



TYPE CERTIFICATE DATA SHEET

No. EASA.R.510

for
AW189

Type Certificate Holder
Leonardo S.p.A.

Helicopters
Piazza Monte Grappa, 4
00195 Roma
Italy

For Model: AW189



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SECTION 1: AW189

I. General

- | | |
|----------------------------------------|-------------------------------------------------------------------------------|
| 1. Type/ Model/ Variant | |
| 1.1 Type | AW189 |
| 1.2 Model | AW189 |
| 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 | 12 May 2011 |
| 6. State of Design Authority | EASA |
| 7. EASA Type Certification Date | 7 February 2014 |

II. Certification Basis

- | | |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Reference Date for determining the applicable requirements | 12 May 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 (see Note 10): <ul style="list-style-type: none">- Kit Single Rescue Hoist p/n 8G2591F00111- Kit Double Rescue Hoist p/n 8G2591F00311- Kit Limited Ice Protection System (LIPS) p/n 8G3000F00211 and 8G3000F00212- Kit Full Ice Protection System (FIPS) p/n 8G3000F00111 |
| 3. Special Conditions | <ul style="list-style-type: none">- Automatic Search Modes (ASM) certification (CRI B-03)- Extended Take-Off Power Duration (EP, 30 min All Engines Operating, CRI E-07)- Loss of Oil from Gearboxes Utilising a Pressurised Lubrication System (CRI E-09)- 'HIRF Protection' in accordance with JAA Interim Policy INT/POL/27&29/1, issue 3, dated 1 October 2003 (CRI F-01)- Essential APU Installation in Large Rotorcraft (CRI J-01)- For kit Limited Ice Protection System:
Special Condition for Limited Icing Clearance (CRI F-19) |
| 4. Exemptions | none |
| 5. Deviations | none |
| 6. Equivalent Safety Findings | <ul style="list-style-type: none">- Passenger access to each Emergency Exit (CRI D-03)- Passenger Emergency Exits – other than Side-Of-Fuselage (CRI D-04)- Emergency Exit Signs (CRI D-06)- Ditching Emergency Exits for Passengers (CRI D-07)- Ferry Flight Configuration (CRI D-08)- Main Aisle Width (CRI D-10)- Hoist Installation (CRI D-11)- H-V Envelope and RFM Charts (CRI F-16)- Power Index Indicator (CRI F-20, see Note 8) |



- Engine Training Mode (CRI G-01, see Note 6 and Note 7)
- Airspeed Indicators Green Arcs (CRI G-02)
- 7. Requirements elected to comply CS-36 Amdt. 3 (see CRI A-01)
- 8. Environmental Protection Requirements
 - 8.1 Noise Requirements See EASA Type Certificate Data Sheet for Noise TCDSN EASA.R.510
 - 8.2 Emission Requirements Chapter 2 of ICAO Annex 16 Volume II, Amdt. 6, Part II to Chicago Convention (as implemented in CS-34 Amdt. 1)
- 9. Operational Suitability Data (OSD) see SECTION 2 below

III. Technical Characteristics and Operational Limitations

- 1. Type Design Definition AW Doc. No. 189G0000P002
- 2. Description Large twin-engine helicopter, conventional configuration, 5-blade fully articulated main rotor, 4-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: 14.60 m
 - Width hull: 3.02 m
 - Height: 4.04 m
 - 4.2 Main Rotor Diameter: 14.60 m
 - 4.3 Tail Rotor Diameter: 2.90 m
- 5. Engine
 - 5.1 Model General Electric
2 x Model CT7-2E1
 - 5.2 Type Certificate FAA TC/TCDS: E8NE
EASA TC/TCDS: EASA IM.E.010
 - 5.3 Limitations

5.3.1 Installed Engine Limits

	Rating	Max ITT [°C]	Max NG [% (rpm)]	Max NF [% (rpm)]
AEO	Continuous	942	102.7 (42 843)	104 (20 192)
	Take-off 5 min	968	102.7 (42 843)	---
OEI	Continuous	968	102.7 (42 843)	104 (20 192)
	2.5 min	1 078	105 (41 905)	---

5.3.2 Transmission Torque Limits

	Rating	Max Torque [%]	Input speed [rpm]
AEO	Max continuous	2 x 100	21 420
	30 min	2 x 116 ^(*)	
OEI ^(***)	Max continuous	1 x 135	21 420
	2.5 min	1 x 164 ^(**)	

(*) For airspeeds less than 90 KIAS. For airspeeds greater than 90 KIAS refer to RFM.

(**) Between 155% and 164% allowed for 30 sec and once per 2.5 min event

(***) See Note 11



6. Fluids (Fuel/ Oil/ Additives)

- 6.1 Fuel JET A, JET A1, JP5, 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: Ref. to GE Operating Instructions
No. GEK112766
APU: MIL-PRF-23699, MIL-PRF-7808
Hydraulics: MIL-PRF-83282,
MIL-PRF-5606 (as alternative)
- 6.3 Additives
Kathon FP 1.5, MIL-DTL-27686, MIL-DTL-85470,
MIL-I-25017, Biobor JF
- 6.4 Coolant
R134a

7. Fluid capacities

7.1 Fuel	Total usable [litres (kg ^(*))]	Unusable [litres (kg ^(*))]
Two main fuel tanks (LH and RH)	1 303 (1 042)	24 (19)
Two main fuel tanks (LH and RH) plus Auxiliary Central Tank	1 825 (1 460)	30 (24)
Two main fuel tanks (LH and RH) plus Forward Tanks plus Auxiliary Central Tank	2 063 (1 650)	34 (27)
Extended Range (see Note 5) Two main fuel tanks (LH and RH) Plus under belly tanks	2 569 (2 055)	9 (7)

(*) Considering a medium density between different fuels of 0.8 kg/litre

7.2 Oil	Quantity [litres (kg)]
Engine (each)	min 3.6 (3.59) - max 5.5 (5.49)
Main gearbox (min/max)	min 21.5 (21.46) - max 27 (26.95) (24.5 + 2.5 for oil cooler, oil ducts and filter)
Intermediate gearbox	1.22 (1.22)
Tail gearbox	1.87 (1.87)
Hydraulic (per each Power Control Module)	3.20 (2.72)

7.3 Coolant System Capacity 2.9 kg

8. Air Speed Limitations

- V_{NE} Power On AEO: 169 kt
 V_{NE} Power On OEI: 139 kt
 V_{NE} Power Off: 120 kt
 V_{NE} (VFR Night/IFR Single Pilot) Power On AEO V_{NE} Power On AEO: -20 kt

For reduction of the V_{NE} with altitude, OAT and weight, refer to approved RFM.



9. Rotor Speed Limitations

Power On AEO		
Condition	[rpm]	[%]
Minimum Continuous	284.75	100.0
Maximum Continuous	296.14	104.0
Power On OEI		
Condition	[rpm]	[%]
Minimum Cautionary	256.28	90.0
Minimum Continuous	284.75	100.0
Maximum Continuous	296.14	104.0
Power Off		
Condition	[rpm]	[%]
Minimum Continuous	256.28	95.0
Maximum Continuous	313.23	110.0
Refer to approved RFM for additional rotor speed limitations		

10. Maximum Operating Altitude and Temperature

10.1 Altitude

Maximum operating altitude 10 000 ft PA/DA
(whichever occurs first)
Maximum Take-off and Landing altitude 8 000 ft PA/DA
(whichever occurs first).

10.2 Temperature

-40°C ÷ +55°C (ISA+40°C)
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.
- Flight into known IMC condition is prohibited for single pilot operations in IFR.
- Flight in limited icing condition is permitted only when the kit Limited Ice Protection System p/n 8G3000F00211, or p/n 8G3000F00212 is installed.
- Flight into known icing condition is permitted only when the kit Full Ice Protection System p/n 8G3000F00111 is installed.

12. Maximum Mass

Take-off and landing: 8 300 kg (see Note 4)
Taxi and Towing: 8 350 kg (see Note 4)

13. Centre of Gravity Range

Refer to approved RFM

14. Datum

Longitudinal:
The datum plane (STA 0) is located at 2 830 mm forward to the front jack point
On the 'Extended Range' configuration (see Note 5) the longitudinal datum line (STA 0) is located at 3 009 mm forward to the front jack point.
Lateral:
The datum plane (B.L. 0) is located at ±275 mm inboard of LH/RH front jack points.

15. Levelling Means

Plumb line from ceiling reference point to index plate on floor of passenger cabin; digital clinometer.



16. Minimum Flight Crew
One (1) for VFR day and two (2) for VFR night and IFR.
Single pilot VFR night and IFR operations are allowed under conditions and limitations included in the Supplement 3 of the RFM.
For Category A operations, two (2) pilots required if take-off and landing is to be carried out from the left seat.
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).
For operations in limited icing conditions, two (2) pilots required.
17. Maximum Passenger Seating Capacity
19
18. Passenger Emergency Exit
10; 1 for pilot, 1 for co-pilot,
4 on each side of the passenger cabin
19. Maximum Baggage/ Cargo Loads
300 kg located in the baggage/cargo compartment (see Note 9)
20. Rotor Blade Control Movement
For rigging information, refer to Maintenance Manual
21. Auxiliary Power Unit (APU)
Safran Power Units (former: Microturbo)
1 x Model e-APU60 model 342,
ETSO approval: EASA.210.10045083
22. Life-limited Parts
Refer to the Airworthiness Limitation Section (ALS) of the Maintenance Manual
23. Wheels and Tyres
MLG wheel assembly with 24x7.7 tubeless tyres
NLG wheel assembly with 14.5x5.5 tubeless tyres

IV. Operating and Service Instructions

1. Flight Manual
Doc. No. 189G0290X002,
approved 31 January 2014, or later approved revision
2. Maintenance Manual
"AW189 Maintenance Planning Information"
Doc. No. 89-A-AMPI-00-P (includes Chapter 4 ALS approved on 5 February 2014, or later approved revision and Chapter 5 with Scheduled Maintenance Requirements)
"Maintenance Review Board Report for AW189 Helicopter"
Doc. No. 189G0000M006
"AW189 Maintenance Publication"
Doc. No. 89-A-AMP-00-X
"AW189 Material Data Information"
Doc. No. 89-A-AMDI-00-X
"AW189 Corrosion Control Publication"
Doc. No. 89-A-ACCP-00-X
"AW189 Fault Isolation Publication"
Doc. No. 89-A-AFIP-00-X
"AW189 Wiring Data Publication"
Doc. No. 89-A-AWDP-00-X
Component Maintenance Manual as applicable
3. Structural Repair Manual
"AW189 Structural Repair Publication"
Doc. No. 89-A-ASRP-00-X
"AW189 Component Repair and Overhaul Publication"



- Doc. No. 89-A-CR&OP-00-X
4. Weight and Balance Manual Refer to the Section 6 of the RFM and applicable supplements
5. Illustrated Parts Catalogue “AW189 Illustrated Tool and Equipment Publication”
Doc. No. 89-A-ITEP-00-X
“AW189 Illustrated Part Data”
Doc. No. 89-A-IPD-00-X
6. Service Letters and Service Bulletins As published by AgustaWestland, Finmeccanica or Leonardo
7. Required equipment The installation of the following is mandatory for IFR/VFR night Single Pilot Operations (see Supplement 3 of the RFM):
- Quick Reference Handbook (QRH)
Doc. No. 189G0290X003, latest issue.
 - Map/QRH holder p/n 8G2510F00211, or equivalent approved.
 - Traffic Advisory System TCAS II (see RFM Supplement 8).
- The installation of the following is mandatory for Ditching Operations (see RFM Supplement 6):
- Life rafts (life rafts p/n 8G2560F00511 have been approved for use by AW. The use of other life raft installations must be in accordance with CS/FAR 29 and must be approved)
 - Survival type Emergency Locator Transmitter
 - Life preservers (the following life preservers installations have been approved by AW:
8G2560F00611, 8G2560F00711, 8G2560F00811.
Different life preserver installations must be in accordance with CS/FAR 29 and must be approved).
- The installation of the following is mandatory for Night Vision Goggles Operations (see RFM Supplement 14):
- Aviator’s Night Vision Goggles as specified in 189G3360A001 “AW189 NVG Compatibility Reference Handbook”
 - Helmet with NVG mount suitable for NVG Model being used.
 - Cockpit/Cabin physical separation device as defined in 189G3360A001 “AW189 NVG Compatibility Reference Handbook”.
- The installation of the following is mandatory for operations in limited icing condition:
- Kit Limited Ice Protection System p/n 8G3000F00211 (see RFM Supplement 38 or 48, according to the relevant aircraft configuration)
 - Kit Limited Ice Protection System p/n 8G3000F00212 (see RFM Supplement 45 or 50, according to the relevant aircraft configuration)
- The installation of the following is mandatory for operations in known icing condition:
- Kit Full Ice Protection System p/n 8G3000F00111 (see RFM Supplement 44 or 49, according to the



relevant aircraft configuration)

The aircraft configuration approved for use in limited icing condition is described in the Report 189G3000A001 "AW189 Icing Compatibility Reference Handbook".

Refer to EASA approved RFM and related supplements for other approved mandatory and optional equipment.

Refer to Kit Compatibility Handbook 189G0000A002 for incompatibilities and restrictions between optional equipment.

AW189 Software Configuration is managed within the Software Handbook 189G0000X007.

V. Notes

1. Manufacturer's eligible serial numbers:
 - 49007, and subsequent, except 49024, manufactured by AgustaWestland S.p.A. in Italy
 - 89001, and subsequent manufactured by AgustaWestland S.p.A. in Italy (see Note 5 – Extended Range Configuration)
 - 91001, and subsequent manufactured by AgustaWestland S.p.A. in UK
 - 92001 and 92003 manufactured by AgustaWestland Ltd in UK (see Note 5 – Extended Range Configuration)
 - 92002, 92004, and subsequent manufactured by AgustaWestland S.p.A. in UK (see Note 5)
2. Manufacturers:
 - AgustaWestland S.p.A.^(*)
 - Italy Plant – Vergiate (VA)
 - UK Plant – Yeovil (Somerset)
 - AgustaWestland Ltd (only for s/n 92001 and 92003)
 - UK Plant – Yeovil (Somerset)

(*) 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 189G0290X002 Supplement No. 14. The aircraft configuration involving internal/external emitting/reflecting equipment approved for use with NVG is described in the Report N. 189G3360A001 "AW189 NVG Compatibility Reference Handbook". Subsequent modifications and deviations to the NVG helicopter configuration shall be managed in accordance with AgustaWestland document 189G3360E001 "AW189 Helicopter NVG Policy".
4. Maximum mass:

Installation of Drawing 8G0000F00111, according to RFM Supplement 21, permits operations at the following mass:

 - Take-off and Landing: 8 600 kg
 - Taxi and Towing: 8 650 kg
5. Extended Range Configuration:

According to RFM Supplement 22, as per Drawing 8G0000X00831 and Drawing 8G0000X00931.
6. ESF on CS 29.1305 (a)(25) and CS 29.1309 (c) "MGB OEI 30 seconds rating counter and automatic reduction" (CRI F-18), applicable to AW189 aircraft equipped with Core Avionic Phase 2.0 SW release only, is deleted since the mentioned SW release is no more operated.
7. ESF "Power Index Indicator" (CRI F-15), applicable to AW189 aircraft equipped with Core Avionic Phase 2.0 SW release only, is deleted since the mentioned SW release is no more operated.
8. ESF "Power Index Indicator" (CRI F-20) is applicable only to AW189 aircraft equipped with Core Avionic Phase 2.1 SW release as defined in 189G0000X007, and subsequent releases unless differently specified.



9. Maximum Baggage / Cargo Loads:

The installation of the kit Vertical Cargo Net p/n 8G2550F00311 and Cargo Net p/n 8G2550V00131 permits the maximum load in the baggage compartment to be increased to 360 kg.

The installation of the Heavy Duty Baggage Compartment Kit p/n 8G5010F00411, according to RFM Supplement 46, permits the maximum load in the baggage compartment to be increased to 460 kg.

The installation of the Heavy Duty Baggage Compartment Kit p/n 8G5010F00511, according to RFM Supplement 46, permits maximum load in the baggage compartment of 280 kg.

10. Kit Rescue Hoist, LIPS and FIPS:

For these design changes the CS-29 Amdt. 3, dated 11 December 2012 is applicable for the following requirements:

- CS 29.571 Fatigue tolerance evaluation of metallic structures,
- CS 29.573 Damage tolerance and fatigue evaluation of composite rotorcraft structures,
- Appendix A, A 29.4 Airworthiness Limitation Section.

11. MGB OEI Ratings:

For Aircraft equipped with Core Avionic Phase 4.0 SW release as defined in 189G0000X007 the MGB OEI Rating is increased as per the following table:

	Rating	Max Torque [%]	Input speed [rpm]
OEI	Max continuous	1 x 142	21 420
	2.5 min	1 x 172(**)	

(**) Between 164% and 175% allowed for 30 sec and once per 2.5 min event

* * *



SECTION 2: OPERATIONAL SUITABILITY DATA (OSD)

The OSD elements listed below are approved by the European 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
Grandfathering date: 17 February 2014
- I.2 MMEL - Certification Basis
JAR-MMEL/MEL Amendment 1, dated 1 August 2005
- I.3 Flight Crew Data - Certification Basis
 - JAA/TCCA/FAA Common Procedures Document for conducting operational evaluation boards, dated 10 June 2004
 - EASA OEB – administrative and guidance procedures, dated 11 January 2010
- I.4 SIM Data - Certification Basis
reserved
- I.5 Maintenance Certifying Staff Data - Certification Basis
reserved

II. OSD Elements

- II.1 MMEL
189G0270Q001 Rev. A dated 12 May 2014, or later EASA approved revisions.
- II.2 Flight Crew Data
189G0000N17 Issue A dated 14 December 2015, or later EASA approved revisions.
- II.3 SIM Data
reserved
- II.4 Maintenance Certifying Staff Data
reserved



SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

AEO	All Engines Operative	MLG	Main Landing Gear
Amdt.	Amendment	NLG	Nose Landing Gear
AW	AgustaWestland	No.	Number
B.L.	Butt Line	NVG	Night Vision Goggle
C.G.	Centre of Gravity	OAT	Outside Air Temperature
CRI	Certification Review Item	OEB	Operational Evaluation Board
CS	Certification Specification	OEI	One Engine Inoperative
DA	Density altitude	OSD	Operational Suitability Data
Doc.	Document	p/n	Part number
EP	Extended Take-Off Power Duration	PA	Pressure altitude
FAA	Federal Aviation Administration	RFM	Rotorcraft Flight Manual
GE	General Electric	RH	Right Hand
HIRF	High Intensity Radiated Fields	SL	Sea Level
IFR	Instrument Flight Rules	s/n	Serial number
IMC	Instrument Meteorological Conditions	STA	Station
ISA	International Standard Atmosphere	TCCA	Transport Canada Civil Aviation
JAA	Joint Aviation Authorities	VFR	Visual Flight Rules
LH	Left Hand	V _{NE}	Velocity Never Exceed

II. Type Certificate Holder Record.

Type Certificate Holder	Period
AgustaWestland S.p.A Via Giovanni Agusta, 520 21017 Cascina Costa di Samarate (VA), Italy	From 7 February 2014 until 30 July 2014
AgustaWestland S.p.A Piazza Monte Grappa, 4, 00195 Roma, Italy	from 31 July 2014 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	7 Feb 2014	Initial issue of EASA TCDS	Initial Issue, 7 February 2014
Issue 2	23 Jan 2015	AW legal office moved to Rome; 'Extended Range' kit and new MTOM included; new manufacturer AW Ltd. added.	---
Issue 3	8 July 2015	Production Organisation in Yeovil (UK) and relevant eligible serial numbers updated; possibility to increase of the cargo load in the baggage compartment.	---



Issue	Date	Changes	TC issue
Issue 4	15 October 2015	Kit Rescue hoist, Core Avionics Phase 2.1 SW release and kit LIPS introduced; temporary Revision CRI F-17 removed due to embodiment of BT AW189-013 on the whole fleet.	---
Issue 5	18 December 2015	OSD grandfathered elements added in Section 2; "Engine Training Mode" (CRI G-01) added in Section 1	---
Issue 6	13 January 2016	TCH company ownership transferred to Finmeccanica S.p.A	Re-issued 13 January 2016
Issue 7	4 August 2016	TCH company name changed from Finmeccanica S.p.A. into Leonardo S.p.A; kit FIPS and kit LIPS p/n 8G3000F00212 introduced; temperature limitation updated.	Re-issued 4 August 2016
Issue 8	2 August 2017	CRI F-15 and CRI F-18 removed from the Equivalent Safety Findings list due to embodiment of BT AW189-022 on the whole fleet. No. 3 Jet Fuel added to the admissible fuels (point 6.1). Digital Clinometer added to admissible Levelling Means (point 15). Note 6 and Note 7 modified to explain the reason of deletion of the related ESF. Note 9 updated with new Baggage Compartment weight limitations when Heavy Duty Baggage Compartment Kits are installed. Note 11 added and recalled to point 5.3.2 "Transmission Torque Limits" to specify the MGB OEI Ratings applicable when SB 189-149 is embodied. Other minor corrections are included.	---

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