

**INTERSTATE AVIATION COMMITTEE
AVIATION REGISTER**

Restricted Type Certificate Data Sheet № CТОK-190-Ka-32AO

Revision 08, July 03, 2015

This data sheet which is part of Type Certificate No CTOK-190-Ka-32AO and Supplements No CTOK190-Ka-32AO/1, No CTOK190-Ka-32AO/2, No CTOK190-Ka-32AO/Д3, No CTOK-190-Ka-32AO/Д4, No CTOK190-Ka-32AO/Д5 and No CTOK190-Ka-32AO/Д6 thereto (ref. to Note 2). It prescribes the conditions and limitations under which the product for which the type certificate was issued, meets the airworthiness requirements of the Certification Basis.

Type Certificate Holder

KAMOV COMPANY, Lubertsy, Moscow Region,
Russian Federation

Aircraft description

Co-axial helicopter with the two turboshaft engines and fixed landing gear wheel.

Category

Restricted, B.

Designation

The KA-32AO helicopter is approved for flights under VFR in the day, over the land and water, in icing conditions, internal and external load transportation, and transportation of the persons directly involved with aerial works.
Passenger transportation is prohibited.

Type design definition

Determines:

- Specification No. 323.0000.0000.000.11;
- Ka-32A Rotorcraft Flight Manual, dt. August 02, 2000;
- Maintenance Manual No.521.0000.0000PЭ, issue 2011;
- Technical Conditions No.332.0000.0000.000TY.

Certification Basis

Certification basis includes:

- Airworthiness Standards NLG 32.29 and NLG 32.2 dated September 14,1992, effective on the date of the initial issue of this type certificate, harmonized with the U.S. Federal Aviation Regulations Part 29, Transport Category Rotorcraft, Amend. 29-1 through 29-24, effective December 6, 1984; Paragraph 29.1459 of Amend.29-25, effective October 11,1988; Paragraphs 29.954, 29.963, 29.991, 29.1011, 29.1027 of Amend.29-26, effective October 3,1988; Ditching 32.29.801; 32.29.807; 32.29.1411; 32.29.1415; Anti-ice protection 32.29.1093 and 32.29.1419.

<i>Page</i>	01	02	03	04	05	06	07
<i>Revision</i>	08	08	07	07	07	08	07
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- Environmental Protection Requirements - Chapter 8 of ICAO Annex 16, Volume I, Issue 3, 1993.
- Equivalent level of safety is established for the following items: 32.29.173(b); 32.29.177; 32.29.923(c) and (i); 32.29.1027(b)(1); 32.29.1351 (d)(3); 32.29.1459(a)(5).

Noise characteristics

Helicopter model	M _{max}	Engine	Take-off	Noise level EPNdB	
				flyover	approach
Ka-32AO	11000	TB3-117BMA	93,5± 1,5	99,4±0,4	96,8±0,3
Limits by ICAO Annex 16			100,4	99,4	101,4

Engines

Two turboshaft engines TB3-117BMA or TB3-117BMA series 02, JSC «Klimov» (Ref. Engine Type Certificate Data Sheet No.34-Д).
IAC AR Type Certificate No. 34-Д, dt. 24.04.2009

Auxiliary power unit (APU)

AI-9B, IAC AR Type Certificate No. 102-БД, dt. 05.04.1996

Fuel

TC-1, PT (GOST 10227-86) and their mixture with anti-icing additive fluid "I" (GOST 8313-88).
(Ref. to RFM for foreign brands of fuel)

Oil

For the engines	Б-3В
For the APU	
For the gearbox	

Engines limitations

One Engine inoperative (2,5 minute limit):	
Output shaft power (shp), not less	2400
Free turbine speed (Nft) (as indicated by main rotor tachometer*), (%):	
Maximum	89
Minimum	87
Gas generator speed (%)**:	
Maximum	101,15
Inlet Turbine Temperature, (°C)	
Maximum	990

One Engine inoperative (30-minute limit):	
Output shaft power (shp), not less	2200

Free turbine speed (Nft) (as indicated by main rotor tachometer*), (%):	
Maximum	89
Minimum	87
Gas generator speed (%)**:	
Maximum	101,15
Inlet Turbine Temperature, (°C)	
Maximum	990

One Engine inoperative (Continuous):	
Output shaft power (shp), not less	1700
Free turbine speed (Nft) (as indicated by main rotor tachometer*), (%):	
Maximum	92
Minimum	88
Gas generator speed (%)**:	
Maximum (at T* higher than +35°C)	99
Minimum (at T* = - 60°C)	84,4
Inlet Turbine Temperature, (°C)	
Maximum	955

Takeoff (5 min):	
Output shaft power of each of the two engines (shp), not less	2200
Free turbine speed (Nft) (as indicated by main rotor tachometer*), (%):	
Maximum	89
Minimum	87
Gas generator speed (%)**:	
Maximum (at T* higher than +27°C)	101,15
Minimum (at T* = - 60°C)	87,3
Inlet Turbine Temperature, (°C)	
Maximum	990

Maximum Continuous:	
Output shaft power of each of the two engines (shp), not less	1700
Free turbine speed (Nft) (as indicated by main rotor tachometer*), (%):	
Maximum	92
Minimum	88
Gas generator speed (%)**:	
Maximum (at T* higher than +35°C)	99
Minimum (at T* = - 60°C)	84,4
Inlet Turbine Temperature, (°C)	
Maximum	955

* 90,2% main rotor tach. reading corresponds to 100% or 15000 rpm of Free Turbine.

** 100% gas generator tach. reading corresponds to 19537,48 rpm of Gas Generator.

APU limits

For APU AI-9: Minimal selection of compressed air, kg/sec	0,38
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Compressed air temperature, C°	Not more than 130
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Other APU limitations in accordance with the
Type Certificate Data Sheet No. CT 102-BД

Rotor Speed Limits

Speed	Power off	Power on	Power on OEI
Min.	70%	83% (below 87% no longer than 30 sec)	73% (below 83% no longer than 10 sec)
Max.	98% (higher than 92% no longer than 8 sec)	98% (higher than 92% no longer than 8 sec)	98% (higher than 92% no longer than 8 sec)

**The maximum power delivered
through the main gearbox**

4850 hsp

Maximum takeoff weight

11000 kg

**Maximum takeoff weight with
external load**

12700 kg

Maximum internal cargo weight

3700 kg

**Maximum allowable floor loading
for transport (cargo)
compartment:**

- 3000 kg/sq.m between frames No.4 to No.7;
- 1500 kg/sq.m between frames No.7 to No.13.

Maximum External Load

5000 kg

Airspeeds limits

Vne Power on at sea level at ISA conditions,
(km/h): 230

Vne Power off at sea level, (km/h): 180

Other limitations refer to the RFM.

Centre of Gravity Range

(a) Longitudinal C.G. limits: +280 to -30 mm
(b) Flight with the external cargo: +280 to 0 mm
Lateral C.G. limits: 110mm left of centerline 110 mm right of centerline
Refer to Weight and Balance Manual for loading instructions

<u>Note</u> : station 0 (datum) is located on the Rotor axis.

Minimum crew 1 (pilot) for VFR

Number of seats in the transport compartment 9

Fuel capacity

Total, (liters)	2450
Unusable, (litres)	26

With both front and aft auxiliary tanks installed:

(a) when filler refueling:

Total fuel quantity, (liters)	3450
Unusable fuel, (liters)	26

(b) when pressure refueling (one point refueling):

Total fuel quantity, (liters)	3080
Unusable fuel, (liters)	26

Maximum operating altitude 5000 m

Additional restrictions for the pressure altitude are established by operating rules

Maximum altitude for take-off and landing 3000 m

Outside air temperature (OAT) limitations -50⁰C — +40⁰C

Manufacturer

KAMOV COMPANY, Lubertsy, Moscow Region,
Russian Federation.
Production Approval No OII12-IIBC

KUMAPE COMPANY, Kumertau, Novozarinskaja str., 15a,
Russian Federation.
Production Approval No OII27-IIBC

The serial numbers of the helicopters which are covered by type certificate

For helicopters produced by JSC "Kamov":
(31072) 8905/12, 5235002619214, 5235004519201, (31579) 8601/51, 5235003416217, 31003.
For helicopters produced by JSC "KumAPE":
(31064) 86-06/001, (31571) 62-20/002, (31007) 57-03/003, (31598) 90-03/004

Note 1

It is allowed to use the uncompleted (shortcut) serial numbers, such as 31072 instead of (31072) 8905/12, 1924 instead of 5235002619214 and etc.

Note 2

Supplements to Type Certificate	Major Change Description	Applicability	Type Design Change
No CTOK190-Ka-32AO/1	Change of airworthiness limitation of the rotor must bearings	All serial numbers	MM Change No. 1
No CTOK190-Ka-32AO/2	Allowance for night and IFR flights	Serial No. (31579) 8601/51	List No. 332/07-2001
No CTOK190-Ka-32AO/Д3	Introduction of the carbon band into upper rotor blade design	All serial numbers	Drawing 500.2906.8000.000BC, MM Change No. 2
No CTOK-190-Ka-32AO/Д4	Change of airworthiness limitation of the BP-252 gearbox	All serial numbers	MM Change No.3
No CTOK190-Ka-32AO/Д5	Approval of the limited operation under IFR day and night	(31579) 8601/51 (31064) 86-06/001 (31571) 62-20/002 (31007) 57-03/003 (31598) 90-03/004	List No. 332/07-2001
No CTOK190-Ka-32AO/Д6	Changing the airworthiness limitations, increasing the service life and time limits of Ka-32AO helicopter and its components on the basis of commonality with the airworthiness limitations, service life and time limits of the Ka-32A11BC helicopter, approved by IAC AR	All serial numbers	MM No. 521.0000.0000PЭ, 2011

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(Originally signed by)

Helicopters department chief

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