TYPE-CERTIFICATE

DATA SHEET

No. EASA.IM.R.120

for

R22

Type Certificate Holder

Robinson Helicopter Company

2901 Airport Drive

Torrance, CA 90505

U.S.A.

For Models: R22, R22 Alpha, R22 Beta, R22 Mariner

Intentionally left blank

TABLE OF CONTENTS

SECTION 1: R22

I. General

1.	Type/ Model/ Variant	
	1.1 Type	R22
	1.2 Model	R22
2.	Airworthiness Category	Small Rotorcraft, Category B
3.	Manufacturer	Robinson Helicopter Company 2901 Airport Drive Torrance, California 90505, USA
4.	Type Certification Application Date	to FAA: 6 January 1975 to ENAC: 23 March 1981
5.	State of Design Authority	FAA
6.	Type Certificate Date	by FAA: 16 March 1979 by ENAC: not recorded
7.	Type Certificate n°	by FAA: H10WE by ENAC: A-214
8.	Type Certificate Data Sheet n°	by FAA: H10WE by ENAC: A-214
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 2nd indented bullet

II. Certification Basis

1.	Reference Date for determining the applicable requirements	19 December 1976
2.	Airworthiness Requirements	14 CFR Part 27, dated 1 February 1965, including Amdts. 27-1 through 27-10. § 27.1559 of Amdt. 27-21 is an option for all s/n. For the symmetrical horizontal stabilizer installation: 14 CFR Part 27 Amdt 27-13: §27.1323. 14 CFR Part 27 Amdt. 27-26: § 27.613, § 27.629, § 27.663. 14 CFR Part 27 Amdt 27-27: §27.427. 14 CFR Part 27 Amdt. 27-34: § 27.391. 14 CFR Part 27 Amdt. 27-44: § 27.49, § 27.71, § 27.75. 14 CFR Part 27 Amdt. 27-46: § 27.610. 14 CFR Part 27 Amdt. 27-21: § 27.1505. 14 CFR Part 27 Amdt 27-14: § 27.1581. CS-27 Amdt. 8 dated 14 June 2021: CS 27.173; CS 27.175; CS 27.177; CS 27.351; CS 27.571.
3.	Special Conditions	none
4.	Exemptions	none
5.	Deviations	none

6.	Equivalent Safety Findings	FAA ELOS No. TD10352LA-R/S-1 to 14 CFR Part 27, § 27.1401 (d), Anticollision Light System
7.	Requirements elected to comply	none
8.	Environmental Protection Requirements	
	8.1 Noise Requirements	ICAO Annex 16, Chapter 11, see TCDSN EASA.IM.R.120
9.	Operational Suitability Data (OSD)	see SECTION 5 below

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Robinson Helicopter Company Drawing A001	
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 normally-aspirated reciprocating engine
		Avionics:	Analogue or EFIS
3.	Equipment	Basic equipment must be installed and operational prior to registration of the helicopter. Optional equipment per RHC drawing A025.	
4.	Dimensions		
	4.1 Fuselage	Length:	6.24 m
		Width hull:	1.02 m
		Height:	2.37 m
	4.2 Main Rotor	Diameter:	7.67 m
	4.3 Tail Rotor	Diameter:	1.07 m
5.	Engine		
	5.1 Model	Lycoming Engines 1 x Model O-320-A2B, or O-320-A2C, or O-320-B2C (see Note 4 and 5)	
	5.2 Type Certificate	FAA TC/TCDS n°:	E-274
		EASA Engine TCDS No:	none

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

	PWR limit [BHP]	RPM [%]
MCP	124	104

Note: See RFM for maximum manifold pressure corresponding to 124 BHP

5.3.2 Transmission Torque Limits

	Max. TQ [Nm]	Engine RPM [%]
MCP	328	104

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel

100 – ASTM D910
100LL – ASTM D910
100VLL – ASTM D910
UL 91 – ASTM D7547
UL 94 – ASTM D7547
HJELMCO 91/96 UL – Hjelmco Oil, Inc. Sollentuna, Sweden
91 – TU 38.5901481-96, Ukrainian National Standard
B91/115 – GOST 1012-72, Russian National Standard
B95/130 – GOST 1012-72, Russian National Standard
Note: For alternative authorised fuel and authorised additives see R22 RFM (RTR 061), Section 2

6.2 Oil

See R22 RFM (RTR 061), Section 8

6.3 Additives

none

7. Fluid capacities

7.1 Fuel

	Capacity [litres]	Usable [litres]
Tank	Tanks without bladders	
Main	75	73
Auxiliary	n/a	n/a
Tank	Tanks with bladders	
Main	69	64
Auxiliary	37	36

7.2 Oil

Engine: 5.7 litres (1.5 US gal)

MRGB: 1.13 litres (0.3 US gal)

8. Air Speed Limitations

V_{NE} (never exceed) Power-on and Power-off:
98 KCAS sea level to 3 000 ft DA,
decreasing to 83 KCAS at 8 000 ft DA,
decreasing to 56 KCAS at 14 000 ft DA.
Straight line variation between points.

9. Rotor Speed Limitations

Power on:
Maximum 104 % (530 rpm)
Minimum 97 % (495 rpm)
Power off:
Maximum 110 % (561 rpm)
Minimum 90 % (459 rpm)
Note: All values are applicable to the Main Rotor.

10. Maximum Operating Altitude and Temperature

10.1 Altitude

14 000 ft (4 270 m) DA

10.2 Temperature

Maximum ambient temperature limited only by engine operating temperature limits.

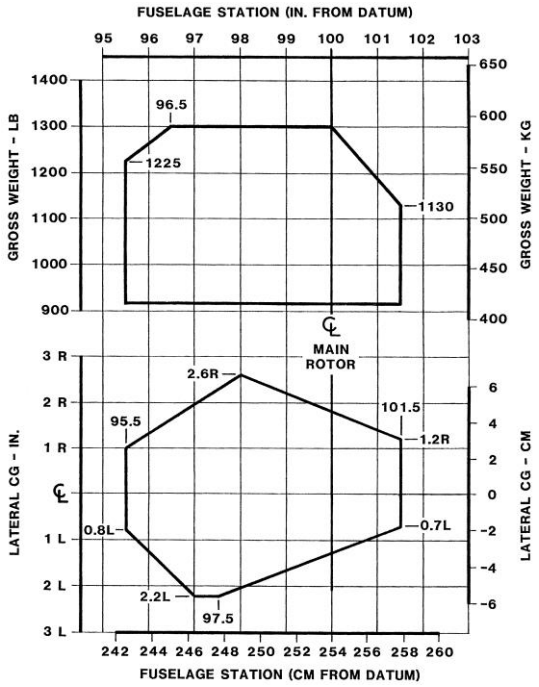
11. Operating Limitations

VFR day and night
Non-icing conditions

12. Maximum Mass

590 kg (1 300 lb)

13. Centre of Gravity Range



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 R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060)

16. Minimum Flight Crew

1 pilot (right seat)

17. Maximum Passenger Seating Capacity

1

18. Passenger Emergency Exit

2, 1 on each side of the passenger cabin

19. Maximum Baggage/ Cargo Loads

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 109 kg (240 lb).

20. Rotor Blade Control Movement

Main Rotor:

Collective pitch	11.5° ±0.5° total travel	
Cyclic pitch	forward	8.3° to 8.8°
	aft	8.5° to 9.0°
	left	9.0° to 9.5°
	right	5.5° to 6.0°

Tail Rotor:

Collective pitch	right pedal	9.6° to 10.6°
	left pedal	19.0° to 19.5°

21. Auxiliary Power Unit (APU)

none

22. Life-limited Parts

See Robinson Maintenance Manual and Instructions for Continued Airworthiness (RTR 060).
Retirement times are listed in the approved "Airworthiness Limitations" section of Chapter 3.

IV. Operating and Service Instructions

1.	Flight Manual	R22 Pilot's Operating Handbook and approved Rotorcraft Flight Manual, RTR 061, dated 16 March 1979, with revisions through 20 April 2007, or later.
2.	Maintenance Manual	R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060 Volume I)
3.	Structural Repair Manual	none
4.	Weight and Balance Manual	none
5.	Illustrated Parts Catalogue	R22 Illustrated Parts Catalogue (RTR 060 Volume II)
6.	Service Letters and Service Bulletins	R22 Service Letters and Service Bulletins as published by Robinson Helicopter Company

8. 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:
0002 through 0300, 0302 through 0349, and 0352 through 0356.

2. Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions, when necessary, must be provided for each helicopter at the time of original certification and at all times thereafter.

3. One of the following placards must be installed in clear view of the pilot:
"THE MARKINGS AND PLACARDS INSTALLED ON THIS HELICOPTER CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT ARE CONTAINED IN THE ROTORCRAFT FLIGHT MANUAL."
Or: "THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"
For additional placards, see R22 Rotorcraft Flight Manual (RTR 061).

4. Lycoming O-320-A2C, with Retard Magneto Starting System, eligible on s/n 0002 through 0300, 0302 through 0349, and 0352 through 0356 helicopters.

5. Lycoming O-320-B2C installed on s/n 0175 and 0200 through 2570 in production. It may be installed in prior s/n helicopters if the following parts are changed:
Robinson P/Ns B193-2 (Window Plate - Instrument Cluster), A145-3 (Engine), A600-2 (Manifold Pressure Gauge), and A654-40 & -41 (Decals).

6. Designation:
R22 HP is used as marketing designation for the R22 with O-320-B2C engine installed.

* * *

SECTION 2: R22 ALPHA

I. General

1.	Type/ Model/ Variant	
	1.1 Type	R22
	1.2 Model	R22 Alpha
2.	Airworthiness Category	Small Rotorcraft, Category B
3.	Manufacturer	Robinson Helicopter Company 2901 Airport Drive Torrance, California 90505, USA
4.	Type Certification Application Date	to FAA: 29 June 1982 to ENAC: 29 November 1983
5.	State of Design Authority	FAA
6.	Type Certificate Date	by FAA: 12 October 1983 by ENAC: not recorded
7.	Type Certificate n°	by FAA: H10WE by ENAC: A-214
8.	Type Certificate Data Sheet n°	by FAA: H10WE by ENAC: A-214
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 2nd indented bullet

II. Certification Basis

1.	Reference Date for determining the applicable requirements	19 December 1976
2.	Airworthiness Requirements	14 CFR Part 27, dated 1 February 1965, including Amdts. 27-1 through 27-10. § 27.1559 of Amdt. 27-21 is an option for all s/n. For the symmetrical horizontal stabilizer installation: 14 CFR Part 27 Amendment 27-13: §27.1323. 14 CFR Part 27 Amdt. 27-26: § 27.613, § 27.629, § 27.663. 14 CFR Part 27 Amendment 27-27: §27.427. 14 CFR Part 27 Amdt. 27-34: § 27.391. 14 CFR Part 27 Amdt 27-44: § 27.49, § 27.71, § 27.75. 14 CFR Part 27 Amdt. 24-46: § 27.610. 14 CFR Part 27 Amdt. 27-21: § 27.1505. 14 CFR Part 27 Amdt. 27-14: § 27.1581. CS-27 Amdt. 8 dated 14 June 2021: CS 27.173; CS 27.175; CS 27.177; CS 27.351; CS 27.571.
3.	Special Conditions	none
4.	Exemptions	none
5.	Deviations	none

6.	Equivalent Safety Findings	FAA ELOS No. TD10352LA-R/S-1 to 14 CFR Part 27, § 27.1401 (d), Anticollision Light System
7.	Requirements elected to comply	none
8.	Environmental Protection Requirements	
	8.1 Noise Requirements	ICAO Annex 16, Chapter 11, see TCDSN EASA.IM.R.120
9.	Operational Suitability Data (OSD)	see SECTION 5 below

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Robinson Helicopter Company Drawing A001	
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 normally-aspirated reciprocating engine
		Avionics:	Analogue or EFIS
3.	Equipment	Basic equipment must be installed and operational prior to registration of the helicopter. Optional equipment per RHC drawing A025.	
4.	Dimensions		
	4.1 Fuselage	Length:	6.24 m
		Width hull:	1.02 m
		Height:	2.37 m
	4.2 Main Rotor	Diameter:	7.67 m
	4.3 Tail Rotor	Diameter:	1.07 m
5.	Engine		
	5.1 Model	Lycoming Engines 1 x Model O-320-B2C	
	5.2 Type Certificate	FAA TC/TCDS n°:	E-274
		EASA Engine TCDS No:	none

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

	PWR limit [BHP]	RPM [%]
MCP	124	104

Note: See RFM for maximum manifold pressure corresponding to 124 BHP

5.3.2 Transmission Torque Limits

	Max. TQ [Nm]	Engine RPM [%]
MCP	328	104

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel

100 – ASTM D910
100LL – ASTM D910
100VLL – ASTM D910
UL 91 – ASTM D7547
UL 94 – ASTM D7547
HJELMCO 91/96 UL – Hjelmco Oil, Inc. Sollentuna, Sweden
91 – TU 38.5901481-96, Ukrainian National Standard
B91/115 – GOST 1012-72, Russian National Standard
B95/130 – GOST 1012-72, Russian National Standard
Note: For alternative authorised fuel and authorised additives see R22 RFM (RTR 061), Section 2

6.2 Oil

See R22 RFM (RTR 061), Section 8

6.3 Additives

none

7. Fluid capacities

7.1 Fuel

	Capacity [litres]	Usable [litres]
Tank	Tanks without bladders	
Main	75	73
Auxiliary	41	40
Tank	Tanks with bladders	
Main	69	64
Auxiliary	37	36

7.2 Oil

Engine: 5.7 litres (1.5 US gal)

MRGB: 1.13 litres (0.3 US gal)

8. Air Speed Limitations

V_{NE} (never exceed) Power-on and Power-off:
98 KCAS sea level to 3 000 ft DA,
decreasing to 83 KCAS at 8 000 ft DA,
decreasing to 56 KCAS at 14 000 ft DA.
Straight line variation between points.

9. Rotor Speed Limitations

Power on:
Maximum 104 % (530 rpm)
Minimum 97 % (495 rpm)
Power off:
Maximum 110 % (561 rpm)
Minimum 90 % (459 rpm)
Note: All values are applicable to the Main Rotor.

10. Maximum Operating Altitude and Temperature

10.1 Altitude

14 000 ft (4 270 m) DA

10.2 Temperature

Maximum ambient temperature limited only by engine operating temperature limits.

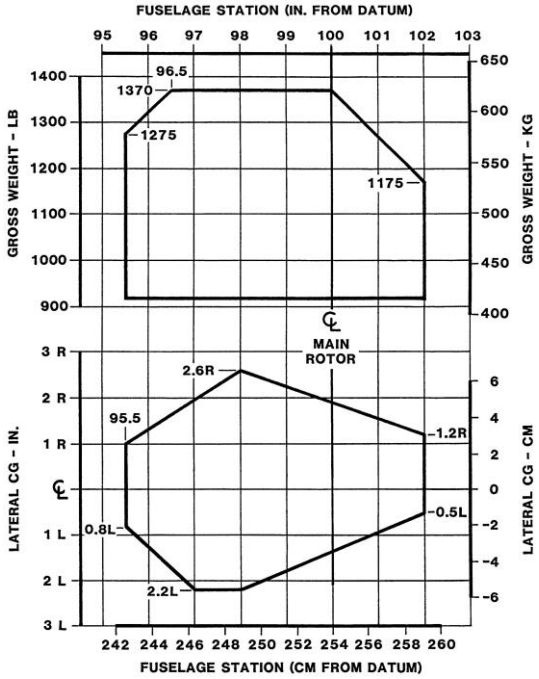
11. Operating Limitations

VFR day and night
Non-icing conditions

12. Maximum Mass

621 kg (1 370 lb)

13. Centre of Gravity Range



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 R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060)

16. Minimum Flight Crew

1 pilot (right seat)

17. Maximum Passenger Seating Capacity

1

18. Passenger Emergency Exit

2, 1 on each side of the passenger cabin

19. Maximum Baggage/ Cargo Loads

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 109 kg (240 lb).

20. Rotor Blade Control Movement

Main Rotor:

Collective pitch	11.5° ±0.5° total travel	
Cyclic pitch	forward	10.5° to 11.0°
	aft	8.5° to 9.0°
	left	9.0° to 9.5°
	right	5.5° to 6.0°

Tail Rotor:

Collective pitch	right pedal	9.6° to 10.6°
	left pedal	19.0° to 19.5°

21. Auxiliary Power Unit (APU)

none

22. Life-limited Parts

See Robinson Maintenance Manual and Instructions for Continued Airworthiness (RTR 060).
Retirement times are listed in the-approved "Airworthiness Limitations" section of Chapter 3.

IV. Operating and Service Instructions

1.	Flight Manual	R22 Pilot's Operating Handbook and approved Rotorcraft Flight Manual, RTR 061, dated 16 March 1979, with revisions through 20 April 2007, or later.
2.	Maintenance Manual	R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060 Volume I)
3.	Structural Repair Manual	none
4.	Weight and Balance Manual	none
5.	Illustrated Parts Catalogue	R22 Illustrated Parts Catalogue (RTR 060 Volume II)
6.	Service Letters and Service Bulletins	R22 Service Letters and Service Bulletins as published by Robinson Helicopter Company.

8. 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:
0301, 0350, 0351, 0357 through 0500, excluding 0364.
(R22 ALPHA S/N 0364 was converted to an R22 MARINER by the manufacturer. The original R22 ALPHA data plate was removed and replaced with an R22 MARINER data plate S/N 0364M.)

2. Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions, when necessary, must be provided for each helicopter at the time of original certification and at all times thereafter.

3. One of the following placards must be installed in clear view of the pilot:
"THE MARKINGS AND PLACARDS INSTALLED ON THIS HELICOPTER CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT ARE CONTAINED IN THE ROTORCRAFT FLIGHT MANUAL."
Or: "THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"
For additional placards, see R22 Rotorcraft Flight Manual (RTR 061).

* * *

SECTION 3: R22 BETA

I. General

1.	Type/ Model/ Variant	
	1.1 Type	R22
	1.2 Model	R22 Beta
2.	Airworthiness Category	Small Rotorcraft, Category B
3.	Manufacturer	Robinson Helicopter Company 2901 Airport Drive Torrance, California 90505, USA
4.	Type Certification Application Date	to FAA: 12 June 1985 to ENAC: 17 March 1986
5.	State of Design Authority	FAA
6.	Type Certificate Date	by FAA: 12 August 1985 by ENAC: not recorded
7.	Type Certificate n°	by FAA: H10WE by ENAC: A-214
8.	Type Certificate Data Sheet n°	by FAA: H10WE by ENAC: A-214
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 2nd indented bullet

II. Certification Basis

1.	Reference Date for determining the applicable requirements	19 December 1976
2.	Airworthiness Requirements	14 CFR Part 27, dated 1 February 1965, including Amdts. 27-1 through 27-10. § 27.1559 of Amdt. 27-21 is an option for all s/n. For the symmetrical horizontal stabilizer installation: 14 CFR Part 27 Amendment 27-13: § 27.1323. 14 CFR Part 27 Amdt. 27-26: § 27.613, § 27.629, § 27.663. 14 CFR Part 27 Amendment 27-27: § 27.427. 14 CFR Part 27 Amdt. 27-34: § 27.391. 14 CFR Part 27 Amdt. 27-44: § 27.49, § 27.71, § 27.75. 14 CFR Part 27 Amdt. 24-46: § 27.610. 14 CFR Part 27 Amdt. 27-21: § 27.1505. 14 CFR Part 27 Amdt. 27-14: § 27.1581. CS-27 Amdt. 8 dated 14 June 2021: CS 27.173; CS 27.175; CS 27.177; CS 27.351; CS 27.571.
3.	Special Conditions	none
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	FAA ELOS No. TD10352LA-R/S-1 to 14 CFR Part 27, § 27.1401 (d), Anticollision Light System

7.	Requirements elected to comply	none
8.	Environmental Protection Requirements	
	8.1 Noise Requirements	ICAO Annex 16, Chapter 11, see TCDSN EASA.IM.R.120
9.	Operational Suitability Data (OSD)	see SECTION 5 below

III. Technical Characteristics and Operational Limitations

1.	Type Design Definition	Robinson Helicopter Company Drawing A001	
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 normally-aspirated reciprocating engine
		Avionics:	Analogue or EFIS
3.	Equipment	Basic equipment must be installed and operational prior to registration of the helicopter. Optional equipment per RHC drawing A025.	
4.	Dimensions		
	4.1 Fuselage	Length:	6.24 m
		Width hull:	1.02 m
		Height:	2.37 m
	4.2 Main Rotor	Diameter:	7.67 m
	4.3 Tail Rotor	Diameter:	1.07 m
5.	Engine		
	5.1 Model	Lycoming Engines 1 x Model O-320-B2C, or O-360-J2A (see Note 4)	
	5.2 Type Certificate	FAA TC/TCDS n°:	E-274 for O-320-B2C E-286 for O-360-J2A
		EASA Engine TCDS No:	none

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

	PWR limit [BHP]	RPM [%]
TOP (5 min)	131	104
MCP	124	104

Note: See RFM for maximum manifold pressure corresponding to 124 BHP

5.3.2 Transmission Torque Limits

	Max. TQ [Nm]	Engine RPM [%]
TOP (5 min)	347	104
MCP	328	104

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel

100 – ASTM D910
100LL – ASTM D910
100VLL – ASTM D910
UL 91 – ASTM D7547
UL 94 – ASTM D7547
HJELMCO 91/96 UL – Hjelmco Oil, Inc. Sollentuna, Sweden
91 – TU 38.5901481-96, Ukrainian National Standard
B91/115 – GOST 1012-72, Russian National Standard
B95/130 – GOST 1012-72, Russian National Standard
Note: For alternative authorised fuel and authorised additives see R22 RFM (RTR 061), Section 2

6.2 Oil

See R22 RFM (RTR 061), Section 8

6.3 Additives

none

7. Fluid capacities

7.1 Fuel

	Capacity [litres]	Usable [litres]
Tank	Tanks without bladders	
Main	75	73
Auxiliary	41	40
Tank	Tanks with bladders	
Main	69	64
Auxiliary	37	36

7.2 Oil

Engine: 5.7 litres (1.5 US gal)

MRGB: 1.13 litres (0.3 US gal)

8. Air Speed Limitations

V_{NE} (never exceed) Power-on and Power-off:
98 KCAS sea level to 3 000 ft DA,
decreasing to 83 KCAS at 8 000 ft DA,
decreasing to 56 KCAS at 14 000 ft DA.
Straight line variation between points.

9. Rotor Speed Limitations

Power-on (O-320-B2C Engine):
Maximum 104 % (530 rpm)
Minimum 97 % (495 rpm)
Power-on (O-360-J2A Engine):
Maximum 104 % (530 rpm)
Minimum 101 % (515 rpm)
Power-off:
Maximum 110 % (561 rpm)
Minimum 90 % (459 rpm)
Note: All values are applicable to the Main Rotor.

10. Maximum Operating Altitude and Temperature

10.1 Altitude

14 000 ft (4 270 m) DA

10.2 Temperature

Maximum ambient temperature limited only by engine operating temperature limits.

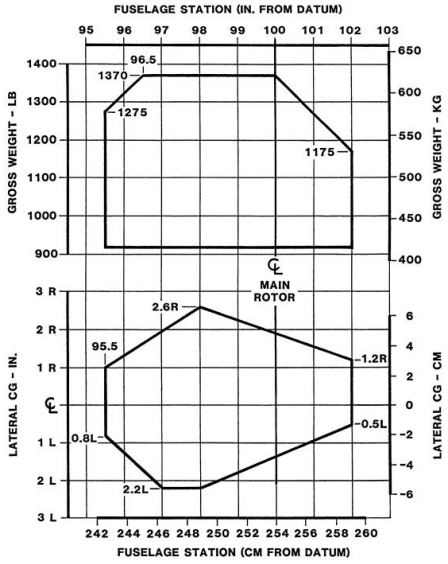
11. Operating Limitations

VFR day and night
Non-icing conditions

12. Maximum Mass

621 kg (1 370 lb)

13. Centre of Gravity Range



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 R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060)

16. Minimum Flight Crew

1 pilot (right seat)

17. Maximum Passenger Seating Capacity

1

18. Passenger Emergency Exit

2, 1 on each side of the passenger cabin

19. Maximum Baggage/ Cargo Loads

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 109 kg (240 lb).

20. Rotor Blade Control Movement

Main Rotor:

Collective pitch	11.5° ±0.5° total travel	
Cyclic pitch	forward	10.5° to 11.0°
	aft	8.5° to 9.0°
	left	9.0° to 9.5°
	right	5.5° to 6.0°

Tail Rotor:

Collective pitch	right pedal	9.6° to 10.6°
	left pedal	19.0° to 19.5°

21. Auxiliary Power Unit (APU)

none

22. Life-limited Parts

See Robinson Maintenance Manual and Instructions for Continued Airworthiness (RTR 060).
Retirement times are listed in the-approved "Airworthiness Limitations" section of Chapter 3.

IV. Operating and Service Instructions

1.	Flight Manual	R22 Pilot's Operating Handbook and-approved Rotorcraft Flight Manual, RTR 061, dated 16 March 1979, with revisions through 20 April 2007, or later.
2.	Maintenance Manual	R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060 Volume I)
3.	Structural Repair Manual	none
4.	Weight and Balance Manual	none
5.	Illustrated Parts Catalogue	R22 Illustrated Parts Catalogue (RTR 060 Volume II)
6.	Service Letters and Service Bulletins	R22 Service Letters and Service Bulletins as published by Robinson Helicopter Company.

8. 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:
0501, and subsequent.
2. Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions, when necessary, must be provided for each helicopter at the time of original certification and at all times thereafter.
3. One of the following placards must be installed in clear view of the pilot:
"THE MARKINGS AND PLACARDS INSTALLED ON THIS HELICOPTER CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT ARE CONTAINED IN THE ROTORCRAFT FLIGHT MANUAL."
Or: "THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"
For additional placards, see R22 Rotorcraft Flight Manual (RTR 061).
4. Lycoming O-360-J2A installed on S/N 2571 and subsequent in production. Retrofit installation of the O-360-J2A engines may only be accomplished at the Robinson Helicopter Company.
5. Designation:
R22 Beta II is used as marketing designation for the R22 Beta with O-360-J2A engine installed.

* * *

SECTION 4: R22 MARINER

I. General

1.	Type/ Model/ Variant	
	1.1 Type	R22
	1.2 Model	R22 Mariner
2.	Airworthiness Category	Small Rotorcraft, Category B
3.	Manufacturer	Robinson Helicopter Company 2901 Airport Drive Torrance, California 90505, USA
4.	Type Certification Application Date	to FAA: 12 August 1985 to ENAC: 30 September 1987
5.	State of Design Authority	FAA
6.	Type Certificate Date by FAA	by FAA: 12 September 1985 by ENAC: not recorded
7.	Type Certificate n° by FAA	by FAA: H10WE by ENAC: A-214
8.	Type Certificate Data Sheet n°	by FAA: H10WE by ENAC: A-214
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 2nd indented bullet

II. Certification Basis

1.	Reference Date for determining the applicable requirements	19 December 1976
2.	Airworthiness Requirements	14 CFR Part 27, dated 1 February 1965, including Amdts. 27-1 through 27-10. § 27.1559 of Amdt. 27-21 is an option for all s/n.
3.	Special Conditions	none
4.	Exemptions	none
5.	Deviations	none
6.	Equivalent Safety Findings	FAA ELOS No. TD10352LA-R/S-1 to 14 CFR Part 27, § 27.1401 (d), Anticollision Light System
7.	Requirements elected to comply	none
8.	Environmental Protection Requirements	
	8.1 Noise Requirements	ICAO Annex 16, Chapter 11, see TCDSN EASA.IM.R.120
9.	Operational Suitability Data (OSD)	see SECTION 5 below

III. Technical Characteristics and Operational Limitations

1. Type Design Definition — Robinson Helicopter Company Drawing A001

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 normally-aspirated reciprocating engine
Avionics:	Analogue or EFIS
Floats:	two inflatable floats, additional corrosion protection, tailcone with nose-up horizontal stabilizer mounting angle, float stabilizer in place of the tail skid, usage with and without floats

3. Equipment — Basic equipment must be installed and operational prior to registration of the helicopter.
Optional equipment per RHC drawing A025.

4. Dimensions

4.1 Fuselage	Length:	6.24 m
	Width hull:	1.02 m
	Height:	2.37 m
4.2 Main Rotor	Diameter:	7.67 m
4.3 Tail Rotor	Diameter:	1.07 m

5. Engine

5.1 Model — Lycoming Engines
1 x Model O-320-B2C, or O-360-J2A
(see Note 4)

5.2 Type Certificate

FAA TC/TCDS n°:	E-274 for O-320-B2C E-286 for O-360-J2A
EASA Engine TCDS No:	none

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits

	PWR limit [BHP]	RPM [%]
TOP (5 min)	131	104
MCP	124	104

Note: See RFM for maximum manifold pressure corresponding to 124 BHP

5.3.2 Transmission Torque Limits

	Max. TQ [Nm]	Engine RPM [%]
TOP (5 min)	347	104
MCP	328	104

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel

100 – ASTM D910
100LL – ASTM D910
100VLL – ASTM D910
UL 91 – ASTM D7547
UL 94 – ASTM D7547
HJELMCO 91/96 UL – Hjelmco Oil, Inc. Sollentuna, Sweden
91 – TU 38.5901481-96, Ukrainian National Standard
B91/115 – GOST 1012-72, Russian National Standard
B95/130 – GOST 1012-72, Russian National Standard
Note: For alternative authorised fuel and authorised additives see R22 RFM (RTR 061), Section 2

6.2 Oil

See R22 RFM (RTR 061), Section 8

6.3 Additives

none

7. Fluid capacities

7.1 Fuel

	Capacity [litres]	Usable [litres]
Tank	Tanks without bladders	
Main	75	73
Auxiliary	41	40
Tank	Tanks with bladders	
Main	69	64
Auxiliary	37	36

7.2 Oil

Engine: 5.7 litres (1.5 US gal)

MRGB: 1.13 litres (0.3 US gal)

8. Air Speed Limitations

With Floats Installed:
V_{NE} (never exceed) Power-on:
91 KCAS sea level to 3 000 ft DA,
decreasing to 77 KCAS at 7 500 ft DA,
decreasing to 50 KCAS at 14 000 ft DA.
Straight line variation between points.

V_{NE} (never exceed) Power-off:
77 KCAS sea level to 7 500 ft DA,
decreasing to 50 KCAS at 14 000 ft DA.

Without Floats Installed:
V_{NE} (never exceed) Power-on and Power-off:
98 KCAS sea level to 3 000 ft DA,
decreasing to 83 KCAS at 8 000 ft DA,
decreasing to 56 KCAS at 14 000 ft DA.
Straight line variation between points.

9. Rotor Speed Limitations

Power-on (O-320-B2C Engine):
Maximum 104 % (530 rpm)
Minimum 97 % (495 rpm)
Power-on (O-360-J2A Engine):
Maximum 104 % (530 rpm)
Minimum 101 % (515 rpm)
Power-off:
Maximum 110 % (561 rpm)
Minimum 90 % (459 rpm)
Note: All values are applicable to the Main Rotor.

10. Maximum Operating Altitude and Temperature

10.1 Altitude	14 000 ft (4 270 m) DA
10.2 Temperature	Maximum ambient temperature limited only by engine operating temperature limits.

11. Operating Limitations

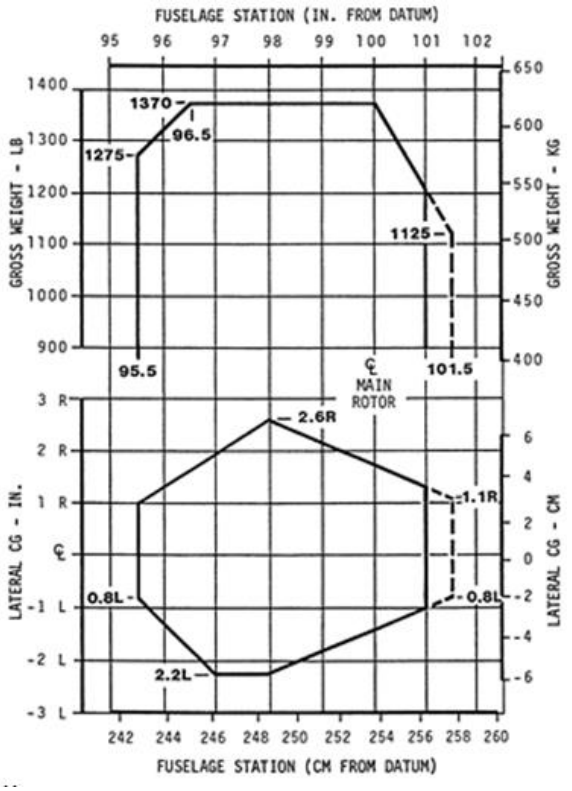
With Floats Installed: VFR day only
Without Floats Installed: VFR day and night
Non-icing conditions

12. Maximum Mass

621 kg (1 370 lb)

13. Centre of Gravity Range

With floats ——————
Without floats ----------



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 R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060)

16. Minimum Flight Crew

1 pilot (right seat)

17. Maximum Passenger Seating Capacity

1

18. Passenger Emergency Exit

2, 1 on each side of the passenger cabin

19. Maximum Baggage/ Cargo Loads

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 109 kg (240 lb).

20. Rotor Blade Control Movement

Main Rotor:

Collective pitch	11.5° ±0.5° total travel

Cyclic pitch	forward	10.5° to 11.0°
	aft	8.5° to 9.0°
	left	9.0° to 9.5°
	right	5.5° to 6.0°
Tail Rotor:		
Collective pitch	right pedal	9.6° to 10.6°
	left pedal	19.0° to 19.5°

21. Auxiliary Power Unit (APU) — none

22. Life-limited Parts — See Robinson Maintenance Manual and Instructions for Continued Airworthiness (RTR 060).
Retirement times are listed in the approved "Airworthiness Limitations" section of Chapter 3.

IV. Operating and Service Instructions

1. Flight Manual — R22 Pilot's Operating Handbook and -approved Rotorcraft Flight Manual, RTR 061, dated 16 March 1979, with revisions through 20 April 2007, or later.
and
Flight Manual Supplement 4 dated September 9, 1985, with revisions through October 13, 2000 or later.

2. Maintenance Manual — R22 Maintenance Manual and Instructions for Continued Airworthiness (RTR 060 Volume I)

3. Structural Repair Manual — none

4. Weight and Balance Manual — none

5. Illustrated Parts Catalogue — R22 Illustrated Parts Catalogue (RTR 060 Volume II)

6. Service Letters and Service Bulletins — R22 Service Letters and Service Bulletins as published by Robinson Helicopter Company

8. 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:
0364, 0501, and subsequent (Suffix "M" added to all MARINERs).
(R22 ALPHA S/N 0364 was converted to an R22 MARINER by the manufacturer. The original R22 ALPHA data plate was removed and replaced with an R22 MARINER data plate S/N 0364M.)

2. Current weight and balance report, including list of equipment included in certificated empty weight, and loading instructions, when necessary, must be provided for each helicopter at the time of original certification and at all times thereafter.

3. One of the following placards must be installed in clear view of the pilot:
"THE MARKINGS AND PLACARDS INSTALLED ON THIS HELICOPTER CONTAIN OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT. OTHER OPERATING LIMITATIONS WHICH MUST BE COMPLIED WITH WHEN OPERATING THIS ROTORCRAFT ARE CONTAINED IN THE ROTORCRAFT FLIGHT MANUAL."
Or: "THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"
For additional placards, see R22 Rotorcraft Flight Manual (RTR 061).

4. Lycoming O-360-J2A installed on S/N 2571 and subsequent in production. Retrofit installation of the O-360-J2A engines may only be accomplished at the Robinson Helicopter Company.

5. Designation:
R22 Mariner II is used as marketing designation for the R22 Mariner with O-360-J2A engine installed.

* * *

SECTION 5: 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

For all models: 12 August 2014

I.2 MMEL - Certification Basis

For all models: Special Condition SC-CS-GEN-MMEL-H, Initial Issue

I.3 Flight Crew Data - Certification Basis

For R22 with symmetrical horizontal stabilizer: CS-FCD, Issue 2
For all other R22: CS-FCD, Initial Issue

II. OSD Elements

II.1 MMEL

For all models:
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 165, EASA Operation Suitability Data, Flight Crew Data, Initial OSD Issue, or subsequent approved revisions.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

AFT	Aft
BHP	Brake Horsepower
CFR	Code of Federal Regulations
C.G.	Centre of Gravity
CRI	Certification Review Item
CS	Certification Specification
DA	Density Altitude
DP	Datum Point
EFIS	Electronic Flight Information System
ELOS	Equivalent Level of Safety
ENAC	Ente Nazionale per l'Aviazione Civile
FAA	Federal Aviation Administration
FCD	Flight Crew Data
FWD	Forward
ICAO	International Civil Aviation Organization
ISA	International Standard Atmosphere
KCAS	Knots Calibrated Air Speed
KIAS	Knots Indicated Air Speed
max	Maximum
MC	Maximum Continuous
MCP	Maximum Continuous Power
MMEL	Master Minimum Equipment List
MRGB	Main Rotor Gearbox
MSL	Mean Sea Level
n/a	not applicable
OSD	Operational Suitability Data
PA	Pressure Altitude
P/N	Part Number
PWR	Power
RHC	Robinson Helicopter Company
RFM	Rotorcraft Flight Manual
RPM	Revolutions Per Minute
RTR	Robinson Technical Report
s/n	Serial Number
SC	Special Condition
STA	Station
TOP	Take-Off Power
TRGB	Tail Rotor Gearbox
TQ	Torque
VFR	Visual Flight Rules
V_{NE}	Never Exceed Speed

II. Type Certificate Holder Record

II.1 Type Certificate Holder	**Period**
Robinson Helicopter Company 2901 Airport Drive Torrance, California 90505, USA	since 16 March 1979

III. Change Record

Issue	**Date**	**Changes**	**TC issue**
Issue 1	12 Dec 2007	Initial issue of EASA TCDS	Initial Issue, 12 December 2007
Issue 2	21 Apr 2010	Corrected description of main rotor	- - -
Issue 3	15 Jun 2010	Corrected O-320 TCDS number	- - -
Issue 4	15 Dec 2015	Bladder fuel tank data added; OSD section added; and updated format and content	- - -
Issue 5	29 May 2019	Engine oil quantity in III.7.2, typo corrected	- - -
Issue 6	8 Jan 2025	Sections 1, II; 2, II; 3, II, 5, I.3: certification basis updated for symmetrical horizontal stabilizer. For Section 1, 2, 3, 4, removed I.1.3, II.8.2 and III.7.3	- - -

Issue	Date	Changes	TC issue
		Sections 1, 2, 3, 4, II.5 updated and referenced to relevant notes added. Section 1, 2, V. Notes reorganized. Section 3, 4, V. Notes reorganized, note 1 modified and added new note 4. Section 4, III.8 added speeds with floats installed and III.9 added note Section 2, III. 5.1 & 6.1: correction of applicable engines Section 1, 2, 3, 4, III 9: added note Section 1, 2, 3, 4, III 22, IV 1 & 8: correction of approval requirement	
Issue 7	19 Mar 2025	Section 1, 2, 3, 4; III, 6.1: added fuel grades and note Section 1: corrected layout	- - -

- end of file -