

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

R00004RD
REVISION 3
Leonardo S.p.a.
AW189
February 08, 2022

TYPE CERTIFICATE DATA SHEET NO. R00004RD

This data sheet which is a part of Type Certificate No. R00004RD prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder Leonardo S.p.a.
Helicopter Division
Piazza Monte Grappa, 4
00195 – Rome, Italy

Type Certificate Holder Record: AgustaWestland S.p.A. was previous name of TC holder. The company name change history is presented below.

Type Certificate Holder	Period
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

I. Model AW189 (Transport Helicopter: Category A and Category B), Approved 27 February 2015

Engine

Two (2) General Electric CT7-2E1
FAA Engine Type Certificate Data Sheet No E8NE
Free turbine turboshaft engines with FADEC
For Limitations Ref. to GE Operating Instructions No. GEK112766

Auxiliary Power Unit (APU)

One (1) Microturbo model e-APU60 model 342 (FAA TSO C77b)

- Max. Continuous = 41.9 hp (31.25 kW) at APU gearbox.
- See e-APU60 for AW189 Installation Manual No. 0342/09/012, issue /Ed. 06, dated 5/21/14 or later approved issue for detail

Fuel

JET A, JET A1, JP5, JP8, JP8+100, No. 3 Jet Fuel (for code no. specification and more details refer to Rotorcraft Flight Manual)

Fuel icing inhibitors are mandatory for ambient temperatures below -15°C
See Section I of the Rotorcraft Flight Manual for fuel mixture and fuel temperature limitations

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Oil

Hydraulics	MIL-PRF-83282; MIL-PRF-5606, as alternative in low temperature environments below -20° C (See NOTE 7)
Transmissions	AEROSHELL TURBO OIL 555 (DoD-L-85734). No different specification or brand is allowed
Engine	Ref. to GE Operating Instructions No. GEK112766
APU	MIL-PRF-23699, MIL-PRF-7808
Additives	Kathon FP 1.5, MIL-DTL-27686, MIL-DTL-85470, MIL-I-25017, Biobor JF
Coolant	R134a See Section I of the Rotorcraft Flight Manual for detailed information

Fluid capacities

Fuel

	Total A/C capacity litres [kg (lb) (*)]	Unusable litres [kg (lb) (*)]
Two main fuel tanks (LH and RH)	1303 [1042 (2297.2)]	24 [19 (41.9)]
Two main fuel tanks (LH and RH) plus Forward Tanks	1541 [1233 (2718.3)]	28 [22 (48.5)]
Two main fuel tanks (LH and RH) plus Auxiliary Central Tank	1825 [1460 (3216.5)]	30 [24 (52.9)]
Two main fuel tanks (LH and RH) plus Forward Tanks plus Auxiliary Central Tank	2063 [1650 (3637.6)]	34 [27 (59.5)]
Extended Range (See Note 11)		
Two main fuel tanks (LH and RH) Plus underbelly tanks	2569 [2055 (4530.0)]	9 [7 (15.4)]

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

Oil

	Quantity litres [kg (lb)]
ENGINE (each)	min 3.6 [3.59 (7.91)] - max 5.5 [5.49 (12.10)]
MAIN GEARBOX (min/max)	min 21.5 [21.46 (47.31)] - max 27 [26.95 (59.41)] (24.5 + 2.5 for oil cooler, oil ducts and filter)
INTERMEDIATE GEARBOX	1.22 [1.217 (2.683)]
TAIL GEARBOX	1.87 [1.866 (4.114)]
HYDRAULIC (per each Power Control Module)	3.20 [2.72 (6.00)]

Coolant system capacity 2.9kg

Installed Engine Limits

	Max. Torque Lb-ft	Max ITT °C (°F)	Max Gas Generator Speed % (RPM)
OEI			
30 sec.	575	1078 (1972.4)	105.0 (46935)
2 min.	575	1078 (1972.4)	105.0 (46935)
Continuous	515	968 (1774.4)	102.7 (45907)
AEO			

Take Off (5 min.)	515	968 (1774.4)	102.7 (45907)
Maximum Continuous	490	942 (1727.6)	102.7 (45907)

Transmission Limits

	Max torque % (Lb-ft)	Power (SHP) @ 102% NR
OEI		
30 sec.	1 x 164% (1 x 502.66)	2050.07
2 min.	1 x 155% (1 x 475.08)	1937.59
Continuous	1 x 135% (1 x 413.78)	1687.58
AEO		
30 min. (below 90 KIAS)	2 x 116% (2 x 355.54)	1450.05
30 min. (above 90 KIAS)	2 x 112% (2 x 343.28)	1400.05
Maximum Continuous	2 x 100% (2 x 306.5)	1250.04

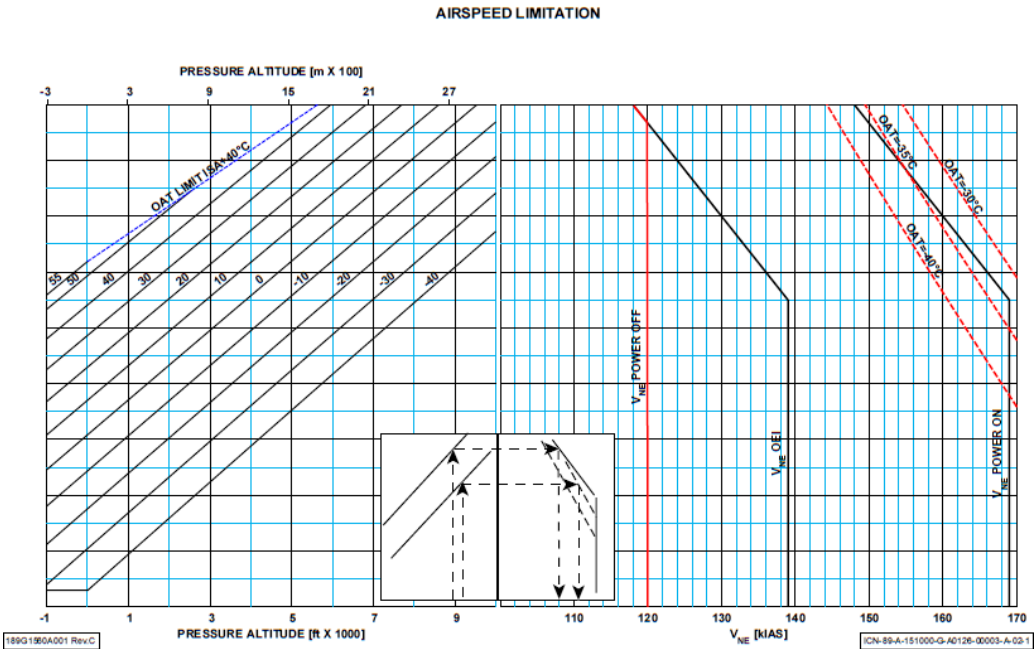
See Note 15 for Improved OEI Transmission Limits

Rotor Limits

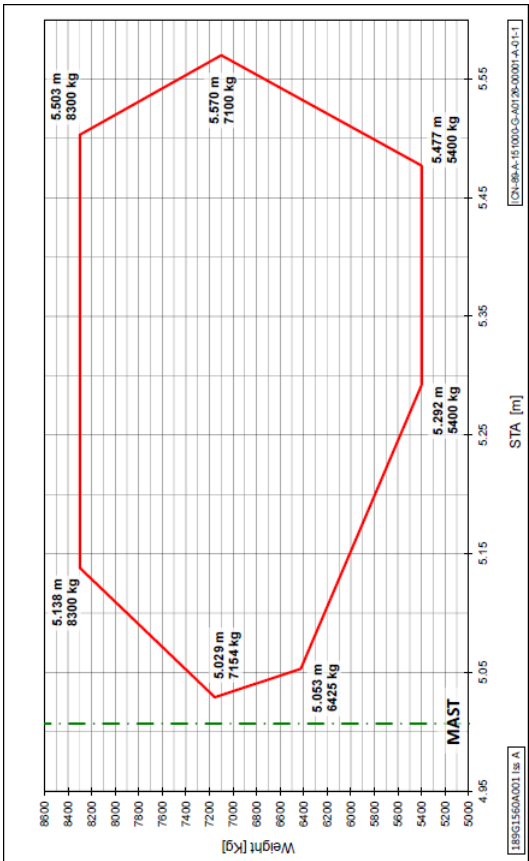
POWER ON AEO		
CONDITION	(RPM)	(%)
Minimum Continuous	284.75	100.0
Maximum Continuous	296.14	104.0
POWER ON OEI		
CONDITION	(RPM)	(%)
Minimum Cautionary	256.28	90.0
Minimum Continuous	284.75	100.0
Maximum Continuous	296.14	104.0
POWER OFF		
CONDITION	(RPM)	(%)
Minimum Continuous	270.51	95.0
Maximum Continuous	313.23	110.0

Air Speed LimitsV_{NE} Power On AEO = 169 KIASV_{NE} Power On OEI = 139 KIASV_{NE} Power Off = 120 KIASV_{LE}/V_{LO} (gear extended/gear operating) = 150 KIAS/150 KIAS

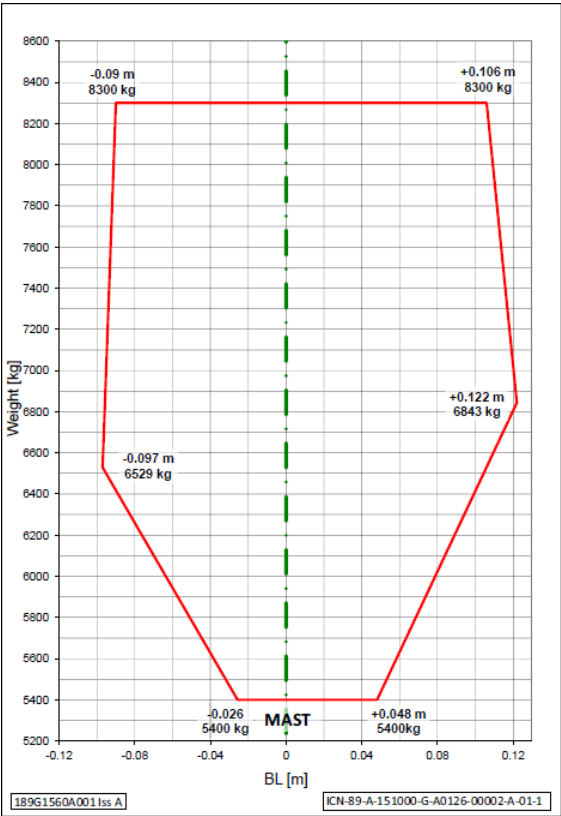
See approved Rotorcraft Flight Manual for variations with altitude, OAT and weight.



Center of Gravity (C. G.) Range

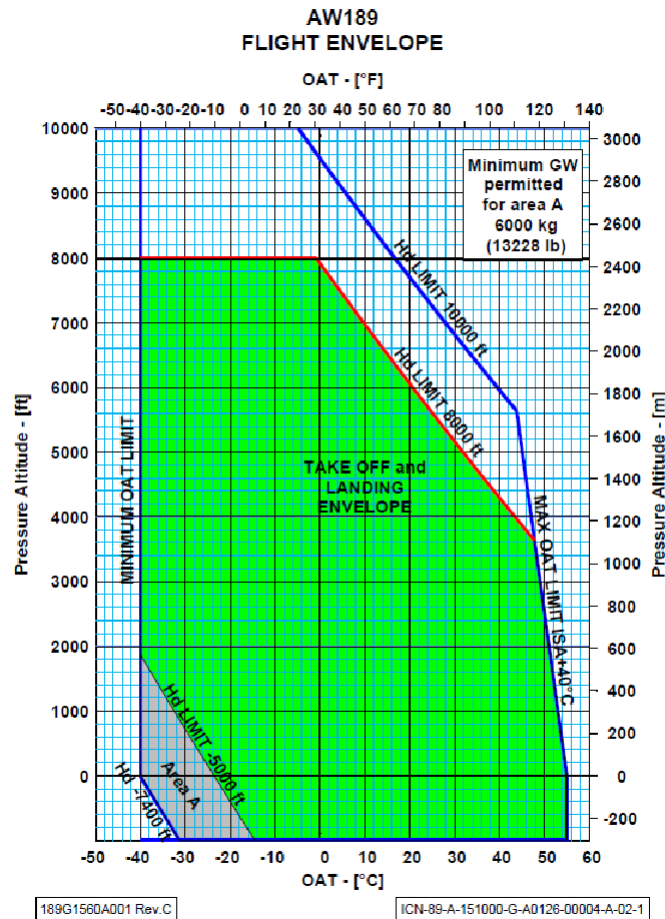


Weight And Longitudinal Cg Envelope



Weight And Lateral Cg Envelope

Ambient Temperature Limitations



Maximum Operating Altitude and Temperature

Altitude

Maximum operating altitude 10000 ft (pressure/density altitude whichever occurs first)

Maximum Take-off and Landing altitude 8000 ft (pressure/density altitude whichever occurs first)

Temperature

-40°C ÷ +55°C (ISA+40°C)

For variation of Temperature limitations with altitude, see the Rotorcraft Flight Manual and applicable supplement

<u>Datum</u>	<p>Longitudinal Datum (STA 0) is located at 2830 mm forward to the front jack point On the Extended Range configuration (see Note 11) the longitudinal datum line (STA 0) is located at 3009 mm forward to the front jack point.</p> <p>Lateral Datum (BL 0) is located at +/- 275 mm inboard of LH/RH front jack points</p>	
Leveling Means	Plumb line from ceiling reference point to index plate on floor of passenger cabin	
Maximum weights	<p>- Taxi and Towing 8350 kg (See Note 12) - Take-off and Landing 8300 kg (See Note 12)</p>	
Minimum Crew	<p>One (1) for VFR; Two (2) for IFR. (See also "Equipment" and NOTE 5.)</p> <p>For Cat. A operations, two (2) pilots are required if take-off and landing is to be carried out from the left seat.</p> <p>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 NOTE 10).</p>	
Number of Seats	21 (2 crew – 19 passengers maximum)	
Maximum Baggage	300 kg (660 lb) located in the Baggage compartment (See Note 13)	
	Baggage compartment max pressure load	550 kg/m ² (110 lb/sq. ft)
	Baggage compartment max load height	600 mm (2 ft) (See Note 13)
Rotor Blades and Control Movements	For rigging information, refer to the AW189 Maintenance Manual.	
<u>Import Requirements</u>	<p>To be considered eligible for operation in the United States, each aircraft manufactured under this Type Certificate must be accompanied by a Certificate of Airworthiness for Export or certifying statement endorsed by the exporting foreign civil airworthiness authority which states the following (in the English language):</p> <p>Refer to the applicable bilateral agreement to verify eligibility for import into the United States of both new and used aircraft based on the scope of the agreement, to identify any required statements by the exporting authority on the export certificate of airworthiness (or equivalent document), and for procedures for coordinating exceptions to conformity statements on these documents. Refer to FAA Order 8130.2, <i>Airworthiness Certification of Aircraft</i>, for requirements for issuance of an <i>airworthiness certificate</i> for imported aircraft.</p> <p>"The rotorcraft covered by this certificate has been examined, tested and found to conform to the type design approved under FAA Type Certificate No. R00004RD and to be in condition for safe operation."</p> <p>The only aircraft eligible for import into the United States are those aircraft with the configuration defined in Leonardo S.p.a. Report No. 189G0000P005, "AW189 - FAA Type Design Definition," dated 26 February 2015 or latest issue..</p>	
<u>Certification Basis</u>	<p>(1) 14 CFR Part 21.29.</p> <p>(2) 14 CFR Part 29 Amendment 29-1 through 29-52, dated 30 March 2010 (See Note 16)</p> <p>(3) 14 CFR Part 36 Appendix H, Amendment 36-1 through 36-29 dated 11 March 2013.</p> <p>(4) <u>Special Condition:</u></p> <ul style="list-style-type: none"> 30 Minute All Engines Operating (AEO) Power Rating: 14 CFR 29.1049, 29.1305, 29.1521 	
<u>(5) Equivalent Level of Safety Findings issued against:</u>	<ul style="list-style-type: none"> 14 CFR § 29.807(c) Passenger emergency exits (documented in ELOS Memo TC4265RD-R-C-01). 	

- 14 CFR § 29.813(c) Passenger access to each emergency exit (documented in ELOS Memo TC4265RD-R-C-02).
- 14 CFR § 29.807 (d)(2) & (d)(3) Ditching emergency exits for passengers (documented in ELOS Memo TC4265RD-R-C-04).
- 14 CFR § 29.815 Main aisle width (documented in ELOS Memo TC4265RD-R-C-05).
- 14 CFR § 29.1545(b) Airspeed indicator (documented in ELOS Memo TC4265RD-R-F-01).
- 14CFR §29.1305 and §29.1549 Power Index (documented in ELOS Memo TC4265RD-R-F-03)

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (See Certification Basis) must be installed in the helicopter for certification.

The installation of the followings is mandatory for Ditching Operations (see Supplement 6 of the RFM):

- Life rafts (life rafts P/N 8G2560F00511 have been approved for use by Leonardo S.p.a. 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 Leonardo S.p.a: 8G2560F00611, 8G2560F00711, 8G2560F00811. Different life preserver installations must be in accordance with CS/FAR 29 and must be approved).

The installation of the followings is mandatory for Night Vision Goggles Operations (see Supplement 14 of the RFM):

- 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 Full Icing Conditions:

- Kit Full Ice Protection System P/N 8G3000F00111 with DGCU P/N 8G2420V00351 (see RFM Supplement 44 or 49, according to the relevant aircraft configuration)

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

Refer to Rotorcraft Flight Manual 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.

Service information

Leonardo S.p.a. Service bulletins, structural repair manuals, vendor manuals, aircraft flight manuals, and overhaul and maintenance manuals, which contain a statement that the document is EASA approved, are accepted by the FAA and are considered FAA approved. These approvals pertain to the approved type design only.

Flight Manual

EASA approved on behalf of FAA Rotorcraft Flight Manual, 189G0290X002, Issue 1 Revision 3 or later approved revision (See NOTE 5).

Maintenance Manual

Maintenance Planning Information 89-B-AMPI-00-P
Maintenance Publication 89-A-AMP-00-X.

NOTES

NOTE 1 A current weight and balance report, including a list of equipment included in the certificated empty weight, must be provided for each helicopter at the time of original airworthiness certification in accordance with 14 CFR 29.25, 29.27 and 29.29.

NOTE 2 All placards required by either FAA Approved Rotorcraft Flight Manual, the applicable operating rules, or the Certification Basis must be installed in the helicopter.

NOTE 3 Information essential to the proper maintenance of the helicopter is contained in the Manufacturer's Maintenance Manual provided with each helicopter. Life limited components and associated retirement times are presented in Chapter 4 and must be replaced accordingly.

NOTE 4 The model AW189 rotorcraft employs electronic engine controls, commonly named Full authority Digital Engine Controls (FADEC), that are recognized to be more susceptible to Electromagnetic Interference (EMI) than rotorcraft that have non-electronic controls. (EMI may be the result of radiated or conducted interference.) For this reason modifications that add or change systems that have the potential for EMI, must either be qualified to a standard acceptable to the FAA or tested at the time of installation for interference with the FADEC. This type of testing must employ the particular FADEC diagnostic techniques and external diagnostic techniques. The test procedure must be FAA approved.

NOTE 5 The FAA Rotorcraft Flight Manual (RFM) is identical to the EASA approved RFM; any exceptions unique for FAA are presented on yellow pages marked "EASA approved on behalf of FAA" or "FAA Approved". They must be included in the FAA manual to reflect the differences noted below:

1. Section 1, LIMITATIONS, MINIMUM FLIGHT CREW:
Requires two pilots for IFR

2. Section 4, Performance Data, NOISE CHARACTERISTICS:

Model: AW189 General Electric GE CT7-2E1 Gross Weight 8300 kg			
Configuration	Level Flyover EPNL (EPNdB)	Take Off EPNL (EPNdB)	Approach EPNL (EPNdB)
Clean aircraft	102% NR	102% NR	102% NR
No external kits installed	95.2	91.3	99.1

NOTE 6 The Leonarod S.p.a. Model AW189 incorporates an integrated avionics system using software-based line replaceable units (LRU) which share a digital signal transmission bus. The software configuration of the AW189, as delivered from production, is critical to the proper operation of the avionics and cockpit instrumentation system. Modification to the LRU software supplied with the AW189, replacement of an LRU with a different LRU, addition of new LRU, or alteration of an LRU interface could adversely affect the airworthiness of the certified software. No changes to the integrated avionics system should be made without coordination with the FAA Aircraft Certification Office (ACO) having jurisdiction over the modifier.

NOTE 7 The hydraulic fluids must conform to MIL-PRF-83282 or MIL-PRF-5606 which is an alternate for low Temperature operation - see LIMITATIONS Section of the approved Rotorcraft Flight Manual.

NOTE 8 Any changes to the type design of this helicopter by means of a amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA's) must be submitted thru the project aircraft certification office (ACO) for review and acceptance by the Fort Worth -Aircraft Evaluation Group (FTW-AEG) Flight Standards District Office (FSDO) prior to the aircraft delivery, or upon issuance of the first standard airworthiness certificate for the affected aircraft, whichever occurs later as prescribed by Title 14 CFR 21.50. Type design changes by means of a field approval that require ICA's must have those ICA's reviewed by the field approving FSDO.

NOTE 9 The AW189 name identifies production batches manufactured in conformity with the same Type Design. Applicable serial numbers:

- S/N 49007: and subsequent, manufactured by AgustaWestland S.p.A. or Finmeccanica S.p.A., or Leonardo S.p.a. in Italy.
- S/N 89001: and subsequent, manufactured by AgustaWestland S.p.A. or Finmeccanica S.p.A., or Leonardo S.p.a. in Italy. (See Note 11)
- S/N 91001: and subsequent, manufactured by AgustaWestland S.p.A or Finmeccanica S.p.A., or Leonardo S.p.a. in UK.
- S/N 92001 and subsequent, manufactured by AgustaWestland S.p.A. or Finmeccanica S.p.A., or Leonardo S.p.a. in UK. (See Note 11). It should be noted that S/N 92001 and 92003 have been manufactured by AgustaWestland Ltd in UK.

NOTE 10 Night Vision Goggle operations may be granted by the local civil aviation authority if the rotorcraft is operated

according to the limitations and procedures of RFM 189G0290X002 Supplement 14. The rotorcraft configuration involving internal and external light emitting and reflecting equipment approved for use with NVGs is described in Report 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"

NOTE 11 Applicable to the extended range configuration when installed in accordance with Drawing 8G0000X00831 and Drawing 8G0000X00931. For detailed information, refer to Supplement 22 of the Rotorcraft Flight Manual.

NOTE 12 Operation of the aircraft with a maximum weight up to 8600 kg is permitted provided kit P/N 8G0000F00111 is installed, and the limitation and procedures within RFM 189G0290X002 Supplement 21 are adhered to.

NOTE 13 The installation of Vertical Cargo Net restrain system P/N 8G2550F00311 permits the maximum load to be carried in the baggage compartment to be increased to 360 Kg, and the maximum cargo height to be extended up to 700 mm (2 ft 3 ins). For detailed information, refer to Rotorcraft Flight Manual Section 1 – Baggage Compartment Limitations.

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.

NOTE 14 Removed.

NOTE 15 MGB OEI Limits:
For Aircraft equipped with Core Avionics 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	21420
	2.5 min	1 x 172 (**)	

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

NOTE 16 Kit Rescue Hoist and FIPS:
For Kit Single Rescue Hoist (P/N 8G2591F00111), Kit Double Rescue Hoist (P/N 8G2591F00311) and Kit Full Ice Protection System (P/N 8G3000F00111) design changes compliance to 14 CFR Part 29 Amendment 29-1 through 29-55, dated 31 January 2012 has been provided for the following requirements:

- 29.571 Amdt.55 – Fatigue Tolerance Evaluation of Metallic Structure
- 29.573 Amdt.54 – Damage Tolerance and Fatigue Evaluation of Composite Rotorcraft Structures.
- Appendix A, A 29.4 Amdt.54 – Airworthiness Limitations Section

Comparison between 14 CFR Part 29 Amendment 29-1 through 29-55 (dated 31 January 2012) and CS 29 Amdt.3 (dated 11 December 2012) is provided in LH report 189G0274A001.

Acronyms and Abbreviations

AEO	All Engines Operative
CS	Certification Specification
CFR	Code of Federal Regulations
Doc.	Document
EASA	European Aviation Safety Agency
FAA	Federal Aviation Administration
GE	General Electric
ICA	O International Civil Aviation Organisation
IFR	Instrument Flight Rules
ISA	International Standard Atmosphere
LH	Left Hand
min.	minute
No.	Number
NVG	Night Vision Goggle
OAT	Outside Air Temperature
OEI	One Engine Inoperative
RFM	Rotorcraft Flight Manual
RH	Right Hand
sec.	second
SL	Sea Level
STA	Station
VNE	Velocity Never Exceed
VFR	Visual Flight Rules

....END....