

型号认可证数据单
THE VALIDATION DATA SHEET

编号/No.: VTC177E

版次/Revision: 1

型号/Type:

FJ44-1A

FJ44-2A

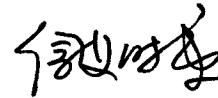
FJ44-1AP

FJ 44-3A

FJ44-3A-24

FJ44-3AP

批准人/Approved by:



日期/Date: 2014 年 9 月 26 日

本数据单是型号认可证（编号 VTC177E）的组成部分，它规定了符合中国民用航空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 a part of Validation Type Certificate (No: VTC177E), prescribes conditions and limitations 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:

Williams International Co., L.L.C,
Walled Lake, Michigan
48390-0200 USA

有效页清单/List of effective pages :

页数/ Pages	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
版次/Revision	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
页数/ Pages	17	18	19													
版次/Revision	1	1	1													

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	No.VTC177E, 版次 1, 2014 年 9 月 26 日颁发 No.VTC177E; Revision 1; Date of Issue: 2014-09-26	No. E3GL, 版本: 19, 2013 年 5 月 20 日颁发 No. E3GL, Revision 19, Date of Issue: 2013-5-20
历史 History	No.VTC177E, 版次 0, 2006 年 5 月 19 日颁发 No.VTC177E; Revision 0; Date of Issue: 2006-5-19	No. E3GL, 版本: 9, 2005 年 9 月 9 日颁发 No. E3GL, Revision 9, Date of Issue: 2005-9-9
	No.VTC148E, 版次 0, 2003 年 12 月 11 日颁发 No.VTC148E; Revision 0; Date of Issue: 2003-12-11	No. E3GL, 版本: 4, 1997 年 7 月 7 日颁发 No. E3GL, Revision 4, Date of Issue: 1997-7-7

2. 类别/Category: 航空发动机/Aeroengine
3. 认可当局/Validation Authority: 中国民用航空局/CAAC
审定当局/Certifying Authority: 美国联邦航空局/FAA
4. 型号合格证持有人/Type Certificate Holder: Williams International Co., L.L.C,
Walled Lake, Michigan
48390-0200 USA
6. ETOPS: N/A
7. CAAC 专用要求/Special Requirements: 满足中国 3 号燃油 (GB6537-2006) 的要求。
/Compliance with requirement of P.R.China JET Fuel
No.3 (GB6537-2006).

第2部分

SECTION 2

I. 型号/MODEL	FJ44-1A	FJ44-1AP
发动机形式/ENGINE TYPE 两级涡轮驱动的由单级风扇和单级轴流式压气机组成的双轴涡轮风扇，单级涡轮驱动单级离心式压气机，并且采用环形燃烧室和全尺寸外涵 Twin spool turbofan with a single-stage fan and single-stage axial compressor direct driven by a two-stage turbine, a single-stage centrifugal compressor driven by a single-stage turbine, an annular combustor and a full length bypass duct.	两级涡轮驱动的由单级风扇和单级轴流式压气机组成的双轴涡轮风扇，单级涡轮驱动单级离心式压气机，并且采用环形燃烧室、全尺寸外涵和排气管混合器 Twin spool turbofan with a single-stage fan and single-stage axial compressor direct driven by a two-stage turbine, a single-stage centrifugal compressor driven by a single-stage turbine, an annular combustor a full length bypass duct and an exhaust mixer.	
额定推力 (注 1) /RATINGS Note 1. 最大连续 (磅) Maximum Continuous, lb. 起飞推力 (5 分钟) (磅) Takeoff (5 minutes), lb.	59 华氏度时 1900 1,900 at 59° F 72 华氏度时 1900 1,900 at 72° F	59 华氏度时 1950 1,950 at 59° F 72 华氏度时 1965 1,965 at 72° F
控制系统/CONTROL SYSTEM	机械液压燃油控制单元 Hydro-mechanical Fuel Control Unit	双通道全权限数字电子控制 (FADEC) 和燃油输送组件 (FDU)。 Dual Channel Full Authority Digital Electronic Control (FADEC) and Fuel Delivery Unit (FDU).
燃油泵/FUEL PUMP	见注 18 中规定的发动机组件清单 See Engine Assembly Part No. identified in Note 18.	集成在 FDU 中 Integral with Fuel Delivery Unit (FDU).

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I. 型号/MODEL	FJ44-1A	FJ44-1AP
主要尺寸 PRINCIPAL DIMENSIONS 全长, 英寸 (厘米) Length Overall, inches (cm)	53.4 (135.9)	57.9 (147.1)
法兰盘间长度, 英寸 (厘米) Between flanges, inches (cm)	40.3 (102.4)	41.4 (105.2)
全高度, 英寸 (厘米) Height (Overall), inches (cm)	29.6 (75.2)	31.1 (79.0)
前法兰盘外径, 英寸 (厘米) Forward flange outer diameter, inches (cm)	20.9 (53.1)	--
后法兰盘外径, 英寸 (厘米) Aft flange outer diameter, inches (cm)	21.7 (55.1)	--
	见注 18 中安装手册 See Installation Instructions identified in Note 18 for complete dimensional details.	
干重 (注 8) DRY WEIGHT Note 8	最大 468 磅 460 lb. maximum.	最大 468 磅 468 lb. maximum.

II. 型号/MODEL	FJ44-2A
发动机形式/ENGINE TYPE	两级涡轮驱动的由单级风扇和单级轴流式压气机组成的双轴涡轮风扇, 单级涡轮驱动单级离心式压气机, 并且采用环形燃烧室、全尺寸外涵和排气管混合器 Twin spool turbofan with a single-stage fan and three-stage axial compressor direct driven by a two-stage turbine, a single-stage centrifugal compressor driven by a single-stage turbine, an annular combustor, a full length bypass duct and an exhaust mixer.
额定推力 (注 1) /RATINGS Note 1.	
最大连续 (磅) Maximum Continuous, lb.	59 华氏度时 2300 2,300 at 59° F
起飞推力 (5 分钟) (磅) Takeoff (5 minutes), lb.	72 华氏度时 2300 2,300 at 72° F
控制系统/ CONTROL SYSTEM	单通道电子控制单元 (ECU) 和液压机械计量组件 (HMU) Single Channel Electronic Control Unit (ECU) and Hydromechanical Metering Unit (HMU).

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II. 型号/MODEL	FJ44-2A
燃油泵/FUEL PUMP	见注 18 中规定的发动机组件清单 See Engine Assembly Part No. identified in Note 18.
主要尺寸 PRINCIPAL DIMENSIONS 全长, 英寸 (厘米) Length Overall, inches (cm) 59.8 (151.9) 法兰盘间长度, 英寸 (厘米) Between flanges, inches (cm) 47.3 (120.1) 全高度, 英寸 (厘米) Height (Overall), inches (cm) 29.6 (75.2) 前法兰盘外径, 英寸 (厘米) Forward flange outer diameter, inches (cm) 21.8 (55.4) 后法兰盘外径, 英寸 (厘米) Aft flange outer diameter, inches (cm) 21.7 (55.1) 见注 18 中安装手册 See Installation Instructions identified in Note 18 for complete dimensional details.	
干重 (注 8) DRY WEIGHT Note 8	最大 530 磅 530 lb. maximum.

III. 型号/MODEL	FJ44-3A	FJ44-3A-24	FJ44-3AP
发动机形式/ENGINE TYPE	两级涡轮驱动的由单级风扇和单级轴流式压气机组成的双轴涡轮风扇, 单级涡轮驱动单级离心式压气机, 并且采用环形燃烧室、全尺寸外涵和排气管混合器。 Twin spool turbofan with a single-stage fan and three-stage axial compressor direct driven by a two-stage turbine, a single-stage centrifugal compressor driven by a single-stage turbine, an annular combustor, a full length bypass duct and an exhaust mixer.		
额定推力 (注 1) /RATINGS Note 1. 最大连续 (磅) Maximum Continuous, lb. 起飞推力 (5 分钟) (磅) Takeoff (5 minutes), lb.	53 华氏度时 2820 2,820 at 53° F 79 华氏度时 2820 2,820 at 79° F	59 华氏度时 2490 2,490 at 59° F 72 华氏度时 2490 2,490 at 72° F	53 华氏度时 3052 3052 at 53° F 72 华氏度时 3052 3052 at 72° F

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控制系统/ CONTROL SYSTEM	双通道全权限数字电子控制 (FADEC) 和燃油输送组件 (FDU)。 Dual Channel Full Authority Digital Electronic Control (FADEC) and Fuel Delivery Unit (FDU).		
燃油泵/ FUEL PUMP	集成在 FDU 中/Integral with Fuel Delivery Unit (FDU).		
主要尺寸 PRINCIPAL DIMENSIONS			
全长, 英寸 (厘米) Length Overall, inches (cm)	62.4 (158.5)	--	--
法兰盘间长度, 英寸 (厘米) Between flanges, inches (cm)	48.0 (121.9)	--	--
全高度, 英寸 (厘米) Height (Overall) , inches (cm)	31.1 (79.0)	--	31.6 (80.3)
前法兰盘外径, 英寸 (厘米) Forward flange outer diameter, inches (cm)	23.0 (58.4)	--	--
后法兰盘外径, 英寸 (厘米) Aft flange outer diameter, inches (cm)	21.7 (55.1)	--	--
	见注 18 中安装手册 See Installation Instructions identified in Note 18 for complete dimensional details.		
干重 (注 8) DRY WEIGHT Note 8	最大 535 磅 535 lb. maximum.	--	最大 516 磅 516 maximum

所有型号/All Models

滑油 OIL 滑油规范 Oil Specification	人工合成, 满足 MIL-L-23699 标准, 见注 18 所列《使用指南》或《维护手册》中经批准的滑油牌号。 Synthetic conforming to MIL-L-23699. See Operating Instructions or Maintenance Manual identified in Note 18 for approved oil brands.
滑油箱 Oil Reservoir	整体式。见注 18 所列《安装指令》中的滑油箱容积和数量。 Integral. See Installation Instructions identified in Note 18 for capacity and installed usable quantity.
燃油 FUEL 燃油规范 Fuel Specification	详见注 18 所列《使用指南》或《维护手册》 See Operating Instructions or Maintenance Manual identified in Note 18 for approved fuel specifications.

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点火系统 IGNITION 点火线圈 Exciter 点火电嘴 Igniter Plug	2 个。见注 18 所列发动机部件编号 Quantity of two. See Engine Assembly Part No. identified in Note 18. 2 个。见注 18 所列发动机部件编号 Quantity of two. See Engine Assembly Part No. identified in Note 18.
重心位置 C.G. LOCATION	见注 18 所列《安装手册》 See Installation Instructions identified in Note 18 for center of gravity location.
生产基础 PRODUCTION BASIS	生产许可证 334CE Production Certificate 334CE

审定基础/CERTIFICATION BASIS

FJ44-1A	(1) 1965 年 2 月 1 日生效的联邦法规汇编 14 集第 33 部的 1 至 14 号修正案 (2) 发动机排放: 1990 年 9 月 10 日生效的联邦法规汇编 14 集第 34 部 (1) 14 CFR Part 33, effective February 1, 1965 including Amendments 33-1 through 33-14. (2) 14 CFR Part 34, effective September 10, 1990.
FJ44-1AP	<u>72100-200</u> (1) 1965 年 2 月 1 日生效的联邦法规汇编 14 集第 33 部的 1 至 20 号修正案 (2) 发动机排放: 1990 年 9 月 10 日生效的联邦法规汇编 14 集第 34 部的 1 至 4 修正案 (3) 联邦法规汇编 14 集第 33.28(b) 和 33.68 (见注 13) 相关的等效安全 (ELOS) No. 8040-ELOS-05-NE-01 <u>72100-200:</u> (1) 14 CFR Part 33, effective February 1, 1965 including Amendments 33-1 through 33-20 (2) Engine Emissions: 14 CFR Part 34, effective September 10, 1990, as amended by 34-1 through 34-4. In addition, 40 CFR Part 87, effective December 19, 2005. (3) Equivalent level of safety (ELOS) No. 8040-ELOS-05-NE-01 with respect to 14 CFR Part 33.28(b) and 33.68 (See Note 13) <u>72100-201</u> (1) 1965 年 2 月 1 日生效的联邦法规汇编 14 集第 33 部的 1 至 20 修正案, 和 • 联邦法规汇编 14 集第 33.5 的第 26 修正案 • 联邦法规汇编 14 集第 33.7 的第 30 修正案 • 联邦法规汇编 14 集第 33.17 的第 29 修正案 • 联邦法规汇编 14 集第 33.28 的第 26 修正案 • 联邦法规汇编 14 集第 33.29(a) 到 (g) 的第 26 修正案 • 联邦法规汇编 14 集第 33.75 的第 24 修正案 (2) 2012 年 12 月 31 日生效的联邦法规汇编 14 集第 34 部第 5 修正案, 和 2012 年 7 月 18 日生效的联邦法规汇编 40 集第 87 部。 <u>72100-201:</u> (1) 14 CFR Part 33, effective February 1, 1965 including Amendments 33-1 through 33-20, and: • 14 CFR 33.5 at Amendment 26 • 14 CFR 33.7 at Amendment 30 • 14 CFR 33.17 at Amendment 29 • 14 CFR 33.28 at Amendment 26

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	14 CFR 33.29 (a) through (g) at Amendment 26 14 CFR 33.75 at Amendment 24 (2) Fuel Venting and Exhaust Emissions Standards 14 CFR Part 34 Amendment 34-5, effective December 31, 2012 and 40 CFR Part 87, effective July 18, 2012
FJ44-2A	(1) 1965 年 2 月 1 日生效的联邦法规汇编 14 集第 33 部的 1 至 15 号修正案 (2) 发动机排放: 1990 年 9 月 10 日生效的联邦法规汇编 14 集第 34 部的 1 至 2 号修正案 (1) 14 CFR Part 33, effective February 1, 1965 including Amendments 33-1 through 33-15. (2) 14 CFR Part 34, effective September 10, 1990 including Amendments 34-1 through 34-2.
FJ44-3A	(1) 1965 年 2 月 1 日生效的联邦法规汇编 14 集第 33 部的 1 至 20 修正案 (2) 1990 年 9 月 10 日生效的联邦法规汇编 14 集第 34 部第 1 至 4 修正案, 和 2005 年 12 月 19 日生效的联邦法规汇编 40 集第 87 部。 (3) 联邦法规汇编 14 集第 33.28(b)和 33.68 (见注 13) 相关的等效安全 (ELOS) (1) 14 CFR Part 33, effective February 1, 1965 including Amendments 33-1 through 33-20. (2) Engine Emissions: 14 CFR Part 34, effective September 10, 1990, as amended by 34-1 through 34-4. In addition, 40 CFR Part 87, effective December 19, 2005. (3) Equivalent level of safety (ELOS) with respect to 14 CFR Part 33.28(b) and 33.68 (See Note 13)
FJ44-3A-24	(1) 1965 年 2 月 1 日生效的联邦法规汇编 14 集第 33 部的 1 至 20 修正案 (2) 1990 年 9 月 10 日生效的联邦法规汇编 14 集第 34 部第 1 至 4 修正案, 和 2005 年 12 月 19 日生效的联邦法规汇编 40 集第 87 部。 (3) 联邦法规汇编 14 集第 33.28(b)和 33.68 (见注 13) 相关的等效安全 (ELOS) No.8040-ELOS-NE-02 (1) 14 CFR Part 33, effective February 1, 1965 including Amendments 33-1 through 33-20. (2) Engine Emissions: 14 CFR Part 34, effective September 10, 1990, as amended by 34-1 through 34-4. In addition, 40 CFR Part 87, effective December 19, 2005. (3) Equivalent level of safety (ELOS) No. 8040-ELOS-NE-02 with respect to 14 CFR Part 33.28(b) and 33.68 (See Note 13)
FJ44-3AP	(1) 1965 年 2 月 1 日生效的联邦法规汇编 14 集第 33 部的 1 至 30 修正案 (2) 1990 年 9 月 10 日生效的联邦法规汇编 14 集第 34 部第 1 至 4 修正案, 和 2005 年 12 月 19 日生效的联邦法规汇编 40 集第 87 部。 (1) 14 CFR Part 33, effective February 1, 1965 including Amendments 33-1 through 33-30 (2) Engine Emissions: 14 CFR Part 34, effective September 10, 1990, as amended by 34-1 through 34-4. In addition, 40 CFR Part 87, effective December 19, 2005

申请/APPLICATION

	申请日期 Application Date	发证日期 Type Certificate Date
FJ44-1A	1989 年 12 月 8 日 8 December 1989	1992 年 3 月 26 日 26 March 1992
FJ44-1AP	2004 年 1 月 28 日 28 January 2004	2005 年 6 月 1 日 1 June 2005
FJ44-2A	1994 年 10 月 13 日 13 October 1994	1997 年 7 月 7 日 7 July 1997
FJ44-3A	2002 年 2 月 6 日 6 Feb 2002	2004 年 7 月 30 日 30 July 2004

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FJ44-3A-24	2004 年 11 月 11 日 11 Nov 2004	2005 年 9 月 9 日 9 Sep 2005
FJ44-3AP	2010 年 7 月 6 日 6 July 2010	2011 年 5 月 12 日 12 May 2011

注 1: 发动机额定值

NOTE 1. ENGINE RATINGS.

发动机额定值在下列条件下建立:

- 湿度为 0%
- 海平面大气压 (29.92 英寸汞柱)
- 无飞机齿轮箱负载
- 无飞机引气
- 无进口总压损失
- 使用注释 18 中所确定的《使用指南》中所定义的尾喷管

在不同的大气温度下的额定推力也可见注 18 确定的《使用指南》中。

Engine ratings are based on static un-installed thrust stand performance at the following conditions:

- 0% humidity
- sea level ambient pressure (29.92 inches Hg)
- no aircraft gearbox accessory loads
- no aircraft air bleed
- 0% inlet total pressure loss
- using an exhaust nozzle as specified in the Installation Instructions identified in Note 18.

Variation of the rated thrust with ambient temperature is included in the Installation Instructions identified in Note 18.

一发失效 (OEI) 运行

对于下列型号发动机, 在多发飞机起飞过程中一台发动机不工作时, 使用额定起飞推力及相关限制, 可持续运行 10 分钟。

FJ44-1A	FJ44-3A-24
FJ44-1AP	FJ44-3AP
FJ44-2C	FJ44-3A

ONE ENGINE INOPERATIVE (OEI) OPERATION.

For the following engine models, the rated takeoff thrust and its associated limitations may be used for up to 10 minutes in the event one engine on a multi-engine airplane becomes inoperative during takeoff:

FJ44-1A	FJ44-3A-24
FJ44-1AP	FJ44-3AP
FJ44-2C	FJ44-3A

注 2: 温度限制

NOTE 1. ENGINE RATINGS.

最大涡轮间温度(ITT)/MAXIMUM INTERTURBINE TEMPERATURE (ITT).

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*根据注 1 进行 10 分钟 OEI 运行/*10 minutes for OEI operations conducted in accordance with Note 1.

型号/MODEL	FJ44-1A	FJ44-1AP	FJ44-2A
起飞, °F (°C) 5 分钟 Takeoff, °F (°C) 5 minutes	1.508 (820)* 1.530 (832) 持续 10 秒 1.530 (832) for 10 secs	1,571 (855)* -	1.508 (820) 1.535 (835) 持续 10 秒 1,535 (835) for 10 secs
最大连续, °F (°C) Maximum Continuous, °F (°C)	1.465 (796)	1.535 (835)	1.481 (805)
启动 °F (°C) Starting, °F (°C)	见注 18 《使用指南》 See Operating Instruction identified in Note 18.		

型号/MODEL	FJ44-3A FJ44-3A-24	FJ44-3AP
起飞, °F (°C) 5 分钟 Takeoff, °F (°C) 5 minutes	1.610 (877)* 1.635 (891)持续 10 秒 1.635 (891) for 10 secs	1601 (872)* 1611 (877)持续 10 秒 1611 (877) for 10 secs
最大连续, °F (°C) Maximum Continuous, °F (°C)	1.545 (840)	1552 (844)
启动 °F (°C) Starting, °F (°C)	见注 18 《使用指南》 See Operating Instruction identified in Note 18.	

滑油温度 测量滑油冷却器出口/OIL TEMPERATURE. Measured at oil cooler exit.

*根据注 1 进行 10 分钟 OEI 运行/*10 minutes for OEI operations conducted in accordance with Note 1.

型号/ MODEL	FJ44-1A	FJ44-1AP	FJ44-2A	FJ44-3A FJ44-3A-24 FJ44-3AP
最大, °F (°C) Maximum, °F (°C)	250 (121)	275 (135) 300 (149)持续 5 分钟 300 (149) for 5 mins*	275 (135) 300 (149)持续 5 分钟 300 (149) for 5 mins	275 (135) 300 (149)持续 5 分钟 300 (149) for 5 minutes*
最小, °F (°C) Minimum, °F (°C)	-40 (-40)启动和慢车 -40 (-40) Start and Idle 50(10)起飞 50 (10) Takeoff	-- --	-40 (-40)启动和慢车 -40 (-40) Start and Idle 50(10)起飞 50 (10) Takeoff	-40 (-40)启动和慢车 -40 (-40) Start and Idle 50(10)起飞 50 (10) Takeoff

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发动机外部环境温度 某些外部和/或发动机安装节中的部件除下列限制外有温度限制。见注 18 中的《使用指南》/ENGINE EXTERNAL AMBIENT TEMPERATURE. Certain external and/or airframe mounted engine components have temperature limitations other than those listed here. See Installation Instructions identified in Note 18.

型号/MODEL	FJ44-1A	FJ44-1AP	FJ44-2A	FJ44-3A FJ44-3A-24 FJ44-3AP
最大 °F (°C) Maximum, °F (°C)	250 (121)	300 (149)	250 (121)	300 (149)
最大 °F (°C) Minimum, °F (°C)	-65 (-54)	--	-65 (-54)	-65 (-54)
最小启动 °F (°C) Minimum Starting, ° F (°C)	-40 (-40)	--	-40 (-40)	-40 (-40)

注 3: 最大转速

NOTE 3. MAXIMUM SPEEDS.

转速限制/SPEED LIMITATIONS.

型号/MODEL	FJ44-1A	FJ44-1AP	FJ44-2A
低压转子 (N1), rpm(%)	18,000 (104.4)	18,055 (104.69)	18,150 (105.2)
Low Pressure Rotor (N1). rpm (%)	18,160 (105.3) 持续 20 秒 18,160 (105.3) for 20 secs	不允许瞬时超转 No transient permitted	18,350 (106.4) 持续 30 秒 18,350 (106.4) for 30 secs
高压转子 (N2), rpm(%)	40,900 (99.3)	41,200 (100.0)	40,700 (98.8)
High Pressure Rotor (N2). rpm (%)	No transient permitted	--	No transient permitted

型号/MODEL	FJ44-3A FJ44-3A-24	FJ44-3AP
低压转子 (N1), rpm(%) Low Pressure Rotor (N1). rpm (%)	18,500 (102.8) 18,700 (103.9) 持续 20 秒	18,853 (104.74) 19,033 (105.74) 持续 30 秒
高压转子 (N2), rpm(%) High Pressure Rotor (N2). rpm (%)	41,200 (100.0) 41,500 (100.7)持续 20 秒	41,550 (100.85) 41,850 (101.58) 持续 30 秒

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100%轴转速/REFERENCE (100%) SHAFT SPEEDS.

型号/MODEL	FJ44-1A/1AP	FJ44-2A	FJ44-3A FJ44-3A-24 FJ44-3AP
100%低压转子 (N1), rpm 100 % Low Pressure Rotor (N1), rpm	17,245	17,245	18,000
100%高压转子 (N2), rpm 100% High Pressure Rotor (N2), rpm	41,200	41,200	41,200

注 4: 推力设定

NOTE 4. THRUST SETTING.

根据低压转子转速(N1)设定推力。见注 18 中确定的使用指南。

Setting of engine thrust is based on low pressure rotor speed (N1). See Operating Instructions identified in Note 18.

注 5: 压力限制

NOTE 5. PRESSURE LIMITS.

燃油压力。在燃油泵或燃油控制组件进口测量。压力限制见注 18 中确定的使用指南。

FUEL PRESSURE. Measured at fuel pump or fuel control inlet. See Installation Instructions identified in Note 18 for pressure limitations.

滑油压力。在滑油冷却器出口测量/OIL PRESSURE. Measured at oil cooler exit.

MODEL	FJ44-1A	FJ44-1AP	FJ44-2A
最大, psig Maximum, psig	90 在高压转子转速(N2)等于或大于 32960 rpm 的条件下, 可在 5 分钟内持续为 100/ 100 for 5 mins at or above high pressure rotor (N2) speed of 32,960 rpm	120 在高压转子转速(N2)等于或大于 32960 rpm 的条件下, 可在 5 分钟内持续为 130/ 130 for 5 mins at or above high pressure rotor (N2) speed of 32,960 rpm	90 在高压转子转速(N2)等于或大于 32960 rpm 的条件下, 可在 5 分钟内持续为 100/ 100 for 5 mins at or above high pressure rotor (N2) speed of 32,960 rpm
最小, psig Minimum, psig	在高压转子转速(N2)大于 32960 rpm 的条件下为 45 45 above high pressure rotor speed (N2) of 32,960 rpm 从慢车到高压转子转速(N2)为 32960 rpm 的过程中为 35 /	-- --	-- --

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	35 from idle to high pressure rotor speed (N2) of 32,960 rpm		--
	从慢车到高压转子转速(N2)为 32960 rpm 的过程中, 可在 5 分钟内持续为 25/ 25 for 5 mins from idle to high pressure rotor (N2) speed of 32,960	从慢车到高压转子转速(N2)为 32960 rpm 的过程中, 可在 5 分钟内持续为 23/ 23 for 5 mins from idle to high pressure rotor (N2) speed of 32,960	

MODEL	FJ44-3A FJ44-3A-24	FJ44-3AP
最大, psig Maximum, psig	110 在高压转子转速(N2)等于或大于 32960 rpm 的条件下, 可在 5 分钟内持续为 120/ 120 for 5 mins at or above high pressure rotor (N2) speed of 32,960 rpm	120 在高压转子转速(N2)等于或大于 32960 rpm 的条件下, 可在 5 分钟内持续为 130/ 130 for 5 mins at or above high pressure rotor (N2) speed of 32,960 rpm
最小, psig Minimum, psig	在高压转子转速(N2)大于 32960 rpm 的条件下为 45 45 above high pressure rotor speed (N2) of 32,960 rpm 从慢车到高压转子转速(N2)为 32960 rpm 的过程中为 35 / 35 from idle to high pressure rotor speed (N2) of 32,960 rpm 从慢车到高压转子转速(N2)为 32960 rpm 的过程中, 可在 5 分钟内持续为 23/ 23 for 5 mins from idle to high pressure rotor (N2) speed of 32,960	-- -- --

注 6: 附件传动

NOTE 6. ACCESSORY DRIVES.

下列信息适用于 FJ44-1A, FJ44-1AP, FJ44-2A, FJ44-3A, FJ44-3A-24 and FJ44-3AP 等型号发动机的发动机附件齿轮箱传动。安装垫尺寸和功率提取限制见注 18 中确定的使用指南/The following information applies to the engine accessory gearbox drives for FJ44-1A, FJ44-1AP, FJ44-2A, FJ44-3A, FJ44-3A-24 and FJ44-3AP models. See Installation Instructions identified in Note 18 for mounting pad dimensions and power extraction limits.

传动 Drive	安装规范 Pad Spec.	旋转面安 装方向 Rotation	传动速率 /N2* Speed	最大扭矩 (英寸-磅) Max. Torque (in-lb.)	最大重量 (磅) Max.	最大悬挂运 动 (英寸-磅) Max.
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		Direction, Facing Pad	Ratio Driven/N2*				Wt (lb.)	Overhung Moment (in-lb.)
				连续 Continuous	过载 Overload **	静态 Static +		
启动电机 Starter Generator	MS3326-2(AS)	顺时针 Clockwise	0.2859	见注 18 中的安 装说明 See Installation Instructions identified in Note 18	见注 18 中的 安装说明 See Installation Instructions identified in Note 18	-660	38	210
高速附件 ++ High Speed Accessory ++	MS3325	顺时针 Clockwise	0.1906	58	85	100	5 15 (FJ44-3AP)	15 55 (FJ44-3AP)
低速附件 ++ Low Speed Accessory ++	AN20001 Type XI-1B	顺时针 Clockwise	0.1092	101	150	100	10	30
* 注 3 确定了 100%高压转子转速(N2)/100% High Pressure Rotor Speed (N2) is identified in Note 3. ** 在 4 小时运行时间内, 最大为 5 分钟/5 minutes maximum in any 4-hour operating period + 启动或最小开机力矩与传动力矩相反/Start or breakaway torque is negative for torque into drive pad ++ 发动机安装有低速或高速附件传动垫。见注 18 确定的部件清单以确定具体件号所对应发动机的衬垫构型/Engine comes equipped with either a low speed or a high speed accessory drive pad. See Engine Assembly Part No. identified in Note 18 to determine the pad configuration for the specific engine part number								

注 7: 发动机型号构型

NOTE 7. ENGINE MODEL CONFIGURATION.

型号 FJ44-1A 是发动机基本型。/Model FJ44-1A is the engine basic model.

除采用新型风扇、低压涡轮和 FJ44-3A 型发动机中已使用的双通道 FADEC 外, FJ44-1AP 型发动机与 FJ44-1A 型发动机相似。/Model FJ44-1AP engine is similar to Model FJ44-1A except that a new fan has been incorporated and the LP turbines and Dual Channel Full Authority Digital Electronic Control (FADEC) of the FJ44-3A Model have been incorporated.

除采用新型风扇, 两级附加中压压气机, 尾喷混合器和电子燃油控制组件 (EFCU) 外, FJ44-2A 型发动机与 FJ44-1A 型发动机相似。/Model FJ44-2A engine is similar to Model FJ44-1A except that a new fan, two additional stages of IP compression, an exhaust mixer, and an electronic fuel control unit (EFCU) have been incorporated.

除采用整体式液压机械式燃油控制组件(IFCU)外, FJ44-2C 型发动机与 FJ44-2A 型发动机相似。/ Model FJ44-2C engine is similar to Model FJ44-2A except that an integrated hydromechanical fuel control (IFCU) has been incorporated.

除采用新型风扇, 3 级中压压气机转子, 新低压涡轮和双通道 FADEC 外, FJ44-3A 型发动机与 FJ44-2C 型发动机相似。/ Model FJ44-3A engine is similar to Model FJ44-2C except that a new fan, IP compressor rotor (3 stages), new LP turbines and a Dual Channel Full Authority Digital Electronic control (FADEC) have been incorporated.

除在 FADEC 中减推力设置而使发动机额定值降低外, FJ44-3A-24 型发动机与 FJ44-3A 型发动机相似。/ Model FJ44-3A-24 is identical to Model FJ44-3A except that the engine is de-rated by incorporating reduced thrust schedules in the FADEC.

除了带有新的低压压气机转子和静子(3 级)外, FJ44-3AP 其他部分与 FJ44-3A 构型相似。/ Model FJ44-3AP engine is similar to the Model FJ44-3A, with a new IP Compressor rotor and corresponding stators (3 stages).

对于各型号发动机, 可能因为飞机机身安装的要求而在发动机构型方面有小的差异, 具体的发动机构型见注 18 确定的部件清单。/ For each engine model, there may be differences in the engine configuration, including the addition of optional components, based upon specific airframe installation requirements. See Engine Assembly Part No. identified in Note 18 for specific engine configuration.

注 8: 干重

NOTE 8. DRY WEIGHT.

发动机重量包括基本构型的齿轮箱和相关机身安装设备。注 18 中列举了不同发动机构型的多种组件号。这些额外的件号是发动机基本型的不同变化。可参见注 18 中的安装说明获得完整的干重信息。/ Engine weight includes gearbox and airframe mounted equipment of the basic engine model. Note 18 lists multiple engine assembly part numbers for some engine models. These additional part numbers are for variants of the basic engine that include Integrated Propulsion System components such as inlets, bleed or exhaust systems. See Installation Instructions in Note 18 for complete dry weight details.

注 9: 回油

NOTE 9. MOTIVE FLOW.

燃油控制组件回油池中的燃油可用引射泵或涡轮泵输送到飞机燃油系统中, 见注 18 确定的安装指南。/ Fuel from the motive flow port on the fuel control unit may be extracted to drive jet or turbine pumps in the airplane fuel system. See Installation Instructions identified in Note 18.

注 10: 引气

NOTE 10. BLEED EXTRACTION.

高压引气 根据发动机核心空气流量确定的流量用百分比表示。在一发不工作运行状态下的引气提取限制见注 18 确定的安装手册。/ **HIGH PRESSURE BLEED.** Flow rates expressed as percent are based on engine core airflow rate. See Installation Instructions identified in Note 18 for bleed extraction limits during operation

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with One Engine Inoperative (OEI).

型号/MODEL	FJ44-1A	FJ44-1AP	FJ44-2A
最大, 双通道 Maximum, Both Ports	13.0%	40.8 磅/分或 12.0%, 取最小值/ 40.8 lb./min. or 12.0% whichever is less	45 磅/分或 12.0%, 取最小值/ 45 lb./min. or 12.0% whichever is less
最大, 单通道 Maximum, One Port	6.5%	40.8 磅/分或 6.0%, 取最小值/ 40.8 lb./min or 6.0% whichever is less	45 磅/分或 6.0%, 取最小值/ 45 lb./min or 6.0% whichever is less
最小 Minimum	0%	--	--
最大, 启动 Maximum, Starting	0.222 平方英寸, 等效流量。/ 0.222 square inch sharp edge orifice, equivalent flow	--	--

型号/MODEL	FJ44-3A	FJ44-3A-24	FJ44-3AP
最大, 双通道 Maximum, Both Ports	50 磅/分或 20.0%, 取最小值/ 50 lb./min. or 20.0% whichever is less	--	59 磅/分或 20.0%, 取最小值/ 59 lb./min. or 20.0% whichever is less
最大, 单通道 Maximum, One Port	50 磅/分或 10.0%, 取最小值/ 50 lb./min. or 10.0% whichever is less	--	59 磅/分或 10.0%, 取最小值/ 59 lb./min. or 10.0% whichever is less
最小 Minimum	0.020 平方英寸, 等效流量。/ 0.020 square inch sharp edge orifice, equivalent flow	0.053 平方英寸, 等效流量。/ 0.053 square inch sharp edge orifice, equivalent flow	0%
最大, 启动 Maximum, Starting	0.222 平方英寸, 等效流量。/ 0.222 square inch sharp edge orifice, equivalent flow	--	--

低压引气 对于型号 FJ44-2A, 低压引气是可选的。见注 18 中规定的具体发动机构型组件件号。当释放到环境静压时, 引气被限制在只能从单通道提取。见注 18 中规定的使用指南以确定引气对发动机性能的影响。/ **IP COMPRESSOR BLEED.** IP compressor bleed is optional for the engine models FJ44-2A. See Engine Assembly Part No. identified in Note 18 for specific engine configuration. Bleed flow is limited to the flow which can be extracted from the single bleed port when discharged to ambient static pressure. See Operating Instructions identified in Note 18 to determine effect of bleed on engine performance.

风扇引气 下列型号的发动机风扇是否引气是可选的。见注 18 中规定的具体发动机构型组件件号。当释放到环境静压时，引气被限制在只能从单通道提取。见注 18 中规定的使用指南以确定引气对发动机性能的影响。/ **FAN BLEED.** Fan bleed is optional for the engine models identified below. See Engine Assembly Part No. identified in Note 18 for specific engine configuration. Bleed flow is limited to the flow which can be extracted from one bleed port when discharged to ambient static pressure. See Operating Instructions identified in Note 18 to determine effect of bleed on engine performance.

FJ44-1AP	FJ44-3A-24
FJ44-2A	FJ44-3AP
FJ44-3A	

注 11: 燃油使用限制

NOTE 11. LIMITED USE FUEL OPERATION.

允许使用 ASTM D910, Grade 100LL 燃油，关于持续时间限制、燃油温度和压力限制见注 18 确定的使用指南。/ASTM D910, Grade 100LL is approved for use on certain engine models. Refer to the Operating Instructions identified in Note 18 for limits on duration, fuel temperature and fuel pressure.

注 12: 燃油添加剂

NOTE 12. FUEL ADDITIVES.

防冰添加剂 对于 FJ44-1A 和 FJ44-2A 防冰添加剂是必需的。FJ44-1AP、FJ44-3A、FJ44-3A-24 和 FJ44-3AP 型发动机是否使用添加剂是可选的，批准使用的防冰添加剂和许用浓度见注 18 确定的使用指南。/

Icing Inhibitor. The use of icing inhibitor is required for the FJ44-1A and FJ44-2A engines. The use of icing inhibitors is optional for the FJ44-1AP, FJ44-3A, FJ44-3A-24, FJ44-3AP. See Operating Instructions identified in Note 18 for the approved icing inhibitors and allowable concentration levels.

抗静电添加剂 批准使用的抗静电添加剂和许用浓度见注 18 确定的使用指南。/ **Anti-static.** See Operating Instructions identified in Note 18 for the approved anti-static additives and allowable concentration levels.

杀虫剂 批准使用的杀虫剂和许用浓度见注 18 确定的使用指南。/ **Biocide.** See Operating Instructions identified in Note 18 for the approved biocide additives and allowable concentration levels.

注 13: 飞机机身附加要求：防冰，除冰和电源要求

NOTE 13. ADDITIONAL AIRFRAME CONSIDERATIONS: ANTI-ICING, DE-ICING EQUIPMENT REQUIREMENTS.

FJ44-1A 发动机满足 33.68 关于进气系统结冰的要求而不必使用主动防冰系统。/The FJ44-1A engines meet the 14 CFR Section 33.68 induction system icing requirements without use of an active anti-icing system.

FJ44-3AP 型发动机满足 33.68 关于进气系统结冰的要求，并要求飞机提供电源以进行 TT2 传感器的防冰。飞机电源的要求在注 18 中安装说明有具体规定。/The FJ44-3AP engines meets the 14 CFR Section 33.68 induction system icing requirements and requires an aircraft supplied source of power to anti-ice the TT2 sensor. Aircraft power requirements are provided in the Installation Instructions identified in Note 18.

FAA 已批准 FJ44-1AP, FJ44-3A 和 FJ44-3A-24 型发动机关于联邦法规汇编 14 集第 33 部中 33.28(b) 和 33.68 条即飞机为 TT2/PT2 传感器提供电源相关的等效安全水平(ELOS).该等效安全水平明确了飞机制造商必须满足的飞机为 TT2/PT2 传感器提供电源和大气数据的要求。关于 ELOS 对飞机的要求见注 8 确定的发动机安装手册。/ The FAA has approved a finding of equivalent level of safety (ELOS) for the FJ44-1AP,

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FJ44-3A and FJ44-3A-24 engines related to compliance of the engine with the requirements of 14 CFR Section 33.28(b) and 33.68 as related to the TT2/PT2 sensor power supplied by the aircraft. The ELOS identifies specific requirements for aircraft supplied power to the TT2/PT2 heater and/or air data requirements that must be met by the airframe manufacturer. The specific aircraft requirements related to this ELOS are identified in the Engine Installation Instructions listed in Note 18.

注 14: 高引气量的额定功率

NOTE 14. POWER RATINGS FOR HIGH CUSTOMER BLEED AIR USAGE.

大量使用高压引气，如飞机防冰，要求减推力设置。见注 18 确定的使用指南。/ Use of significant amounts of high pressure bleed air, such as for aircraft anti-icing, requires reduced thrust settings. See Operating Instructions identified in Note 18.

注 15: 转子完整性和叶片包容

NOTE 15. ROTOR DISK INTEGRITY AND BLADE CONTAINMENT.

所有发动机均满足联邦法规汇编 14 集第 33 部中关于转子盘完整性和叶片包容的要求。某些转子部件是寿命件，寿命限制和相关飞行包线见注 18 确定的维护手册。/ All engine models meet the 14 CFR Part 33 requirements for rotor disk integrity and blade containment. Certain rotor parts are life limited. These limits and the associated flight profile are listed in the Maintenance Manual identified in Note 18.

注 16: 限时派遣

NOTE 16. TIME LIMITED DISPATCH.

关于安装 FJ44-1AP、FJ44-3A、FJ44-3A-24 或 FJ44-3AP 型发动机的飞机允许在某些发动机控制组件故障条件下放行的限制在注 18 确定的维护手册第 5 章适航限制 (ALS) 章节。/ Dispatch of an aircraft employing the FJ44-1AP, FJ44-3A, FJ44-3A-24, FJ44-3AP engine is allowed with certain engine control system faults present subject to the limitations identified in the Airworthiness Limitations Section (ALS) of the appropriate Maintenance Manual listed in Note 18.

注 17: 发动机安装系统

NOTE 17. ENGINE MOUNT SYSTEM.

发动机安装节尺寸和载荷限制见注 18 确定的安装说明。/ See Installation Instructions identified in Note 18 for engine mount dimensions and load limits.

注 18: 适用的文件

NOTE 18. APPLICABLE DOCUMENTS.

型号 Model	发动机组件 件号 Engine Assembly Part Number	安装说明 Installation Instructions	使用指南 Operating Instructions	航线维护手 册 Line Maintenance Manual	航线维护手 册 Line Maintenance Manual Elite	发动 机 手册 Engine Manual
FJ44-1A	45700-104	50772	50771	50773	110506	50774
FJ44-1AP	72100-200	75274	75274	73568	120645	73569

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	72100-201	75274-201	75274-201	73568	120645	73569
FJ44-2A	56000	56208	56209	56210	110507	59870
	56000-103	56208	56209	56210	110507	59870
	56000-104	56208	56209	56210	110507	59870
FJ44-3A	67000-200	68583	68584	68585	120644	68659
	67000-202	68583-202	68584-202	68585-202	-	68659
FJ44-3A-24	75000-200	68583	68584	68585	120644	68659
FJ44-3AP	111000	111366	- -	111339	-	111341
	111000-202	111366-202	- -	111339-202	-	111341

- 结束 -

- END -