

**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

R00015LA  
Revision 3  
Robinson  
R66  
August 17, 2018

**TYPE CERTIFICATE DATA SHEET NO. R00015LA**

This data sheet, which is a part of Type Certificate No. R00015LA, prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of Title 14, Code of Federal Regulations.

Type Certificate Holder: Robinson Helicopter Company  
2901 Airport Drive  
Torrance, California 90505

**I. Model R66 (Normal Category Rotorcraft), Approved October 25, 2010**

Engine One Rolls-Royce 250-C300/A1, Type Certificate number E4CE

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

Engine Limits Power Ratings at N<sub>2</sub> speed of 6016 rpm (100% rpm):  
Maximum continuous: 224 hp (83% Torque)  
Takeoff (5 minute): 270 hp (100% Torque)  
  
Maximum speeds:  
Output shaft (N<sub>2</sub>): 101% (6076 rpm)  
Gas producer shaft (N<sub>1</sub>): 105% (53519 rpm)  
  
Maximum Measured gas temperature:  
During start: 927° C (10 second limit above 782°C)  
5 minute during operation: 782° C  
Continuous during operation: 706° C

Rotor Speed	Minimum		Maximum		Limits
	Condition	( rpm* ) ( % )	( rpm* ) ( % )	( % )	
	Power On	404	99	412	101
	Power Off	359	88	432	106

\* Main Rotor

Transmission Torque	Rating	Max Torque at 100% N <sub>2</sub>		Limits
		( ft-lb )	( % )	
	Takeoff (5 min)	236	100	
	Max Continuous	196	83	

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## Airspeed Limits

Takeoff Gross Weight or Configuration	Power On $V_{NE}$ ( KIAS )	Power Off $V_{NE}$ ( KIAS )
Less than 2200 lb	140	100
2200 lb to 2700 lb Or Police Version (any Gross Weight) Or with Pop-out Floats (Floats Stowed, any Gross Weight)	130	100
Electronic News Gathering Version (any Gross Weight)	120	100

Sea level  $V_{NE}$  values shown above. For reduction of  $V_{NE}$  with altitude and temperature, see R66 Pilot's Operating Handbook and FAA Approved Rotorcraft Flight Manual (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.

## Center of Gravity (C.G.) Range

Gross Weight ( lb )	Longitudinal C.G.	
	Forward Limit ( in )	Aft Limit ( in )
1400	91.0	102.5
2300		102.5
2500	91.0	
2700	92.0	98.0

  

Longitudinal C.G. ( in )	Lateral C.G.	
	Left Limit ( in )	Right Limit ( in )
91.0	-3.5	+3.5
100.0	-3.5	+3.5
102.5	-2.5	+2.5

## Notes:

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

## Empty Weight C.G. Range

None. The aircraft's empty weight and empty weight C.G. must be determined by the procedures in Chapter 8 of the R66 Maintenance Manual, RTR 660.

## Datum

100 inches forward of main rotor centerline.

## Leveling Means

For weight and balance: Level placed laterally and longitudinally on aft tunnel cover immediately forward of aft middle seat. If cover is not straight, use keel panel upper flanges, accessed by removing aft tunnel cover.

For rigging: Level placed on top of main rotor hub parallel with teeter bolt. Main rotor blades are aligned fore-aft for lateral levelling, and teeter bolt is aligned fore-aft for longitudinal levelling.

Maximum Weight	No External Load: 2700 lb With External Load: 2900 lb (See Note 8 for external load limitations)															
Minimum 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.															
Number of Seats	5 (4 for Police and Electronic News Gathering versions)															
Seat Locations	Pilot and forward occupant at STA 49.0 in Aft outboard occupants at STA 80.0 in Aft center occupant at STA 78.0 in															
Maximum Compartment Weights	Main baggage compartment Maximum weight is 300 lb at STA 107.0 in Maximum weight is 250 lb at STA 103.0 in for Police and Electronic News Gathering versions Maximum weight is 100 lb at STA 117.0 in with auxiliary fuel tank installed Maximum loading density is 50 lb/ft <sup>2</sup>  Underseat baggage compartments Forward seats – Maximum weight is 50 lb at STA 42.0 in Rear seats – Maximum weight is 50 lb at STA 82.0 in  Note: 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 300 lb.															
Fuel Capacity	Fuel tank capacity is 74.6 U.S. gallons Usable fuel quantity is 73.6 U.S. gallons at STA 102.5 in Note: Aircraft empty weight includes 1.0 U.S. gallon of unusable fuel.															
Oil Capacities	<table><tr><th>Component</th><th>Capacity (qt)</th><th>STA ( in )</th></tr><tr><td>Engine</td><td>6</td><td>126.0</td></tr><tr><td>Main Rotor Transmission</td><td>2</td><td>100.0</td></tr><tr><td>Tail Rotor Transmission</td><td>0.11</td><td>327.0</td></tr><tr><td>Hydraulic Reservoir</td><td>0.65</td><td>110.8</td></tr></table>	Component	Capacity (qt)	STA ( in )	Engine	6	126.0	Main Rotor Transmission	2	100.0	Tail Rotor Transmission	0.11	327.0	Hydraulic Reservoir	0.65	110.8
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Maximum Operating Altitude	14,000 feet Density Altitude. Maximum altitude above ground level is 9,000 ft.															

Rotor Blade and Control Movements	For rigging information refer to the Robinson R66 Maintenance Manual and Instructions for Continued Airworthiness (RTR 660).
Manufacturer's Serial Numbers	0002 and subsequent.
Certification Basis	<p>14 CFR part 27, dated February 1, 1965, as amended by Amendment 27-1 through Amendment 27-44.</p> <p><u>Equivalent Safety Finding:</u>  Number AT14992LA-R-S-1  14 CFR part 27.695(a)(1), Power boost and power-operated control system.  (see Note 7)</p> <p><u>Special Condition:</u>  No. 27-035-SC Robinson Model R66 Helicopter, Sec. 27.1309, Installation of HeliSAS Autopilot and Stabilization Augmentation System (AP/SAS).  14 CFR Part 36, dated December 1, 1969, as amended by Amendment 36-1 through Amendment 36-28.</p> <p>Compliance with the ditching requirements of § 27.801 was not demonstrated.</p> <p>Compliance with the ice protection requirements of § 27.1419 was not demonstrated.</p> <p>The R66 is approved for day and night VFR operations only.</p> <p>TC Application Date: September 06, 2006.</p> <p>TC Issue Date: October 25, 2010.</p>
Production Basis	Production Certificate No. 424WE dated October 25, 2010.
Equipment	<p>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:</p> <p>R66 Pilot's Operating Handbook and FAA Approved Rotorcraft Flight Manual (RTR 661), dated October 25, 2010, or later approved revision.</p>

#### 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 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 R66 Maintenance Manual and Instructions for Continued Airworthiness (RTR 660). Retirement times are listed in the "AIRWORTHINESS LIMITATIONS" section.

- NOTE 4. Deleted as of March 10, 2015.
- NOTE 5. Any cockpit instruments installed by a 3<sup>rd</sup> party must be marked with limit markings and range markings in accordance with Robinson's marking scheme.
- NOTE 6. Deleted as of March 10, 2015.
- NOTE 7. Exemption No. 9589, dated January 28, 2008, has been removed since Robinson Helicopter Company was granted an Equivalent Level of Safety (ELOS) finding to CFR §27.695(a)(1), Number AT14992LA-R-S-1, dated February 20, 2013. The exemption allowed a powered flight control system without considering the jamming of a control valve as a possible single failure. There is no impact to R66 helicopters that have been delivered or are in service.
- NOTE 8. R66 helicopters equipped with the G132 Cargo Hook installation may be operated at up to 2900 pounds gross weight when the portion above 2700 pounds is jettisonable load on the cargo hook and the helicopter is operating at or below 7000 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.

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