AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET Nº ER-9003

Type Certificate Holder:

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ER-9003-05
Sheet 01

AGUSTA

A109A, A109AII,
A109C, A109E
A119, A109S
AW119MKII

27 September 2010

This data sheet, which is part of Type Certificate No. 9003, 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 A109A (Normal Category), approved 16 July 1990.

ENGINE

Two Rolls-Royce Corporation Model 250-C20B turboshaft engines.
Bendix gas producer fuel control DP-N2.
Bendix power turbine governor AL-AA1.
(see TCDS n° EM-8212)

FUEL

For all temperatures:
MIL-T-5624 grade JP-4
ASTM D-1655 Jet B
For temperatures above -18 ^{o}C (0 ^{o}F):
MIL-T-5624 grade JP-5;
ASTM D-1655 Jet A; and
ASTM D-1655 Jet A1.
(See Note 3)

ENGINE LIMITS

All Engine Operation

Takeoff (5 min):

Torque:	113% (410 N.m)
Shaft horse power:	346 hp
Output shaft speed (N2):	95-100% (5 715-6 016 rpm)
Gas producer speed (N1):	105% (53 518 rpm)
Gas temperature:	810^{o}C (1 490^{o}F)

Maximum Continuous

Torque:	113% (410 N.m)
Shaft horse power:	346 hp
Output shaft speed (N2):	95-100% (5 715-6 016 rpm)
Gas producer speed (N1):	105% (535l8 rpm)
Gas temperature:	738^{o}C (1 360^{o}F)

ENGINE LIMITS (Cont.)

Single-Engine Operation (emergency)

Takeoff (5 min):

Torque:	131% (475 N.m.)
Shaft horse power:	400 hp
Output shaft speed (N2):	95-100% (5715-6016 rpm)
Gas producer speed (N1):	105% (535l8 rpm)
Gas temperature:	810 oC (1490 oF)

Maximum Continuous:

Torque:	126% (456 N.m)
Shaft horse power:	385 hp
Output shaft speed (N2):	95-100% (5715-6016 rpm)
Gas producer speed (N1):	105% (53518 rpm)
Gas temperature:	810 oC (1490 oF)

(See RFM for rpm and temperature transient limits)

ROTOR LIMITS

Power off:	
Maximum	110% (424 rpm)
Minimum	90% (346 rpm)
Power on:	
Maximum	100% (385 rpm)
Minimum	95% (365 rpm)

ROTOR SPEED WARNING

Low Speed	95% (365 rpm)
High Speed	105% (404 rpm)

AIRSPEED LIMITS (IAS)

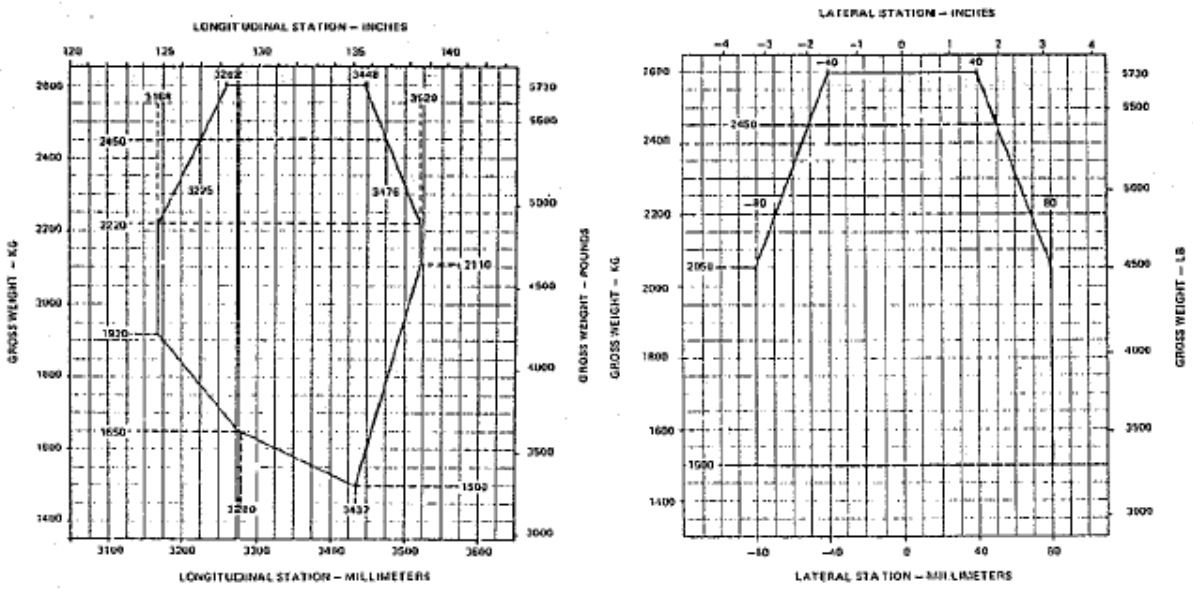
Never exceed speed (V_{NE}): (See note 4)	293 km/h (158 kt)
Maximum gear operating speed (V_{LO}):	222 km/h (120 kt)
Maximum gear extended speed (V_{LE}):	222 km/h (120 kt)
Maximum forward touchdown speed:	74 km/h (40 kt)

For reduction of V_{NE} with altitude and OAT, see the RFM.

C. G. RANGE (Gear Down)

Longitudinal Limits Lateral Limits

(Gear retraction moment is 4 kgm (347 lb.in) moving CG forward)



MAXIMUM WEIGHT

2 600 Kg (5 732 lb). See Note 4.

MINIMUM CREW

One pilot at Sta. 1 630 mm (64 in) to 1 695 mm (67 in). See Note 5.

MAXIMUM PASSENGER

7, for rotorcraft conforming to Agusta Report: 109-06-02:
1 at Sta. from 1630 mm (64 in) to 1695 mm (67 in)
3 at Sta. 2485 mm (98 in)
3 at Sta. 3265 mm (129 in)

0, for aircraft in "green" delivery configuration in accordance with Agusta Report 109-06-07.

MAXIMUM BAGGAGE

150 kg (330 lb) at Sta. 4 920 mm (194 in).

Maximum floor loading for baggage compartment:
500 kg/m^2 (102 lb/ft^2).

Maximum load per tie-down fitting:
91 kg (200 lb).

FUEL CAPACITY

Total: 559 liters (148 US gal), in two tanks of 279.5 liters (74.2 US gal) each, at Sta. 3650 mm (144.0 in).

Usable: 550 liters (146 US gal).

See Note 1 for unusable fuel.

OIL CAPACITY

Engines: 7.7 liters (2 US gal) each engine, at Sta. 3053 mm (120 in).

Transmission: 12 liters (3.2 US gal) at Sta. 3 460 mm (136 in)

See Note 1 for undrainable oil.

ALTITUDE LIMITS

2 432 m (8 000 ft) (See Note 4)

ROTOR BLADE AND CONTROL MOVEMENTS

For rigging information refer to the model A109A Maintenance Manual.

II - <u>Model A109AII (Normal Category)</u>, approved 16 July 1990.

ENGINE

Two Rolls-Royce Corporation Model 250-C20B or 250-C20R/1 turboshaft engines.
Bendix gas producer fuel control DP-N2.
Bendix power turbine governor AL-AA1.
(see TCDS n° EM-8212)

FUEL

For all temperatures:
MIL-T-5624 grade JP-4
ASTM D-1655 Jet B

For temperatures above –18 °C (0 °F):
MIL-T-5624 grade JP-5
ASTM D-1655 Jet A
ASTM D-1655 Jet A1
(See Note 3)

ENGINE LIMITS

All Engine Operation

Takeoff (5 min)

Torque	121% (438 N.m) (-C20B engine)
Torque	97% (438 M.m)(-C20R/1 engine)
Shaft horse power	370 hp
Output shaft speed (N2)	95-100% (5 715-6 016 rpm)
Gas producer speed (N1)	105% (53 518 rpm)
Gas temperature	810 ^{O}C (1 490 ^{O}F)

Maximum Continuous

Torque	121% (438 N.m) (-C20B engine)
Torque	97 % (438 M.m) (-C20R/1 engine)
Shaft horse power	370 hp
Output shaft speed (N2)	95-100% (5715-6016 rpm)
Gas producer speed (N1)	105% (535l8 rpm)
Gas temperature	738^{O}C (1360 ^{O}F) (-C20B engine)
Gas temperature	752^{O}C (1385 ^{O}F)(-C20R/1 engine)

Single-engine operation (emergency)

Torque	137% (475 N.m.) (-C20B engine)
Torque	137% (475 N.m.) (-C20B engine)
Shaft horse power	420 hp
Output shaft speed (N2)	95-100% (5 715-6 016 rpm)
Gas producer speed (N1)	105% (53 5l8 rpm)
Gas temperature	810^{O}C (1 490 ^{O}F)

See RFM for rpm and temperature transient limits.

ROTOR LIMITS

Power off:

Maximum	110% (424 rpm)
Minimum	90% (346 rpm)

Power on:

Maximum	100% (385 rpm)
Minimum	95% (365 rpm)

ROTOR SPEED WARNING

Low Speed	95% (365 rpm)
High Speed	105% (404 rpm)

AIRSPEED LIMITS (IAS)

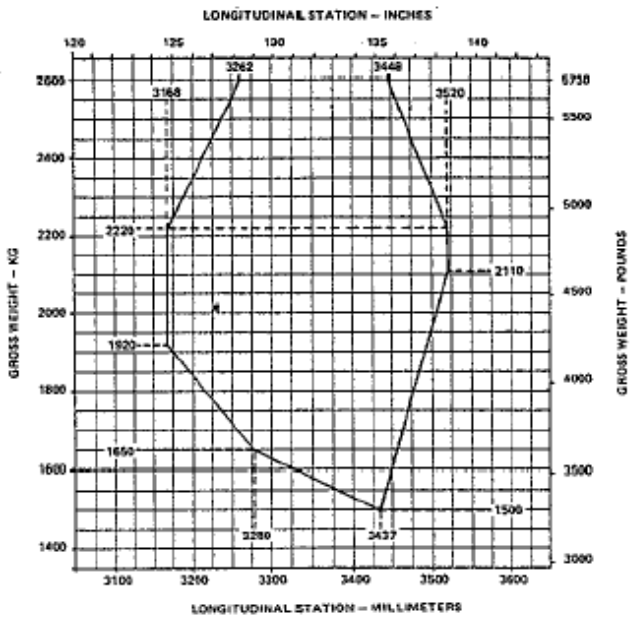
Never exceed speed (V_{NE})	311 km/h (168 kt)
Maximum gear operating speed (V_{LO})	222 km/h (120 kt)
Maximum gear extended speed (V_{LE})	222 km/h (120 kt)
Maximum forward touchdown speed	74 km/h (40 kt)

For reduction of V_{NE} with altitude and OAT, see the RFM.

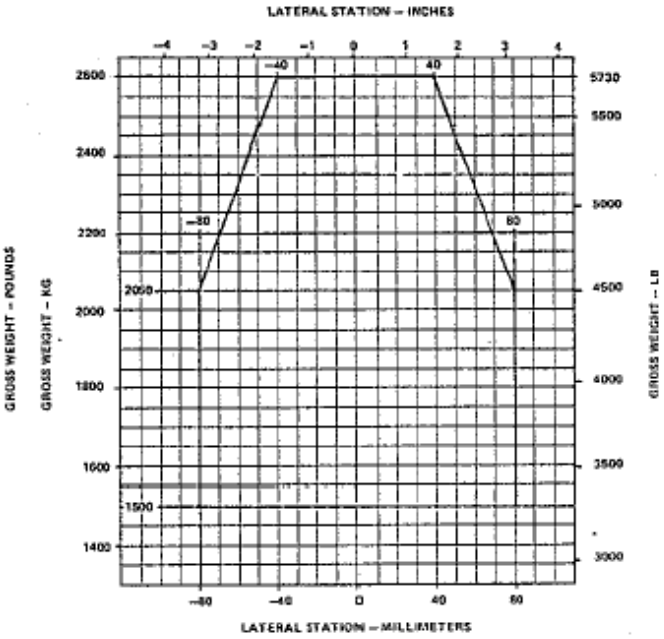
CG RANGE (Gear Down)

Longitudinal Limits

(Gear retraction moment is 4 kgm (347 lb.in) moving CG forward)



Lateral Limits



MAXIMUM WEIGHT

2 600 kg (5 732 lb)

MINIMUM CREW

One pilot as Sta. 1 565mm (62 in) to 1 630 mm (64 in)

MAXIMUM PASSENGER

7, for rotorcraft conforming to Agusta Report: 109-06-02:
- 1 at Sta. from 1565 mm(62 in) to 1630 mm (64 in);
- 3 at Sta. 2 420 mm (95 in) facing forward or 3 at Sta 2 455 mm (97 in) facing aft.; and
- 3 at Sta. 3 265 mm (129 in).

0, for aircraft in “green” delivery configuration in accordance with Agusta Report 109-06-07.

MAXIMUM BAGGAGE

150 kg (330 lb) at Sta. 4 920 mm (194 in)
Maximum floor loading for baggage compartment:
500 kg/m^2 (102 lb/ft^2)
Maximum load per tie-down fitting:
91 kg (200 lb)

FUEL CAPACITY

Total: 559 liters (148.4 US gal), in two tanks of 279.5 liters (74.2 US gal) each, at Sta. 3 652 mm (144.0 in).
Usable: 550 liters (146 US gal).
(See Note 1 for unusable fuel.)
(See Note 9 for fuel capacity with auxiliary fuel tank installation.)

OIL CAPACITY

Engines: 7.7 liters (2 US gal) each engine, at Sta. 3 053 mm (120 in).
Transmission: 12 liters (3.2 US gal) at Sta. 3 460 mm (136 in).
(See Note 1 for undrainable oil.)

ALTITUDE LIMITS

4 560 m (15 000 ft)

ROTOR BLADE AND CONTROL MOVEMENTS

For rigging information refer to the model A109AII Maintenance Manual.

III - Model A109C (Normal Category), approved 12 July 1995.

ENGINES

Two (2) Rolls-Royce Corporation Model 250-C20R/1 turboshaft engines.
Bendix gas producer fuel control DP-N2.
Bendix power turbine governor AL-AA1.
(See TCDS nº EM-8212.)

FUEL

For all temperatures:
MIL-T-5624 grade JP-4
ASTM D-1655 Jet B
For temperatures above -18 ºC (0 ºF):
MIL-T-5624 grade JP-5
ASTM D-1655 Jet A
ASTM D-1655 Jet A1
(See Note 3)

ENGINE LIMITS

All Engine Operation

Takeoff (5 min)

Torque	104 % (468 N.m)
Shaft horse power	395 hp
Output shaft speed (N2)	95-100 % (5 715-6 016 rpm)
Gas producer speed (N1)	105 % (53 518 rpm)
Gas temperature	810ºC (1 490ºF)

Maximum Continuous

Torque	100% (450 N.m)
Shaft horse power	380 hp
Output shaft speed (N2)	95-100% (5 715-6 016 rpm)
Gas producer (N1)	105% (53 518 rpm)
Gas temperature	752ºC (1 385ºF)

Single-engine operation (emergency)

Torque	118 % (542 N.m.)
Shaft Horse Power	450 hp
Output shaft speed (N2)	95-100 % (5 715-6 016 rpm)
Gas producer (N1)	105 % (53 5l8 rpm)
Gas temperature	810ºC (1490ºF)

(See RFM for rpm and temperature transient limits)

ROTOR LIMITS

Power off:

Maximum	110% (424 rpm)
Minimum	90% (346 rpm)

Power on:

Maximum	100% (385 rpm)
Minimum	95% (365 rpm)

ROTOR SPEED WARNING

Low Speed	95% (365 rpm)
High Speed	105% (404 rpm)

AIRSPEED LIMITS (IAS)

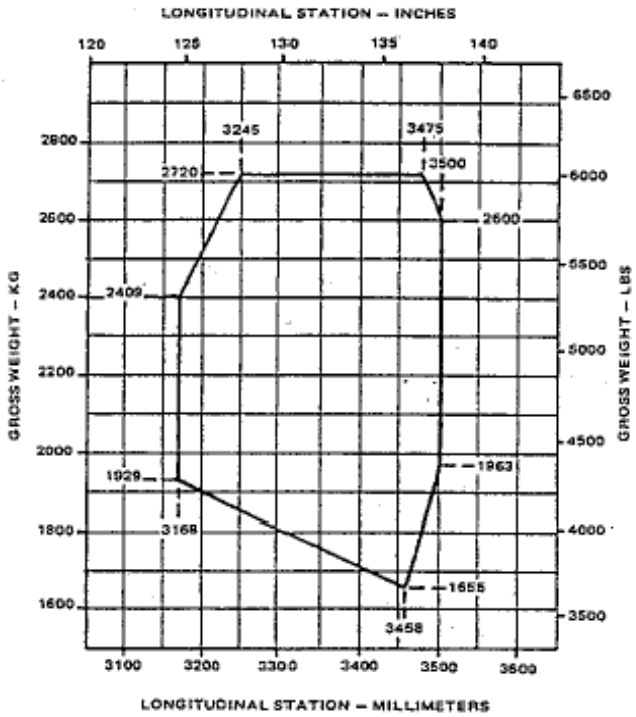
Never exceed speed (V_{NE})	311 km/h (168 kt)
Maximum gear operating speed (V_{LO})	222 km/h (120 kt)
Maximum gear extended speed (V_{LE})	222 km/h (120 kt)
Maximum forward touchdown speed	74 km/h (40 kt)

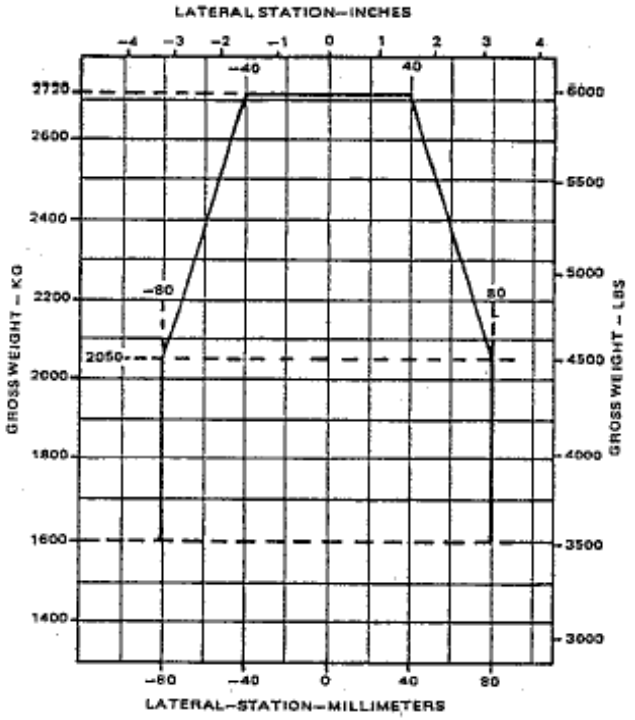
For reduction of V_{NE} with altitude and OAT, see the RFM.

C. G. RANGE (Gear Down)

Longitudinal Limits Lateral Limits

(Gear retraction moment is 4 kgm (347 lb.in) moving CG forward)





MAXIMUM WEIGHT

2720 kg (5997 lb)

MINIMUM CREW

One pilot as Sta. 1 565 mm (62 in) to 1 630 mm (64 in)

MAXIMUM PASSENGER

7, for rotorcraft conforming to Agusta report: 109-06-02:
- 1 at Sta. from 1 565 mm (62 in) to 1 630 mm (64 in); (See Note 5)
- 3 at Sta. 2420 mm (95 in) facing forward or 3 at Sta 2 455 mm (97 in) facing aft; and
- 3 at Sta. 3 200 mm (126 in)

0, for aircraft in “green” delivery configuration in accordance with Agusta Report 109-06-07. See RFM.

MAXIMUM BAGGAGE

150 kg (330 lb) at Sta. 4920 mm (194 in)
Maximum floor loading for baggage compartment:
500 kg/m^2 (102 lb/ft^2)
Maximum load per tie-down fitting:
91 kg (200 lb)

FUEL CAPACITY

Total: 559 liters (148 US gal), in two tanks of 279.5 liters (74.2 US gal) each, at Sta. 3652 mm (144.0 in).
Total usable: 550 liters (146 US gal)
(See Note 1 for unusable fuel.)
(See Note 8 for fuel capacity with auxiliary fuel tank installation.)

OIL CAPACITY

Engines: 7.7 liters (2 US gal) each engine, at Sta. 3 053 mm (120 in).
Transmission: 12 liters (3.2 US gal) at Sta. 3 460 (136 in).
(See Note 1 for undrainable oil.)

ALTITUDE LIMITS

4 560 m (15 000 ft)

ROTOR BLADE AND CONTROL MOVEMENTS

For rigging information refer to the model A109C Maintenance Manual.

IV - Model A109E (Normal Category), approved 03 September 1997.

ENGINES

Two (2) Pratt&Whitney Canada Inc. PW206C turboshaft engines.
FADEC control engines.
(See TCDS nº EM-9707).

FUEL

For all temperatures:
ASTM D-1655 Jet A, Jet A1, Jet A2, Jet B
Military specification (only for reference)
MIL-T-5624 grade JP-4, JP-5
MIL-T-83133 grade JP-8
For detailed information see Section I of the RFM.
(See Note 3)

ENGINE LIMITS

All Engine Operation

Takeoff

Torque	100 % (900 SHP at N2 100 %)
Output shaft speed (N2)	102 % (6 120 rpm)
Gas producer speed (N1)	98.7 % (57 250 rpm)
Gas temperature 5 min(TOT)	863ºC (1 585ºF)

Maximum Continuous

Torque	100 % (900 SHP at N2 100 %)
Output shaft speed (N2)	100 % (6 060 rpm)
Gas producer speed (N1)	97.4 % (56 500 rpm)
Gas temperature (TOT)	820ºC (1 508ºF)

Single-engine operation (emergency)

2 ½ min.

Torque	114% (640 SHP at 100%)
Maximum Output shaft speed (N2)	102% (6120 rpm)
Gas producer (N1)	102.4% (59400 rpm)
Gas temperature (TOT)	930 ºC (1706 ºF)

Maximum Continuous

Torque	100 % (560 SHP at N2 100 %)
Output shaft speed (N2)	100 % (6 000 rpm)
Gas producer speed (N1)	100.4 % (58 250 rpm)
Gas temperature (TOT)	885°C (1625°F)

ROTOR LIMITS

Power off:

Maximum	110% (422 rpm)
Minimum	90% (346 rpm)

Power on all engine operative:

Maximum	102% (394 rpm)
Minimum	99% (380 rpm)

Power on single engine (OEI):

Maximum	102% (394 rpm)
Minimum	90% (346 rpm)

ROTOR SPEED WARNING

Low Speed	95.5% (367 rpm)
High Speed	105.5% (405 rpm)

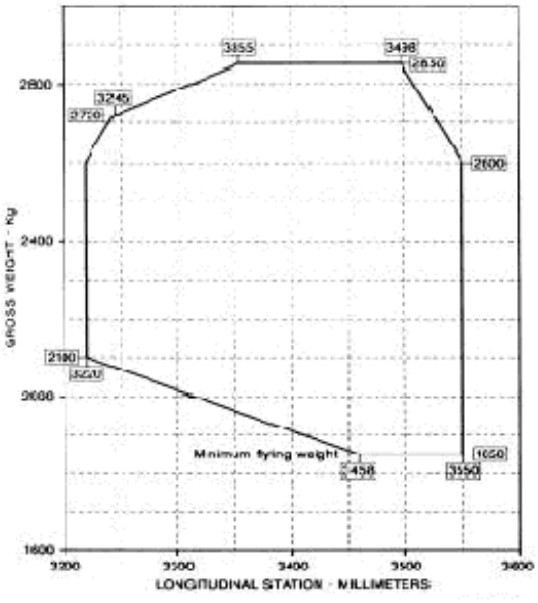
AIRSPEED LIMITS (IAS)

Never exceed speed (V_{NE}) - Power on:	311 km/h (168 kt)
Power off/OEI:	237 km/h (128 kt)
Maximum forward touchdown speed	74 km/h (40 kt)

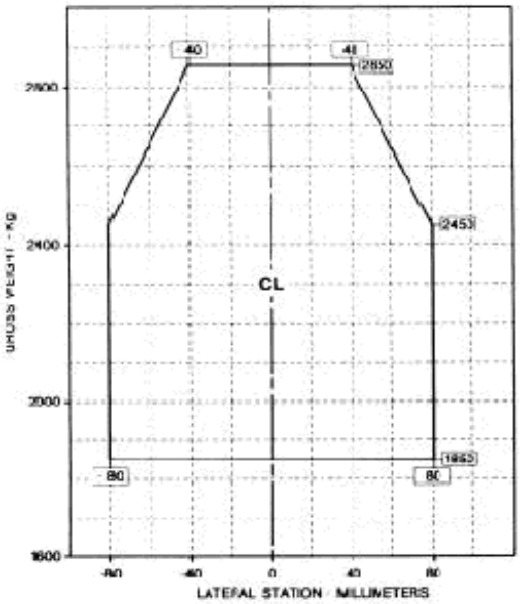
For reduction of V_{NE} with altitude and OAT, see the RFM.

CG RANGE

Longitudinal Limits



Lateral Limits



MAXIMUM WEIGHT 2 850 kg (6 283 lb) (see Note 12)

MINIMUM CREW One pilot as Sta. 1 565 mm (62 in) to 1 630 mm (64 in)

MAXIMUM PASSENGER 7

MAXIMUM BAGGAGE

150 kg (330 lb) at Sta. 5 300 mm (209 in)
Maximum floor loading for baggage compartment:
500 kg/m^2 (102 lb/ft^2)
Maximum load per tie-down fitting:
91 kg (200 lb)

FUEL CAPACITY

Usable: 595 / (157 US gal)
(See Note 1 for unusable fuel)

OIL CAPACITY

Engines: 5.12 liters (1.35 US gal) each engine.
Transmission: 11 liters (2.9 US gal)
(See Note 1 for undrainable oil)

ALTITUDE LIMITS

4 560 m (15 000 ft)

ROTOR BLADE AND CONTROL MOVEMENTS

For rigging information refer to the model A109E Maintenance Manual.

V – Model A119 (Normal Category), approved 03 August 2001.

ENGINES

One (1) Pratt&Whitney Canada Inc. PT6B-37A turboshaft engine.
(See TCDS n° EM-2001T02)
Build Specification No. 1017 (for helicopters not equipped with Integrated Display System) or Build Specification No. 1142 (for helicopters equipped with Integrated Display System)

FUEL

For all temperatures:
ASTM D-1655 Jet A, Jet A1
Military specification (only for reference)
MIL-T-5624 grade JP-5
MIL-T-83133 grade JP-8
For detailed information see Section II of the RFM.
(See Note 3)

ENGINE LIMITS

Takeoff

Torque	108.5 % (900 SHP at N2 100%)
Output shaft speed (N2)	101 % (4 416 rpm)
Gas producer speed (N1)	103.2 % (39 300 rpm)
Gas temperature 5 min.(ITT)	810°C (1490°F)

Maximum Continuous

Torque	100 % (830 SHP at N2 100 %)
Output shaft speed (N2)	101 % (4 416 rpm)
Gas producer speed (N1)	100.1 % (38 100 rpm)
Gas temperature (ITT)	755°C (1391°F)

ROTOR LIMITS

Power off:

Maximum	110 % (422 rpm)
Minimum	90 % (346 rpm)

Power on:

Maximum	101 % (388 rpm)
	103 % (396 rpm) with torque <50 %
Minimum	95 % (365 rpm)

ROTOR SPEED WARNING

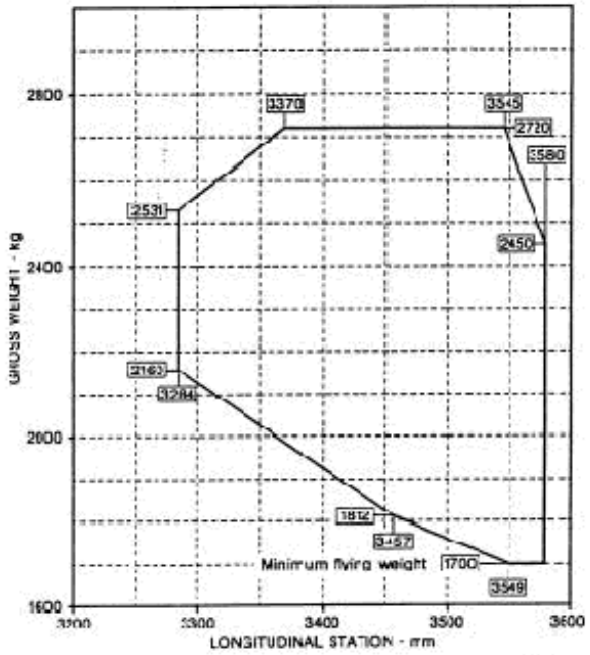
Low Speed 96 % (369 rpm)
High Speed 108 % (415 rpm)

AIRSPEED LIMITS (IAS)

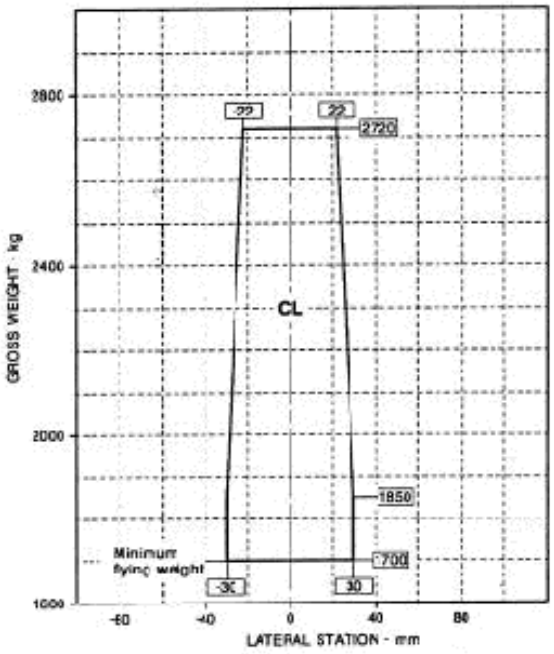
Never exceed speed (V_{NE}) 281 km/h (152 kt)
For reduction of V_{NE} with altitude and OAT, see the RFM.

CG RANGE

Longitudinal Limits



Lateral Limits



MAXIMUM WEIGHT

2 720 kg (5 997 lb)

MINIMUM CREW

One pilot between 1 565 mm (62 in) as Sta. 1 630 mm (64 in).

MAXIMUM PASSENGER

7

MAXIMUM BAGGAGE

150 kg (330 lb) between Sta. 4 880 and Sta. 6 430 mm (192 to 253 in)
Maximum floor loading for baggage compartment:
500 kg/m^2 (102 lb/ft^2)
For loading instruction see RFM.

FUEL CAPACITY

Total usable: 595 liters (157 US gal)
(See Note 1 for unusable fuel
See NOTE 9 for fuel capacity with supplementary fuel tank installation)

OIL CAPACITY

Engines: 10.45 *l* (2.76 US gal).
Transmission: 10.3 *l* (2.72 US gal)
(See Note 1 for undrainable oil)

ALTITUDE LIMITS

4 572 m (15 000 ft)

ROTOR BLADE AND CONTROL MOVEMENTS

For rigging information refer to the model A119 Maintenance Manual.

VI - Model A109S (Normal Category), approved 16 November 2005.

ENGINES

Two (2) Pratt&Whitney Canada Inc. PW207C turboshaft engines.
FADEC control engines.
(See TCDS nº EM-9707).

FUEL

For all temperatures:
ASTM D-1655 Jet A, ASTM D-1655-82 Jet A1
Military specification (only for reference)
MIL-T-5624 grade JP-5
MIL-T-83133 grade JP-8
For detailed information see Section I of the RFM.
(See Note 3)

ENGINE LIMITS

All Engine Operation

Takeoff (5 min)

Torque*	(2 x 735 SHP at N2 102 %)
Output shaft speed (N2)	102 % (6 151 rpm)
Gas producer speed (N1)	99.7 % (57 900 rpm)
Gas temperature 5 min (TOT)	900ºC (1 652ºF)

Maximum Continuous

Torque*	(2 x 625 SHP at N2 102 %)
Output shaft speed (N2)	102 % (6151 rpm)
Gas producer speed (N1)	99.7 % (56 400 rpm)
Gas temperature (TOT)	840ºC (1 540ºF)

Single-engine operation (emergency)

2 ½ min.

Torque*	(815 SHP at 102%)
Maximum Output shaft speed (N2)	102% (6151 rpm)
Gas producer (N1)	102.4% (59 750 rpm)
Gas temperature (TOT)	970 ºC (1778 ºF)

Maximum Continuous

Torque*	(735 SHP at N2 102 %)
Output shaft speed (N2)	102 % (6151 rpm)
Gas producer speed (N1)	102 % (57900 rpm)
Gas temperature (TOT)	900ºC (1652ºF)

* All torque value are thermodynamic value

ROTOR LIMITS

Power off:

Maximum	110% (422 rpm)
Minimum	95% (364 rpm)

Power on all engine operative:

Maximum	102% (392 rpm)
Minimum	99% (380 rpm)

Power on single engine (OEI):

Maximum	102% (392 rpm)
Minimum	90% (346 rpm)

ROTOR SPEED LIMITS

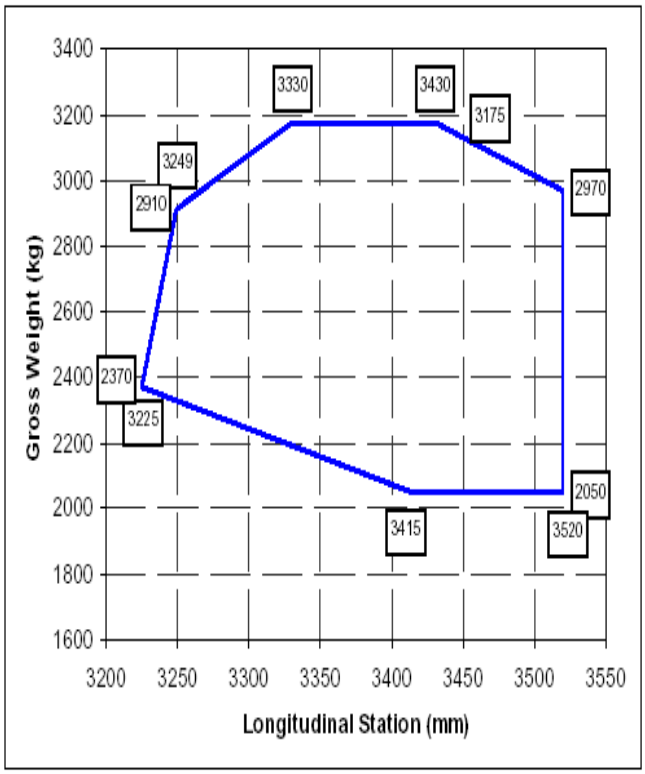
Low Speed	95.5% (367 rpm)
High Speed	105.5% (405 rpm)

AIRSPEED LIMITS (IAS)

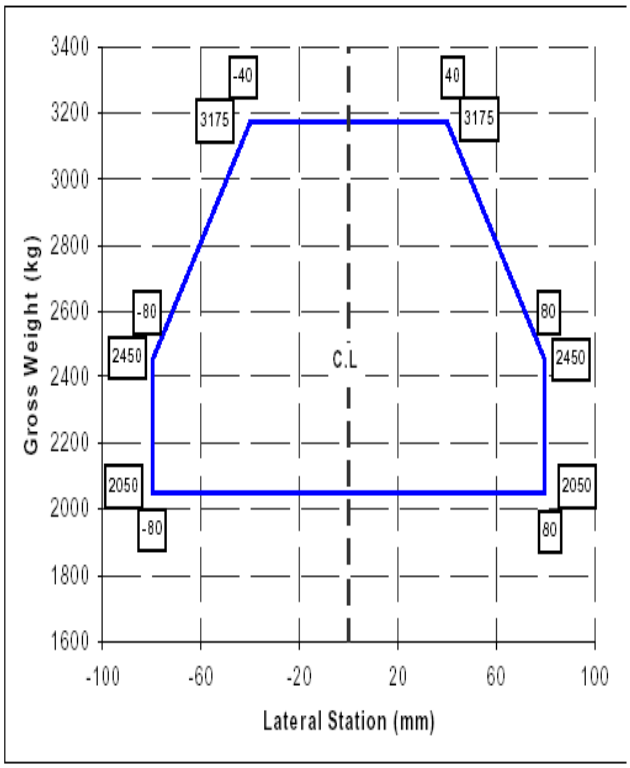
Never exceed speed (V_{NE}) - Power on: 311 km/h (168 kt)
Power off/OEI: 237 km/h (128 kt)
Maximum forward touchdown speed 74 km/h (40 kt)
For reduction of V_{NE} with altitude and OAT, see the RFM.

CG RANGE

Longitudinal Limits



Lateral Limits



MAXIMUM WEIGHT

3175 kg (7000 lb)

MINIMUM CREW

One pilot who shall operate the helicopter from the right crew seat.

MAXIMUM PASSENGER

7

MAXIMUM BAGGAGE

120 kg (265 lb) at Sta. 4 880 (192 in) in)
Maximum floor loading for baggage compartment:
500 kg/m^2 (102 lb/ft^2)
For loading instruction see RFM.

FUEL CAPACITY

Total usable: 575 liters (151 US gal)
(See Note 1 for unusable fuel)

OIL CAPACITY

Engines: 5,25 *l* (1,38 US gal).
Transmission: 11,7 *l* (2.72 US gal)
(See Note 1 for undrainable oil)

ALTITUDE LIMITS

6095 m (20 000 ft)

ROTOR BLADE AND CONTROL MOVEMENTS

For rigging information refer to the model A109S Maintenance Manual.

VII – <u>Model AW119 MKII (Normal Category)</u>, approved 18 August 2008.

ENGINES

One (1) Pratt&Whitney Canada Inc. PT6B-37A Turboshaft engine Build Specification No. 1242 Eletronic Engine Control.

FUEL

For all temperatures:
ASTM D-1655 Jet A, Jet A1.
Military specification (only for reference)
MIL-T-5624 grade JP-5
MIL-T-83133 grade JP-8
For detailed information see Section 1 of the AW119 MKII RFM – approved.

ENGINE LIMITS

Takeoff (5 min.)

Torque	108.5 % (917 SHP at N2 102%)
Output shaft speed (N2)	102 % (4 460 rpm)
Note: Operation to N2 103% is permitted	
Gas producer speed (N1)	103.2 % (39300 rpm)
Gas temperature 5 min.(ITT)	810°C (1490°F)

Maximum Continuous

Torque	100 % (847 SHP at N2 102 %)
Output shaft speed (N2)	102 % (4 460 rpm)
Note: Operation to N2 103% is permitted	
Gas producer speed (N1)	100.1 % (38 100 rpm)
Gas temperature (ITT)	755°C (1391°F)

ROTOR LIMITS

Power off:

Maximum	110 % (422 rpm)
Minimum	90 % (346 rpm)

Power on:

Maximum	103 % (396 rpm)
Minimum	95 % (365 rpm)

ROTOR SPEED WARNING

Low Speed	96 % (369 rpm)
High Speed	108 % (415 rpm)

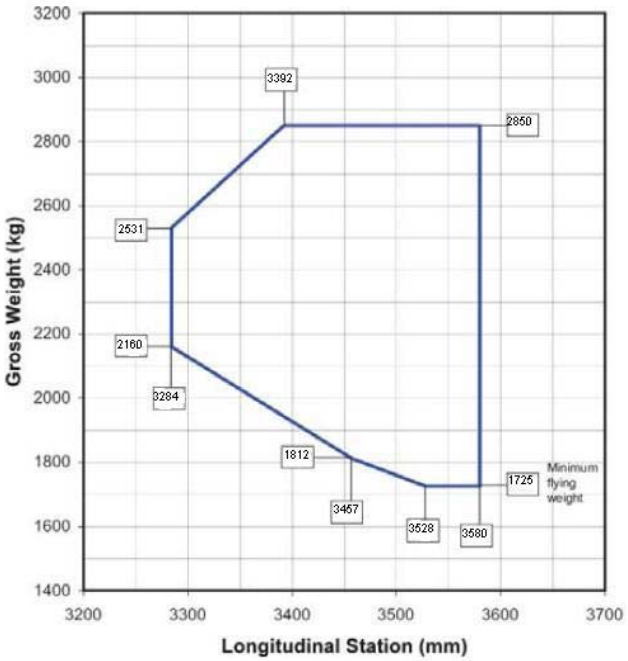
AIRSPEED LIMITS (IAS)

Never exceed speed (V_{NE}) 281 km/h (152 kt)

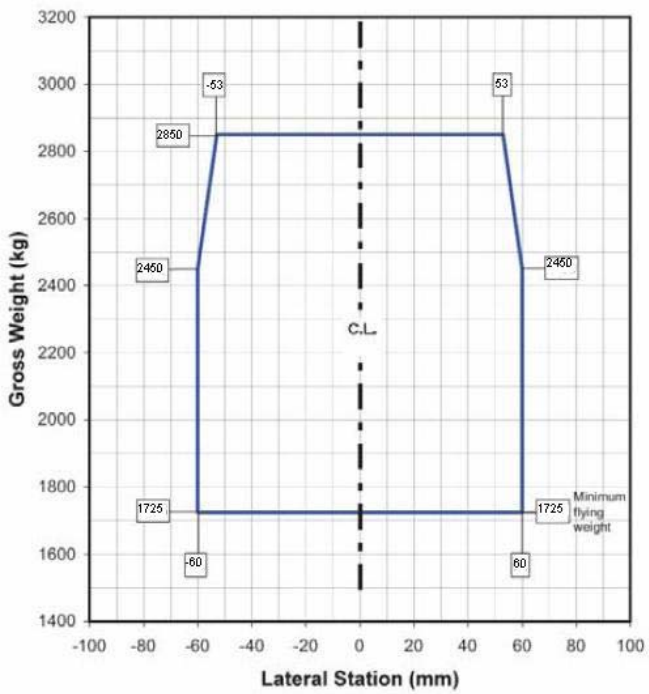
For reduction of V_{NE} with altitude and OAT, see the RFM.

CG RANGE

CG Range - Longitudinal Limits



CG Range - Lateral Limits



MAXIMUM WEIGHT 2 850 kg (6 283 lb)

MINIMUM CREW One pilot as Sta. 1 565 mm (62 in) to 1 630 mm (64 in).

MAXIMUM PASSENGER 7

MAXIMUM BAGGAGE

150 kg (330 lb) at Sta. 4 880 to 6 430 mm (192 to 253 in)
Maximum floor loading for baggage compartment:
500 kg/m^2 (102 lb/ft^2)
For loading instruction see RFM.

FUEL CAPACITY

Total usable: 595 liters (157 US gal)
(See Note 1 for unusable fuel
See Note 9 for fuel capacity with supplementary fuel tank installation)

OIL CAPACITY

Engines: 10.45 *l* (2.76 US gal).
Transmission: 10.3 *l* (2.72 US gal) (See Note 1 for undrainable oil)

ALTITUDE LIMITS

4 572 m (15 000 ft)

ROTOR BLADE AND CONTROL MOVEMENTS

For rigging information refer to the model A119/AW119 MKII Maintenance Manual.

DATA PERTINENT TO ALL MODELS:

DATUM

For the models A109A, A109AII, A109C and A109E: longitudinal reference at station 0 (datum) is 1 835 mm (72 in) forward of the front jack point.
For the model A119 and AW119 MKII: longitudinal station 0 (datum) is 1 785 mm (70,3 in) forward of the front jack point.
For all models: lateral reference at station 0 (datum) is (+-) 450 mm [(+-)18 in] inboard of each main jack point and coincides with the rotorcraft longitudinal plane of symmetry.

LEVELING MEANS

For the models A109A, A109AII, A109C, A119 and AW119 MKII: plumb line from ceiling reference point to index plate on floor of passenger cabin.
For model A109E: the leveling is performed by water level put on the datum plate located on the cabin roof, right hand side.

SERIAL NUMBERS ELIGIBLE

A Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" must be submitted for each individual aircraft for which application for a Brazilian Certificate of Airworthiness is made.
For the A119: the eligible Serial Numbers are from 14003 to 14700.
For the AW119 MKII: the eligible Serial Numbers are from 14701 to 14999.
For the A109S: the eligible Serial Numbers are from 22001 to 22500

IMPORT REQUIREMENTS

A Brazilian Certificate of Airworthiness may be issued on the basis of a Certificate of Airworthiness for Export issued by ENAC or by the FAA (or a third country Certificate of Airworthiness for Export, in case of used aircraft imported from such country), including the following statement:
"The aircraft covered by this certificate has been inspected, tested and found to be in conformity with the Brazilian approved type design as defined by the Brazilian Type Certificate nº. 9003 and in condition of safe operation".
The Brazilian Authority reports H.10-0750-1 (A109A and A109AII), H.10-0752-0 (A109C), H.10-0753-2 (A109E), H.10-0754-03 (A119 and A119AW MKII), and H.10-0755-00 (A109S) dated 05 May 1997, 23 Oct. 2001, 29 Jul. 1998, 18 Aug. 2008 and 16 November 2005 respectively or further revisions, contains the Brazilian requirements for the acceptance of these rotorcraft. (See Note 4)

CERTIFICATION BASIS

Brazilian Type Certificate Nº. 9003 issued on 16 July 1990 based on the RBHA 1370 (former) and RBHA 27 (current), which endorse the 14 CFR Part 27 effective 01 February 1965 as amended by 27-1 through 27-8, plus the following:

For the models A109A, A109AII and A109C:

- RBHA/14 CFR Part 29.903(b) for category A engine isolation;
- RBHA/14 CFR Part 27.927(c) as amended by 27-12, elected to comply by the applicant;
- Special condition for the model A109 helicopter nº 27-54-EU-17, issued on 26 June 1973, accepted by CTA; and
- Equivalent level of safety for compliance with RBHA/14 CFR Part 27.1189, Shutoff means.

For the model A109E:

- RBHA/14 CFR Part 27.2 (Amdt. 28), 27.21 (Amdt. 21), 27.45 (Amdt. 21), 27.71 (Amdt. 21), 27.141 (Amdt. 21), 27.175 (Amdt. 21), 27.177 (Amdt. 21), 27.401 (Amdt. 27), 27.610 (Amdt. 21), 27.901 (Amdt. 23), 27.903 (Amdt. 23), 27.927 (Amdt. 23), 27.954 (Amdt. 23), 27.1091 (Amdt. 23), 27.1189 (Amdt. 23), 27.1305 (Amdt. 23), 27.1321 (Amdt. 13), 27.1322 (Amdt. 11), 27.1323 (Amdt. 13), 27.1325 (Amdt. 13), 27.1401 (Amdt. 10), 27.1505 (Amdt. 21), 27.1519 (Amdt. 21), 27.1521 (Amdt. 23), 27.1527 (Amdt. 14), 27.1529 (Amdt. 18), 27.1549 (Amdt. 23), 27.1555 (Amdt. 21), 27.1557 (Amdt. 11), 27.1581 (Amdt. 14), 27.1583 (Amdt. 16), 27.1585 (Amdt. 21) and 27.1587 (Amdt. 21).
- Special condition for the model A109 helicopter nº 27-54-EU-17, issued on 26 June 1973, accepted by CTA;
- Special condition Nº 27-ASW-3, High Intensity Radiated Fields, issued on 13 June 1996; and
- Equivalent level of safety for compliance with RBHA/14 CFR Part 27.175 (c), Static Longitudinal Stability (CTA FCAR HDE 01, dated 07 Aug. 1997).

For the Model A119:

RBHA/14 CFR Part 27.29 (Amdt. 14), 27.33 (Amdt. 14), 27.65 (Amdt. 33), 27.71 (Amdt. 21), 27.151 (Amdt. 21), 27.161 (Amdt. 21), 27.173 (Amdt. 21), 27.307 (Amdt. 26), 27.321 (Amdt. 11), 27.337 (Amdt. 26), 27.339 (Amdt. 11), 27.351 (Amdt. 26), 27.361 (Amdt. 23), 27.391 (Amdt. 26), 27.395 (Amdt. 26), 27.397 (Amdt. 11), 27.427 (Amdt. 27), 27.501 (Amdt. 26), 27.571 (Amdt. 26), 27.602 (Amdt. 38), 27.603 (Amdt. 16), 27.613 (Amdt. 26), 27.663 (Amdt. 26), 27.672 (Amdt. 21), 27.727 (Amdt. 26), 27.779 (Amdt. 21), 27.783 (Amdt. 26), 27.807 (Amdt. 26), 27.863 (Amdt. 16), 27.917 (Amdt. 11), 27.923 (Amdt. 29), 27.955 (Amdt. 23), 27.967 (Amdt. 30), 27.975 (Amdt. 30), 27.977 (Amdt. 11), 27.997 (Amdt. 23), 27.1027 (Amdt. 2), 27.1041 (Amdt. 23), 27.1043 (Amdt. 14), 27.1045 (Amdt. 23), 27.1141 (Amdt. 33), 27.1143 (Amdt. 29), 27.1145 (Amdt. 12), 27.1193 (Amdt. 23), 7.1327 (Amdt. 13), 27.1337 (Amdt. 23), 27.1411 (Amdt. 11), 27.1501 (Amdt. 14), 27.1525 (Amdt. 21), 27.1545 (Amdt. 16), 27.1547 (Amdt. 13), 27.1559 (Amdt. 21), 27 Appendix A (Amdt. 24).

CERTIFICATION BASIS (Cont.)

For the Model A119 MKII:

RBHA/14 CFR Part 27.1 a) (Amdt. 37); 27.2 (Amdt. 28); 27.2 b)2)i) (Amdt. 37); 27.21 (Amdt. 21); 27.25 (Amdt. 36); 27.27 (Amdt. 2); 27.29 (Amdt. 14)); 27.33 (Amdt. 14); 27.45 (Amdt. 21); 27.51 (Amdt. /); 27.65 (Amdt. 3); 27.71 (Amdt. 21); 27.73 (Amdt. /); 27.75 (Amdt. 14); 27.79 (Amdt. 21); 27.141 (Amdt. 21); 27.143 (Amdt. 21); 27.151 (Amdt. 21); 27.161 (Amdt. 21); 27.171 (Amdt. /); 27.173 (Amdt. 21); 27.175 (Amdt. 34); 27.177 (Amdt. 21); 27.231 (Amdt. /); 27.241 (Amdt. /); 27.251 (Amdt. /); 27.301 (Amdt. /); 27.303 (Amdt. /); 27.305 (Amdt. /); 27.307 (Amdt. 26); 27.309 (Amdt. /); 27.321 (Amdt. 11); 27.337 (Amdt. 26); 27.339 (Amdt. 11); 27.341 (Amdt. /); 27.351 (Amdt. 34); 27.361 (Amdt. 23); 27.391 (Amdt. 34); 27.395 (Amdt. 26); 27.397 (Amdt. 40); 27.399 (Amdt. /); 27.401 (Amdt. 27); 27.403 (Amdt. 27); 27.411 (Amdt. /); 27.413 (Amdt. 27); 27.427 (Amdt. 27); 27.471 (Amdt. /); 27.473 (Amdt. 2); 27.501 (Amdt. 26); 27.505 (Amdt. /); 27.547 (Amdt. 3); 27.549 (Amdt. 3); 27.561 (Amdt. /); 27.571 (Amdt. 26); 27.601 (Amdt. /); 27.602 (Amdt. 38); 27.603 (Amdt. 16); 27.605 (Amdt. 16); 27.607 (Amdt. 4); 27.609 (Amdt. /); 27.610 (Amdt. 37); 27.611 (Amdt. /); 27.613 (Amdt. 26); 27.619 (Amdt. /); 27.621 (Amdt. 34); 27.623 (Amdt. /); 27.625 (Amdt. /); 27.629 (Amdt. 26); 27.653 (Amdt. 2); 27.659 (Amdt. 2); 27.661 (Amdt. 2); 27.663 (Amdt. 26); 27.671 (Amdt. /); 27.672 (Amdt. 21); 27.673 (Amdt. 21); 27.674 (Amdt. 26); 27.675 (Amdt. 16); 27.681 (Amdt. /); 27.683 (Amdt. /); 27.685 (Amdt. 26); 27.691 (Amdt. /); 27.695 (Amdt. /); 27.723 (Amdt. /); 27.725 (Amdt. /); 27.727 (Amdt. 26); 27.737 (Amdt. /); 27.771 (Amdt. /); 27.773 (Amdt. /); 27.775 (Amdt. 27); 27.777 (Amdt. /); 27.779 (Amdt. 21); 27.783 (Amdt. 26); 27.785 (Amdt. /); 27.787 (Amdt. /); 27.805 (Amdt. 37); 27.807 (Amdt. 26); 27.831 (Amdt. /); 27.853 (Amdt. 17); 27.855 (Amdt. /); 27.859 (Amdt. 23); 27.861 (Amdt. 26); 27.863 (Amdt. 16); 27.865 (Amdt. 36); 27.871 (Amdt. /); 27.901 (Amdt. 23); 27.903 (Amdt. 23); 27.907 (Amdt. /); 27.917 (Amdt. 11); 27.921 (Amdt. /); 27.923 (Amdt. 29); 27.927 (Amdt. 23); 27.931 (Amdt. /); 27.939 (Amdt. 11); 27.951 (Amdt. 9); 27.954 (Amdt. 23); 27.955 (Amdt. 23); 27.959 (Amdt. /); 27.961 (Amdt. 23); 27.963 (Amdt. 23); 27.965 (Amdt. 12); 27.967 (Amdt. 30); 27.969 (Amdt. 23); 27.971 (Amdt. /); 27.973 (Amdt. /); 27.975 (Amdt. 30); 27.977 (Amdt. 11); 27.991 (Amdt. 23); 27.993 (Amdt. 2); 27.995 (Amdt. /); 27.997 (Amdt. 23); 27.999 (Amdt. 23); 27.1011 (Amdt. 23); 27.1013 (Amdt. 9); 27.1017 (Amdt. /); 27.1019 (Amdt. 23); 27.1021 (Amdt. 20); 27.1027 (Amdt. 23); 27.1041 (Amdt. 23); 27.1043 (Amdt. 14); 27.1045 (Amdt. 23); 27.1091 (Amdt. 23); 27.1093 (Amdt. 23); 27.1121 (Amdt. 12); 27.1123 (Amdt. 11); 27.1141 (Amdt. 33); 27.1143 (Amdt. 29); 27.1145 (Amdt. 12); 27.1151 (Amdt. 33); 27.1163 (Amdt. 23); 27.1183 (Amdt. 20); 27.1185 (Amdt. 11); 27.1187 (Amdt. /); 27.1189 (Amdt. 23); 27.1191 (Amdt. 2); 27.1193 (Amdt. 23); 27.1194 (Amdt. 2); 27.1195 (Amdt. 5); 27.1301 (Amdt. /); 27.1303 (Amdt. /); 27.1305 (Amdt. 29); 27.1307 (Amdt. /); 27.1309 (Amdt. 21); 27.1321 (Amdt. 13); 27.1322 (Amdt. 11); 27.1323 (Amdt. 13); 27.1325 (Amdt. 13); 27.1327 (Amdt. 13); 27.1329 (Amdt. 21); 27.1337 (Amdt. 23); 27.1351 (Amdt. 13); 27.1353 (Amdt. 14); 27.1357 (Amdt. 13); 27.1361 (Amdt. /); 27.1365 (Amdt. /); 27.1367 (Amdt. /); 27.1381 (Amdt. /); 27.1383 (Amdt. /); 27.1385 (Amdt. /); 27.1387 (Amdt. 7); 27.1389 (Amdt. /); 27.1391 (Amdt. /);

CERTIFICATION BASIS (Cont.)

27.1393 (Amdt. /); 27.1395 (Amdt. /); 27.1397 (Amdt. 6); 27.1399 (Amdt. 2); 27.1401 (Amdt. 10); 27.1411 (Amdt. 11); 27.1413 (Amdt. 21); 27.1435 (Amdt. /); 27.1461 (Amdt. 2); 27.1501 (Amdt. 14); 27.1503 (Amdt. /); 27.1505 (Amdt. 21); 27.1509 (Amdt. /); 27.1519 (Amdt. 21); 27.1521 (Amdt. 29); 27.1523 (Amdt. /); 27.1525 (Amdt. 21); 27.1527 (Amdt. 14); 27.1529 (Amdt. 18); 27.1541 (Amdt. /); 27.1543 (Amdt. /); 27.1545 (Amdt. 16); 27.1547 (Amdt. 13); 27.1549 (Amdt. 29); 27.1551 (Amdt. /); 27.1553 (Amdt. /); 27.1555 (Amdt. 21); 27.1557 (Amdt. 11); 27.1559 (Amdt. 21); 27.1561 (Amdt. /); 27.1565 (Amdt. 2); 27.1581 (Amdt. 14); 27.1583 (Amdt. 16); 27.1585 (Amdt. 21); 27.1587 (Amdt. 21); 27.1589 (Amdt. /); 27 Appendix A (Amdt. 24.
- Special Condition: HIRF Protection according to JAA Interim Policy, Paper No.INT/POL/27&29/1 [only for Electronic Engine Control System]
- 14 CFR Part 36, Appendix H, Amendment 36-28, January 2006 for the noise level determination.
The Certification basis applicable to the AW119 MKII model is identified in the Agusta document No. 109G0000N077, Rev. C or later revision.

REQUIRED EQUIPMENT

The basic required equipment, as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the rotorcraft.

NOTES:

NOTE 1

Weight and balance. Current weight and balance report, including list of equipment included in the certificated empty weight and loading instructions, must be provided for each rotorcraft at the time of original certification.
The certificated empty weight and corresponding CG location must include undrainable oil of zero and unusable fuel.
Undrainable engine oil is zero kg. for all models except for the A109E where the undrainable oil is 2.09 Kg./4.61 lbs (0.567 U.S.gal/2.15 lt) at the sta. 4280 mm (168.5 in) and for the A119 and AW119 MKII where the undrainable oil is 1.6 kg./3.52 lbs (0.433 U.S. gal/1.64 lt) at the sta. 4673 mm (183.9 in).and for the A109E where the undrainable oil is 1.8 /Kg/3.96 lb (0.486 U.S gal/1.84 lt) at sta 4280 mm (168.5 in).
Unusable fuel is 7 Kg /15 lbs (2.4 U.S. gal./9 lt.) at sta. 3750 mm (148°) for Model A109A/AII/C, 8 Kg/17.6 lbs (2.66 U.S. gal./10 lt) at sta 3320 mm (131 in) for Model A109E, and 8 kg/17.6 lb (2.64 U.S. gal./10 lt) at sta 3320 mm (130.7 in) for Models A119 and AW119 MKII , and 9.6Kg/21.16 lb (3.17 U.S gal /12 lt) at sta 3761 mm (148 in) for Model A109S.

NOTE 2

Markings and placards: all markings and placards for passenger information, external markings for emergency, and load limits in cargo/baggage compartments must be presented in Portuguese or bilingual. A list of these placards and the respective translations acceptable to CTA is provided in the reports referred in the Import Requirements item.

NOTE 3

Continuing Airworthiness. Life-limited components and approved retirement times are listed in Chapter 4, "Airworthiness Limitations" of the Model A109A/A109AII/A109C/A109E/A119/A109S/ AW119 MKII Maintenance Manuals and these components must be replaced as prescribed therein.

NOTE 4

The differences of the Brazilian airplanes in relation to the basic EASA/ENAC type design are summarized below:

1. The Brazilian Airplane Flight Manual.
2. Markings and placards in the Portuguese language.

NOTE 5 For operations below 4°C (40°F) of the Model A109A/A109AII/A109C, the use of anti-ice additive is authorized, but is not mandatory due to rotorcraft anti-ice fuel filter installation. Below 4°C (40°F), the AVGAS JET FUEL MIXTURE may be used as an alternative fuel. Refer to the Engine Manufacturer Operation and Maintenance Manual for AVGAS mix, cold weather fuel and blending instructions.
For A109E/A109S operation below 4°C (40°F) the use of anti-ice additive is authorized but not mandatory due to rotorcraft anti-ice fuel filter installation. For additive requirements and blending procedures refer to Pratt & Whitney manuals.
For A119 and AW119 MKII operation below 4°C (40°F) the use of anti-ice additive is not mandatory since the engine is equipped with a fuel heater.

NOTE 6 For helicopters up to and including S/N 7114 not equipped with adjustable seat kit P/N 109-0700-49-1, moment arm of pilot and forward passenger seat is 1 650 mm (65 in) from Sta. 0.

NOTE 7

a. Model A109A helicopters S/N 7107, 7130 and subsequent are eligible for day and night IFR operations, with one pilot or with two pilots, when "IFR" installation Agusta Kit No. 109-0810-22, Rev. E or later RAI-approved revision, is incorporated and the helicopter is operated in accordance with Model A109A Flight Manual IFR Supplement No. 1 approved by RAI under date of 16 July 1978 and subsequent approved revisions.

b. Model A 109A II and A I 09C helicopters S/N 7256 and subsequent are eligible for day and night IFR operations with one or with two pilots when "IFR" installation Kit No. 109-0810-22, Rev. E or later RAI approved revision, is incorporated and the helicopter is operated in accordance with Model A109 II and A109C Rotorcraft Flight Manuals.

c. Model A109E Helicopters S/N 11001 and subsequent are eligible for day and night single pilot IFR operation when IFR installation Agusta Kit P/N 109-0810-22-143 and subsequent ENAC approved dash number is incorporated.
Certification Basis:
- Appendix B to FAA 14 CFR Part 27 - Airworthiness criteria for helicopter instrument flight - Amdt. 27.19.
- FAA 14 CFR Part 27 Paragraph 27.672 Amdt. 21; 27.1309 Amdt 21; 27.1329 Amdt 21; 27.1335 Amdt. 13.

The helicopter shall be operated in accordance with the Model A109E Flight Manual.

d. Model A109S Helicopters S/N 22001 and subsequent are eligible for day and night single pilot IFR operations.
The helicopter A109S shall be operated in accordance with the Model Flight Manual document number 109G0040A013.

NOTE 8 Model A109A helicopters are eligible for operations at maximum weight of 2600 kg (5732 lb) when Agusta Technical Bulletin n° 109-20 and subsequent approved revisions are incorporated. For Model A109A helicopters not incorporating the Agusta Technical Bulletin N° 109-20, the following limitations are to be applied:
- Airspeed Limits

Never exceed speed (V_{NE}) 311 km/h (168 kt) IAS.

For reduction of V_{NE} with altitude and OAT, see the RFM.

- CG Range (Gear down)

Longitudinal limits
Refer to diagram of model A109A for weights up to 2 450 kg (5 400 lb).
Lateral limits
Refer to diagram of model A109A up to 2 450 kg (5 400 lb)

NOTE 8 (Cont.)

- Maximum Weight
  2 450 kg (5 400 lb). See RFM.
  See RFM.
- Maximum Operating Altitude
  4 560 m (15 000 ft). See RFM.

NOTE 9 For Models A109AII and A109C, the auxiliary fuel tank installation P/N 109-0810-56 adds a total fuel capacity of 40.8 US gal. (153 lit.) at sta. 4 708 mm (185.3 in) of which 150 liters (40 US gal) is usable. For Model A109E, the fuel tank installation P/N 109-0811-49 adds a total of fuel capacity of 70 U.S. gal. (265 lit.) all usable.
For Model A109S the fuel tank installation P/N 109-0813-32 adds a total of fuel capacity of 60.76 U.S. Gal. (230 lit) all usable.
For Model A119 and AW119 MKII the fuel tank installation P/N 109-0811-49 adds a total of fuel capacity of70 US Gal. (265 lit) all usable.

NOTE 10 The model A109E is eligible for operations on clear airfield and helipad with the "Equivalent Category A" when the installation P/N 109-0811-39 (all the approved dashes) is incorporated and the helicopter is operated in accordance with the Model A109E Flight Manual Supplement No. 12 Equivalent Category "A" operations.
In addition to the paragraphs of the Certification Basis the A109E must comply also with the following paragraphs:
JAR 29.45 (a), (b), (2) Amendment base; JAR 29.49 (a) Amendment base; JAR 29.51 Amendment base; JAR 29.53 Amendment base; JAR 29.55 Amendment base; JAR 29.59 Amendment base; JAR 29.60 Amendment base; JAR 29.61 Amendment base; JAR 29.62 Amendment base; JAR 29.64 Amendment base; JAR 29.65 (a) Amendment base; JAR 29.67 (a) Amendment base; JAR 29.75 Amendment base; JAR 29.77 Amendment base; JAR 29.79 Amendment base; JAR 29.81 Amendment base; JAR 29.85 Amendment base; JAR 29.87 (a) Amendment base; (JAR 29.571 Amendment base Fatigue evaluation of structure.) AC Material only: AC 29-2A Item 230 Paragraph 10; JAR 29.861 (a) Amendment base; JAR 29.901 (c) Amendment base; JAR 29.903(b), (c), (e) Amendment base; JAR 29.908 (a) Amendment base; JAR 29.927 (c)(1), JAR 29.953 (a) Amendment base; JAR 29.1027 (a) Amendment base; JAR 29.1045 (a)(1), (b), (c), (d), (f) Amendment base; JAR 29.1047 (a) Amendment base; JAR 29.1181 (a) Amendment base; JAR 29.1187 (e) Amendment base; JAR 29.1189 (c) Amendment base; JAR 29.1191 (a)(1) Amendment base; JAR 29.1193 (e) Amendment base; JAR 29.1195 (a), (d) Amendment base; JAR 29.1197 Amendment base; JAR 29.1199 Amendment base; JAR 29.1201 Amendment base; JAR 29.1305 (a)(6), (b) Amendment base; JAR 29.1309 (b)(2)(i), d) Amendment base; JAR 29.1323 (c) (1) Amendment base; JAR 29.1331 (b) Amendment base; JAR 29.1351 (d) (2) Amendment base; JAR 29.1587 (a) Amendment base.
The JAR requirements listed above meets the RBHA/14 CFR Part 27 and RBHA/14 CFR Part 29 CAT A requirements.

NOTE 11 For the model A109E that has been certified with ditching provisions in accordance with RFM supplement n° 21 the certification basis has been updated adding with the following paragraphs: 14 CFR Part 27.563 Amendment 26, 14 CFR Part 27.801 Amendment 11, 14 CFR Part 27.807 Amendment 26, 14 CFR Part 27.1411 Amendment 11, 14 CFR Part 27.1415 Amendment 11.

NOTE 12 To operate at 3000 Kg maximum weight, Model A109E with Pratt & Whitney PW206C engines shall embody kit P/N 109-0823-22-101 according to BT 109EP-67. A109E aircraft equipped with skid landing gear installation P/N 109-0812-57-101 are not authorized to operate at a maximum weight over 2850 Kg.

HÉLIO TARQUINIO JÚNIOR
Gerente-Geral Substituto, Certificação de Produto Aeronáutico
(Acting Manager, Aeronautical Product Certification)