TYPE-CERTIFICATE

DATA SHEET

No. EASA.IM.R.507

for

R66

Type Certificate Holder

Robinson Helicopter Company

2901 Airport Drive

Torrance, CA 90505

U.S.A.

For Models: R66

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SECTION 1: R66

I. General

1.	Type/ Model/ Variant	
	1.1 Type	R66
	1.2 Model	R66
2.	Airworthiness Category	Small Rotorcraft
3.	Manufacturer	Robinson Helicopter Company 2901 Airport Drive Torrance, California 90505, USA
4.	Type Certification Application Date	to FAA: 6 September 2006 to EASA: 19 May 2010
5.	State of Design Authority	FAA
6.	Type Certificate Date	by FAA: 25 October 2010
7.	Type Certificate n°	by FAA: R00015LA-R
8.	Type Certificate Data Sheet n°	by FAA: R00015LA-R
9.	EASA Type Certification Date	30 April 2014

II. Certification Basis

1.	Reference Date for determining the applicable requirements	8 May 2009
2.	Airworthiness Requirements	CS-27, Amdt. 2, dated 17 November 2008 For symmetrical stabilizer installation: CS-27 Amdt. 8, dated 14 June 2021: CS 27.1; CS 27.25; CS 27.27; CS 27.45 (a), (b), (c), & (e); CS 27.49 (a); CS 27.51; CS 27.65(b); CS 27.71; CS 27.75; CS 27.79; CS 27.141; CS 27.143; CS 27.171; CS 27.173; CS 27.175; CS 27.177; CS 27.231; CS 27.251; CS 27.301; CS 27.303; CS 27.305; CS 27.307; CS 27.321; CS 27.337; CS 27.339; CS 27.341; CS 27.351; CS 27.391; CS 27.427; CS 27.571; CS 27.601(a); CS 27.603; CS 27.605(a); CS 27.607; CS 27.609; CS 27.610; CS 27.613; CS 27.629; CS 27.663; CS 27.1301(d); CS 27.1309 (a) & (c); CS 27.1323; CS 27.1365; CS 27.1385(a) & (c); CS 27.1387; CS 27.1389; CS 27.1391; CS 27.1393; CS 27.1395; CS 27.1401 (a) & (b); CS 27.1505; CS 27.1529; CS 27.1581; CS 27.1587.
3.	Special Conditions	CS 27.1309 Installation of HeliSAS AP - EASA Type Certification Basis requirements applicable to Equipment, systems, and installations. (F-01)
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	CS 27.695(a)(1) Power boost and power-operated control system (D-01)
7.	Requirements elected to comply	none

8. Environmental Protection Requirements

8.1 Noise Requirements — see TCDSN EASA.IM.R.507

9. Operational Suitability Data (OSD) — see SECTION 2 below

III. Technical Characteristics and Operational Limitations

1. Type Design Definition — RHC Drawing F001

2. Description

Main rotor: 2-blade, free to teeter and cone, rigid in-plane
Tail rotor: 2-blade, free to teeter, rigid in-plane
Fuselage: Riveted aluminium sheet and welded steel tube for primary structure, fiberglass & thermoplastic for secondary structure. Seats integral to cabin structure.
Landing gear: Aluminium skids
Powerplant: Single turbine
Avionics: Analogue or EFIS

3. Equipment

Basic equipment must be installed and operational prior to registration of the helicopter.
Optional equipment per RHC drawing F025.

4. Dimensions

4.1 Fuselage
Length: 11.66 m
Width hull: 1.47 m
Height: 3.48 m

4.2 Main Rotor — Diameter: 10.06 m

4.3 Tail Rotor — Diameter: 1.52 m

5. Engine

5.1 Model
Rolls-Royce
1 x 250-C300/A1

5.2 Type Certificate
FAA TC/TCDS n°: E4CE
EASA TC/TCDS n°: EASA.IM.E.052

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

	TQ limits [% (hp)]	Gas generator N_1 [rpm (%)]	PWR turbine N_2 [rpm (%)]	Temperature MGT [°C]
TOP (5 min)	100 (270)	53 519 (105)	6 076 (101)	782
MCP	83 (224)	53 519 (105)	6 076 (101)	706
Max. starting	- - -	- - -	- - -	927*

Note: *10 second limit above 782°C

5.3.2 Transmission Torque Limits

	Max. TQ [Nm]	PWR turbine N_2 [%]
TOP (5 min)	320	101*
MCP	266	101

Note: *100% = 6 016 rpm

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel — Jet A or Jet A-1 conforming to ASTM D 1655,
Jet B conforming to ASTM D 6615,

JP-4 or JP-5 conforming to MIL-DTL-5624,
JP-8 conforming to MIL-DTL-83133

6.2 Oil

Engine: AS 5780 HPC
MRGB/TRGB: Robinson P/N A257-22

6.3 Additives

Anti-icing additive conforming to MIL-DTL-85470 must be added to Jet A, Jet A1, or Jet B when ambient temperature is below 4°C. Check with fuel supplier to determine if supply includes additive. If not, add per manufacturer's instructions.

7. Fluid capacities

7.1 Fuel

Fuel tank capacity:	282 litres	(74.6 US gal)
Usable fuel:	279 litres	(73.6 US gal)

7.2 Oil

Engine:	5.7 litres	(1.5 US gal)
MRGB:	1.9 litres	(2 qt)
TRGB:	0.10 litres	(0.11 qt)
Hydraulic reservoir:	0.62 litres	(0.65 qt)

8. Air Speed Limitations

Take-off Gross Weight	PWR on V_{NE} [KIAS]	PWR off V_{NE} [KIAS]
Less than 998 kg	140	100
998 to 1 225 kg, or Airborne Observation Helicopter version (any gross weight), or Pop-out Floats version (floats stowed, any gross weight)	130	100

Notes:

- MSL V_{NE} values shown above.
- For reduction of V_{NE} with altitude and temperature, see R66 Pilot's Operating Handbook and EASA- approved RFM (RTR 661).
- Airspeed limit is 65 KIAS for power settings above 83% torque.
- Airspeed limit is 100 KIAS for any combination of doors off.
- See R66 Pilot's Operating Handbook and FAA-approved Rotorcraft Flight Manual (RTR 661) for additional airspeed limitations associated with optional equipment installations.

9. Rotor Speed Limitations

Condition	Minimum		Maximum	
	[rpm*]	[%]	[rpm*]	[%]
Power on	404	99	412	101
Power off	359	88	432	106

Note: *Main Rotor

10. Maximum Operating Altitude and Temperature

10.1 Altitude

14 000 ft (4 270 m) DA

Max. altitude above ground level is 9 000 ft (2 743 m).

10.2 Temperature — From –40°C to ISA+35°C, limited to +50°C

11. Operating Limitations — VFR day and night
Non-icing conditions

12. Maximum Mass — 1 225 kg (2 700 lb) internal loading
1 315 kg (2 900 lb) with external loading (see Note V.6)

13. Centre of Gravity Range

Gross mass [kg]	Longitudinal C.G.	
	FWD limit [mm]	AFT limit [mm]
635	2 311	2 604
1 043	---	2 604
1 134	2 311	---
1 225	2 337	2 489

Longitudinal C.G. [mm]	Lateral C.G.	
	Left limit [mm]	Right limit [mm]
2 311	-89	+89
2 540	-89	+89
2 604	-64	+64

Notes:
- Straight line variation between points shown
- Lateral C.G. limits valid for all gross weights
- See R66 Pilot's Operating Handbook and FAA Approved Rotorcraft Flight Manual (RTR 661) for expanded limits with external load.

14. Datum — Longitudinal:
the datum plane (STA 0) is located at 2 540 mm (100 in) forward of main rotor centreline.
Lateral:
fuselage median plane

15. Levelling Means — Refer to R66 Maintenance Manual, and,
Instructions for Continued Airworthiness (RTR 660), Chapter 8

16. Minimum Flight Crew — 1 pilot in forward right seat.
See R66 Pilot's Operating Handbook and FAA-approved Rotorcraft Flight Manual (RTR 661) for configurations that allow 1 pilot in forward left seat.

17. Maximum Passenger Seating Capacity — 4

18. Passenger Emergency Exit — 4, two on each side of the passenger cabin (intended for normal use)

19. Maximum Baggage/ Cargo Loads — Maximum mass: 136 kg (300 lb)
113 kg (250 lb) for Airborne Observation Helicopter version
90 kg (200 lb) with small auxiliary fuel tank installed
45 kg (100 lb) with large auxiliary fuel tank installed
Maximum loading: 244 kg/m² (50 lb/ft²)
Underseat baggage compartments:

Maximum mass: 23 kg (50 lb)
For any seat location, the maximum combined weight of the load on the seat (e.g. occupant) plus the weight of stowed items and any installed equipment in the underseat baggage compartment is 136 kg (300 lb).

20. Rotor Blade Control Movement

Main Rotor:

Collective pitch	13.0° ±0.5° total travel	
Cyclic pitch	forward	13.50° to 14.25°
	aft	13.50° to 14.25°
	left	7.5° to 8.5°
	right	6.0° to 7.0°

Tail Rotor:

Collective pitch	left pedal	15.5° to 16.5°
	right Pedal	18.5° to 19.0°

21. Auxiliary Power Unit (APU)

none

22. Life-limited Parts

See Robinson Maintenance Manual and Instructions for Continued Airworthiness (RTR 660).
Retirement times are listed in the approved "Airworthiness Limitations" section of Chapter 4, dated 25 October 2010, or later revisions.

IV. Operating and Service Instructions

1. Flight Manual

R66 Pilot's Operating Handbook and EASA-approved Rotorcraft Flight Manual, RTR 661, dated 25 October 2010, with revisions through 26 November 2013, or later.

2. Maintenance Manual

R66 Maintenance Manual and Instructions for Continued Airworthiness (RTR 660 Volume I).

3. Structural Repair Manual

none

4. Weight and Balance Manual

none

5. Illustrated Parts Catalogue

R66 Illustrated Parts Catalog (RTR 660 Volume II)

6. Service Letters and Service Bulletins

R66 Service Letters and Service Bulletins as published by Robinson Helicopter Company.

7. Required Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification, or as required by the Master Minimum Equipment List. In addition, the-approved Rotorcraft Flight Manual is required (see Flight Manual)

V. Notes

1. Manufacturer's eligible serial numbers:
s/n 0560 and subsequent, or s/n 0004 thru 0559 with R66 Service Letter SL-08 completed.

2. Instrument markings:
Any cockpit instruments installed by a third party must be marked with limit markings and range markings in accordance with Robinson's marking scheme.

3. *deleted*

4. Noise configuration:

The “Clean” and “Dirty” configurations for noise characteristics are defined in the EASA-approved Rotorcraft Flight Manual, Section 5.

5. Designation:
R66 Turbine is used as marketing designation for the basic R66 helicopter. R66 Turbine Marine is used as a marketing designation for the R66 with optional pop-out floats.

6. R66 helicopters equipped with the G132 Cargo Hook installation may be operated at up to 1 315 kg gross mass when the portion above 1 225 kg is jettisonable load on the cargo hook and the helicopter is operating at or below 7 000 feet density altitude.
See Cargo Hook Supplement to R66 Pilot’s Operating Handbook and FAA-approved Rotorcraft Flight Manual (RTR 661) for additional operating limitations.

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

12 August 2014

I.2 MMEL - Certification Basis

Special Condition SC-CS-GEN-MMEL-H, Initial Issue

I.3 Flight Crew Data - Certification Basis

R66 with symmetrical horizontal stabilizer: CS-FCD, issue 2.
All other R66: CS-FCD, Initial Issue

II. OSD Elements

II.1 MMEL

EASA MMEL for R22, R44, and R66, Appendix 1 to RTR 666, dated 17 November 2015, or subsequent approved revisions

II.2 Flight Crew Data

RTR 665, EASA Operation Suitability Data, Flight Crew Data, Initial OSD Issue, or subsequent approved revisions

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

AFT	Aft	MRGB	Main Rotor Gearbox
C.G.	Centre of Gravity	MSL	Mean Sea Level
CRI	Certification Review Item	n/a	Not applicable
CS	Certification Specification	OSD	Operational Suitability Data
DA	Density Altitude	PA	Pressure Altitude
DP	Datum Point	PWR	Power
EFIS	Electronic Flight Information System	RHC	Robinson Helicopter Company
ESF	Equivalent Safety Finding	RFM	Rotorcraft Flight Manual
FAA	Federal Aviation Administration	RTR	Robinson Technical Report
FCD	Flight Crew Data	s/n	Serial Number
FWD	Forward	SC	Special Condition
ISA	International Standard Atmosphere	STA	Station
KIAS	Knots Indicated Air Speed	TOP	Take-Off Power
max	Maximum	TRGB	Tail Rotor Gearbox
MC	Maximum Continuous	TQ	Torque
MCP	Maximum Continuous Power	VFR	Visual Flight Rules
MGT	Measured Gas Temperature	VFR	Visual Flight Rules
MMEL	Master Minimum Equipment List	V_{NE}	Never Exceed Speed

II. Type Certificate Holder Record

Type Certificate Holder	Period
Robinson Helicopter Company 2901 Airport Drive Torrance, California 90505, USA	Since 25 October 2010

III. Change Record

Issue	Date	Changes	TC issue
Issue 1	30 Apr 2014	Initial issue of EASA TCDS	Initial Issue, 30 April 2014
Issue 2	11 Dec 2015	OSD section added	- - -
Issue 3	1 Jul 2021	II.3: Special Condition F-01 (HeliSAS AP) added II.8: ESF reference amended III.1: R66 Master Drawing List (MDL) 0066 corrected to RHC drawing F001 III.8: Reference to Flight Manual added III.12: Maximum masses amended III.13: 'Weight' corrected to 'Mass', aft CG lateral limits amended, and note regarding external load operations added III.16: Minimum flight crew amended. III.19: Baggage compartment limits for specific configurations added V.6: Note concerning cargo hook conditions and Flight Manual added	- - -
Issue 4	8 Jan 2025	Sections 1, II; 2, I.3-: certification basis updated for symmetrical horizontal stabilizer. Section 2, III.7.3 deleted. III.10.1 added max. altitude	- - -

Issue	Date	Changes	TC issue
		above ground level. III.13.3 notes added.	

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