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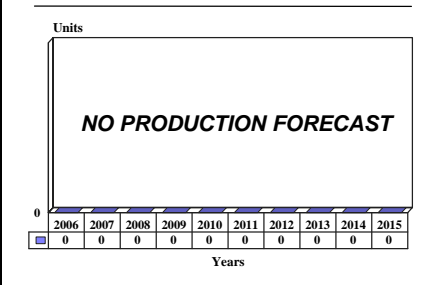
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Snow SA-200 - Archived 8/2007

Outlook

- The SA-200 series might never enter production
- The SA-204C would face a number of sales competitors

**10 Year Unit Production Forecast
2006 - 2015**



Orientation

Description. Twin-turboprop-powered, short takeoff and landing (STOL) commercial and military utility transport aircraft.

Sponsor. The SA-200 series is privately sponsored by Snow Aviation International.

Status. Development

Total Produced. Not applicable.

Application. Small package express and palletized/containerized freight carriage. Military tactical airlift of personnel, palletized cargo, and light vehicles.

Price Range. SA-204C, \$9.7-\$10.2 million; SA-210TA, \$10.25-\$10.8 million – estimated in 2002 U.S. dollars.

Contractors

Prime

Snow Aviation International Inc	http://www.snowaviation.com , 7201 Paul Tibbets St, Rickenbacker Int'l Airport, Columbus, OH 43217 United States, Tel: + 1 (614) 492-7669, Fax: + 1 (614) 492-7679, Prime
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Subcontractor

Rolls-Royce Corp	http://www.rolls-royce.com/northamerica , PO Box 420, 2001 S Tibbs Ave, Indianapolis, IN 46206-0420 United States, Tel: + 1 (317) 230-2000, Fax: + 1 (317) 230-6763 (AE 2100 Turboprop Engine)
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Snow SA-200

Technical Data

(SA-204C)

Design Features. Cantilever high-wing STOL monoplane with semi-monocoque fuselage; cantilever tail section with unswept vertical and horizontal stabilizers. The wing is unswept and designed for slow-speed flight stability and maneuverability. It employs a full-span flap system. The trailing-beam landing gear will allow landings at near maximum gross weight at sink rates of more than 14 feet/second. The aircraft utilizes oversized anti-skid brakes together with high flotation tires. The fuselage is similar in design to the de Havilland DHC-5 Buffalo, with high slab-sides and a rear loading ramp/cargo door that can accommodate commercial and military cargo containers.

The aircraft's wing has an inboard section straight leading edge and outboard swept leading edge with swept wing extensions. The trailing edge is straight along its full span, except for the wing extensions. Horizontal and vertical stabilizers were changed from an earlier SA-204C design. The vertical tail is slightly taller, while the horizontal tailplane was moved from the vertical fin to the aft fuselage just below the fin. Nose section changes include redefined non-contoured windcreens. The main landing gear was changed from two-strut to single-strut units.

	<u>Metric</u>	<u>U.S.</u>
Dimensions (External)		
Wingspan	34.14 m	112.0 ft
Overall length	27.33 m	89.67 ft
Tailplane span	13.21 m	43.33 ft
Dimensions (Internal)		
Cargo compartment		
Floor length	12.98 m	42.58 ft
Floor width	2.54 m	8.33 ft
Max height	2.58 m	8.46 ft
Weight		
Max T-O weight (est.)	29,620 kg	65,300 lb
Empty operating weight	14,858 kg	32,755 lb
Max fuel load standard	7,546 kg	16,635 lb
Max payload	11,340 kg	25,000 lb
Performance		
Max cruise speed (est.) at 3,050 m (10,000 ft)	482 kmph	260 kt
Max range		
with 15,910-lb payload(a)	3,339 km	1,800 nm
fully-loaded(b)	1,317 km	710 nm
Propulsion		
SA-204C/210TA	(2)	Rolls-Royce AE 2100 turboprop engines flat-rated to 3,132 kW (4,200 shp) each and driving Dowty/Hamilton Sundstrand six-bladed propellers.

Seating

Side-by-side seating for pilot and copilot; third seat for observer.

(a)With no fuel reserve.

(b)At 222-knot cruise speed and 10,000-foot altitude, with 45-minute fuel reserve.

Variants/Upgrades

SA-204C. Commercial freighter. The aircraft's cargo hold has been increased in all three dimensions from an earlier design and is designed to support cargo locks placed every inch along the cargo hold length. The compartment can carry a variety of airline freight containers, including a number compatible with wide-body aircraft. Containers that can be carried by the SA-204C include BB, LD-1, LD-2, LD-3, LD-7, LD-11, M-1, M-2, M-3, Type A, and Type B containers. Single pallet load limit is set at 4,672 kilograms (10,300 lb). The SA-204C is capable of carrying 64 passengers, with the seats fitted on pallets for fast removal.

The engine selected for the aircraft has changed several times. Snow started with the Pratt & Whitney Canada PW120. Subsequently, the aircraft's powerplant was, at various times, the PW123, the PW126A, and the PW127. In late 1992, Snow switched to Allison (since acquired by Rolls-Royce) and that company's AE 2100 turboprop (formerly called the GMA 2100).

SA-210TA STOL-C/AT. Short takeoff and landing cargo/assault transport. The SA-210TA is a dedicated military airlifter featuring a stronger airframe for tactical airlift missions. Maximum payload is 10,886 kilograms (24,000 lb), slightly less than that of the civil variant. The cargo compartment has 33 square meters (355 sq ft) of floor space. The aircraft can be configured for four 463L military pallets (88 in x 108 in) with some 12.4 cubic meters (439 cu ft) aft of the pallet load. Other configurations can accommodate 61 combat-equipped troops of 136 kilograms (300 lb) each, 38 paratroops, or 40 litters and seven medic seats. The SA-210TA has also been designed to accommodate a single M102 105mm towed howitzer and one HMMWV with a seven-person crew, two HMMWVs, or two Pratt & Whitney F100 or GE F110 engines on mobility trailers. The variant can also accommodate 96 inch x 125 inch, 88 inch x 108 inch, and 88 inch x 54 inch commercial pallets.

Program Review

Background. Former U.S. Air Force pilot Harry Snow founded Snow Aviation International of Columbus, Ohio, in 1988 as an outgrowth of his Hawaii-based firm that had a similar name. The Hawaii company had brokered the purchase, overhaul, certification, and resale of aircraft, parts, and equipment from 1981 to 1984. In 1985, Snow started a company (Snow Aviation Inc) in Van Nuys, California, that specialized in engineering of aircraft systems, including a DC-8 hushkit. Snow later assembled a team of aerospace experts formerly employed by Douglas Aircraft. This group became the nucleus of another company, Snow & Associates Inc, which performed assorted engineering activities while pursuing a new aircraft project.

Birth of STOL SA-210TA. In 1986, Snow and his by-then expanded group of engineers began the design of a versatile, low-cost tactical transport that would replace such luminaries as the Douglas DC-4 and DC-7, the Fairchild C-123 Provider, and other aging piston-powered aircraft. In 1988, he founded the present, Ohio-based Snow Aviation International. Snow and his associates initially estimated the market for their cargo/tactical assault military type transport and its civilian cargo version at 325 aircraft over a five-year period.

Over the first four years of the SA-200 program, Snow Aviation International heavily solicited potential

customers and made major design changes to the aircraft based on their input.

Snow enlarged the fuselage of the SA-200 from that of the original design in order to permit the aircraft to accommodate large containers normally carried by widebody transports. The cockpit was redesigned to accommodate smaller pilots, such as female commercial aviators. The cockpit reconfiguration required the nose section of the aircraft to be lengthened by approximately eight inches. By mid-1990, Snow was planning to market the aircraft with the Pratt & Whitney Canada PW126A, rated at 2,652 shp, as the standard powerplant. The PW130, rated at 3,252 shp, would be available as an option to those customers requiring additional power for high-altitude, hot-day conditions.

Further design changes were made in both 1991 and 1992. In 1992, Snow switched the aircraft powerplant from the PW126A to the AE 2100 (then known as the GMA 2100). In addition, Snow added 10 feet to the wingspan of the aircraft.

Program Schedule Changes

First flight of the initial SA-200 prototype had been anticipated to occur in late 1989. However, by May 1989, the schedule for first flight had been changed to November 1990. The schedule subsequently slipped, though, and the first flight of the prototype was

Snow SA-200

tentatively rescheduled for late 1991. To date, however, first flight has apparently not occurred.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1986	SA-210TA designed
	1988	Snow Aviation International Inc founded
Jan	1989	Snow unveils plans for SA-210TA
	1992	AE 2100 selected as aircraft powerplant

Forecast Rationale

Snow Aviation International is currently involved in a number of aerospace projects, including upgrade programs for the Lockheed Martin C-130 and the Cessna T-37. Snow completed the conceptual plan and preliminary engineering for the SA-200 aircraft series in 1992. Due to the unstable environment in the aerospace industry in the early 1990s, Snow decided to pursue development of the SA-200 series in incremental phases. Ultimately, the series may never enter production, although technology from the program could find its way into other Snow projects.

SA-204C Would Face Several Competitors

In the event that the series does enter production, though, the commercial SA-204C variant could be useful for commercial freight carriers and small package express firms, such as FedEx Express and UPS.

However, the aircraft would face a number of competitors, one of which would be the ATR 42 freighter. FedEx Express currently has 29 ATR 42s, and plans to eventually expand its ATR 42 fleet to approximately 100 aircraft.

ATR sells new-production ATR 42 freighters and also markets cargo conversions of existing ATR 42 passenger aircraft. A number of other companies, such as the French firm Aeroconseil, have rival ATR 42 cargo conversions on the market.

Other competitors to the SA-204C would include freighter versions of the Saab 340 and BAE ATP turboprops. Though both aircraft are no longer in production, Saab and Field Aviation have developed a cargo conversion for the 340 and BAE Systems is marketing freighter conversions of the ATP.

Ten-Year Outlook

No forecast.

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