1992. Instead the subsidy cost of these transactions limited to \$603 million in 1992 and \$757 million in 1993. However, in 1993, the combined value of loans, guarantees, and insurance transactions could not exceed \$15.5 billion.
- d Includes \$1,800 million proposed I-MATCH Program which would replace direct lending and would allow an estimated \$100 million in commercial loan interest buy-down.

EXPORT-IMPORT BANK
TOTAL AUTHORIZATIONS OF LOANS AND GUARANTEES
AND AUTHORIZATIONS IN SUPPORT OF AIRCRAFT EXPORTS

Fiscal Years 1981–1995
(Millions of Dollars)

Year	TOTAL AUTHORIZATIONS	Authorizations in Support of Aircraft Exports			
		TOTAL	Percent of TOTAL Authorizations	Commercial Jet Aircraft ^a	Other Aircraft ^b
LOANS^c					
1981	\$5,431	\$2,576.6	47.4 %	\$2,550.3	\$ 26.3
1982	3,516	263.9	7.5	199.1	64.8
1983	845	396.7	46.9	383.8	12.9
1984	1,465	608.0	41.5	531.8	76.2
1985	659	39.7	6.0	12.6	27.1
1986	578	54.6	9.4	46.4	8.2
1987	599	17.0	2.8	13.3	3.7
1988	685	—	—	—	—
1989	695	166.4	23.9	158.0	8.4
1990	614	5.0	0.8	—	5.0
1991	777	—	—	—	—
1992	817	—	—	—	—
1993	1,748	—	—	—	—
1994	3,016	—	—	—	—
1995	1,598	—	—	—	—
GUARANTEES					
1981	\$1,506	\$ 562.6	37.4 %	\$ 533.4	\$ 29.2
1982	727	104.2	14.3	78.4	25.8
1983	1,741	629.6	36.2	601.3	28.3
1984	1,333	355.5	26.7	293.5	62.0
1985	1,320	322.4	24.4	288.9	33.5
1986	1,128	329.2	29.2	277.4	51.8
1987	1,514	808.3	53.4	808.3	—
1988	601	89.2	14.8	73.4	15.8
1989	1,292	496.4	38.4	390.4	106.0
1990	3,333	1,666.3	50.0	224.7	1,441.6
1991	6,034	606.0	10.1	566.9	40.0
1992	7,301	1,667.0	22.8	1,597.1	69.9
1993	9,095	3,488.6	38.4	3,488.6	—
1994	7,609	2,959.0	38.9	2,959.0	—
1995	5,712	977.0	17.1	977.0	—

Source: Export-Import Bank of the United States.

a Includes complete aircraft, engines, parts, and retrofits.

b Includes business aircraft, general aviation aircraft, helicopters, and related goods and services.

c Loans are commitments for financing by the Eximbank to foreign buyers of U.S. equipment and services, which are made to commercial banks and may subsequently be guaranteed by the Eximbank, in which case the value of the loans is also included with Guarantees.

d Guarantees by the Export-Import Bank provide assurances of repayment of principal and interest on loans made by private lending institutions, such as commercial banks, for major export transactions. Excludes insurance.

EXPORT-IMPORT BANK
SUMMARY OF COMMERCIAL JET AIRCRAFT AUTHORIZATIONS
FOR LOANS^a AND GUARANTEES^b

Fiscal Years 1976–1995
(Value in Millions of Dollars)

Year	No. of Jet Aircraft ^c		Export Value ^c		No. of New Commitments		Gross Authorizations	
	Loans	Guarantees	Loans	Guarantees	Loans	Guarantees	Loans	Guarantees
New Authorizations:								
1976	77	6	\$1,017	\$ 139	34	11	\$ 398	\$ 87
Tr. Qtr.	15	5	219	182	6	3	94	59
1977	31	25	330	902	16	14	138	294
1978	29	5	479	253	18	5	189	77
1979	118	7	2,938	317	35	10	1,399	239
1980	136	21	3,975	901	36	24	1,693	1,088
1981	121	18	4,568	637	26	17	2,550	533
1982	11	6	441	113	5	2	199	78
1983	21	9	779	619	3	4	384	601
1984	37	8	1,023	327	7	4	532	294
1985	—	14	19	481	1	5	13	289
1986	3	13	74	451	1	9	46	277
1987	—	27	22	1,449	1	14	13	808
1988	—	2	—	94	—	2	—	73
1989	3	5	253	459	1	2	158	390
1990	—	6	—	264	—	2	—	225
1991	—	12	—	665	—	3	—	567
1992	—	37	—	1,889	—	12	—	1,597
1993	—	70	—	4,122	—	27	—	3,489
1994	—	59	—	3,507	—	19	—	2,959
1995	—	27	—	1,206	—	12	—	977

Source: Export-Import Bank of the United States.

- a Loans are commitments for direct financing by the Export-Import Bank to foreign buyers of U.S. equipment and services, which are made by the Export-Import Bank to commercial banks and which subsequently may be guaranteed by the Export-Import Bank in which case the value of the loans is included with Guarantees.
- b Guarantees by the Export-Import Bank provide assurances of repayment of principal and interest on loans made by private lending institutions, such as commercial banks, for major export transactions.
- c For Export-Import Bank commitments including both loan and guarantee authorization, number of aircraft and export value reported under "Loans."

Tr. Qtr. See Glossary.

**EXPORT-IMPORT BANK
AUTHORIZATIONS OF LOANS AND GUARANTEES
IN SUPPORT OF EXPORTS OF COMMERCIAL JET AIRCRAFT**

Fiscal Years 1994-1995
(Values in Millions of Dollars)

Customer (Country/Airline)	Number and Aircraft Model or Related Product	Export Value	Authorizations				
			Loans (Direct Credits)			Repay- ment Terms ^b	Guar- antees Amount
			Amount	Percent Cover- age ^a	Interest Rate		
FY 1995							
TOTALS	27 aircraft	\$1,207	—	—	—	—	\$997
Australia/Ansett Worldwide Aviation Services	3 x 767	\$ 440	—	—	—	—	\$348
China/China Southwest Airlines	1 x 737, 2 x 757	127	—	—	—	—	109
China/Xiamen Airlines ...	2 x 757	82	—	—	—	—	70
China/Yunnan Airlines ...	1 x 737	33	—	—	—	—	28
China/Zhongyuan Airlines .	3 x 737	123	—	—	—	—	81
El Salvador/Taca International Airlines ...	1 x 767	74	—	—	—	—	63
Lithuania/Ministry of Finance	2 x 737	21	—	—	—	—	17
Morocco/Royal Air Maroc	2 x 737	64	—	—	—	—	55
Philippines/Philippine Airlines	1 x 747	121	—	—	—	—	103
Romania/TAROM-Romanian Air Transport	3 x 737	93	—	—	—	—	79
Tunisia/Society Tuniesienne de L'Air	1 x 737	29	—	—	—	—	24

(Continued on next page)

**EXPORT-IMPORT BANK
LOAN AND GUARANTEE AUTHORIZATIONS
(Continued)**

Customer (Country/Airline)	Number and Aircraft Model or Related Product	Export Value	Authorizations				
			Loans (Direct Credits)			Guar- antees	
			Amount	Percent Cover- age ^a	Interest Rate	Repay- ment Terms ^b	Amount
FY 1994							
TOTALS	59 aircraft	\$3,507	—	—	—	—	\$2,959
Australia/Ansett Worldwide Aviation Services	3 x 737, 3 x 757, 1 x 767	\$ 299	—	—	—	—	\$ 227
Brazil/Varig	2 x MD-11	209	—	—	—	—	178
China/China Eastern Airlines	1 x MD-11	118	—	—	—	—	98
China/China Southern Airlines	9 x 737, 2 x 757	380	—	—	—	—	325
China/China Southwest Airlines	2 x 737, 4 x 757	233	—	—	—	—	199
China/China Xinhua Airlines	4 x 737	139	—	—	—	—	118
China/China Xinjiang Airlines	3 x 737	97	—	—	—	—	82
China/Shanghai Airlines ..	1 x 757	48	—	—	—	—	41
Hong Kong/Cathay Pacific Airways	2 x 747	217	—	—	—	—	185
Italy/Alitalia-Linee Aeree Italiane	2 x MD-11, 7 x MD-80	439	—	—	—	—	370
Korea/Asiana Airlines	3 x 747, 1 x 767	499	—	—	—	—	427
Korea/Korean Airlines	3 x 747	386	—	—	—	—	328
Morocco/Royal Air Maroc	2 x 737	69	—	—	—	—	59
Philippines/Philippine Airlines	2 x 747	258	—	—	—	—	220
Poland/LOT Polish Airlines	1 x 737, 1 x 767	117	—	—	—	—	100

Source: Aerospace Industries Association, based on data from the Export-Import Bank of the United States.

NOTE: For definitions of Loans and Guarantees, see Export-Import Bank tables on previous pages.

a Amount of loan as percent of export value.

b Number of payments and frequency (S=semi-annual).

EMPLOYMENT

The long downward slide in aerospace industry employment continued in 1995, but indications of a rebound in the commercial aircraft manufacturing segment suggested that 1995 would be the bottoming-out year with respect to employment decline.

On an annual average employment basis, the aerospace work force was reduced by seven percent in 1995, to a level of 795,000. The drop marked the sixth straight decline since industry employment peaked in 1989; the cumulative manpower loss over those six years amounted to almost 40 percent of the peak total.

The 1995 employment figure represented 4.3 percent of the

total employment in all U.S. manufacturing industries; that compares with 4.7 percent in the previous year and 6.8 percent at the peak level. The aerospace work force also represented 7.5 percent of total employment by U.S. companies engaged in the manufacture of durable goods; the comparable figures are 8.2 percent in 1994 and 11.5 percent in the peak year 1989.

The greatest loss of jobs in 1995 occurred

once again in the industry segment engaged in production of aircraft, engines, and parts. In that segment, annual average employment was 449,000, down 6.9 percent from 482,000 in 1994. Employment in the missile/space segment was 99,000, down from 108,000. In the catch-all "other" category (communications, navigation, flight control, displays and related equipment), employment dipped to 247,000, down from 266,000 in 1994.

The total aerospace payroll for 1995 was \$26.5 billion, down from \$28.4 billion in the previous year. Both figures include lump-sum payments made by many aerospace companies in lieu of general wage increases or cost-of-living adjustments. Expressed as a



percentage of the total payroll for all manufacturing in the U.S. (\$648.4 billion), the aerospace payroll amounted to 4.1 percent, which compares to 4.6 percent in 1994 and 6.4 percent in the peak aerospace payroll year 1990.

The lower payroll level was due entirely to labor force reductions, because payments to individuals continued to rise. Average weekly earnings (again including lump-sum payments and overtime premiums) came to \$758, up from \$755 in 1994. There was considerable variance in wages among the different sectors in the industry: the average weekly pay for employees working on production of complete guided missiles was \$814; on airframes, \$811; on engines and parts, \$762; and on other parts and equipment, \$676.

Average hourly earnings amounted to \$18.01, up from \$17.96 in 1994. The average work week was 42.1 hours, the same as in the previous year.

The Pacific region again dominated a geographic breakdown of aerospace employment in 1995. The Pacific region led with 39.6 percent of the total, followed by the New England (12.8 percent); West North Central (12.1 percent); South Central (9.5 percent); South Atlantic (9.3 percent); East North Central (5.9 percent); Middle Atlantic (5.4 percent); and Mountain (5.4 percent) regions.

In the civil aircraft sector, employment at Pacific-based companies constituted 43.4 percent of the total, while companies in New England represented 19.1 percent and the West North Central region accounted for 12.5 percent.

In military aircraft production, however, the West North Central states placed first with 26.9 percent of employment, followed by the South Central (20.4 percent), South Atlantic (19.3 percent), then Pacific (17.3 percent) regions.



ANNUAL AVERAGE EMPLOYMENT IN ALL MANUFACTURING, DURABLE GOODS, AND AEROSPACE INDUSTRIES

Calendar Years 1979–1995
(Thousands of Employees)

Year	All Manu- facturing Industries	Durable Goods Industries	Aerospace Industry ^a		
			TOTAL	As Percent of	
				All Manufac- turing	Durable Goods
1979	21,040	12,730	1,007	4.8%	7.9%
1980	20,285	12,159	1,080	5.3	8.9
1981	20,170	12,082	1,087	5.4	9.0
1982	18,780	11,014	1,038	5.5	9.4
1983	18,432	10,707	1,019	5.5	9.5
1984	19,372	11,476	1,058	5.5	9.2
1985	19,248	11,458	1,151	6.0	10.1
1986	18,947	11,195	1,241	6.6	11.1
1987	18,999	11,154	1,282	6.8	11.5
1988	19,314	11,363	1,294	6.7	11.4
1989	19,391	11,394	1,314	6.8	11.5
1990	19,076	11,109	1,302	6.8	11.7
1991	18,406	10,569	1,214	6.6	11.5
1992	18,104	10,277	1,100	6.1	10.7
1993	18,075 ^r	10,221 ^r	966	5.3 ^r	9.5
1994 ^r	18,321	10,448	855	4.7	8.2
1995	18,468	10,654	795	4.3	7.5

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

^a See Glossary for detailed explanation of "Aerospace Employment."

^r Revised.

ANNUAL PAYROLL
AEROSPACE INDUSTRY AND ALL MANUFACTURING INDUSTRIES
 Calendar Years 1979–1995
 (Millions of Dollars)

Year	All Manufacturing Industries ^a	Aerospace Industry ^b			Aerospace As Percent of All Manufacturing
		TOTAL	Production Workers	Other Workers	
1979	\$334,800	\$15,150	\$ 6,465	\$ 8,685	4.5%
1980	355,600	18,026	7,658	10,368	5.1
1981	386,700	19,906	8,152	11,754	5.1
1982	384,000	20,750	8,043	12,707	5.4
1983	397,400	21,644	8,071	13,573	5.4
1984	439,100	23,773	8,746	15,027	5.4
1985	460,900	26,749	9,837	16,911	5.8
1986	473,200	29,547	11,038	18,509	6.2
1987	490,300	31,101	11,700	19,401	6.3
1988	524,000	32,566	11,744	20,822	6.2
1989	541,800	34,154	12,440	21,714	6.3
1990	556,100	35,590	13,020	22,570	6.4
1991	562,500 ^r	34,520	12,536	21,984	6.1 ^r
1992	583,500 ^r	33,123	11,812	21,311	5.7
1993	593,100 ^r	30,391	10,673	19,718	5.1 ^r
1994 ^r	621,100	28,395	9,901	18,494	4.6
1995	648,400	26,511	9,226	17,285	4.1

AEROSPACE — INCLUDING LUMP-SUM PAYMENTS^c

Year	TOTAL	Production Workers	Other Workers	Aerospace As Percent of All Manufacturing
1984	\$ 23,813	\$ 8,786	\$15,027	5.4%
1985	26,782	9,871	16,911	5.8
1986	29,611	11,102	18,509	6.3
1987	31,262	11,862	19,401	6.4
1988	32,757	11,935	20,822	6.3
1989	34,396	12,682	21,714	6.3
1990	35,862	13,292	22,570	6.4
1991	34,688	12,704	21,984	6.2
1992	33,257 ^r	11,947	21,311	5.7 ^r
1993	30,548	10,830	19,718	5.2
1994 ^r	28,420	9,926	18,494	4.6
1995	26,530	9,245	17,285	4.1

Source: Bureau of Economic Analysis, "Survey of Current Business" (Monthly) and Aerospace Industries Association estimates based on Bureau of Labor Statistics, "Employment and Earnings" (Monthly).

a See Glossary for explanation of "Payroll, All Manufacturing."

b Based on combined annual average employment and average weekly earnings for SICs 372 and 376.

c Many aerospace manufacturers have included lump-sum payments in labor settlements since late 1983 in lieu of general wage increases and/or cost of living adjustments. These payments are reported by BLS in separate wage series for SICs 3721 & 3761 and are included by AIA in the totals for production workers and all aerospace.

r Revised.

EMPLOYMENT IN THE AEROSPACE INDUSTRY^a

Calendar Years 1981–1995
(Annual Average, Thousands of Employees)

Year	TOTAL	Aircraft, Engines, & Parts (SIC 372)	Missiles & Space Vehicles (SIC 376)	Other ^b
TOTAL EMPLOYMENT				
1981	1,087	626	123	338
1982	1,038	584	131	323
1983	1,019	562	141	317
1984	1,058	575	154	329
1985	1,151	616	177	358
1986	1,241	656	200	386
1987	1,282	678	206	399
1988	1,294	684	208	402
1989	1,314	711	194	408
1990	1,302	712	185	405
1991	1,214	669	168	378
1992	1,100	612	146	342
1993	966	542	124	300
1994 ^r	855	482	108	266
1995	795	449	99	247
PRODUCTION WORKERS				
1981	396	333	37	26
1982	360	296	40	24
1983	342	274	46	23
1984	351	276	52	23
1985	382	295	62	25
1986	417	323	67	28
1987	434	339	67	29
1988	422	331	63	28
1989	432	344	60	29
1990	430	345	57	29
1991	399	324	48	27
1992	355	291	40	24
1993	308	253 ^r	35	20
1994 ^r	271 ^r	222 ^r	31	18
1995	251	207	28	17

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

^a See Glossary for detailed explanation of "Aerospace Employment."

^b Communications, navigation, flight control, and displays (aerospace-related portions of SICs 366, 381, & 382).

^r Revised.

EMPLOYMENT IN THE AIRCRAFT, ENGINES, AND PARTS INDUSTRY^a

Calendar Years 1981–1995
(Annual Average, Thousands of Employees)

Year	TOTAL (SIC 372)	Airframes (SIC 3721)	Engines and Parts (SIC 3724)	Other Parts & Equipment (SIC 3728)
TOTAL EMPLOYMENT				
1981	626.4	344.2	162.5	119.8
1982	584.0	319.9	148.8	115.3
1983	561.6	304.7	140.1	116.9
1984	574.9	306.1	140.2	128.7
1985	616.2	325.6	147.5	143.2
1986	655.8	338.9	153.6	163.2
1987	678.0	356.4	158.2	163.4
1988	683.5	368.5	155.8	159.3
1989	711.0	382.2	153.5	175.2
1990	712.3	381.0	151.7	179.5
1991	669.2	355.6	143.2	170.3
1992	611.7	332.1	126.6	153.0
1993	542.0	301.4	109.2	131.4
1994 ^r	481.5	271.3	95.1	115.1
1995	449.1	243.5	93.2	112.5
PRODUCTION WORKERS				
1981	332.7	167.0	92.4	73.5
1982	296.2	144.7	84.2	67.3
1983	273.9	131.5	74.7	67.1
1984	276.0	128.2	73.0	73.3
1985	294.6	135.5	74.8	82.2
1986	322.5	146.6	78.7	94.3
1987	338.5	159.1	80.5	96.3
1988	331.3	162.1	77.1	92.1
1989	343.7	167.4	76.8	99.5
1990	344.6	164.1	77.2	103.2
1991	323.6	151.6	73.1	98.8
1992	291.4	137.8	64.3	89.2
1993	252.5	122.7	53.6	76.2
1994 ^r	222.0	108.1	46.9	67.0
1995	206.7	93.5	46.3	66.9

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly).

a See Glossary for detailed explanation of "Aerospace Employment."

r Revised.

AEROSPACE INDUSTRY EMPLOYMENT^a BY OCCUPATIONAL CLASSIFICATION

As of December^b 1982–1996
(Thousands of Employees)

Year	TOTAL	Production Workers	Scientists & Engineers	Technicians	Others
1982	765	353	134	54	224
1983	765	344	135	55	231
1984	817	365	147	60	245
1985	898	405	163	66	264
1986	948	436	168	67	277
1987	968	436	175	69	288
1988	977	431	184	66	296
1989	992	439	198	68	287
1990	946	422	205	67	252
1991	879	386	205	60	228
1992	775	335	165	57	218
1993	676	286	148	50	191
1994	616	262	133	43	177
1995 ^p	580	249	125	40	166
1996 ^E	569	243	123	39	163

Source: Aerospace Industries Association, company reports and Bureau of Labor Statistics, "Employment and Earnings" (Monthly).

a Totals for employment by occupational classification reflect only establishments in SICs 372, 376, 366, 381, and 382. As a result, they do not match the totals for aerospace employment by product group which include other industries with employment related to aerospace.

b End-of-year figures often differ from annual averages appearing in other tables.

E Estimate.

p Preliminary.

**TOTAL EMPLOYMENT AND SCIENTISTS & ENGINEERS
IN COMMERCIAL TRANSPORT AIRCRAFT
& HELICOPTER MANUFACTURING ESTABLISHMENTS^a**

As of December 1982–1996

Year	Commercial Transport Aircraft		Helicopters	
	Total	Scientists & Engineers	Total	Scientists & Engineers
1982	61,800	10,200	26,500	3,100
1983	46,100	8,100	27,600	3,500
1984	54,800	8,900	31,300	3,800
1985	65,000	10,500	37,900	5,000
1986	75,300	12,500	37,400	4,000
1987	87,400	14,700	39,000	4,300
1988	98,800	16,200	36,600	4,200
1989	120,100	15,100	34,200	4,900
1990	122,400	16,700	30,600	4,500
1991	124,200	16,100	30,100	4,400
1992	111,600	14,800	28,200	4,400
1993	86,000	14,100	28,100	4,700
1994	83,300	14,700	27,300	4,600
1995 ^p	75,500	12,900	25,300	4,300
1996 ^E	79,700	13,800	22,600	3,800

Source: Aerospace Industries Association, company reports and AIA estimates.

a Includes only establishments identified as prime manufacturers of commercial transport aircraft and of civil and military helicopters. Excludes subcontractors and propulsion manufacturers.

E Estimate.

p Preliminary.

**GEOGRAPHIC DISTRIBUTION OF AEROSPACE EMPLOYMENT
BY OCCUPATIONAL CLASSIFICATION AND PRODUCT GROUP**

As of December 1995

PERCENT DISTRIBUTION BY OCCUPATION					
Region	TOTAL	Production Workers	Scientists & Engineers	Technicians	All Others
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%
New England	12.8%	15.9%	10.0%	8.8%	12.8%
Middle Atlantic	5.4	3.8	8.2	5.5	4.7
East North Central	5.9	8.1	4.5	5.0	5.0
West North Central	12.1	16.8	10.8	18.1	7.3
South Atlantic	9.3	8.0	9.2	12.5	10.0
South Central	9.5	8.8	9.9	5.4	10.9
Mountain	5.4	3.5	7.0	6.3	5.7
Pacific	39.6	35.1	40.3	38.4	43.6

PERCENT DISTRIBUTION BY PRODUCT GROUP							
Region ^a	Total	Aircraft		Missiles	Space	Other	
		Civil	Military			Aero	Non-Aero
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
New England	12.8%	19.1%	5.2%	34.7%	9.5%	6.6%	7.4%
Middle Atlantic	5.4	4.1	0.2			13.2	
East North Central	5.9	9.7	7.5			5.1	8.5
West North Central	12.1	12.5	26.9	2.9	0.0	11.4	
South Atlantic	9.3	4.1	19.3	8.3	18.2	4.1	11.6
South Central	9.5	6.0	20.4	8.9	14.1	3.3	
Mountain	5.4	1.2	3.2			6.5	
Pacific	39.6	43.4	17.3	45.1	58.1	49.7	72.6

Source: Aerospace Industries Association, company reports.

NOTE: Employment in 26 surveyed aerospace manufacturing corporations accounted for approximately three-fifths of total industry employment.

a Data for two regions are combined where employment for one region within a product group represented three or fewer companies.

AVERAGE HOURLY EARNINGS IN THE AEROSPACE INDUSTRY

Production Workers Only
Calendar Years 1977-1995

Year	TOTAL ^a	Aircraft (SIC 372)			Guided Missiles, Space Vehicles & Parts (SIC 376)	Complete Guided Missiles, & Space Vehicles (SIC 3761)	
		TOTAL ^a	Airframes (SIC 3721)	Engines & Parts (SIC 3724)			Other Parts & Equipment (SIC 3728)
AVERAGE HOURLY EARNINGS^b							
1977	\$ 6.93	\$ 6.92	\$ 7.07	\$ 7.05	\$ 6.44	\$ 7.04	\$ 7.15
1978	7.54	7.54	7.70	7.80	6.93	7.56	7.72
1979	8.26	8.26	8.50	8.53	7.48	8.25	8.38
1980	9.27	9.28	9.66	9.42	8.40	9.22	9.33
1981	10.29	10.31	10.74	10.41	9.35	10.06	10.34
1982	11.20	11.23	11.85	11.16	10.17	10.95	11.21
1983	11.79	11.82	12.58	11.61	10.73	11.59	11.84
1984	12.24	12.32	12.91	12.40	11.37	11.82	12.01
1985	12.54	12.62	13.18	12.85	11.66	12.14	12.36
1986	12.75	12.86	13.48	13.08	11.90	12.20	12.48
1987	13.10	13.17	13.74	13.33	12.23	12.73	13.09
1988	13.48	13.55	14.18	13.80	12.28	13.13	13.53
1989	14.10	14.17	14.89	14.42	12.81	13.70	14.20
1990	14.73	14.79	15.66	14.84	13.37	14.39	14.82
1991	15.51	15.60	16.72	15.38	14.05	14.90	15.21
1992	16.46	16.53	17.70	16.28	14.89	15.99	16.45
1993	17.18	17.23	18.43	16.70	15.72	16.80	17.43
1994	17.89 ^f	17.95 ^f	19.50	17.31	16.01 ^f	17.48	18.29 ^f
1995	17.94	17.97	19.97	17.13	15.91	17.75	18.58
AVERAGE HOURLY EARNINGS INCLUDING LUMP-SUM WAGE PAYMENTS^c							
1984	\$12.37	\$12.46	\$13.11	\$12.40	\$11.37	\$11.92	\$12.14
1985	12.69	12.77	13.40	12.85	11.66	12.29	12.56
1986	12.94	13.06	13.80	13.08	11.90	12.33	12.66
1987	13.37	13.48	14.32	13.33	12.23	12.80	13.19
1988	13.73	13.79	14.65	13.80	12.28	13.36	13.87
1989	14.37	14.44	15.41	14.42	12.81	13.98	14.63
1990	15.04	15.10	16.32	14.84	13.37	14.67	15.26
1991	15.71	15.81	17.16	15.38	14.05	15.09	15.49
1992	16.67	16.75	18.18	16.28	14.89	16.05	16.54
1993	17.44	17.52	19.00	16.70	15.72	16.83	17.47
1994	17.96 ^f	18.02 ^f	19.57	17.31	16.01 ^f	17.53	18.37
1995	18.01	18.04	20.02	17.13	15.91	17.78	18.62

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

a TOTAL columns are employment-based weighted averages.

b Includes overtime premiums.

c Many aerospace manufacturers have included lump-sum payments in labor settlements since late 1983 in lieu of general wage increases and/or cost of living adjustments. These payments are reported by BLS in separate wage series for SICs 3721 & 3761 and are included by AIA in totals.

f Revised.

AVERAGE WEEKLY EARNINGS IN THE AEROSPACE INDUSTRY

**Production Workers Only
Calendar Years 1979-1995**

Year	TOTAL ^a	Aircraft (SIC 372)			Guided Missiles, Space Vehicles & Parts (SIC 376)	Complete Guided Missiles, & Space Vehicles (SIC 3761)	
		TOTAL ^a	Airframes (SIC 3721)	Engines & Parts (SIC 3724)			Other Parts & Equipment (SIC 3728)
AVERAGE WEEKLY EARNINGS^b							
1979	\$351	\$351	\$360	\$361	\$322	\$347	\$348
1980	389	390	404	394	358	378	383
1981	424	426	444	422	396	410	420
1982	460	462	485	454	426	447	461
1983	486	487	513	476	453	480	494
1984	513	516	532	523	486	496	508
1985	531	534	547	542	506	515	527
1986	545	550	568	561	520	517	533
1987	556	558	578	567	523	541	556
1988	573	575	596	582	529	567	585
1989	593	594	616	616	542	589	611
1990	624	626	656	637	570	612	634
1991	648	651	694	654	583	632	649
1992	685	689	736	689	615	652	666
1993	714	717	756	715	657	696	727
1994	754	756	800 ^r	753	688 ^r	738	779
1995	756	755	809	762	676	765	812
AVERAGE WEEKLY EARNINGS INCLUDING LUMP-SUM PAYMENTS^c							
1984	\$515	\$518	\$540	\$523	\$486	\$501	\$514
1985	532	535	556	542	506	521	535
1986	548	553	581	561	520	523	541
1987	563	567	603	567	523	544	561
1988	583	584	615	582	529	577	599
1989	605	605	638	616	542	601	629
1990	637	639	684	637	570	624	653
1991	657	659	712	654	583	640	661
1992	693	698	756	689	615	655	670
1993	725	729	779	715	657	697	728
1994	755	758 ^r	802 ^r	753	688 ^r	740	783
1995	758	756	811	762	676	766	814

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

a TOTAL columns are employment-based weighted averages.

b Includes overtime premiums.

c Many aerospace manufacturers have included lump-sum payments in labor settlements since late 1983 in lieu of general wage increases and/or cost of living adjustments. These payments are reported by BLS in separate wage series for SICs 3721 & 3761 and are included by AIA in totals.

r Revised.

AVERAGE HOURS IN THE AEROSPACE INDUSTRY

Production Workers Only
Calendar Years 1981-1995

Year	TOTAL ^a	Aircraft (SIC 372)				Guided Missiles, Space Vehicles & Parts (SIC 376)	Complete Guided Missiles, & Space Vehicles (SIC 3761)
		TOTAL ^a	Airframes (SIC 3721)	Engines & Parts (SIC 3724)	Other Parts & Equipment (SIC 3728)		
AVERAGE WEEKLY HOURS							
1981	41.3	41.3	41.3	40.5	42.4	40.8	40.6
1982	41.1	41.1	40.9	40.7	41.9	40.8	41.1
1983	41.2	41.2	40.8	41.0	42.2	41.4	41.7
1984	41.9	41.9	41.2	42.2	42.7	42.0	42.3
1985	42.3	42.3	41.5	42.2	43.4	42.4	42.6
1986	42.7	42.8	42.1	42.9	43.7	42.4	42.7
1987	42.4	42.4	42.1	42.5	42.8	42.5	42.5
1988	42.5	42.4	42.0	42.2	43.1	43.2	43.2
1989	42.1	41.9	41.4	42.7	42.3	43.0	43.0
1990	42.3	42.3	41.9	42.9	42.6	42.5	42.8
1991	41.8	41.7	41.5	42.5	41.5	42.4	42.7
1992	41.6	41.7	41.6	42.3	41.3	40.8	40.5
1993	41.6	41.6	41.0	42.8	41.8	41.4	41.7
1994	42.1	42.1	41.0 ^r	43.5	43.0	42.2	42.6
1995	42.1	42.0	40.5	44.5	42.5	43.1	43.7
AVERAGE WEEKLY OVERTIME HOURS							
1981	3.5	3.5	3.1	3.5	4.4	3.2	2.9
1982	3.2	3.2	2.7	3.6	3.7	3.1	3.1
1983	3.1	3.1	2.5	3.7	3.7	3.3	3.5
1984	3.9	4.0	3.0	5.1	4.6	3.3	3.4
1985	4.6	4.6	3.5	5.4	5.3	4.6	5.0
1986	4.8	4.9	4.2	5.5	5.5	4.4	4.7
1987	4.8	4.9	4.4	5.0	5.4	4.2	4.3
1988	4.6	4.6	4.3	4.6	5.1	4.5	4.6
1989	5.0	5.1	5.0	5.4	5.0	4.4	4.5
1990	4.5	4.6	4.3	5.3	4.5	3.8	4.1
1991	4.0	4.0	4.1	4.5	3.5	3.9	4.5
1992	3.6	3.7	3.6	4.4	3.3	2.8	3.1
1993	3.8	3.9	3.7	4.6	3.7	2.9	3.2
1994	4.5	4.6	4.1	5.3	4.8	3.7	3.8
1995	4.8	4.9	4.2	5.9	5.3	4.2	4.6

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

a TOTAL columns are employment-based weighted averages.

r Revised.

EMPLOYMENT IN NATIONAL AERONAUTICS AND SPACE ADMINISTRATION PROGRAMS

End of Fiscal Years 1961–1997

Year	TOTAL	NASA Employees	Contractor Employees ^a
1961	74,577	17,077	57,500
1962	137,656	22,156	115,500
1963	246,304	27,904	218,400
1964	379,084	31,984	347,100
1965	409,900	33,200	376,700
1966	393,924	33,924	360,000
1967	306,926	33,726	273,200
1968	267,871	32,471	235,400
1969	218,345	31,745	186,600
1970	160,850	31,350	129,500
1971	143,578	29,478	114,100
1972	138,800	27,500	111,300
1973	134,850	26,850	108,000
1974	125,220	25,020	100,200
1975	127,733	24,333	103,400
1976	130,739	24,039	108,000
1977	124,136	23,636	100,500
1978	124,637	23,237	101,400
1979	131,931	22,831	109,100
1980	135,613	22,613	113,000
1981	133,473	21,873	111,600
1982	128,730	22,430	106,300
1983	129,246	22,246	107,000
1984	162,080	22,080	140,000
1985	131,991	21,991	110,000
1986	154,660	21,660	133,000
1987	165,001	22,001	143,000
1988	172,326	22,326	150,000
1989	213,054	23,054	190,000
1990	221,829	23,829	198,000
1991	223,149	24,149	199,000
1992	230,513	24,513	206,000
1993	228,674	24,174	204,500
1994	217,910	23,873	194,037
1995	210,075	23,075	187,000
1996 ^E	198,555	21,555	177,000
1997 ^E	193,000	21,000	172,000

Source: Office of Management and Budget, "Budget of the United States Government" (Annually) and NASA Headquarters.

a Includes estimates of manpower for hardware and related contracts, as well as actual work-years for support service contracts. Increase in FY 1984 caused by change in estimating methodology to reflect more accurately the mix of support and development contractors.

E Estimate.

**FEDERAL CIVILIAN EMPLOYMENT^a
IN THE DEPARTMENT OF DEFENSE**

Fiscal Years 1967–1997

Year	TOTAL	Civil Functions ^b	Military Functions ^c
1967	1,225,637	31,980	1,193,657
1968	1,288,130	32,062	1,256,068
1969	1,257,091	31,214	1,225,877
1970	1,159,935	30,293	1,129,642
1971	1,092,804	30,063	1,062,741
1972	1,040,147	30,585	1,009,562
1973	987,281	29,971	957,310
1974	1,002,850	29,072	973,778
1975	983,790	29,069	954,721
1976	951,034	28,648	922,386
1977	940,549	28,912	911,637
1978	933,071	28,962	904,109
1979	914,582	28,592	885,990
1980	907,700	27,700	880,000
1981	981,400	34,400	947,000
1982	1,009,192	31,111	978,081
1983	1,015,622	30,816	984,806
1984	1,040,213	28,681	1,011,532
1985	1,065,624	28,754	1,036,870
1986	1,069,863	28,511	1,041,352
1987	1,059,669	28,352	1,031,317
1988	1,053,000	28,419	1,024,581
1989	1,051,166	28,081	1,023,085
1990	1,048,814	27,651	1,021,163
1991	1,001,183	27,385	973,798
1992	1,000,453	27,584	972,869
1993	958,855	27,055	931,800
1994	896,293	28,001	868,292
1995	849,529	27,790	821,739
1996 ^E	827,708	27,700	800,008
1997 ^E	794,717	27,300	767,417

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

a Full-time equivalent civilian employment.

b Data are estimated for portions of Civil Functions.

c The Department of Defense is exempt from full-time equivalent controls. Data shown are estimated civilian employment for military functions and military assistance.

E Estimate.

**OCCUPATIONAL INJURY AND ILLNESS INCIDENCE RATES^a
ALL MANUFACTURING AND AEROSPACE INDUSTRIES**

Calendar Years 1990-1994

	1990	1991	1992	1993	1994
All Manufacturing:					
Total Cases	13.2	12.7	12.5	12.1	12.2
Lost Workday Cases	5.8	5.6	5.4	5.3	5.5
Nonfatal Cases without Lost Workdays	7.3	7.1	7.1	6.8	6.8
Lost Workdays	120.7	121.5	124.6	NA	NA
Aircraft and Parts (SIC 372):					
Total Cases	10.4	10.9	11.1	10.3	9.7
Lost Workday Cases	4.0	4.3	4.5	4.1	4.0
Nonfatal Cases without Lost Workdays	6.4	6.6	6.6	6.2	5.7
Lost Workdays	90.3	114.4	125.4	NA	NA
Aircraft (SIC 3721):					
Total Cases	10.0	10.2	10.7	10.2	9.4
Lost Workday Cases	3.9	4.2	4.4	4.0	3.8
Nonfatal Cases without Lost Workdays	6.1	6.0	6.3	6.2	5.7
Lost Workdays	95.3	128.2	141.8	NA	NA
Aircraft Engines and Parts (SIC 3724):					
Total Cases	9.3	10.0	9.7	9.7	10.0
Lost Workday Cases	4.2	4.3	3.9	4.1	3.8
Nonfatal Cases without Lost Workdays	5.1	5.7	5.7	5.6	6.2
Lost Workdays	89.5	91.3	85.1	NA	NA
Aircraft Parts (SIC 3728):					
Total Cases	11.9	12.9	13.1	11.1	10.0
Lost Workday Cases	3.9	4.4	5.0	4.3	4.6
Nonfatal Cases without Lost Workdays	8.0	8.5	8.1	6.7	5.5
Lost Workdays	80.5	105.3	122.3	NA	NA
Guided Missiles, Space Vehicles & Parts (SIC 376):					
Total Cases	4.0	4.3	4.0	4.5	4.5
Lost Workday Cases	1.9	2.1	1.8	1.9	1.8
Nonfatal Cases without Lost Workdays	2.1	2.2	2.3	2.6	2.7
Lost Workdays	39.5	51.0	50.3	NA	NA
Guided Missiles & Space Vehicles (SIC 3761):					
Total Cases	4.0	4.3	4.0	4.6	4.2
Lost Workday Cases	1.9	2.2	1.9	1.9	1.6
Nonfatal Cases without Lost Workdays	2.1	2.1	2.1	2.7	2.6
Lost Workdays	37.3	54.2	53.0	NA	NA
Space Propulsion Units & Parts (SIC 3764):					
Total Cases	4.4	4.5	3.6	NA	4.3
Lost Workday Cases	2.2	2.0	1.5	NA	1.7
Nonfatal Cases without Lost Workdays	2.2	2.5	2.2	NA	2.5
Lost Workdays	48.7	44.1	42.5	NA	NA
Other Space Vehicle Equipment (SIC 3769):					
Total Cases	3.8	3.9	5.1	4.8	6.5
Lost Workday Cases	1.6	1.6	1.8	1.8	2.8
Nonfatal Cases without Lost Workdays	2.3	2.3	3.3	3.0	3.7
Lost Workdays	38.4	40.8	47.1	NA	NA

Source: Bureau of Labor Statistics, "Occupational Injuries and Illnesses in the United States by Industry" (Annually).

a Defined as the number of injuries and illnesses per 100 full-time workers. Separate incidence rates also available for occupational injuries only.

NA Not available.

AEROSPACE INDUSTRY WORK STOPPAGES^a
Calendar Years 1979–1995

Year	Number of Strikes ^b	Number of Workers Involved	Work-Days Idle in Year
1979	12	6,600	103,400
1980	17	4,400	92,900
1981	12	6,100	188,900
1982 ^c	4	11,900	45,200
1983	2	8,700	404,100
1984	4	14,600	188,200
1985	4	19,700	289,800
1986	—	—	—
1987	—	—	—
1988	3	10,600	415,800
1989	2	58,500	1,848,000
1990	1	2,300	56,700
1991	1	1,500	—
1992	1	3,800	11,400
1993	2	27,800	34,600
1994	—	—	—
1995	1	33,000	1,551,000

Source: Bureau of Labor Statistics, "Compensation and Working Conditions" (Monthly).

a Based on SIC 372 of the 1967 Code, which includes missile and space propulsion units and parts and missile and space vehicle equipment not elsewhere classified, but which excludes complete guided missiles and space vehicles.

b Strikes beginning during calendar year.

c Effective 1982, data not available for work stoppages involving fewer than 1,000 employees.

In 1995, the aerospace industry reported net income after taxes of \$4.6 billion, down from \$5.7 billion recorded in the previous year. Year-to-year comparability is difficult, however, because of the many factors that have impacted net income such as: company consolidations, accounting changes, tax adjustments, and lower rates of investment in R&D and plant and equipment.

Expressed as a percentage of sales, the industry's profit amounted to 3.8 percent, compared with the average for all U.S. manufacturing industries of 5.7 percent and the 1994 aerospace profit-to-sales ratio of 4.7 percent. As a percentage of assets, the 1995 aerospace figure was 3.5 percent, down from 4.3 percent in the previous year. As a percentage of equity, aerospace earnings amounted to 11.1 percent, down from 14.8 percent.

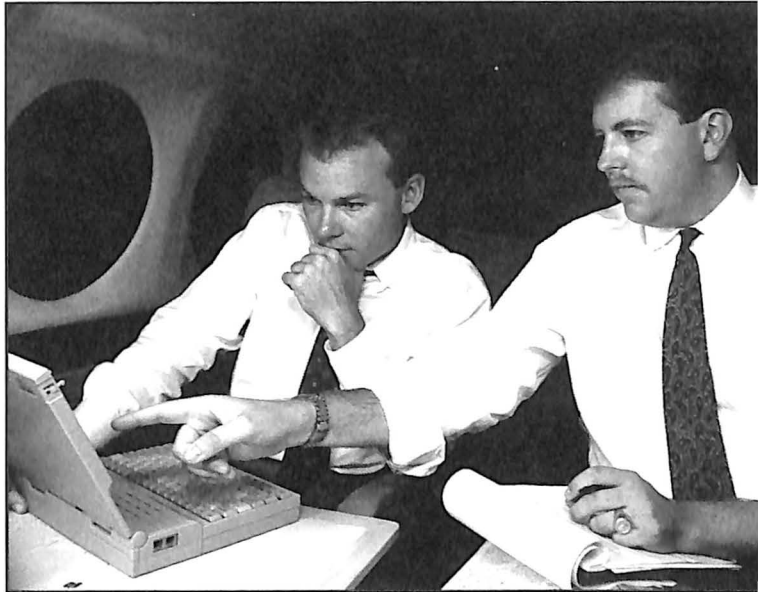
The aerospace balance sheet for 1995, as reported by the Bureau of the Census, showed an increase in net working capital from \$15.7 billion in 1994 to \$18.8 billion. Stockholders' equity increased from \$40.3 billion to \$42.4 billion and total assets remained approximately the same as in 1994 (\$132.3 billion).

Lockheed Martin Corporation (\$10.5 billion) took over leadership of the list of Department of Defense (DoD) contractors in terms of prime contract dollar award value in Fiscal Year (FY) 1995. Lockheed and Martin Marietta were reported separately in 1994 and placed second and fourth respectively. McDonnell Douglas



Corporation, which had topped the list for several prior years, was second in 1995 with \$8 billion of contract awards and Tenneco Inc. ranked third at \$3.7 billion. Rounding out the top 10 defense contractors were: General Motors Corporation (\$3 billion); Northrop Grumman Corporation (\$2.9 billion); Raytheon Company (\$2.9 billion); General Electric Company (\$2.1 billion); Loral Corporation (\$2 billion); The Boeing Company (\$1.8 billion); and United Technologies Corporation (\$1.8 billion). Tenneco was a newcomer to the top 10; it displaced General Dynamics Corporation, which dropped to 11th place.

Geographically, the West North Central region of the U.S. won 21.4 percent (by dollar value) of DoD contract awards for aircraft to edge out the South Atlantic (18.3 percent) and the Pacific regions (17.6 percent). In DoD missile/space contract awards, the Pacific region topped the list with 36 percent, followed by the Mountain region (17.4 percent) and



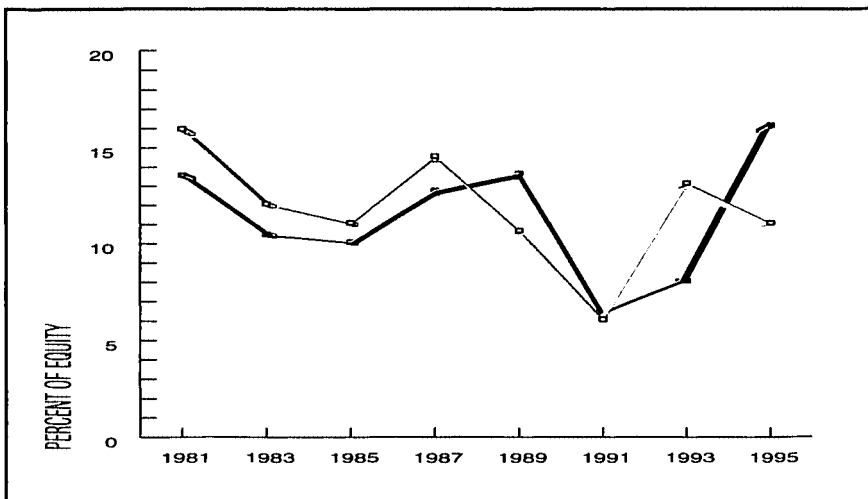
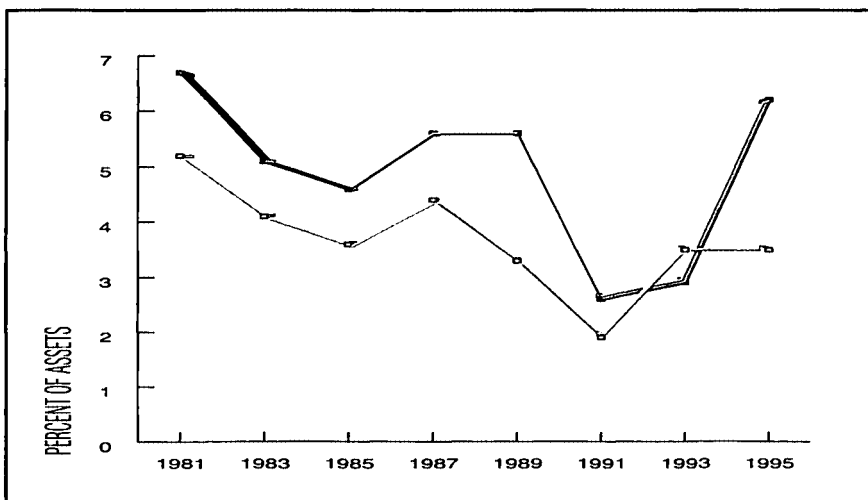
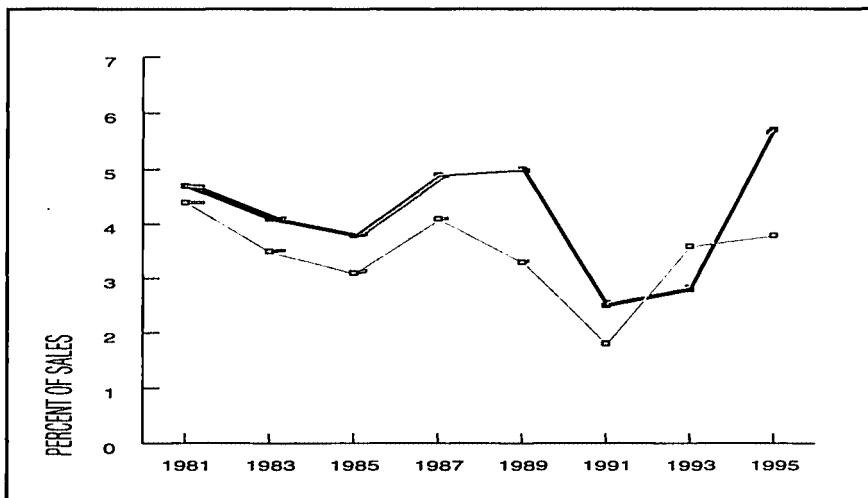
the West South Central region (10.3 percent). The South Atlantic region topped the rankings, for electronics and communications equipment contracts with 35.1 percent; the Pacific region was second with 19.2 percent and the Middle Atlantic region third with 12.5 percent.

Among National Aeronautics and Space Administration (NASA) contractors in FY 1995, The Boeing Company officially headed the field with \$1.4 billion of contract awards, but the NASA report lists the Lockheed and Martin Marietta organizations separately; the combined awards of five individually-listed Lockheed Martin segments would put the merged corporation first at \$1.6 billion. In addition, combining two separately-listed segments of Rockwell International would make Rockwell a close third at \$1.3 billion. Others in the top 10 include: McDonnell Douglas Corporation, \$468 million; Thiokol Corporation, \$440 million; Computer Sciences Corporation, \$311 million; TRW Inc., \$288 million; and AlliedSignal Technical Services, \$231 million.

NET PROFIT AFTER TAXES

Aerospace Industry

All Manufacturing



Source: Aerospace Industries Association

**NET PROFIT AFTER TAXES
AS A PERCENT OF SALES, ASSETS, AND EQUITY
FOR ALL MANUFACTURING CORPORATIONS
AND THE AEROSPACE INDUSTRY**

Calendar Years 1981–1995

PERCENT OF SALES

Year	All Manufacturing Corporations	Non- Durable Goods	Durable Goods	Aerospace ^a Industry
1981	4.7%	5.1%	4.3%	4.4%
1982	3.5	4.6	2.4	3.3
1983	4.1	4.9	3.1	3.5
1984	4.6	4.8	4.4	4.1
1985	3.8	4.1	3.4	3.1
1986	3.7	4.6	2.9	2.8
1987	4.9	5.2	4.5	4.1
1988	6.0	6.7	5.2	4.3
1989	5.0	5.8	4.1	3.3
1990	4.0	4.9	3.0	3.4
1991	2.5	4.2	0.6	1.8 ^b
1992	1.0	3.2	(1.4)	(1.4) ^b
1993	2.8	3.7	1.9	3.6
1994	5.4	5.5	5.2	4.7
1995	5.7	6.1	5.3	3.8

Year	Percent of Assets ^c		Percent of Equity ^c	
	All Manufacturing	Aerospace ^a Industry	All Manufacturing	Aerospace ^a Industry
1981	6.7%	5.2%	13.6%	16.0%
1982	4.5	3.7	9.2	12.0
1983	5.1	4.1	10.5	12.1
1984	6.0	4.7	12.5	14.1
1985	4.6	3.6	10.1	11.1
1986	4.2	3.1	9.5	9.4
1987	5.6	4.4	12.8	14.6
1988	6.9	4.4	16.2	14.9
1989	5.6	3.3	13.7	10.7
1990	4.3	3.4	10.7	11.5
1991	2.6	1.9 ^b	6.4	6.1 ^b
1992	1.0	(1.2) ^b	2.6	(5.2) ^b
1993	2.9	3.5	8.1	13.2
1994	5.8	4.3	15.6	14.8
1995	6.2	3.5	16.2	11.1

Source: Bureau of the Census, "Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations" (Quarterly).

a Based on a sample of corporate entities classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, their propulsion, and parts.

b Reflects unusually large non-operating expenses totalling \$3.4 and \$8.7 billion in 1991 and 1992, respectively, due to restructuring changes and the implementation of a change in accounting for future retirement benefit costs.

c Average of four quarters

() Net loss after taxes.

INCOME STATEMENT AND OPERATING RATIOS FOR AEROSPACE COMPANIES^a

Calendar Years 1992–1995
(Millions of Dollars)

INCOME STATEMENT	1992	1993	1994	1995
Net Sales, Receipts, Operating Revenues	\$134,420	\$128,651	\$120,521	\$122,993
Less: Depreciation, Depletion, & Amortization of Property, Plant, and Equipment	4,443	4,474	4,500	4,106
Less: All Other Operating Costs & Expenses, Including Selling Costs & General & Administrative Expenses	123,075	117,162	108,306	112,930
Income (or Loss) from Operations	\$ 6,900	\$ 7,015	\$ 7,714	\$ 5,957
Net Non-Operating Income (Expense)	(8,666)	(307)	372	308
Income (or Loss) before Income Taxes (= Total Income)	\$ (1,766)	\$ 6,708	\$ 8,086	\$ 6,264
Less: Provision for Current & Deferred Domestic Income Taxes	71	2,086	2,432	1,631
Income (or Loss) after Income Taxes (= Net Profit)	\$ (1,836)	\$ 4,621	\$ 5,655	\$ 4,633
Cash Dividends Charged to Retained Earnings	1,610	3,279	1,831	1,985
Net Income Retained in Business	\$ (3,449)	\$ 1,342	\$ 3,823	\$ 2,649
Retained Earnings at Beginning of Year ^b	30,647	25,358	25,655	29,873
Adjustments to Retained Earnings ^c	(1,673)	(754)	(9)	89
Retained Earnings at End of Year^d	\$ 25,528	\$ 25,946	\$ 29,470	\$ 32,610

OPERATING RATIOS

Income before Taxes as Percent of Net Sales	(1.3)%	5.2%	6.7%	5.1%
Provision for Current & Deferred Domestic Income Taxes as Percent of Income before Taxes (Total Income)	(4.0)	31.1	30.1	26.0
Income after Taxes (Net Profit) as Percent of Net Sales	(1.4)	3.6	4.7	3.8
Income after Taxes (Net Profit) as Percent of Stockholders' Equity ^e	(5.2)	13.2	14.8	11.1
Income after Taxes (Net Profit) as Percent of Total Assets ^e	(1.2)	3.5	4.3	3.5

Source: Bureau of the Census, "Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Based on sample of corporate entities classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, and their propulsion, and parts.

b Beginning-of-year retained earnings for any particular year do not equal end-of-year retained earnings for the previous year because of rotation of small companies in survey sample.

c Other direct credits (or charges) to retained earnings (net), including stock and other non-cash dividends, etc.

d Retained Earnings at End of Year CALCULATED AS Retained Earnings at Beginning of Year PLUS Income (Loss) after Income Taxes MINUS Cash Dividends Charged to Retained Earnings PLUS Adjustments to Retained Earnings.

e Average of four quarters.

BALANCE SHEET FOR AEROSPACE COMPANIES^a

December 31, 1992–1995

(Millions of Dollars)

	1992	1993	1994	1995
Assets:				
Current Assets:				
Cash	\$ 3,963	\$ 3,544	\$ 2,766	\$ 2,540
Securities, Commercial Paper, & Other Short-term Financial Investments	3,269	3,316	3,576	5,271
Total Cash and U.S. Government and Other Securities	\$ 7,233	\$ 6,860	\$ 6,341	\$ 7,811
Receivables (Total)	15,762	15,991	16,809	17,303
Inventories (Gross)	44,010	42,276	39,123	38,590
Other Current Assets	3,930	4,396	4,341	5,053
Total Current Assets	\$ 70,934	\$ 69,524	\$ 66,615	\$ 68,757
Net Plant, Property, & Equipment	27,483	27,698	26,406	26,285
Other Non-Current Assets	29,354	35,526	39,245	37,275
Total Assets	\$127,770	\$132,747	\$132,266	\$132,318
Liabilities:				
Current Liabilities:				
Short Term Loans	\$ 1,735	\$ 2,031	\$ 1,787	\$ 1,561
Trade Accounts & Notes Payable	11,290	11,491	10,871	11,592
Income Taxes Accrued	1,288	1,882	1,929	1,479
Installments Due on Long Term Debts ..	2,264	1,260	1,137	2,014
Other Current Liabilities	39,175	38,697	35,159	33,318
Total Current Liabilities	\$ 55,752	\$ 55,360	\$ 50,882	\$ 49,965
Long Term Debt	19,241	20,452	19,832	19,155
Other Non-Current Liabilities	18,318	20,505	21,270	20,770
Total Liabilities	\$ 93,310	\$ 96,316	\$ 91,984	\$ 89,889
Stockholders' Equity:				
Capital Stock	\$ 8,037	\$ 10,346	\$ 9,706	\$ 9,804
Retained Earnings	26,424	26,086	30,557	32,624
Total Stockholders' Equity	\$ 34,460	\$ 36,431	\$ 40,282	\$ 42,428
Total Liabilities & Stockholders' Equity	\$127,770	\$132,747	\$132,266	\$132,318
Net Working Capital	\$ 15,183	\$ 14,164	\$ 15,733	\$ 18,793

Source: Bureau of the Census, "Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Based on sample of corporate entities classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, their propulsion, and parts.

NEW CAPITAL EQUIPMENT EXPENDITURES

Calendar Years 1967-1994

(Millions of Dollars)

Year	All Manufacturing Industries	Aerospace Industry ^a	Aircraft, Engines, & Parts	Missiles, Space Vehicles, & Parts
1967	\$ 21,503	\$ 520	\$ 408	\$ 111
1968	20,613	399	282	117
1969	22,291	429	340	89
1970	22,164	244	181	62
1971	20,941	115	59	56
1972	24,073	261	169	92
1973	26,979	362	258	104
1974	35,696	407	283	124
1975	37,262	478	369	109
1976	40,545	557	431	126
1977	47,459	673	508	164
1978	55,209	948	775	174
1979	61,533	1,551	1,301	250
1980	70,113	1,923	1,618	306
1981	78,632	2,006	1,637	369
1982	74,562	2,142	1,680	462
1983	61,931	2,159	1,530	629
1984	75,186	3,050	2,091	960
1985	83,058	3,784	2,429	1,356
1986	76,355	4,145	2,818	1,327
1987	78,648	3,612	2,536	1,075
1988	81,593	3,388	2,362	1,026
1989	98,738	3,921	2,800	1,121
1990	105,018	3,490	2,621	869
1991	103,003	3,407	2,823	584
1992	103,188	3,860	3,384	476
1993	103,133	2,725	2,307	418
1994	112,000	2,402	1,966	436

Source: Bureau of the Census, "Statistics for Industry Groups and Industries" Series M94(AS)-1 (Annually) and "Aerospace Equipment, Including Parts" Series MC92-I-37B.

a Combined total for establishments in SICs 372 or 376.

**DEPARTMENT OF DEFENSE
PRIME CONTRACT AWARDS OVER \$25,000
FOR SELECTED MAJOR MILITARY HARD GOODS**

By Geographic Region
Fiscal Years 1993, 1994, and 1995

Program and Region	Millions of Dollars			Percent of Program Total		
	1993	1994	1995	1993	1994	1995
AIRCRAFT—TOTAL	\$26,183	\$27,449	\$23,647	100.0%	100.0%	100.0%
New England	2,717	2,127	2,110	10.4	7.8	8.9
Middle Atlantic	1,808	1,713	1,703	6.9	6.2	7.2
East North Central	1,533	1,542	1,367	5.9	5.6	5.8
West North Central	4,728	5,246	5,067	18.1	19.1	21.4
South Atlantic	4,972	5,274	4,337	19.0	19.2	18.3
East South Central	355	350	340	1.4	1.3	1.4
West South Central	3,595	2,995	3,856	13.7	10.9	16.3
Mountain	830	524	713	3.2	1.9	3.0
Pacific ^a	5,645	7,678	4,154	21.6	28.0	17.6
MISSILE & SPACE SYSTEMS—TOTAL	\$14,460	\$13,015	\$11,437	100.0%	100.0%	100.0%
New England	2,168	1,743	1,144	15.0	13.4	10.0
Middle Atlantic	766	714	715	5.3	5.5	6.3
East North Central	85	101	94	0.6	0.8	0.8
West North Central	592	438	473	4.1	3.4	4.1
South Atlantic	1,244	1,345	1,135	8.6	10.3	9.9
East South Central	753	602	588	5.2	4.6	5.1
West South Central	1,062	1,237	1,177	7.3	9.5	10.3
Mountain	2,608	2,337	1,991	18.0	18.0	17.4
Pacific ^a	5,181	4,498	4,120	35.8	34.6	36.0
ELECTRONICS & COMMUNICATIONS EQUIPMENT—TOTAL ...	\$16,467	\$14,230	\$14,483	100.0%	100.0%	100.0%
New England	1,304	1,139	1,227	7.9	8.0	8.5
Middle Atlantic	2,559	2,001	1,810	15.5	14.1	12.5
East North Central	1,409	1,220	1,105	8.6	8.6	7.6
West North Central	797	580	686	4.8	4.1	4.7
South Atlantic	4,682	4,613	5,086	28.4	32.4	35.1
East South Central	420	437	266	2.6	3.1	1.8
West South Central	887	712	851	5.4	5.0	5.9
Mountain	624	667	671	3.8	4.7	4.6
Pacific ^b	3,784	2,861	2,781	23.0	20.1	19.2

Source: Department of Defense, "Prime Contract Awards by Region and State" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Includes Alaska and Hawaii.

DEPARTMENT OF DEFENSE MAJOR CONTRACTORS

Fiscal Years 1991-1995
Listed by rank according to net value of
prime contracts awarded during last fiscal year
(Millions of Dollars)

Company	1991	1992	1993	1994	1995
TOTAL CONTRACTS	\$136,640	\$121,438	\$123,713	\$118,114	\$117,552
Lockheed Martin Corp. ^b	\$ 5,356	\$ 7,006	\$ 11,638	\$ 9,652	\$ 10,483
McDonnell Douglas Corp.	8,057	5,311	7,540	9,266	8,021
Tenneco Inc.	363	585	906	495	3,710
General Motors Corp.	4,427	3,694	4,076	3,041	2,993
Northrop Grumman Corp. ^c	5,682	7,034	4,709	5,202	2,913
Raytheon Co. ^d	4,693	3,342	3,987	3,507	2,890
General Electric Co.	4,866	4,008	1,606	2,705	2,104
Loral Corp.	1,283	1,815	1,729	1,681	1,967
The Boeing Co.	1,166	2,495	1,664	1,195	1,780
United Technologies Corp.	2,825	2,803	3,083	2,677	1,775
General Dynamics Corp.	7,848	4,464	2,147	2,801	1,695
Litton Industries Inc.	1,601	2,334	1,555	1,576	1,237
Westinghouse Electric Corp. ...	1,812	1,147	1,569	1,357	1,225
Rockwell International Corp. ...	1,708	1,233	1,317	1,062	1,210
Textron Inc.	997	1,161	955	1,236	1,069
Science Application Int'l Corp. .	513	686	786	868	931
TRW Inc.	1,092	1,013	1,160	848	867
Computer Sciences Corp.	406	495	422	589	656
ITT Industries Inc.	948	797	614	609	648
GTE Corp.	801	724	714	788	633
Bath Holding Corp.	872	1,148	997	798 ^e	563 ^e
Texas Instruments Inc.	982	731	968	690	554
Tracor Inc.	163	167	493	465	510
AlliedSignal Inc.	689	459	454	453	503
FMC Corporation	1,467	448	508	582	486
Alliant Techsystems Inc.	827	610	612	422	473
Exxon Corp.	549	306	419	530	472
Olin Corp.	616	573	369	436	469
DynCorp	460	447	492	489	448
Stewart & Stevenson SVC, Inc. .	(a)	270	196	(a)	442

Source: Department of Defense, "100 Companies Receiving the Largest Dollar Volume of Prime Contract Awards" (Annually).

a Not in top 100 companies for indicated year(s).

b Includes awards previously reported separately as Martin Marietta Corp. and Lockheed Corp.

c Includes awards previously reported as Grumman Corporation.

d Includes awards previously reported as E-Systems Inc.

e Listed as Fulcrum II Limited Partnerships.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MAJOR CONTRACTORS

Fiscal Years 1992–1995

By rank according to net value of NASA prime
contracts awarded during last fiscal year
(Millions of Dollars)

Company	1992	1993	1994	1995
TOTAL PROCUREMENTS	\$13,478	\$13,160	\$12,913	\$13,341
Awards to Business Firms	10,717	10,498	9,966	10,311
% of TOTAL PROCUREMENTS	79 %	80 %	77 %	77 %
The Boeing Co.	\$ 500	\$ 502	\$ 1,142	\$ 1,442
Rockwell International Corp.	1,449	1,491	1,069	1,022
Martin Marietta Corp. ^b	744	611	498	737
Lockheed Space Operations Co. ...	599	590	572	558
McDonnell Douglas Corp.	1,045	997	565	468
Thiokol Corp.	510	479	431	440
Computer Sciences Corp.	232	195	255	311
Rockwell Space Operations Inc. ...	346	351	338	306
TRW Inc.	194	218	235	288
AlliedSignal Technical Services	(a)	231	247	231
EG&G Florida Inc.	213	221	200	183
USBI Booster Production Co.	207	177	156	172
Lockheed Engrg. & Science Co. ...	270	256	216	164
Loral Aerospace Corp.	141	137	119	164
United Technologies Corp.	136	97	119	159
Santa Barbara Research Center	32	48	82	94
Lockheed Missiles & Space Co. ...	530	430	222	93
Boeing Commercial Airplane Group	(a)	(a)	25	89
Hughes Information Tech. Corp. ...	(a)	(a)	(a)	87
Grumman Aerospace Corp.	103	163	111	66
Johnson Controls World Serv. Inc. .	76	67	70	65
BAMSI Inc.	59	57	58	65
Space Systems Loral, Inc.	95	77	91	65
Teledyne Industries Inc.	54	56	63	61
General Dynamics Corp.	49	23	78	58
CAE Link Corp.	61	65	40	58
General Electric Co.	299	286	32	51
Martin Marietta Services Inc.	(a)	24	46	51
Sterling Federal Systems Inc.	44	58	52	49
Hughes STX Corp.	(a)	35	54	48

Source: National Aeronautics and Space Administration, "Annual Procurement Report" (Annually).

a Not in list of major contractors for indicated year(s).

b Includes awards previously reported as General Electric Co.

GLOSSARY

Aeronautics: the science that treats of the operation of aircraft, also, the art or science of operating aircraft.

Aerospace Employment: annual average calculated as one-twelfth of sum of monthly estimates of total number of persons employed during a designated pay period by the aircraft, missile, and space industries (SICs 372 and 376) plus estimated aerospace-related employment in the communications equipment (SIC 3662), instruments (SICs 381 and 382), and in certain other industries (SICs 28, 35, 73, 89, etc.)

Aerospace Industry: the industry engaged in research, development, and manufacture of aerospace systems including: manned and unmanned aircraft; missiles; spacecraft; space launch vehicles; propulsion, guidance, and control units for all of the foregoing; and a variety of airborne and ground-based equipment essential to the test, operation, and maintenance of flight vehicles.

Aerospace Payroll: estimated on the basis of average weekly earnings for a given calendar year for production workers plus an estimated annual salary for other employees.

Aerospace Sales: the AIA estimate of aerospace industry sales, developed by summing: DoD expenditures for aircraft, missiles, and space-related procurement and RDT&E; NASA expenditures for research and development and space flight control and data communications; outlays for space activities

by other U.S. government departments and agencies; commercial sales of space-related products; net domestic and export sales of civil aircraft, engines, and parts; Foreign Military Sales and commercial exports of military aircraft, missiles, propulsion, and related parts; sales of related products and services including: electronics, software, and ground support equipment; and sales of non-aerospace products which are produced in aerospace-manufacturing establishments and which use technology, processes, and materials derived from the aerospace industry.

AIA: Aerospace Industries Association of America, Inc., formerly Aircraft Industries Association.

Air Carriers: the commercial system of air transportation, consisting of domestic and international scheduled and charter service.

Aircraft: all airborne vehicles supported either by buoyancy or by dynamic action. Used in this volume in a restricted sense to mean an airplane—any winged aircraft including helicopters, but excluding gliders and guided missiles.

Aircraft Agreement (Agreement on Trade in Civil Aircraft): negotiated the Tokyo Round of the Multilateral Trade Negotiations and implemented January 1, 1980, providing for elimination of tariff and non-tariff trade barriers in the civil aircraft sector.

Aircraft Industry: the industry primarily engaged in the manufacture of aircraft, aircraft en-

gines, and parts including propellers and auxiliary equipment. A sector of the Aerospace Industry.

Airframe: the structural components of an airplane, such as: fuselage, empennage, wings, landing gear, and engine mounts, but excluding such items as: engines, accessories, electronics, and other parts that may be replaced from time to time.

Airlines: see Air Carriers.

Appropriation (Federal Budget): an act of Congress authorizing an agency to incur obligations and make payments out of funds held by the Department of the Treasury.

Assets, Net: the sum of all recorded assets after reducing such amount by allowance of reserve for bad debts, depreciation, and amortization, but before deducting any liabilities, mortgages, or other indebtedness.

Astronautics: the art and science of designing, building, and operating manned or unmanned space objects.

Average Weekly Hours: average hours for which pay was received; different from standard or scheduled hours.

Avionics: communications, navigation, flight controls, and displays.

Backlog: the sales value of orders accepted (supported by legal documents) that have not yet passed through the sales account.

Budget Authority: authority provided by the Congress; mainly in the form of Appropriations, which allows Federal agencies to incur obligations to spend or lend money.

Bureau of Economic Analysis (BEA): an agency of the Department of Commerce.

Bureau of Labor Statistics (BLS): an agency of the Department of Labor.

Bureau of the Census: an agency of the Department of Commerce.

Constant Dollars: calculated by dividing current ("then-year") dollars by appropriate price deflator and multiplying the result by 100.

Deflator: index used to convert a price level to one comparable with the price level at a different time, offsetting the effect of inflation. The base period, which equals 100, is usually specified as either a given fiscal or calendar year.

Depreciation: the general conversion of the depreciable cost of a fixed asset into expense, spread over its remaining life. There are a number of methods, all based on a periodic charge to an expense account and a corresponding credit to a reserve account.

Development: the process or activity of working out a basic design, idea, or piece of equipment. See also Research and Development.

DoD: Department of Defense.

DoE: Department of Energy.

DoT: Department of Transportation.

Durable Goods Industry: comprised of major manufacturing industry groups with SIC Codes 24, 25, and 32-39. All major manufacturing industry groups in SIC Codes 20-23 and 26-31 are considered nondurable goods manufacturing industry groups.

Earnings: the actual return to the worker for a stated period of time. Irregular bonuses, retroactive items, payments of various welfare benefits, and payroll taxes paid by employers are excluded.

Average Hourly Earnings: on a "gross" basis, reflecting not only changes in basic hourly and incentive wage rates, but also such variable factors as: premium pay for overtime, late shift work, and changes in output of workers paid for an incentive plan.

Average Weekly Earnings: derived by multiplying average weekly hours by average hourly earnings.

Establishment: the basis for reporting to the Census of Manufacturers; an operating facility in a single location.

Evaluation (Department of Defense): determination of technical suitability of material, equipment, or a system. See RDT&E.

Expenditures (Federal Budget): see Outlays.

Export-Import Bank of the United States (Eximbank): created in 1934 and established as an independent U.S. government agency in 1945, Eximbank is designed "... to aid in financing and to facilitate exports..." Eximbank receives no appropriations from the U.S. Congress. It is directed by statute to: (1) offer financing that is competitive with that offered exporters of other countries by their official export credit institutions, (2) determine that the transactions supported provide for a reasonable assurance of repayment, (3) supplement, but not compete with private sources of export financing, and (4) take into account the effect of its activities on small busi-

ness, the domestic economy, and U.S. employment.

Exports: domestic merchandise including commodities which are grown, produced, or manufactured in the United States and commodities of foreign origin which have been changed in the United States from the form in which they were imported or which have been enhanced in value by further manufacture in the United States and which are traded or sold to other nations.

FAA: Federal Aviation Administration (formerly the Federal Aviation Agency), an agency of the Department of Transportation.

Facility: a physical plant or installation including: real property, building, structures, improvements, and plant equipment.

Fiscal Year (Federal Budget): beginning October 1, 1976, the fiscal years run from October 1 through September 30 and are designated by the year in which they end.

Flyaway Value: includes the cost of the airframe, engines, electronics, communications, armament, and other installed equipment.

Foreign Military Sales (FMS): export sales to foreign governments arranged through the Department of Defense, whereby DoD recovers full purchase price and administrative costs; often mistakenly used to include foreign military aid and foreign commercial sales as well.

FY: see Fiscal Year.

GDP (Gross Domestic Product): the market value of goods and services produced by labor and property located in the United States.

General Agreement on Tariffs and Trade (GATT): a multilateral treaty among over 100 governments whose primary mission is the reduction of trade barriers. A World Trade Organization will be created by 1997 to implement the agreement and provide a forum to discuss trade issues.

General Aviation: all civil flying except that of air carriers.

Helicopter: a rotary-wing aircraft that depends principally for its support and motion in the air upon the lift generated by one or more power-driven rotors, rotating on substantially vertical axes. A helicopter is a V/STOL.

Heliport: an area, either at ground level or elevated on a structure, that is used for the landing and take-off of helicopters and includes some or all of the various facilities useful to helicopter operations such as: helicopter parking, hangar, waiting room, fueling, and maintenance equipment.

Helistop: a minimum facility heliport, either at ground level or elevated on a structure for the landing and takeoff of helicopters, but without such auxiliary facilities as: waiting room, hangar parking, etc.

ICBM: InterContinental Ballistic Missile, with a range of more than 5,000 miles.

Imports: classified as "general imports" or "imports for consumption." This volume refers generally to "imports for consumption," which are entries for immediate consumption plus merchandise withdrawn from bonded storage warehouses for consumption. Data are compiled from Import Entries filed with U.S. Customs officials and are in general based on the market value or price in the foreign country at the time of exportation

of such merchandise, including the cost of containers and coverings, as well as other charges and expenses incidental to placing the merchandise in condition, packed and ready for shipment to the United States, but excluding import duties, insurance, freight, and other charges incidental to arrival of the goods in the United States. The foreign values of imported merchandise are converted into U.S. currency at the rate of exchange prevailing on the day the merchandise is shipped to the United States.

Income:

Net Operating Income: total sales less total operating costs.

Other Income and Expenses: includes interest income, royalty income, capital gains and losses, interest expense, cash discounts, etc.

Net Income (Before Income Taxes): Net Operating Income plus or minus Other Income and Expenses.

Net Income (After Income Taxes): Net Income (Before Income Taxes) less federal income taxes.

Lump-Sum Wage Payment: a one-time payment given in lieu of general wage increases and/ or cost of living adjustments in labor settlements.

Manufacturing Industries: those establishments engaged in the mechanical or chemical transformation of inorganic or organic substances into new products, and usually described as plants, factories, or mills, which characteristically use power-driven machines and materials-handling equipment; also establishments engaged in assembling component parts of manufactured products if the new

product is neither a structure nor other fixed improvement.

Merchandise Trade Balance: the difference between the value of U.S. goods exported to other countries and foreign goods imported into this country. The trade balance is generally regarded as "favorable" when exports exceed imports—a trade surplus—and "unfavorable" when imports exceed exports—a trade deficit.

Missile: sometimes applied to space launch vehicles, but more properly connotes automated weapons of warfare, i.e., a weapon which has an integral system of guidance, as opposed to the unguided rocket.

Multilateral Trade Negotiations (MTN): a forum within the GATT in which countries negotiate to overcome their trade problems. Awaiting ratification by each of the 112 nations involved in the MTN, the "Uruguay Round" seeks to strengthen the GATT and expand its disciplines to new areas such as: services, agriculture, and trade-related intellectual property rights.

NASA: National Aeronautics and Space Administration.

NATO: North Atlantic Treaty Organization.

New Obligational Authority (Federal Budget): see Budget Authority.

Non-Aerospace Products and Services: products and services other than aircraft, missiles, space vehicles, and related propulsion and parts, produced or performed by establishments whose principal business is the development and/or manufacture of aerospace products.

OASD: Office of the Assistant Secretary of Defense.

Obligations (Federal Budget): commitments made by Federal agencies to pay out money for products, services, or other purposes—as distinct from the actual payments. Obligations incurred may not be larger than budget authority.

Orders, Net New: the sales value of new orders (supported by legal documents) minus cancellations during the period.

Other Aerospace Products and Services: all conversions, modifications, site activation, other aerospace products (including drones), services, plus research and development under contract, defined as: basic and applied research in the sciences and in engineering and design and development of prototype products and processes.

Other Customers: all customers other than the U.S. government to include but not limited to: air carriers, private citizens and corporations, and state, local, and foreign governments.

Outlays: checks issued, interest accrued on the public debt, or other payments made, net of refunds and reimbursements.

Overtime Hours: that portion of the gross average weekly hours which was in excess of regular hours and for which premium payments were made.

Passenger-Mile: one passenger moved one mile.

Payroll, All Manufacturing: includes the gross earnings paid in the calendar year to all employees on the payroll of operating manufacturing establishments. Includes all forms of compensation paid directly to workers such as: salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind; prior to such deductions as:

employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Does not include employers' Social Security contributions or other non-payroll labor costs such as: employees' pension plans, group insurance premiums, and workmen's compensation.

Procurement: the process whereby the executive agencies of the Federal Government acquire goods and services from enterprises other than the Federal Government.

Production Workers: includes working foremen and all non-supervisory workers (including lead-men and trainees) engaged in fabricating, processing, assembling, inspection, receiving, storage, handling, janitorial services, product development, auxiliary production for plant's own use, and recordkeeping and services closely associated with the above production operations.

RDT&E (Department of Defense): Research, Development, Test, and Evaluation.

Related Products and Services: sales of electronics, software, and ground equipment in support of aerospace products, plus sales by aerospace manufacturing establishments of systems and equipment which are generally derived from the industry's aerospace technological expertise in design, materials, and processes, but which are intended for applications other than flight.

Research: see Research and Development.

Research and Development:

Research: systematic study directed toward fuller scientific knowledge or understanding of the subject studied. Research is classified as either basic or applied accord-

ing to the objectives of the sponsoring agency.

Applied Research: with the objective of gaining knowledge or understanding necessary for determining the means by which a recognized and specific need may be met.

Basic Research: with the objective of gaining fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind.

Development: the systematic use of scientific knowledge directed toward the production of useful materials, devices, systems, or methods including design and development of prototypes and processes.

Independent Research and Development (IR&D): a term devised by the Department of Defense and used by Federal agencies to differentiate between a contractor's research and development technical effort performed under a contract, grant, or other arrangement (R&D) and that which is self-initiated and self-funded (IR&D).

Industrial Research and Development: research and development work performed within company facilities, funded by company or Federal funds, and excluding company-financed research and development contracted to outside organizations such as: research institutions, universities and colleges, or other non-profit organizations.

Rotorcraft: an aircraft which, in all its usual flight attitudes, is supported in the air wholly or in part by a rotor or rotors (i.e. airfoils rotating or revolving about an axis). See Helicopter.

Sales: net of returns, allowances, and discounts, the dollar value of shipments, including dealer's commissions, if any, which have passed through the sales account.

Satellite: a body that revolves around a larger body, such as the Moon revolving around the Earth, or a man-made object revolving about any body such as the Sun, Earth, or Moon.

SIC (Standard Industrial Classification): a system developed by the U.S. government to define the industrial composition of the economy, facilitating comparability of statistics. See Aerospace Industry for explanation of SIC codes applicable to the aerospace industry.

Space Vehicle: an artificial body operating in outer space (beyond the Earth's atmosphere).

Stockholder's Equity: assets minus all obligations of the corporation, except those to stockholders. Annual data are average equity for the year (using four end-of-quarter figures). For details, see "Quarterly Financial Report for Manufacturing, Mining and Trade Corporations," compiled by the Bureau of the Census.

STOL: short take-off and landing aircraft.

Test (Department of Defense): an experiment designed to assess progress in attainment or accomplishment of development objectives (see RDT&E).

Thrust: the driving force exerted by an engine, particularly an

aircraft or missile engine, in propelling the vehicle to which it is attached.

Ton-Mile: one ton moved one mile.

Total Obligational Authority: the sum of budget authority granted or requested from the Congress in a given year, plus unused budget authority from prior years.

Trade Balance: see Merchandise Trade Balance.

Transition Quarter (Tr. Qtr.): the three-month interval from July 1, 1976 to September 30, 1976 belonging to neither Fiscal Year 1976 nor Fiscal Year 1977. See Fiscal Year.

Turbine, Turbo: a mechanical device or engine that spins in reaction to a fluid flow that passes through or over it. Frequently used in "turboprop" or "turbojet."

UK: United Kingdom.

US: United States of America.

USA: United States Army, an agency of the U.S. Department of Defense.

USAF: United States Air Force, an agency of the U.S. Department of Defense.

USN: United States Navy, an agency of the U.S. Department of Defense.

USSR: Union of Soviet Socialist Republics. Statistics continue to exclude this region until official data from the now independent republics become available.

Utility Aircraft: an aircraft designed for general purpose flying.

V/STOL: vertical short take-off and/or landing aircraft.

INDEX

- Active Civil Aircraft**, 84-87, 90, 91, 96-99
- Aeronautics**, 108, 109
- Aerospace Industry**
 - Average Earnings, 147, 148
 - Backlog, 17, 29, 33, 55, 60, 61
 - Balance of Trade, 119
 - Balance Sheet, 159
 - Comparison with All Manufacturing and/or Durable Goods, 18, 140, 141, 152, 157
 - Employment, 140, 142-146, 150
 - Exports, 119-122, 124, 125, 128-130, 132, 134-137
 - Finance, 157-160
 - Imports, 119, 121, 123, 126, 127, 129, 131, 132
 - Orders, 17, 29, 55, 60, 61, 112, 161-163
 - Payroll, 141
 - Profits, 157, 158
 - Research and Development, 72, 104-115
 - Sales, 13, 15, 16, 18, 28, 30-32, 34, 37-43, 55, 60, 61, 157, 158
 - SIC Codes, 12
- Air Cargo**, 76, 77, 80, 82
- Air Force**
 - Aircraft Acceptances, 41, 43
 - Aircraft Procurement, 41, 43, 44, 46
 - Major Missile Systems, 52-54
 - Missile Procurement, 50-54
 - RDT&E, 110, 111, 114, 115
- Air Transportation**, 74-99
- Aircraft**, 26-47, 88-91, 94-99
 - Active Civil, 84-87, 90, 91, 96-99
 - Airlines, 84-87, 90, 91, 96, 97
 - Backlog, 17, 29, 33
 - Employment, 142, 143, 145, 146
 - Exports, 30, 31, 38, 43, 122, 124, 125, 128-130, 134-137
 - Flyaway Cost, Military, 40-43
 - Imports, 123, 126, 127, 129, 131
 - Installed Engine Market Share, 88, 89
 - Military, 15, 21-23, 31, 38, 40-47, 115, 122-124, 126, 127, 132, 146, 161
 - On Order, 17, 29, 33, 35, 47
 - Orders, 17, 29, 112, 161
 - Outlays, DoD, 21-23, 46
 - Prime Contract Awards, 112, 161
 - Procurement, DoD, 21-23, 31, 40-44, 46, 47, 161
 - Production, 30-32, 34, 37-43
 - RDT&E, DoD, 112, 115
 - Sales, 15, 16, 28, 30-32, 34, 37-43
 - Transports, 30, 32-35, 40-42, 44, 47, 79, 84-92, 96, 97, 99, 120, 122-128, 134-137
- Airlines**
 - Domestic, 78-83, 92
 - Finances, 76, 78-81, 92, 134-137
 - Flight Equipment, 79, 84-91, 96, 97, 99
 - Foreign, 76, 77, 136, 137
 - Fuel, 92
 - Helicopters, 85, 87, 91, 97
 - Miles Flown, 82
 - Passenger-Miles, 77, 82, 83
 - Traffic, 77, 82, 83
 - U.S. Fleet, 90, 91, 96, 97, 99
 - World Airline Fleet, 84-89
- Airports**, 93-95
- Applied Research and Development**, 106
- Army**
 - Aircraft Acceptances, 41, 43
 - Aircraft Procurement, 41, 43, 44, 46
 - Major Missile Systems, 53, 54
 - Missile Procurement, 50, 51, 53, 54
 - RDT&E, 110, 111, 114, 115

- Assets
 - Aerospace Industry, 157, 159
 - Airlines, 79, 84-91, 96, 97, 99
- Astronautics
 - Outlays, 66, 67, 70, 71
 - RDT&E, 112
- Backlog**
 - Aerospace, 17, 29, 33, 55, 60, 61
 - Aircraft, 17, 29, 33
 - Engines, 17, 29, 61
 - Missiles, 17, 55
 - Space, 17, 60
 - Transport Aircraft, 33
- Balance of Trade, 121
- Balance Sheet
 - Aerospace Companies, 159
- Ballistic Missile Defense
 - Organization
 - Budget Program, 56, 57
- Basic Research Funds, 106
- Bombers
 - Exports, 122, 128
 - Flyaway Costs, 40, 41
 - Production, 40, 41
- Business Flying, 97, 99
- Capital Spending**, 160
- Cargo Ton-Miles, 77, 82
- Civil Airports, 93-95
- Commercial Flying, See Business Flying
- Communications Equipment
 - Contract Awards, 112, 161
- Constant Dollars, See Deflators
- Contract Awards
 - DoD, 112, 113, 161, 162
 - NASA, 163
- Defense Contractors**, 162
- Deflators, 24, 25
- Deliveries, See Production
- Department of Defense
 - Aerospace Sales, 13, 20-23
 - Aircraft
 - Flyaway Cost, 40-43
 - Outlays, 21-23, 46
 - Procurement, 21-23, 31, 40-44, 46, 47, 161
 - R&D, Aeronautics, 108, 109
 - RDT&E, 115
 - Contractors, 162
 - Missiles, 21-23, 50-57
 - Exports, 122
 - Outlays, 21-23, 51
 - Procurement, 21-23, 50-54
 - RDT&E, 112, 114
 - Outlays, 19-23, 46, 51, 103, 108, 109, 111
 - Aerospace, 20-23, 46, 51, 108, 109, 111
 - Aircraft, 21-23, 46
 - Functional Title, 22, 23
 - Missiles, 21-23, 51
 - Personnel, 22, 23
 - R&D, 103, 108, 109
 - RDT&E, 22, 23, 103, 109, 111
 - Personnel, 22, 23, 151
 - Prime Contract Awards, 112, 113, 161, 162
 - Procurement, 20-23, 31, 40-44, 46, 47, 50-54, 73, 161
 - RDT&E, 22, 23, 103, 108-115
 - Space Activities, 66-68, 73, 112
- Department of Energy, 66-68, 103
- Department of Transportation
 - Aeronautics R&D, 108, 109
- Durable Goods Industry
 - Employment, 140
 - Profits, 157
 - Sales, 18
- Earnings**
 - Companies, 157, 158, 162, 163
 - Employees, 141, 147, 148
- Electronics
 - Prime Contract Awards, 112, 163
- Employment, 107, 140, 142-146, 150, 151
 - All Manufacturing, 107, 140
 - Durable Goods, 140
 - NASA, 150
 - Scientists and Engineers, R&D, 107
- Engines
 - Aircraft
 - Backlog, 17, 29
 - Exports, 122, 132
 - Imports, 123, 132
 - Installed Market Share, 88, 89
 - Orders, 17, 29
 - Sales, 16, 28
 - Missiles and Space Vehicles
 - Backlog, 17, 61
 - Exports, 122
 - Orders, 17, 61

- Sales, 16, 61
- Export-Import Bank, 133-137
- Exports, 30, 31, 38, 43, 119-122, 124, 125, 128-130, 132, 134-137
- Aerospace, 30, 31, 38, 43, 119-122, 124, 125, 128-130, 132, 134-137
- Balance of Trade, 121
- Civil, 30, 120, 122, 125, 128-130, 132, 134-137
- Engines, 122, 132
- General Aviation, 30, 122, 125, 130
- Helicopters, 30, 38, 43, 122, 124, 125, 129
- Military, 31, 38, 43, 122, 124, 132
- Transports, 31, 122, 124, 125, 128, 134-137
- U.S. Merchandise, 119, 120
- Used Aircraft, 122, 124, 125

Federal (U.S. Government)

- Aerospace Sales, 13, 16, 20, 21, 28
- Backlog, 17, 29
- Orders, 17, 29, 112, 113, 161-163
- Outlays, 19-23, 46, 51, 66, 67, 70, 71, 103, 108, 109, 111
- Research and Development, 102-106, 108-115
- Fighter Aircraft
 - Exports, 122, 124
 - Flyaway Cost, 40-43
 - Procurement, 40-43, 46, 47
 - Production, 40-43
 - RDT&E, 115

Finances

- Airlines, 76, 78-81, 92
- Government, See Outlays and Federal
- Industry, 157-160
- Flying Hours, 98, 99
- Foreign Trade, 30, 31, 38, 43, 118-137
 - See also Imports and Exports
- Fuel, 92
- Funds, Research, 102-106, 108-115

General Aviation

- Active Civil Aircraft, 96-99
- Exports, 30, 122, 125, 130

- Hours Flown, 98, 99
- Imports, 123, 126, 127, 131
- Shipments, 30, 32, 39
- Geographic Distribution
 - Airports, 93-95
 - Contract Awards, 113, 161
 - Exports, 121, 128-130, 136, 137
 - Heliports, 94, 95
 - Imports, 121, 129, 131
- Government, See Federal
- Gross Domestic Product, 18, 19
 - Deflator Series, 24

Helicopters, 30, 32, 36-38, 40-47, 85, 87, 91, 94-98, 115, 122-127, 129, 130, 145

- Active Civil, 85, 87, 91, 96-98
- Exports, 30, 38, 43, 122, 124, 125, 129
- Flyaway Cost, Military, 40-43
- Imports, 123, 126, 127, 129
- Military, 38, 40-45, 47, 122, 124
- Production, 30, 32, 37, 38, 40-43
- Specifications, 36
- U.S. Airlines, 91
- World Civil Airlines, 85, 87
- Heliports, 94, 95
- Hours Flown
 - General Aviation, 98, 99

Illness Rates, 152

- Implicit Price Deflators, 24, 25
- Imports

- Aerospace, 119, 121, 123, 126, 127, 129, 131, 132
- Aircraft, 123, 126, 127, 129, 131
- Engines, 123, 132
- General Aviation, 123, 126, 127, 131
- Helicopters, 123, 126, 127, 129

- Income Accounts, 76, 78, 80, 158

- Industrial Research and Development, 102, 104-106

- Injury Rates, 152

- Instructional Flying, 97, 99

- Investment in Equipment
 - Aerospace Industry, 159, 160
 - Manufacturing Industries, 160
 - U.S. Airlines, 79, 90-91, 96-97, 99

Liabilities, Corporate, 159
Major Contractors, 162, 163
 Manufacturing Industries
 Employment, 140
 New Plant and Equipment
 Expenditures, 160
 Payroll, 141
 Profits, 157
 Sales, 18, 157
 Work Injury and Illness
 Rates, 152
 Miles Flown, 77, 82, 83
 Military Exports, 31, 43, 122, 124, 132
 Missiles, 15-17, 21-23, 50-57, 61, 112, 114, 122, 123
 Backlog, 17, 55
 Employment, 142, 146
 Engines, 61, 122
 Exports, 122
 Major Missile Systems, 50, 52-54, 114
 Orders, 17, 55, 112
 Outlays, 21-23, 51
 Prime Contract Awards, 112, 161
 Procurement, 21-23, 50, 51, 161
 RDT&E, DoD, 112, 114
 Sales, 15, 16, 55, 61
National Aeronautics and Space Administration
 Aeronautics, R&D, 108, 109
 Aerospace Sales, 13, 20, 21
 Budget Authority, 68, 69, 72
 Construction of Facilities, 69-71
 Contractors, 163
 Employment, 150
 Outlays, 20, 21, 66, 67, 70, 71, 103, 108, 109
 Research & Program Management, 69-71
 Research and Development, 69-72, 103, 108, 109
 National Defense, 19, 20
Navy
 Aircraft Acceptances, 42, 43
 Aircraft Procurement, 42-44, 46
 Major Missile Systems, 52-54
 Missile Procurement, 50-54
 RDT&E, 110, 111, 114, 115
Operating Revenue
 U.S. Airlines, 78, 80

Orders
 Aerospace, 17, 29, 55, 60, 61, 112, 161-163
 Aircraft, 17, 29, 112, 161
 Engines, 17, 29, 61
 Missiles, 17, 55, 112
 Space, 17, 60, 61
Outlays
 Aircraft, 21-23, 46
 Aerospace, 20-23, 46, 51, 66, 67, 70, 71, 108, 109, 111
 Federal, 19-23, 46, 51, 66, 67, 70, 71, 103, 108, 109, 111
 Missiles, 21-23, 51
 National Defense, 19, 20
 RDT&E, 22, 23, 111
Passenger-Miles, 77, 82, 83
Passengers Carried, 77, 83
Payroll, 141
Plant and Equipment
 Expenditures, 160
Prime Contract Awards
 DoD, 112, 113, 161, 162
 NASA, 163
Procurement, DoD
 Aerospace Products and Services, 21-23, 31, 40-44, 46, 47, 50, 51, 73, 161
 Aircraft, 21-23, 31, 40-44, 46, 47, 161
 Missiles, 21-23, 50, 51, 161
 Total, 22, 23
Production, Aircraft, 30-32, 34, 37-43
 General Aviation, 30, 32, 39
 Helicopters, 30, 32, 37, 38, 40-43
 Military, 31, 38, 40-43
 Transport, 30, 32, 34, 40-42
Profits, 157, 158
RDT&E, See **Research, Development, Test, and Evaluation**
Research
 Applied and Basic, 106
Research and Development, 52-54, 69-72, 102-110, 112
 Aeronautics, 108, 109
 DoD, 52-54, 103, 110, 112
 DoT, 103, 108, 109
 Energy, 103
 Federal Funds, 102-106, 108, 109

- Industrial, 102, 104-106
- NASA, 69-72, 103, 108, 109
- Scientists and Engineers, 107
- Research and Program Management
 - NASA, 69-71
- Research, Development, Test, and Evaluation, DoD
 - Aircraft, 112, 115
 - By Agency, 73, 110, 111, 114, 115
 - Contract Awards, 112, 113
 - Missiles, 112, 114
 - Outlays, 22, 23, 111
 - Space, 73
 - Total, 22, 23, 111
- Sales**
 - Aerospace, 13, 15, 16, 18, 28, 30-32, 34, 37-43, 55, 60, 61, 157, 158
 - Aircraft, 15, 16, 28, 30-32, 34, 37-43
 - And National Economy, 18
 - By Customer, 13, 16, 28, 55, 60, 61
 - By Product, 15, 16, 28, 30-32, 34, 37-43, 55, 60, 61
 - Constant Dollars, 13, 15, 16, 18, 28, 55, 60, 61
 - Durable Goods, 18
 - Manufacturing Industries, 18, 157
 - Missiles, 15, 16, 55, 61
 - Related Products and Services, 13, 15
 - Space, 15, 16, 60, 61
- Scientists and Engineers, 107, 144, 145
- SIC Codes, 12
- Space, 15-17, 60-73
 - Backlog, 17, 60, 61
 - DoD, 66-68, 73
 - Employment, 150
 - Launchings, 63
 - NASA, 66-72
 - Orders, 60, 61
 - Procurement, 73
 - Programs, 72, 73
 - Sales, 15, 16, 60, 61
 - Space Launch Vehicles, 64, 65
 - Spacecraft Record, 62
- Standard Industrial Classifications, 12
- Stockholders' Equity, 157, 159

- Strategic Defense Initiative Organization, See Ballistic Missile Defense Organization
- Strikes, 153

- Taxes**, 158
- Trade Balance, 121
- Transportation
 - Air, 76-99
 - Helicopter, 85, 87, 91, 94-98
- Transports
 - Civil, 30, 32-35, 79, 84-92, 96, 97, 99, 120, 123, 125-128, 134-137
 - Engine Manufacturers, 88, 89
 - Exports, 30, 43, 120, 122, 124, 125, 128, 134-137
 - Imports, 123, 126, 127
 - Military, 40-42, 44, 47, 122, 124
 - On Order, 33, 35
 - Production, 30, 32, 34, 35, 40-42, 47
 - Specifications, 35, 47
- Turbojet Aircraft, 33, 35, 39, 45, 47, 84, 87-90, 97, 98, 134-137
- Turboprop Aircraft, 39, 45, 47, 86, 87, 90, 91, 97, 98

- Used Aircraft**
 - Civil Exports, 122, 125
 - Civil Imports, 123, 126, 127
 - Military Exports, 122, 124
- Used Aircraft Engines
 - Exports, 132
- U.S. Airlines
 - Assets, 79, 90, 91, 96, 97, 99
 - Finances, 78-81, 92
 - Fleet, 90, 91, 96, 97, 99
 - Net Investment, 79
 - Operating Expenses, 78, 81, 92
 - Operating Revenues, 78, 80
 - Traffic, 82, 83

- Wages**, 147, 148
- Work Illness and Injury Rates, 152
- Work Stoppages, 153
- Working Capital, 159
- World Airlines
 - Finances, 78, 134-137
 - Fleet, 84-89
 - Traffic, 77

AIA MEMBER COMPANIES

AAI Corporation
Aerojet, A Segment of GenCorp
Allegheny Teledyne Inc.
Teledyne Controls
Teledyne Electronic
Technologies
Alliant Techsystems Inc.
AlliedSignal Aerospace
American Pacific Corporation
Argo-Tech Corporation
B.H. Aircraft Company, Inc.
The Boeing Company
Calspan SRL Corporation
CMS, Inc.
Coltec Industries Inc.
Chandler Evans
Delavan Gas Turbine
Menasco Aerosystems
Walbar
Computing Devices International
Digital Equipment Corporation
Dowty Aerospace
Yakima
DuPont Company
FMC Corporation
GEC-Marconi Electronic
Systems Corporation
General Dynamics Corporation
General Electric Company
The BFGoodrich Company
Landing Systems
Maintenance, Repair, and
Overhaul
Safety Systems
Sensors and Integrated Systems
Gulfstream Aerospace Corporation
Harris Corporation
HEICO Corporation
Hexcel Corporation
Honeywell Inc.

Hughes Electronics Corporation
Delco Electronics
Hughes Aircraft Company
Hughes Telecommunications
and Space Company
DIRECTV, Inc.
Hughes Network Systems, Inc.
Interturbine Corporation
ITT Defense and Electronics Inc.
Kaman Aerospace Corporation
Litton Industries, Inc.
Lockheed Martin Corporation
Loral Space and Communications Ltd.
Lord Corporation
Lucas Aerospace Inc.
McDonnell Douglas Corporation
Northrop Grumman Corporation
Parker Hannifin Corporation
Raytheon Company
Rockwell International Corporation
Rohr, Inc.
Rolls-Royce North America Inc.
Sundstrand Corporation
Teleflex, Inc./TFX Aerospace Group
Mal Tool & Engineering
Texas Instruments Incorporated
Defense Systems & Electronics Group
Textron Inc.
Thiokol Corporation
Triumph Controls, Inc.
TRW Inc.
UNC Incorporated
United Technologies Corporation
Aerospace/Defense:
Pratt & Whitney
Sikorsky
Hamilton Standard
Williams International



Aerospace
Industries
Association

**Aerospace Industries
Association of America, Inc.**

1250 Eye Street, NW
Washington, DC 20005

