

ARCHIVED REPORT

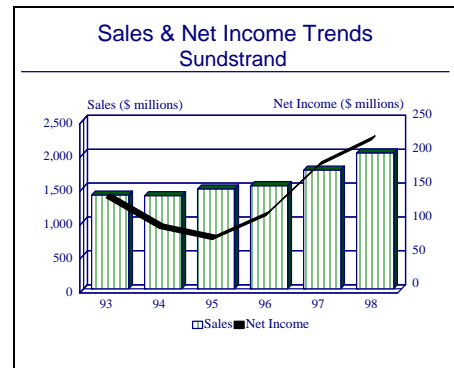
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Sundstrand Corporation - Archived 9/2000

Outlook

- Hamilton Standard and Sundstrand have merged into Hamilton Sundstrand, a unit of United Technologies Corporation
- Hamilton Sundstrand offers prime contractors one-stop shopping for a variety of aircraft components and systems
- By combining these two companies, Hamilton Sundstrand has a perfect opportunity to significantly increase its total systems sales per aircraft



Headquarters

Hamilton Sundstrand
One Hamilton Rd
Windsor Locks, CT 06096
Telephone: (860) 654-6000
Web Site: <http://www.hamiltonsundstrandcorp.com>

Sundstrand was incorporated in Illinois in 1910 and became a Delaware corporation in 1966. It has been serving the aerospace and defense industries for over 40 years with mechanical systems and electrical power generation for aircraft. In recent years, gas turbine and fluid systems were added and product applications were expanded to include missiles and spacecraft.

In June 1999, United Technologies completed its \$4.3 billion acquisition of Sundstrand. Sundstrand has since been merged with UTC's Hamilton Standard unit and was renamed Hamilton Sundstrand. The new unit employs approximately 18,500.

Due to the relative "newness" of the UTC acquisition this report will concentrate for the most part on Sundstrand. For details on Hamilton Standard please refer to the United Technologies report located in this binder.

Structure and Personnel

Hamilton Sundstrand Officers

Robert H. Jenkins
Chairman and Chief Executive Officer
Ray Kurlak
President

Patrick L. Thomas
Executive Vice President and Chief Operating
Officer, Hamilton Sundstrand Industrial
Robert F. McKenna
Executive Vice President and Chief Operating
Officer, Hamilton Sundstrand Aerospace

Product Area

Sundstrand conducts its business in two major market segments, aerospace and industrial. Within these major segments the corporation is organized and manages its operations in the following manner.

1. Aerospace
 - 1.1 Mechanical Systems
 - 1.2 Electrical Systems
 - 1.3 Power Systems
2. Industrial
 - 2.1 The Falk Corporation
 - 2.2 Sullair Corporation
 - 2.3 Milton Roy Company
 - 2.4 Sundstrand Fluid Handling Corporation

Aerospace. Through operating units of the aerospace business segment, Sundstrand designs, develops, tests, manufactures and markets proprietary systems and components for airframes and aircraft engines and for special aerospace and military applications. Virtually every business, commuter, military and commercial jet built in the Western World includes products manufactured by Sundstrand. The following is a listing of this segment's major operating units:

Mechanical Systems. Mechanical Systems designs and develops energy transfer systems for aircraft, space applications, missiles, and torpedoes. Principal products are aircraft actuation systems that position flight control surfaces, emergency and secondary power systems, engine starting systems, main fuel pumps, lube and scavenge pumps, torpedo engines, and gearboxes.

Electrical Systems. Sundstrand is the world's leading supplier of electric power generating systems for aircraft, with systems on Boeing, Airbus and McDonnell Douglas aircraft; regional jets; commuter aircraft and business jets; and many military aircraft.

Power Systems. Auxiliary power units (APUs) for airplanes and helicopters are Power System's principal products. These machines are small gas turbine engines with hydraulic pumps, compressors and generators which supply hydraulic power, compressed air, and electricity for aircraft and other applications. Power systems also manufacturers vapor cycle cooling units for specialized airborne functions, compressors for onboard gas separation, and high-technology fans and blowers.

Industrial. In the industrial units, The Falk Corporation builds gears and rotating shaft couplings. The Sullair Corporation manufactures air and gas compressors and vacuum pumps. The Milton Roy Company makes meterings and specialty pumps. Sundstrand Fluid Handling Corporation produces hydraulic and fluid handling devices. The following is a listing of this segment's major products or product lines:

Centrifugal pumps, compressors, blowers and canned motor pumps primarily for chemical and hydrocarbon processing industries. Precision metering pumps for water treatment, chemical processing, food processing, and pulp and paper industries; specialty water pumps for air conditioning, refrigeration, and small appliance applications. Fluid power drives, combining mechanical and hydrostatic transmissions, for stationary applications. Rotary screw air and gas compressors, rotary screw vacuum systems, refrigeration compressors and related equipment for construction and general industrial applications, including pneumatic tools, contaminant removal systems and compressor lubricants. Scientific instruments for chemical analysis and measurement in laboratories, process and environmental testing, and paint and plastic color matching.

Facilities

Central Region

Sundstrand Corporation, PO Box 7003, 4949 Harrison Avenue, Rockford, IL 61125-7003. Telephone: (815) 226-6000. The management of the company's Aerospace operation is located in Rockford. This facility also has engineering, manufacturing, final assembly and testing capabilities.

Milton Roy, Arvada, Colorado.

The Falk Corporation, Milwaukee, Wisconsin

Sullair Corporation, Michigan City, Indiana

Western Region

Sundstrand Power Systems, 4400 Ruffin Road, San Diego, CA 92186-5757. Telephone: (619) 627-6000. This division manufactures small gas turbine engines, generator sets and APUs for commercial and military aircraft and vehicles. Other products include fan and vapor cycle systems and engines for unmanned aerial vehicles.

Auxiliary Power International Corporation-APIC, 4450 Ruffin Road, PO Box 85757, San Diego, CA 92193-5757.

Corporate Overview

Sundstrand served two major market segments: aerospace and industrial products. In terms of business mix, aerospace generated 63 percent of the company's sales and industrial products accounted for the remaining 37 percent of sales.

The new Hamilton Sundstrand produces aerospace systems, subsystems, and components for all makes of aircraft. In addition the new unit has an extensive worldwide service operation.

New Products and Services

No major new aerospace products or services have been announced by Sundstrand in the past year.

Plant Expansion/Organization Update

Two-for-One Stock Split. In February 1996, Sundstrand authorized a two-for-one stock split payable as a 100-percent stock dividend to shareholders of record on March 5, 1996. The move is aimed at increasing the shareholder base and improving the market liquidity of Sundstrand common stock.

Sundstrand Realigns. In February 1995, Sundstrand announced that it is embarking on major restructuring due to the continuing drop in defense-related sales. The restructuring plan resulted in a \$58 million charge to first-quarter 1995 earnings, which will cover the closing of the company's Lima, Ohio, plant, which produces a variety of defense-related products. The charge will also cover the writing down of assets of two noncore product lines. Finally, it will cover the cost of cutting the aerospace sector's engineering team.

Mergers/Acquisitions/Divestitures

UTC Acquires Sundstrand. In June 1999, United Technologies Corp. completed its plan to acquire Sundstrand in a 50 percent cash and 50 percent stock merger transaction valued at approximately \$4.3 billion. Sundstrand has been combined with UTC's Hamilton Standard division, forming one of the world's leading suppliers of high value added airframe components and sub-systems. The merged entity has been renamed Hamilton Sundstrand and is headquartered at Hamilton Standard's former headquarters in Windsor Locks, Conn.

"In the context of accelerating industry consolidation, we are confident that combining with United Technologies represents an outstanding opportunity for Sundstrand," said Robert H. Jenkins, Sundstrand's chairman and chief executive. "Over the past three

years our management team has taken a number of strategic initiatives that have directly resulted in our superior profit margins and consistently excellent financial performance. However, with the rapidly changing nature of our industry, we firmly believe that United Technologies is an excellent strategic fit for Sundstrand as we will benefit from its lean manufacturing, quality, shared services, and purchasing programs and we have a highly similar culture and operating philosophy. In turn, Sundstrand will contribute its extensive customer support network, low cost systems integration expertise, and experienced management team to Hamilton Standard."

The new Hamilton Sundstrand employs roughly 18,500 and will have about \$3.2 billion in annual sales. The new company is expected to have strong presence in fuel, control, and electrical and mechanical systems, airframe components, and aircraft auxiliary power units. The acquisition was originally announced in February 1999.

Shannon Aircraft Acquired. In November 1998, Sundstrand Aerospace acquired Shannon Aircraft Motor Works headquartered in Shannon, Ireland. Shannon Aircraft Motor Works provides repair and overhaul of aircraft motor and generator components with additional repair facilities in Agen, France and Toronto, Canada. The business will be part of Aerospace Repair Services in the Customer Service Business unit. Terms of the transaction were not disclosed.

Keystone Acquired. In November 1998, Sundstrand Aerospace acquired Keystone Engineering Company headquartered in Los Angeles, California. Keystone, with its proprietary processes, manufactures light-weight propellant and pressure tanks and domes for commercial satellites and launch vehicles. It also manufactures large diameter, anti-friction, hollow-section bearings for AWACS type aircraft and components and sub-assemblies for various space applications. The business will continue to be based in Los Angeles and will be operated under the name of Keystone Engineering. Terms of the transaction were not disclosed.

Auxiliary Power International Corporation Acquired. In December 1996, Sundstrand acquired Labinal's 50 percent interest in Auxiliary Power International Corporation (APIC). APIC was originally formed in 1989 when Sundstrand decided to enter the commercial aircraft APU market. In doing so, Sundstrand formed a joint venture called Auxiliary Power International Corporation with Labinal, a French company, to

increase overall market coverage. APIC markets the APS 500, APS 1000, APS 2000 and APS 3200 series APUs. First units were delivered to Boeing 737 customers in 1991. Sundstrand bought out its partner for approximately \$25 million.

Dowty Line Acquired. During 1995, Sundstrand purchased the ram air turbine (RAT) business of Dowty Aerospace Hydraulics. The acquisition, which includes no personnel, property or major equipment, will complement the company's existing RAT business.

1995 Divestitures. In September 1995, the company sold a majority interest in the Aerospace segment's Advanced Power Technology (APT) unit to a management lead buyout. APT manufactures high-power semiconductors which are used in advanced

electric power conversion systems. Earlier, in July 1995, Sundstrand sold Spectronic, part of Milton Roy, for \$19 million to Life Sciences International plc.

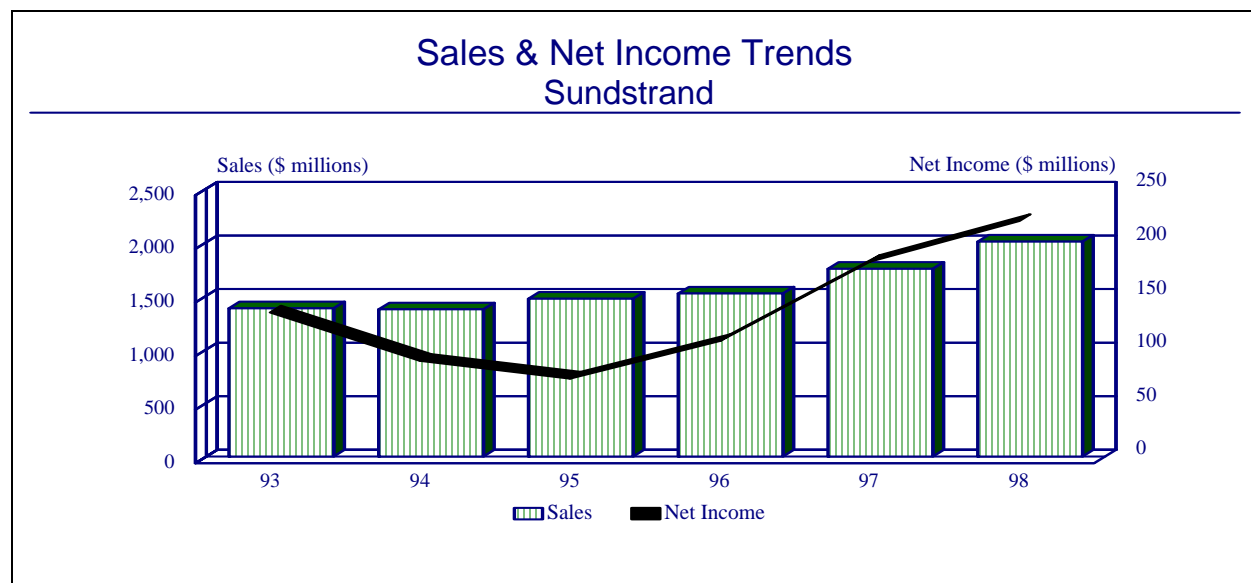
Teaming/Competition/Joint Ventures

No major teamings have been announced by Sundstrand in the past year.

Financial Results/Corporate Statistics

Sundstrand's 1998 sales rose 14 percent to \$2.0 billion over 1997 sales of \$1.75 billion. Net income for 1998 rose 26 percent to \$226 million compared to \$188 million for 1997. The lower income in 1995 was attributed to reductions in military budgets and the closure of the Sundstrand Aerospace's Lima, Ohio plant. The latest full-year statistics for Sundstrand are given below.

Y/E December 31	1993	1994	1995	1996	1997	1998
(\$ millions)						
Net Sales	1383.1	1372.7	1473.0	1521.0	1752.0	2005.0
Percent Govt	24.0	20.0	17.0	16.0	15.0	12.0
Net Income	140.7	95.6	79.0	114.0	188.0	226.0
Backlog	682.4	746.8	931.0	967.0	1226.0	1155.0
R&D Expenditures	126.9	109.0	113.0	98.0	117.0	141.0

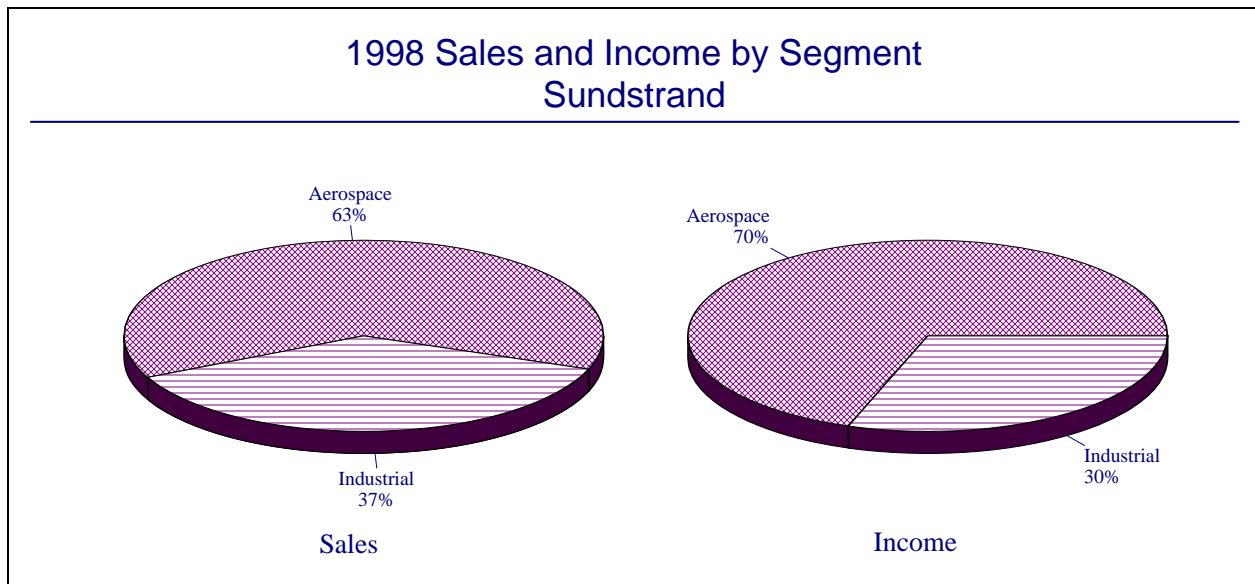


Industry Segments

The following tables provide a five year summary of Sundstrand's sales and income segment data.

SALES	1994	1995	1996	1997	1998
(\$ millions)					
Aerospace	709.3	726	785	1001	1299
Industrial	663.4	747	736	751	776

OPERATING INCOME	1994	1995	1996	1997	1998
(\$ millions)					
Aerospace	87.6	54	138	209	272
Industrial	106.0	121	84	128	118



Strategic Outlook

The acquisition of Sundstrand by United Technologies Corp. is the penultimate move in the second phase of aerospace and defense consolidation sweeping North America. Following the failure of the Lockheed Martin/Northrop Grumman merger, the consolidation process has moved down the chain from prime contractors to the subcontractor link.

Other recent deals involving subcontractors include BF Goodrich's acquisition of Coltec (and before that Rohr), a series of deals by AlliedSignal, and L-3 Communications buying spree following its spin-off from Lockheed Martin. The key motivator behind these moves is a desire by companies to be No.1 or No.2 in their respective markets. This hunt for critical mass has led to a quiet shopping frenzy as companies seek to bolster their core operations by acquiring competitors.

In the case of Sundstrand and UTC, the acquisition is a complimentary one that – combined with UTC's Hamilton Standard into Hamilton Sundstrand – offers prime contractors one-stop shopping for a variety of aircraft components and systems. By combining these two companies Hamilton Sundstrand has a perfect opportunity to significantly increase its total systems sales per aircraft. In addition, the deal also gives UTC Sundstrand's Industrial business which serve a variety of process and manufacturing customers and further diversifies the conglomerate.

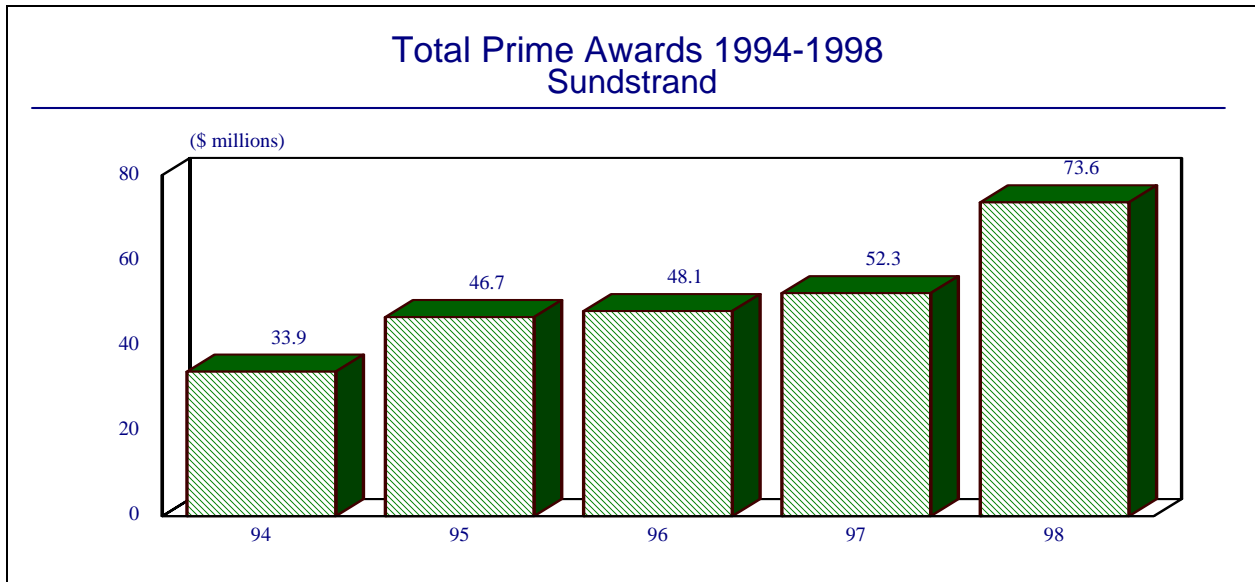
Overall, the new Hamilton Sundstrand is expected to be a strong subcomponent manufacturer in today's reshaped aerospace industry.

With the sale of Sundstrand complete, the salient data of this report will be combined with the United Technologies report and the Sundstrand update will be dropped from the service.

Prime Award Summary

The five-year summary of awards to Sundstrand by customer is presented below. Dashes indicate data are not available. Zeroes indicate awards, if any, less than \$50,000.

(\$ millions)	1994	1995	1996	1997	1998
AIR FORCE	21.0	16.5	17.3	16.2	24.6
ARMY	2.9	6.4	9.4	7.2	16.1
DEF LOGISTICS AGENCY	1.8	5.7	11.3	15.0	21.2
DEPT OF TRANSPORTATION	0.0	0.7	0.5	0.6	0.8
NASA	0.0	0.0	1.6	1.9	2.0
NAVY	8.2	17.4	8.0	11.4	8.9
TOTAL	33.9	46.7	48.1	52.3	73.6



The five-year summary of awards by key location within major geographical area and by customer is given below. Dollars are in millions.

CENTRAL REGION

Rockford, IL (\$ millions)	1994	1995	1996	1997	1998
AIR FORCE	18.9	13.8	15.5	15.0	17.6
ARMY	0.5	2.7	8.8	7.0	15.4
DEF LOGISTICS AGENCY	1.5	2.4	6.2	12.2	19.0
DEPT OF TRANSPORTATION	0.0	0.3	0.4	0.6	0.6
NASA	0.0	0.0	1.6	1.9	2.0
NAVY	7.1	7.2	7.4	11.3	8.4
TOTAL	28.0	26.4	39.9	48.0	63.0

WESTERN REGION

San Diego, CA (\$ millions)	1994	1995	1996	1997	1998
AIR FORCE	1.0	2.3	1.4	1.2	6.5
ARMY	3.9	3.2	0.6	0.0	0.5
DEF LOGISTICS AGENCY	0.1	2.3	4.6	2.7	2.2
DEPT OF TRANSPORTATION	0.0	0.4	0.1	0.0	0.2
NAVY	0.1	9.5	0.1	0.1	0.4
TOTAL	5.1	17.7	6.8	4.0	9.8

Program Activity

Some important aerospace and government programs currently under way at Sundstrand are listed below. The briefs are intended to provide a listing of programs that are of major importance to the company. For detailed information or analysis of specific aerospace and defense programs or equipment, please refer to the appropriate FORECAST INTERNATIONAL binder (for example AIRCRAFT, MILITARY VEHICLES, WARSHIPS, MISSILES, ELECTRONICS, and GAS TURBINES). The following is an outline of the company's business interests:

- Aircraft
- Civil and Military Fixed-Wing Aircraft
- Civil and Military Helicopters
- Defense Electronics
- ASW
- Avionics
- C3I Systems
- Missiles
- Ordnance Systems
- Space Systems
- Systems Integration
- Training Systems
- Unmanned Vehicles
- Warships

Sundstrand designs, manufactures, produces and markets products for aircraft, aircraft engines and special aerospace and military applications. The company is a leading supplier of aerospace systems and components, and has product content on virtually every commercial, military, commuter and business jet aircraft produced outside the former Eastern Bloc countries. As such a manufacturer, Sundstrand supplies, for most part, subcomponents to the original equipment manufacturer (OEM). Thus, the programs listed below are some of the company's major products. For more detailed information as to which subcomponent goes on which engine or aircraft, please refer to Forecast

International's INTERNATIONAL CONTRACTORS binder.

ASW Programs

Spearfish

Spearfish is intended to supplement the Mk24 torpedo (Tigerfish) as the Royal Navy's standard heavy torpedo for submarine launch. Primarily a sub killer, it also has a designed capability for one-hit lethality against surface vessels up to 50,000 tons, and two-hit lethality against all targets. It uses a closed-cycle variable-speed Sundstrand 21TP04 turbine engine.

Control Units and Components

Fluid Pumps

Sundstrand designs, develops, manufactures and markets fluid pumps for most aircraft requirements. Examples are main fuel pumps, override and boost pumps, turbo pumps, coolant pumps and transfer pumps. Sundstrand devices of some nature are found on almost every design and model of aircraft.

Hydraulic Power Units (HPUs)

Sundstrand provides hydraulic power units and systems for missile and space applications. The company has produced thousands of hydraulic thrust vector control HPUs for the Navy's Poseidon and Trident missiles. Sundstrand HPUs are also used on the Peacekeeper and Small ICBM programs. The company is also working on undersea application for hydraulic power for torpedo propulsion. Called the Stored Chemical Energy Propulsion System (SCEPS), it would provide for a closed-cycle torpedo power system.

Electrical Power Systems

For more than 40 years, Sundstrand has provided aircraft electrical power generating equipment, and the company is recognized as a leader in aircraft electrical power. The company has a sizable market share in both

military and commercial aerospace, with major components or systems on such military aircraft as the F-14, F-15, F-16, C-5, C-17, B-1 and B-2; on large commercial aircraft from every manufacturer, including Boeing, McDonnell Douglas, and Airbus Industrie; and on commuter aircraft such as the Fokker 50 and 100, and the Canadair Regional Jet. The basis for these electrical systems is Sundstrand's proprietary constant speed drive (CSD) technology. Over the past four decades the company has grown from supplying the CSD to providing complete electrical power generating systems.

In addition to the hydromechanical-based systems, Sundstrand has invested significant research and development in the technology of power electronics. In 1991, this investment paid off when the company was selected to provide the variable-speed constant-frequency (VSCF) systems for backup power on the Boeing 777. This win gave the company both primary and backup electric power generating systems on the 777.

Some major programs and components that Sundstrand is involved with are provided below.

Boeing 777

Sundstrand was selected to provide the main AC electrical power-generating system for the Boeing 777 twinjet. The system includes two 90/120 KVA integrated drive generators, one auxiliary power unit generator, three generator control units, one bus power control unit and 11 differential protection current transformer units.

Electrical Power Generation Systems (EPGS)

Sundstrand pioneered the constant-speed drive, 400 Hz, aircraft electrical system. Systems are available at 40, 60, 75 and 90 KVAs and for special applications. Microprocessors are used in these electrical power systems for control and maintenance purposes. Commercial applications include Boeing 747s, 757s, 767s and 777s; Airbus A300-600 and A-310; and the Fokker 50 and 100. Sundstrand-manufactured constant-speed drives are also used on other aircraft programs such as the Boeing 737-300/400/500, the McDonnell Douglas MD-80 Series, and the British Aerospace BAe 146. Military applications include the F/A-18, A-6, KC-135R and V-22.

Gas Turbine Auxiliary Power Units (APUs) and Ground Power Units (GPUs)

The Power Systems unit of Sundstrand provides the aerospace and defense industries with Gas Turbine APUs and GPUs for civil aircraft, military fixed-wing aircraft and helicopters and for battlefield power systems for radars and communications. Systems range

from 28 to 350 horsepower. Some of the equipment and systems using Sundstrand APUs are F-16s, Black Hawks, Chinooks, KC-135Rs, Citation IIIs, Dash 8s, Patriot and Tomahawk Ground Launched Cruise Missiles. Sundstrand is currently under contract with the US Army to provide an advancement in small engine technology. Potential applications include airborne auxiliary power units for the new LH military helicopter, auxiliary power units for M1A1 tanks, and as a power source for an integrated power and environmental control system for mobile shelters. In the late 1980s the company entered the commercial aircraft APU market. In doing so, Sundstrand formed the joint venture Auxiliary Power International Corporation (APIC) with Labinal Inc, a French company, to increase overall market coverage. APIC markets both APS 2000 (commuter and small commercial class aircraft) and APS 3200 (large commercial class aircraft) series APUs. Some first units were delivered to Boeing 737 customers in 1991.

APIC APS 500

This is a small single-shaft centrifugal-flow gas turbine machine/airborne Auxiliary Power Unit (APU) system for light-medium fixed-wing commercial and business jet aircraft. The designation APS 500 now comprises several models of the Sundstrand T-62T-40C series machines.

APIC APS 1000

This is a small single-shaft centrifugal-flow gas turbine machine/airborne APU system for medium-weight fixed-wing commercial aircraft. The APS 1000 is the commercial designation of several models of the T-62T-46C series machines.

APIC APS 2000

This is an advanced-technology modular-design airborne APU system designed for medium-heavy fixed-wing commercial and military aircraft.

APIC APS 3200

The Auxiliary Power International Corporation (APIC) APS 3200 is high-performance, low-weight Auxiliary Power Unit (APU) for new-build aircraft as well as for retrofit on existing aircraft. The machine is the first engine to be jointly designed and produced by APIC, and is based on proven turbine designs.

Sundstrand Titan T-62T

This is an airborne and Ground Auxiliary Power Unit (APUs and GPUs). The machine series is also referred to as the T-62 Titan, T-62T Titan, T-62, and T-62T. The designation T-62T is now applied only to military APUs; commercial T-62Ts now fall under the

responsibility of Auxiliary Power International Corp (APIC). The system remains in production.

Sundstrand Gemjet

The Sundstrand Gemjet is one of two premier 40 lbst [0.178 kN] small turbojet engines (the other being the Teledyne CAE Model 305) that sought application in small anti-tank missile systems. The machine has a single-stage centrifugal compressor, an annular one-piece combustor, and a single radial turbine; its weight is 12 pounds [5.44 kg]. As with the Teledyne Model 305, it is considered production-ready should applications arise.

Sundstrand TJ-50

Sundstrand Corporation is believed to be working on a small turbojet engine developing approximately 50 lbst [0.222 kN]; the engine is designated TJ-50. Work on the engine is believed to have been done under the Small Engine Advanced Program (SENGAP). The application of the TJ-50 may well be a Miniature Air-Launched Decoy (MALD), an air vehicle whose size would be approximately that of an AIM-120C AMRAAM.

US Contract Awards

Below is a listing of recent major contracts awarded to Sundstrand from the United States Government (contracts as of press date). No contracts were awarded in 1998.

<u>Date</u>	<u>Award</u> <u>(\$ millions)</u>	<u>Contract #</u>	<u>Description</u>
1995			
9/29/95	\$5.5	F34601-94-G-0027	36 auxiliary power units for the KC-135 aircraft.
1996			
2/28/96	\$7.5	F33615-95-C-2509	Integration demonstration of key technologies for the Integrated Power Unit.
3/11/96	\$10.0	F33657-95-C-0091	R&D support for the Engine Model Derivative program.
1997			
8/28/97	\$5.3	SPO480-97-D-0727	Engine spare parts.
9/25/97	\$5.0	N66604-97-C-6596	Torpedo Mk 50 boiler assemblies in support of Lightweight Torpedo program.
12/8/97	\$15.5	SPO700-98-D-9701	Aerospace aircraft parts.

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