

Type Certificate Data Sheet

No. 46

This data sheet which is part of Type Certificate No. 46 prescribes the conditions and limitations under which the product(s) for which the Type Certificate was granted meet(s) the standards of airworthiness required by the Civil Aeronautics Law and Regulations of Japan.

Type Certificate Holder Robinson Helicopter Company
2901 Airport Drive
Torrance, California 90505, U.S.A.

1. Model R22 Helicopter (Normal Category), Approved November 15, 2002

Engine Lycoming O-320-A2B or O-320-A2C or O-320-B2C (See NOTES 5 & 6)

Fuel See Rotorcraft Flight Manual (RFM)

Engine Limits for all operations 124 hp at 2652 rpm (104%)
See RFM for manifold pressure limit corresponding to 124 hp and ambient conditions.

Rotor limits

Power Off (Rotor Tach.)	Power On (Rotor Tach.)
Maximum (110%) 561 rpm	(104%) 530 rpm
Minimum (90%) 459 rpm	(97%) 495 rpm

Airspeed Limits (CAS) 98 KCAS Power On and Power Off V_{NE} (never exceed) at sea level.
See RFM for reduction of V_{NE} with altitude and temperature.

Altitude Limits Density Altitude Limit - 14,000 ft.

C.G. Range See RFM

Maximum Gross Weight 1300 lb. (590kg)

No. of Seats 2 (See NOTES 1)

Minimum Weight 920 lb. (417kg)

Maximum Baggage 50 pounds (22.7kg) of baggage and installed equipment in either baggage compartment, except combined seat load plus baggage and equipment not to exceed 240 pounds (109 kg).

Page No.	1	2	3	4	5	6	7
Rev. No.	4	4	4	4	4	4	4

Fuel Capacity

Tank	Tanks Without Bladders		Tanks With Bladders		Locations (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	19.8	19.2	18.3	16.9	108.6
Auxiliary	N/A	N/A	9.7	9.4	103.8

Oil Capacity

Engine Oil, 6 qt. at STA 104.8;
Transmission oil, 1.2 qt. at STA 100.

Rotor Blade and Control Movements For rigging information refer to R22 Maintenance Manual

Serial Nos. Eligible

0002 thru 0300
0302 thru 0349
0352 thru 0356

2. Model R22 Alpha Helicopter (Normal Category). Approved November 15, 2002Engine

Lycoming O-320-B2C

Fuel

See RFM

Engine Limits for all operations

124 hp at 2652 rpm (104%)
See RFM for manifold pressure limit corresponding to 124 hp and ambient conditions.

Rotor limits

Power Off (Rotor Tach.)	Power On (Rotor Tach.)
Maximum (110%) 561 rpm	(104%) 530 rpm
Minimum (90%) 459 rpm	(97%) 495 rpm

Airspeed Limits

98 KCAS Power On and Power Off V_{NE} (never exceed) at sea level.
See RFM for reduction of V_{NE} with altitude and temperature.

Altitude Limits

Density Altitude Limit - 14,000 ft.

C.G. Range

See RFM

Maximum Gross Weight

1370 lb. (622kg)

No. of Seats

2 (Pilot Location STA 78.0)

Minimum Weight

920 lb. (417kg)

Maximum Baggage

50 pounds (22.7kg) of baggage and installed equipment in either baggage compartment, except combined seat load plus baggage and equipment not to exceed 240 pounds (109 kg).

Fuel Capacity

Tank	Tanks Without Bladders		Tanks With Bladders		Locations (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	19.8	19.2	18.3	16.9	108.6
Auxiliary	10.9	10.5	9.7	9.4	103.8

Oil Capacity

Engine Oil, 6 qt. at STA 104.8;
Transmission oil, 1.2 qt. at STA 100.

Rotor Blade and Control Movements For rigging information refer to R22 Maintenance Manual

Serial Nos. Eligible

0301, 0350, 0351, 0357 thru 0500, excluding 0364

3. Model R22 Beta Helicopter (Normal Category), Approved November 15, 2002

The R22 Beta Helicopter includes a 131 hp, takeoff rating. A large oil cooler and associated installation changes were made to permit the 131 hp, takeoff rating with the O-320 engine.

Engine Lycoming O-320-B2C or O-360-J2A (See NOTE 11)

Fuel See RFM

Engine Limits for all operations Maximum continuous: 124 hp at 2652 rpm (104%)
Takeoff (5 minutes): 131 hp at 2652 rpm (104%)
See RFM for maximum manifold pressure corresponding to hp. rating and ambient conditions.

Rotor limit

Power Off (Rotor Tach.) for O-320-B2C and O-360-J2A	Power On (Rotor Tach.) for O-320-B2C	Power On (Rotor Tach.) for O-360-J2A
Maximum (110%) 561 rpm	(104%) 530 rpm	(104%) 530 rpm
Minimum (90%) 459 rpm	(97%) 495 rpm	(101%) 515 rpm

Airspeed Limits (CAS)

98 KCAS Power On and Power Off V_{NE} (never exceed) at sea level.
See RFM for reduction of V_{NE} with altitude and temperature.

Altitude Limits

Density Altitude Limit - 14,000 ft.

C.G. Range

See RFM

Maximum Gross Weight

1370 lb. (622kg)

No. of Seats

2 (Pilot Location STA 78.0)

Minimum Weight

920 lb. (417kg)

Maximum Baggage

50 pounds (22.7kg) of baggage and installed equipment in either baggage compartment, except combined seat load plus baggage and equipment not to exceed 240 pounds (109kg).

Fuel Capacity

Tank	Tanks Without Bladders		Tanks With Bladders		Locations (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	19.8	19.2	18.3	16.9	108.6
Auxiliary	10.9	10.5	9.7	9.4	103.8

Oil Capacity

Engine Oil, 6 qt. at STA 104.8;
Transmission oil, 1.2 qt. at STA 100.

Rotor Blade and Control Movements

For rigging information refer to R22 Maintenance Manual

Serial Nos. Eligible

0501 and subsequent

4. Model R22 Mariner Helicopter (Normal Category), Approved November 15, 2002

The R22 Mariner helicopter includes two inflatable floats, additional corrosion protection, 131 hp, takeoff rating, tailcone with nose-up horizontal stabilizer mounting angle and float stabilizer in place of the tail skid. The helicopter can be used with or without floats. See NOTE 9 for R22 Mariner-specific limitations.

Engine Lycoming O-320-B2C or O-360-J2A (See NOTE 11)

Fuel See RFM

Engine Limits for all operations Maximum continuous: 124 hp at 2652 rpm (104%)
Takeoff (5 minutes): 131 hp at 2652 rpm (104%)
See RFM for maximum manifold pressure corresponding to hp. rating and ambient conditions.

Rotor limit

Power Off (Rotor Tach.) for O-320-B2C and O-360-J2A	Power On (Rotor Tach.) for O-320-B2C	Power On (Rotor Tach.) for O-360-J2A
Maximum (110%) 561 rpm	(104%) 530 rpm	(104%) 530 rpm
Minimum (90%) 459 rpm	(97%) 495 rpm	(101%) 515 rpm

Airspeed Limits (CAS)

With Floats Installed

91 KCAS Power On V_{NE} (never exceed) at sea level.
77 KCAS Power Off V_{NE} (never exceed) at sea level.
See RFM for reduction of V_{NE} with altitude and temperature.

Without Floats Installed

98 KCAS Power On and Power Off V_{NE} (never exceed) at sea level.
See RFM for reduction of V_{NE} with altitude and temperature.

Altitude Limits

Density Altitude Limit - 14,000 ft.

C.G. Range

See RFM

Maximum Gross Weight

1370 lb. (622kg)

No. of Seats

2 (Pilot Location STA 78.0)

Minimum Weight

920 lb. (417kg)

Maximum Baggage

50 pounds (22.7kg) of baggage and installed equipment in either baggage compartment, except combined seat load plus baggage and equipment not to exceed 240 pounds (109kg).

Fuel Capacity

Tank	Tanks Without Bladders		Tanks With Bladders		Locations (STA)
	Capacity (gal.)	Usable (gal.)	Capacity (gal.)	Usable (gal.)	
Main	19.8	19.2	18.3	16.9	108.6
Auxiliary	10.9	10.5	9.7	9.4	103.8

Oil Capacity

Engine Oil, 6 qt. at STA 104.8;
Transmission oil, 1.2 qt. at STA 100.

Rotor Blade and Control Movements For rigging information refer to R22 Maintenance Manual

Serial Nos. Eligible

0364, 0501 and subsequent (Suffix "M" added to all Mariners.)

DATA PERTINENT TO ALL MODELS

<u>Datum</u>	100 in. forward of main rotor centerline.
<u>Leveling Means</u>	Refer to the Weight and Balance Section of the R22 Rotorcraft Flight Manual.
<u>Certification Basis</u>	<p>Japanese Civil Aeronautics Regulations Annex 1 Part IV of the TAIKUSEI-SHINSA-YORYO (JCAB Airworthiness Standards) dated June 6, 1969 (limited to parts equivalent to the 14 CFR Part 27 including Amendments 27-1 through 27-2) and the 14 CFR Part 27 effective February 1, 1965, including amendment 27-3 through 27-10. §27.1559 of Amendment 27-21 is an option for all S/Ns.</p> <p>For S/N 4815 and subsequent: 14 CFR §§ 27.952(a), 27.952(c), 27.952(f), 27.952(g), 27.963(g) (except with a minimum puncture force of 250 pounds), and 27.975(b) as amended by Amendment 27-30.</p> <p>The certification basis for areas changed or affected by B375-2 Symmetric Horizontal Stabilizer Installation includes the following later amendments: 14 CFR § 27.1323 at Amendment 27-13 14 CFR § 27.613, 27.629, and 27.663 at Amendment 27-26 14 CFR § 27.427 at Amendment 27-27 14 CFR § 27.351 and 27.391 at Amendment 27-34 14 CFR § 27.49, 27.71, and 27.75 at Amendment 27-44 14 CFR § 27.610 at Amendment 27-46</p> <p><u>Noise Requirements</u> For helicopters with B375-2 Symmetric Horizontal Stabilizer Installed: Japanese Civil Aeronautics Regulations Annex 2, Chapter 7 (equivalent to ICAO Annex 16, Vol. 1, Chapter 11).</p> <p>Other than the above: This aircraft type does not need to comply with Japanese Civil Aeronautics Regulations Annex 2 Chapter 7 (equivalent to ICAO Annex 16, Volume 1, Chapter 11).</p> <p><u>Equivalent Level of Safety</u> Number TD10352LA-R/S-1 14 CFR Part 27.1401(d), Anticollision Light System</p> <p>(Reserved)</p>
<u>Production Basis</u>	Production Certificate No. 424WE, dated March 6, 1981
<u>Equipment</u>	The basic required equipment as prescribed in the applicable airworthiness regulations (See Certification Basis) must be installed in the helicopter for certification. In addition, the applicable JCAB-approved Rotorcraft Flight Manual is required.

ALL MODELS

If fuel tanks with bladders are installed: R22 Rotorcraft Flight Manual dated March 16, 2002, with revisions through June 1, 2015 or later. R22 Mariners also require Flight Manual Supplement 4. Also see Note 8.

GENERAL NOTES

NOTE 1. 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 (except in the case of operators having an approved weight control system).

Pilot Location STA 79.0 for helicopter S/Ns 0002 through 0255 and STA 78.0 for helicopter S/Ns 0256 and subsequent and helicopters in which Robinson P/N seats A466-1 and A467-1 have been replaced by Robinson P/N seats A932-1 and A928-1.

NOTE 2. Following placards must be installed in clear view of the pilot:
"THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"

For the R22 Mariner:

"THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS
WITHOUT FLOATS INSTALLED OR DAY VFR OPERATIONS ONLY WITH
FLOATS INSTALLED."

For additional placards, see R22 Rotorcraft Flight Manual.

NOTE 3. Information essential to the proper maintenance of the helicopter, including retirement time of critical components, is contained in the Robinson R22 Maintenance Manual and Instructions For Continued Airworthiness (RTR 060). Retirement times are listed in the "AIRWORTHINESS LIMITATIONS" section.

NOTE 4. Not applicable.

NOTE 5. Lycoming O-320-A2C, with Retard Magneto Starting System, eligible on S/Ns 0002 thru 0300, 0302 thru 0349 and 0352 thru 0356 helicopters.

NOTE 6. Lycoming O-320-B2C installed on S/Ns 0175 and 0200 thru 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).

NOTE 7. Not applicable.

NOTE 8. The R22 "Police Helicopter" configuration requires JCAB-approved Flight Manual Supplement "Police Version".

NOTE 9. The R22 Mariner with floats installed is limited to daylight VFR operation only. The B375-2 Horizontal Stabilizer is not eligible for installation on the R22 Mariner with floats.

NOTE 10. 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.

NOTE 11. 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 factory.

NOTE 12. Not applicable.

NOTE 13. Not applicable.

NOTE J1. Dates of application for FAA and JCAB Type Certificate are as follows.

Model	FAA	JCAB
R22	January 6, 1975	November 27, 2001
R22 Alpha	June 29, 1982	November 27, 2001
R22 Beta	June 12, 1985	November 27, 2001
R22 Mariner	August 12, 1985	November 27, 2001

NOTE J2. This Type Certificate Data Sheet (TCDS) is based on FAA TCDS No.H10WE Rev.18

NOTE J3. Lycoming O-320-A2B, -A2C, -B2C engine have JCAB Type Approval No.601.
Lycoming O-360-J2A engine has JCAB Type Approval No.602.

NOTE J4. JCAB-approved Rotorcraft Flight Manual shall be written in Japanese.

NOTE J5. Specified placards shall be written in Japanese.

NOTE J6. Installation of Global Positioning System for VFR requires JCAB-approved Flight Manual Supplement.

NOTE J7. Installation of white strobe light requires JCAB-approved Flight Manual Supplement.

NOTE J8. Import Requirement: To be considered eligible for the operation in Japan, 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 authority which states the following (in the English language)
“The aircraft covered by this certificate has been examined, tested and found to conform to the type design approved under JCAB Type Certificate No. 46-1 and to be in a condition for safe operation.”

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