Type Acceptance Report

TAR 7/21B/20 – Revision 5

LEONARDO HELICOPTERS AW109/119 Series

TABLE OF CONTENTS

Executive Summary

New Zealand Type Acceptance has been granted to the Leonardo AW109/119 Series based on validation of EASA Type Certificate number R.005 and FAA Type Certificate number H7EU. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Section 2, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.177, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(b).

NOTE: Information in this report is correct as at the date of issue. The report is only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the applicable State-of-Design Type Certificate Data Sheet.

1. Introduction

This report details the basis on which Type Acceptance Certificate No.7/21B/20 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

(a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and

(b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and

(c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

The report notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand, which are listed in Section 2. The history of the AW109/AW119 Series type acceptance in New Zealand under EASA type certificate R.005 and FAA type certificate H7EU is listed in Appendix 1.

2. Aircraft Certification Details

(a) State-of-Design Type and Production Certificates:

Manufacturer: Leonardo S.p.A. (since 15 July 2016)

Finmeccanica S.p.A. (since 1 January 2016)

AgustaWestland S.p.A. (since 1 June 2011)

Agusta S.p.A. (since 30 November1988)

Costruzioni Aeronautiche Giovanni Agusta

Type Certificate: R.005
Issued by: European Union Aviation Safety Agency

Production Approval: IT.21G.0007

(b) Other State-of-Manufacture Type and Production Certificates:

Manufacturer: AgustaWestland Philadelphia Corp. (since 1 June 2011)

Agusta Aerospace Corporation [A119 MSN 14517 on]

Import TC: H7EU
Issued by: Federal Aviation Administration

Production Approval: PC 120NE

(c) Models Covered by the Part 21B Type Acceptance Certificate:

(i) **Model:**	A119	AW119 MKII
MCTOW:	6000 lb. [2720 kg]	6283 lb. [2850 kg]
Max. No. of Seats:	8	
Noise Standard:	ICAO Annex 16/FAR Part 36	
Engine:	Pratt & Whitney Canada PT6B-37A	
	Type Certificate: E-20 Issued by: Transport Canada	

(ii) **Model:** A109A

MCTOW: 5400 lb. [2450 kg]
5732 lb. [2600 kg] – with Technical Bulletin no. 109-20

Max. No. of Seats: 8

Noise Standard: ICAO Annex 16/FAR Part 36

Engine: Rolls Royce 250-C20B

Type Certificate: E4CE
Issued by: Federal Aviation Administration

(iii) **Model:** A109E

MCTOW: 6283 lb. [2850 kg]
6614 lb. [3000 kg] – PW206C/Kit P/N 109-0823-22-101

Max. No. of Seats: 8

Noise Standard: ICAO Annex 16/FAR Part 36

Engine: Pratt & Whitney Canada PW206C

Type Certificate: E-23
Issued by: Transport Canada

(iv) **Model:** A109S, AW109SP

MCTOW: 7000 lb. [3175 kg]

Max. No. of Seats: 8

Noise Standard: ICAO Annex 16/FAR Part 36

Engine: Pratt & Whitney Canada PW207C

Type Certificate: E-23
Issued by: Transport Canada

3. Application Details and Background Information

The Agusta A109A was originally accepted into New Zealand under the provisions of NZCAR B.9. When CAR Part 21 was issued in July 1995 the transitional arrangements in Appendix A provided that where aircraft had a certificate of airworthiness before Subpart B came into force that type or model shall be deemed to have a type acceptance certificate. However there was no current airworthiness certificate for an Agusta A109A in force as at 30th June 1995, and therefore the type acceptance was no longer valid.

The first application for New Zealand type acceptance under Part 21B was for the A119 from the manufacturer, Agusta SpA, dated 13 November 2006. The first-of-type example was serial number 14523, registered ZK-ITR. The original A109 Series is a twin turbine-powered seven-passenger light helicopter of conventional configuration, with a four bladed fully articulated main rotor with elastomeric bearings. As part of the validation process for the A119 a CAA certification specialist visited Agusta in Cascina Costa. Training was provided for a Flight Operations Inspector and a Maintenance Inspector.

Type Acceptance Certificate Number 7/21B/20 was granted on 19 April 2007 to the Agusta A119 based on validation of both EASA Type Certificate R.005 and FAA Type Certificate H7EU. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

This report was raised to Revision 1 to include the AW119 MKII model, after application from the manufacturer dated 26 June 2007. Type acceptance was granted on 29 October 2007. The first-of-type example was serial number 14710 registered ZK-ISR.

Revision 2 was issued to add the Model A109E, after application from the manufacturer dated 19 October 2010. Type acceptance was granted on 14 December 2010. The first-of-type example was serial No. 11127 registered ZK-ITR for the Taranaki Rescue Trust.

Revision 3 was issued to include the Model A109S and the current production AW109SP, after application from the manufacturer dated 4 August 2015. The first-of-type example was serial number 22013 registered ZK-HBH. Type acceptance of the Models A109S and AW109SP was granted on 24 September 2015. (This does not include aircraft with REGA customisation, serial numbers 22202, and 22204 through 22213, which use different flight and maintenance planning manuals. REGA is the Swiss rescue organisation.)

Revision 4 includes the Model A109S with Trekker Kit part number 109G0000F01-101. This consists mainly of two major modifications to the A109S helicopter; the change from retractable undercarriage to a fixed skid gear; and the fitting of a Genesys Aerosystems avionics suite glass cockpit, plus the addition of an Automatic Flight Control System (AFCS) as standard. There are thirteen new Compatible Kits, and the A109S "Trekker" is approved for Category A operations. Type acceptance of the A109S Trekker was granted on 19 May 2020.

Revision 5 added the Model A109A. The application was from the importer, and the first-of-type example was serial number 7277 registered ZK-IXQ. Type acceptance was granted on 18 April 2023.

Model and Variant History:

The A109 was designed in the late 1960s as a high-speed turbine-powered 8-seat utility helicopter. The prototype flew on 4 August 1971 with twin 346 shp Allison 250-C20 engines, and production deliveries started in 1975. The helicopter has been developed over the years into a range of civil and military versions to meet various design needs and tender specifications, using different powerplants, equipment and a stretched fuselage. The A109A was the first variant using the 250-C20B powerplant and a MAUW increase. There have been two previous examples in New Zealand, ZK-HBC and ZK-HXI. However none were on the register at the Part 21 transitional date and the technical documentation was not maintained. Type acceptance had therefore lapsed.

The A109E "Power" was developed from the A109C/A109K2 versions primarily by the adoption of PW206C engines and a new main rotor head which uses a titanium hub. (The Turbomeca Arrius 2K1 was subsequently added as an alternative powerplant option.) There were updates to the fuel system and cabin structure, new instrument panel with flat panel displays, and various changes to the landing gear, transmission, and helicopter systems.

The A109S "Grand" is a development of the A109E using the FADEC-equipped PW207C engine. Other differences include a lengthened fuselage (200 mm), use of larger sliding passenger doors and an increase in maximum takeoff weight. Because of the change to the fuselage a later certification basis applied which required seats which met dynamic test requirements and crash-resistant fuel tanks. The main rotor hub and a new landing gear configuration have been taken from the A109LUH; main rotor blades similar to the A119 are used; the tailplane is modified to use winglet tips, and there were incidental improvements to various other systems, including avionics. The A109S may also be fitted with the "Trekker" kit which introduces fixed skid gear, an avionics update and AFCS (if not already fitted to the aircraft as an option).

The AW109SP "GrandNew" was a further development of the A109S using a new hybrid metal-composite fuselage structure, a four-channel autopilot and new cockpit layout with Chelton 4-screen EFIS. The latter is combined with a new Digital Audio Communications System (DACS), new Attitude Heading Reference System (AHRS), and new Digital /Integrated Radio Management System (RMS).

The A119 "Koala" is essentially a single-engined derivative of the A109E with skid type landing gear, using the sliding doors from the A109K2. The first examples were delivered with individual engine instruments, but the Integrated Display System (IDS) later became standard. Starting from serial number 14517 the A119 Series is now manufactured only in the USA under the FAA type certificate, although design authority remains with Agusta in Italy and the aircraft has a single common type design.

The AW119 MKII is a derivative of the A119 with improvements designed to remove the HIGE/HV limitations of the A119 above 2550 kg MTOW and provide an increase in the MTOW to 2850 kg. This is achieved by increasing the main rotor inertia, fitting the main rotor blades off the A109S and raising the main rotor speed from 100% to 102% using a new N_f governor; plus adopting the stronger skid landing gear off the A109E. The changes were minimised in order to make them retrofittable to the A119. The AW119 MKII will become the current production model from serial number 14701 onwards.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) Type certificate:

EASA Type Certificate Number EASA.R.005

EASA Type Certificate Data Sheet Number R.005 at Issue 24 dated 12 April 2022
- Model A109A approved 15 March 1976
- Model A109E approved 31 May 1996
- Model A119 approved 30 December 1999
- Model A109S approved 01 June 2005
- Model AW119 MKII approved 11 June 2007
- Model AW109SP approved 25 May 2009

FAA Type Certificate Data Sheet no.H7EU at Revision 27 dated June 25, 2018
- Model A119 approved April 28, 2000
- Model AW119 MKII approved 22 October 2007

(2) Airworthiness design requirements:

(i) Airworthiness Design Standards:

The EASA certification basis of the original A109 was FAR 27 with Amendments from 1 to 8 included, plus FAR Part 29 paragraph 29.903(b) Category A engine isolation. For later variants, including the A109E, additional FAR 27 paragraphs at later Amendment dates were added, particularly for different operational approvals or equipment installations, as noted on the TCDS.

In addition, for the installation of Kit number 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).

For the A109S the certification basis was updated from the A109E, only for new or changed areas, to JAR 27 Amendment 3 dated 1 April 2002 (with the exception of JAR §27.863) and to JAR 27 Appendix C for Category A Operations.

For the AW109SP the certification basis changed to CS 27 dated 14 November 2003 for the new or changed/affected areas, systems, parts or appliances.

For the A109S equipped with the Trekker Kit P/N 109G0000F01 the certification basis for changed areas was updated to CS-27 Amendment 3 dated 11 Dec 2012.

For the A119 the certification basis was updated to JAR 27 Issue 1 dated 6 September 1993, current at the date of application, minus some paragraphs at base amendment or replaced by the equivalent FAR paragraph, as detailed on the TCDS. (These are essentially all related to fuselage, seat and fuel system crashworthiness, which could not be complied with because the structure was carried over unchanged from the A109.)

For the AW119 MKII variant the certification basis for all affected areas, systems, parts or appliances was updated to CS 27 at the Amendment state current on 14 November 2003 for those paragraphs specified on the TCDS. Otherwise JAR 27 current at Issue 1 dated 6 September 1993 still applied, except for some individual paragraph exceptions again as detailed on the TCDS. (The EASA and FAA certification basis are equivalent.)

This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41 and Advisory Circular 21-1A, because CS/JAR 27 is equivalent to FAR 27, which is the basic standard for Normal Category Rotorcraft called up under Part 21 Appendix C. One Special Condition was applied for HIRF, and two equivalent level of safety findings made. These have been reviewed and accepted by the CAA. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

Note: Exemption No. 6648 was issued by the FAA to allow Agusta to certify the A119 on the existing type certificate H7EU for the A109 Series. (Against FAR §21.19(b)(i) which requires a new application for a type certificate if there is a change in the number of engines or rotors.) It was granted on the basis the A119 is a simplification of the A109 design and systems, with essentially the same structure and load paths. Therefore there was no justification to require changes to parts that have satisfactory performance records. In addition the helicopter has been shown to meet higher safety standards than actually called up in the certification basis. However Agusta was required to show compliance with the latest requirements for those areas, systems, components, equipment or appliances that are changed or are significantly affected by the modification to the single-engine configuration with skid-type landing gear.

Exemption letter 97/3147/MAE was issued by ENAC (A similar Exemption No. 6518 was granted by the FAA) to allow the A109K2, and later variants including the A109E, to be certificated above the 6000 lb MAUW limit in place at the time under FAR §27.1(a). This was on the grounds the maximum weight had increased gradually due to various safety improvements, and that re-certification under Part 29 could not be justified. In addition an industry working group had recommended the Rule be changed, and this was subsequently done under Amendment 27-37.

(ii) Special Conditions:

A109A/A109E:

No. 27-54-EU-17 – The FAA imposed additional requirements because the A109 has unusual features for a Normal Category rotorcraft, including fuel tank location, retractable undercarriage, and twin turbine engines. Special conditions applied to the airframe (landing gear), systems and equipment (ventilation), propulsion (fuel, induction and control systems), and flight operations.

No. 00/1479/MAE – CRI D1 Approval of Cargo Hook Installation – ENAC required compliance with NPA 27-13, which imposed some additional safety requirements relating to rotorcraft-load combinations, including provisions for quick-release, communication and fatigue.

A109E/A109S:

No. 94/253/MAV – Protection of Electrical and Electronic System from High Intensity radiated Fields (HIRF). This imposed the usual requirement that systems that perform critical functions must be designed and installed so they will not be adversely affected by external HIRF.

A119/AW119 MKII/AW109SP and A109S with Trekker Kit:

Special Condition – HIRF Protection according to JAA Interim Policy, Admin. and Guidance Material Section 3 Certification – Part 3 Interim Policies and Temporary Guidance Material – Policy Paper INT/POL/27&29/1 Issue 3.

(iii) Equivalent Level of Safety Findings:

A109A/A109E:

FAR §27.1189 Shutoff Means – The A109 helicopter does not provide shutoff valves on the two lines feeding lubrication oil to the engines. Under a later Amendment of Part 27 this is not required for tanks and lines located outside fire zones, in this case the fireproof compartment.

A109S with Trekker Kit:

CRI F03 – Equivalent Safety Finding CS §27.1305, §27.1521, §27.1549, §27.1309, CS §29.1309 (b)(2)(i) and (d) Power Index Indicator – In the A109S Trekker the PFD does not continuously show NG, TOT and TQ parameters, but instead displays a synthesized parameter referred to as the "Power Index" (PI), although they can be independently displayed when the powerplant page of the MFD is selected. EASA accepted this configuration after clarification of a range of technical, human factor and hazard analysis issues, along with the basic assumptions used.

A119:

CRI F02 – Equivalent Safety Finding JAR 27.1322 Warning, Caution and Advisory Lights – When in ground idle the low oil pressure light shows red as pressure is below 30 psi, but there is no defined minimum at that point. This was accepted because it is explained in the RFM with no possible hazard from misinterpretation. This situation is eliminated with the IDS.

CRI G01 – Equivalent Safety Finding JAR 27.1509(a) Max Rotor Speed in Power Off – This must be established as not more than 95% of either the maximum design RPM or maximum RPM shown during type test. The required margin was not shown during type tests because of test constraints, but has been shown in flight test and structural analysis, and was therefore accepted on that basis.

(iv) Airworthiness Limitations:

See Chapter 04 Airworthiness Limitations Section of the applicable MPM or AMPI

(3) Aircraft Noise and Engine Emission Standards:

(i) Environmental Standard:

At the date of certification of the Models A109A and A109A II there were no applicable noise requirements.

The Model A109E has been certificated under ICAO Annex 16, Vol.I edition 1993, Chapter 8 for noise and ICAO Annex 16, Vol.II edition 1993, for emissions.

The Model A119 has been certificated under ICAO Annex 16, Vol.I 3rd edition 1993, Chapter 11 for noise and ICAO Annex 16, Vol.II edition 1993, for emissions.

The Model AW119MKII has been certificated under ICAO Annex 16, Vol.I 4th edition July 2005, Chapter 8 for noise and ICAO Annex 16, Vol.II Part II Chapter 2 edition 1993, for emissions.

The Models A109S and AW109SP have been certificated under ICAO Annex 16, Vol.I Part II Amdt 7, Chapter 8 for noise and ICAO Annex 16, Vol.II Part II Chapter 2 edition 1993, for fuel venting.

(ii) Compliance Listing:

Agusta Report No. 109-95-21 Vol.2 – A109E helicopter Noise Certification: Demonstration of Compliance with ICAO Annex 16 Chapter 8, Vol.1 3rd Edition, 1993, and FAR 36 Appendix H, January 1993
EPNL Results: Flyover: 90.8 (FAA) 90.9 (ICAO); Takeoff: 91.4 (FAA) 91.3 (ICAO); Approach: 91.4 (FAA & ICAO) – EPNdB

Agusta Report No. 109-95-26 Vol.2 – A119 Helicopter Noise Certification: Demonstration of Compliance with FAR Part 36 Appendix J, January 1997 and ICAO Annex 16 Chapter 11, Vol.1, 3rd Edition, 1993
Results: Corrected Flyover SEL value: 85.9 (FAA) 86.5 (ICAO) dBA

Agusta Report No. 109G1820-T009 A119 MKII Noise Certification: Demonstration of Compliance. (Based on analysis using A109S data.)
EPNL Results: Flyover: 88.2 (FAA & ICAO); Takeoff: 90.8 (FAA & ICAO); Approach: 91.0 (FAA & ICAO) – EPNdB

Leonardo Report 109G1820X001 – AW109S Trekker Noise certification: Demonstration of Compliance

EASA Type Certificate Data Sheet for Noise TCDSN No. EASA.R.005 – Issue 10

Model A109S at Take-off and Landing weight of 3175 kg:
Takeoff EPNL: 90.5 – Overflight EPNL: 88.4 – Approach EPNL: 91.2

Model AW109SP at Take-off and Landing weight of 3175 kg:
Takeoff EPNL: 90.5 – Overflight EPNL: 88.4 – Approach EPNL: 91.2

Based on an analysis of the effect of the skid landing gear, the A109S Trekker Kit was declared to be a non-acoustic change compared to the parent A109S.

(4) Certification Compliance Listing:

A109A Basic Data and Structural Design Criteria at 2600 kg. Weight and 740 HP

A109A Final Report On Flight Test For The Helicopter Certification at 2600 KG.

Elicottero A-109A Criteri Adottati Per Il Calcolo Della Vita A Fatica Dei Componenti Dell ' Elicottero A-109A Al Peso Massimo Di 2600 kg.

A 109/A109A Helicopter Structural Design Criteria and Basic Data Helicopter

A109 Helicopter: Compliance With Applicable Rules.

Determinazione Della Vita A Fatica Del Componenti Dell ' Elicottero A109A/ A109AII (Criteria Adopted for Evaluation of Critical Component Fatigue Life.)

Production Ground-Run and Flight Test Report For Agusta Model A109A II.

Criteria Adopted For the Computation of the Fatigue Life of the A109 Helicopter Components.

List of the Agusta reports indicated in the report N. 109-01-15 "A109 Helicopter: compliance with applicable rules".

Agusta Report No. 109-03-77 – A109E Helicopter – Configuration Description and Overall Certification Program

Agusta Report No. 109-01-15/01 – Volumes 1 through 4 – A109 Helicopter: Compliance to the Applicable Rules for A109 to A119 Models
- – Appendix 7 A109E Compliance Check List – Rev.H
- – Appendix 8 A119 Compliance Check List – Rev.L
- – Appendix 9 A109S Compliance Check List – Rev.P
- – Appendix 11 AW109SP Basic Aircraft – Compliance Check List – Rev.U
- – Appendix 12 AW109SP REGA Customisation – Compliance Check List

Leonardo Report No. 109G0000N170 – A109S Trekker Kit and Compatible Kits – Project Description, Certification Basis and Certification Program – Rev.E

Agusta Report No. 109-01-87 – Proposed basis of certification for the A119

Agusta Report No. 109-03-081 – A119 Helicopter – Configuration Description and Certification Program – Rev.A dated 6/4/2000

Agusta Report No. 109G0000N052 – AW119 MKII Helicopter – Model Description and Certification basis – Rev.B dated 6/4/2007

Agusta Report No. 109G0000N045 – AW119 MKII and Auxiliary Installation – Compliance Check List and Certification Program – Rev.B dated 02/05/2007

(5) Flight Manual:

ENAC-Approved Rotorcraft Flight Manual A119-RFM-A – Model A119 – Publication Code 502051481 – CAA Accepted as AIR 2993

ENAC-Approved Rotorcraft Flight Manual A119-RFM-IDS – Model A119 Equipped with Integrated Display System (I.D.S.) – Document 109G0040A006 – Pub.Code 502095622 – CAA Accepted as AIR 3003

EASA-Approved Rotorcraft Flight Manual AW119 MKII RFM – Model AW119 MKII – Document No. 109G0040A017 – Publication Code 502051486 – CAA Accepted as AIR 3009

EASA-Approved Rotorcraft Flight Manual Agusta A109E Publication RFM A109E – CAA accepted as AIR 3172

RAI-Approved Flight Manual Agusta A109A (Up to S/N 7165) – CAA accepted as AIR 3984

EASA-Approved Rotorcraft Flight Manual Agusta A109E – Turbomeca Arrius 2K1 Engine – Document Number 109-08-053 CAA accepted as AIR 3335

EASA-Approved Rotorcraft Flight Manual Model A109S – Document No. 109G0040A013 – CAA Accepted as AIR 3324

EASA-Approved Rotorcraft Flight Manual Model A109S (with Trekker Kit applicable from 22701 and subs) – Document No. 109G0040A034 – CAA Accepted as AIR 3960

EASA-Approved Rotorcraft Flight Manual Model AW109SP – Document No. 109G0040A018 – CAA Accepted as AIR 3325

(6) Operating Data for Aircraft:

(i) Maintenance Manual:

OB-X-AMPI-00-P-EASA/FAA – Maintenance Planning Information
OB-A-AMP-00-X – Maintenance Publication
OB-A-AMDI-00-X – Material Data Information
OB-A-AFIP-00-X – Fault Isolation Publication
CSRP-A-CSRP-00-X – Common Structural Repair Publication
A119/A109 SERIES SRM – Structural Repair Manual
3C-A-ASRP-00-X – AW119/A109 Air Vehicle Structural Repair Publication
OB-A-AWDP-00-X – Air Vehicle Wiring Data Publication
OB-X-CR&OP-00-X – Component Repair and Overhaul Publication
OB-X-ITEP-00-X – Illustrated Tools and Equipment Publication
09-Z/ESP-00-X AW119/A109 Series Electrical Standard Practices
CPCP – AW119/A109 Series Corrosion Protection and Control Publication

Note: *All above on Interactive Electronic Technical Publications (IETP):

A119 Koala/AW119 Ke – A119/AW119 MKII – IETP

A109A/A109A II – ITEP

A109E Power – IETP

A109S/AW109SP (s/n 22002 thru 22200) – IETP

(ii) Current service Information:

A109/A119 Series Service Bulletins and Technical Information Letters

(iii) Illustrated Parts Catalogue:

Agusta A109A/AII IPC – See A109A/A109A II-IETP

Agusta A119/AW119 IPC – See A119/AW119 MKII-IETP

A109 Power IPC Up to S/N 11600
A109 Power IPC S/N 11601 & subs – for both see A109E-IETP

OB-A-IPD-00-X – Illustrated Parts Data – A109S/AW109SP/AW109SP-REGA

(7) Agreement from manufacturer to supply updates of data in (5) and (6):

See letter from AgustaWestland Tech. Pubs. Distribution Service Ref. CSE/06/186
See letter from AgustaWestland Product Support Engineering dated 27/10/2010
CAA Form 2171 from AgustaWestland Engineering Director dated 04/08/2015 (A109S/AW109SP)
CAA Form 2171 from Leonardo S.p.A. Head of Airworthiness dated 12.03.2020 (A109S Trekker)

Technical Publications are now available to CAA through the customer portal at https://customerportal.leonardocompany.com/

(8) Other information:

AgustaWestland Report No. 109-00-155 – A119 Koala Type Design Definition
AgustaWestland Report No. 109-01-109 A119 Helicopter Cabin Safety Evaluation
AgustaWestland Report No. 109-70-042 – A119 Helicopter Electrical Load Analysis – Full Configuration

A109 Analysis of the Electrical Load

Elicottero A 109 A II Analisi Del Carico Elettrico Dell ' Elicottero Basico N/C 7256 E Succ. (IFR)

Agusta Report 019-06-79 – A109E Detail Specification
Agusta Report 109G0000X006 – A109 Series – Type Design Definition Document
Agusta Report 109G0000X006/06 – A109E Helicopter – Type Design Definition

Report 109G2400L006_W – AW109SP Collection of Electrical Load Analysis
Agusta Report 109G2400L004_I – AW109S Collection of Electrical Load Analysis
Agusta Report 109-01-227_B – A109S Basic Structural Design Criteria
Agusta Report 109G2500U002_B – A109S Helicopter Cabin Safety Evaluation

Report 109G0000X006/07 – A109S Helicopter Type Design Definition Document
Leonardo Report 109G0840W048 – A109S Trekker Chart A Equipment List
Report 109G2400L017_E – A109S Trekker Helicopter Electrical Load Analysis

Leonardo Report 109G0000N174_C – AW109 Family [A109E/A109S/A109S Trekker/AW109SP] – OSD Constituent Flight Crew Data

Report 109G0270Q014/02_E – A109S Master Minimum Equipment List (MMEL)

5. New Zealand Operational Rule Compliance

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 has been assessed as they are a prerequisite for the grant of an airworthiness certificate.

Civil Aviation Rules Part 26

Subpart B – Additional Airworthiness Requirements

Appendix B – All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	***To be determined on an individual aircraft basis***
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Appendix E - Helicopters

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
E.1	Doors/Exits – (1) Operable inside and out, (2) unobstructed; (3) prevent inadvertent operation, indicates if not closed	(1),(2) FAR §27.807(b)(2) (3) A109E requires a double action to open the doors, and provides a warning to the pilot if the door is not closed.
E.2.1	Emergency Exit Marking – Identity / Location; operation	JAR §27.807(b)(3)

Compliance with the following additional NZ operating requirements has been reviewed (for the Model A119) and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

Civil Aviation Rules Part 91

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:	
91.505	Seating and Restraints – Safety belt/Shoulder Harness		FAR §27-2 Retrospective requirements	
91.507	Pax Information Signs – Smoking, safety belts fastened		Not Applicable – Less than 10 passenger seats	
91.509 Min. VFR	(1) ASI (2) Machmeter (3) Altimeter (4) Magnetic Compass (5) Fuel Contents (6) Engine RPM (7) Oil Pressure	JAR §27.1303(a) N/A – No Mach limitations JAR §27.1303(b) JAR §27.1303(c) JAR §27.1305(d) JAR §27.1305(k) JAR §27.1305(h)	(8) Coolant Temp (9) Oil Temperature (10) Manifold Pressure (11) Cylinder Head Temp. (12) Flap Position (13) U/C Position (14) Ammeter/Voltmeter	N/A – Turbine engine JAR §27.1305(j) N/A – Turbine engine N/A – Turbine engine N/A – Helicopter N/A – Fixed undercarriage JAR §27.1351(d)
91.511	Night VFR Instruments and Equipment		***Operational Requirement – Compliance as applicable***	
91.517	IFR Instruments and Equipment		***Operational Requirement – Compliance as applicable***	
91.519	IFR Communication and Navigation Equipment		***Operational Requirement – Compliance as applicable***	
	Note: The A109 Series is approved for single-pilot Day and Night VFR and IFR operations. AW109SP and A109S Trekker use Genesys Aerosystems EFIS that includes Dual: GPS / SBAS receivers; Air Data System (ADS); AHRS; and VOR / ILS system; plus radar altimeter, (optional) ADF, and DME as standard in IFR configuration.			
91.523	Emergency Equipment (a) More Than 9 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 (b) More than 20 pax – Axe readily accessible to crew (c) More than 61 pax – Portable Megaphones per Table 9		 Not Applicable – Less than 10 passengers (P/N 109-0810-50-109 First Aid Bag Installation*) Not Applicable – Less than 10 passengers (P/N 109-0810-11-141 Pilot Fire Extinguisher Kit*) Not Applicable – Less than 20 passengers Not Applicable – Less than 61 passengers * Optional kits available for A109S and Trekker	
91.529	ELT – TSO C91a or C126 after 1/4/97 (or replacement)		***Operational Requirement – Compliance as applicable***	
91.531	Oxygen Indicators – Volume/Pressure/Delivery		***Operational Requirement – Compliance as applicable***	
91.533	Oxygen for Non-Pressurized Aircraft >30 min above FL100 – Supplemental for crew, 10% Pax Above FL100 - Supplemental for Crew, Pax, Therapeutic for 1% of Pax, 120l PBE for each crew member		Not fitted as standard (Maximum Operating Altitude in Flight Manual: 15,000 ft.)	
91.541	SSR Transponder and Altitude Reporting Equipment		***Operational Requirement – Compliance as applicable***	
91.543	Altitude Alerting Device – Turbojet or Turbofan		Not Applicable – Not turbo jet or turbofan powered	
91.545	Assigned Altitude Indicator		***Operational Requirement – Compliance as applicable***	
A.15	ELT Installation Requirements		***To be determined on an individual aircraft basis***	

NOTE: Rule compliance details in the above table are applicable to models certificated under JAR 27.

Civil Aviation Rules Part 135

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:		MEANS OF COMPLIANCE:
135.355	Seating / Restraints – Shoulder harness flight-crew seats		Restraint system meeting TSO C114 is fitted to all seats
135.357	Additional Instruments (Powerplant and Propeller)		FAR/JAR/CS §27.1305
135.359	Night Flight	Landing light, Pax compartment	***Operational Requirement – Compliance as applicable***
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses	***Operational Requirement – Compliance as applicable***
135.363	Emergency Equipment (Part 91.523 (a) and (b))		***Operational Requirement – Compliance as applicable***
135.367	Cockpit Voice Recorder		Not Applicable – Less than 10 passenger seats
135.369	Flight Data Recorder		Not Applicable – Less than 10 passenger seats
	Note: The A109S Trekker can be optionally fitted with an integrated digital FDR/CVR system.		
135.371	Additional Attitude Indicator		Not Applicable – Not turbo jet or turbofan powered

NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was exactly equivalent to the CAR requirement, and compliance is achieved for the basic aircraft type design by certification against the original Design Rule.

2. The CAR Compliance Tables above were correct at the time of issue of the Type Acceptance Report. The Rules may have changed since that date and should be checked individually.

3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/119 operating requirements should be checked in each case, particularly oxygen system applicability and emergency equipment.

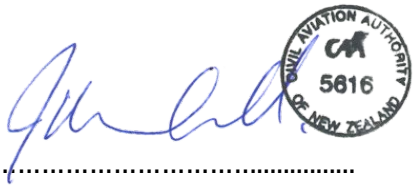
Attachments

The following documents form attachments to this report:

Copy of EASA Type Certificate Data Sheet Number R.005
Copy of FAA Type Certificate Data Sheet Number H7EU

Sign off

……..
David Gill
Team Leader Aircraft Inspection



……..
Checked – John Marshall
Airworthiness Inspector

Appendix 1

List of Type Accepted Variants:

Model:	*Applicant:*	*CAA Work Request:*	*Date Granted:*
A119	Agusta S.p.A.	7/21B/20	19 April 2007
AW119 MKII	Agusta S.p.A.	8/21B/2	29 October 2007
A109E	Agusta S.p.A.	11/21B/12	14 December 2010
A109S and AW109SP	AgustaWestland S.p.A.	16/21B/3	24 September 2015
A109S with Trekker Kit	Leonardo S.p.A.	20/21B/14	19 May 2020
A109A (up to S/N 7165)	B Emeny	23/21B/4	18 April 2023

Appendix 2

Fig.1 A119 Three-view drawing:

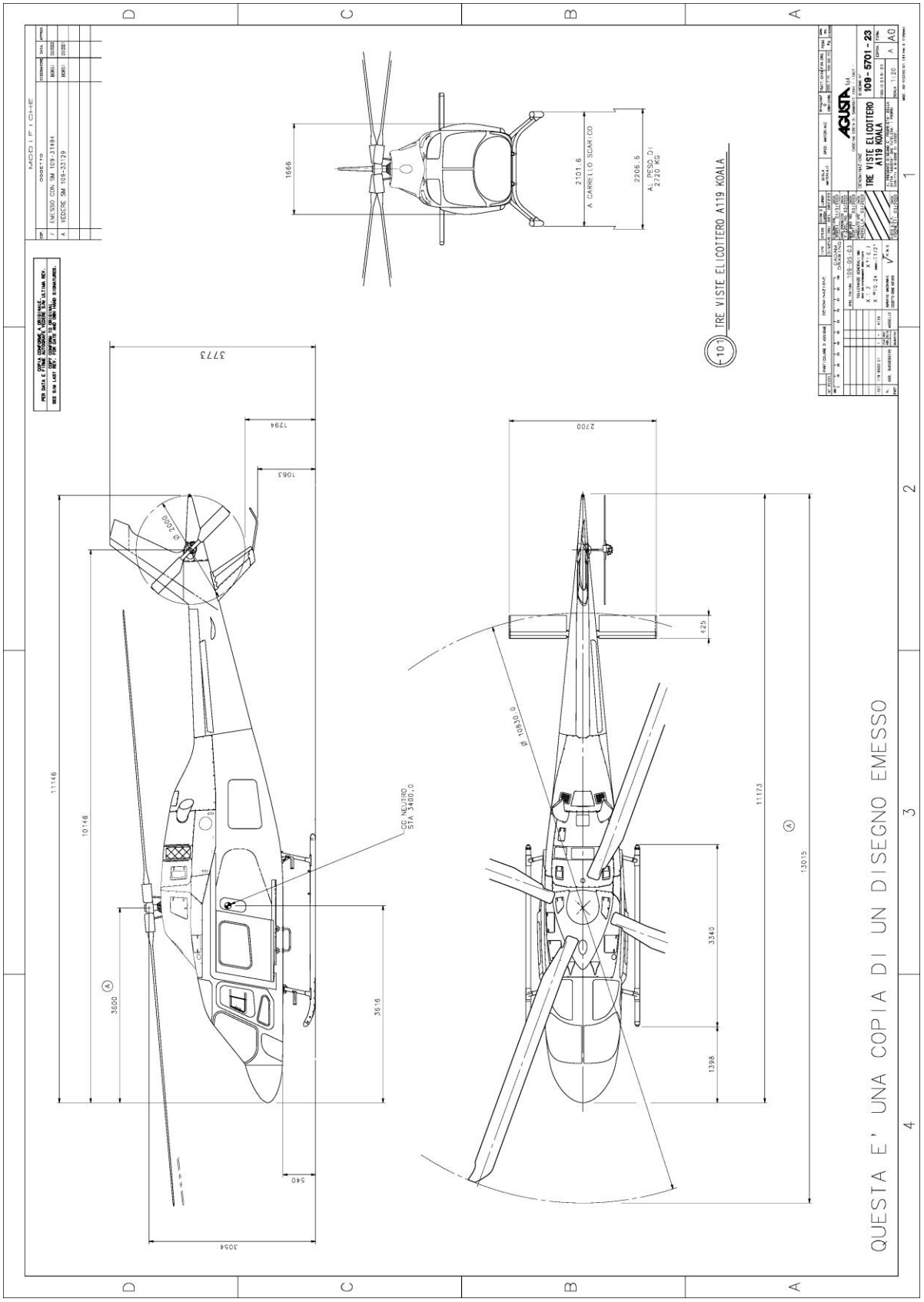


Fig.2 – AW119 Mk.II Three-view drawing:

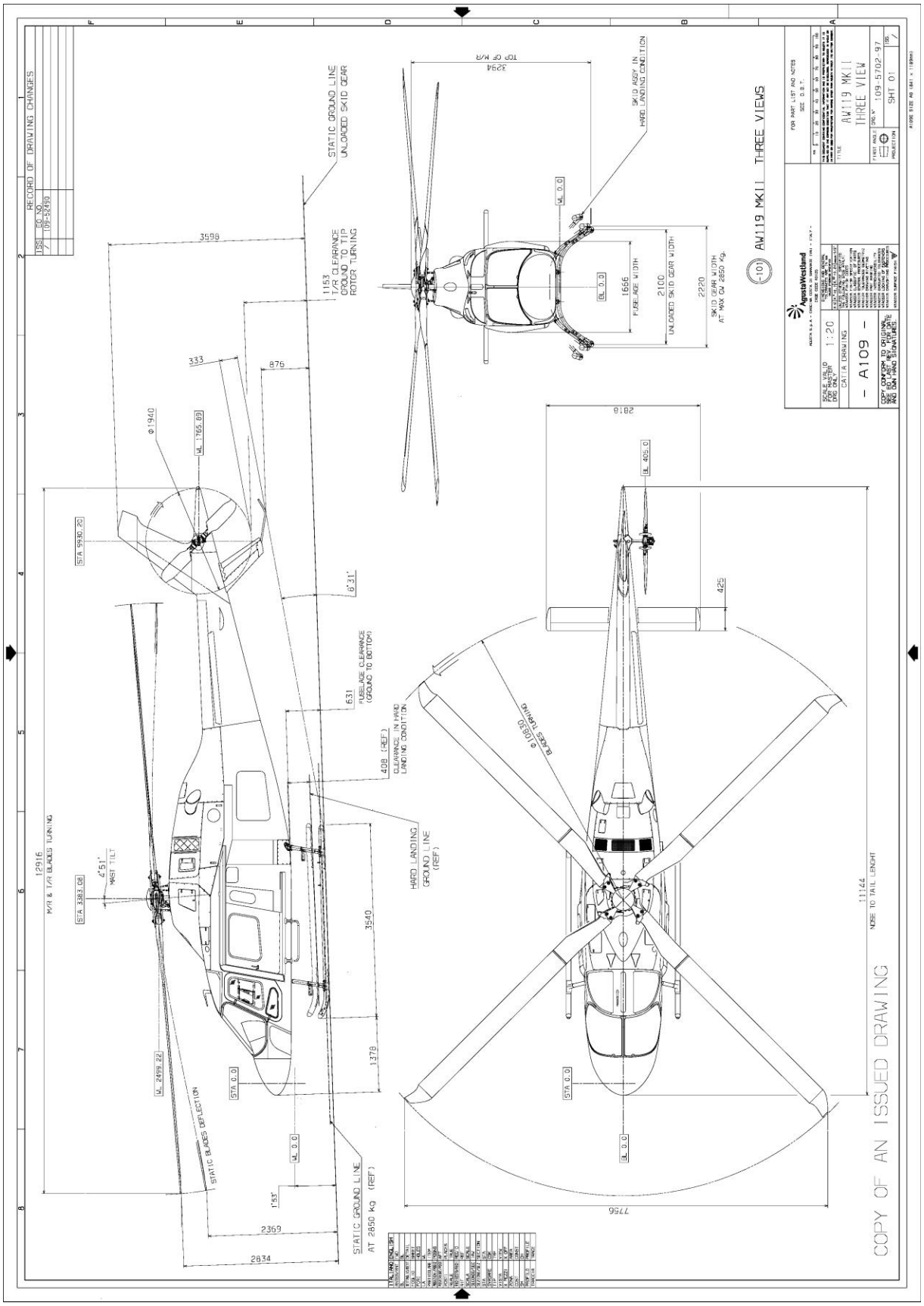


Fig.3 – A109E Three-view drawing:

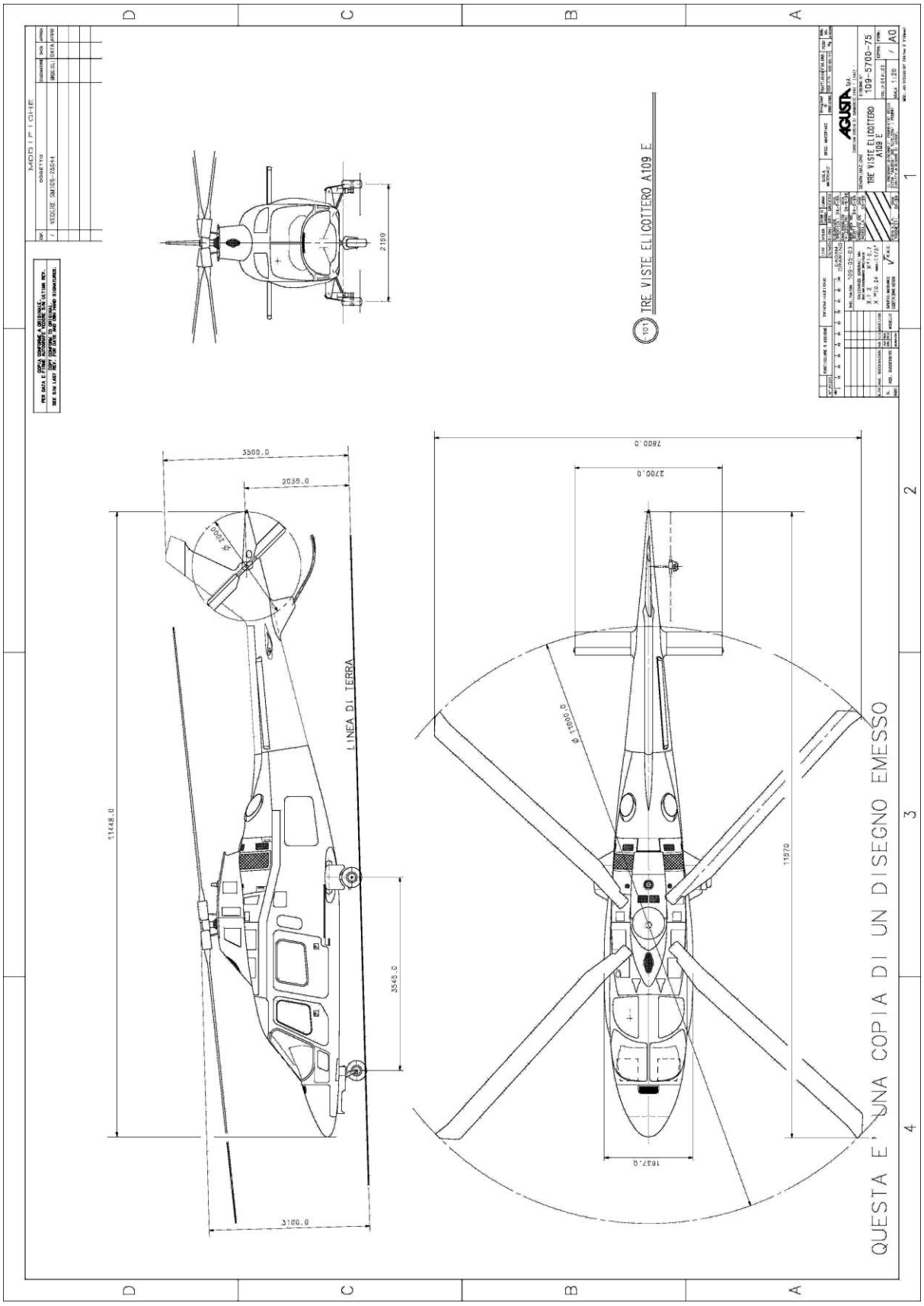


Fig.4 – A109S "Trecker" Three-view drawing: