

SECTION 3

LIFE-LIMITED COMPONENTS

3.000 LIFE-LIMITED COMPONENTS

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TYPE CERTIFICATE DATA SHEET

AIRWORTHINESS LIMITATIONS SECTION

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SECTION 3

LIFE-LIMITED COMPONENTS

3.000 LIFE-LIMITED COMPONENTS3.001 Introduction

This section lists fatigue life-limited parts and specified overhaul requirements for the R44 helicopter.

3.002 Time-In-Service Records

It is the operator's responsibility to maintain accurate time-in-service records for the airframe, engine, and life-limited components. An hourmeter activated by engine oil pressure is standard equipment on earlier R44 helicopters and is an acceptable means of recording time in service. Later helicopters are equipped with an hourmeter activated by a combination of oil pressure and up collective; the hourmeter will record time only when engine oil pressure exists and the collective is raised.

When installing a life-limited part, record in the helicopter maintenance records the installation date, part number, part name, serial number, helicopter total time, and all previous time-in-service accumulated by the part. All previous time-in-service of used life-limited parts must be included in order to safely determine retirement requirements.

When installing an overhauled part, record in the helicopter maintenance records the installation date, part number, part name, serial number, helicopter total time, and all previous time-in-service accumulated by the part since last overhaul. All previous time-in-service since last overhaul must be included in order to safely determine next overhaul requirement.

WARNING

Components with mandatory overhaul or retirement intervals whose time-in-service is not reliably documented cannot be considered airworthy and must be removed from service.

3.003 Fatigue Life-Limited Parts

The following Airworthiness Limitations Section lists the mandatory replacement schedule for fatigue life-limited parts. Listed items must be removed from the helicopter at the specified intervals and permanently retired from service by destroying or damaging each part so it cannot inadvertently be returned to service. Fatigue lives are based upon normal flight service, including 6 rotor stop-starts and 10 autorotation entries per hour.

3.100 OVERHAUL REQUIREMENTS**3.110 Powerplant Overhaul Requirements**

The engine must be overhauled in accordance with the engine manufacturer's overhaul recommendations and procedures. Refer to latest revision of Textron Lycoming Service Instructions No. 1009.

3.120 Aircraft Overhaul Requirements

The complete airframe, including rotor systems, drive system, control system, and fuselage, must be overhauled as instructed by Robinson Helicopter Company when any of the following occur:

- a) When the helicopter has been operated for 2200 hours since new or since last overhaul.
- b) When an inspection of the helicopter indicates extensive subsurface corrosion in the primary structure, drive system or control system.
- c) When the helicopter condition has deteriorated so the helicopter can no longer meet the performance, controllability or safety specifications given in the Pilot's Operating Handbook.
- d) When the aircraft has been in service for twelve years since new or since last overhaul, regardless of the hours flown.

WARNING

Parts removed from damaged aircraft are not to be reinstalled in any aircraft unless part has been returned to RHC, together with its damage history, for inspection and is found by RHC to be airworthy.

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

H11NM Revision 5 Robinson R44 R44 II February 23, 2007

TYPE CERTIFICATE DATA SHEET NO. H11NM

This data sheet, which is a part of Type Certificate No. H11NM, 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: Robinson Helicopter Company
 2901 Airport Drive
 Torrance, California 90505

I. Model R44 (Normal Category Rotorcraft), Approved December 10, 1992

Engine One Lycoming O-540-F1B5, Type Certificate number E-295

Fuel 100 LL minimum grade aviation gasoline
 100/130 minimum grade aviation gasoline

Engine Limits Maximum continuous: 205 hp at 2718 rpm (102%)
 Takeoff (5 minute): 225 hp at 2718 rpm (102%)

See R44 Rotorcraft Flight Manual (RTR 461) for maximum manifold pressure corresponding to horsepower rating.

Rotor Speed Limits

Power Off (Rotor Tach)	Power On (Rotor Tach)
Maximum: 432 rpm (108%)	Maximum: 408 rpm (102%)
Minimum: 360 rpm (90%)	Minimum: 396 rpm (99%)

Airspeed Limits

V_{NE} (never exceed speed) at sea level is 130 KIAS (120 KIAS with fixed floats) for takeoff gross weights of 2200 lb. or less. V_{NE} at sea level is 120 KIAS (110 KIAS with fixed floats) for takeoff gross weights over 2200 lb.

Power Off (Autorotation) V_{NE} at sea level is 100 KIAS.

For reduction of V_{NE} with altitude and temperature, see R44 Rotorcraft Flight Manual (RTR 461).

Airspeed limit at power settings above Maximum Continuous Power is 100 KIAS.

Airspeed limit with inflated pop-out floats is 80 KIAS.

Airspeed limit for any combination of Doors Off is 100 KIAS.

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I. Model R44 (Normal Category Rotorcraft), Approved December 10, 1992, (cont'd)

Center of Gravity (C.G.) Range

Longitudinal C.G. Range			Lateral C.G. Range		
Gross Weight (lb.)	Forward (in.)	Aft (in.)	Long. C. G. (in.)	Left (in.)	Right (in.)
1550	92.0	102.5	92.0	-3.0	+3.0
2000	92.0	102.5	100.0	-3.0	+3.0
2200	92.0	100.25	102.5	-1.5	+1.5
2400	93.0	98.0			

Note: Straight line variation between points shown.

Empty Weight C.G. Range

Calculated C.G. with 150 lb. pilot and full fuel must be STA 102.5 or forward.

Maximum Weight

2400 lb.

Minimum Crew

1 pilot in forward right seat.

Number of Seats

4 (3 for Police and ENG Version)
 Seat Locations: Pilot and Forward Passenger at STA 49.5
 Aft Passengers at STA 79.5

Maximum Baggage

50 pounds of baggage and installed equipment in any baggage compartment. For any seat location, the maximum combined weight of the seat load, baggage, and installed equipment is 300 pounds.

Fuel Capacity

Tank	Capacity (gal.)	Usable (gal.)	Location (STA)
Main	31.6	30.6	106.0
Auxiliary	18.5	18.3	102.0

Oil Capacity

Component	Capacity (qt.)	Location (STA)
Engine	9	110.0
Main Rotor Transmission	2	100.0
Tail Rotor Transmission	0.11	327.0
Hydraulic Reservoir (if installed)	0.65	117.0

Maximum Operation Altitude

Density Altitude Limit 14,000 ft.
 Maximum altitude above ground level is 9000 ft. to allow landing within 5 minutes in case of fire.

Manufacturer's Serial Numbers

0002, 0004 thru 9999, except 1140

Certification Basis

14 CFR Part 27, dated February 1, 1965, including Amendments 27-1 through 27-24, Exemption No. 5473 dated July 2, 1992, to §27.955(a)(7) and 27.1305(q), and Exemption No. 6692 dated October 17, 1997 to §27.695.

14 CFR Part 36 Amendment 36-20.

Equivalent Safety Finding:
 Number TDI0352LA-R/S-1
 14 CFR Part 27.1401(d), Anticollision Light System

I. Model R44 (Normal Category Rotorcraft), Approved December 10, 1992, (cont'd)

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

R44 Rotorcraft Flight Manual (RTR 461) dated December 10, 1992, or later revision (See NOTES 4, 5, & 6).

II. Model R44 II (Normal Category Rotorcraft), Approved October 3, 2002

The R44 II helicopter includes a fuel injected engine with a 245 hp takeoff rating and a maximum weight of 2500 lb.

Engine One Lycoming IO-540-AE1A5, Type Certificate number 1E4

Fuel 100 LL minimum grade aviation gasoline
100/130 minimum grade aviation gasoline

Engine Limits Maximum continuous: 205 hp at 2718 rpm (102%)
Takeoff (5 minute): 245 hp at 2718 rpm (102%)

See R44 II Rotorcraft Flight Manual (RTR 462), dated October 3, 2002 or later FAA approved revision, for maximum manifold pressure corresponding to horsepower rating.

Rotor Speed Limits

Power Off (Rotor Tach)	Power On (Rotor Tach)
Maximum: 432 rpm (108%)	Maximum: 408 rpm (102%)
Minimum: 360 rpm (90%)	Minimum: 404 rpm (101%)

Airspeed Limits

V_{NE} (never exceed speed) at sea level is 130 KIAS (120 KIAS with fixed floats) for takeoff gross weights of 2200 lb. or less. V_{NE} at sea level is 120 KIAS (110 KIAS with fixed floats) for takeoff gross weights over 2200 lb.

Power Off (Autorotation) V_{NE} at sea level is 100 KIAS.

For reduction of V_{NE} with altitude and temperature, see R44 II Rotorcraft Flight Manual (RTR 462) dated October 3, 2002, or later FAA approved revision.

Airspeed limit at power settings above Maximum Continuous Power is 100 KIAS.

Airspeed limit with inflated pop-out floats is 80 KIAS.

Airspeed limit for any combination of Doors Off is 100 KIAS.

Center of Gravity (C.G.) Range

Gross Weight (lb.)	Longitudinal C.G. Range		Lateral C.G. Range		
	Forward (in.)	Aft (in.)	Long. C. G. (in.)	Left (in.)	Right (in.)
1600	92.0	102.5	92.0	-3.0	+3.0
2100	92.0	102.5	100.0	-3.0	+3.0
2300	92.0	100.25	102.5	-1.5	+1.5
2500	93.0	98.0			

Note: Straight line variation between points shown

Empty Weight C.G. Range

Calculated C.G. with 150 lb. pilot and full fuel must be STA 102.5 or forward.

II. Model R44 II (Normal Category Rotorcraft), Approved October 3, 2002, (cont'd)

Maximum Weight 2500 lb.
2400 lb. for intentional water landings with fixed or pop-out floats.

Minimum Crew 1 pilot in forward right seat.

Number of Seats 4 (3 for Police and ENG Versions)
Seat Locations: Pilot and Forward Passenger at STA 49.5
Aft Passengers at STA 79.5

Maximum Baggage 50 pounds of baggage and installed equipment in any baggage compartment. For any seat location, the maximum combined weight of the seat load, baggage, and installed equipment is 300 pounds.

Tank	Capacity (gal.)	Usable (gal.)	Location (STA)
Main	31.6	30.6	106.0
Auxiliary	18.5	18.3	102.0

Component	Capacity (qt.)	Location (STA)
Engine	9	110.0
Main Rotor Transmission	2	100.0
Tail Rotor Transmission	0.11	327.0
Hydraulic Reservoir	0.65	117.0

Maximum Operation Altitude Density Altitude Limit - 14,000 ft.
Maximum altitude above ground level is 9000 ft. to allow landing within 5 minutes in case of fire.

Manufacturer's Serial Numbers 1140, 10001 and subsequent

Certification Basis 14 CFR Part 27, dated February 1, 1965, including Amendments 27-1 through 7-24, and Exemption No. 6692, dated October 17, 1997 to §27.695.

14 CFR Part 36 Amendment 36-24.

Equivalent Safety Finding:
Number TD10352LA-R/S-1
14 CFR Part 27.1401(d), Anticollision Light System

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

R44 II Rotorcraft Flight Manual (RTR 462) dated October 3, 2002, or later revision (See NOTES 7 & 8).

DATA PERTINENT TO ALL MODELS

Datum 100 in. forward of main rotor centerline.

Leveling Means Refer to the R44 Maintenance Manual and Instructions for Continued Airworthiness (RTR 460).

Rotor Blade and
Control MovementsMain Rotor blade angles at 75% radius:

Collective Pitch: 12.5° ±1.0° total travel

Note: Collective low pitch to be established in accordance with the Maintenance Manual and Instructions for Continued Airworthiness (RTR 460) procedures to obtain proper autorotation RPM.

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 blade angles at 75% radius:

Collective Pitch:	Thrust to left	15.5° to 16.5°
	Thrust to right	18.5° to 19.0°

Production Basis

Production Certificate No. 424WE, dated February 11, 1993.

GENERAL NOTES

- NOTE 1. A current weight and balance report, including a list of equipment included in the certificated empty weight, and loading instructions when necessary, must be provided for each aircraft at the time of original airworthiness certification and at all times thereafter, except in the case of operators having an approved weight control system.
- NOTE 2. The following placard must be installed in clear view of the pilot:
"THIS ROTORCRAFT APPROVED FOR DAY AND NIGHT VFR OPERATIONS"
- For additional placards, see the Rotorcraft Flight Manual. All placards required in the FAA-approved Rotorcraft Flight Manual must be installed in the appropriate locations.
- NOTE 3. Information essential to the proper maintenance of the helicopter, including retirement time of critical components, is contained in the Robinson R44 Maintenance Manual and Instructions For Continued Airworthiness (RTR 460). Retirement times are listed in the FAA-approved "AIRWORTHINESS LIMITATIONS" section. The values of retirement or service life and inspection intervals cannot be changed without FAA Engineering approval.
- NOTE 4. R44 Rotorcraft Flight Manual Supplement 5 dated July 17, 1996, or later FAA-approved revision is required when float landing gear is installed.
- NOTE 5. R44 Rotorcraft Flight Manual Supplement 10 dated June 10, 1999, or later FAA-approved revision is required when emergency (pop-out) floats are installed.
- NOTE 6. R44 Rotorcraft Flight Manual with FAA-approved revisions through November 5, 1999, or later FAA-approved revision is required when hydraulically-boosted main rotor flight controls are installed.
- NOTE 7. R44 II Rotorcraft Flight Manual Fixed Floats Supplement dated October 3, 2002, or later FAA-approved revision is required when fixed-float landing gear is installed.
- NOTE 8. R44 II Rotorcraft Flight Manual Pop-Out Floats Supplement dated October 3, 2002, or later FAA-approved revision is required when pop-out floats are installed.

NOTE 9.

Any changes to the type design of this helicopter by means of an amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA's) must be submitted through 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 (major repairs or alterations) by means of a FAA Form 337 (field approval) that require ICA's must have those ICA's reviewed by the field approving FSDO.

END

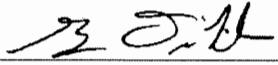
AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is FAA-approved and specifies maintenance required under 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

FATIGUE LIFE-LIMITED PARTS

Part Number	Description	Maximum Service Life
C023-1	Tailcone Assembly, Rev M and Prior	2000 Hours
C016-2 and -5	Main Rotor Blade	2200 Hours or 12 years*
C020-1 and -2	Upper Frame	2200 Hours
C029-1 and -2	Tail Rotor Blade	2200 Hours or 12 years*
C030-1	Tail Rotor Hub Assembly	2200 Hours
C146-1 and -5	Gear Set, Main Rotor Gearbox	2200 Hours
C154-1	Main Rotor Hub	2200 Hours
C158-1	Main Rotor Spindle	2200 Hours
C196-1	Tail Rotor Drive Shaft	2200 Hours
C263-1 and -2	Sump, Main Rotor Gearbox	2200 Hours
C264-1 and -2	Housing, Main Rotor Gearbox	2200 Hours
C545-1	Gear Set, Tail Rotor Gearbox	2200 Hours
D062-2	Tail Rotor Hub	2200 Hours
D079-1	Tail Rotor Guard	2200 Hours
A756-6	Cyclic Grip	4400 Hours
C023-1	Tailcone Assembly, Rev N and Subsequent	4400 Hours
C023-2,-3,-4,-14, and -15	Tailcone Assembly	4400 Hours
C044-1	Horizontal Stabilizer	4400 Hours
C198-1 and -2	Lower Swashplate	4400 Hours
C251-1	Main Rotor Shaft	4400 Hours
C319-3	Cyclic Torque Tube	4400 Hours
C320-1	Cyclic Stick	4400 Hours
C337-1	Jackshaft	4400 Hours
D196-1	Tail Rotor Drive Shaft	4400 Hours

* Whichever limit occurs first.

Approved By: 
 for Manager, Federal Aviation Administration
 Los Angeles Aircraft Certification Office

Date of Approval: 7/31/08

FAA Approved: This page constitutes the Airworthiness Limitations Section in its entirety, is considered segregated from the rest of the document, and sets forth the FAA-approved mandatory replacement times for the fatigue life-limited parts listed above.

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