



TYPE CERTIFICATE DATA SHEET

No. EASA.R.509

for
AW169

Type Certificate Holder
Leonardo S.p.A.

Helicopters
Piazza Monte Grappa, 4
00195 Roma
Italy

For Model: AW169



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SECTION 1: AW169

I. General

- | | |
|--|---|
| 1. Type/ Model/ Variant | |
| 1.1 Type | AW169 |
| 1.2 Model | AW169 |
| 1.3 Variant | - - - |
| 2. Airworthiness Category | Large Rotorcraft, Category A and B |
| 3. Type Certificate Holder | Leonardo S.p.A.
Helicopters
Piazza Monte Grappa, 4
00195 Roma, Italy |
| 4. Manufacturer | See Note 2 |
| 5. Type Certification Application Date | 9 February 2011 |
| 6. State of Design Authority | EASA |
| 7. EASA Type Certification Date | 15 July 2015 |

II. Certification Basis

- | | |
|---|---|
| 1. Reference Date for determining the applicable requirements | 9 February 2011 |
| 2. Airworthiness Requirements | CS-29 Amdt. 2, dated 17 November 2008
CS-29 Amdt. 3, dated 11 December 2012 for the following installations and affected areas only:
- Kit Single Rescue Hoist P/N 6F2591F00111
- 50 meters Hoist P/N 6F2591F00211 |
| 3. Special Conditions | |
| SC E-12 | Loss of Oil from Gearboxes Utilising a Pressurised Lubrication System |
| SC E-15 | Extended Take-Off Power Duration |
| SC F-1 | 'HIRF Protection' in accordance with JAA Interim Policy INT/POL/27&29/1, Issue 3, dated 1 October 2003 |
| SC F-21 | Lithium Battery Installation |
| SC F-23 | Non Rechargeable Lithium Battery Installation |
| 4. Exemptions | none |
| 5. Deviations | none |
| 6. Equivalent Safety Findings | |
| ESF D-02 | CS 29.813 (c) –'Emergency Exit access' |
| ESF D-03 | CS 29.807 (c)(1) –'Passenger Emergency Exits other than side-of-fuselage' |
| ESF D-04 | CS 29.811 (d) 'Emergency Exit signs' |
| ESF D-05 | CS 29.601, CS 29.603, CS 29.605, CS 29.865, CS 29.1301 (d) – 'Hoist installation' |
| ESF D-07 | CS 29.807 (d)(2) – 'Ditching Emergency Exits for passengers' |
| ESF F-16 | CS 29.1305, CS 29.1521, CS 29.1549, CS 29.1309 (c) 'Power Index indicator' |
| ESF F-18 | CS 29.1305, CS 29.1521, CS 29.1549, CS 29.1309 (c) 'Standby Attitude indicator power supply' |
| ESF G-01 | CS 29 Subpart B, CS 29.1305, CS 29.1309, CS 29.1549 'Engine Training Mode' |
| ESF G-02 | CS 29.1545 (b)(4) 'Airspeed indicators green arcs' |
| ESF G-03 | CS 29.1505(c)(2) "Never Exceed Speed – Power OFF" |
| 7. Requirements elected to comply | CS-36 Amdt. 3
CS 29.1465 Vibration health monitoring, Amdt. 5 |



CS 29.337 through 29.341, CS 29.571 and CS 29.29.865 (a),(f) Amdt. 6 for installations and affected areas of the 50 meters Hoist, P/N 6F2591F00211

8. Environmental Protection Requirements

8.1 Noise Requirements

See TCDSN EASA.R.509

8.2 Emission Requirements

Chapter 2 of ICAO Annex 16 Volume II, Amdt. 6, Part II to Chicago Convention (as implemented in CS-34 Initial Issue)

9. Operational Suitability Data (OSD)

see SECTION 2 below

III. Technical Characteristics and Operational Limitations

1. Type Design Definition

Doc. No. 169F0272N002

2. Description

Large twin-engine helicopter, conventional configuration, 5-blade fully articulated interblade main rotor, 3-blade fully articulated tail rotor, retractable tricycle landing gear.

3. Equipment

As per compliance with certification basis and included in Type Design Definition Document

4. Dimensions

4.1 Fuselage

Length: 12.19 m

Width hull: 2.15 m

Height: 3.88 m

4.2 Main Rotor

Diameter: 12.12 m

4.3 Tail Rotor

Diameter: 2.40 m

5. Engine

5.1 Model

Pratt & Whitney Canada
2 x Model PW210A

5.2 Type Certificate

TCCA TC/TCDS: E-36
EASA TC/TCDS: EASA IM.E.126

5.3 Limitations

In accordance with PW210A Pratt & Whitney Canada Installation Manual (Ref. to 30L2374)

5.3.1 Installed Engine Limits

Rating		Max Torque [% (Nm)]	Max ITT [°C]	Max NG [% (rpm)]	Max NF [% (rpm)]
AEO	Continuous	118.6 (395.9)	868	96.5 (49 200)	107 (28 120)
	Take-off 5 min	125.9 (420.3)	930	98.2 (50 100)	
	Take-off 30 min ^(*)				
OEI	Continuous	148.3 (494.9)	941	98.9 (50 430)	107 (28 120)
	2.5 min	174.7 (583)	1 020	100.7 (51 360)	

(*) if Core Avionic SW phase 4.0 P/N 6F4600A00114, or later, is installed.



5.3.2 Transmission Torque Limits

Rating		Max Torque [% (Nm)]	Input speed [rpm]	Input power [hp]
AEO	Max continuous	2 x 100 (334)	14 400	1 350 (675 x 2)
	5 min	2 x 111 (371)		1 500 (750 x 2)
	30 min ^(*)			1 500 (750 x 2)
OEI	Max continuous	140 (470)	14 400	950
	2.5 min	174 (583)		1 180

(*) if Core Avionic SW phase 4.0 p/n 6F4600A00114, or later, is installed.

6. Fluids (Fuel/ Oil/ Additives)

- 6.1 Fuel JET A, JET A1, JP8, JP8+100, No. 3 Jet Fuel (for code no. specification and more details refer to approved RFM)
- 6.2 Oil
 Transmissions: AeroShell Turbo Oil 555 (DoD-L-85734).
 No different specification or brand allowed.
 Engine: Refer to approved RFM
 Hydraulics: MIL-PRF-83282,
 MIL-PRF-87257 (as alternative)
- 6.3 Additives Refer to approved RFM
- 6.4 Coolant R134a

7. Fluid capacities

7.1 Fuel	Total capacity [litres (kg ^(*))]	Unusable [litres (kg ^(*))]
Two main fuel tanks (LH and RH)	1 130 (904)	20 (16)
(*)Fuel mass defined assuming a standard fuel density of 0.8 kg/litre		
7.2 Oil	Quantity [litres (kg ^(*))]	
Engine (each)	min 5.25 (4.948) - max 5.78 (5.448)	
Main gearbox (min/max)	min 17 (16.968) - max 19 (18.964) (16.8 + 2.2 for oil cooler, oil ducts and filter)	
Intermediate gearbox	0.77(0.768)	
Tail gearbox	1.10 (1.098)	
Hydraulic (per each Power Control Module)	1.3 (1.1)	
(*) Oil mass at 80 °C		

7.3 Coolant System Capacity 2.1 kg

8. Air Speed Limitations
- | | |
|--------------------------------------|----------|
| V_{NE} Power On AEO: | 165 KIAS |
| V_{NE} Power On AEO [*] : | 160 KIAS |
| V_{NE} Power On OEI: | 135 KIAS |
| V_{NE} Power Off: | 125 KIAS |
- For reduction of the V_{NE} with density altitude (HP/OAT), refer to approved RFM.
- (*) if Core Avionics SW Phase 6.0, or later is installed



9. Rotor Speed Limitations

Power On AEO(*)		
Condition	[rpm]	[%]
Minimum Continuous	317.56	96.0
Maximum Continuous	354.72	103.0
Power On OEI		
Condition	[rpm]	[%]
Minimum Cautionary	304.05	90.0
Minimum Continuous	341.21	101.0
Maximum Continuous	354.72	105.0
Power Off		
Condition	[rpm]	[%]
Minimum Continuous	304.05	90.0
Maximum Continuous	371.61	110.0

(*) Maximum and minimum continuous values of the flight envelope. AVSR provides a governing of the rotor speed at different values depending on airspeed (TAS/IAS**) and density altitude. As the NR datum is variable, NR green band is variable as well ($\pm 2\%$ across the datum value).

(**) IAS if Core Avionics SW Phase 6.0, or later is installed

Refer to approved RFM for additional rotor speed limitations

10. Maximum Operating Altitude and Temperature

10.1 Altitude

Maximum operating altitude 15 000 ft PA/DA (whichever occurs first), or, 10 000 ft for operation at gross mass above 4 600 kg
Maximum Take-off and Landing altitude 15 000 ft PA/DA (whichever occurs first), or, 10 000 ft for operation at gross mass above 4 600 kg.

10.2 Temperature

-40°C ÷ +50°C (ISA+35°C)
-40°C ÷ +50°C (ISA+35°C) for Cat A operations
For variation of temperature limitations with altitude refer to approved RFM and applicable supplement

11. Operating Limitations

VFR day and night and IFR operations in non-icing conditions

12. Maximum Mass

Take-off and landing: 4 600 kg, or 4 800 kg if P/N 6F0000F00211 is installed
Taxi and Towing: 4 650 kg, or 4 850 kg if P/N 6F0000F00211 is installed

13. Centre of Gravity Range

Refer to approved RFM

14. Datum

Longitudinal:
The datum plane (STA 0) is located at 3 528 mm forward to the front jack point
Lateral:
The datum plane (B.L. 0) is located at ± 225 mm inboard of LH/RH front jack points.



- | | |
|--|---|
| 15. Levelling Means | Plumb line from ceiling reference point to index plate on floor of baggage compartment; clinometer. |
| 16. Minimum Flight Crew | One (1) pilot for VFR day and night and IFR.
For NVG operations, two (2) pilots or one (1) pilot and one (1) crew member required. Both pilot and crew member must be equipped with NVGs (see Note 3). |
| 17. Maximum Passenger Seating Capacity | 8
10 (if the kit 10 Seats Internal Arrangement P/N 6F2520F00111 is installed) |
| 18. Passenger Emergency Exit | 2 on each side of the passenger cabin
1 on each side of the passenger cabin, if the kit Sliding Aft Passenger Windows P/N 6F5630F00411 is installed. |
| 19. Maximum Baggage/ Cargo Loads | 250 kg located in the baggage/cargo compartment |
| 20. Rotor Blade Control Movement | For rigging information, refer to RFM |
| 21. Auxiliary Power Unit (APU) | none |
| 22. Life-limited Parts | Refer to the Airworthiness Limitation Section (ALS) of the Maintenance Manual |
| 23. Wheels and Tyres | MLG wheel assembly with 18x5.5 tubeless tyres
NLG wheel assembly with 5x5.5 tubeless tyres |

IV. Operating and Service Instructions

- | | |
|--------------------------------|---|
| 1. Flight Manual | Doc. No. 169F0290X001, initial issue, dated 8 July 2015, EASA approved 15 July 2015, or later approved revisions |
| 2. Maintenance Manual | 'AW169 Maintenance Planning Information'

Doc. No. 69-A-AMPI-00-P, EASA accepted 15 July 2015, or later revisions, including:
<ul style="list-style-type: none">- Chapter 4 ALS, EASA approved dated 15 July 2015, or later approved revisions;- Chapter 5 with Scheduled Maintenance Requirements 'Maintenance Review Board Report AW169 Helicopter'
Doc. No. 169F0000M005
'AW169 Maintenance Publication'
Doc. No. 69-A-AMP-00-X
'AW169 Material Data Information'
Doc. No. 69-A-AMDI-00-X
'AW169 Corrosion Control Publication'
Doc. No. 69-A-ACCP-00-X
'AW169 Fault Isolation Publication'
Doc. No. 69-A-AFIP-00-X
'AW169 Wiring Data Publication'
Doc. No. 69-A-AWDP-00-X |
| 3. Structural Repair Manual | 'AW169 Structural Repair Publication'
Doc. No. 69-A-ASRP-00-X
'AW169 Component Repair and Overhaul Publication'
Doc. No. 69-A-CR&OP-00-X |
| 4. Weight and Balance Manual | Refer to the Section 6 of the RFM and applicable RFMS |
| 5. Illustrated Parts Catalogue | 'AW169 Illustrated Tool and Equipment Publication'
Doc. No. 69-A-ITEP-00-X |



'AW169 Illustrated Part Data'
Doc. No. 69-A-IPD-00-X

6. Service Letters and Service Bulletins As published by AgustaWestland, Finmeccanica or Leonardo
7. Required equipment As per compliance with certification basis and included in Type Design Definition standard.
Refer to approved RFM and MMEL.
Refer to EASA approved RFM and related supplements for other approved mandatory and optional equipment.

V. Notes

1. Manufacturer's eligible serial numbers:
69005, and subsequent
2. Manufacturer:
AgustaWestland S.p.A. in Italy^(*)
(*) Effective on 1 January 2016, AgustaWestland S.p.A. ownership was transferred to Finmeccanica S.p.A.;
Effective on 28 July 2016, Finmeccanica S.p.A. name was changed into Leonardo S.p.A.
3. NVG Operations:
Night Vision Goggle Operations are permitted according to RFM 169F0290X001 Supplement No. 16. The aircraft configuration involving internal/external emitting/reflecting equipment approved for use with NVG is described in the Report N. 169F3360A001 'AW169 NVG Compatibility Reference Handbook'.
Subsequent modifications and deviations to the NVG helicopter configuration shall be managed in accordance with document 169F3360E001 'AW169 Helicopter NVG Policy'.

* * *



SECTION 2: 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.

I. OSD Certification Basis

- I.1 Reference Date for determining the applicable OSD requirements
For MMEL, FCD and SIMD: 7 October 2014
- I.2 MMEL - Certification Basis
CS-MMEL Initial Issue, dated 31 January 2014
- I.3 Flight Crew Data - Certification Basis
CS-FCD Initial Issue, dated 31 January 2014
- I.4 SIM Data - Certification Basis
Special Condition NPA 2013-17 (CS-SIMD), dated 27 August 2013
- I.5 Maintenance Certifying Staff Data - Certification Basis
reserved

II. OSD Elements

- II.1 MMEL
AW169 Master Minimum Equipment List - MMEL, Doc.169F0270Q003, issue A dated 16 July 2015, EASA approved on 21 July 2015, or later EASA approved revisions
- II.2 Flight Crew Data
AW169 Operational Suitability data – Flight Crew, Doc. OSD.FC AW169, issue A dated 10 July 2015, EASA approved on 21 July 2015, or later EASA approved revisions.
- II.3 SIM Data
AW169 FTD Validation Data Roadmap doc. THSS-169F1920U014, issue B, dated 7 May 2015, EASA approved on 19 January 2016, or later EASA approved revisions.
AW169 FTD Flight Test Results Report doc. THSS-169F1920N004, issue A, dated 7 May 2015, EASA approved on 19 January 2016, or later EASA approved revisions.
AW169 FFS Validation Data Roadmap doc. 169F1920U01, issue A, dated 19 May 2016, EASA approved on 13 December 2016, or later EASA approved revisions.
AW169 FFS Level D Flight Test Results Report doc. 169F1920N001, issue A, dated 25 May 2016, EASA approved on 13 December 2016, or later EASA approved revisions.
- II.4 Maintenance Certifying Staff Data
reserved



SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

AEO	All Engines Operative	NVG	Night Vision Goggle
Amdt.	Amendment	OAT	Outside Air Temperature
AW	AgustaWestland	OEI	One Engine Inoperative
B.L.	Butt Line	OSD	Operational Suitability Data
C.G.	Centre of Gravity	P/N	Part number
CRI	Certification Review Item	PA	Pressure altitude
CS	Certification Specification	RFM	Rotorcraft Flight Manual
DA	Density altitude	RFMS	Rotorcraft Flight Manual Supplement
Doc.	Document	RH	Right Hand
HIRF	High Intensity Radiated Fields	s/n	Serial number
IFR	Instrument Flight Rules	STA	Station
ISA	International Standard Atmosphere	TCCA	Transport Canada Civil Aviation
JAA	Joint Aviation Authorities	TCDSN	Type Certificate Data Sheet Noise
LH	Left Hand	TOP	Take-off Power
MLG	Main Landing Gear	VFR	Visual Flight Rules
NLG	Nose Landing Gear	V _{NE}	Velocity Never Exceed
No.	Number		

II. Type Certificate Holder Record.

Type Certificate Holder	Period
AgustaWestland S.p.A. Piazza Monte Grappa, 4, 00195 Roma, Italy	from 15 July 2015 until 31 December 2015
Finmeccanica S.p.A. Helicopter Division, Piazza Monte Grappa, 4, 00195 Roma, Italy	From 1 January 2016 until 14 July 2016
Leonardo S.p.A. Helicopters, Piazza Monte Grappa, 4, 00195 Roma, Italy	since 15 July 2016

III. Change Record

Issue	Date	Changes	TC issue
Issue 1	15 Jul 2015	Initial issue of EASA TCDS	Initial Issue, 15 July 2015
Issue 2	21 Jul 2015	AW legal office moved to Rome; OSD approvals for MMEL and FCD	---
Issue 3	13 Jan 2016	TCH company name changed and ownership transferred to Finmeccanica S.p.A.	Re-issued 13 January 2016
Issue 4	19 Jan 2016	OSD SIM added	---
Issue 5	4 Aug 2016	TCH company name changed from Finmeccanica S.p.A. to Leonardo S.p.A; Kit Single Rescue Hoist, Kit 10 Seats Internal Arrangement, and Kit Sliding Aft Passenger Windows introduced	Re-issued 4 August 2016
Issue 6	18 Jan 2017	Introduction of ESF to CS 29.807 (d)(2) – “Ditching Emergency Exits for Passengers”; Take-off and landing	---



Issue	Date	Changes	TC issue
		altitude envelope extended; Introduction of Kit increased Gross Weight 4 800 kg; OSD SIM extended to FFS level D	
Issue 7	4 Oct 2017	Certification Basis: references to CRI are removed; Environmental Protection Requirements are condensed and make direct reference to TCDSN for Noise Requirements; maximum take-off and landing altitude changed for gross mass above 4 600 kg; introduction of clinometer as admissible levelling means; other minor corrections included	---
Issue 8	30 Jan 2018	Introduction of Special Condition "Non Rechargeable Lithium Battery Installation"; introduction of China No. 3 Jet Fuel	---
Issue 9	19 Dec 2018	II.3: Special Condition Extended TOP Duration added; II.7.: CS 29.1465 Amdt. 5 added; III.5.3: 'Extended TOP 30 min' added	---
Issue 10	22 Dec 2020	II.3.,6.: SC/ESF references updated; II.6.: ESF 'Never Exceed Speed – Power OFF' introduced II.7.: Elect to comply for 50 m hoist kit P/N 6F2591F00211 III.8.: V _{NE} added (see Core Avionics SW) III.9.: IAS added (see Core Avionics SW) IV.2.: AMPI initial release clarified III.4.1., IV.1. V.3.: Correction of typos	---

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