Civil Aviation Authority
United Kingdom

TYPE-CERTIFICATE DATA SHEET

UK.TC.R.00056

for

AB139 / AW139

Type Certificate Holder

Leonardo S.p.A.

Helicopters

Piazza Monte Grappa, 4

00195 Rome

Italy

Model(s):	AB139 AW139
Issue:	1
Date of issue:	22 December 2022

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Section 1 AB139 / AW139

AB139 and AW139 are two names for the same product. They identify two batches of aircraft manufactured in conformity with a unique Type Certificate Data Sheet. Refer to Section 1.VI Note 2 for applicable Serial Numbers.

Where not specifically declared, the content of this document is applicable to both AB139 and AW139.

I General

1. Type / Variant / Model

1.1. Type

AB139 / AW139

1.2. Model

AB139 / AW139 (see Section 1.VI Note 2)

1.3. Variant

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2. Airworthiness Category

Large Rotorcraft, Category A and B. See Section 1.IV, item 4. for the required equipment.

3. Type Certificate Holder

Leonardo S.p.A.
Helicopters
Piazza Monte Grappa, 4
00195 Rome,
Italy

4. Manufacturer

See Section 1.VI Note 2.

5. Type Certification Application Date

12 March 1999

6. State of Design Authority

European Union Aviation Safety Agency (EASA) (pre-EASA:ENAC, Italy).

7. ENAC Type Certification Date

18 June 2003

8. ENAC Type Certificate

A415

9. ENAC Type Certificate Data Sheet

SO/A415

10. 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: 12 March 1999

For Operational Suitability Data (OSD) elements: 17 February 2014

2. Airworthiness Requirements

- JAR 29 Amdt 3, dated 1 April 2002
- CS-29 Amdt. 4, dated 30 November 2016, for installation and affected areas of kit Dual Cargo Hook P/N 4G2592F0011 only (see Section 1.VI Note 13)
- CS 29.1465 Amdt. 3 Vibration health monitoring

3. Special Conditions

- Special Requirement for HIRF in accordance with JAA interim policy and guidance material document INT/POL/27&29/1 “Protection from the effects of HIRF”
- For EPIC phase 5 approval (including SAR modes) Special Condition “Search and Rescue System Approval” applies

4. Deviations

None.

5. Equivalent Safety Findings

- JAR 29.1181 (a)(6) Designated fire zone
- JAR 29.1309 and 1357 (e) EPIC system
- JAR 29.1305
- For NDC-139G5600-001: JAR 29.811 (d) Emergency Exits Signs

6. Requirements elected to comply

None.

7. Environmental Protection Requirements

7.1. Noise Requirements

See TCDSN UK.TC.R.00056.

7.2. Emission Requirements

ICAO Annex 16, Ed. 1993, Vol. II, Part II, Chapter 2 (fuel venting), see Section 1.VI. Note 4.

8. Operational Suitability Data (OSD)

8.1. Master Minimum Equipment List (MMEL)

JAR-MMEL/MEL Section 1, Amdt. 1, dated 1 August 2005.

8.2. Flight Crew Data (FCD)

Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data, CS-FCD, initial issue, dated 31 January 2014.

8.3. Simulation Data (SIMD)

Reserved.

8.4. Maintenance Certifying Staff Data (MCSD)

Reserved.

III Technical Characteristic and Operating Limitations

1. Type Design Definition

- Report n° 139G0000P005/02 “AW139 – Type Design Definition (4 displays configuration)
- Report n° 139G0000P005/03 “AW139 – Type Design Definition (Long Nose configuration)

2. Description

Main rotor: five blades, fully articulated type
Tail rotor: four blades
Fuselage: conventional configuration
Landing gear: tricycle, retractable
Powerplant: two free turbine turboshaft engines

3. Equipment

Refer to approved RFM for equipment list.

4. Dimensions

4.1. Fuselage

Length:	13.53 m (13.73 m for Long Nose)
Width hull:	2.26 m
Height:	3.72 m

4.2. Main Rotor

Diameter:	13.80 m

4.3. Tail Rotor

Diameter:	2.70 m

5. Engine

5.1. Model

Pratt & Whitney Canada Corp.

2 x Model PW PT6C-67C

Free turbine turboshaft engines provided with EEC with the implementation of P&WC Service Bulletins 41011, 41012R and 41013

5.2. Type Certificate

TCCA TC/TCDS No.: E-32.
CAA TC/TCDS No.: EASA.IM.E.022

5.3. Limitations

5.3.1. Installed Engine Limitats

Rating		Max Torque [Nm (lb ft)]	Max ITT [°C]	Max NG [rpm]	Max NF [rpm]
AEO	Continuous	339 (250)	735	38200	21000 (21420*)
	Max. Take-off Power (5 min)	373 (275)	775	39100	21000 (21420*)
OEI	Continuous	475 (350)	775	39100	21000 (21420*)
	2.5 min	542 (400)	835	40500	21000 (21420*)

(*) For Category A take-off and landings below 90 KIAS and for external hoist and cargo hook operations.

5.3.2. Transmission Torque Limits

Rating		PWR @ 100% NR [kW (hp)]	Torque [%]
AEO	Max continuous	746 (1000) x 2	100
	5 min	820 (1100) x 2	110
OEI	Max continuous	1044 (1400)	140
	2.5 min	1193 (1600)	160

6. Fluids (Fuel/Oil/Additives/Coolant)

For detailed information, see Section 1 of the Rotorcraft Flight Manual

6.1. Fuel

For all temperatures:
Jet A-1, Jet A, JP5, JP8, JP8+100,
GOST 10227 RT, GOST 10227 TS-1.

6.2. Oil

For all temperatures:
MIL-PRF-23699F and DOD-PRF-85734 Transmission Oil.
For engine oils, see Engine Maintenance Manual

6.3. Hydraulic Oil

For all temperatures:
MIL-PRF-83282
Alternative for low temperatures MIL-PRF-5606

7. Fluid Capacities

7.1. Fuel

Total: 1588 litres (see Section 1.VI Note11)

Unusable: 20 litres

7.2. Oil

Refer to RFM.

7.3. Coolant System Capacity

Refer to RFM.

8. Air Speed Limitations

V_{NE}: 167 KIAS

$V_{NE\ OEI/PWR\ OFF}$: 147 KIAS

See Section 1 of the RFM for variation with altitude and temperature.

9. Rotor Speed Limitations

AEO and OEI Continuous Operation Range: 98-101 %

Power OFF: 95-110 %

For Category A take-off and landings below 90 KIAS and external hoist and cargo hook operations:

AEO and OEI Cautionary Operation Range: 101-103 %

See Section 1 of the RFM for additional limitations.

10. Maximum Operating Altitude and Temperature

10.1. Altitude

20000 ft (6096 m) PA or DA whichever comes first (see Section 1.VI Notes 6, 8 and 9).

10.2. Temperature

Refer to RFM (see Section 1.VI Notes 6, 8 and 9).

11. Operating Limitations

VFR/IFR operations in non-icing conditions.

For IFR operations in known icing conditions and limited icing conditions see Section 1.VI Notes 8 and 9.

See also RFM.

12. Maximum Mass

Maximum Mass:	6400 kg (see Section 1.VI Notes 6)
Maximum Taxi and Ramp Mass:	6450 kg (see Section 1.VI Notes 6)
Maximum Take-Off Mass:	6400 kg (see Section 1.VI Notes 6)
Maximum Landing Mass:	6400 kg (see Section 1.VI Notes 6)

13. Centre of Gravity Range

Refer to RFM.

14. Datum

See Maintenance Manual.

15. Levelling Means

See Maintenance Manual.

16. Minimum Flight Crew

One (1) for VFR day and two (2) for VFR night and IFR.

Two (2) pilots for IFR operations in known icing conditions and limited icing conditions.

See Section IV, item 4 for the required equipment for Single Pilot operations.

For NVG operations, two (2) pilots or one (1) pilot and one (1) crew member are required. Both pilot and crew member must be equipped with NVGs (see Section 1.VI Note 7)

17. Maximum Passenger Seating Capacity

Fifteen (15).

18. Passenger Emergency Exit

6 (three on each side of the passengers cabin)

4 (two on each side of the passengers cabin), if the kit Cabin Bubble Windows P/N 4G5620F00111 is installed.

For detailed information refer to RFM.

19. Maximum Baggage/ Cargo Loads

200 kg Increased Baggage Compartment Load: see Section 1.VI Note 5.

20. Rotor Blade Control Movement

Main Rotor (collective):	+15°24' ÷ 0°36'
Main Rotor (longitudinal cyclic):	back10° ÷ 16° forward
Main Rotor (lateral cyclic):	left 9° ÷ right 9°
Tail Rotor pitch range:	-10° ÷ +24°
	-10° ÷ +25°30' (see Section 1.VI Note 6)

21. Auxiliary Power Unit (APU)

N/A.

22. Life-limited Parts

Refer to Chapter 4 of the Maintenance Manual.

23. Wheels and Tyres

Nose Landing Gear: 5.00-5 Type: 10PR
Main Landing Gear: 18 x 5.5 Type: 10PR

IV Operating and Service Instructions

1. Flight Manual

Report n. 139G0290X002 - Rotorcraft Flight Manual (4 display).

2. Maintenance Manual

Maintenance Planning Information 39-A-AMPI-00-P
Maintenance Publication 39-A-AMP-00-P

3. Service Letters and Service Bulletins

As published by Agusta S.p.A., AgustaWestland S.p.A., Finmeccanica S.p.A. or Leonardo S.p.A.

4. Required Equipment

The installation of the following is mandatory for Category A operations:

- Service Bulletin P&WC S.B. No. 41020
- Honeywell Primus EPIC s/w P/N MM7030191-004 or later

The installation of the following is mandatory for Single Pilot VFR night operations:

- Traffic Advisory System (TCAS) RFM 139G0290X002, Supplement 25
- Quick Reference Handbook (QRH) -Pub Code 502500033, latest issue
- Map/QRH holder P/N 4G2510F00111, P/N 4G2510F00113, or equivalent.

The installation of the following is mandatory for Single Pilot IFR operations:

- Flight Director RFM 139G0290X002, Sup. 34 or 40 or 67 or 69 or 70
- Quick Reference Handbook (QRH) -Pub Code 502500033, latest issue
- Map/QRH holder P/N 4G2510F00111, P/N 4G2510F00113 or equivalent.

The installation of the following is mandatory for Night Vision Goggle operations:

- NVIS compatible lighting systems P/N 4G3360F00111

- EPIC software 4.8 or subsequent

Refer to EASA Approved Rotorcraft Flight Manual for other approved mandatory and optional equipment.

The installation of the following is mandatory for operations in Known Icing condition:

- Kit Full Ice Protection System P/N 4G3000F00211

The installation of the following is mandatory for operations in Limited Icing conditions:

- Kit Limited Ice Protection System P/N 4G3000F00111

Refer to RFM for other approved mandatory and optional equipment.

V Operational Suitability Data (OSD)

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

Future revisions will be approved by the UK CAA in accordance with Regulation (EU) No. 748/2012 as retained (and amended in UK domestic law) under the European Union (Withdrawal) Act 2018 and amended by the Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019.

1. Master Minimum Equipment List (MMEL)

139G0270Q008 Rev. G, dated 30-Nov-2012, or later approved revision.

2. Flight Crew Data

139G0000N027 Rev. A, dated 14 Dec-2015, or later approved revision.

3. SIM Data

Reserved.

4. Maintenance Certifying Staff Data

Reserved.

VI Notes

1. Cabin Interior and Seating Configurations must be approved when not yet included in the type design (see list in the Rep. 139G9500U001).
2. Manufacturer's eligible serial numbers:
   a. S/N 31001 to S/N 31054: AB139 designation, manufactured by Agusta S.p.A. in Italy (*), (**)
   b. S/N 31055 to S/N 31157: AW139 designation, manufactured by Agusta S.p.A.in Italy (*), (**)
   c. S/N 31201 to S/N 32999: AW139 Long Nose Configuration, manufactured by Agusta S.p.A.in Italy under EASA Production Certificate IT.21G.0007 (**)
   d. S/N 41001 to S/N 41023: AW139 designation, manufactured by Agusta S.p.A. in USA (*), (**)
   e. S/N 41201 to 41999: AW139 Long Nose Configuration, manufactured by Agusta Aerospace Corporation (AAC) in USA under FAA Production Certificate PC 120NE (***)
   f. S/N 60001 and above: AW139 manufactured by JSC HeliVert - Russia, are not eligible for registration in EASA Member States.

   (*) Already manufactured and not anymore in production.

   (**) Effective on 1 June 2011, the Agusta S.p.A. name was changed into AgustaWestland S.p.A.;

   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.

   (***) Effective on 24 August 2006, the Agusta Aerospace Corporation (AAC) name was changed to AgustaWestland Philadelphia Corporation (AWPC).
3. Material WNS-2U as an alternative to 15-5PH is acceptable only on the following landing gear S/Ns and for max 6400 kg Take-Off and Landing mass and 6450 kg Ramp Mass:
   a. Nose Landing gear P/N 3G3220V00131/33 from S/N 101 to S/N 130
   b. Left MLG P/N 3G3210V00131/33 from S/N 101 to S/N 120

c. Right MLG P/N 3G3210V00231/33 from S/N 101 to S/N 120

4. The fuel vented from the injector line at the engine shutdown, is recollected into the main fuel tank, according to the Report n. 139G0000P005 “AW139 – Type Design Configuration”.

5. The installation of the restraint net anchoring system P/N 3G2550F00113 and the restraint net P/N 3G2550F00311 permits the maximum mass to be carried in the baggage compartment to be increased to 300 kg.
   For detailed information, refer to Supplement N° 31 of the Rotorcraft Flight Manual.

6. Operation of the aircraft with MTOM up to 6 800 kg is permitted according to RFM 139G0290X002 Supplement N° 50 if kit P/N 4G0000F0011 is installed. Operation with MTOM up to 7 000 kg is permitted according to RFM 139G0290X002 Supplement No. 90 if kit P/N 4G0000F00311 is installed.

7. Night Vision Goggle Operations are permitted according to RFM 139G0290X002 Supplement N° 60. The aircraft configuration involving internal/external emitting/reflecting equipment approved for use with NVG is described in the Report n. 139G3360A001 “AW139 NVG Compatibility Reference Handbook”. Subsequent modifications and deviations to the NVG helicopter configuration shall be managed in accordance with document 139G3360E001 “AW139 HELICOPTER NVG POLICY”.

8. Operation in Known Ice Condition is permitted according to RFM 139G0290X002 Supplement 71 if kit Ice Protection System P/N 4G3000F00211 is installed. The aircraft configuration approved for use in icing condition is described in the Report 139G3000A001 “AW139 Icing Compatibility Reference Handbook”.

9. Operation in Limited Icing Condition is permitted according to RFM 139G0290X002 Supplement 76 if kit Limited Icing Protection System P/N 4G3000F00111 is installed. The aircraft configuration approved for use in limited icing condition is described in the Report 139G3000A001 “AW139 Icing Compatibility Reference Handbook”.

10. EMI incompatibility for all optional equipment included in the RFM 139G0290X002 is detailed in the document 139G9850A001 “AW139 EMI Compatibility Reference Handbook”.

11. For the Auxiliary Fuel Tank (RFM Supplement 15) and for the Longitudinal Fuel Tank (RFM Supplement 65) the total fuel is 2 088 litres. The unusable does not change with respect to the basic configuration.

12. 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 139G9850A002 “AW139 NON-PED TOLERANT REFERENCE HANDBOOK”.

13. Kit Dual Cargo Hook P/N 4G2592F00111
    For this design change the CS-29 Amdt.4, dated 30 November 2016, is applicable for the following requirements:

    a. CS 29.143 Controllability and Manoeuvrability,

    b. CS 29.571 Fatigue Tolerance Evaluation of Metallic Structure,

    c. CS 29.610(d)(4) Lightning and Static Electricity Protection,

    d. CS 29.865 External Loads,

    e. CS 29.1316 Electrical and electronic System lightning protection,

    f. CS 29.1317 High-Intensity Radiated Fields (HIRF) Protection,

    g. Appendix A A29.4 Airworthiness Limitations Section,

    h. Appendix E HIRF Environments and Equipment HIRF Test Levels.

Section 2 Administration

I Acronyms and Abbreviations

Acronym / Abbreviation	Definition
°C	Degree Celsius
AEO	All Engines Operative
Amdt.	Amendment
AW	AgustaWestland S.p.A.
CAA	Civil Aviation Authority
CS	Certification Specifications
DA	Density Altitude
Doc.	Document
EASA	European Union Aviation Safety Agency
ESF	Equivalent Safety Findings
FAA	Federal Aviation Administration
FCD	Flight Crew Data
ft	Feet
HIRF	High Intensity Radiated Fields
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organization
IFR	Instrumental Flight Rules
ITT	Interstage Turbine Temperature
HIRF	High intensity Radiated Field
hp	Horse Power
JAA	Joint Aviation Authorities
KIAS	Knots Indicated Air Speed
lb	Pound(s)
m	Metre(s)
MLG	Main Landing Gear
MMEL	Master Minimum Equipment List
NF	Power turbine (free turbine) rotation speed
NG	Gas generator rotation speed
NLG	Nose Landing Gear
Nm	Newton per metre
No.	Number
NVG	Night Vision Goggles
OEI	One Engine Inoperative
OSD	Operational Suitability Data
P/N	Part Number
PA	Pressure Altitude
PWR	Power
RFM	Rotorcraft Flight Manual
RH	Right Hand
rpm	Revolution per minute
S/N	Serial Number
SIM	Simulator
TC	Type Certificate
TCCA	Transport Canada
TCDS	Type Certificate Data Sheet
TCDSN	Type Certificate Data Sheet for Noise
TCH	Type Certificate Holder
UK	United Kingdom
VFR	Visual Flight Rules
V_{NE}	Never Exceed Speed
$V_{NE\ PWR\ OFF}$	Power-off Speed (Autorotation)

II Type Certificate Holder Record

TCH Record	Period
Leonardo S.p.A. Helicopters Piazza Monte Grappa, 4 00195 Rome Italy	Present. No changes.

III Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
1	22 Dec 2022	The content of the initial issue of this UK CAA TCDS was taken from EASA TCDS No. EASA.R.006 Issue 23 dated 18 September 2020 which was the current EASA version at 31 December 2020 and therefore the version of the TCDS for the AB139/AW139 accepted by the UK under Article 15 of Annex 30 of the UK-EU Trade and Cooperation Agreement: ▪ Section 1.II: moved CS 29.1465 Amdt. 3 from elect to comply to airworthiness requirements. ▪ Section 1.II.5: added ESF to JAR 29.811(d). ▪ Section 1.V: added policy statement.	Issue 1 22 Dec 2022

– END –