

型号认可证数据单

TYPE VALIDATION CERTIFICATE DATA SHEET

编号/No: VTC0090E

版次/Revision: 1

型号/Type:

TB3-117BM,TB3-117BM series 2;

TB3-117BMA,TB3-117BMA series 2

批准人/Approved By:

张仁德

日期/Date: 2008-05-22

本数据单是型号认可证(编号: VTC0090E)的组成部分, 它规定了符合中国民用航空总局的适航要求所颁发此型号认可证的产品状态和限制。

This data sheet, which is part of Validation of Type Certificate (No: VTC0090E) , prescribes condition and limitation under which the product for which the type certificate was issued meets the airworthiness requirements of the Chinese Civil Aviation Regulation.

型号认可证持有人/Validation of Type Certificate Holder:

Klimov Corporation

b.11.Kantemirovskaya st,Saint-Petersburg,194100,Russia

有效页清单/List of effective pages :

页数/ Pages	1	2	3	4	5	6	7							
版次/Revision	1	1	1	1	1	1	1							

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第1部分 概述/Section 1 GENERAL

1. CAAC认可数据单和型号合格证数据单/CAAC Validation Data Sheet and Type Certificate Data Sheet

	中国民用航空总局认可数据单号、版次和颁发日期 CAAC Validation Data Sheet Number, Revision and issuance date	型号合格证数据单号、版次和颁发日期 Type Certificate Data Sheet Number, Revision and issuance date
当前 Current	VTC0090E、1、2008-05-22	No.34-Ⅱ附录1,更改6, 20, May.28 1999 Appendix No.01 to No.34-Ⅱ. Change No. 6, May.28 1999
历史 History	VTC0090E、0、1999-07-14	不适用
		NA

2. 类别/Category: 航空发动机/aviation engine.

3. 认可当局/Validation Authority: 中国民用航空总局/CAAC

审定当局/Certifying Authority: 国家航空委员会民航局/INTERSTATE AVATION COMMITTEE AVIATION REGISTER
(简称IAC AR)

4. 型号合格证持有人/Type Certificate Holder: Klimov Corporation

Address: b.11.Kantemirovskaya st,Saint-Petersburg,194100,Russia

5. 制造厂/Manufacturer: Klimov Corporation

6. ETOPS: 不适用/NA

7. CAAC专用要求/CAAC Special Requirements:

明确中国3号喷气燃料使用条件。详见第2部分C.5.可用燃油品种。

Define the operation condition for the P.R.C. JET fuel No.3. See Section 2 C.5.Grades of usable fuel.

第2部分/Section 2

A. 审定基础/Certification Basis

1. 适航标准/Airworthiness Standards:

俄罗斯等效于修正案 33-1 至 33-12 的 FAR 33 的 HJIF-32.33

HJIF-32.33 requirements in their structure and contents are adequate to FAR 33 with Amendments from 33-1 to 33-12 included.

2. 附加技术条件/Additional Technical Condition (ATC):

1) CCAR21.29 第(五)款, “有关适航规章、噪声规定所要求的手册、标牌、目录清单和仪表标记应当用中文或英文表述。”

CCAR21.29 (5), the manual, placard, category list, and instrument marking required by the airworthiness regulation, noise requirement shall be in Chinese or English, the following items shall be presented in Chinese at least:

2) 定义中国《3号喷气燃料》(GB6537-94)的运行条件。

Define the operation condition for the P.R.C. JET fuel No.3 (GB 6537-94).

3. 等效安全项目/Equivalent Safety Findings (ESF): 无/none

4. 偏离/Deviations: 无/none

5. 环境标准/Environmental Standards: 无/none

B. 技术特性/Technical Characteristics

1. 摘要/Brief summary

TB3-117BM, TB3-117BM series 2; TB3-117BMA, TB3-117BMA series 2 是带自由短舱的涡轴发动机, 包括带可变进气叶片的 12 级压缩机、I, II, III, IV 级定子叶片、环形燃烧室。压缩机转子是靠两级轴流涡轮驱动, 自由短舱是轴流和两级的, 自由短舱转子是悬臂型号的一种。涡轮压缩机和自由短舱的连接仅仅是由于气体动力的结果。自控系统包括水上机械调节器和电子调节器。

The present turboshaft engine with a free turbine includes a 12-stage compressor with the variable inlet guide vanes and the stator blades of stages I, II, III, IV and the annular combustion chamber. The compressor rotor is driven by the axial-flow two-stage turbine. The free turbine is axial-flow and two-stage. The free turbine rotor is of a cantilever type. The compressor turbines and the free turbine are connected only due to the gas dynamic effect. The automatic control system includes the hydro-mechanical governor and the electronic regulator.

2. 发动机型号设计/Engine type design: :

TB3-117BM, TB3-117BM series 02

发动机型号设计是被有效的文件按 No.0780005700 规范和
装配图纸 No.0780005700-00-01 提出。

The engine type design is presented by the effective
documentation in accordance with Apecification No.

0780005700 and by the assembly drawing No.

0780005700-00-01

发动机大修文件: 大修手册 078 000 000 PKP 或依据 T Y No.78 C T Y -024。

And also by the engine overhaul documentation: Overhaul Manual 078 000 000 PKP or according to T Y No.78 C T Y -024.

The Engine Maintenance Manual 078.00.5700 P 3 Book 1; 078.00.5700 P 3 Book 2.

078.00.5700-04 P 3 Book 3

TB3-117BMA, TB3-117BMA series 02

发动机型号设计是被有效的文件按 No.0780005800 规范和
装配图纸 No.0780005700-00-01 提出。

The engine type design is presented by the effective
documentation in accordance with Apecification No.

0780005800 and by the assembly drawing No.

0780005700-00-01

3. 主要参数/Main parameters:

TB3-117BM

TB3-117BM series 02

TB3-117BMA

TB3-117BMA series 02

1) 发动机运行模式 (国际标准大气) /Engine operation modes (H=0, V=0, ISA):

a) 起飞/Takeoff:

轴输出功率不低于 (马力) /output shaft power hp, not less:

2000

- *

2200

-

b) 最大连续/Maximum continuous:

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轴输出功率不低于（马力）/output shaft power hp,not less:			
1700	-	-	-
c)一台发动机不工作（OEI）/One engine inoperative(OEI):			
2.5分钟功率/2.5min.power:			
轴输出功率不低于（马力）/output shaft power hp,not less:			
2200	-	2400	-
30分钟功率/30min.power:			
轴输出功率不低于（马力）/output shaft power hp,not less:			
2000	-	2200	-
2)最大可允许旋转速度（%）/Maximum allowable rotational speed,(%) of:			
a)起飞、2.5分钟OEI、30分钟OEI燃气发生器转子速度/gas generator rotor at takeoff,at 2.5 min.power and at 30-min.power at OEI			
101.15	-	-	-
b)自由短舱转子速度/free turbine rotor:			
108	-	-	-
3)自由短舱转子最小旋转速度（%）/Minimum allowable free turbine rotor rotational speed,(%):			
a)短时间（一直到30秒）/short time(up to 30 sec.),to:			
93	-	-	-
b)第一次大修前，每服务寿命中短时间（一直到10秒）四次/short time(up to 10 sec.),four times per service life,to the first overhaul,to			
80	-	-	-
c) 第一次大修前，每服务寿命中短时间（一直到5秒）四次/short time(up to 5 sec.),four times per service life,to the first overhaul,to			
75	-	-	-
4)主要尺寸(mm)/Main dimensions,(mm):			
长/length			
2055	-	-	-
高/height			
728	-	-	-
宽/width			
650	-	-	-
5)发动机干重不超过（质量，kg）/Engine dry mass,kg,not more			
293.76	-	-	-
6)发动机组件/Engine units:			
a)电子调节器/electronic regulator			
3 P Д-3 B M	-	3 P Д-3 B M A	-
b)燃油控制组件/fuel control unit			
H P-3 B M	-	H P-3 B M A	-

注/Notes:

- 自由短舱转子旋转速度的 100%相当于 15000 转数/分钟。
1.100% of the free turbine rotor rotational speed correspond to 15000 rpm.
- 燃气发生器转子旋转速度100%相当于19537.48转数/分钟。
2. 100% of the gas generator rotor rotational speed correspond to 19537.48 rpm

C. 主要使用限制/Main operating Limitations

- 涡轮压缩机在以下内部模式的最大可允许温度（℃）：

Maximum allowable compressor turbine inlet gas temperature at the following modes（℃）：

- 1)起飞、2.5分钟OEI、30分钟OEI/takeoff,2.5 min. OEI and 30 min. OEI:

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990	-	-	-
2)最大连续和持续OEI/maximum continuous and continuous OEI:			
955	-	-	-
2.主模式发动机连续运行时间（分钟）不超过Engine continuous operating time at the main modes(min.),not more			
1)2.5分钟OEI/2.5 min. OEI;			
2.5	-	-	-
2)起飞/takeoff;			
15	-	-	-
3)30分钟OEI/30 min. OEI;			
30	-	-	-
4)慢车/idle;			
20	-	-	-
3.每服务寿命的总运行时间（占服务寿命的%）/Total operating time per service life(% of service life)			
1)起飞/takeoff			
10	-	5	-
2)额定30分钟OEI到第一次大修/30 min. OEI rating,to the 1-st overhaul(hr-%);			
7.5hr-0.5%	-	1hr-0.06%	-
3)2.5分钟OEI到第一次大修/2.5 min. OEI to the 1-st overhaul(hr-%);			
1.5hr-0.1%	-	20min.-0.02%	-
4.发动机服务寿命（循环/小时）/Engine service life,(cycles/hours):			
1)到首次大修/to the first overhaul;			
1500/1500	-	-	-
2)翻修间隔时间/TBO			
1500/1500	-	-	-
3)发动机和转子部件（涡轮 I、II、III、IV级盖盘除外）服务寿命的规定；			
assigned service life of the engine and of the rotor parts (except the cover disks of turbine stages I, II, III);.			
6000/6000	-	-	-
4)涡轮 I 级盖盘服务寿命的规定/assigned service life of cover disk of turbine stage I			
5000/5000	-	-	-
5) 涡轮 II、III、IV级盖盘服务寿命的规定/assigned service life of cover disks of turbine stages II, III;			
2000/2000	-	-	-
5.可用燃油品种/Grades of usable fuel			
PT and TC-1 as per GOCT 10227-86 and their mixture with «И» anti-icing additive-liquid			
Jet A-1 DERD 2494			
Fuel N3 GB 6537-94			
T-1, TC-1 БДС5075-82			
JetA-1 AFQRJOS			
ATF K-50 IS : 1571-76			
TFC-1 Д-2-3			
JP-1 Mil-F-5616C			
Turbo A-1 DERD 2494			
T-1 STAS 5639-77			
Jet A-1 STAS 3754-77			
PL-6 PND 25-005-81			

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CM-1 JUS B. H2. 333

Additive A1-31 Mil-J-27686F

6. 可用滑油品种/Grades of usable oil

5-3B TY 38-101295-75, J13-240 TY38-4015-79-86.

Castrol 98 DERD2487 (Castrol), Mobil Jet

Oil 11 Mil-L-23699 (Mobil Oil), Mobil Jet

Oil 254 Mil-L-23699 (Mobil Oil), Castrol

5000 Mil-L-23699 (Castrol), Castrol 599

DERD2497 (Castrol), Turbonycoil 525-2A

Mil-L-23699 (NyCo), Exxon Turbo Oil 25 DOD-L-85734 (Exxon), Aeroshell Turbine Oil 560 DERD 2499 (Shell).

注/Note

Klimov公司考虑有效的“国外燃油、滑油和专门液体在俄罗斯航空制造产品上批准程序的声明”的要求，根据新的燃油和滑油品种在发动机运行的情况，对燃油和滑油清单进行延伸。如果Klimov公司发展（如需要）发动机技术条件的测试的附加程序，需经IAC AR批准。

The list of the specified fuels and oils may be extended provided Klimov Corporation studies the engine operability with the new grades of fuel and oil taking in to account the requirements of the effective "Statement of the approval procedure of the foreign oils, fuels and special fluids for their application on the Russian made aviation products" and if Klimov Corporation develops (if necessary) the additional program of tests of the engine technical condition in operation, approved by IAC AR.

7. 环境温度°C/Ambient air temperature,(°C):

1) 在地平线启动和运行/at the ground level for starting and operation

-38...+55

-

-

-

2) 在结冰条件和按照维护手册推荐正常的发动机运行规定至

in icing condition and in compliance with Maintenance Manual recommendations the normal engine operation is provided up to

-23

-

-

-

8. 发动机外部滑油温度°C/Oil temperature at the engine outlet,(°C):

1) 启动前最小温度/minimum before start;

-38

-

-

-

2) 比慢车稍高模式的发动机的最低温度/minimum for setting the engine at the mode higher than idle;

+30

-

-

-

3) 不低于巡航 II 级模式发动机持续运行的最低温度/minimum for the engine continuous operating at the modes not lower than cruise II;

+70

-

-

-

4) 最高温度/maximum;

+150

-

-

-

9. 发动机增压泵内燃油压力限制(kgf/cm²)/Fuel pressure limitations at the engine boost pump inlet, (kgf/cm²):

1) 在启动时压力表/at start,gauge pressure;

0.4...1.2

-

-

-

2) 在发动机完全运转，不低于/at the engine in operation,absolute,not less:

a) 高度为0/at H=0

0.7

-

-

-

b) 高度为5公里/at H=5 km

0.3

-

-

-

10. 最大放气不超过/Maximum air bleed, not more:

1) 对于空调系统/for air conditioning system,g/s(5);

180 (2.07)

-

-

-

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2)对于防冰系统/for anti-icing system;

起飞时气流通通过发动机的1%/1% of air flow through the engine at takeoff

慢车时1.5%/1.5% at idle

11.高度范围(米)/Altitude range(m)

0...5000

-

-

-

12.发动机最大启动高度(米)/Maximum engine start altitude(m)

4000

-

-

-

注/Note

在发动机转子自转速度不超过 7%时, 从 APU 启动发动机。

The engine is started from APU at the engine rotor autorotation speed not more than 7%.

13.在地面运行时, 地平面风速和风向不超过(米/秒):

Wind speed and direction at the ground level during the ground operation (m/s), not more:

1)逆风/headwind;

10

-

-

-

2)顺风 and 侧风/wind and crosswind;

10

-

-

-

3)阵风/wind gust;

15

-

-

-

D. 生产和大修单位/Manufacturers and overhaul agencies

俄罗斯圣彼得堡 KLIMOV 公司/The State Unitary Enterprise "Klimov Corporation", Saint-Petersburg, Russia.

结束

END