



MINISTRY OF TRANSPORT OF THE RUSSIAN FEDERATION
FEDERAL AIR TRANSPORT AGENCY

Type Certificate Data Sheet

Transport Category Aircraft

№ FATA-020121A

Aircraft: Be-200ES

Models:

- Be-200ES
- Be-200ES-E

Issue 01
October 23, 2017

Page	01	02	03	04	05	06	07	08
Issue	01	01	01	01	01	01	01	01
Date	23.10.2017	23.10.2017	23.10.2017	23.10.2017	23.10.2017	23.10.2017	23.10.2017	23.10.2017
Page	09	10	11	12				
Issue	01	01	01	01				
Date	23.10.2017	23.10.2017	23.10.2017	23.10.2017				

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

TABLE OF CONTENTS

I.	Be-200ES model.....	3
1.	Designer – Type Certificate Holder:.....	3
2.	Aircraft category:.....	3
3.	Primary certification data:	3
4.	Certification Basis:	3
5.	Noise characteristics:	3
6.	Manufacturers:.....	3
7.	Cruise engines, quantity per aircraft and type:	3
8.	Auxiliary Power Unit (APU):.....	4
9.	Applicable Fuel Grades:	4
10.	Aircraft Mass Data, kg:	4
11.	M number and Airspeed Limits:.....	4
12.	Range of center-of-gravity limits, % MAC:	4
13.	Maneuvering load factor operating limits:.....	5
14.	Maximum operating altitude, m:	5
15.	Minimum crew:	5
16.	Maximum passengers:	5
17.	Class of airfield:	5
18.	Maximum aerodrome elevation, m:.....	5
19.	Characteristics of hydrodrome:.....	5
20.	Near-Ground Outside Air Temperature, °C.....	5
21.	Runway Condition:.....	6
22.	Landing Minimum:.....	6
23.	Maximum wind speed component at take-off and landing, m/sec:	6
24.	Flight conditions and routes:	6
25.	Take-off from water:	6
26.	Aircraft time limits and service life:	6
27.	Other operating limitations:.....	6
28.	Type Design:	6
29.	Operational documentation:.....	7
II.	Be-200ES-E model.....	8
1.	Designer – Type Certificate Holder:.....	8
2.	Aircraft category:.....	8
3.	Primary certification data:	8
4.	Certification Basis:	8
5.	Noise characteristics:	8
6.	Manufacturer:	8
7.	Cruise engines, quantity per aircraft and type:	8
8.	Auxiliary Power Unit (APU):.....	9
9.	Applicable Fuel Grades:	9
10.	Aircraft Mass Data, kg:	9
11.	M number and Airspeed Limits:.....	9
12.	Range of center-of-gravity limits, % MAC:	9
13.	Maneuvering load factor operating limits:.....	10
14.	Maximum operating altitude, ft (m):	10
15.	Minimum crew:	10
16.	Class of airfield:	10
17.	Maximum aerodrome elevation, ft (m):.....	10
18.	Characteristics of hydrodrome:.....	10
19.	Near-Ground Outside Air Temperature, °C.....	10
20.	Runway Condition:.....	11
21.	Landing Minimum:.....	11
22.	Maximum wind speed component at take-off and landing, knots (m/s):.....	11
23.	Flight conditions and routes:	11
24.	Take-off from water:	11
25.	Aircraft time limits and service life:	11
26.	Other operating limitations:.....	11
27.	Type Design:	11
28.	Operational documentation:.....	12
III.	List of Approved Major Changes to the Be-200ES aircraft Type Design:	12

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

I. Be-200ES model

1. **Designer – Type Certificate Holder:** Public Joint Stock Company “Beriev Aircraft”,
1, Aviatorov square, Taganrog, 347923, the Russian Federation.
2. **Aircraft category:** Transport Category Amphibious Aircraft.
3. **Primary certification data:** Type Certificate № CT229-Be-200ES issued by the Aviation Register of the IAC on December 29, 2003
4. **Certification Basis:** The Be-200ES Amphibious Aircraft Certification Basis № 200-3/03 approved by the Aviation Register of the IAC on December 25, 2003.
Based on:
- Aviation Regulations, Part 25 “Airworthiness Standards: Transport Category Airplanes” with Amendments 1 to 4 inclusively;
- Special Technical Conditions;
- Requirements of Aviation Regulations, Part 36 “Aircraft noise certification”, Stage 3, and ICAO Standard, Appendix 16 “Environment protection”, Volume 1 “Aircraft noise”, Part 2, Chapter 3.
5. **Noise characteristics:** Noise Certificate № CIII136-Be-200ES dated April 28, 2003.
6. **Manufacturers:**
 1. IRKUT Corporation JSC, the Russian Federation, 129626, Moscow, Novoalekseevskaya street, 13
 2. Public Joint Stock Company “Beriev Aircraft”, 1, Aviatorov square, Taganrog, 347923, the Russian Federation.
7. **Cruise engines, quantity per aircraft and type:** Two D-436TP by-pass turbofan engines developed by IVCHENKO PROGRESS Zaporozhye Machine-Building Design Bureau (Ukraine).
Type Certificate issued by the Aviation Register of the IAC № CT 194-AMD dated December 05, 2000.

Thrust (H=0, V=0, ISA), kgf:

- **Maximum take-off (MTO)**

7500

- **Maximum continuous**

6100

(maintained within the limits up to $t_{0a}=ISA+10^0C$)

Other limitations and main engine characteristics are given in the Data Sheet to Type Certificate № CT 194-AMD issued by the Aviation Register of the IAC and the Aircraft Flight Manual approved by Rosaviatsiya.

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

8. Auxiliary Power Unit (APU):	TA12-60 turbine engine, developed by SPE “Aerosila” (Russia), holds Type Certificate issued by the Aviation Register of the IAC № 101-VD dated April 05, 1996. Limitations and main characteristics of the auxiliary power unit are given in the Data Sheet to Type Certificate №101-VD dated April 5, 1996 and the Aircraft Flight Manual approved by Rosaviatsiya.
9. Applicable Fuel Grades:	TC-1, T-2 and PT (GOST 10227-86), Jet-A1
10. Aircraft Mass Data, kg:	
Maximum taxi mass	42200
Maximum takeoff mass:	
- from runway	42000
- from water	39795
Maximum landing mass:	
- on runway	35000
- on water	37900
Maximum takeoff mass when scooping while hydroplaining	43000
Maximum mass of water scooped while hydroplaining	12000
Maximum payload	5000
11. M number and Airspeed Limits:	
Maximum operating M number	0.64
Maximum operating limit speed V_{MO} , km/h	530
Maximum flap extended speed V_{FE} , km/h:	
- flaps	
$\delta_F = 20^\circ$ ($\delta_S = 20^\circ$)	290
$\delta_F = 38^\circ$ ($\delta_S = 20^\circ$)	280
- slats	
$\delta_S = 20^\circ$ ($\delta_F = 0^\circ$)	320
Maximum landing gear extended speed V_{LE} , km/h	430
Maximum landing gear operating speed V_{LO} , km/h	350
Maximum operating limit speed with water tanks doors open, km/h	350
12. Range of center-of-gravity limits, % MAC:	
In flight:	
- Extreme forward center of gravity limit	30
- Extreme aft center of gravity limit	41
At take-off and landing:	
- From runway	30 ÷ 40.5
- From water	30 ÷ 41

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

13. Maneuvering load factor operating limits:

a) In flight with wing high lift devices retracted:

- Maximum 2.5
- Minimum 0

b) In flight with wing high lift devices extended:

- Maximum 2.0
- Minimum 0

14. Maximum operating altitude, m:

- Without passengers 8100
- With passengers 7600

15. Minimum crew:

2 pilots:
- Captain,
- Co-pilot

16. Maximum passengers:

43

17. Class of airfield:

Aircraft can be operated on the airfields with artificial runway, width not less than 40 meters.

Other limitations - in accordance with the Aircraft Flight Manual approved by Rosaviatsiya.

18. Maximum aerodrome elevation, m:

2000 (according to atmospheric pressure at the airfield)

19. Characteristics of hydrodrome:

Field dimensions, m, not less than:

- Length 2700
- Width 150
- Depth 2.6
- Length at water scooping 3200

Dimensions of underwater section of sea ramp at ashore basing, m, not less than:

- Length 28
- Width 16
- Depth 3.5

Wave height at operation from inland water basins and sea, m:

Up to 1.2

Maximum permissible fall of rippled sea, m

0.6

20. Near-Ground Outside Air Temperature, °C

- Operation from runway From - 50 up to +42
- Operation from water From +5 up to +42

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

- 21. Runway Condition:** - dry,
- wet
- 22. Landing Minimum:** The aircraft is certified to carry out a landing under ICAO Category II.
- 23. Maximum wind speed component at take-off and landing, m/sec:**
- | | |
|---|----|
| From runway: | |
| - headwind | 25 |
| - tailwind | 5 |
| - crosswind (angle 90° to runway center line) | 12 |
| From hydrodrome: | |
| - headwind | 12 |
| - tailwind | 5 |
| - crosswind | 6 |
| Automatic approach: | |
| - headwind | 13 |
| - tailwind | 5 |
| - crosswind | 8 |
- 24. Flight conditions and routes:** Flights are permitted:
- in icing conditions at ambient temperature not below minus 20°C;
- by day and night time;
- VFR and IFR;
- in BRNAV conditions;
- in RNP-5 and RNP-10 conditions in the Middle East and Asia regions;
- in latitudes up to 72° (in latitudes above 70° - flight altitude should not exceed 7600 m).
- 25. Take-off from water:** After disengagement of all generators, including APU generator, it is prohibited to take off from water without bringing the aircraft ashore, due to the impossibility of aligning the Inertial System NSI-2000MT when on water.
- 26. Aircraft time limits and service life:** Aircraft time limits and service life are specified in Section 005 of the Be-200ES Maintenance Manual № A201.0000.000PЭ TK approved by Rosaviatsiya.
- 27. Other operating limitations:** See operational documentation approved by Rosaviatsiya (Section I, item 29).
- 28. Type Design:** Specified in following documents:
- "Type Design of the Be-200ES Amphibious Aircraft. Basic set of design documentation" № A201.0000.000D54 with Amendment № A201.0000.000D54.01, Amendment № A201.0000.000D71,

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

Amendment № A201.0000.000Д54.02 with Supplement №1;
- Specifications A201.0000.000TU2 approved by Rosaviatsiya.

29. Operational documentation:

The aircraft must be operated in accordance with following documents approved by Rosaviatsiya:
- Be-200ES Aircraft Flight Manual №A201.0000.000 PJIЭ;
- Be-200ES Aircraft Maintenance Manual №A201.0000.000 PЭ TK;
- Be-200ES Aircraft Maintenance Schedule Manual №A201.0000.000 PO.

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

II. Be-200ES-E model

The Be-200ES-E is a modified Be-200ES model with “the English-language” cockpit.

1. **Designer – Type Certificate Holder:** Public Joint Stock Company “Beriev Aircraft”,
1, Aviatorov square, Taganrog, 347923, the Russian Federation.
2. **Aircraft category:** Transport Category Amphibious Aircraft (intended for fire-fighting operations).
3. **Primary certification data:** Type Certificate № CT229-Be-200ES issued by the Aviation Register of the IAC on December 29, 2003
4. **Certification Basis:** The Be-200ES-E Amphibious Aircraft Certification Basis № 200-1/05 approved by the Aviation register of the IAC on October 11, 2005.
Based on:
 - Aviation Regulations, Part 25 “Airworthiness Standards: Transport Category Airplanes” with Amendments 1 to 4 inclusively;;
 - Special Technical Conditions;
 - Requirements of Aviation Regulations, Part 36 «Aircraft noise certification», Stage 3, and ICAO Standard, Appendix 16 «Environment protection», Volume 1 «Aircraft noise», Part 2, Chapter 3.
5. **Noise characteristics:** Noise Certificate № CIII136-Be-200ES dated April 28, 2003.
6. **Manufacturer:** Public Joint Stock Company “Beriev Aircraft”,
1, Aviatorov square, Taganrog, 347923, the Russian Federation.
7. **Cruise engines, quantity per aircraft and type:** Two D-436TP by-pass turbofan engines developed by IVCHENKO PROGRESS Zaporozhye Machine-Building Design Bureau (Ukraine).
Type Certificate issued by the Aviation Register of the IAC № CT 194-AMD dated December 05, 2000.

Thrust (H=0, V=0, ISA), kgf:	
- Maximum take-off (MTO)	7500
- Maximum continuous	6100

(maintained within the limits up to $t_{oa} = ISA + 10^0C$)

Other limitations and main engine characteristics are given in the Data Sheet to Type Certificate № CT 194-AMD issued by the Aviation Register of the IAC and the Aircraft Flight Manual approved by Rosaviatsiya.

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

8. Auxiliary Power Unit (APU):	TA12-60 turbine engine developed by SPE “Aerosila” (Russia) Type Certificate issued by the Aviation Register of the IAC № 101-VD dated April 05, 1996. Limitations and main characteristics of the auxiliary power unit are given in the Data Sheet to Type Certificate №101-VD dated April 5, 1996 and the Aircraft Flight Manual approved by Rosaviatsiya.
9. Applicable Fuel Grades:	TC-1, T-2 and PT (GOST 10227-86), Jet-A1
10. Aircraft Mass Data, kg:	
Maximum taxi mass	42200
Maximum takeoff mass:	
- from runway	42000
- from water	39795
Maximum landing mass:	
- on runway	35000
- on water	37900
Maximum take-off mass when scooping while hydroplaning	43000
Maximum mass of water scooped while hydroplaning	12000
11. M number and Airspeed Limits:	
Maximum operating M number	0.64
Maximum operating limit speed V_{MO} , knots (km/h)	286 (530)
Maximum flaps extended speed V_{FE} , knots (km/h):	
- flaps	
$\delta_F = 20^\circ$ ($\delta_S = 20^\circ$)	156 (290)
$\delta_F = 38^\circ$ ($\delta_S = 20^\circ$)	151 (280)
- slats	
$\delta_S = 20^\circ$ ($\delta_F = 0^\circ$)	173 (320)
Maximum landing gear extended speed V_{LE} , knots (km/h)	232 (430)
Maximum landing gear operating speed, V_{LO} , knots (km/h)	189 (350)
Maximum operating limit speed with water tanks doors open, knots (km/h)	189 (350)
12. Range of center-of-gravity limits, % MAC:	
In flight:	
- Extreme forward center of gravity limit	30
- Extreme aft center of gravity limit	41
At take-off and landing:	
- From runway	30 ÷ 40.5

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

- From water 30 ÷ 41

13. Maneuvering load factor operating limits:

a) In flight with wing high lift devices retracted:

- Maximum 2.5
- Minimum 0

b) In flight with wing high lift devices extended:

- Maximum 2.0
- Minimum 0

14. Maximum operating altitude, ft (m):

26500 (8100)

15. Minimum crew:

2 pilots:
- Captain,
- Co-pilot.

16. Class of airfield:

Aircraft can be operated on the airfields with artificial runway, width not less than 133 feet (40 meters).
Other limitations - in accordance with the Aircraft Flight Manual approved by Rosaviatsiya.

17. Maximum aerodrome elevation, ft (m):

6500 (2000) (according to atmospheric pressure at the airfield)

18. Characteristics of hydrodrome:

Field dimensions, not less than:

- Length, nautical miles (m) 1.46 (2700)
- Width, ft (m) 500 (150)
- Depth, ft (m) 8.5 (2.6)

- Length at water scooping, nautical miles (m) 1.73 (3200)

Dimensions of underwater section of sea ramp at ashore basing, ft (m), not less than:

Length 100 (28)
Width 50 (16)
Depth 12 (3.5)

Wave height at operation from inland water basins and sea, ft (m): Up to 3.9 (1.2)

Maximum permissible fall of rippled sea, ft (m) 2.0 (0.6)

19. Near-Ground Outside Air Temperature, °C

- Operation from runway From - 50 up to +42
- Operation from water From +5 up to +42

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

- 20. Runway Condition:** - dry,
- wet
- 21. Landing Minimum:** The aircraft is certified to carry out a landing under ICAO Category II.
- 22. Maximum wind speed component at take-off and landing, knots (m/s):**
- | | |
|---|---------|
| From runway: | |
| - headwind | 29 (15) |
| - tailwind | 10 (5) |
| - crosswind (angle 90° to runway center line) | 23 (12) |
| From hydrodrome: | |
| - headwind | 23 (12) |
| - tailwind | 10 (5) |
| - crosswind | 12 (6) |
| For automatic approach: | |
| - headwind | 25 (13) |
| - tailwind | 10 (5) |
| - crosswind | 15 (8) |
- 23. Flight conditions and routes:** Flights are permitted:
- in icing conditions at ambient temperature not below minus 20°C;
- by day and night time;
- VFR and IFR;
- in BRNAV conditions;
- in RNP-5 and RNP-10 conditions in the Middle East and Asia regions;
- in latitudes up to 72° (in latitudes above 70° - flight altitude should not exceed 7600 m).
- 24. Take-off from water:** After disengagement of all generators, including APU generator, it is prohibited to take off from water without bringing the aircraft ashore, due to the impossibility of aligning the Inertial System NSI-2000MT when on water..
- 25. Aircraft time limits and service life:** Aircraft time limits and service life are specified in Section 005 of the Be-200ES Maintenance Manual №A204.0000.000 PЭ approved by Rosaviatsiya.
- 26. Other operating limitations:** See operational documentation approved by Rosaviatsiya (Section II, item 28).
- 27. Type Design:** Specified in a following document:
- “Type Design of the Be-200ES Amphibious Aircraft. Basic set of design documentation” №A204.0000.000D17.

Title	Issue	Date
Data Sheet to Type Certificate № FATA-020121A	01	October 23, 2017

28. Operational documentation:

The aircraft must be operated in accordance with following documents approved by Rosaviatsiya:

- Be-200ES Aircraft Flight Manual №A204.0000.000 PJIЭ;
- Be-200ES Aircraft Maintenance Manual №A204.0000.000 PЭ;
- Be-200ES Aircraft Maintenance Schedule Manual №A204.0000.000 PO.

III. List of Approved Major Changes to the Be-200ES aircraft Type Design:

Description of a change to the Type Design	Applicability	Registration number and date of issue of a Supplement to TC / a Major Change Approval
Aircraft operation under the conditions of low outside ambient temperatures and icing.	Be-200ES	CT 229-Be-200ES/D01 (16.12.2004)
Provision of means for passenger function performance.	Be-200ES	CT 229-Be-200ES/D02 (31.01.2007)
Aircraft equipping with “English-language cockpit”.	Be-200ES-E	CT 229-Be-200ES/D03 (25.05.2010)
Assignment for the Be-200ES type amphibious aircraft of a new stage of design service life serving out rated to 5000 flight hours (out of which 1000 flight hours when performing the fire-fighting operations), 1300 landings, 2500 water scoops, lifetime of 10 calendar years.	Be-200ES	CT 229-Be-200ES/D04 (07.04.2011)
Assignment for the Be-200ES type amphibious aircraft of an assigned service life of 5000 flight hours (out of which 1000 flight hours when performing the fire-fighting operations), 2000 landings, 2500 water scoops, lifetime of 15 calendar years.	Be-200ES	CT 229-Be-200ES/D05 (12.09.2013)
Inclusion of the Master Minimum Equipment List (MMEL) in operational documentation for the Be-200ES amphibian aircraft.	Be-200ES	CT 229-Be-200ES/D06 (20.09.2013)
Change in the wing lower panels design (303 to 308 aircraft).	Be-200ES	CT 229-Be-200ES/D07 (19.08.2014)
Installation of upgraded flight and navigation equipment starting from aircraft № 303 series.	Be-200ES	FATA-020121A-MC-08 (23.10.2017)

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*Original copy in Russian signed by
Mikhail Bulanov
Deputy Director General*