TYPE-CERTIFICATE

DATA SHEET

No. EASA.R.005

for

A109/A119

Type Certificate Holder

Leonardo S.p.A.

Helicopters

Piazza Monte Grappa 4

00195 Roma

Italy

For Models: A109, A109A, A109AII, A109C, A109E, A109K2, A109LUH, A109N, A109S, AW109SP, A119, AW119MKII

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SECTION 1: A109

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A109
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3
4.	Type Certification Application Date to RAI	18 February 1971
5.	State of Design Authority	EASA (pre EASA: RAI/ENAC, Italy)
6.	Type Certificate Date by RAI	28 May 1975
7.	Type Certificate n° by RAI	SO/A 156
8.	Type Certificate Data Sheet n° by RAI	SO/A 156
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	18 February 1971
2.	Airworthiness Requirements	FAR 27 / 29 Amdt. as defined here below. FAR 27 with Amdt. from 1 to 8 included, FAR 29 Paragraph 29.903 (b) “Category A, engine isolation”
3.	Special Conditions	Special Conditions N°27-54-EU-17 dated 26 June 1973 forwarded with sheet N° 109.489/T, dated 3 July 1973
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	Shut-off valve, instead of FAR 27.1189
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	n/a
8.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Drawing 109-9000-01-5 (See Note 3 in this Section).
2.	Description	Light twin-engine aircraft, four (4) metallic blades, articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gear, one (1) pilot and seven (7) passengers capacity. (See Note 1 in this Section)
3.	Equipment	Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.

Besides are required the following equipment:
OAT Indicator P/N MS28028-1.
Approved mandatory and optional equipment listed in report 109-07-01 “Elenco degli equipaggiamenti”.
Refer also to the Equipment list in RFM

4. Dimensions

4.1 Fuselage — Length: 10.71 m; Width: 2.88 m; Height: 3.30 m

4.2 Main Rotor — Diameter: 11.00 m

4.3 Tail Rotor — Diameter: 2.03 m

5. Engine

5.1 Model — Rolls–Royce Corporation (former: Allison)
2 x Model 250-C20

5.2 Type Certificate — State of Design Engine TC/TCDS n°: FAA n°E4CE
EASA TC/TCDS n°: EASA.IM.E.052

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

Installed Engine Limits		
AEO	Take-Off (5 minutes)	346 shp, 113%
	Maximum Continuous	346 shp, 113%
OEI	Take-Off (5 minutes)	400 shp, 131%
	Maximum Continuous	385 shp, 126%
See EASA approved Rotorcraft Flight Manual for TOT, N1 and transient		

Transmission Torque Limits
See EASA approved Rotorcraft Flight Manual for information

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel — For all temperatures:
MIL-T-5624 type JP4, ASTM D-1655 Jet B
For temperatures higher than -18°C (0°F):
MIL-T-5624 Type JP5, ASTM D-1655 Jet A, ASTM D-1655 Jet A1
For detailed information refer to EASA approved RFM Section 1

6.2 Oil — Engines: MIL-L-7808G
Transmission: MIL-L-7808G
For detailed information refer to EASA approved RFM Section 1

7. Fluid capacities

7.1 Fuel — Total usable: 550.0 litres
(Two tanks capacity of 275 litres each)
Refer to approved RFM for unusable fuel

7.2 Oil — Engines: 7.7 litres each
Transmission: 12.0 litres
Refer to approved RFM for non-drainable lubricant

8.	Air Speed Limitations	V_{NE}: 168 KIAS Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on (AEO): Maximum 100 % (385 rpm) Minimum 95 % (365 rpm) Power off: Maximum 110 % (424 rpm) Minimum 90 % (346 rpm) Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	15 000 ft (4 572 m) Hp
	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night, non-icing conditions Additional limitations for TO and LDG refer to approved RFM Section 1
12.	Maximum Mass	2 450 kg
13.	Centre of Gravity Range	Refer to approved RFM for C.G. envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 5 for detailed information
15.	Levelling Means	Plumb line from ceiling reference point to the index plate located on passengers compartment floor. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	150 kg at STA 4 920 mm or according to load distribution defined in RFM – Section 5 Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min +4°40’ max +18°10’ TR: RH pedal -7° LH pedal +21° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved A109 Maintenance Manual Chapter 04
23.	Wheels and Tyres	360x135-6 tubeless

IV. Operating and Service Instructions

1.	Flight Manual	A109 Rotorcraft Flight Manual, approval letter 123.391/T, dated 21 May 1975 and later approved revision
2.	Maintenance Manual	A109 Maintenance Manual

3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to approved RFM and related supplements for the approved mandatory and optional equipment

V. Notes

1. Helicopters A109 Model can be converted in helicopter A109A Model according to the requirements of the RAI approved 'Istruzione Tecnica n. A 109-I'.
2. Manufacturer's eligible serial numbers:
   Assembly drawing 109-9000-01-5 from s/n 7106 to s/n 7109.
3. The referenced Assembly Drawing 109-9000-01-5 was later replaced by the Type Design Definition document 109G0000X006/01 Rev. A and subsequent revisions.

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SECTION 2: A109A

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A109A
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3
4.	Type Certification Application Date to RAI	17 September 1975
5.	State of Design Authority	EASA (pre EASA: RAI/ENAC, Italy)
6.	Type Certificate Date by RAI	15 March 1976
7.	Type Certificate n° by RAI	SO/A 156
8.	Type Certificate Data Sheet n° by RAI	SO/A 156
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.’

II. Certification Basis

1.	Reference Date for determining the applicable requirements	17 September 1975
2.	Airworthiness Requirements	

FAR 27 / 29 Amdt. as defined here below.
FAR 27 with Amdt. 1 to 8 included,
FAR 29 Paragraph 29.903 (b) “Category A, engine isolation”.
For the installation 109-0810-22 (all dashes approved) required for IFR (IMC) operations, with one or two pilots during day and night:
“Airworthiness Criteria for Helicopter Instrument Flight”, dated 15 December 1978 (RAI/FAA document).

3.	Special Conditions	Special Conditions N°27-54-EU-17 dated 26 June 1973 forwarded with sheet N° 109.489/T, dated 3 July 1973
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	Shut-off valve, instead of FAR 27.1189 FAR 27.1305 (d), refuel quantity indicator for A109A up to s/n 7165
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	n/a
8.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Drawing 109-9000-01-11/-15/-19/-23/-27 (See Note 3 in this Section).

2. Description

Light twin-engine aircraft, four (4) metallic blades, articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gear, one (1) pilot and seven (7) passengers capacity.
The A109A differs from A109 model for the installation of Allison 250-C20B Turbo Engines.

3. Equipment

Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.
Besides are required the following equipment:

- OAT indicator P/N MS28028-1
- Low rotor rpm and engine failure warning system according to drawing N° 109-0729-21 or 109-0729-31 and 109-0729-22
- For IFR (IMC) operation with one or two pilots during day and night install IFR P/N 109-0810-22 (all dashes approved) applicable to N.C. 7107, 7130 and subsequent.

Approved mandatory and optional equipment listed in report 109-07-03 “Elenco degli equipaggiamenti”.
Refer also to the Equipment list in RFM

4. Dimensions

4.1	Fuselage	Length:	10.71 m
		Width:	2.88 m
		Height:	3.30 m
4.2	Main Rotor	Diameter:	11.00 m
4.3	Tail Rotor	Diameter:	2.03 m

5. Engine

5.1 Model

Rolls–Royce Corporation (former: Allison)
2 x Model 250-C20B

5.2 Type Certificate

State of Design Engine TC/TCDS n°: FAA n°E4CE
EASA TC/TCDS n°: EASA.IM.E.052

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS		
AEO	Take-Off (5 minutes)	346 shp, 113%
	Maximum Continuous	346 shp, 113%
OEI	Take-Off (5 minutes)	400 shp, 131%
	Maximum Continuous	385 shp, 126%
See EASA approved Rotorcraft Flight Manuals for TOT, N1 and transient		

TRANSMISSION TORQUE LIMITS
See EASA approved Rotorcraft Flight Manuals for information

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel

For all temperatures:
MIL-T-5624 type JP4, ASTM D-1655 Jet B
For temperatures higher than -18°C (0°F):
MIL-T-5624 Type JP5, ASTM D-1655 Jet A, ASTM D-1655 Jet A1
For detailed information refer to EASA approved RFM Section 1

	6.2 Oil	Engines: MIL-L-7808 or MIL-L-23699 Transmission: MIL-L-7808 or MIL-L-23699 For detailed information refer to EASA approved RFM Section 1
7.	Fluid capacities	
	7.1 Fuel	Total usable: 550 litres (Two tanks capacity of 275 litres each) Refer to approved RFM for unusable fuel
	7.2 Oil	Engines: 7.7 litres each Transmission: 12.0 litres Refer to approved RFM for non-drainable lubricant
8.	Air Speed Limitations	V_{NE}: 158 KIAS at 2 600 kg V_{NE}: 168 KIAS at 2 450 kg Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on (AEO): Maximum 100 % (385 rpm) Minimum 95 % (365 rpm) Power off: Maximum 110 % (424 rpm) Minimum 90 % (346 rpm) Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	15 000 ft (4 572 m) at 2 450 kg 8 000 ft (2 440 m) at 2 600 kg (See Note 1 in this Section)
	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night IFR non-icing conditions Additional limitations for TO and LDG refer to approved RFM Section 1
12.	Maximum Mass	2 450 kg 2 600 kg (see Note 1 in this Section)
13.	Centre of Gravity Range	Refer to approved RFM for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 5 for detailed information
15.	Levelling Means	Plumb line from ceiling reference point to the index plate located on passengers compartment floor. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin

19.	Maximum Baggage/ Cargo Loads	150 kg at STA 4 920 mm or according to load distribution defined in the RFM Section 5. Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min +4°40' max +18°10' TR: RH pedal -7° LH pedal +21° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved A109A/A109AII Maintenance Manual Chapter 04
23.	Wheels and Tyres	360x 135-6 tubeless

IV. Operating and Service Instructions

1.	Flight Manual	Helicopters with s/n up to 7165: A109A Rotorcraft Flight Manuals, approval letter 123.397/T, dated 2 June 1981, and later approved revisions. Helicopters with s/n 7166 and subs: A109A Rotorcraft Flight Manuals, approval letter 162.3961/T, dated 25 February 1980, and later approved revisions. For IFR operations refer to supplement 1, approved with n° 149.421/T, dated 18 July 1978
2.	Maintenance Manual	A109A/A109AII Maintenance Planning Manual A109A/A109AII Maintenance Manual
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per 'Section: Notes (pertinent to all models)', Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved RFM and related supplements for the approved mandatory and optional equipment

V. Notes

1. To operate at 2 600 kg maximum mass, Model A109A shall embody provisions required by Technical Bulletin n. 109-20 and subsequent approved revisions
2. Manufacturer's eligible serial numbers:
   Assembly drawing 109-9000-01-11 from s/n 7110 to s/n 7114
   Assembly drawing 109-9000-01-15 from s/n 7115 to s/n 7125
   Assembly drawing 109-9000-01-19 from s/n 7126 to s/n 7135
   Assembly drawing 109-9000-01-23 from s/n 7136 to s/n 7165
   Assembly drawing 109-9000-01-27 from s/n 7166 to s/n 7255
3. The referenced Assembly Drawing 109-9000-01-11/-15/-19/-23/-27 was later replaced by the Type Design Definition document 109G0000X006/02 Rev. A and subsequent revisions.

* * *

SECTION 3: A109AII

I. General

1.	Type/ Model/ Variant	
	1.1 Type	A109
	1.2 Model	A109AII
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3
4.	Type Certification Application Date to RAI	12 March 1979
5.	State of Design Authority	EASA (pre EASA: RAI/ENAC, Italy)
6.	Type Certificate Date by RAI	2 June 1981
7.	Type Certificate n° by RAI	SO/A 156
8.	Type Certificate Data Sheet n° by RAI	SO/A 156
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	12 March 1979
2.	Airworthiness Requirements	

FAR 27 / 29 Amdt. as defined here below,
FAR 27 with Amdt. 1 to 8 included,
FAR 29 Paragraph 29.903 (b) “Category A, engine isolation”,
Compliance with Paragraph FAR 27.927 (c) Amdt.12.
For the installation 109-0810-22 (all dashes approved) required for IFR (IMC) operations, with one or two pilots during day and night:
“Airworthiness Criteria for Helicopter Instrument Flight”, dated 15 December 1978 (RAI and FAA document)

3.	Special Conditions	Special Conditions N°27-54-EU-17 dated 26 June 1973 forwarded with sheet N° 109.489/T, dated 3 July 1973
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	Shut-off valve, instead of FAR 27.1189
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	n/a
8.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Drawing 109-9000-01-31 (See Note 2 in this Section).

2. Description

Light twin-engine aircraft, four (4) metallic blades, articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gear, one (1) pilot and seven (7) passengers capacity.
The A109AII differs from A109 model for the possibility of installing of Allison 250-C20B or Allison 250-C20R/1 engines

3. Equipment

Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.
Besides are required the following equipment:
- OAT indicator P/N MS28028-1
- Low rotor rpm and engine failure warning system according to drawing N° 109-0729-21 or 109-0729-31 and 109-0729-22.

For IFR (IMC) operation with one or two pilots during day and night install IFR P/N 109-0810-22 (all dashes approved).
Approved mandatory and optional equipment listed in report 109-07-06 “Elenco degli equipaggiamenti”.
Refer also to the Equipment list in RFM

4. Dimensions

4.1	Fuselage	Length:	10.71 m
		Width:	2.88 m
		Height:	3.30 m
4.2	Main Rotor	Diameter:	11.00 m
4.3	Tail Rotor	Diameter:	2.03 m

5. Engine

5.1 Model

Rolls–Royce Corporation (former: Allison)
2 x Model 250-C20B, or,
2 x Model 250-C20R/1

5.2 Type Certificate

State of Design Engine TC/TCDS n°: FAA n°E4CE
EASA TC/TCDS n°: EASA.IM.E.052

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS - 250-C20R/1 Engines		
AEO	Take-Off (5 minutes)	370 shp, 97%
	Maximum Continuous	370 shp, 97%
OEI	(Emergency) (5 minutes)	450 shp, 118%
See EASA approved Rotorcraft Flight Manual for TOT, N1 and transient		

INSTALLED ENGINE LIMITS - 250-C20B Engines		
AEO	Take-Off (5 minutes)	370 shp, 121%
	Maximum Continuous	370 shp, 121%
OEI	(Emergency) (5 minutes)	420 shp, 137%
See EASA approved Rotorcraft Flight Manual for TOT, N1 and transient		

TRANSMISSION TORQUE LIMITS
See EASA approved Rotorcraft Flight Manual Section 1 for information

5.3.2 Other Engine and Transmission Torque Limits

Refer to approved RFM

6.	Fluids	
	6.1 Fuel	For all temperatures: MIL-T-5624 type JP4, ASTM D-1655 Jet B For temperatures higher than -18°C (0°F): MIL-T-5624 Type JP5, ASTM D-1655 Jet A, ASTM D-1655 Jet A1 For detailed information refer to approved RFM Section 1
	6.2 Oil	Engines: MIL-L-7808G and subsequent or MIL-L-23699 (for ambient temperature above -40°C) Transmission: MIL-L-7808 G and subsequent or MIL-L-23699 (for ambient temperature above -40°C) For detailed information see approved RFM Section 1.
7.	Fluid capacities	
	7.1 Fuel	Total usable: 550 litres (Two tanks capacity of 275 litres each) (Refer to approved RFM for unusable fuel)
	7.2 Oil	Engines: 7.7 litres each Transmission: 12.0 litres (Refer to approved RFM for non-drainable lubricant)
8.	Air Speed Limitations	V_{NE}: 168 KIAS Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on (AEO): Maximum 100 % (385 rpm) Minimum 95 % (365 rpm) Power off: Maximum 110 % (424 rpm) Minimum 90 % (346 rpm) Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	15 000 ft (4 572 m)
	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night IFR Non-icing conditions Additional limitations for TO and LDG refer to approved RFM Section 1
12.	Maximum Mass	2 600 kg
13.	Centre of Gravity Range	Refer to approved RFM for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 5 for detailed information
15.	Levelling Means	Plumb line from ceiling reference point to the index plate located on passengers compartment floor. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)

17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	150 kg at STA 4 920 mm or according to load distribution defined in the RFM – Section 5. Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min +4°40' max +18°10' TR: RH pedal -7° LH pedal +21° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved A109A/A109AII Maintenance Manual Chapter 04
23.	Wheels and Tyres	360x135-6 tubeless

IV. Operating and Service Instructions

1.	Flight Manual	A109AII Rotorcraft Flight Manual, approval letter n° 173.928/T of 2 June 1981,and later approved revisions
2.	Maintenance Manual	A109A/A109AII Maintenance Planning Manual A109A/A109AII Maintenance Manual
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manual and related supplements for the approved mandatory and optional equipment

V. Notes

1. Manufacturer's eligible serial numbers:
   Assembly drawing 109-9000-01-31 from s/n 7256 to s/n 7600
2. The referenced Assembly Drawing 109-9000-01-31 was later replaced by the Type Design Definition document 109G0000X006/03 Rev. A and subsequent revisions.

* * *

SECTION 4: A109C

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A109C
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3
4.	Type Certification Application Date to RAI	14 May 1987
5.	State of Design Authority	EASA (pre EASA: RAI/ENAC, Italy)
6.	Type Certificate Date by RAI	20 June 1989
7.	Type Certificate n° by RAI	SO/A 156
8.	Type Certificate Data Sheet n° by RAI	SO/A 156
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	14 May 1987
2.	Airworthiness Requirements	

FAR 27 / 29 Amdt. as defined here below,
FAR 27 with Amdt. 1 to 8 included,
FAR 29 Paragraph 29.903 (b) “Category A; engine isolation”
Compliance with Paragraph FAR 27.927 (c) Amdt.12.
For the installation 109-0810-22 (all dashes approved) required for IFR (IMC) operations, with one or two pilots during day and night:
“Airworthiness Criteria for Helicopter Instrument Flight” dated 15 December 1978 (RAI and FAA document)

3.	Special Conditions	Special Conditions N°27-54-EU-17, dated 26 June 1973 forwarded with sheet N° 109.489/T, dated 3 July 1973
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	Shut-off valve, instead of FAR 27.1189
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	n/a
8.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Drawing 109-9000-01-135 (See Note 2 in this Section).

2. Description

Light twin-engine aircraft, four (4) composite MR blades, articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gear, one (1) pilot and seven (7) passengers capacity.
The A109C differs from A109AII model for the installation of composite MR blades and increased maximum mass

3. Equipment

Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.
Besides are required the following equipment:
- OAT indicator P/N MS28028-1.
- Low rotor rpm and engine failure warning system according to drawing N° 109-0741-06.

For IFR (IMC) operation with one or two pilots during day and night install IFR P/N 109-0810-22 (all dashes approved).
Approved mandatory and optional equipment listed in report 109-07-09 “Elenco degli equipaggiamenti”.
Refer also to the Equipment list in RFM

4. Dimensions

4.1	Fuselage	Length:	11.45 m
		Width:	2.88 m
		Height:	3.50 m
4.2	Main Rotor	Diameter:	11.00 m
4.3	Tail Rotor	Diameter:	2.00 m

5. Engine

5.1 Model

Rolls–Royce Corporation (former: Allison)
2 x Model 250-C20R/1

5.2 Type Certificate

State of Design Engine TC/TCDS n°: FAA n°E4CE
EASA TC/TCDS n°: EASA.IM.E.052

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS			
AEO		Take Off	395 shp, 104%
		Maximum Continuous	380 shp, 100%
OEI	(Emergency)	Maximum Continuous	450 shp, 118%
See EASA approved Rotorcraft Flight Manuals for TOT, N1 and transient			

TRANSMISSION TORQUE LIMITS
See EASA approved Rotorcraft Flight Manual Section 1

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel

For all temperatures:
MIL-T-5624 type JP4, ASTM D-1655 Jet B
For temperatures higher than -18°C (0°F):
MIL-T-5624 Type JP5, ASTM D-1655 Jet A, ASTM D 1655 Jet A1
For detailed information refer to EASA approved RFM Section 1

6.2 Oil

Engines: MIL-L-7808G and subsequent or MIL-L-23699 (for ambient temperature above -40°C)

		Transmission: MIL-L-7808 G and subsequent or MIL-L-23699 (for ambient temperature above -40°C) For detailed information refer to EASA approved RFM Section 1
7.	Fluid capacities	
	7.1 Fuel	Total usable: 550 litres (Two tanks capacity of 275 litres each) (Refer to approved RFM for unusable fuel)
	7.2 Oil	Engines: 7.7 litres each Transmission: 12.0 litres (Refer to approved RFM for non-drainable lubricant)
8.	Air Speed Limitations	V_{NE}: 168 KIAS Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on (AEO): Maximum 100 % (385 rpm) Minimum 95 % (365 rpm) Power off: Maximum 110 % (424 rpm) Minimum 90 % (346 rpm) Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	15 000 ft (4 572 m)
	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night IFR non-icing conditions Additional limitations for TO and LDG refer to approved RFM Section 1
12.	Maximum Mass	2 720 kg
13.	Centre of Gravity Range	Refer to approved RFM for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 5 for detailed information
15.	Levelling Means	Plumb line from ceiling reference point to the index plate located on passengers compartment floor. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	150 kg at STA 4 920 mm or according to load distribution defined in the RFM – Section 5. Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min +4°40’ max +18°10’

		TR: RH pedal -7° LH pedal +21° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved A109C Maintenance Planning Manual Chapter 04
23.	Wheels and Tyres	360x135-6 tubeless

IV. Operating and Service Instructions

1.	Flight Manual	A109C Rotorcraft Flight Manuals, approval letter 256.357/SCMA dated 19 June 1989, and later approved revisions.
2.	Maintenance Manual	A109C Maintenance Planning Manual A109C Maintenance Manual
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manuals and related supplements for the approved mandatory and optional equipment

V. Notes

1. Manufacturer's eligible serial numbers:
   Assembly drawing 109-9000-01-135 from s/n 7601 to s/n 7800
2. The referenced Assembly Drawing 109-9000-01-135 was later replaced by the Type Design Definition document 109G0000X006/04 Rev. A and subsequent revisions.

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SECTION 5: A109K2

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A109K2
	1.3 Variant	n/a
2.	Airworthiness Category	Small Rotorcraft Restricted Category (differs from A109K2 model for the installation of Kit P/N 109-0811-36 or of Kit P/N 109 0811-70 for E.M.S. operations).
3.	Manufacturer	see 'Section: Notes (Pertinent to all models)', Note 3
4.	Type Certification Application Date to RAI	Normal Category: 9 July 1984 Restricted Category: 4 March 1993
5.	State of Design Authority	EASA (pre EASA: RAI/ENAC, Italy)
6.	Type Certificate Date by RAI	Normal Category: 23 January 1992 Restricted Category: 7 July 1993
7.	Type Certificate n° by RAI	SO/A 156
8.	Type Certificate Data Sheet n° by RAI	SO/A 156
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	Normal Category: 9 July 1984 Restricted Category: 4 March 1993
2.	Airworthiness Requirements	

Normal Category and Restricted Category:
FAR 27 / 29, JAR 29 Amdt. as defined here below,
FAR 27 with Amdt. 1 to 8 included.
Compliance with Paragraphs:
FAR 27.927 (c) Amdt. 12; FAR 27.25 Amdt. 11; FAR 27.865 Amdt. 11; FAR 27.923 Amdt. 12 (for reference only); FAR 27.939 Amdt.11; FAR 27.951 Amdt. 9; FAR 27.1093 Amdt. 20;
FAR 29 Paragraph 29.903 (b) "Category A; engine isolation".
For the installation 109-0810-22 (all dashes approved) required for IFR (IMC) operations, with one or two pilots during day and night:
FAR 27 App. B Amdt. 19, FAR 27.672 Amdt. 21, FAR 27.1309 Amdt. 21, FAR 27.1329 Amdt. 21, FAR 27.1335 Amdt. 13.
For operation with "Take-off and landing procedures and performances data on clear airfield and helipad with critical engine failure":
JAR 29.45 (a), (b)(2) Base Amdt., JAR 29.49 (a) Base Amdt., JAR 29.51 Base Amdt., JAR 29.53 Base Amdt., JAR 29.55 Base Amdt., JAR 29.59 Base Amdt., JAR 29.60 Base Amdt., JAR 29.61 Base Amdt., JAR 29.62 Base Amdt., JAR 29.64 Base Amdt., JAR 29.65 (a) Base Amdt., JAR 29.67 (a) Base Amdt., JAR 29.75 Base Amdt., JAR 29.77 Base Amdt., JAR 29.79 Base Amdt., JAR 29.81 Base Amdt., JAR 29.85 Base Amdt., JAR 29.87 (a) Base Amdt., FAR 29.861 (a) Amdt.26, FAR 29.901 (c) Amdt.25.
For engines Installation only:
FAR 29.903 (b), (c), (e) Amdt. 31, FAR 29.908 (a) Amdt. 25, FAR 27.923 Amdt. 23, FAR 27.927 (a), (b) Amdt. 12, FAR 29.927 (c)(1) Amdt. 26, FAR 29.953 (a) Base Amdt., JAR 29.1027 (a) Base Amdt., JAR 29.1045 (a)(1), (b), (c), (d), (f) Base Amdt., JAR 29.1047 (a) Base Amdt., JAR 29.1181 (a) Base Amdt., JAR 29.1187 (e) Base Amdt., JAR 29.1189 (c) Base Amdt., JAR 29.1191 (a)(1) Base Amdt., JAR 29.1193 (e)

Base Amdt., JAR 29.1305 (a)(6), (b) Base Amdt., JAR 29.1309 (b)(2)(i), (d) Base Amdt., JAR 29.1323 (c)(1) Base Amdt., JAR 29.1331 (b) Base Amdt., JAR 29.1587 (a) Base Amdt.
For emergency floats certification:
FAR 27.563 Amdt. 26, FAR 27.801 Amdt. 11, FAR 27.807 Amdt. 26, FAR 27.1411 Amdt. 11, FAR 27.1415 Amdt. 11.

3.	Special Conditions	Special Conditions N°27-54-EU-17, dated 26 June 1973 forwarded with sheet N° 109.489/T, dated 3 July 1973
4.	Exemptions	Para 27.1(a) Base Amdt. (max weight 6 000 lb) for restricted category. Para 27.1(a) Base Amdt. (max weight 6 000 lb) for normal category (see Note 1 in this Section)
5.	Deviations	none
6.	Equivalent Safety Findings	Shut-off valve, instead of FAR 27.1189
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	ICAO Annex 16, Vol. II, Ed. 1993 (see Note 2 in this Section)
8.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Drawing 109-9000-01-139 (See Note 5 in this Section).
2.	Description	Light twin-engine aircraft, four (4) composite MR blades, articulated main rotor, twin (2) blades teetering tail rotor, tricycle fixed landing gear; one (1) pilot and seven (7) passengers in normal category; one (1) pilot and six (6) passengers in restricted category. The A109K2 differs from A109C model for the installation of Turbomeca Arriel 1K1 turbo engines.

3. Equipment

Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.
Besides are required the following equipment:

- OAT indicator P/N MS28028-1
- Low rotor rpm and engine failure warning system according to drawing N° 109-0741-27 and 109-0752-40.

For IFR (IMC) operation with one or two pilots during day and night install IFR P/N 109-0810-22 (all dashes approved).
For Restricted Category install Kit P/N 109-0811-36 or of Kit P/N 109-0811-70 for E.M.S. operations.
For operations with “Take-off and landing procedures and performances data on clear airfield and helipad with critical engine failure”, install P/N 109-0822-47.
Approved mandatory and optional equipment listed in report 109-07-14 “Elenco degli equipaggiamenti”
Refer also to the Equipment list in RFM

4. Dimensions

4.1	Fuselage	Length:	11.45 m
		Width:	2.88 m
		Height:	3.50 m

4.2 Main Rotor — Diameter: 11.00 m

4.3 Tail Rotor — Diameter: 2.00 m

5. Engine

5.1 Model — Safran Helicopter Engines (former: Turbomeca)
2 x Model Arriel 1K1

5.2 Type Certificate — State of Design Engine TC/TCDS n°: DGAC n°M5
EASA TC/TCDS n°: EASA.E.073

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS			
AEO		Take-Off (5 minutes)	450 shp, 100% (Nr 100%)
		Maximum Continuous	450 shp, 100% (Nr 100%)
OEI	(Emergency)	2.5 min	640 shp, 71.1% (Nr 100%)
	(Emergency)	Maximum Continuous	560 shp, 62.2% (Nr 100%)
See EASA approved Rotorcraft Flight Manuals for TOT, N1 and transient			

TRANSMISSION TORQUE LIMITS
See EASA approved Rotorcraft Flight Manual Section 1

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel — For all temperatures:
MIL-T-5624 type JP4, JP5, ASTM D-1655 Jet A, Jet A1, Jet B, MIL-T-83133 type JP8, AIR 3404-F43 (AVCAT)
For detailed information refer to EASA approved RFM Section 1

6.2 Oil — Engines: MIL-L-7808 or MIL-L-23699
Transmission: DOD-L-85734 or MIL-L-23699
For detailed information refer to EASA approved RFM Section 1

7. Fluid capacities

7.1 Fuel — Total usable: 468 litres
See RFM for unusable fuel and for fuel capacity when installed auxiliary tanks.

7.2 Oil — Engines: 7.7 litres each
Transmission: 12.0 litres
(Refer to approved RFM for non-drainable lubricant)

8. Air Speed Limitations — V_{NE}: 152 KIAS
Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations

9. Rotor Speed Limitations — Power on (AEO):
Maximum 100 % (384 rpm)
Minimum 97 % (372 rpm)
Power off:
Maximum 110 % (422 rpm)
Minimum 90 % (346 rpm)
Refer to approved RFM Section 1 for detailed information

10. Maximum Operating Altitude and Temperature

10.1 Altitude — 15 000 ft (4 572 m)

	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night IFR non-icing conditions Operation with "Take-off and landing procedures and performance data on clear airfield and helipad with critical engine failure". (See Note 3 in this Section) Additional limitations for TO and LDG refer to approved RFM Section 1
12.	Maximum Mass	Take-off and Landing: 2 850 kg (See Note 1 in this Section)
13.	Centre of Gravity Range	Refer to approved RFM for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 6 for detailed information
15.	Levelling Means	Plumb line from ceiling reference point to the index plate located on passengers compartment floor Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Normal Category: Seven (7) passengers Restricted Category: Six (6) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	150 kg at STA 4 920 mm or according to load distribution defined in the RFM – Section 6. Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min +3° max +11° TR: RH pedal -7° LH pedal +23° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved A109K2 Maintenance Planning Manual Chapter 04
23.	Wheels and Tyres	360x135-6 Tubeless

IV. Operating and Service Instructions

1.	Flight Manual	A109K2 VFR RFM, approval letter 97/3166/MAE/ dated 31 July 1997,and later approved revisions. A109K2 IFR RFM, approval letter 97/3166/MAE dated 31 July 1997,and later approved revisions. For operations with *"Take-off and landing procedures and performances data on clear airfield and helipad with critical engine failure"* refer to Appendix 25 to the flight manuals A109K2 EMS (Restricted Category): complete the Rotorcraft Flight Manuals with Appendix 8 for kit P/N

		109-0811-36, approval letter N°97/3166/MAE, dated 31 July 1997and later approved revisions and Appendix 23 for kit P/N 109-0811-70, approval letter N°97/3166/MAE, dated 31 July 1997, and later approved revisions.
2.	Maintenance Manual	A109K2 Maintenance Planning Manual A109K2 Maintenance Manual
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per “Section: Notes (pertinent to all models)”, Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manuals and related supplements for the approved mandatory and optional equipment

V. Notes

1. Weight increase (2 850 kg) in normal category for standard C.N. release A109K2 and A109E: Following the request forwarded with letter 93/09 dated 4 April 1993 (for A109K2) and 97/3.335 dated 2 June 1997 (for A109E); following the approval expressed with letter 96/1429/MAE dated 5 April 1996, as conclusion of certification procedures and relevant RFM revisions, it has been granted the exemption to paragraph 27.1(a) therefore the standard C.N. can be obtained in normal category with take-off maximum weight of 2 850 kg (approval letters 97/3166/MAE dated 31 July 1997 for A109K2 and 97/3147/MAE dated 30 July 1997 for A109E).
2. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Drawing 109-0840-20
3. For the operation with ‘Take-off and landing procedures and performances data on clear airfield and helipad with critical engine failure’, the A109K2 model (normal and restricted category) must install the ‘Engine compartments fire extinguisher’ installation P/N 109-0815-50.
4. Manufacturer's eligible serial numbers:
Assembly drawing 109-9000-01-139 from s/n 10001 to s/n 10100
5. The referenced Assembly Drawing 109-9000-01-139 was later replaced by the Type Design Definition document 109G0000X006/05 Rev. A and subsequent revisions.

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SECTION 6: A109E

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A109E
2.	Airworthiness Category	Small Rotorcraft and Equivalent Category A operations
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3
4.	Type Certification Application Date to RAI	26 July 1993
5.	State of Design Authority	EASA (pre EASA: RAI/ENAC, Italy)
6.	Type Certificate Date by RAI	31 May 1996
7.	Type Certificate n° by RAI	SO/A 156
8.	Type Certificate Data Sheet n° by RAI	SO/A 156
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	For Airworthiness and Environmental Protection: 26 July 1993, for OSD elements: 17 February 2014.

2. Airworthiness Requirements

FAR 27 / 2, JAR 29 Amdt. as defined here below.
For Normal Category:
FAR 27 with Amdt. 1 to 8 included,
FAR 29 Paragraph 29.903 (b) “Category A, engine isolation”,
FAR 27.25 Amdt. 11; FAR 27.923 Amdt. 12 (for reference only); FAR 27.939 Amdt. 11; FAR 27.951 Amdt. 9; FAR 27.1093 Amdt. 20
FAR 27 paragraphs: 27.2 Amdt. 28; 27.21 Amdt. 21; 27.45 Amdt. 21; 27.79 Amdt. 21; 27.141 Amdt. 21; 27.143 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; 27.1505 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; 27.1587 Amdt. 21.
For “Equivalent Category A” operations as per JAR OPS 3.480 in addition to what listed above is required the compliance with following paragraphs:
JAR 29.45 (a), (b)(2) Base Amdt., JAR 29.49 (a) Base Amdt., JAR 29.51 Base Amdt., JAR 29.53 Base Amdt., JAR 29.55 Base Amdt., JAR 29.59 Base Amdt., JAR 29.60 Base Amdt., JAR 29.61 Base Amdt., JAR 29.62 Base Amdt., JAR 29.64 Base Amdt., JAR 29.65 (a) Base Amdt., JAR 29.67 (a) Base Amdt., JAR 29.75 Base Amdt., JAR 29.77 Base Amdt., JAR 29.79 Base Amdt., JAR 29.81 Base Amdt., JAR 29.85 Base Amdt., JAR 29.87 (a) Base Amdt., JAR 29.571 Base Amdt. (AC Material only: AC29-2A Item 230 paragraph 10), JAR 29.861 (a) Base Amdt., JAR 29.901 (c) Base Amdt., JAR 29.903 (b), (c), (e) Base Amdt., JAR 29.908 (a) Base Amdt., JAR 29.953 (a) Base Amdt., JAR 29.1027 (a) Base Amdt., JAR 29.1045 (a)(1), (b), (c), (d), (f) Base Amdt., JAR 29.1047 (a) Base Amdt., JAR 29.1181 (a) Base Amdt., JAR 29.1187 (e) Base Amdt., JAR 29.1189 (c) Base Amdt., JAR 29.1191 (a)(1) Base Amdt., JAR 29.1193 (e) Base Amdt., JAR 29.1195 (a), (d) Base Amdt., JAR 29.1197 Base Amdt., JAR 29.1199 Base Amdt., JAR 29.1201 Base Amdt., JAR 29.1305 (a)(6), (b) Base Amdt., JAR 29.1309 (b)(2)(i), (d) Base Amdt., JAR 29.1323 (c)(1) Base Amdt., JAR 29.1331 (b) Base Amdt., JAR 29.1351 (d)(2) Base Amdt., JAR 29.1587 (a) Base Amdt.

For Emergency floats certification:
FAR 27.563 Amdt. 26, FAR 27.801 Amdt. 11, FAR 27.807 Amdt. 26, FAR 27.1411 Amdt. 11, FAR 27.1415 Amdt. 11.
For the installation 109-0810-22 (all dashes approved) required for IFR (IMC) operations, with one or two pilots during day and night:
FAR 27 App. B Amdt. 19, FAR 27.672 Amdt. 21, FAR 27.1309 Amdt. 21, FAR 27.1329 Amdt. 21, FAR 27.1335 Amdt. 13.
For the A109E with Skid Landing Gear Installation P/N 109-0812-57-101:
In addition to what listed above is required the compliance with following paragraphs:
FAR 27.1 Amdt. 37; FAR 27.25 Amdt. 36; FAR 27.29 Amdt. 14; FAR 27.33 Amdt. 14; FAR 27.65 Amdt. 33; FAR 27.67 Amdt. 23; FAR 27.75 Amdt. 14; FAR 27.151 Amdt. 21; FAR 27.161 Amdt. 21; FAR 27.173 Amdt. 21; FAR 27.175 Amdt. 34; FAR 27.307 Amdt. 26; FAR 27.321 Amdt. 11; 27.337 Amdt. 26; FAR 27.339 Amdt. 11; FAR 27.351 Amdt. 34; FAR 27.391 Amdt. 34; FAR 27.395 Amdt. 26; FAR 27.397 b) Amdt. 11; FAR 27.501 Amdt. 26; FAR 27.571 Amdt. 26; FAR 27.602 dated 24/08/99; FAR 27.603 Amdt. 16; FAR 27.605 Amdt. 16; FAR 27.610 Amdt. 37; FAR 27.613 Amdt. 26; FAR 27.621 Amdt. 34; FAR 27.625 Amdt. 35; FAR 27.629 Amdt. 26; FAR 27.663 Amdt. 26; FAR 27.675 Amdt. 16; FAR 27.685 Amdt. 26; FAR 27.727 Amdt. 26; FAR 27.863 Amdt. 16; FAR 27.917 Amdt. 11; FAR 27.923 Amdt. 29; FAR 27.1141 Amdt. 33; FAR 27.1151 Amdt. 33; FAR 27.1163 Amdt. 23; FAR 27.1185 Amdt. 37; FAR 27.1187 Amdt. 37; FAR 27.1329 Amdt. 35; FAR 27.1365 Amdt. 35; FAR 27.1501 Amdt. 14; FAR 27.1525 Amdt. 21.

3. Special Conditions

- Special Conditions N°27-54-EU-17, dated 26 June 1973 forwarded with sheet N° 109.489/T, dated 3 July 1973;
- Special Conditions N° 94/253/MAV, dated 4 May 1994 for HIRF;
- Special Conditions N° 00/1479/MAE, dated 11 May 2000 ENAC D-1, Issue 2 for cargo hooks P/N 109-0810-31 and P/N 109-0811-75 (refer to D-1).

4.	Exemptions	Para 27.1(a) Base Amdt. (max weight 6000 lb) for normal category. (See Note 2 in this Section)
5.	Deviations	none
6.	Equivalent Safety Findings	Shut-off valve, instead of FAR 27.1189
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	ICAO Annex 16, Vol. II, Ed. 1993 (See Note 3 in this Section)
8.	Operational Suitability Data (OSD)	(For OSD elements see SECTION 13 below)
	8.1 Master Minimum Equipment List (MMEL)	JAR-MMEL Section 1 Subpart A&B at Amdt. 1 (refer to A-MMEL)
	8.2 Flight Crew Data (FCD)	Until and including 16 May 2018: Commission Regulation (EU) N.748/2012 and 69/2014 for Flight Crew Data / Common Procedures Document for conducting Operational Evaluation Board; From 17 May 2018: CS-FCD Initial Issue
	8.3 Simulation Data (SIMD)	*reserved*
	8.4 Maintenance Certifying Staff Data (MCSD)	*reserved*

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Drawing 109-9000-01-151 (See Note 6 in this Section).
2.	Description	Normal Category and “Equivalent Cat A” operations. Light twin-engine aircraft, four (4) composite MR blades, articulated (with elastomeric bearings) main rotor, twin

(2) blades teetering tail rotor, tricycle retractable landing gear or skid landing gear for helicopters equipped with kit P/N 109-0812-57-101, one (1) pilot and seven (7) passengers capacity.
The A109E differs from A109K2 model for the installation of Pratt & Whitney Canada PW206C or Turbomeca Arrius 2K1 turbo engines, controlled by FADEC, and for the new cockpit with Integrated Display System (IDS).

3. Equipment

Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.
Besides are required the following equipment:
Data relevant to outside air temperature are provided from IDS and external probe identified by P/N E22307-2-4
Low rotor rpm and engine failure warning system according to drawing N° 109-0753-28
For "Equivalent Category A" operations as per JAR OPS 3.480: install P/N 109-0811-39 (all dashes approved)
For IFR (IMC) operation with one or two pilots during day and night: install IFR P/N 109-0810-22 (all dashes) applicable to s/n 11001 and subsequent.
For the A109E equipped with Skid Landing Gear installation: skid landing gear P/N 109-0570-69-103, main rotor P/N 109-0112-02-101 and engines Pratt & Whitney Canada. PW206C controlled by FADEC.
Approved mandatory and optional equipment listed in report 109-07-16 "Elenco degli equipaggiamenti"
Refer also to the Equipment list in RFM

4. Dimensions

4.1 Fuselage
Length: 11.45 m
Width: 2.88 m
Height: 3.50 m

For the A109E helicopter equipped with skid landing gear kit P/N 109-0812-57-101:
Height: 3.54 m

4.2 Main Rotor
Diameter: 11.00 m

4.3 Tail Rotor
Diameter: 2.00 m

5. Engine

5.1.1 Model
Pratt & Whitney Canada
2 x Model PW206C controlled by FADEC

5.1.2 Type Certificate
State of Design Engine TC/TCDS n°: TCCA E-23
EASA TC/TCDS n°: EASA.IM.E.017

or

5.2.1 Model
Safran Helicopter Engines (former: Turbomeca)
2 x Model Arrius 2K1 controlled by FADEC

5.2.2 Type Certificate
State of Design Engine TC/TCDS n°: DGAC M20
EASA TC/TCDS n°: EASA.E.029

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS - PW206C Engines		
AEO	Take-Off Power	450 shp, 100% (Nr 100%)
	Maximum Continuous	450 shp, 100% (Nr 100%)
OEI	(Emergency) 2.5 minutes	640 shp, 142% (Nr 100%)
	(Emergency) Maximum Continuous	560 shp, 124% (Nr 100%)
See EASA approved Rotorcraft Flight Manuals for TOT, N1 and transient		

INSTALLED ENGINE LIMITS – Arrius 2K1 Engines		
AEO	Take-Off Power	450 shp, 100% (Nr 100%)
	Maximum Continuous	450 shp, 100% (Nr 100%)
OEI	(Emergency) 2.5 minutes	640 shp, 142% (Nr 100%)
	(Emergency) Maximum Continuous	560 shp, 124% (Nr 100%)
See EASA approved Rotorcraft Flight Manuals for TOT, N1 and transient		

TRANSMISSION TORQUE LIMITS
See EASA approved Rotorcraft Flight Manual Section 1

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel

PW206C:
For all temperatures:
ASTM D-1655 Jet A, Jet A1, Jet A2, Jet B
Military Specifications (for reference only):
MIL-T-83133 type JP-8, MIL-T-5624 type JP4, JP5

Arrius 2K1:
For all temperatures:
ASTM D-1655 Jet A, Jet A1
Military Specifications (for reference only):
MIL-T-83133 type JP-8; MIL-T-5624 type JP5
For detailed information refer to EASA approved RFM Section 1

6.2 Oil

Engines:
PW206C:
MIL-PRF-23699F (MIL-L-23699) or PWA-521

Arrius 2K1:
MIL-PRF-23699 (MIL-L-23699), or,
MIL-L-PRF-7808 (MIL-L-7808)
Transmission:
DOD-L-85734 or MIL-PRF-23699 (MIL-L-23699)
For detailed information refer to EASA approved RFM Section 1

7. Fluid capacities

7.1 Fuel

Total usable: 595 litres
See RFM for unusable fuel and for fuel capacity when installed auxiliary tanks.

7.2 Oil

Engines:
PW206C: 5.12 litres each engine
Arrius 2K1: 4.30 litres each engine
(Refer to RFM for non-drainable lubricant)
Transmission: 11.0 litres
(Refer to RFM for non-drainable lubricant)

8. Air Speed Limitations

V_{NE}: 168 KIAS Power on
V_{NE}: 128 KIAS Power off/OEI
Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations

9. Rotor Speed Limitations

Power on (AEO):
Maximum 102 % (394 rpm)
Minimum 99 % (380 rpm)

		Power on (OEI): Maximum 102 % (394 rpm) Minimum 90 % (346 rpm) Power off: Maximum 110 % (422 rpm) Minimum 90 % (346 rpm) Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	Take-off and landing: 15 000 ft (4 572 m) Maximum operating altitude: 20 000 ft (6 096 m) See EASA approved RFM Section 1 for temperature limitations. For A109E helicopter equipped with skid landing gear kit P/N 109-0812-57-101: Take-off and landing 3 000 ft (914 m) Maximum operating altitude 15 000 ft (4 572 m) See EASA approved RFM Section 1 for temperature limitations.
	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night IFR Non-icing conditions “Equivalent Cat A” operations
12.	Maximum Mass	Take-off and landing: 2 850 kg (see Note 1 and Note 3 in this Section)
13.	Centre of Gravity Range	Refer to approved RFM for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 6 for detailed information
15.	Levelling Means	The spirit level plate is to be placed on cabin roof right stanchion reference. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Normal Category: Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	150 kg at STA 5 300 mm or according to load distribution defined in the RFM – Section 6 Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min -2° max +12° TR: RH pedal -7° LH pedal +23° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved A109E Maintenance Planning Manual Chapter 04

23.	Wheels and Tyres	360x135-6 tubeless (except for the A109E with skid landing gear installation)

IV. Operating and Service Instructions

1.	Flight Manual	For helicopters equipped with PW206C: "A109E Rotorcraft Flight Manual", approval letter N°97/3147/MAE dated 30 July 1997; and later approved revisions. For helicopters equipped with Arrius 2K1: "A109E Rotorcraft Flight Manual" 109-08-053, approval letter N°03/171337/SPA dated 29 July 2003 and later approved revisions and relevant Section 5 "Optional Equipment Supplements" 109-08-063, EASA approved with letter N°2004-6322 dated 17 June 2004 and later approved revisions. For helicopters equipped with skid landing gear kit P/N 109-0812-57-101: "A109E Rotorcraft Flight Manual" 109-08-055, approval letter N°120350/SICU dated 1 June 2001 and later approved revisions and relevant Section 5 "Optional Equipment Supplements" 109-08-058, EASA approved N°2004-6322 dated 17 June 2004 and later approved revisions.
2.	Maintenance Manual	A109E Maintenance Planning Manual A109E Maintenance Manual
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manuals and related supplements for the approved mandatory and optional equipment

V. Notes

1. Weight increase (2 850 kg) in normal category for standard C.N. release A109K2 and A109E:
   Following the request forwarded with letter 93/09 dated 4 April 1993 (for A109K2) and 97/3.335, dated 2 June 1997 (for A109E); following the approval expressed with letter 96/1429/MAE, dated 5 April 1996, as conclusion of certification procedures and relevant RFM revisions, it has been granted the exemption to paragraph 27.1 (a) therefore the standard C.N. can be obtained in normal category with take-off maximum weight of 2 850 kg (approval letters 97/3166/MAE, dated 31 July 1997 for A109K2 and 97/3147/MAE, dated 30 July 1997 for A109E).
2. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the following Drawings:
   Model A109E with PW206C: Drawing: 109-0601-49
   Model A109E with Arrius 2K1: Drawing: 109-0602-06
3. To operate at 3 000 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 authorised to operate at a maximum weight over 2 850 kg.
4. Manufacturer's eligible serial numbers:
   Assembly drawing 109-9000-01-151 from s/n 11001 to 11999
5. Designation: AW109E and Power are used as marketing designation for A109E helicopters.

6. The referenced Assembly Drawing 109-9000-01-151 was later replaced by the Type Design Definition document 109G0000X006/06 Rev. A and subsequent revisions.

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SECTION 7: A119

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A119
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	see this "Section 7", Note 1 see "Section: Notes (Pertinent to all models)", Note 3 see "Section: Notes (Pertinent to all models)", Note 4
4.	Type Certification Application Date to RAI	30 December 1996 (see Note 2 in this Section)
5.	State of Design Authority	EASA (pre EASA: RAI/ENAC, Italy)
6.	Type Certificate Date by ENAC	30 December 1999 (see Note 2 in this Section)
7.	Type Certificate n° by ENAC	SO/A 156
8.	Type Certificate Data Sheet n° by ENAC	SO/A 156
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	For Airworthiness and Environmental Protection: 30 December 1996 (see Note 2 in this Section), for OSD elements: 9 December 2014.
2.	Airworthiness Requirements	

JAR 27 / FAR 27 Amdt. as defined here below.
(see Note 2 in this Section)
JAR 27 issue dated 6 September 1993 except the following paragraphs:
- JAR 27.561 replaced by FAR 27.561 Base Amdt.;
- JAR 27.562; JAR 27.785 replaced by FAR 27.2 Amdt. 28 and FAR 27.785 Base Amdt.;
- JAR 27.952; JAR 27.963 replaced by FAR 27.963 Amdt. 23;
- JAR 27.971 replaced by FAR 27.971 Base Amdt.;
- JAR 27.973 replaced by FAR 27.973 Base Amdt.

For cargo hook and rescue hoist:
JAR 27.865 Amdt. 2 dated 1 May 2001

3.	Special Conditions	HIRF Protection according to JAA Interim Policy, Paper No. INT/POL/27&29/1 issue date 1 June 1997 for EEC System only (refer to F-01 Stage 2)
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	JAR 27.1322; JAR 27.1509 (a) see Note 2 in this Section
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	ICAO Annex 16, Vol. II, Ed. 1993, (see Note 3 in this Section)
8.	Operational Suitability Data (OSD)	(For OSD elements see SECTION 13 below)
	8.1 Master Minimum Equipment List (MMEL)	Special Condition SC-CS-GEN-MMEL-H (refer to A-MMEL)
	8.2 Flight Crew Data (FCD)	CS-FCD Initial Issue

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8.3 Simulation Data (SIMD) *reserved*

8.4 Maintenance Certifying Staff Data (MCSD) *reserved*

III. Technical Characteristics and Operational Limitations

1. Type Design Definition — Refer to Report 109-00-155 Rev. B and subsequent (see Note 2 and Note 6 in this Section)

2. Description — The A119 differs from A109E model for the installation of a single Pratt & Whitney Canada PT6B-37A turbo engine, controlled by Electronic Engine Control (EEC) (see Note 2 in this Section)

3. Equipment

Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.
Besides are required the following equipment:
- OAT indicator P/N MS28028-1
- Low rotor rpm and engine failure warning system according to drawing N° 109-0729-21 and 109-0729-22.

For helicopters equipped with IDS, the 109-0729-21 is replaced by the 109-0900-66.
For A119 helicopters not equipped with IDS, approved mandatory and optional equipment listed in report 109-07-19 “Elenco degli equipaggiamenti”
For A119 helicopters equipped with IDS, approved mandatory and optional equipment are listed in report 109G0840W006 “A119 with IDS Helicopter – Chart A – Equipment List”
Refer also to the Equipment list in RFM

4. Dimensions

4.1 Fuselage — Length: 11.17 m; Width: 2.88 m; Height: 3.77 m

4.2 Main Rotor — Diameter: 10.83 m

4.3 Tail Rotor — Diameter: 2.00 m, with metallic TR blades; Diameter: 1.94 m, with composite TR blades

5. Engine

5.1 Model — Pratt & Whitney Canada (see Note 4 in this Section)
1 x Model PT6B-37A
Build Specification No. 1017 (for A119 helicopters not equipped with IDS), or,
Build Specification No. 1142 (for A119 helicopters equipped with IDS)

5.2 Type Certificate — State of Design Engine TC/TCDS n°: TCCA E-20
EASA TC/TCDS n°: EASA.IM.E.039

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits (see Note 2 in this Section)

INSTALLED ENGINE LIMITS	
Take-Off (5 minutes)	900 shp, 108.5% (Nr 100%)
Maximum Continuous	830 shp, 100% (Nr 100%)
See EASA approved Rotorcraft Flight Manuals for ITT, N1 and transient	

TRANSMISSION TORQUE LIMITS
See EASA approved Rotorcraft Flight Manuals Section 1

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6.	Fluids	
	6.1 Fuel	For all temperatures: ASTM D1655 Type Jet A, ASTM D1655 Type Jet A-1, MIL-T-5624 Type JP-5, MIL-T-83133 Type JP-8 For detailed information refer to EASA approved RFM Section 1
	6.2 Oil	Engines: MIL-PRF-23699 (MIL-L-23699) or PWA-521 Transmission: DOD-L-85734 or MIL-PRF-23699 (MIL-L-23699) For detailed information refer to EASA approved RFM Section 1
7.	Fluid capacities	
	7.1 Fuel	Total usable: 595 litres Refer to RFM for unusable fuel and for fuel capacity when installed auxiliary tanks.
	7.2 Oil	Engines: 10.45 litres Transmission: 10.3 litres (Refer to approved RFM for non-drainable lubricant)
8.	Air Speed Limitations	V_{NE}: 152 KIAS Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on: (see Note 2 in this Section) Maximum 101 % (388 rpm) Minimum 103 % (396 rpm) with torque <50% Power off: Maximum 110 % (422 rpm) Minimum 90 % (346 rpm) Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	(see Note 2 in this Section)
	10.1 Altitude	15 000 ft (4 572 m) Hp
	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night non-icing conditions Additional limitations for TO and LDG refer to approved RFM Section 1
12.	Maximum Mass	Take-off and landing: 2 720 kg (see Note 2 in this Section)
13.	Centre of Gravity Range	Refer to approved RFM for CG envelope (see Note 2 in this Section)
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 6 for detailed information

15.	Levelling Means	Plumb line from ceiling reference point to the index plate located on passengers compartment floor. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	150 kg at STA 4880 mm or according to load distribution defined in the RFM – Section 6. Max load on cargo compartment floor: 500 kg/m^2. Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min -2° max +12° TR (metallic blades): RH pedal -7° LH pedal +23° TR (composite blades): RH pedal -8° LH pedal +24° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved Airworthiness Limitations: 19-A-AMPI-00-P, Chapter 04 (see Note 2 in this Section)

IV. Operating and Service Instructions

1.	Flight Manual	For aircraft equipped with standard instrument: A119 RFM, approval letter n° 99/4812/MAE, dated 30 December 1999 and later approved revisions. For aircraft equipped with Integrated Display System A119 RFM n° 109G0040A006, approval letter n° 03/171218/SPA, dated 23 May 2003 and later approved revisions. (see Note 2 in this Section)
2.	Maintenance Manual	A119/AW119MKII-MPM Issue 1 Rev. 0 Maintenance Planning Manual A119/AW119 MKII-MM Issue 1 Rev. 0 Maintenance Manual and subsequent approved (when required) revisions. 19-A-AMPI-00-P ⇨ Chapter 00 (first issue and subs), Chapter 04 (first issue and subs approved), Chapter 05 (first issue and subs) 19-A-AMP-00-X ⇨ Chapters 6 and subs (first issue and subs) (See Note 7 in this Section)
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manuals and related supplements for the approved mandatory and optional equipment

V. Notes

1. Manufacturer:
   from s/n 14003 to s/n 14516: see "Section: Notes (Pertinent to all models)", Note 3
   from s/n 14517 to s/n 14700: see "Section: Notes (Pertinent to all models)", Note 4

2. The A119 Helicopters equipped with IDS (from s/n 14031 to s/n 14700) may be converted into AW119MKII by the application of the retrofit kit P/N 109-0824-09-101, provided that:
   - Composite Tail Rotor Blades P/N 709-0160-48-101 are installed.
   - If not installed, Composite Tail Rotor Blades must be installed by applying the retrofit Kit P/N 109-0823-51-101 (ref. BT119-9).
   - The Engine Air Particle Separator Inst. Kit P/N 109-0812-87-101 is removed (if installed), since not certified for the AW119MKII helicopter.
   - All supplemental installations not certified for the AW119MKII helicopter model are removed.

   After conversion, refer to AW119MKII for all information, except the following:

   I.7. EASA Application Date: 6 July 2007
   ENAC Recommendation Date: 18 December 2007
   I.9. EASA Type Certification Date: 18 December 2007
   II.1. Reference Date for determining the applicable requirements: Report 109G0000N084 “A119 – Retrofit Kit for Conversion into AW119MKII helicopter model. Compliance Check List and Certification Program A109 Helicopter: Compliance with Applicable Rules”
   III.1. Type Design Definition: Refer to Report 109-00-155 Rev. D and subsequent (See Note 6 in this Section)
   III.22. Life-limited parts: Refer to EASA approved 19-A-AMPI-00-P Chapter 04 for A119 helicopters converted into AW119MKII

   Jointly with the Retrofit Kit P/N 109-0824-09-101, the PT6B-37A engine configuration must be updated to BS 1242 by the application of P&WC SB 39055.

3. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Drawing 109-0613-67

4. Manufacturer's eligible serial numbers:
   Assembly drawing Assembly drawing 119-9000-01-107 from s/n 14003 to s/n 14700
   (See Note 2 above)

5. Designation: AW119 and Koala are used as marketing designation for A119 helicopters

6. The referenced Type Design Definition document 109-00-155 was later replaced by the Type Design Definition document 109G0000X028 Rev. A and subsequent revisions.

7. Maintenance manuals 19-A-AMPI-00-P and 19-A-AMP-00-X respectively replaced Maintenance manuals A119/AW119MKII-MPM and A119/AW119 MKII-MM, which will no longer be kept updated.

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SECTION 8: A109LUH

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A109LUH
2.	Airworthiness Category	Small Rotorcraft and Equivalent Category A operations
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3.
4.	Type Certification Application Date to ENAC	19 March 2002
5.	State of Design Authority	EASA
6.	EASA Type Certification Date	29 October 2004

II. Certification Basis

1.	Reference Date for determining the applicable requirements	19 March 2002

2. Airworthiness Requirements

FAR 27 / 29, JAR 27 / 29 Amdt. as defined here below.
FAR Part 27 with Amdt. from 1 to 8 included
FAR Part 27 paragraphs: 27.2 Amdt. 28; 27.21 Amdt. 21; 27.45 Amdt. 21; 27.79 Amdt. 21; 27.141 Amdt. 21; 27.143 Amdt. 21; 27.401 Amdt. 27; 27.901 Amdt. 23; 27.903 Amdt. 23; 27.927 Amdt. 23; 27.939 Amdt. 11; 27.951 Amdt. 9; 27.954 Amdt. 23; 27.1091 Amdt. 23; 27.1093 Amdt. 20; 27.1321 Amdt. 13; 27.1322 Amdt. 11; 27.1323 Amdt. 13; 27.1325 Amdt. 13; 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; 27.1587 Amdt. 21;
FAR Part 29 Paragraph 29.903 (b), “Category A; engine isolation”
JAR 27 change 1 Amdt.2, 1 May 2001 for the new or changed parts classified as major significant changes with respect to the A109E with the applicable paragraphs as follows:

27.1	27.339	27.621	27.807	27.977	27.1329 c	27.1559
27.25	27.351	27.625	27.865 a	27.991	27.1329 d	
27.29	27.361	27.629	27.865 b	27.997	27.1329 e	APP.B.1
27.33	27.391	27.663	27.865 c	27.999	27.1337	APP.B.2
27.65	27.395	27.673	27.865 d	27.1019	27.1351	APP.B.3
27.67	27.397	27.674	27.917	27.1027	27.1353	APP.B.4
27.75	27.501	27.675	27.923	27.1141	27.1357	APP.B.5
27.151	27.561*	27.685	27.955	27.1163	27.1365	APP.B.6
27.161	27.563	27.727	27.961	27.1185	27.1401	APP.B.7
27.173	27.571	27.729	27.963	27.1187	27.1415	APP.B.8
27.175	27.602 em.3	27.751	27.965	27.1189	27.1501	APP.B.9
27.177	27.603	27.753	27.967	27.1305	27.1525	
27.307	27.605	27.779	27.969	27.1327	27.1543	
27.321	27.610	27.801	27.971	27.1329 a	27.1545	
27.337	27.613	27.805	27.975	27.1329 b	27.1547	

*only for instrument and overhead panels, central pedestal inst. and adjacent airframe structure.

For “Equivalent Category A” operations as per JAR OPS 3.480 in addition to what listed above is required the compliance with following paragraphs:
JAR 29.45 (a), (b)(2) Base Amdt., JAR 29.49 (a) Base Amdt., JAR 29.51 Base Amdt., JAR 29.53 Base Amdt., JAR 29.55 Base Amdt., JAR 29.59 Base Amdt., JAR 29.60 Base Amdt., JAR 29.61 Base Amdt., JAR 29.62 Base Amdt., JAR 29.64, Base Amdt., JAR 29.65 (a) Base Amdt., JAR 29.67 (a) Base Amdt., JAR 29.75 Base Amdt., JAR 29.77 Base Amdt., JAR 29.79 Base Amdt., JAR 29.81 Base Amdt., JAR 29.85 Base Amdt., JAR 29.87 (a) Base Amdt., JAR 29.571 Base Amdt. (AC Material only: AC 29-2B Paragraph 230A.b(2)),

JAR 29.861 (a) Base Amdt., JAR 29.901 (c) Base Amdt., JAR 29.903 (b), (c), (e) Base Amdt., JAR 29.908 (a) Base Amdt., JAR 29.927 (c)(1) Base Amdt., JAR 29.953 (a) Base Amdt., JAR 29.1027 (a) Base Amdt., JAR 29.1045 (a)(1), (b), (c), (d), (f) Base Amdt., JAR 29.1047 (a) Base Amdt., JAR 29.1181 (a) Base Amdt., JAR 29.1187 (e) Base Amdt., JAR 29.1189 (c) Base Amdt., JAR 29.1191 (a)(1) Base Amdt., JAR 29.1193 (e) Base Amdt., JAR 29.1195 (a), (d) Base Amdt., JAR 29.1197 Base Amdt., JAR 29.1199 Base Amdt., JAR 29.1201 Base Amdt., JAR 29.1305 (a)(6), (b) Base Amdt., JAR 29.1309 (b)(2)(i), (d) Base Amdt., JAR 29.1323 (c)(1) Base Amdt., JAR 29.1331 (b) Base Amdt., JAR 29.1351 (d)(2) Base Amdt., JAR 29.1587 (a) Base Amdt.

3.	Special Conditions	HIRF: N°94/253/MAV dated 04/05/1994 for HIRF for basic helicopter; Interim Policy in the Administrative and Guidance Material, Section 3, Part 3 under Policy Paper Number INT/POL/27&29/1 Issue 2, for the new avionics
4.	Exemptions	n/a
5.	Deviations	none
6.	Equivalent Safety Findings	Power Index JAR 27.1305 (refer to F-05)
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	ICAO Annex 16, Ed 1993, Vol II, Part II, Chapter 2 (see Note 1 in this Section)
8.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Drawing 109G0000X002 Rev. F, dated 14 January 2005 and subsequent approved revisions
2.	Description	Normal Category and “Equivalent Cat A” operations. Light twin-engine helicopter, four (4) blades articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gears, two pilots and six passengers capacity. The A109LUH differs from A109E model for the installation of Safran Arrius 2K2 turbo engines, controlled through FADEC, for the new cockpit, for the new avionic equipment configuration and 4-axis autopilot, fuel tanks and fuel quantity gauging system, main rotor group, engine and transmission oil cooling system, airframe modifications to improve cockpit accessibility

3. Equipment

Basic equipment required by the Airworthiness Specifications (see Certification Basis) shall be installed on the helicopter for Airworthiness Certificate release.
In addition the following equipment is required:
Data relevant to outside temperature, provided from CHS and external probe identified by P/N E22307-1-1.
Low rotor RPM and engine failure warning system according to drawing N° SC628P.
Approved mandatory and optional equipment are listed in Report 109G0840W011 “A109LUH Helicopter Chart A – Equipment list”.

Refer also to the Equipment list in the RFM

4. Dimensions

4.1 Fuselage	Length:	11.43 m
	Width:	2.88 m
	Height:	3.42 m
4.2 Main Rotor	Diameter:	10.83 m
4.3 Tail Rotor	Diameter:	2.00 m

5. Engine

5.1 Model — Safran Helicopter Engines (former: Turbomeca)
2 x Model Arrius 2K2

5.2 Type Certificate — State of Design Engine TC/TCDS n°: DGAC M20
EASA TC/TCDS n°: EASA.E.029

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS		
AEO	Maximum Continuous	450 shp 100% TQ (100% NR)
	Take-Off Power	450 shp 100% TQ (100% NR)
	Transient (6 sec)	495 shp 110% TQ (100% NR)
OEI	(Emergency) Maximum Continuous	560 shp 124% TQ (100% NR)
	(Emergency) 2.5 minutes	640 shp 142% (100% NR)
	(Emergency) Transient (6 sec)	700 shp, 156% (100% NR)
See EASA approved Rotorcraft Flight Manual for ITT, Ng		

TRANSMISSION TORQUE LIMITS		
AEO	Maximum Continuous	900 shp 100% TQ (100% NR)
	Take-Off Power	900 shp 100% TQ (100% NR)
	Transient (6 sec)	990 shp 110% TQ (100% NR)
OEI	(Emergency) Maximum Continuous	560 shp 124% TQ (100% NR)
	(Emergency) 2.5 minutes	640 shp 142% (100% NR)
	(Emergency) Transient (6 sec)	700 shp, 156% (100% NR)
See EASA approved Rotorcraft Flight Manual Section 1		

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel — For all temperatures:
ASTM D-1655 Jet A
ASTM D-1655-82 Jet A1
MIL-T-83133 JP-8.
For detailed information refer to EASA approved RFM Section 1

6.2 Oil — Engines:
Engine oil applicable specifications:
MIL-PRF-23699 (MIL-L-23699), DEF STAN 91-101 (DERD 2499), MIL-PRF-7808 (MIL-L-7808), AIR 3514, DEF STAN 91-94
Transmission: Transmission oil applicable specifications:
MIL-PRF-23699 (MIL-L-23699), DOD-L-85734
For detailed information refer to EASA approved RFM Section 1

7. Fluid capacities

	7.1 Fuel	Total usable: 599 litres See RFM for unusable fuel
	7.2 Oil	Engines (TM2K2): 4.3 litres for each engine, (refer to RFM for non-drainable lubricant) Transmission: 11.7 litres (Refer to RFM for non-drainable lubricant)
8.	Air Speed Limitations	V_{NE}: 168 KIAS Power on V_{NE}: 120 KIAS Power off Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on (AEO): Maximum continuous 102 % Minimum 99 % Take-off and landing 103 % Power off: Maximum 110 % Minimum 95 % Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	Maximum operating altitude 20 000 ft (6 096 m) See EASA approved RFM Section 1 for take-off and landing altitude and for temperature limitations.
	10.2 Temperature	Refer to approved RFM
11.	Operating Limitations	VFR day and night IFR Non-icing conditions “Equivalent Cat A” operations day and night VFR in non - icing conditions
12.	Maximum Mass	3 000 kg
13.	Centre of Gravity Range	Refer to approved RFM for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 6 for detailed information
15.	Levelling Means	The spirit level plate is to be placed on cabin roof right stanchion reference. Refer to Maintenance Manual.
16.	Minimum Flight Crew	VFR day operations: One (1) pilot (right seat) VFR night operations: Two (2) pilots IFR operations: Two (2) pilots
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	50 kg according to load distribution defined in the RFM – Section 6. Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min -1° max +12°

		TR: RH pedal -7° LH pedal +24° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved Airworthiness Limitations: Chapter 4 (Section 09-A-04) of the doc n° 09-A/AMP-00-P Issue 2 dated 31-12-04 and subsequent approved revisions.
23.	Wheels and Tyres	n/a

IV. Operating and Service Instructions

1.	Flight Manual	109G0040A009 Issue 1 rev 1 and later approved revisions.
2.	Maintenance Manual	09-A/AMP-00-P Issue 2 and subsequent approved revisions
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manual and related supplements for the approved mandatory and optional equipment

V. Notes

1. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Drawing 109-0602-06
2. Manufacturer's eligible serial numbers:
   Assembly drawing 109-9000-08-203 from s/n 13751 to 13800
3. Designation: AW109LUH is used as marketing designation for A109LUH helicopters

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SECTION 9: A109S.

I. General

1.	Type/ Model/ Variant	
	1.1 Type	A109
	1.2 Model	A109S
2.	Airworthiness Category	Small Rotorcraft, Category A
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3.
4.	Type Certification Application Date to ENAC	11 December 2001
5.	State of Design Authority	EASA
6.	EASA Type Certification Date	1 June 2005

II. Certification Basis

1.	Reference Date for determining the applicable requirements	For Airworthiness and Environmental Protection: 31 May 2002, for OSD elements: 17 February 2014.

2. Airworthiness Requirements

FAR 27 / 29, JAR 27 / 29 Amdt. as defined here below.:
FAR 27 as quoted in the EASA TCDS R.005 for unchanged areas and JAR 27 Amdt. 3, 1 April 2002, for the new or changed parts with respect to the A109E (identified in document n° 109-01-182 rev B), with the exceptions of JAR 27.863.
For Category A Operations Appendix C to JAR 27 Amdt. 3.

For helicopters equipped with Trekker kit P/N 109G0000F01-101:
A109S helicopters certification basis for unchanged areas and CS-27 Amdt. 3, 11 December 2012 for the new or changed parts.

For helicopters equipped with Trekker kit P/N 109G0000F01-201:
Same as for helicopters equipped with Trekker kit P/N 109G0000F01-101 with in addition CS 27.1317 at Amdt. 4 for the AFCS components in lieu of HIRF Special condition n° INT/POL/27&29/1 Issue 3.

3.	Special Conditions	HIRF: Special condition n° 94/253/MAV dated 4 May 1994 (as for A109E model) HIRF: Special condition n° INT/POL/27&29/1 Issue 3, dated 01/10/2003 for A109S equipped with Trekker kit P/N 109G0000F01-101/-201 (AFCS components excluded) and applicable for new avionics equipment reported in F-01, Issue 2
4.	Exemptions	n/a
5.	Deviations	none
6.	Equivalent Safety Findings	Power Index Indicator (refer to F-03, Issue 3) for A109S with Trekker kit P/N 109G0000F01-101/-201
7.	Environmental Protection Requirements	
	7.1 Noise	see TCDSN EASA.R.005
	7.2 Emissions	ICAO Annex 16, Ed 1993, Vol II, Part II, Chapt. 2 (see Note 1 in this Section)
8.	Operational Suitability Data (OSD)	(For OSD elements see SECTION 13 below)
	8.1 Master Minimum Equipment List (MMEL)	JAR-MMEL Section 1 Subpart A&B at Amdt. 1 (refer to A-MMEL)

8.2	Flight Crew Data (FCD)	Until and including 16 May 2018: Commission Regulation (EU) N.748/2012 and 69/2014 for Flight Crew Data / Common Procedures Document for conducting Operational Evaluation Board; From 17 May 2018: CS-FCD Initial Issue
8.3	Simulation Data (SIMD)	*reserved*
8.4	Maintenance Certifying Staff Data (MCSD)	*reserved*

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Type Design Definition 109G0000X006/07 Rev. G and subsequent approved revisions
2.	Description	Normal Category and "Category A" operations. Light twin-engine helicopter, four (4) blades articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gears, one / two pilots and six / seven passengers capacity. The A109S differs from A109E model for the installation of Pratt & Whitney Canada PW207C engines, controlled through FADEC, passengers and pilots crash resistant seats and fuel tanks and fuel quantity gauging system crash resistant, main rotor group, engine and transmission oil cooling system, and airframe modifications to improve cockpit accessibility.

3. Equipment

Basic equipment required by the Airworthiness Specifications (see Certification Basis) shall be installed on the helicopter for Airworthiness Certificate release.
For A109S not equipped with Trekker kit P/N 109G0000F01-101/-201:
In addition to basic equipment, the following equipment are required:

- Data relevant to outside temperature, provided from IDS and external probe identified by P/N E22307-2-4;
- Low rotor rpm and engine failure warning according to drawing N° 109-0753-28.

For *Category A operations* the following equipment are required (ref 109-0823-98-101):

- Engine Fire Extinguisher 109-0811-39;
- EDU 109-0900-76-2A01;
- DAU 109-0900-76-6A01;
- AWG 109-0729-96-105;
- Cat A Electrical kit 109-0823-96;
- Searchlight 109-0811-46 (for night operations);
- Additional Altimeter 109-0814-93;
- Additional Magnetic Compass 109-0814-94.

Approved mandatory and optional equipment are listed in the Report 109G0840W017 "A109S Helicopter – Chart A Equipment list".

For A109S equipped with Trekker kit P/N 109G0000F01-101/-201:

In addition to basic equipment, the following equipment are required:
For *Category A operations* with A109S equipped with Trekker kit P/N 109G0000F01-101/-201:

- Engine Fire Extinguisher 109-0811-39.

For A109S equipped with Trekker kit P/N 109G0000F01-101:
Approved mandatory and optional equipment are listed in the Report 109G0840W048 "A109S Trekker Chart A Equipment list".

For A109S equipped with Trekker kit P/N 109G0000F01-201:
Approved mandatory and optional equipment are listed in the Report 109G0840W051 “A109S Trekker Garmin AFCS - Chart A Equipment list”.

Refer also to the Equipment list in RFMs

4. Dimensions

4.1 Fuselage — Length: 11.65 m; Width: 3.29 m; Height: 3.40 m

For A109S with Trekker kit P/N 109G0000F01-101/-201:
Height: 3.53 m

4.2 Main Rotor — Diameter: 10.83 m

4.3 Tail Rotor — Diameter: 1.94 m

5. Engine

5.1 Model — Pratt & Whitney Canada
2 x Model PW207C

5.2 Type Certificate — State of Design Engine TC/TCDS n°: TCCA E-23
EASA TC/TCDS n°: EASA.IM.E.017

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS (Thermodynamics / Mechanical Power)			
AEO		Take-Off Power (5 minutes)	735 shp / 572 shp (102% NR)
		Maximum Continuous	625 shp / 572 shp (102% NR)
OEI	(Emergency)	2.5 min	815 shp / 745 shp (102% NR)
	(Emergency)	Maximum Continuous	735 shp / 646 shp (102% NR)
See EASA approved Rotorcraft Flight Manuals for TOT, N1			

TRANSMISSION TORQUE LIMITS			
AEO		Take-Off Power (5 minutes)	960 shp 107% TQ (100% NR)
		Maximum Continuous	900 shp 100% TQ (100% NR)
		Transient (6 sec)	990 shp 110% TQ (100% NR)
OEI	(Emergency)	2.5 min	730 shp 162% TQ (100% NR)
	(Emergency)	Maximum Continuous	600 shp 133% TQ (100% NR)
	(Emergency)	Transient (6 sec)	780 shp 173% TQ (100% NR)
See EASA approved Rotorcraft Flight Manuals Section 1 for additional detailed information			

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFMs

6. Fluids

6.1 Fuel — For all temperatures:
ASTM D-1655 Jet A, ASTM D-1655-82 Jet A1,
MIL-T-5624 JP-5, MIL-T-83133 JP-8
For detailed information refer to EASA approved RFMs Section 1

6.2 Oil — Engines: MIL-PRF-23699 (MIL-L-23699)
Transmission: MIL-PRF-23699 (MIL-L-23699), DOD-PRF-85734
For detailed information refer to EASA approved RFMs Section 1

7. Fluid capacities

7.1 Fuel — Total usable: 563 litres

		See RFMs for unusable fuel.
	7.2 Oil	Engines: 5.12 litres for each engine Transmission: 11.0 litres (Refer to approved RFMs for non-drainable lubricant)
8.	Air Speed Limitations	V_{NE}: 168 KIAS Power on V_{NE}: 128 KIAS Power off For A109S with Trekker kit P/N 109G0000F01-101/-201: V_{NE}: 160 KIAS Power on V_{NE}: 120 KIAS Power off Refer to approved RFMs for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on (AEO): Maximum Continuous 101 % Minimum 99 % Take-off and Landings 102 % Power off: Maximum 110 % Minimum 95 % Refer to approved RFMs Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	20 000 ft (6 096 m) Hp
	10.2 Temperature	Refer to approved RFMs – Section 1 for Take-off and landing altitude and for temperature limitations
11.	Operating Limitations	VFR day and night IFR non-icing conditions Category A operations
12.	Maximum Mass	3 175 kg
13.	Centre of Gravity Range	Refer to approved RFMs Section 1 for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 635 mm forward of the front jack point. For A109S with Trekker kit P/N 109G0000F01-101/-201: Longitudinal: the datum line (STA 0) is located at 1 580 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFMs Section 6 for detailed information
15.	Levelling Means	The spirit level plate is to be placed on cabin roof right stanchion reference. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	120 kg according to load distribution defined in the RFMs – Section 6.

		Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min -1°24' max +12° TR: RH pedal -7° LH pedal +24° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved Airworthiness Limitations: 0B-A-AMPI-00-P, Chapter 04. For A109S with Trekker kit P/N 109G0000F01-101/-201: Refer to EASA approved Airworthiness Limitations: 0B-D-AMPI-00-P, Chapter 04.
23.	Wheels and Tyres	360x135-6 tubeless For A109S with Trekker kit P/N 109G0000F01-101/-201: n/a

IV. Operating and Service Instructions

1.	Flight Manual	109G0040A013 Issue 1 rev 3 and later approved revisions OES 109G0040A014 Issue 1 rev 3 and later approved revisions 109G0040A034 Issue 1 and later approved revisions for A109S equipped with Trekker kit P/N 109G0000F01-101. 109G0040A035 Issue 1 and later approved revisions for A109S equipped with Trekker kit P/N 109G0000F01-201 (for NVIS operations, as per Note 4 in this Section, refer to Supplement n. 20)
2.	Maintenance Manual	For A109S without Trekker kit P/N 109G0000F01-101/-201 0B-A-AMPI-00-P ⇨ Chapter 00 (first issue and subs), Chapter 04 (third issue and subs approved), Chapter 05 (first issue and subs) For A109S with Trekker kit P/N 109G0000F01-101/-201: 0B-D-AMPI-00-P ⇨ Chapter 00 (first issue and subs), Chapter 04 (fourth issue and subs approved), Chapter 05 (first issue and subs) 0B-A-AMP-00-X ⇨ Chapters 6 and subs (first issue and subs)
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manual and related supplements for the approved mandatory and optional equipment

V. Notes

1. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Drawing 109-0601-49
2. Manufacturer's eligible serial numbers:

Assembly drawing 109-9000-09-101/-103 (ref Type Design 109G0000X006/07) s/n 22001, 22003 through 22087, 22089 through 22200;

For helicopters equipped with Trekker kit P/N 109G0000F01-101 (3-Axis AFCS): s/n 22002, 22701 through 22741.

For helicopters equipped with Trekker kit P/N 109G0000F01-201 (4-Axis AFCS): s/n 22088, 22742 through 22999.

3. Designation: AW109S and Grand are used as marketing designation for A109S helicopters not equipped with Trekker kit P/N 109G0000F01-101/-201.
A109S Trekker, AW109 Trekker and Trekker are used as marketing designation for A109S helicopters equipped with Trekker kit P/N 109G0000F01-101/201.

4. NVIS kit P/N 109G3360F02 or P/N 109G3360F03, as per RFM 109G0040A034 or 109G0040A035 Supplement n. 20, allows NVIS Operations for helicopters equipped with Trekker kit P/N 109G0000F01-101/-201. Modifications that add or change systems that emit or reflect light, have the potential to alter or change the NVIS lighting-NVG compatibility. For this reason, they require an engineering evaluation that must be approved by the aircraft certification authority.
Subsequent modifications and deviations to the NVG helicopter configuration shall be managed in accordance with document 109G3360E004 “109S Trekker Helicopter NVG Policy”.
The aircraft configuration involving internal/external emitting/reflecting equipment approved for use with NVG is described in the Report 109G3360A005 “A109S Trekker NVG compatibility Reference Handbook”.

5. PEDs sensitive equipment, which are under the responsibility of the TC Holder and are declared as NON-PED tolerant, or have PED tolerance limitations are reported in the document 109G9850A002 “A109S Trekker - PED Compatibility Reference Handbook”.

6. A109S helicopter equipped with Trekker Kit P/N 109G0000F01-201 (4-Axis AFCS) and IFR Kit P/N 109G2510F02-201 has been demonstrated to be compliant with Certification Specifications for Airborne Communications Navigation and Surveillance, CS-ACNS Issue 4, Subpart C, dated 5 April 2022 (for details see the RFM 109G0040A035 Supplement 18 – PBN/FMS Approved Operations).

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SECTION 10: A119MKII

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	AW119MKII
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	see 'Section: Notes (Pertinent to all models)', Note 3 and 4
4.	Type Certification Application Date	4 August 2006
5.	State of Design Authority	EASA
6.	EASA Type Certification Date	11 June 2007

II. Certification Basis

1.	Reference Date for determining the applicable requirements	For Airworthiness and Environmental Protection: 4 August 2006, for OSD elements: 9 December 2014.

2. Airworthiness Requirements

CS-27 / JAR 27 / FAR 27 Amdt. as defined here below.
For all the affected areas, systems, parts or appliances, the following paragraphs of the CS-27 Amdt. /, dated 14 November 2003 apply:
CS 27.1; JAR 27.2 b)2)i); CS 27.25; CS 27.351; CS 27.397; CS 27.602; CS 27.610; CS 27.805; CS 27.865; CS 27.1529; CS Appendix A.
For all the unchanged areas, systems, parts or appliances, JAR 27 Small rotorcraft Issue 1, dated 6 September 1993 apply, except the following paragraphs:

- JAR 27.561 replaced by FAR 27.561 Base Amdt.;
- JAR 27.562;
- JAR 27.785 replaced by FAR 27.2 Amdt. 28 and FAR 27.785 Base Amdt.;
- JAR 27.952;
- JAR 27.963 replaced by FAR 27.963 Amdt. 23;
- JAR 27.971 replaced by FAR 27.971 Base Amdt.;
- JAR 27.973 replaced by FAR 27.973 Base Amdt.

For Pilot and Copilot Crashworthy Seats installation kit P/N 109G2510F04 and for Passenger Crashworthy Seats Installation kit P/N 109G2520F45 (ref. Note 6), the following paragraphs of the CS-27 Amdt. 6, dated 17 December 2018 apply:
CS 27.561; CS 27.562; CS 27.625; CS 27.785.

3. Special Conditions

HIRF Protection according to JAA Interim Policy, Paper No. INT/POL/27&29/1 Issue date 1 June 1997 for EEC System only.
HIRF Protection according to JAA Interim Policy, Paper No. INT/POL/27&29/1 Issue 3 dated 1 October 2003 for helicopters equipped with kit 109G4600F01-101 "G1000H installation kit" and kit 109G4600F01-201 "G1000H NXi installation kit" (refer to F-01, Issue 6).

4.	Deviations	none
5.	Equivalent Safety Findings	Power Index Indicator (refer to F-03, Issue 3) for helicopters equipped with kit 109G4600F01-201 "G1000H NXi installation kit".
6.	Environmental Protection Requirements	
	6.1 Noise	see TCDSN EASA.R.005
	6.2 Emissions	ICAO Annex 16, Ed 1993, Vol II, Part II, Chapter 2 (see Note 1 in this Section)

7.	Operational Suitability Data (OSD)	(For OSD elements see SECTION 13 below)
7.1	Master Minimum Equipment List (MMEL)	Special Condition SC-CS-GEN-MMEL-H (refer to A-MMEL)
7.2	Flight Crew Data (FCD)	CS-FCD Initial Issue
7.3	Simulation Data (SIMD)	*reserved*
7.4	Maintenance Certifying Staff Data (MCSD)	*reserved*

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Refer to Type Design Definition 109G0000X016 Rev. A, and subsequent
2.	Description	Single engine rotorcraft controlled by Electronic Engine Control (EEC), four (4) composite MR blades, articulated (with elastomeric bearings) main rotor, twin (2) composite blade teetering tail rotor, skid landing gear, one (1) pilot and seven (7) passengers capacity.

3. Equipment

Basic equipment required by the airworthiness rules (see Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release.
Besides, the following equipment are required:

- Data relevant to outside air temperature, provided by IDS and external probe P/N E22307-2-4

Approved mandatory and optional equipment are listed in the report 109G0840W030 “AW119MKII Chart A – Equipment List” and in the report 109G0840W046 for AW119MkII helicopters equipped with kit 109G4600F01-101 "G1000H Installation kit" and kit 109G4600F01-201 “G1000H NXi installation kit”.

Refer also to the Equipment list in RFM.

4. Dimensions

4.1	Fuselage	Length:	11.14 m
		Width:	2.88 m
		Height:	3.60 m
4.2	Main Rotor	Diameter:	10.83 m
4.3	Tail Rotor	Diameter:	1.94 m

5. Engine

5.1	Model	Pratt & Whitney Canada 1 x Model PT6B-37A Build Specification No. 1242
5.2	Type Certificate	State of Design Engine TC/TCDS n°: TCCA E-20 EASA TC/TCDS n°: EASA.IM.E.039

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS	
Take-Off (5 minutes)	917 shp, 108.5% TQ (102% NR)
Maximum Continuous	847 shp, 100% TQ (100% NR)
See EASA approved Rotorcraft Flight Manuals for ITT and N1 limits	

TRANSMISSION TORQUE LIMITS	
Take-Off (5 minutes)	917 shp, 108.5% TQ (102% NR)
Maximum Continuous	900 shp, 106.5% TQ (102% NR)
See EASA approved Rotorcraft Flight Manuals Section 1	

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel	For all temperatures: ASTM D1655 Type Jet A, ASTM D1655 Type Jet A-1, MIL-T-5624 Type JP-5, MIL-T-83133 Type JP-8 For detailed information refer to EASA approved RFM Section 1
6.2 Oil	Engines: MIL-PRF-23699 or PWA-521 Transmission: MIL-PRF-23699 or DOD-L-85734 For detailed information refer to EASA approved RFM Section 1

7. Fluid capacities

7.1 Fuel	Total usable: 595 litres Refer to RFM for unusable fuel and for fuel capacity when installed auxiliary tanks.
7.2 Oil	Engines: 10.45 litres Transmission: 10.3 litres (Refer to approved RFM Section 6 for non-drainable lubricant)

8. Air Speed Limitations	V_{NE}: 152 KIAS Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9. Rotor Speed Limitations	Power on: Maximum 103 % (396 rpm) Minimum 95 % (365 rpm) Power off: Maximum 110 % (422 rpm) Minimum 90 % (346 rpm) Refer to approved RFM Section 1 for detailed information

10. Maximum Operating Altitude and Temperature

10.1 Altitude	15 000 ft (4 572 m) Hp For AW119MkII helicopters equipped with: - kit 109G4600F01-101 "G1000H Installation kit" and kit 109G0200F01; or, - kit 109G4600F01-201 “G1000H NXi installation kit” and kit 109G0200F01; 24 000 ft (7 315 m) Hp or 25 000 ft (7 620 m) whichever comes first
10.2 Temperature	Refer to approved RFM Section 1 for OAT limitations

11. Operating Limitations	VFR day and night Non-icing conditions Additional limitations for TO and LDG refer to approved RFM Section 1
12. Maximum Mass	2 850 kg
13. Centre of Gravity Range	Refer to approved RFM for CG envelope
14. Datum	Longitudinal: the datum line (STA 0) is located at 1 785 mm forward of the front jack point.

		Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 6 for detailed information
15.	Levelling Means	Plumb line from ceiling reference point to the index plate located on passengers compartment floor or the spirit level plate is to be placed on cabin roof right stanchion reference. Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	150 kg at STA 4 880 mm or according to load distribution defined in the RFM – Section 6. Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min -2° max +12° TR: RH pedal -8° LH pedal +24° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved Airworthiness Limitations: 19-A-AMPI-00-P, Chapter 04

IV. Operating and Service Instructions

1.	Flight Manual	109G0040A017 Issue 1 Rev. –, approval letter n° EASA D(2007)CPRO/MMA/52311 dated 11 June 2007, and later approved revisions. 109G0040A033 Issue 1 Rev.- (see Note 2 in this Section) approval letters n°10054263 and 10054264, dated 30 July 2015, and later approved revisions (for NVIS operations, as per Note 5 in this Section, refer to Supplement n. 24)
2.	Maintenance Manual	A119/AW119MKII-MPM Issue 1 Rev. 0 Maintenance Planning Manual A119/AW119 MKII-MM Issue 1 Rev. 0 Maintenance Manual and subsequent approved (when required) revisions. 19-A-AMPI-00-P ⇨ Chapter 00 (first issue and subs), Chapter 04 (first issue and subs approved), Chapter 05 (first issue and subs) 19-A-AMP-00-X ⇨ Chapters 6 and subs (first issue and subs) (See Note 7 in this Section)
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved Rotorcraft Flight Manuals and related supplements for the approved mandatory and optional equipment

V. Notes

1. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Drawing 109-0613-67.

2. Rotorcraft Flight Manual:
   - RFM 109G0040A017 is applicable to the AW119MKII.
   - RFM 109G0040A033 is applicable to the AW119MKII helicopters equipped with kit 109G4600F01-101 "G1000H Installation kit" and kit 109G4600F01-201 “G1000H NXi installation kit”.

3. Manufacturer's eligible serial numbers:
   Assembly drawing 119-9000-01-111 from s/n 14701 to s/n 15999.
   Helicopters from s/n 14901 to 15999 are equipped with kit 109G4600F01-101 ‘G1000H Installation kit’ or with kit 109G4600F01-201 ‘G1000H NXi installation kit’.

   From s/n 14701 to s/n 15499 (excluding s/n 15015, s/n 15016, s/n 15019, s/n 15023) and from s/n 15800 to s/n 15999: see ‘Section: Notes (Pertinent to all models)’ Note 4.
   From s/n 15500 to s/n 15799 (and including s/n 15015, s/n 15016, s/n 15019, s/n 15023): see ‘Section: Notes (Pertinent to all models)’ Note 3.

4. AW119Ke and Koala enhanced are used as marketing designation for AW119MKII helicopters.
   AW119Kx is used as marketing designation for AW119MkII helicopters equipped with kit 109G4600F01-101 "G1000H Installation kit" and kit 109G4600F01-201 “G1000H NXi installation kit”.

5. Kit P/N 109G3360F01-101, as per RFM 109G0040A033 Supplement n. 24 allows NVIS Operations. Modifications that add or change systems that emit or reflect light, have the potential to alter or change the NVIS lighting-NVG compatibility. For this reason, they require an engineering evaluation that must be approved by the aircraft certification authority.
   Subsequent modifications and deviations to the NVG helicopter configuration shall be managed in accordance with document 109G3360E005 revision A “AW119MKII G1000NXi Helicopter NVG Policy”.
   The aircraft configuration involving internal/external emitting/reflecting equipment approved for use with NVG is described in the Report 109G3360A003 revision A “AW119MKII G1000NXi NVG Compatibility Reference Handbook”.

6. Pilot and Copilot Crashworthy Seats installation kit P/N 109G2510F04 and Passenger Crashworthy Seats Installation kit P/N 109G2520F45 are eligible for installation on helicopters from s/n 15001 and subs.

7. Maintenance Manuals 19-A-AMPI-00-P and 19-A-AMP-00-X respectively replaced Maintenance Manuals A119/AW119MKII-MPM and A119/AW119 MKII-MM, which will no longer be kept updated.

* * *

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SECTION 11: AW109SP

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	AW109SP
2.	Airworthiness Category	Small Rotorcraft, Category A
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3
4.	Type Certification Application Date	10 October 2007
5.	State of Design Authority	EASA
6.	EASA Type Certification Date	25 May 2009

II. Certification Basis

1.	Reference Date for determining the applicable requirements	For Airworthiness and Environmental Protection: 10 October 2007, for OSD elements: 17 February 2014.

2. Airworthiness Requirements

FAR 27 / JAR 27 / CS-27 Amdt. as defined here below.
FAR 27 / JAR 27 as quoted in the EASA TCDS R.005 Issue 8 for unchanged/unaffected areas, systems, parts or appliances and CS-27 Amdt./ dated 14 November 2003 for the new or changed/affected areas, systems, parts or appliances with respect to the A109S (ref documents n° 109G0000N062 Rev A and n° 109G0000N091 Rev B).
The paragraph CS 27.863 is not applicable on the basis of Part 21.A.101(b)(2) and (3).
For IFR Operation : Appendix B to CS-27 Amdt./
For Category A Operations: Appendix C to CS-27 Amdt./.

3.	Special Conditions	HIRF ⇨ INT/POL/27&29/1 Issue 3 (2003) – Protection from the effects of HIRF – Interim Policy in the Administrative and Guidance Material, Section 3, Part 3 High Intensity Radiated Fields.
4.	Deviations	none
5.	Equivalent Safety Findings	none
6.	Environmental Protection Requirements	
	6.1 Noise	see TCDSN EASA.R.005
	6.2 Emissions	ICAO Annex 16, Ed 1993, Vol II, Part II, Chapter 2 (fuel venting) (see Note 1 in this Section)
7.	Operational Suitability Data (OSD)	(For OSD elements see SECTION 13 below)
	7.1 Master Minimum Equipment List (MMEL)	JAR-MMEL Section 1 Subpart A&B at Amdt. 1 (refer to A-MMEL)
	7.2 Flight Crew Data (FCD)	Until and including 16 May 2018: Commission Regulation (EU) N.748/2012 and 69/2014 for Flight Crew Data / Common Procedures Document for conducting Operational Evaluation Board; From 17 May 2018: CS-FCD Initial Issue
	7.3 Simulation Data (SIMD)	*reserved*
	7.4 Maintenance Certifying Staff Data (MCSD)	*reserved*

III. Technical Characteristics and Operational Limitations

1. Type Design Definition — Type Design Definition 109G0000X006/09 Rev. U and subsequent approved revisions

2. Description — Light twin-engine helicopter, four (4) blades articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gears, one/two pilots and six/seven passengers capacity.
The AW109SP differs from A109S model for a new hybrid Metal-Composite fuselage structure, a four channel digital autopilot and a new cockpit layout with 4 displays (EFIS).

3. Equipment — Basic equipment required by the Airworthiness Specifications (see Certification Basis) shall be installed on the helicopter for Airworthiness Certificate release. Refer also to the Equipment list in RFM

4. Dimensions

4.1 Fuselage — Length: 11.66 m; Width: 3.29 m; Height: 3.40 m

4.2 Main Rotor — Diameter: 10.83 m

4.3 Tail Rotor — Diameter: 1.94 m

5. Engine

5.1 Model — Pratt & Whitney Canada
2 x Model PW207C

5.2 Type Certificate — State of Design Engine TCDS No:
TC E-23 Issue 21 dated 16/03/05 issued by DOT Canada
EASA TC/TCDS n°:
IM.E.017 Issue 1, dated May 10, 2005

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS (Thermodynamics / Mechanical Power)			
AEO		Take-Off Power (5 minutes)	735 shp / 572 shp (102% NR)
		Maximum Continuous	625 shp / 572 shp (102% NR)
OEI	(Emergency)	2.5 min	815 shp / 745 shp (102% NR)
	(Emergency)	Maximum Continuous	735 shp / 646 shp (102% NR)
See EASA approved Rotorcraft Flight Manuals for TOT, N1			

TRANSMISSION TORQUE LIMITS			
AEO		Take-Off Power (5 minutes)	960 shp 107% TQ (100% NR)
		Maximum Continuous	900 shp 100% TQ (100% NR)
		Transient (6 sec)	990 shp 110% TQ (100% NR)
OEI	(Emergency)	2.5 min	730 shp 162% TQ (100% NR)
	(Emergency)	Maximum Continuous	600 shp 133% TQ (100% NR)
	(Emergency)	Transient (6 sec)	780 shp 173% TQ (100% NR)
See EASA approved Rotorcraft Flight Manuals Section 1 for additional detailed information			

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel	For all temperatures: ASTM D-1655 Jet A, ASTM D-1655 Jet A1, MIL-T-5624 JP-5 MIL-T-83133 JP-8, GOST 10227-86 R.T., GSTU 320.00149943.007-97 R.T., GOST 10227-86 TS-1, GSTU 320.00149943.011-99 TS-1 For detailed information refer to EASA approved RFM Section 1
6.2 Oil	Engines: MIL-PRF-23699 Transmission: MIL-PRF-23699 DOD-PRF-85734 For detailed information refer to EASA approved RFM Section 1

7. Fluid capacities

7.1 Fuel	Usable fuel: 563 litres See RFM for unusable fuel.
7.2 Oil	Engines: 5.12 litres for each engine Transmission: 11.0 litres (Refer to approved RFM for non-drainable lubricant)

8. Air Speed Limitations	V_{NE}: 168 KIAS Power on V_{NE}: 128 KIAS Power off Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9. Rotor Speed Limitations	Power on (AEO): Maximum Continuous 101 % Minimum 99 % Take-off and Landings 102 % Power off: Maximum 110 % Minimum 95 % Refer to approved RFM Section 1 for detailed information

10. Maximum Operating Altitude and Temperature

10.1 Altitude	20 000 ft (6 096 m) Hp
10.2 Temperature	Refer to approved RFM Section 1 for Take-off and landing altitude and for temperature limitations

11. Operating Limitations	VFR day and night IFR non-icing conditions Category A operations
12. Maximum Mass	3 175 kg
13. Centre of Gravity Range	Refer to approved RFM Section 1 for CG envelope
14. Datum	Longitudinal: the datum line (STA 0) is located at 1 635 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 6 for detailed information
15. Levelling Means	The spirit level plate is to be placed on cabin roof right stanchion reference

		Refer to Maintenance Manual.
16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	120 kg according to load distribution defined in the RFM – Section 6. Max load on cargo compartment floor: 500 kg/m^2 Max load on securing points of cargo compartment: 91 kg
20.	Rotor Blade Control Movement	MR (collective): min -1°24' max +12° TR: RH pedal -7° LH pedal +24° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	For helicopter s/n 22201, 22203, from 22214 through 22362, 22364, and subs: Refer to EASA approved Airworthiness Limitations: 0B-B-AMPI-00-P, Chapter 04 For helicopter s/n 22202, 22204 through 22213, 22363: Refer to EASA approved Airworthiness Limitations: 0B-C-AMPI-00-P, Chapter 04
23.	Wheels and Tyres	360x135-6 tubeless

IV. Operating and Service Instructions

1.	Flight Manual	109G0040A018 AW109SP Issue B and later approved revisions 109G0040A019 AW109SP Optional Equipment Supplement Issue B and later approved revisions (for NVIS operation as per Note 2 in this Section, refer to supplement 10) For helicopter with Rega Customisation (P/N 109-B810-12-101): 109G0040A020 AW109SP REGA RFM Issue B and later approved revisions 109G0040A021 AW109SP REGA Optional Equipment Supplement Issue B and later approved revisions (for NVIS operation as per Note 4 in this Section, refer to supplement 9.1-2)
2.	Maintenance Manual	For helicopter s/n 22201, 22203, from 22214 through 22362, 22364, and subsequent: 0B-B-AMPI-00-P ⇨ Chapter 00 (first issue and subs), Chapter 04 (first issue and subs approved), Chapter 05 (first issue and subs) For helicopter s/n 22202, 22204 through 22213, 22363: 0B-C-AMPI-00-P ⇨ Chapter 00 (first issue and subs), Chapter 04 (first issue and subs approved), Chapter 05 (first issue and subs)

		For all helicopter: 0B-A-AMP-00-X ⇨ Chapters 6 and subs (first issue and subs)
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to approved RFM and related supplements for the approved mandatory and optional equipment

V. Notes

1. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Drawing 109-0601-49
2. Kit P/N 109-B810-12-101, per RFM 109G0040A021 Supplement n. 9.1-2., and Kit P/N 109-B810-12-103, per RFM 109G0040A019 Supplement n. 10, allow NVIS Operations. Modifications that add or change systems that emit or reflect light, have the potential to alter or change the NVIS lighting-NVG compatibility. For this reason, they require an engineering evaluation that must be approved by the aircraft certification authority.
   Subsequent modifications and Deviations to the NVG helicopter configuration shall be managed in accordance with document 109G3360E003 revision B "AW109SP HELICOPTER NVG POLICY".
   The aircraft configuration involving internal/external emitting/reflecting equipment approved for use with NVG is described in the Report 109G3360A001 revision E "AW109SP NVG Compatibility Reference Handbook"
3. Manufacturer's eligible serial numbers:
   Assembly Drawing 109-9000-09-105/-107 (ref. Type Design 109G0000X006/09) from s/n 22201 to s/n 22499
4. Designation: GrandNew is used as marketing designation for AW109SP helicopters
5. The auxiliary installation Weather Radar RDR 2000 P/N 109-B810-15 is applicable to AW109SP helicopters s/n 22201, 22203, 22214, and subsequent.
6. PEDs sensitive equipment, which are under the responsibility of the TC Holder and are declared as NON-PED tolerant, or have PED tolerance limitations are reported in the document 109G9850A001 "AW109SP - PED Compatibility Reference Handbook".

* * *

SECTION 12: A109N

I. General

1.	Type/ Model	
	1.1 Type	A109
	1.2 Model	A109N
2.	Airworthiness Category	Small Rotorcraft, Category A
3.	Manufacturer	see “Section: Notes (Pertinent to all models)”, Note 3
4.	Type Certification Application Date	29 November 2005
5.	State of Design Authority	EASA
6.	EASA Type Certification Date	29 November 2010

II. Certification Basis

1.	Reference Date for determining the applicable requirements	29 November 2007
2.	Airworthiness Requirements	

FAR 27 / JAR 27 / CS-27 Amdt. as defined here below.
FAR 27 / JAR 27 as quoted in the EASA TCDS R.005 for unchanged/unaffected areas, systems, parts or appliances.
CS-27 Amdt./ 14 November 2003 for the new or changed/affected areas, systems, parts or appliances with respect to the A109E (ref documents n°109G0000N023 Rev C and n°109G0000N025 Rev C), except the following paragraphs:
CS 27.561 replaced by FAR 27.561 Base Amdt. (except for pilot and co-pilot seats)
CS 27.785 replaced by FAR 27.785 Amdt. 21 (except for pilot and co-pilot seats)
CS 27.963 replaced by FAR 27.963 Amdt. 23
CS 27.971 replaced by FAR 27.971 Base Amdt.
CS 27.973 replaced by FAR 27.973 Base Amdt.
For IFR Operation: Appendix B to CS-27 Amdt./
For Category A Operations: Appendix C to CS-27 Amdt./

3.	Special Conditions	HIRF ⇨ INT/POL/27&29/1 Issue 3 (2003) – Protection from the effects of HIRF – Interim Policy in the Administrative and Guidance Material, Section 3, Part 3 High Intensity Radiated Fields.
4.	Deviations	none
5.	Equivalent Safety Findings	none
6.	Environmental Protection Requirements	
	6.1 Noise	see TCDSN EASA.R.005
	6.2 Emissions	ICAO Annex 16, Ed 1993, Vol II, Part II, Chapter 2 (fuel venting) (see Note 1 in this Section)
7.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Type Design Definition document 109G0000X006/08 Rev. Z and subsequent approved revisions

2. Description

Light twin-engine helicopter, four (4) blades articulated main rotor, twin (2) blades teetering tail rotor, tricycle retractable landing gears, one / two pilots and six / seven passengers capacity.
The A109N differs from A109E model for the installation of Pratt & Whitney Canada PW207C turbo engines, controlled through FADEC, pilots crash resistant seats, main rotor group, engine and transmission oil cooling system, digital four-axis dual-duplex Automatic Flight Control System and full digital flight instruments and radio management system

3. Equipment

Basic equipment required by the Airworthiness Specifications (see Certification Basis) shall be installed on the helicopter for Airworthiness Certificate release.
In addition the following equipment is required:

- Civil Configuration Kit P/N 109-B810-01-101
- Engine Fire Extinguisher P/N 109-0811-39-101 for Category A Operations

Approved mandatory and optional equipment are listed in the Report 109G0840W025/01, Issue M "A109N Helicopter – Chart A Equipment list".

4. Dimensions

4.1 Fuselage

Length: 11.43 m
Width: 3.29 m
Height: 3.42 m

4.2 Main Rotor

Diameter: 10.83 m

4.3 Tail Rotor

Diameter: 1.94 m

5. Engine

5.1 Model

Pratt & Whitney Canada
2 x Model PW207C

5.2 Type Certificate

State of Design Engine TC/TCDS n°: TCCA E-23
EASA TC/TCDS n°: EASA.IM.E.017

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

INSTALLED ENGINE LIMITS (Thermodynamics / Mechanical Power)			
AEO		Take-Off Power (5 minutes)	735 shp / 572 shp (102% NR)
		Maximum Continuous	625 shp / 572 shp (102% NR)
OEI	(Emergency)	2.5 min	815 shp / 745 shp (102% NR)
	(Emergency)	Maximum Continuous	735 shp / 646 shp (102% NR)
See EASA approved Rotorcraft Flight Manual for TOT, N1			

TRANSMISSION TORQUE LIMITS			
AEO		Take-Off Power (5 minutes)	960 shp 107% TQ (100% NR)
		Maximum Continuous	900 shp 100% TQ (100% NR)
		Transient (6 sec)	990 shp 110% TQ (100% NR)
OEI	(Emergency)	2.5 min	730 shp 162% TQ (100% NR)
	(Emergency)	Maximum Continuous	600 shp 133% TQ (100% NR)
	(Emergency)	Transient (6 sec)	780 shp 173% TQ (100% NR)
See EASA approved Rotorcraft Flight Manual Section 1 for additional detailed information			

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6.	Fluids	
	6.1 Fuel	For all temperatures: ASTM D-1655 Jet A, ASTM D-1655 Jet A1, MIL-T-5624 JP-5, MIL-T-83133 JP-8 For detailed information refer to EASA approved RFM Section 1
	6.2 Oil	Engines: MIL-PRF-23699 (MIL-L-23699) Transmission: MIL-PRF-23699 (MIL-L-23699) DOD-PRF-85734 For detailed information refer to EASA approved RFM Section 1
7.	Fluid capacities	
	7.1 Fuel	Total usable: 595 litres See RFM for unusable fuel
	7.2 Oil	Engines: 5.12 litres for each engine Transmission: 11.0 litres (Refer to approved RFM for non-drainable lubricant)
8.	Air Speed Limitations	V_{NE}: 168 KIAS Power on V_{NE}: 128 KIAS Power off Refer to approved RFM for reduction in V_{NE} with altitude and other speed limitations
9.	Rotor Speed Limitations	Power on (AEO): Maximum Continuous 101 % Minimum 99 % Take-off and Landings 102 % Power off: Maximum 110 % Minimum 95 % Refer to approved RFM Section 1 for detailed information
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	20 000 ft (6 096 m) Hp
	10.2 Temperature	Refer to approved RFM – Section 1 for Take-off and landing altitude and for temperature limitations
11.	Operating Limitations	VFR day and night IFR Non-icing conditions Category A operations
12.	Maximum Mass	3 175 kg
13.	Centre of Gravity Range	Refer to approved RFM Section 1 for CG envelope
14.	Datum	Longitudinal: the datum line (STA 0) is located at 1 835 mm forward of the front jack point. Lateral: the datum line (BL 0) is located at ±450 mm inboard of each of the two main jack points and it coincides with the helicopter longitudinal plane of symmetry. Refer to RFM Section 6 for detailed information
15.	Levelling Means	The spirit level plate is to be placed on cabin roof right stanchion reference. Refer to Maintenance Manual.

16.	Minimum Flight Crew	One (1) pilot (right seat)
17.	Maximum Passenger Seating Capacity	Seven (7) passengers
18.	Passenger Emergency Exit	Two (2), one (1) on each side of the passenger cabin
19.	Maximum Baggage/ Cargo Loads	50 kg according to load distribution defined in the RFM – Section 6. Max load on cargo compartment floor: 500 kg/m^2
20.	Rotor Blade Control Movement	MR (collective): min -1°4' max +12° TR: RH pedal -7° LH pedal +24° For rigging information refer to Maintenance Manual
21.	Auxiliary Power Unit (APU)	n/a
22.	Life-limited Parts	Refer to EASA approved Airworthiness Limitations: 0N-A-AMPI-00-P, Chapter 04, Section 0N-A-04-10-00-00A-000A-A
23.	Wheels and Tyres	360x135-6 tubeless

IV. Operating and Service Instructions

1.	Flight Manual	109G0040A015 Issue 1 and subsequent approved revisions 109G0040A016 Issue 1 and subsequent approved revisions
2.	Maintenance Manual	0N-A-AMPI-00-P Issue 1 and subsequent approved revisions 0N-A-AMP-00-P Issue 1 and subsequent approved revisions
3.	Service Letters and Service Bulletins	As published by the Type Certificate Holder as per "Section: Notes (pertinent to all models)", Note 3
4.	Required Equipment	Refer to the Section III.3 above and to EASA-approved Rotorcraft Flight Manual and related supplements for the approved mandatory and optional equipment

V. Notes

1. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Drawing 109-0601-49
2. Manufacturer's eligible serial numbers:
   Assembly Drawing 109-9000-10-103 (ref Type Design 109G0000X006/08 Rev Z) from s/n 22501 to s/n 22699
3. Designation: AW109N and Nexus are used as marketing designation for A109N helicopters

* * *

SECTION 13: OPERATIONAL SUITABILITY DATA (OSD)

The OSD elements listed below are approved by the European Union Aviation Safety Agency as per Commission Regulation (EU) 748/2012, as amended by Commission Regulation (EU) No 69/2014.

OSD Elements

1. MMEL

   For Model A109E:
   TCH doc 109G0270Q018 Issue A, EASA-approved by letter 10056041, or subsequent approved revisions

   For Model A109S:
   TCH doc 109G0270Q014/02 Issue D, EASA-approved by letter 10056041, or subsequent approved revisions

   For Model A109S equipped with Trekker kit P/N 109G0000F01-101/-201:
   TCH doc 109G0270Q014/02 Issue E, EASA-approved by letter 10065544, or subsequent approved revisions

   For Model AW109SP:
   TCH doc 109G0270Q014/03 Issue F, EASA-approved by letter 10056041, or subsequent approved revisions

   For Models A119, AW119MKII:
   TCH doc 109G0270Q015 Issue A, EASA-approved by letter10056039, or subsequent approved revisions

2. Flight Crew Data

   For Models A109E, A109S, A109S equipped with Trekker kit P/N 109G0000F01-101/-201, AW109SP:
   TCH doc 109G0000N174 Issue B, EASA-approved by letter 10065544, or subsequent approved revisions

   For Models A119, AW119MKII:
   TCH doc 109G0000N175 issue A, EASA approved by letter 10070339, or subsequent approved revisions

3. SIM Data

   reserved

4. Maintenance Certifying Staff Data

   reserved

SECTION: NOTES (PERTINENT TO ALL MODELS)

1. Cabin Interior and Seating Configurations must be approved

2. Requirements for the issue of the Italian Airworthiness Certificate
   - The equipment required by the applicable airworthiness regulations (see Certification Basis) must be installed in relevant aircraft for certification.
   - The applicable Italian "Additional National Design Requirements (ANDR) for C of A" shall be complied with to allow the Certificate of Airworthiness issuance

3. Type Certificate Holder and (European) Manufacturer record

Type Certificate Holder and (European) Manufacturer	**Period**
Costruzioni Aeronautiche Giovanni Agusta Via Giovanni Agusta, 520; 21017 Cascina Costa di Samarate (VA) – Italy	28 May 1975 - 29 November 1988
Agusta S.p.A. Via Giovanni Agusta, 520; 21017 Cascina Costa di Samarate (VA) – Italy	30 November 1988 - 19 December 1996
Agusta un'azienda di Finmeccanica S.p.A. Via Giovanni Agusta, 520; 21017 Cascina Costa di Samarate (VA) – Italy	20 December 1996 - 27 December 1999
Agusta S.p.A. Via Giovanni Agusta, 520; 21017 Cascina Costa di Samarate (VA) – Italy	28 December 1999 - 31 May 2011
AgustaWestland S.p.A. Via Giovanni Agusta, 520; 21017 Cascina Costa di Samarate (VA) – Italy	1 June 2011 - 30 July 2014
AgustaWestland S.p.A. Piazza Monte Grappa, 4; 00195 Roma - Italy	31 July 2014 - 31 December 2015
Finmeccanica S.p.A., Helicopter Division Piazza Monte Grappa, 4; 00195 Roma - Italy	1 January 2016 - 14 July 2016
Leonardo S.p.A., Helicopters Piazza Monte Grappa, 4; 00195 Roma - Italy	since 15 July 2016

4. (USA) Manufacturer record

(USA) Manufacturer	**Period**
Agusta Aerospace Corporation (AAC) 3050 Red Lion Road, Philadelphia, PA 19114 - USA	until 31 May 2011
AgustaWestland Philadelphia Corporation (AWPC) 3050 Red Lion Road, Philadelphia, PA 19114 - USA	until 8 June 2026
Leonardo Helicopters United States Corporation (LHUSC) 3050 Red Lion Road, Philadelphia, PA 19114 - USA	since 9 June 2026

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

AEO	All Engines Operative	MR	Main Rotor
Amdt.	Amendment	n/a	not applicable
AW	AgustaWestland S.p.A.	NVG	Night Vision Google
B.L. (or BL)	Butt Line	OAT	Outside Ambient Temperature
C.G. (or CG)	Centre of Gravity	OEI	One Engine Inoperative
CR	(European) Commission Regulation	OES	Optional Equipment Supplements
CS	Certification Specification	OSD	Operational Suitability Data
ENAC	Ente Nazionale per l'Aviazione Civile (Italian Civil Aviation Authority)	RAI	Registro Aeronautico Italiano, predecessor of ENAC (Aviation Authority of Italy)
FAA	Federal Aviation Administration	RFM	Rotorcraft Flight Manual
FAR	Federal Aviation Regulations	RH	Right Hand
HIRF	High Intensity Radiated Field	s/n	Serial Number
Hp	Pressure Altitude	SC	Special Condition
IFR	Instrument Flight Rules	sec	Seconds
JAA	Joint Aviation Authorities	shp	Shaft Horse Power
JAR	Joint Aviation Requirements	SIM	Simulator
KIAS	Knots Indicated Air Speed	STA	Station
LDG	Landing	TCH	Type Certificate Holder
LH	Left Hand	TO	Take-Off
max	Maximum	TR	Tail Rotor
MMEL	Master Minimum Equipment List	VFR	Visual Flight Rules
P/N	Part Number	V_{NE}	Never Exceed Speed
MPM	Maintenance Planning Manual		

II. Type Certificate Holder Record

see “Section: Notes (Pertinent to all models)”, Note 3

III. Change Record

Initial TCDS (SO/A 156) issued by RAI on 28 May 1975

Issue	Date	Changes	TC issue
Issue 1 to Issue 13	various	Change Record reported in the *List of effective pages* in the first page of the old EASA TCDS formats. Please refer to individual TCDS issues in which changes are solely marked by a vertical bar.	EASA.R.005 first issue dated 29 October 2004
		A109LUH added	29 October 2004
		A109S added	1 June 2005
		AW119MKII added	11 June 2007
		AW109SP added	25 May 2009
		A109N added	29 November 2010
Issue 14	25 May 2011	A109SP; changes to: III.22. Life-limited parts, IV. Operating and Service Instructions	- - -
Issue 15	23 Jan 2012	TCH company name changed to AgustaWestland S.p.A.	23 January 2012
Issue 16	4 Sep 2015	TCH company address changed	- - -

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Issue	Date	Changes	TC issue
		AW119MKII; changes to add G1000H installation kit	
Issue 17	15 Mar 2016	TCDS reissued in new format. Introduction of SECTION 13 for OSD elements; TCH company ownership changed to Finmeccanica S.p.A.	15 March 2016
Issue 18	15 Aug 2016	TCH company name changed to Leonardo S.p.A.	15 August 2016
Issue 19	6 March 2018	Manufacturer record amended; AW119MKII, change to: III.10.1; A109S, changes to add Trekker kit; A109N, change to: V.2; SECTION 13 updated; Minor corrections/update to TCDS	- - -
Issue 20	20 June 2018	Section 13 OSD amended: - I.3: FCD certification basis updated - II.1: MMEL for A109S with Trekker kit - II.2: FCD for A109E, A109S, A109S with Trekker kit, and AW109SP addressing differences training from/to and vice versa	- - -
Issue 21	16 Jan 2020	Section 10 (AW119MKII) amended: - II.3: F-01 issue and applicability amended. - II.6: F-03 added. - III.3: G1000H NXi kit reference added to Chart A report 109G0840W046. - III.10: G1000H NXi kit reference added to the altitude limitations. - IV.1: NVIS operations Supplement reference added. - V.2: G1000H NXi kit reference added to the RFM note. - V.3: G1000H NXi kit reference added to the eligible serial numbers note. - V.4: G1000H NXi kit reference added. - V.5: NVIS operations note added. Section 12 (AW109SP) amended: - III.22: updated eligible serial numbers for Life-limited Parts publications. - IV.2: updated eligible serial numbers for Maintenance Manuals. All: SC and ESF references amended.	- - -
Issue 22	26 Aug 2020	Section 10 (AW119MKII) amended: - V.3: scope of s/n extended.	- - -
Issue 23	7 Dec 2020	Section 9 (A109S) amended: - II.6: F-03 added. - IV.1 NVIS added, Note 4 referenced. - V.4: Note 4 added Section 10 (AW119MKII) amended: - II.2: Crew/Pax Crashworthy Seats installation kit added, Note 6 referenced. - V.6: Note 6 added.	- - -
Issue 24	12 Apr 2022	Section 10, V.: s/n amended in Note 3. Section 13, I.: I.1-I.5: moved to Sections II.6-.7, II.9-.11. All Sections, II.: updated to meet TCDS format policy.	- - -
Issue 25	30 Jan 2024	Section 1 (A109) amended: - V.Notes: Note 3 added. Section 2 (A109A) amended: - V.Notes: Note 3 added.	- - -

Issue	Date	Changes	TC issue
		Section 3 (A109AII) amended: - V.Notes: Note 2 added. Section 4 (A109C) amended: - V.Notes: Note 2 added. Section 5 (A109K2) amended: - V.Notes: Note 5 added. Section 6 (A109E) amended: - V.Notes: Note 6 added. Section 7 (A119) amended: - III.22, IV.2, V.2: Updated references to the applicable publications; - V.Notes: Notes 6 and 7 added. Section 9 (A109S) amended: - II.2, II.3, II.6, III.3, III.4, III.8, III.14, III.22, III.23, IV.1, IV.2, V.2, V.3, V.4.: included references applicable to A109S helicopters equipped with Trekker kit P/N 109G0000F01-201 (4-Axis AFCS); - V.Notes: Notes 5 and 6 added. Section 10 (AW119MKII) amended: - III.22, IV.2: Updated references to the applicable publications; - V.Notes: Note 7 added. Section 11 (AW109SP) amended: - III.22, IV.2: Updated references to the applicable publications; - V.Notes: Note 6 added. Section 13 (OSD) amended: - 1, 2: included references applicable to A109S helicopters equipped with Trekker kit P/N 109G0000F01-201 (4-Axis AFCS).	
Issue 26	24 Jun 2026	Section 7: A119 - V.1. Manufacturer. Section: Notes (Pertinent to all models) - 4. (USA) Manufacturer record. Both sections amended to reflect the change of manufacturer's legal entity per Leonardo Helicopters letter AIRW/2026/018 dated 30 Apr 2026.	- - -

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