TYPE CERTIFICATE DATA SHEET

No. EASA.R.143

For
NH-300C

Type Certificate Holder
Mecaer Aviation Group S.p.A.

Via per Arona 46
28021 Borgomanero (NO)
Italy

For Model: NH-300C

TABLE OF CONTENTS

SECTION 1: NH-300C

I. General

1.	Type/ Model/ Variant	
	1.1 Type	NH-300C
	1.2 Model	NH-300C
	1.3 Variant	- - -
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	Mecaer Aviation Group S.p.A. Via per Arona 46 28021 Borgomanero (NO), Italy Vertex Aero S.r.l., Via dell'Artigianato 1, V Traversa, 1 63076 Monteprandone (AP), Italy
4.	Type Certification Application Date to ENAC	18 June 1975
5.	State of Design Authority	EASA (pre EASA: Ente Nazionale per l'Aviazione Civile (ENAC), Italy)
6.	Type Certificate Date by ENAC	31 March 1978
7.	Type Certificate n° by ENAC	A 176
8.	Type Certificate Data Sheet n° by ENAC	SO/A 176
9.	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	18 June 1975
2.	Airworthiness Requirements	for s/n BH01 to BH04: CAR Part 6, dated 15 January 1951, including Amdts. 6-1 through 6-8, except CAR 6.604(c). In addition, compliance with CAR 6.401 (b) effective 17 May 1958, CAR 6.637 effective 1 April 1957 and FAR 27.1323 (b) (Amdt. 27-2 effective 25 February 1968) in lieu of CAR 6.612(a). for s/n 001 and subsequent: CAR Part, 6 dated 15 January 1951 including Amdts. 6-1 through 6-8. In addition, compliance with CAR 6.637, effective 1 April 1957. Compliance with FAR 27.1323(b) (Amdt. 27-2 effective 25 February 1968) in lieu of CAR 6.612(a). Compliance with FAR 27.903 (b), 27.923, 27.993, 27.997, 27.1183, 27.1305, 27.1322 (Amdt. 27-9 effective 31 October 1974). Manufacturer has chosen to comply with FAR 27.607 (Amdt. 27-9, effective 31 October 1974) according to report No. NH300-01-23 Rev. A. Note: (applicable to s/n BH01 to BH04, s/n 001 and up): Certification Basis as for FAA TC 4H12, dated 15 May 1970 for Hughes Helicopter Model 269C.
3.	Special Conditions	none

4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	none
7.	Requirements elected to comply	none
8.	Environmental Protection Requirements	
	8.1 Noise Requirements	See TCDSN EASA.R.143
	8.2 Emission Requirements	n/a
9.	Operational Suitability Data (OSD)	Not required for rotorcraft that are no longer in production. CR (EU) 748/2012, as amended by CR (EU) 69/2014 does not require OSD elements for this model (see Article 7a, 1.).

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Document n° 269A0050-1003 / -3003.
2.	Description	Light helicopter with seating provisions for one (1) pilot and one (1) passenger, or one (1) pilot and two (2) passengers (refer to approved PFM). Main rotor: three-bladed, articulated type Tail rotor: twin bladed, teetering type Fuselage: all-metal Landing gear: skid type Powerplant: single reciprocating engine
3.	Equipment	Basic equipment required by the airworthiness rules (see II. Certification Basis) shall be installed on the helicopter for the Airworthiness Certificate release. Refer also to the Equipment List in PFM, Section VI.
4.	Dimensions	
	4.1 Fuselage	Length: 6.77 m Width: 1.99 m (gear compressed) Height (fin): 2.66 m (gear compressed)
	4.2 Main Rotor	Diameter: 8.18 m
	4.3 Tail Rotor	Diameter: 1.30 m
5.	Engine	
	5.1 Model	Lycoming Engines 1 x Model HIO-360-D1A
	5.2 Type Certificate	FAA TC/TCDS n°: 1E10 EASA TC/TCDS n°: EASA.IM.E.032
	5.3 Limitations	

5.3.1 Installed Engine Limitations and Transmission Torque Limits

PWR [kW (hp)]	RPM [min^{-1}]	MP [in Hg]	Altitude [ft (m)]
141.7 (190)	3 200	26.0	MSL
141.7 (190)	3 200	24.7	4 200 (1 280)

5.3.2 Other Engine and Transmission Torque Limits

Refer to approved PFM

6.	Fluids (Fuel/ Oil/ Additives)	
	6.1 Fuel	ASTM D910A, Grade 100/130 (green)
	6.2 Oil	Engine: MIL-L-22851 or SAE J1899 (ashless dispersant type)* MIL-L-6082, or SAE J1966 (straight mineral type)* MR and TR transmission: MIL-L-2105E or SAE J2360** * For detailed information see Lycoming Service Instruction No. 1014. ** For detailed information see NH-300C Basic HMI.
	6.3 Additives	n/a
7.	Fluid capacities	
	7.1 Fuel	113.6 litres (30 US gal) at STA 107 (2 718 mm) 185.5 litres (49 US gal) with optional tank at STA 107 Unusable fuel: 0.5 kg (1.2 lb) at STA 107
	7.2 Oil	Engine: 7.6 litres (2 US gal) MR transmission: 2.84 litres (0.75 US gal) TR transmission: 0.24 litre (0.5 pint (US liquid))
	7.3 Coolant System Capacity	n/a
8.	Air Speed Limitations	V_{NE} 95 KIAS (109 mph IAS) at MSL. $V_{Doors\ 'OFF'}$ 89 KIAS (102 mph IAS) at MSL For reduction on V_{NE} with altitude see approved Pilot's Flight Manual and related Supplements.
9.	Rotor Speed Limitations	Power on (engine tach): Maximum 3 200 rpm Minimum 3 000 rpm Power off (rotor tach): Maximum 504 rpm Minimum 390 rpm
10.	Maximum Operating Altitude and Temperature	
	10.1 Altitude	- 14 600 ft (4 450 m) DA for gross mass ≤ 771 kg (1 700 lb) - 12 000 ft (3 657 m) DA for gross mass > 771 kg (1 700 lb)
	10.2 Temperature	Refer to approved PFM
11.	Operating Limitations	VFR day and night* * With appropriate instruments and equipment, required by the airworthiness and/or operating rules, are approved, installed and are in operable condition. For further limitations refer to approved PFM.
12.	Maximum Mass	930 kg (2 050 lb), see Note 2 975 kg (2 150 lb) for take-off, with agricultural kit (P/N 269A4153-1001) installed, in accordance with specific limitations as per Supplement G of the approved PFM 975 kg (2 150 lb) with Cargo Hook kit (P/N 269A4971-3) installed, in accordance with specific limitations as per Supplement J of the approved PFM

13. Centre of Gravity Range

Longitudinal	
Forward, at STA [mm (in)]	Aft, at STA [mm (in)]
2 413 (95)	2 565 (101)

Lateral		
at STA [mm (in)]	Left [mm (in)]	Right [mm (in)]
2 413 (95)	-25 (-1.0)	+76 (+3.0)
2 527 (99.5)	-54 (-2.12)	+102 (+4.0)
2 565 (101)	-63 (-2.5)	+51 (+2.0)

Note: Looking forward '+' indicates right of helicopter centre line, and '–' left of helicopter centre line.
For limits with accessories installed see approved PFM and related Supplements.

14. Datum

Longitudinal:
The datum line (STA 0) is located at 2 540 mm (100 in) forward of the main rotor hub centre line.
Lateral:
The datum line (BL 0) is at helicopter centre line.

15. Levelling Means

Top of main rotor hub

16. Minimum Flight Crew

One (1) pilot, operating the helicopter from the left seat at STA 83.2 in (2 113 mm), BL -13.8 in (-351 mm)

17. Maximum Passenger Seating Capacity

- Two (2), for helicopter configuration P/N 269A0050-1003 (one at STA 80 (2 032 mm), BL 0.75 (19 mm); one at STA 83.2 (2 113 mm), BL 13.8 (351 mm);
- One (1), for helicopter configuration P/N 269A0050-3003 (at STA 83.2 (2 032 mm), BL 13.8 (351 mm).

18. Passenger Emergency Exit

Two (2), one on each side of the cockpit

19. Maximum Baggage/ Cargo Loads

n/a

20. Rotor Blade Control Movement

Main rotor (relative to rigging position):
- Collective pitch (up, down): 12° ±1°
- Cyclic pitch (longitudinal): Forward 8.5° to 9.75°
  Aft 6.5° to 7,5°
- Cyclic pitch (lateral): Left 6.5° to 7.5°
  Right 4.5° to 6.5°

Tail rotor (relative to rigging position):
Full-left pedal (thrust to right) +25.0° to +27.0°
Full-right pedal (thrust to left) -11.0° to -13.0°
For rigging information of main rotor and tail rotor refer to NH-300C Basic HMI.

21. Auxiliary Power Unit (APU)

none

22. Life-limited Parts

Refer to latest issue of NH-300C Basic HMI Appendix B - "Periodic Inspection, Overhaul and Retirement Schedule, and Weight and Balance Procedures".

IV. Operating and Service Instructions

1.	Flight Manual	NH-300C “Pilot's Flight Manual” applicable to: - s/n BH-01 to BH-04: Issue 1, dated 29 March 1978; - s/n 001 and up: Issue 1, dated 22 May 1979; - All s/n: PFM re-issue, dated 18 September 1995; and subsequent approved revisions.

2.	Maintenance Manual	- NH-300C - Basic Handbook Maintenance Instructions, (Basic HMI);
		- NH-300C - Optional Equipment and Trainer Configuration of NH-300C Basic HMI Appendix ‘A’;
		- NH-300C Basic HMI Appendix B - “Periodic Inspection, Overhaul and Retirement Schedule, and Weight and Balance Procedures”, applicable to:
		  - s/n BH-01 to BH-04: Issue 1, dated 4 April 1978;
		  - s/n 001, and up: Issue 1, dated 22 February 1979;
		  - All s/n: Issue 3, dated 12 September 1995; Rev. 2, dated 15 March 2001;
		and subsequent accepted revisions.

3.	Structural Repair Manual	see IV.2. (Basic HMI)
4.	Weight and Balance Manual	see IV.2.
5.	Illustrated Parts Catalogue	NH-300C Illustrated Parts Catalog (IPC), re-issue dated 1 September 1986, or later published revisions.
7.	Service Letters and Service Bulletins	As published by Mecaer Aviation Group S.p.A., or Vertex Aero S.r.l.
8.	Required Equipment	Refer to latest issue of “Equipment List for NH-300C Helicopter” (Section VI of approved PFM).

V. Notes

1. Manufacturer’s eligible serial numbers:
   Assembly drawing 269A0050-1003:

   from s/n BH01 to BH04, from s/n 001 to 009, from s/n 012 to 014, from s/n 016 to 017, and from s/n 019 to 022.
   Assembly drawing 269A0050-3003:
   s/n 010, 011, 015, 018, 023, 024 and 025.

2. Each aircraft must be provided with a current "Weighing and Balance Report", containing the list of equipment that must be included in the certification empty weight calculation and, where necessary, the loading instruction. The empty mass and related CG position calculation must include the unusable fuel of 0.5 kg (1.2 lb) at STA 107 (2 718 mm).

3. The following placard must be installed in clear view of the pilot:
   “This helicopter must be operated in compliance with the operating limitations specified in the approved “Pilot’s Flight Manual”.
   For additional placards, see approved PFM.

* * *

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

Amdt.	Amendment
BL	Butt line
CAR	Civil Aviation Regulation
C.G.	Centre of Gravity
DA	Density altitude
ENAC	Ente Nazionale per l'Aviazione Civile
fwd	forward (vis-à-vis aft)
Hg	Mercury (***h****ydrar****g****yrum*)
max.	maximum
MP	Manifold pressure
MSL	Mean Sea Level
HMI	Handbook of Maintenance Instructions
OSD	Operational Suitability Data
P/N	Part number
PFM	Pilot's Flight Manual
PWR	Power
s/n	Serial number
STA	Station
TCDSN	Type Certificate Data Sheet Noise
VFR	Visual Flight Rules
V_{NE}	Velocity Never Exceed

II. Type Certificate Holder Record.

Type Certificate Holder	**Period**
Mecaer Aviation Group S.p.A. Via dell'Artigianato, V Traversa, 1 63033 Centobuchi di Monteprandone (AP) - Italy	Since 31 March 1978
Vertex Aero S.r.l. Via dell'Artigianato 1 63076 Monteprandone (AP) - Italy	Since 5 December 2019
Mecaer Aviation Group S.p.A. Via per Arona 46 280021 Borgomanero (NO) - Italy	Since 27 February 2020

III. Change Record

Issue	**Date**	**Changes**	**TC issue**
Issue 1	18 Oct 2012	Initial EASA Issue; transfer of RAI/ENAC TCDS SO/A 143 to EASA format	Initial EASA Issue 18 October 2012 (initial ENAC Issue 31 March 1978)
Issue 2	5 Dec 2019	Transfer of Type Certificate to Vertex Aero S.r.l.; III.5.2.: EASA engine TCDS reference added; IV.1., 2.: clarification of PFM and HMI applicability; V.1.: correction of s/n.	re-issued 5 December 2019
Issue 3	27 Feb 2020	Re-transfer of Type Certificate to Mecaer Aviation Group S.p.A.	re-issued 27 February 2020

- end of file -