

JN-1 型自转旋翼机基本型**第 1 部分 概述****SECTION 1 GENERAL****I. 概述/General**

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|------------------------------|---|
| 1. 机型/Model | JN-1 型自转旋翼机 |
| 2. 类别/Category: | 轻型运动类/ Light Sports Aircraft Category (LSA) |
| 3. 申请日期/Date of Application: | 2016 年 06 月 15 日/15 Jun 2016 |

II. 审定基础/Certification Basis

CAAC 审定基础是 CCAR21.26、AC-21-AA-2015-25R1、适用的美国试验和材料标准协会 (ASTM) 标准和 CAAC 专用要求。

CAAC certification basis is consisted of CCAR21.26, AC-21-AA-2015-25R1, the applicable American Society for Testing and Materials (ASTM) standards and CAAC's special requirements.

1. 适航标准及其修正案水平/Airworthiness Standards and Amendment Levels

- F2339-17 轻型运动类飞机火花点火往复式发动机设计和制造标准/Standard Practice
for Design and Manufacture of Reciprocating Spark Ignition Engines for Light
Sport Aircraft;
- F2352-14 轻型运动类自转旋翼机设计和性能标准/Standard Specification for Design and
Performance of Light Sport Gyroplane Aircraft;
- F2415-14 轻型运动类自转旋翼机持续适航标准/ Standard Practice for Continued
System for Light Sport Gyroplane Aircraft t;
- F2483-12 轻型运动飞机维修通则和维修手册编制标准实施/ Standard Practice for
Maintenance and the Development of Maintenance Manuals for Light Sport Aircraft;
- F2506-13 轻型运动类飞机螺旋桨设计和测试标准/ Standard Specification for Design and
Testing of Light Sport Aircraft Propellers;

F2746-14 轻型运动类飞机驾驶员操作手册 (POH) 标准/ Standard Specification for Pilot's Operating Handbook (POH) for Light Sport Airplane;

F2972-15 轻型运动类飞机制造商质量保证体系标准/ Standard Specification for Light Sport Aircraft Manufacturer's Quality Assurance System.

2. 专用条件/Special Conditions:

无/None;

3. 等效安全/Equivalent Safety Findings:

无/None;

4. 豁免/Exemptions:

无/None

5. CAAC 的专用要求/CAAC's special requirements

5.1 与运行有关的要求/requirements related to operation :

(1) 高度表应以公制单位指示/The altimeter should be indicated in metric units;

(2) 按照 CCAR21 要求, 下列标记和标牌应至少有中文表述/According to CCAR21 requirements, the following markings and placards should be at least in Chinese:

- 机上所有对旅客进行的提示、警告和通知的文字标记和标牌/ Markings and placards for passenger usage;
- 机上所有向旅客或者机外营救人员指示应急出口和门的位置以及开启方法的文字标记和标牌/ Markings and placards for passengers and rescue personal usage in case of emergency evacuation.

(3) 按照 CCAR21 要求, 机上所有座椅安装安全带和肩带/ According to CCAR21 requirements, the Seats should be Installed Safety Belt and Shoulder Harness.

5.2 应在飞行员操作手册中规定发动机使用的最低燃油等级(95 号以上无铅汽油)/CAAC requests operational condition for the fuel specification (95 octane Lead free) to be used, and should be defined in the Pilot Operating Handbook.

第 2 部分 技术特征和使用限制

SECTION 2

Technical Characteristics and
Operational Limitations

I. 设计技术特征/Design Technical Characteristics

1. 型号设计数据/Type Design Data

JN-1 型自转旋翼机设计构型: JN-1 型自转旋翼机图样目录 (编号: JN1-SH-002, A 版)

批准日期: 2018 年 01 月 04 日

Approved on Model JN-1 Design Data: Master Drawing List (MDL) on Model JN-1(No.: JN1-SH-002, Revision A dated 04 January 2018).

2. 自转旋翼机设计资料/Airframe Details on the Groplane

类型/Type	自转旋翼, 推力螺旋桨/Seesaw Rotor, and Thrust Propeller
座椅数/Number of Seats	3
结构材料/Construction Material	复合材料: 环氧碳纤维机身和尾翼/Composite: Carbon Fuselage - Empennage Epoxy Resin
起落架/Undercarriage	前三点固定式/Fixed: Tricycle
尾翼/ Empennage	双垂直安定面和上部水平安定面/2 Vertical Fins, and Top Fixed horizontal stabilizer
纵向操纵/Longitudinal Control	螺旋桨推力/ Propeller Thrust
横向操纵/Lateral Control	方向舵/Rudders
地面操纵/Steering on the ground	差动刹车前轮转弯/Front Wheel
刹车/Braking	主轮刹车/Main Wheel Brakes Operating Together

3. 运行类别和使用限制/Type of Operation and Operating Limitations

运行类别/Type of Operation	昼间非特技目视飞行/Day VFR Non-Aerobatic Operation Only
允许机动/ Approved Manoeuvre	正常飞行中任何机动包括/Any manoeuvre necessary for normal flying including: -自转下滑/ Intentional gliding descent in autorotation -不超过 60°缓八字飞行/ Lazy eights with an angle of bank not more than 60° -不超过 60° 的急转弯和小机动/Steep turns and similar maneuvers with an angle of bank not more than 60°
禁止机动/Prohibited maneuvers	-特技飞行/ Aerobatics -失速(除动态失速和加速失速外)/Stalling (except for dynamic or accelerated stall) -超过 60°侧滑角机动飞行/Flight maneuvers with an angle of bank more than 60° -急转跃升/Chandelles

4. 重量平衡/Weight and Balance

最大起飞重量/Maximum Take-Off Weight	560 kg (1234 lbs)
最大着陆重量/Maximum Landing Weight	560 kg (1234 lbs)
空机重量/Empty weight (including rotor)	324 kg (714 lbs)
商载/Load capacity	236kg (520 lbs)
飞机基准/Aircraft Datum	防火墙站位平面定义为飞机基准/Datum plane is a plane of the firewall
重心前限/Most Forward CG	基准前 230 mm/230mm before datum plane
重心后限/Most rearward Position	基准前 180 mm/180mm before datum plane

驾驶员座椅站位/Pilot Seat Station	基准前 950 mm/950mm before datum plane
乘客座椅站位/Passengers Seat Station	基准前 800 mm/800mm before datum plane
行李区站位/Baggage Zone Station	无行李/No baggage zone station
机翼油箱站位/Fuel Station-Fuel Tank	基准前 200 mm/200mm before datum plane

5. 水平测量方法/Levelling Means

纵向/Longitudinal	无/None
横向/Lateral	驾驶舱水准仪/Spirit level placed on cockpit

6. 动力装置数据/Powerplant Data

发动机制造商/Engine Manufacturer	奥地利 BRP-Rotax 公司/BRP-Rotax GmbH & Co KG
发动机型号/Engine Model	Rotax 914F
发动机制造商/Engine Manufacturer	波兰 Aviation Artur Trendak
发动机型号/Engine Model	912RSTi/CA912ULT
最低燃油等级/Minimum Fuel Grade	辛烷值不低于 95 的车用无铅汽油（或抗暴指数不 小于 91）；欧洲标准 EN228 Super & Super Plus/ MOGAS: Min. RON 95 / Min. AKI 91 Unleaded; EN 228 Super & Super Plus
发动机滑油/ Engine Oil	Aeroshell Oil Sport Plus 10W40
燃油总容量/Total Fuel Capacity:	80 升/ 21.3 gallons
可用燃油量/Usable Fuel Capacity:	78 升/ 20.6 gallons
滑油量/Oil Capacity:	3 升/ 3 liters

6.1. 起飞操纵/Take-Off Operation

最大起飞功率/Maximum Take-off Power	84.5kw(115hp) at 5800 rpm (max.5 min)
最大连续功率/Maximum Continuous Power	73,5kw(100hp) at 5500 rpm
慢车转速/Idle	1400rpm
短距起飞功率/Short field take-off Power	84.5kw(115hp) at 5800 rpm (max.5 min)

6.2. 着陆操纵/ landing Operation

正常着陆功率/Normal landing Power	N.A.(Not applicable)
短距着陆功率/ Short field landing Power	N.A.(Not applicable)
迟缓着陆功率/ Balked landing Power	84.5kw(115hp) at 5800 rpm (max.5 min)

6.3. 温度限制/Temperature Limitations

汽缸头温度/Cylinder Head Temperature	最高 120°C (最大 5 分钟)/ Max. 120°C (Max. 5min)
滑油温度/Oil Temperature	最高 130°C (最大 5 分钟) / Max. 130°C (Max. 5min)
	最低 50°C / Min. 50°C

7. 螺旋桨数据/Propeller Data

制造商/Manufacturer	Kaspar
型别/Model	KA2/3-LT
桨叶数/Number of Blades	3
直径/Diameter	68 吋/68 inches(1720 mm)
材料/Material	碳纤维/ Carbon fiber
桨距调定值/Pitch Setting	Nominal Pitch: Setting #3
螺旋桨最大转速/Maximum Propeller Rotational Speed	2380rpm

8. 自转旋翼机性能概述/Summary of Performance on Groplane

禁超速度/ V_{NE} , Never Exceed Speed	200 km/h(108kt) IAS
最大结构巡航速度/ V_C , Maximum Structural Cruising Speed	108 km/h(58kt) IAS
机动速度/ V_A , Manoeuvring Speed	95 km/h(51kt) IAS
最小可操纵速度/ V_S , Minimum speed	60 km/h(32kt) IAS
起飞安全速度/ V_T , Take-Off Safety Speed	100 km/h (54kt) IAS
最终进近速度/ V_F , Final Approach Speed	90 km/h (49kt) IAS
最佳爬升角速度/ V_X , Best angle of climb speed	95 km/h(51kt) IAS
最佳爬升率速度/ V_Y , Best rate of climb speed	100 km/h(54kt) IAS
最大平飞速度(在海平面,最大起飞重量)/	

V_H , Max Level Flight Speed(Sea Level & MTOW) 108 km/h(58kt) IAS

巡航速度(75%功率,最大起飞重量) /

V_C , Cruising Speed(at 75% Power & MTOW) 108 km/h(58kt) IAS

起飞距离/Take-Off Distance

地面滑跑距离/Ground Roll Distance 150 m (490 ft)

总起飞距离/Total Take-Off Distance to 15m 400 m (1314 ft)

着陆距离/Landing Distance

地面滑跑距离/Ground Roll Distance 182 m (600 f t)

总着陆距离/Total Landing Distance from 15m 432 m (1420 ft)

起飞或着陆时最大迎风速度/

Maximum headwind Component for take-off and landing 60 km/h (32 kts, 17 m/s)

起飞或着陆时最大侧风速度/

Maximum Crosswind Component for take-off and landing 30 km/ (16 kts, 8 m/s)

使用升限(密度高度) / Service ceiling Altitude 3000 m (10000 ft)

9. 操纵面偏转范围/Control Surface Deflection

操纵面偏转范围的总容差为 $\pm 1.0^\circ$ /General Tolerance on Control Surface Deflection is $\pm 1.0^\circ$

操纵面/Control Surface 偏转测量结果/Deflection Measured Results

升降舵上偏/Elevator Up 19.0°

升降舵下偏/Elevator Down 2.0°

方向舵右偏/Rudder Right 25°

方向舵左偏/Rudder Left 25°

10. 操纵面配平/Control Surface Balancing

操纵面/Control Surface 铰链力矩限制/Limiting Hinge Moment

方向舵/Rudder 2.07 kg-m (15 ft-lbs)

升降舵/Elevator 2.90 kg-m (21 ft-lbs)

11. 自转旋翼机尺寸/Groplane Dimensions

旋翼直径/ Rotor diameter	8.60 m (28 ft 3 in)
桨盘面积/ Rotor surface	60.82m ² (654.66ft ²)
旋翼桨叶弦长/ Rotor blade chord	0.22 m
机体长度(不包括旋翼)/ Overall length (without rotor)	5.04 m
机体宽度/ Overall width	2.35 m
机舱宽度/Cockpit width	1.36 m
机体高度/ Overall height	2.87 m
主机轮迹线宽度/Track of wheels	2.20 m

12. 设备和标牌/Equipments and Placards

飞行员使用手册所要求的设备和标牌必须安装。

Equipments and placards required by the applicable Pilot's Operating Handbook must be installed.

13. 最小飞行机组/Minimum Flight Crew 1 名飞行员/1 Pilot**II. 运行和使用说明/Operating and Service Instructions****1. 飞行员使用手册/ Pilot's Operating Handbook**

飞行员使用手册 (TAURUS-POH-001-EN/TERCEL-AFM-001-EN/TERCEL-AFM-001-EN/, 1 版) 及其补充和后续更改版本/Pilot's Operating Handbook (TAURUS-POH-001-EN/TERCEL-AFM-001-EN/TERCEL-AFM-001-EN/, Rev 1), and supplements, or later approved revisions.

2. 维护检查文件/Instructions for Maintenance and Inspection

飞行员使用手册 (TAURUS-POH-001-EN/TERCEL-AFM-001-EN/TERCEL-AFM-001-EN/, 1 版) 及其补充和后续更改版本/Pilot's Operating Handbook (TAURUS-POH-001-EN/TERCEL-AFM-001-EN/TERCEL-AFM-001-EN/, Rev.1), and supplements, or later approved revisions.

维护手册 (TAURUS-AMM-001-EN/TERCEL-AMM-001-EN/TERCEL-AMM -001-EN/, 1 版)

及其补充和后续更改版本/The Maintenance

(TAURUS-AMM-001-EN/TERCEL-AMM-001-EN/TERCEL-AMM -001-EN/, Rev.1), and supplements, or later approved revisions.

Rotax914F/912RSTi/CA912ULT 发动机操作手册 (/LTZ-004-EN/LTZ-004-EN/, 1 版) 及其补充和后续更改版本/Rotax914F/912RSTi/CA912ULT Engine Operation Manual

(/LTZ-004-EN/LTZ-004-EN/, Rev.1), and supplements, or later approved revisions.

Rotax914F/912RSTi/CA912ULT 发动机维护手册 (/912 RSTi /ZEN 1-005-EN/, 1 版) 及其补充和后续更改版本/Rotax914F/912RSTi/CA912ULT Engine Maintenance Manual (/912 RSTi /ZEN 1-005-EN/, Rev.1), and supplements, or later approved revisions.

KASPAR KA2/3-LT 螺旋桨技术说明和使用指南及其补充和后续更改版本/KASPAR KA2/3-LT Technical description and Operational instruction, and supplements, or Later Approved Revisions.

3. 产品序列号/Product Serial Number

产品序列号为 001 及其后续序号/Productions Serial Number 001 and later.

III 备注/ NOTES

备注 1/ Note 1:

维修计划文件见 JN-1 型自转旋翼机维护手册

(TAURUS-AMM-001-EN/TERCEL-AMM-001-EN/TERCEL-AMM -001-EN/, 1 版) 及其补充和后续更改版本/ The maintenance schedule for the Modle JN-1 Groplane is that specified in The Maintenance Manual (TAURUS-AMM-001-EN/TERCEL-AMM-001-EN/TERCEL-AMM -001-EN/, Rev.1), and supplements, or later approved revisions.

备注 2 /Note 2:

强制检查见 JN-1 型自转旋翼机维护手册

(TAURUS-AMM-001-EN/TERCEL-AMM-001-EN/TERCEL-AMM -001-EN/, 1 版) 及其补充和后续更改版本适航限制部分/Mandatory inspections are contained in the inspection section of the

Modle JN-1 Groplane Maintenance Manual

(TAURUS-AMM-001-EN/TERCEL-AMM-001-EN/TERCEL-AMM -001-EN/, Rev.1), and
supplements, or later approved revisions.