



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET Nº ER-2009T08

Type Certificate Holder:

SIKORSKY AIRCRAFT CORPORATION
 6900 MAIN STREET
 STRATFORD, CT 06615-9129
USA

ER-2009T08-01

Sheet 01

SIKORSKY

S-92A

23 June 2009

This data sheet, which is part of Type Certificate No. 2009T08, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meets the airworthiness requirements of the Brazilian Aeronautical Regulations.

I - Model S-92A (Transport Category A and B Rotorcraft), approved on 05 June 2009.

ENGINE 2 General Electric Company Model GE CT7-8 (TCDS EM-2009T07) or
 2 General Electric Company Model GE CT7-8A (TCDS EM-2009T07)

FUEL JET A, JET B, JET A-1, JP-4, JP-5, JP-8
 For all operations below -20°C (-4°F) ambient temperature, all fuel used must contain MIL-D-27686 or equivalent anti-icing additive.

ENGINE AND TRANSMISSIONS APPROVED OILS See Rotorcraft Flight Manual for list of approved oils.

HYDRAULIC FLUID MIL-PRF-87257 is authorized for use at all approved ambient temperatures. MIL-PRF-83282 may only be used at ambient temperatures above -32°C (-25°F).

DEICING FLUID Kilfrost DF PLUS (88)

ENGINE AND TRANSMISSION LIMITS

CT7-8 ENGINE

DUAL ENGINE LIMITS							
Rating	Time	Q (%)	T4.5 (°c)	Ng (%)	Np (%)	Rated SHP @ SLS	Rated Np (%)
Max continuous		100 [1]	920	99.9	106	2043	105
		86 [2] when airspeed is greater than 100 KIAS					
30 Min [3]	30 min	100 [1]	957	101.5	106	2336	105
Takeoff	5 min	100 [1]	986 [1]	102.9 [1]	106	2520	105
Transient	12 sec		987	103.2	116		
	10 sec	120 [4]					

SINGLE ENGINE LIMITS							
Rating	Time	Q (%)	T4.5 (°c)	Ng (%)	Np (%)	Rated SHP @ SLS	Rated Np (%)
Max continuous		120 [1]	920	99.9	106	2043	105
OEI	30 min	120 [1]	979 [1]	102.4	106	2498	100
OEI	2 min	120 [1]	990 [1]	102.9	106	2520	100
OEI	30 sec	135 [1]	1010 [1]	103.7 [1]	106	2600	100
Transient	5 sec	156 [4]					
Max starting	peak		1000 [1]				

- Q (%) values are gearbox limits.
- 100% Q corresponds to a combined power input from both engines to the MGB of 4170 shp at a rotor speed of 105% (258 rpm). Power turbine speed (Np) of 105% corresponds to 21945 rpm.
- Maximum continuous dual engine torque may exceed 100% on one engine to a maximum of 110% provided that the torque on the other engine is proportionally less than 100% and the sum of the individual torque values does not exceed 200%.
- Np overspeed trip is at 120%.
- Ng overspeed trip is at 108.5%
- When flying at altitudes greater than 2440 m (8000 ft) at outside air temperatures lower than -20 °C, it is possible to reach the corrected Ng speed limit of the engine. When this occurs, the engine will not produce more power. The only indication that the pilot will see when reaching this limit is that further increase in collective will commensurately droop Nr.

[1] FADEC controlled limiter value.

[2] 86% Q is not a gearbox limit. Its purpose is to limit flight control loads at high speed thereby preserving dynamic component replacement times.

[3] Rating applies to hovering flight only.

[4] Associated with "torque ramp up" due to abnormal rotor droop at FADEC controlled dual or OEI limit.

CT7-8A ENGINE

DUAL ENGINE LIMITS							
Rating	Time	Q (%)	T4.5 (°c)	Ng (%)	Np (%)	Rated SHP @ SLS	Rated Np (%)
Max continuous		100 [1]	935	99.9	106	2043	105
		86 [2] when airspeed is greater than 100 KIAS					
30 Min [3]	30 min	100 [1]	988	101.5	106	2336	105
Takeoff	5 min	100 [1]	995 [1]	102.9 [1]	106	2520	105
Transient	12 sec		1003	103.2	116		
	10 sec	120 [4]					
SINGLE ENGINE LIMITS							
Rating	Time	Q (%)	T4.5 (°c)	Ng (%)	Np (%)	Rated SHP @ SLS	Rated Np (%)
Max continuous		120 [1]	988 [1]	102.4	106	2498	105
OEI	2 min	120 [1]	1006 [1]	102.9	106	2520	100
OEI	30 sec	141 [1]	1049 [1]	103.7 [1]	106	2740	100
Transient	5 sec	156 [4]					
Max starting	peak		1000 [1]				

- Q (%) values are gearbox limits.
- (1) 86% Q is not a gearbox limit. Its purpose is to limit flight control loads at high speed thereby preserving dynamic component replacement times.
- 100% Q corresponds to a combined power input from both engines to the MGB of 4170 shp at a rotor speed of 105% (258 rpm). Power turbine speed (Np) of 105% corresponds to 21945 rpm.
- Maximum continuous dual engine torque may exceed 100% on one engine to a maximum of 110% provided that the torque on the other engine is proportionally less than 100% and the sum of the individual torque values does not exceed 200%.
- Np overspeed trip is at 120%.
- Ng overspeed trip is at 108.5%
- When flying at altitudes greater than 2440 m (8 000ft) at outside air temperatures lower than -20°C, it is possible to reach the corrected Ng speed limit of the engine. When this occurs, the engine will not produce more power. The only indication that the pilot will see when reaching this limit is that further increase in collective will commensurately droop Nr.

[1] FADEC controlled limiter value.

[2] 86% Q is not a gearbox limit. Its purpose is to limit flight control loads at high speed thereby preserving dynamic component replacement times.

[3] Rating applies to hovering flight only.

[4] Associated with "torque ramp up" due to abnormal rotor droop at FADEC controlled dual or OEI limit.

ROTOR SPEED LIMITS	POWER OFF	Maximum	110% Nr
		Minimum	95% Nr
	POWER ON	Maximum	110% Nr
		Minimum	95% Nr

DRIVE SYSTEM LIMITS

DUAL ENGINE

Torque (%)	No Inspect Req'd	Serviceability Check	Remove/Replace MGB
0% to 100%	Continuous		
101% to 120%	< 10 sec	≥ 10 sec	
121% to 140%		< 10 sec	≥ 10 sec
greater than 140%			Any occurrence

SINGLE ENGINE

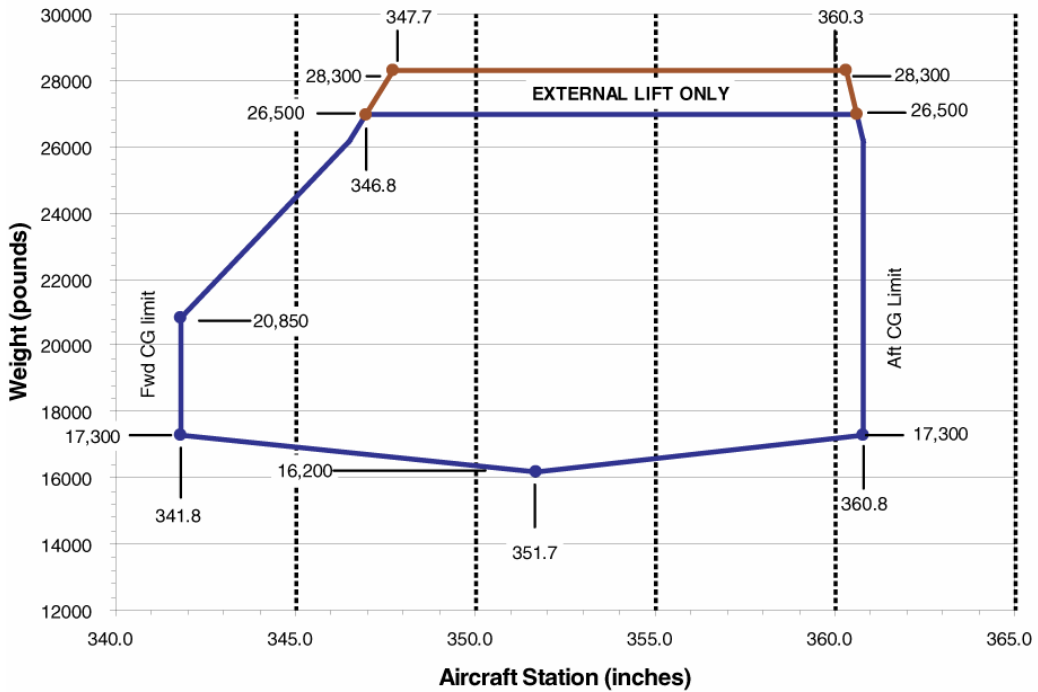
Torque (%)	No Inspect Req'd	Serviceability Check	Remove/Replace MGB
0% to 120%	Continuous		
121% to 140%	< 30 sec	≥ 30 sec	
141% to 156%		< 5 sec	≥ 5 sec
greater than 156%			Any occurrence

AIRSPPEED LIMITS

Vne (never exceed) Power On	165 KIAS. See Rotorcraft Flight Manual for variations of Vne with gross weight and density altitude.
Vle/Vlo (gear extended/gear operating)	165 KIAS/165 KIAS.
Vne with floats "armed"	80 KIAS.
Vne Power Off	120 KIAS.
Vne Hoist Extended	120 KIAS.
Vne Upper Sliding Door Open	120 KIAS.
Vne External Cargo.	120 KIAS.

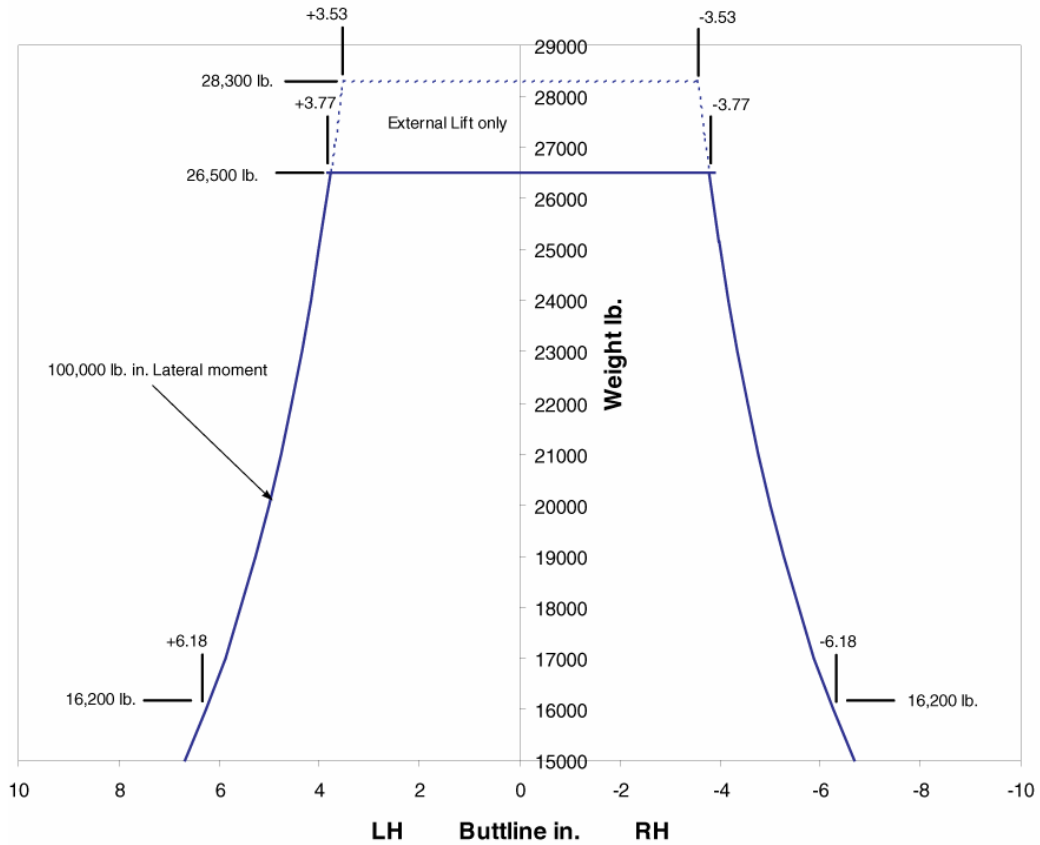
CENTER OF GRAVITY (CG) LIMITS

Weight and Center of Gravity Envelope
Maximum Gross Weight 26,500 Pounds



LATERAL CG LIMITS

S-92 Lateral CG Limits



EMPTY WEIGHT C.G. RANGE	None.
DATUM	8.67 m (341.2 in) forward of the main rotor centroid
LEVELING MEANS	Leveling plate at STA 238.3, BL 40 RH, and plumbline from top of RH forward doorframe
MAXIMUM WEIGHT	12 020 kg (26 500 lb) 12 836 kg (28 300 lb) pounds with external load
MAXIMUM EXTERNAL LOAD	3 628 kg (8 000 lb)
ALTITUDE LIMITS	Takeoff and landing 3 500 m (11 500 ft) density altitude Enroute 4 570 m (15 000 ft) density altitude 3 050 m (10 000 ft) pressure altitude in icing conditions (See Note 11)
AMBIENT TEMPERATURE LIMITS	-40°C to ISA +35°C (see Note 9)
MINIMUM FLIGHT CREW	2 pilots
NUMBER OF SEATS	2 Crew 1 Observer 19 Passenger maximum (see Note 7)
MAXIMUM BAGGAGE	454 kg (1 000 lb)
FUEL CAPACITY	2 892 liters (764 gals) - pressure refuel 2 699 liters (713 gals) - gravity refuel 18.2 liters (4.8 gals) - Unusable at Station 362.5 (See Note 1)
OIL CAPACITY	See General Electric Installation Manual SEI-866
ROTOR BLADE CONTROL MOVEMENTS	For rigging information refer to Maintenance Manual
MANUFACTURER'S SERIAL NUMBERS	920006 and subsequent

DATA IS PERTINENT TO ALL MODELS:

IMPORT ELIGIBILITY	<p>A Brazilian Certificate of Airworthiness may be issued on the basis of a FAA Export Certificate of Airworthiness (or a third country Export Certificate of Airworthiness, in case of used rotorcraft imported from such country), including the following statement:</p> <p>“The rotorcraft covered by this certificate have been examined and found to be in conformity with the Brazilian approved type design as defined by the Brazilian Type Certificate N° 2009T08 and in condition of safe operation”.</p> <p>The ANAC Report H.10-2410-00, dated 01 June 2009 or further revision, contains the Brazilian requirements for the acceptance of this rotorcraft.</p>
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CERTIFICATION BASIS RBHA 21 paragraph 21.29 effective on 18 February 2005, as amended by 21-1 through 21-5.

RBHA 29 corresponding to 14 CFR Part 29, effective on 01 February 1965, Airworthiness Regulation; Amendments 29-1 through 29-47.

RBHA 36 corresponding to 14 CFR Part 36, effective on 01 December 1969, Noise Standards; Amendments 36-1 through 36-20.

FAA Special Conditions as follows:

1. No. 29-011-SC for Dual-Engine 30 Minute Power;
2. No. 29-008-SC for High Intensity Radiated Frequency.

FAA Equivalent Levels of Safety as following:

1. RBHA/14 CFR Part 29.173 Static longitudinal stability (FAA Number TC0309BO-R/F-1);
2. RBHA/14 CFR Part 29.175 Demonstration of static longitudinal stability (FAA Number TC0309BO-R/F-1);
3. RBHA/14 CFR Part 29.177 Static directional stability (FAA Number TC0309BO-R/F-4);
4. RBHA/14 CFR Part 29.1305(a)(24) Power Plant Instruments (FAA Number TC0309BO-R/P-1);
5. RBHA/14 CFR Part 29.1181(a)(4) Designated Fire Zones, Regions Included (FAA Number TC0309BO-R/P-5);

Compliance with the following optional requirements has been established: Ditching provisions FAR 29.563 including 29.801 and 29.807(d) and excluding 29.1411, 29.1415, and 29.1561 when emergency flotation system is installed. For extended over-water operations, compliance with the operating rules and FAR 29.1411, 29.1415, and 29.1561 must be shown.

EQUIPMENT

The basic required equipment as prescribed in the applicable Airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.

In addition, the following item(s) of equipment is (are) required: Rotorcraft Flight Manual as shown in FAA Approved Sikorsky document SA S92A-FMCD-000. This document specifies the applicable flight manual number for each aircraft. The applicable flight manual number is determined by the aircraft configuration. SA S92A-FMCD-000 will be revised as required to add additional rotorcraft flight manual numbers, new revisions, and new aircraft as appropriate.

NOTES:

NOTE 1

Weight and Balance

Current weight and balance report, including list of equipment included in certified empty weight, and loading instructions, when necessary, must be provided for each rotorcraft at the time of original certification. The certificated empty weight and corresponding C.G. locations must include un-drainable oil and unusable fuel.

See Rotorcraft Flight Manual loading section for variations of fuel weight and moment-arm with variations of fuel and fuel quantity.

NOTE 2Markings and Placards

The rotorcraft must be operated in accordance with the appropriate ANAC-approved Rotorcraft Flight Manual as required under "EQUIPMENT". All placards required in the ANAC-approved Rotorcraft Flight Manual must be installed in the rotorcraft. The following placard must be displayed in front of and in clear view of the pilots:

"THIS HELICOPTER MUST BE OPERATED IN ACCORDANCE WITH THE OPERATING LIMITATIONS SPECIFIED IN THE ANAC APPROVED ROTORCRAFT FLIGHT MANUAL."

All placards listed in the approved flight manual must be installed in the specified locations.

In addition, all markings and placards for passenger information under normal or emergency conditions must be in Portuguese (or English and Portuguese). External markings for emergency operation of doors, normal ground operation of cargo doors and servicing operations must be in Portuguese (or bilingual). Marking and placards indicating maximum loads in cargo and baggage compartments must be also presented in Portuguese (or bilingual). A list of these placards for the rotorcraft and the respective translations acceptable to ANAC is provided in the Annex II to the report H.10-2410-00, dated 01 June 2009 or further revision.

NOTE 3Continuous Airworthiness

Service Information, service bulletins, repair manuals, vendor manuals, rotorcraft flight manuals and maintenance manuals, which contain a statement that the document is FAA approved, are accepted by the ANAC and are considered ANAC approved. These approvals pertain to the type design only.

Any alteration to the type design of this rotorcraft may require instructions for Continued Airworthiness. These instructions must be submitted and accepted by the ANAC prior to approval for return to service.

Information essential to the proper maintenance of the rotorcraft is contained in the Sikorsky S-92A Maintenance Manual, SA S92A-AMM-000 and in the Airworthiness Limitations and Inspection Requirements Manual, SA S92A-AWL-000. The values of retirement (service) life are contained in Chapter 4 of the Airworthiness Limitations and Inspection Requirements Manual, SA S92A-AWL-000. The values of retirement (service) life cannot be changed without FAA Engineering approval. Both manuals are provided with each helicopter.

NOTE 4

The differences of the Brazilian helicopters relating to the basic FAA type design are summarized in the following documents:

1. The Brazilian Helicopters Flight Manual approved by FAA on behalf of ANAC;
2. Marking and Placards in Portuguese language or bilingual (see Note 2).

NOTE 5

The term "Unlimited Life" is defined as 30000 flight hours for the Model S-92A rotorcraft. Operation of individual aircraft beyond 30000 flight hours is contingent upon a Life Extension Program approved by FAA Engineering.

- NOTE 6** The model S-92A rotorcraft employs electronic engine controls that are recognized to be more susceptible to Electromagnetic Interference (EMI) than manual (non-electronic) controls used on other rotorcraft. EMI may be the result of radiated or conducted interference. For this reason, modifications that add or change systems that have the potential for EMI, must either be qualified to an ANAC/FAA acceptable standard or tested at the time of installation for interference to the engine controls. This type of testing must employ the particular engine control's diagnostic techniques and external diagnostic techniques. This testing must be accomplished in accordance with an FAA Engineering approved alternate test plan.
- NOTE 7** Seating arrangements for 19 passengers maximum have been approved by the ANAC. With these seating arrangements, seats located along the aisle way shall not have armrests installed on the aisle way side of any aisle seat unless the aisle way seat armrest incorporates an armrest hold down feature. Installation of the Observer Seat and/or Passenger Seat located on the forward starboard bulkhead is prohibited with the installation of the Lower Search/Rescue Door. Occupancy of the Passenger Seat located on the forward starboard bulkhead is prohibited if Observer Seat is installed. Carriage of passengers is prohibited with the installation of the Lower Search/Rescue Door. These seating arrangements are shown in the Loading Information section of the ANAC approved Rotorcraft Flight Manual. Additional optional seating arrangements or related passenger provisions may be approved in accordance with the Type Certificate Basis.
- NOTE 8** Reserved.
- NOTE 9** Preheat must be used for cold soak starts when the OAT is -13°F (-25°C) or below. See Rotorcraft Flight Manual for Cold Weather Procedures.
- NOTE 10** External lift operations limited to 4 lifts per hour.
- NOTE 11** For flight in icing conditions, aircraft must be equipped with Rotorcraft Ice Protection System (RIPS) and Rotorcraft Flight Manual as shown in FAA Approved Sikorsky document SA S92A-FMCD-000, Revision 5 and subsequent. For flight into icing conditions, RIPS must be turned on. RIPS equipped aircraft are not approved for flight in icing conditions above 10000 ft pressure altitude, or for flight in freezing rain, freezing drizzle or Supercooled Large Drop (SLD) icing conditions.



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