

Type Certificate Data Sheet

No.42

This data sheet, which is a part of Type Certificate No. 42, prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Japan Civil Aeronautics Law and Regulations.

Type Certificate Holder Saab AB, Aeronautics
SE-581 88 Linköping
Sweden

Type Certificate Holder Record Name changed from Saab Aircraft AB
on December 16, 2011.

Model SAAB 2000, approved November 24, 1998 (Airplane, Transport Category)

General Description A low wing, twin-engine turboprop aircraft equipped to carry up to 53 passengers and cargo in a pressurized cabin and intended for short to medium haul routes.

With reference to mod 5949, see Note 3.

Dimensions

Span	24.8m	(81ft 3in)
Length	27.3m	(89ft 6in)
Height	7.7m	(25ft 4in)
Wing area	55.7m ²	(600ft ²)

Engines 2 Engines – Rolls-Royce (Allison), Model AE2100A (see Note 1), free turbine engine.
Engine TCDS FAA No. TE1CH and EASA.IM.E.040.

Power turbine/propeller reduction gearing 13.98:1.

Auxiliary Power Unit (APU) Hamilton Sundstrand, Model T-62T-46C7 (APS 1000).
Limitations are stated in T-62T-46C7 Model Specification Sundstrand Doc. No. ESR0687.

Fuel Jet A, Jet A-1 (ASTM D-1655), JP 5 (MIL-T-5624), JP-8 as listed in the latest revision of Rolls-Royce Installation Design Manual No. CSP34006 for the AE2100A installation and Commonwealth of Independent States (CIS) fuels TS-1 and RT (GOST 10227) according to Allison Service Letter AE2100A SL-011.

In addition, all aviation gas turbine fuels conforming to the latest revision of GE Jet Fuel Specification No. D50TF2 for the GE CT7 engine installation are approved.

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Engine Limits The maximum continuous, take-off Normal, and take-off Maximum static sea level ratings as ISA for AE2100A.

	Shaft Power		Jet Thrust		Power Units
		(kW)	(SHP)	(N)	(lbf)
Take-off Normal	2788	3738	3025	680	100
Take-off Max.	3097	4152	3305	743	111
Max cont.	2788	3738	3025	680	100

Propellers and Propeller limits 2 Propellers – Dowty Aerospace Propellers, Model (c) R381/6-123-F/5.
Blades: 6
Diameter 3.81m (12ft 6in)
Propeller TCDS CAA No. 114

<u>Airspeed Limits (IAS)</u>	V _{MO}	Max Operating	Sea level	250kts
			9000ft	252kts
			11000ft	273kts
			21400ft	277kts
			31000ft	226kts
			Straight line variations between points	
	V _A	Design Maneuvering		205kts
	V _{RA}	Max Rough Air Penetration		205kts
	V _{FE}	Flaps Extended,	Flaps 7°	190kts
			Flaps 15°	185kts
			Flaps 20°	180kts
			Flaps 35°	165kts
	V _{LE}	Landing Gear Extended		220kts
	V _{LGR}	Landing Gear Retraction		175kts
	V _{LGE}	Landing Gear Extension		220kts
	V _{LGEE}	Landing Gear Emergency Extension		220kts (max) 150kts (min)

For other airspeed limits, see the appropriate JCAB approved Airplane Flight Manual.

CG Range See the appropriate JCAB approved Flight Manual.

<u>Maximum Weights</u>	Without mod 5949		With mod 5949	
Taxi	23200kg	51140lbs	23000kg	50700lbs
Take-off	22999kg	50700lbs	22800kg	50260lbs
Landing	22000kg	48500lbs	22000kg	48500lbs
Zero Fuel	20000kg	44090lbs	19210kg	42350lbs

Crew/Passengers/Baggage Minimum Crew 2 (Pilot and co-pilot)
Maximum occupants 4 crew, 1 observer and 53 passengers (See Note 2)
Maximum baggage 1200kg (2645lbs) in rear cargo compartment. See the appropriate Weight and Balance Manual.

Wheels and Tyres Main wheel tyres: A32 x 8.8-16
Nose wheel tyres: A18 x 5.5-8

<u>Fuel Capacities</u> <u>(Usable fuel)</u>	Location	Volume		Weight	
		litre	U.S.Gal	kg	lb
	Without mod 5949				
	Left wing	2650	700	2125	4685
	Right wing	2650	700	2125	4685
	Total usable	5300	1400	4250	9370
	With mod 5949				
	Left wing	3067	810.5	2460	5423
	Right wing	3067	810.5	2460	5423
	Center	599	158	480	1058
	Total usable	6733	1779	5400	11904

Fuel weight based upon fuel density 0.802 kg/l (6.69 lb/U.S.Gal).

Pressure fueling.

Max pressure for pressure fueling is 350 kPa (50psi).

Maximum Operating Altitude 9,450m (31,000 ft) pressure altitude

Altitude

All Weather Capability Cat III

Mean Aerodynamic Chord (MAC) 2.41 m

Leveling Means See Weight and Balance Manual

Exits

	No.	Type	Size m (inches)
Passenger door	1	Type I	0.68x 1.62m (27x 63 in)
Service/emergency door	1	Type II	0.61x 1.22m (24x 48 in)
Emergency exits	2	Type III	0.51x 0.91m (20x 36 in)
Crew hatch	1	-	0.48x 0.50m (19x 19.7 in)

Serial Numbers Eligible SAAB 2000-051 and -054

Import Requirements For each newly manufactured aircraft to be delivered to Japan, EASA will issue, when required, an EASA declaration of compliance for Export (so called Export Certificate of Airworthiness), based on the individual EASA Form 52 issued in accordance with the POA granted by the National Authority or by EASA, under Commission Regulation (EC) No. 1702/2003, stating the following:
 “The aircraft covered by this certificate has been examined, tested and found to conform to the type design approved under JCAB Type Certificate No. 42 and to be in condition for safe operation.”

Certification Basis Airworthiness standard

Civil Aeronautics Regulations Annex 1

JAR 25 at Change 13 (equivalent to Part III of the TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Standards) dated February 26, 1991 and Part 25 of the Federal Aviation Regulations Amendment 25-1 through 25-71) including JAR 25.1419 Ice Protection and JAR 25.801 Ditching and Excluding JAR 25.562 (c) (5) for front row seats. (See Note 4 and 5)

Equivalent safety

- Stall and stall warning speeds and maneuver capability (1g-stall), see CRI B08.
- Fire protection of engine and APU mounts, see CRI D05.
- Emergency lights “not armed” warning, see CRI D07.
- APU instruments, see CRI J02.
- Aisle width, see CRI D12 (Flight inspection configuration; S/N 051 and 054)
- Improved Flammability Standards for Thermal Acoustic Insulation Materials used in Large Aeroplanes, see CRI D13.

Special Conditions

Special Conditions related to novel or unusual design features or unconventional usage:

- Rudder limiter – Interaction of systems and structure, see CRI C12.
- PECS Interaction of systems and structure, see CRI C13.
- PECS Control signal integrity, see CRI D08.
- PECS Emergency Pitch Trim System, see CRI D10.

Special Conditions related to general experience:

- Propeller position in V_{MC} demonstrations, see CRI B07.
- Tuned gust, see CRI C02.
- Improved seat safety standard, see CRI C07.
- Factors for engine torque, see CRI C08.
- Rapid decompression, see CRI C09.
- Lightning protection – Indirect effects, see CRI D01.
- Cargo and service doors, see CRI D04.
- Propeller reversing system, see CRI E08.
- Operation without normal electrical power, see CRI F03.
- Miscellaneous electrical requirements, see CRI F04.
- Effect of external radiation upon aircraft systems, see CRI F05.
- Function and reliability testing, see CRI F09.
- Enhanced Airworthiness Programme for Airplane Systems – ICA on EWIS, see CRI H01

Special Conditions elected by manufacturer:

- Stalling speeds, see CRI B09.
- Stalls, Critical Engine inoperative, see CRI B12.
- Steep Approach Operation, see CRI B15.
- Stalling speeds for structural design, see CRI C06.
- Landing gear warning, see CRI D02.
- Head-up Guidance System, see CRI F11.

Certification Basis
(continued)

Acceptable means of compliance and interpretations as well as Advisory material associated with or additional to the EASA Certification Basis:

- Controllability and maneuverability, stick forces, see CRI B01.
- Stick pusher, see CRI B02.
- Flight in Icing Conditions, see CRI B03.
- Reduced and derated take-off thrust procedure, CRI B04.
- Temperature extrapolation limitations in take-off and climb, CRI B05.
- Minimum Control Speed, CRI B06.
- Take-off run on wet and contaminated runways, CRI B13.
- Take-off and Landing in Tailwind greater than 10 knots, CRI B16.
- Performance Credit for alternative forward center of gravity limits, CRI B17.
- Electrical bonding and protection against lightning and static electricity (direct effects), CRI C05.
- Fuel tank crashworthiness, CRI C10.
- Aeroplane wheel and wheel-brake assemblies, CRI D03.
- PECS Applicability of ACJ25.1329, see CRI D09.
- Automatic Flap Retraction System, see CRI D11 (with mod 5786).
- Head-up Guidance System, CAT III, One Engine Out Landing, see CRI F12.
- APU rotor non containment, see CRI J01

Japan Special Requirements

- Continued Safe Flight and Landing after Failure of AFT Bulkhead

Japan Additional Special Requirements

- Cabin Ozone Concentration
- Bird Strike Damage

Civil Aeronautics Regulations Annex 2 Chapter 2 (equivalent to ICAO Annex 16 Volume 1 Chapter 3) for Noise Requirements

Civil Aeronautics Regulations Annex 3 (equivalent to ICAO Annex 16 Volume 2) for Fuel Venting and Exhaust Emissions Requirements

Continued Airworthiness and Safety Improvements for Transport Category Airplanes

- TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Inspection Manual (AIM)) Part III-2 Chapter 2 “Enhanced Airworthiness Program for Airplane Systems” and Part III-3 “Fuel Tank System Airplanes Fault Tolerance Evaluation Requirements” dated March 4, 2015 (equivalent to Part 26 of the Federal Aviation Regulations Subpart B §26.11 Amendment 26-0, and SFAR-88 dated December 9, 2002) are included in the certification basis.

Type Design
Definition

- The SAAB 2000 is defined in the Type Specification Doc. No. 73VPS0010.
- Drawings are defined in the Saab AB Systems List, Doc. No. 7300-0.
- Type Record, 73CCS0426.

Equipment

- Equipment is listed in the SAAB 2000 Master Equipment Register (MER), Doc. No. 73PDS0039.

- Operating Manuals
- JCAB approved SAAB 2000 Airplane Flight Manual (AFM)
 - Master Minimum Equipment List (MMEL), Doc. No. 73LKS0044.
 - Weight and Balance Manual (WBM), Doc. No. 73LKS0034.
 - Aircraft Operations Manual (AOM), Doc. No. 73LKS0041, without mod 5949.
 - Aircraft Operations Manual (AOM), Doc. No. 73LKS0505, with mod 5949.

Mandatory Maintenance Instructions

Life limited parts (Airworthiness Limitations) and Certification Maintenance Requirements are listed in the SAAB 2000 MRB report, Doc. No. 73LKS0035.

Other Service Information

TAIKUSEI-KAIZEN-TSUHO (Airworthiness Directives) are published by JCAB.

Service Bulletins are published by Saab AB.

Available service documents:

- Structural Repair Manual (SRM), Doc. No. 73LKS0033
- Maintenance Review Board Report (MRB), Doc. No. 73LKS0035
- Aircraft Maintenance Manual (AMM), Doc. No. 73LKS0030
- Wiring Diagram Manual, Doc. No. 73LKS0032
- System Schematics Manual, Doc. No. 73LKS0287
- Illustrated Parts Catalogue, Doc. No. 73LKS0031
- Certification Maintenance requirement based on System Safety Assessment, Doc. No. 73DSS0106

Note 1. Engine Model AE2100A is same as Model GMA2100A.

Note 2. An interior layout for 53 passengers requires mod 5407 to be installed.

Note 3. An aircraft with mod 5949 is an aircraft with increased fuel capacity. Maximum weights are reduced.

Note 4. Ditching requires mod nos. 5352, 5540 and 6054 to be installed.

Note 5. Ditching provision (i.e. excluding life rafts) requires mod nos. 5342, 5352 and 5540 to be installed.

Note J1. This Type Certificate Data Sheet (TCDS) is based on EASA TCDS No.EASA.A.069 Issue 09 dated December 16, 2011.

Note J2. Dates of application for LFV and JCAB Type Certification for Model SAAB2000 are as follows.

Model SAAB2000	EASA TC No.EASA.A.069	JCAB No.42
	April 28, 1989	October 1, 1997

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