

型号认可证数据单

THE VALIDATION DATA SHEET

编号/No: VTC0117E

版次/Revision: 4

型号/Type: V2500 series

型别/Model:

V2522-A5

V2524-A5

V2525-D5

V2527-A5

V2527E-A5

V2527M-A5

V2528-D5

V2530-A5

V2533-A5

批准人/Approved By:



职务/Title: Deputy Director General

日期/Date: 2025年09月16日

本数据单是型号认可证（编号：VTC0117E）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 part of Validation of Type Certificate (No: VTC0117E), 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:

IAE公司，东哈特福德主街400号，CT06118。

International Aero Engines AG (IAE), c/o IAE Airworthiness, 400 Main Street East Hartford, CT 06118.

第1部分 概述

Section 1 GENERAL

1. 型号认可证数据单版次信息以及修订记录/ Revision and Change Record of the Validation of Type Certificate Data Sheet

数据单版次信息/Revision of the 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	VTC0117E, 版次4, 2025年09月16日	FAA TCDS No. E40NE, Revision 14, August 6, 2024
历史 History	VTC0117E, 版次3, 2024年06月18日	FAA TCDS No. E40NE, Revision 11, September 14, 2017
	VTC0117E, 版次2, 2017年12月19日	FAA TCDS No. E40NE, Revision 11, September 14, 2017
	VTC0117E, 版次1, 2008年11月12日	FAA TCDS No. E40NE, Revision 9, June 22, 1999
	VTC117E, 版次0, 2001年6月8日	FAA TCDS No. E40NE, Revision 9, June 22, 1999

注：上表中出口国局方型号合格证数据单信息仅供参考

Note: Above TCDS information of Certification Authority is only for reference

认可数据单修订记录/ Change Record of the VTCDS

版次/ Revision	相对上一版的修订记录 Change Record	备注 Remark
版次 4/ Rev 4	1. 修订燃油排泄和排气排出物规定。 Amend exhaust emission regulatory requirements. 2. 增加 CAAC 认可审定基础。 Add the CAAC VALIDATION BASIS. 3. 增加了第 3 部分管理信息。 Add Section 3 ADMINISTRATIVE INFORMATION.	
版次 3/ Rev 3	1. 增加 CAAC 专用要求：燃油排泄和排气排出物 CCAR-34-R1 Add CAAC Special Requirements: fuel venting and exhaust emissions requirements CCAR-34-R1 2. 更改 CAAC 关于 3 号燃油专用要求表述 Changes of description of CAAC Special Requirements about "No.3 Jet Fuel"	本版本认可数据单对应的 FAA数据单版本与版次2对应的 FAA数据单版本一致 The revision of FAA TCDS related to this VTCDS is the same with the revision of FAA TCDS related to VTCDS rev.2
版次 2/ Rev 2	1. 将审定基础中关于排放的要求修订为 34 部的第 5 次修正案，并在注释 13 和注释 14 中修改关于满足的排放标准的声明 Amend the emission requirements in the certification basis to Part 34 amdt 15, and amend the statement on the required emission standards in notes 13 and 14 2. 增加 V2531-E5 型别相关数据 Add relative data of model V2531-E5	

	3. 增加关于使用和维护说明及手册信息的注释 22 Add operating and service instructions and manual information in note 22	
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2. 类别/Category: 发动机/Engine
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: IAE 公司, 东哈特福德主街 400 号, CT06118
International Aero Engines AG (IAE)
c/o IAE Airworthiness
400 Main Street
East Hartford, CT 06118
5. 双发延程飞行/ETOPS: 不适用/NA
6. CAAC专用要求/CAAC Special Requirements: (1) 中华人民共和国国家标准“3号喷气燃料”(GB 6537)。
National Standard of the People's Republic of China
“No.3 Jet Fuel”(GB 6537)
(2) 燃油排泄和排气排出物规定CCAR-34-R1
Fuel venting and exhaust emissions requirements
CCAR-34-R1

第2部分 数据单

Section 2 DATA SHEET

1.型别/MODELS	V2530-A5	V2527-A5 & V2527E-A5 V2527M-A5	V2522-A5	V2524-A5
类型/TYPE	双转子、轴流式、高涵道比涡轮风扇发动机，具有单级风扇、4级低压压气机、10级高压压气机、环形燃烧室、2级高压涡轮、5级低压涡轮。 Dual rotor, axial flow, high bypass turbofan, single-stage fan; four-stage low pressure compressor, ten-stage high pressure compressor, annular combustor, two-stage high-pressure turbine, five-stage low pressure turbine.			
额定值（见注 5） RATINGS (See NOTE 5)				
最大连续海平面静态推力，磅 Maximum continuous at sea level, static thrust, lb	26,950	22,240	19,200	19,200
起飞（5 分钟）海平面静态推力，磅 Takeoff (5 min.) at sea level, static thrust, lb	29,900	24,800	23,040	24,480
单发失效（见注 21） OEI (See NOTE 21)				
部件/COMPONENTS	参考安装和使用手册（IOM）；安装手册；零件图解目录或经批准的零件清单 For information refer to the Installation and Operating Manual (IOM); Installation Handbook; Illustrated Parts Catalogue or Approved Parts List.			
主要尺寸（英寸）/PRINCIPAL DIMENSIONS(IN)				
长/Length	126.0205	--	126.0205	--
标称直径/Normal diameter	66.23	--	66.23	--
最大径向投影 Maximum radial projection	43.048	--	43.048	--
说明/LEGEND: "--"表明同之前型别一样/SAME AS PRECEDING MODEL "---"不适用/NOT APPLICABLE				

1.型别/MODELS	V2528-D5	V2525-D5	V2533-A5
类型/TYPE	双转子、轴流、高涵道比涡轮风扇发动机，具有单级风扇、4级低压压气机、10级高压压气机、环形燃烧室、2级高压涡轮、5级低压涡轮。 Dual rotor, axial flow, high bypass turbofan, single-stage fan; four-stage low pressure compressor, ten-stage high pressure compressor, annular combustor, two-stage high-pressure turbine, five-stage low pressure turbine.		
额定值（见注 5） RATINGS (See NOTE 5)			
最大连续海平面静态推力，磅 Maximum continuous at sea level, static thrust, lb	25,660	23,900	26,950
海平面起飞（5 分钟）静态推力，磅 Takeoff (5 min.) at sea level, static thrust, lb	28,000	25,000	31,600
部件/COMPONENTS	参考安装和使用手册(IOM); 安装手册; 零件图解目录或经批准的零件清单。 For information refer to the Installation and Operating Manual (IOM); Installation Handbook; Illustrated Parts Catalogue or Approved Parts List.		
主要尺寸（英寸）/PRINCIPAL DIMENSIONS(IN)			
长/Length	126.0205	--	--
标称直径/Normal diameter	66.23	--	--
最大径向投影 Maximum radial projection	43.665	--	43.048

1.型别/1.MODELS	V2530-A5 A2533-A5	V2527-A5 V2527E-A5 V2527M-A5	V2522-A5 V2524-A5	V2525-D5 V2528-D5
重量（干重） （包括所有必需的附件，但-A5 系列不包括起动机、尾喷管和点火系统的电源，-D5 系列不包括尾喷管。） WEIGHT (DRY) (Includes all essential accessories, but excludes starter, exhaust nozzle, and power source for the ignition system for the -A5 series, and exhaust nozzle for the -D5 series.)	2,404 kg/5,300 lb	--	--	2,595 kg/5,720 lb
重心（英寸） CENTER OF GRAVITY (IN) 前安装区域中心线后 Aft of front mount area centerline	15.7 ± 1.0	--	--	14.1 ± 1.0
发动机中心线下 Below engine centerline	1.7 ± 0.5	--	--	1.6 ± .5
发动机纵向中心线右侧 Starboard of engine vertical centerline	0.7 ± .5	--	--	0.1 ± .5

燃油（见注释 10）/FUEL (SEE NOTE 10)**滑油（见注释 11/OIL (SEE NOTE 11)****审定基础****CERTIFICATION BASIS**

- V2530-A5/V2527-A5/V2527E-A5/V2528-D5/V2525-D5的审定基础为1965年2月1日生效的14CFR 33部第1修正案到第14修正案。
 For V2530-A5, V2527-A5, V2527E-A5, V2528-D5, V2525-D5: 14 CFR part 33, effective February 1, 1965, as amended by 33-1 through 33-14 inclusive.

 V2522-A5/V2524-A5/V2527M-A5/V2533-A5的审定基础为1965年2月1日生效的14CFR 33部，第1修正案到第14修正案和15修正案的33.28条。
 For V2522-A5/V2524-A5/ V2527M-A5/V2533-A5: 14 CFR part 33, effective February 1, 1965, as amended by 33-1 through 33-14, inclusive and FAR 33.28, Amendment 33-15.
- 以下型别符合2013年10月23日生效的14CFR 34部第5a修正案。

The following models comply with 14 CFR part 34, amendment 5a, effective October 23, 2013:

V2525-D5、V2528-D5，以及发动机序列号（S/N）在V15001之前（含）的V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5型别燃油排泄和排出物审定基础见注释13。

See note 13 for detailed summary of the certification basis for fuel venting and exhaust emissions for: V2525-D5, V2528-D5 and the following engine models with engine serial number (S/N) up to and including S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

发动机序列号（S/N）在V15001之后的V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5型别燃油排泄和排出物审定基础见注释14。

See note 14 for detailed summary of the certification basis for fuel venting and exhaust emission for the following: the following engine models with engine S/N after S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

以下型别符合2024年5月24日生效的14CFR 34部第7A次修正案。

The following models comply with 14 CFR part 34, amendment 7A, effective May 24, 2024:

发动机序列号（S/N）在V19104之后的V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5, V2524-A5, V2522-A5型别燃油排泄和排出物审定基础见注释23。

See note 23 for detailed summary of the certification basis for fuel venting and exhaust emissions for the following engine models with engine S/N after S/N V19014: V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5, V2524-A5, V2522-A5.

型别/Model	申请日期 Date of Application	批准日期 Issued/Revised
V2530-A5/V2527-A5	1989年11月17日 NOV.17 1989 (Orig) 1992年10月12日 OCT 12, 1992 (Rev)	1992年11月24日 NOV 24, 1992
V2528-D5/V2525-D5	1990年3月22日 MAR 22, 1990 (Orig) 1992年10月19日 OCT 19, 1992 (Rev)	1992年11月24日 NOV 24, 1992
V2527E-A5	1995年6月6日 JUN 6, 1995	1995年8月4日 AUG 4, 1995
V2522-A5/V2524-A5	1995年7月24日 JUL 24, 1995	1996年4月19日 APR 19, 1996
V2533-A5	1994年12月16日 DEC 16, 1994	1996年8月21日 AUG 21, 1996
V2527M-A5	1999年2月25日 FEB 25, 1999	1999年5月3日 MAY 3, 1999

生产基础

PRODUCTION BASIS

生产合格证No.114NE/Production Certification No. 114NE

CAAC 认可审定基础

CAAC VALIDATION BASIS

接受 FAA 的审定基础作为认可审定基础。

Accept FAA certification basis as validation basis.

附加技术条件/Additional Technical Requirement:

(1) 中华人民共和国国家标准“3 号喷气燃料” (GB 6537)。

National Standard of the People's Republic of China "No.3 Jet Fuel" (GB 6537)

(2) 燃油排泄和排气排出物规定 CCAR-34-R1, 详见注释 13a, 注释 14a 以及注释 23a:

Fuel venting and exhaust emissions requirements CCAR-34-R1, See NOTE 13a, NOTE 14a and NOTE 23a:

注释13a适用于V2525-D5和V2528-D5, 以及发动机序列号(S/N)在V15001之前(含)的V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5等型别。

NOTE 13a is applicable to V2525-D5, V2528-D5 and the following engine models with engine S/N up to and including S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

注释14a适用于发动机序列号(S/N)在V15001之后的V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5等型别。

NOTE 13a is applicable to the following engine models with engine S/N after S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

注释23a适用于发动机序列号（S/N）在V19014之后的V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5, V2524-A5, V2522-A5等型别。

NOTE 23a is applicable to engine models with engine S/N after S/N V19014: V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5, V2524-A5, V2522-A5.

注释/NOTES

注1/NOTE 1

发动机转子最大允许运行转速如下：

Maximum Permissible Operating Speeds for the engine rotors as follows:

低压转子转速，RPM 5,650 (100%)

Low pressure rotor (N1), RPM 5,650 (100%)

高压转子转速，RPM 14,950 (100%)

High pressure rotor (N2), RPM 14,950 (100%)

注2/NOTE 2

涡轮排气温度（实际值/显示值℃）（见注19）。

Turbine Exhaust Gas Temperature (Actual/Indicated °C)(See NOTE 19)

型别 MODELS	V2530-A5	V2527-A5* V2527E-A5 V2527M-A5	V2522-A5	V2524-A5	V2525-D5	V2528-D5	V2533-A5
起飞(5分钟) Takeoff(5min)	650/650	645/635	625/635	635/635	620/620	635/635	670/650
最大连续 Maximum Continuous	610/610	--	--	--	--	--	--
地面起动 Start Ground	635/635	--	--	--	--	--	--
空中起动 Start Inflight	635/635	--	--	--	--	--	--
滑油出口温度 Oil Outlet Temperature	(所有型别) / (All Models)						
连续运行 Continuous operation	155°C/311°F						
瞬时运行（15 分钟） Transient operation (15 min.)	165°C/329°F（最大/maximum）						

*驾驶舱显示和飞机飞行手册中的地面和空中起动的限制温度为635°C，但是对于版本为SCN9A(V2527-A5)的EEC软件，允许的实际限制温度为645°C。所有其他的和后续的软件版本，其软件限制温度为635°C。

The cockpit and aircraft flight manuals for SCN9A(V2527-A5) will reflect a ground and air start limit of 635°C, but the ECC software allows an actual limit of 645°C. All other and subsequent software versions have a software limit of 635°C.

注3/NOTE 3

燃油和滑油压力限制/Fuel and oil pressure limits

燃油压力/Fuel Pressure

发动机系统泵进口燃油压力至少比汽液比为0时燃油真实蒸汽压高5psig，但不超过70psig。

At inlet to engine system pump, not less than 5 psig above the true vapor pressure of the fuel and not greater than 70 psig with a vapor/liquid ratio of zero.

滑油压力/ Oil Pressure

最低60psig/60 psig minimum.

注4/NOTE 4

(A) V2522-A5/V2524-A5/V2527-A5/V2527MA5/V2530-A5/V2527E-A5/V2533-A5
的最大允许引气如下：

Maximum permissible air bleed extraction for the V2522-A5/V2524-A5/
V2527-A5/ V2527MA5/V2530-A5/V2527E-A5/V2533-A5 is as follows:

7级引气/7th Stage Bleed

最大引气限制值(2)(占发动机核心气流
(WA26)的百分比)

Max Bleed Limit (2)(% of core flow
(WA26))

等于或低于90%高压转子换算转速 8.2%

At or below 90% Corrected high
rotor speed

从90%到97%高压转子换算转速 从8.2%到6.0%线性变化

From 90% to 97% Corrected high Linear variation from 8.2% to 6.0%
rotor speed

等于或高于97%高压转子换算转速 6.0%

At or above 97%Corrected high rotor
speed

10级引气/10th Stage Bleed(1)

等于或低于61%高压转子换算转速 13.7%

At or below 61% corrected high rotor
speed

从61%到78%高压转子换算转速 从13.7%到12.0%线性变化

From 61% to 78% corrected high Linear variation from 13.7% to 12.0%
rotor speed

从78%到97%高压转子换算转速 从12.0%到6.0%线性变化

From 78% to 97% corrected high Linear variation from 12.0% to 6.0%
rotor speed

等于或高于97%高压转子换算转速 6.0%

At or above 97% corrected high rotor
speed

(1) 在 22,000 英尺以下以最大连续额定值及以上状态工作时不允许 10 级引气。
No 10th Stage bleed allowed below 22,000 ft. at Max. Continuous Rating and above.

(2) 只有因故障必需时，才能在限制条件下同时使用 7 级和 10 级引气，直到着陆。

Simultaneous use of 7th and 10th stage bleed at limiting conditions is allowed only when required by a malfunction and only until the next landing.

(B) V2525-D5/V2528-D5的最大允许引气如下：

Maximum permissible air bleed extraction for the V2525-D5/V2528-D5 is as follows:

单级引气/Single Stage Bleed:

7级引气/7th Stage Bleed

最大单级引气限制值(2)(占发动机核心气流(WA26)的百分比)/Max Single Stage Bleed Limit(2)
(% of core flow (WA26));

等于或低于100% N2换算转速
At or below 100% corrected N2

9.2%

10级引气/10th Stage Bleed(1)

从最小慢车到65% N2换算转速
From minimum idle to 65% corrected N2

从16%到18%线性变化(5)
linear variation from 16% to 18%(5)

从65%到75% N2换算转速
From 65% to 75% corrected N2

从18%到16%线性变化
linear variation from 18% to 16%

从75%到84% N2换算转速
From 75% to 84% corrected N2

16%

从84%到97.5% N2换算转速
From 84% to 97.5% corrected N2

从16%到7%线性变化
linear variation from 16% to 7%

从97.5%到100% N2换算转速
From 97.5% to 100% corrected N2

7%

混合引气/Mixed Stage Bleed:

7级引气/7th Stage Bleed

最大混合引气限制值(3)(占发动机核心气流(WA26)的百分比)
Max Mixed Stage Bleed Limit(3)
(% of core flow (WA26))

从79%到86.5% N2换算转速	从0%到9%线性变化
From 79% to 86.5% corrected N2	linear variation from 0% to 9%

从86.5%到96% N2换算转速/	9%
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From 86.5% to 96% corrected N2

10级引气/10th Stage Bleed(4)

从79%到84% N2换算转速	16%
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From 79% to 84% corrected N2

从84%到93.6% N2换算转速	从16%到4%线性变化
From 84% to 93.6% corrected N2	linear variation from 16% to 4%

从93.6%到96% N2换算转速	4%
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From 93.6% to 96% corrected N2

(1) 24,000 英尺以下/Below 24,000 ft:

—环境温度在 40°F 以上，在最大连续额定值及其以上的状态下运行，不允许 10 级引气。

at ambient temperatures above 40°F, no 10th stage bleed is allowed at Max. Continuous Rating and above.

—在环境温度在 40°F 及以下，在起飞额定值下 10 级最大允许引气为 2%；在最大连续额定值下 10 级最大允许引气为 4%。

At 40°F ambient temperature and below, a maximum of 2% 10th stage bleed is allowed at takeoff rating and 4% 10th stage bleed at Max. Continuous Rating.

(2) 允许 7 级和/或 10 级引气补充进气整流罩的防冰引气。

The allowable 7th and/or 10th stage bleed is in addition to the bleed used for inlet cowl anti-icing.

(3) 只有在出现故障时，才允许在任何功率条件下使用 7 级和 10 级同时引气，直到下次着陆。

Simultaneous use of 7th and 10th stage bleed is allowed at any power condition due to malfunction and only until the next landing.

(4) 当需要同时引气的时候，7 级和 10 级引气总和不能超过下面列出的限制。

When simultaneous bleed flow is required, the addition of the 7th and 10th stage bleed may not exceed the total extraction limits shown below.

(5) 只有在环境温度小于等于 30°F 时，才允许使用 18%。

18% for ambient temperatures of 30°F and below only.

同时引气总量 Total Simultaneous Bleed Flow	最大混合引气限制值(占发动机核心气流 (WA26) 的百分比)/Max Combined Bleed Limit (%WA26)
从79%到80% N2换算转速 From 79% to 80% corrected N2	从16%到16.5%线性变化 linear variation from 16% to 16.5%
从80%到87.5% N2换算转速 From 80% to 87.5% corrected N2	16.5%
从87.5%到91%N2换算转速 From 87.5% to 91% corrected N2	从16.5%到12.5%线性变化 linear variation from 16.5% to 12.5%
从91%到96%N2换算转速 From 91% to 96% corrected N2	12.5%

注5/NOTE 5

额定值通过基于以下条件的海平面静态试验获得:

The ratings are based on Sea Level Static test stand operation under the following condition:

- 发动机进口空气温度59°F，压力29.92英寸汞柱
Engine inlet air at 59°F and 29.92 in.Hg.
- 规定的燃油和滑油（见注10和11）
Specified fuel and oil (see NOTES 10 and 11).
- 无风扇、压气机引气，无附件驱动载荷
No fan or compressor air bleed or load on accessory drives.
- 理想的进口压力恢复
Ideal inlet pressure recovery.
- 混合排气系统没有内部压力损失，主喷口的速度系数等于1.0
A mixed exhaust system having no internal pressure losses and a mixed primary nozzle velocity coefficient equal to 1.0.
- 起飞额定值是审定的起飞运行最大推力，该推力值在以下条件可以达到：
Takeoff rating is a maximum thrust certified for takeoff operation. The specified takeoff thrust is available at and below:

V2530-A5	V2527-A5*	V2522-A5	V2528-D5
V2533-A5	V2527E-A5	V2524-A5	V2525-D5
	V2527M-A5		
ISA+15°C/27°F	ISA+31°C/56°F	ISA+40°C/72°F	ISA+15°C/27°F

最大连续额定值是审定的连续工作最大推力，该推力值在小于等于 ISA+18°F（10°C）条件下可以达到。

Maximum Continuous rating is the maximum thrust certified for continuous operation. The specified thrust is available at and below ISA +18°F (10°C) ambient temperature.

注6/NOTE 6

V2530-A5/V2527-A5/V2527E-A5/V2527M-A5/V2522-A5/V2524-A5/V2533-A5 附件驱动规定如下表所示:

The accessory drive provisions shown in the following tabulation are incorporated in the V2530-A5/V2527-A5/V2527E-A5/V2527M-A5/V2522-A5/V2524-A5/V2533-A5

驱动/Drive	转向 Rotation	与涡轮轴的 速比/Speed ratio to turbine shaft	扭矩/TORQUE (lb-in)		过载 Overload	悬臂力矩 Overhang (lb-in)
			连续 Continuous	静态/Static		
起动机/Starter	CCW	0.941:1	---	*	---	550
整体驱动发电机 IDGS	CCW	0.604:1	**	11,000	**	800
液力泵 Fluid power pump (R)	CCW	0.267:1	1,300	6,500	1,950	400
CCW=逆时针/counterclockwise						
*起动机最大扭矩: 零转速时470磅-英尺; 最大允许扭矩1,175磅-英尺。 Maximum starter torque = 470 lb.-ft. at zero rpm. The maximum allowable starter torque value is 1175 lb.-ft.						
**在发动机任意转速下, 最大允许连续扭矩值相当于175马力。以下过载条件可以接受: Maximum allowable continuous torque values are equivalent to 175 horsepower at any engine speed. The following overload conditions can be accommodated:						
		马力 HORSEPOWER	持续时间 DURATION TIME	再次出现时间 RECURRING TIME		
		225	5分钟/5 minutes	1000小时/1,000 hours		
		225	5秒/5 seconds	1小时/1 hour		
		450	5秒/5 seconds	1000小时/1,000 hours		

V2528-D5/V2525-D5附件驱动规定如下:

The accessory drive provisions shown in the following tabulation are incorporated in the V2528-D5 /V2525-D5

驱动/Drive	转向 Rotation	与涡轮轴的 速比/ Speed ratio to turbine shaft	扭矩/TORQUE (lb-in)		过载 Overload	悬臂力矩 Overhang (lb-in)
			连续 Continuous	静态/Static		
起动机/ Starter	CCW	0.941:1	---	*	---	550
变速恒频发电机 VSCF	CCW	1.582:1	**	5,500	**	1000
液力泵 Fluid power pump (R)	CCW	0.275:1	1,100	4,700	2,100	100

CCW=逆时针/counterclockwise

* 起动机最大扭矩：零转速时470磅-英尺；最大允许扭矩1,175磅-英尺。

Maximum starter torque = 470 lb.-ft. at zero rpm. The maximum allowable starter torque value is 1175 lb.-ft.

** 在发动机任意转速下，最大允许连续扭矩值相当于140马力。以下过载条件可以接受：

Maximum allowable continuous torque values are equivalent to 175 horsepower at any engine speed. The following overload conditions can be accommodated:

马力 HORSEPOWER	持续时间 DURATION TIME	再次出现时间（小时） RECURRING TIME (Hours)
167	5分钟/5 minutes	1000
225	5秒/5 seconds	1
335	5秒/5 seconds	1000

注7/NOTE 7

功率设定、功率检查及各种运行情况下发动机的输出控制，基于参照涡轮排气压力或低压转子转速确定的IAE公司发动机图表，因此发动机组件中包含压力探头和低压转子转速传感器。

Power setting, power checks, and control of engine output in all operations are to be based upon International Aero Engines AG engine charts referring to either turbine discharge section gas pressure or low rotor speed. Pressure probes and a low rotor speed sensor are included in the engine assembly for this reason.

注8/NOTE 8

在结冰条件下飞行，允许的最低风扇转速是24.8%（1,400 RPM）

For inflight operation during icing conditions, the minimum allowable fan speed is 24.8% (1,400 RPM).

注9/NOTE 9

发动机控制系统包括电缆的闪电和电磁干扰的防护能力，在V2500-A5/-D5的安装和使用手册(IAE-0043/IAE-0174)中4.12部分详细说明。

Lightning and EMI protection capability of the electronic engine control system, including cables, are specified in the V2500-A5/-D5 Installation and Operating Manual, (IAE-0043/IAE-0174), Section 4.12.

注10/NOTE 10

燃油和燃油添加剂应符合IAE公司最新颁发的V2500A5/-D5发动机安装和使用手册(IAE-0043/IAE-0174)适用版本中所列的规范。符合规范的燃油可以单独使用或按任何比例混合使用，而不会对发动机的运行及功率输出产生不利影响。

Fuels and fuel additives conforming to the specifications listed in the latest applicable issue of the International Aero Engines V2500A5/-D5 Installation and Operating Manual (IAE-0043)/(IAE-0174). These fuels may be used separately or mixed in any proportions without adversely affecting the engine operation or power output.

注：中国的3号航空燃油规范（GB6537）已经包含在该手册中。

Note: #3 Jet fuel specification (GB6537) has already included in the Manual.

注11/NOTE 11

批准在V2500-A5/-D5系列发动机上使用符合IAE公司最新颁发的V2500A5/-D5安装和使用手册(IAE-0043/IAE-0174)中所列规范的滑油。

Oils conforming to the specifications listed in the International Aero Engines V2500-A5/-D5 Installation and Operating Manual (IAE-0043)/(IAE-0174), latest

revision, are approved for use in the V2500-A5/-D5 engine.

注12/NOTE 12

V2500-A5/-D5发动机符合FAA关于涡轮盘完整性和转子叶片包容性的要求，但不要求外部护板。某些发动机部件有寿命限制，其寿命限制列于FAA批准的IAE公司V2500涡扇发动机手册时间限制部分，第5章。

The V2500-A5/-D5 engines meet Federal Aviation Administration requirements for adequate turbine disk integrity and rotor blade containment and does not require external armoring. Certain engine parts are life limited. These limits are listed in the FAA approved International Aero Engines AG V2500 Turbofan Engine Manual. Time Limit Section, Chapter 5.

注13/NOTE 13

V2525-D5、V2528-D5，以及发动机序列号（S/N）在V15001之前（含）的V2522-A5，V2524-A5，V2527-A5，V2527E-A5，V2527M-A5，V2530-A5，V2533-A5型别满足以下于2013年10月23日生效的14CFR 34部第5a修正案以及于2012年10月31日生效的40CFR 87部。

The following emissions standards promulgated in 14 CFR Part 34, Amendment 5a, effective October 23, 2013, and 40 CFR part 87, effective October 31, 2012, have been complied with for: V2525-D5, V2528-D5 and the following engine models with engine S/N up to and including S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

燃油排泄物标准：14CFR 34.10(a)和§ 34.11；以及40 CFR 87.10(a)和§ 87.11。

Fuel Venting Emission Standards: 14 CFR 34.10(a) and § 34.11; in addition, 40 CFR 87.10(a) and § 87.11.

发烟指数（SN）排放标准：14CFR 34.21(e)(2)；以及40 CFR 87.21。

Smoke Number (SN) Emission Standards; 14 CFR 34.21(e)(2); in addition, 40 CFR 87.21

一氧化碳（CO）排放标准：14 CFR 34.21(d)(1)；以及40 CFR 87.21。

Carbon Monoxide (CO) Emission Standards; 14 CFR 34.21(d)(1); in addition, 40 CFR 87.21

碳氢化合物排放标准：14 CFR 34.21(d)(1)(i)；以及40 CFR 87.21。

Hydrocarbons (HC) Emission Standards; 14 CFR 34.21(d)(1)(i); in addition, 40 CFR 87.21

氮氧化物排放标准：14 CFR 34.21(d)；以及40 CFR 87.21。

Oxides of Nitrogen (NOx) Emission Standards; 14 CFR 34.21(d); in addition, 40 CFR 87.21

在美国联邦航空局确认已符合型号合格证数据单No.E40NE规定的审定要求之上，发动机制造商声明这些型别中适用的序列号的发动机符合国际民航组织的排放标准（也称为CAEP/4）。

In addition to the FAA's finding of compliance based on the certification requirements defined in TCDS No.E40NE, the engine manufacturer has declared that the ICAO emissions standards known as CAEP/4 have been demonstrated for the applicable serial numbers of these models.

注13a/NOTE 13a

V2525-D5和V2528-D5, 以及发动机序列号(S/N)在V15001之前(含)的V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5等型别满足中国民航规章《涡轮发动机飞机燃油排泄和排气排出物规定》(CCAR-34R1)(2023年1月1日生效)的下列标准:

- 非挥发性颗粒物排放标准: CCAR 34.21(e)款 (CAEP/10与CAEP/11)

The following emissions standards promulgated in CAAC regulation CCAR-34R1, effective January 1st, 2023, have been complied with for: V2525-D5, V2528-D5 and the following engine models with engine S/N up to and including S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

- Non-volatile Particulate Matter emission standards: CCAR 34.21(e) (CAEP/10 and CAEP/11)

注14/NOTE 14

V2531-E5 以及发动机序列号(S/N)在V15001之后的V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5型别满足以下于2013年10月23日生效的14CFR 34部第5a修正案以及于2012年10月31日生效的40CFR 87部。

The following emissions standards promulgated in 14 CFR Part 34, Amendment 5a, effective October 23, 2013, and 40 CFR part 87, effective October 31, 2012, have been complied with for: V2531-E5 and the following engine models with engine S/N after S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

燃油排泄物标准: 14CFR 34.10(a)和§34.11; 以及40 CFR 87.10(a)和§87.11。

Fuel Venting Emission Standards: 14 CFR 34.10(a) and § 34.11; in addition, 40 CFR 87.10(a) and § 87.11.

发烟指数(SN)排放标准: 14CFR 34.21(e)(2); 以及40 CFR 87.23(c)(1)。

Smoke Number (SN) Emission Standards; 14 CFR 34.21(e)(2); in addition, 40 CFR 87.23(c)(1)

一氧化碳(CO)排放标准: 14 CFR 34.21(d)(1)(ii); 以及40 CFR 87.23(c)(1)。

Carbon Monoxide (CO) Emission Standards; 14 CFR 34.21(d)(1)(ii); in addition, 40 CFR 87.23(c)(1)

碳氢化合物排放标准: 14 CFR 34.21(d)(1)(i); 以及40 CFR 87.23(c)(1)。

Hydrocarbons (HC) Emission Standards; 14 CFR 34.21(d)(1)(i); in addition, 40 CFR 87.23(c)(1)

氮氧化物排放标准: 14 CFR 34.23(a)(2); 以及40 CFR 87.23(c)(2)。

Oxides of Nitrogen (NOx) Emission Standards; 14 CFR 34.23(a)(2); in addition, 40 CFR 87.23(c)(2)

在美国联邦航空局确认已符合型号合格证数据单No.E40NE规定的审定要求之上, 发动机制造商声明符合国际民航组织附件16第二卷第三版第三部分第二章, 2.2.2节发烟指数、2.3.2节一氧化碳和碳氢化合物、2.3.2.d.3节氮氧化物(也称为CAEP/6)的排放标准, 并且符合第二部分第二章燃油排泄要求。

In addition to the FAA's finding of compliance based on the certification requirements defined in TCDS No.E40NE, the engine manufacturer has declared that the ICAO emission standards identified in Annex 16, Volume II. Third Edition, Part III, Chapter 2, Section 2.2.2 for SN, Section 2.3.2 for CO and HC, Section 2.3.2.d.3 for NOx (also known as CAEP/6), and Part II Chapter 2 for fuel venting have also been demonstrated.

注14a/NOTE 14a

V2531-E5 以及发动机序列号 (S/N) 在 V15001 之后的 V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5 等型别满足中国民航规章《涡轮发动机飞机燃油排泄和排气排出物规定》(CCAR-34R1) (2023年1月1日生效) 的下列标准:

- 非挥发性颗粒物排放标准: CCAR 34.21(e)款 (CAEP/10与CAEP/11)

The following emissions standards promulgated in CAAC regulation CCAR-34R1, effective January 1st, 2023, have been complied with for: V2531-E5 and the following engine models with engine S/N after S/N V15001; V2522-A5, V2524-A5, V2527-A5, V2527E-A5, V2527M-A5, V2530-A5, V2533-A5.

- Non-volatile Particulate Matter emission standards: CCAR 34.21(e) (CAEP/10 and CAEP/11)

注15/NOTE 15

在IAE V2500-A5/-D5发动机安装和使用手册 (IAE-0043/IAE-0174) 中规定了V2500-A5/-D5系列发动机最大允许的进气畸变限制。/

The maximum permissible V2500-A5/-D5 engine inlet distortion limit is specified in the International Aero Engines V2500-A5/D5 Installation and Operating Manual (IAE-0043/IAE-0174).

注16/NOTE 16

维修文件规定了发动机转子轴瞬时超转转速和瞬时排气超温以及超温发生的次数限制的相关信息。

Information regarding transient rotor shaft overspeed rpm, as well as transient gas overtemperature and number of overtemperature occurrences, is specified in the Maintenance Document.

注17/NOTE 17

补充型号合格证SE1091NE批准在V2500-A5系列型别上安装风扇反推装置和排气系统。反推装置/排气系统, 图纸编号为745D8018, 由风扇反推装置、普通尾喷管组件、尾锥、吊架安装组件组成, 包含的零件列在IAE反推型号设计材料清单No. N5004中。

Supplemental Type Certificate SE1091NE approves installation of a fan thrust reverser and exhaust system on the V2500-A5 series models. The thrust reverser/exhaust system identified as Drawing Number 745D8018, consists of the fan thrust reverser, common nozzle assembly, tail plug, and pylon installation kit, and consists of parts listed in IAE Thrust Reverser Type Design Bill-of-Material, Serial No. N5004.

注18/NOTE 18

V2500发动机安装和使用手册(IAE-0043; V2500-A5) (IAE-0174; V2500-D5)4.13部分列出了V2500-A5/-D5系列发动机FADEC控制系统的限时派遣的相关限制。安装

和使用手册中限时派遣的技术数据包含在IAE V2500报告IAE-0184 (V2500-A5), PWA-6564和 PWA-6243中。

Time limited dispatch (TLD) limits for the V2500-A5/-D5 FADEC control system are listed in the V2500 Installation and Operating Manual (IOM) (IAE-0043; V2500-A5) (IAE-0174; V2500-D5), Section 4.13. The technical data substantiating the IOM TLD limits are contained in IAE V2500 Reports IAE-0184 (V2500-A5), PWA-6564, and PWA-6243.

注19/NOTE 19

EEC软件可以控制EGT显示值和实际值的偏差, 以便使飞机上显示的EGT限制值一致。EGT的实际值和与之对应的显示值通过EEC软件和数据插头配线共同控制。发动机的EGT限制由EEC的件号和DEP的件号控制, 只能通过专门的服务通告实施。发动机的数据牌也能反映发动机限制的构型。注2给出了每个发动机型别的最大允许EGT值, 尽管可能不对所有型别都实施最大允许EGT值。有关特定型别的发动机EGT限制值信息见安装和使用手册, 文件号 IAE-0174(D5) 或者 IAE-0043(A5)。

EEC software provides the capability of biasing indicated versus actual EGT values so as to provide consistent displayed EGT limit values to the aircraft. The actual versus indicated EGT values are controlled by a combination of EEC software, and Data Entry Plug (DEP) wiring scheme. Engine EGT limits are controlled by EEC P/N and DEP P/N, and are only implemented by specific service bulletin instructions. The engine data plate also reflects the engine limits configuration. NOTE 2 gives the maximum permissible approved EGT values for individual engine models, although these maximum values may not be implemented on all models. See the Installation and Operating Manual, Document No. IAE-0174(D5) or IAE-0043(A5), for information defining the EGT limit values currently assigned to specific engine models.

注20/NOTE 20

型别描述/Model Description:

V2527-A5	基本型别, 用于A320 Basic Model, Airbus A320 applications.
V2530-A5	基本型别, 用于A321 Basic Model, Airbus A321 applications.
V2528-D5	基本型别, 用于麦道90 Base Model, Douglas MD-90 applications.
V2525-D5	基本型别, 用于麦道90 Base model, Douglas MD-90 applications.
V2527E-A5	增加起飞推力型别, 用于A320。V2527E-A5相对于V2527-A5增加了在海平面高度以上的起飞推力。 Enhanced takeoff thrust model, Airbus A320 applications. The V2527E-A5 provides increased takeoff thrust at altitudes above sea level relative to the V2527-A5 base model.
V2527M-A5	增强了爬升推力, 用于A319 Enhanced climb thrust for Airbus A319 applications.

V2522-A5	降推力型别，用于A319 Reduced thrust model, Airbus A319 applications.
V2524-A5	降推力型别，用于A319 Reduced thrust model, Airbus A319 applications.
V2533-A5	增加起飞推力型别，用于A321 Increased takeoff thrust model, Airbus A321 applications.

注21/NOTE 21

只有在由于停车或者故障造成单发不工作的情况下，起飞推力运行时间允许超过5分钟，但不能超过10分钟。

Use of takeoff thrust for more than five minutes (not to exceed ten minutes) is approved for use only in the event of an inoperative engine due to shutdown or failure.

注22/NOTE 22**使用和维护说明/Operating and Service Instructions**

手册/Manuals	V2500-A5	V2500-D5
安装和使用手册/Installation and Operating Manual	IAE-0043	IAE-0174
使用说明/Operating Instructions	OI-V2500-11A	OI-V2500-31A

14 CFR 33.4和33.5中要求的手册/Manuals required by 14 CFR 33.4 and 33.5

持续适航文件（ICA） Instructions for Continued Airworthiness (ICA)	V2500-A5	V2500-D5
限时派遣手册/Time Limits Manual	T-V2500-11A 2A4408	T-V2500-31A 2A4417
发动机大修手册/Engine Shop Manual	E-V2500-11A 2A4407	E-V2500-31A 2A4416
标准施工手册/Standard Practices Manual	SPP-V2500-11A/2A4414	
动力装置维护手册/Powerplant Maintenance Manual	M-V2500-11A	M-V2500-31A
动力装置故障隔离手册/Powerplant Fault Isolation Manual	**	**
部件维护手册/Component Maintenance Manuals	IAE已发布/As published by IAE	
服务通告/Service Bulletins	IAE已发布/As published by IAE	
消耗器材索引/Consumable Materials Index	2A4413	
**A5和D5系列的故障隔离手册是飞机方文件。 ** Fault Isolation Manual is an aircraft document for the A5 and D5.		

注23/NOTE 23

发动机序列号(S/N)在V19014之后的V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5, V2524-A5, V2522-A5等型别符合于2024年5月24日生效的14 CFR 34部第7A修正案以及于2022年12月23日生效的40 CFR 1031部所公布的如下排放标准。

The following emissions standards promulgated in 14 CFR Part 34, Amendment 7A, effective May24, 2024, and 40 CFR part 1031, effective December 23, 2022, have been complied with for the following engine models with engine S/N after S/N

V19014: V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5, V2524-A5, V2522-A5.

燃油排气标准: 14 CFR第34.10(a)条和第34.11条, 以及40 CFR第1031.30(b)(2)条。
Fuel Venting Emission Standards: 14 CFR §§ 34.10 (a) and 34.11; in addition, 40 CFR §1031.30(b)(2).

一氧化碳(CO)排放标准: 14 CFR第34.21(d)(1)(ii)条, 以及40 CFR第1031.60(d)条。
碳氢化物(HC)排放标准: 14 CFR第34.21(d)(1)(i)条, 以及40 CFR第1031.60(c)条。
氮氧化物(NO_x)排放标准: 14 CFR第34.23(a)(2)条, 以及40 CFR第1031.60(e)(4)条。

Carbon Monoxide (CO) Emission Standards: 14 CFR § 34.21(d)(1)(ii); in addition, 40 CFR § 1031.60(d). Hydrocarbons (HC) Emission Standards: 14 CFR § 34.21(d)(1)(i); in addition, 40 CFR §1031.60(c). Oxides of Nitrogen (NO_x) Emission Standards: 14 CFR § 34.23(a)(2); in addition 40 CFR § 1031.60(e)(4).

非挥发性颗粒物(nvPM)质量浓度(nvPMMC): 14 CFR 第34.25(a)(1)条, 以及40 CFR第1031.60(a)(6)条。
非挥发性颗粒物(nvPM)质量(nvPMmass)和数量(nvPMnum): 14 CFR第34.25(a)(2)条, 以及40 CFR第1031.60(b)(2)条。

Non-volatile particulate nvPM mass concentration (nvPMMC): 14 CFR § 34.25(a)(1); in addition 40 CFR § 1031.60(a)(6). Non-volatile particulate nvPM mass (nvPMmass) & nvPM number (nvPMnum) : 14 CFR § 34.25(a)(2); in addition 40 CFR § 1031.60(b)(2).

在美国联邦航空局确认已符合型号合格证数据单No.E40NE规定的审定要求之上, 发动机制造商声明这些型别中适用的序列号的发动机符合国际民航组织ICAO排放标准(也称为CAEP/6)针对亚音速发动机的氮氧化物排放标准, 一氧化碳和碳氢化合物排放标准, 第II部分第2章关于燃油排泄的规定以及CAEP/10和CAEP/11关于非挥发性颗粒物的规定。

In addition to the FAA's finding of compliance based on the certification requirements defined in TCDS No.E40NE, the engine manufacturer has declared that the ICAO emissions standards known as CAEP/6 have been demonstrated for Oxides of Nitrogen Emission Standards for Subsonic Engines, Carbon Monoxide Hydrocarbons, Part II Chapter 2 for fuel venting and CAEP/10 & 11 have been demonstrated for Non-Volatile Particulate Matter for the applicable serial numbers of these models.

注23a/NOTE 23a

发动机序列号(S/N)在V19014之后的V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5, V2524-A5, V2522-A5等型别满足中国民航规章《涡轮发动机飞机燃油排泄和排气排出物规定》(CCAR-34R1)(2023年1月1日生效)的下列标准:

- 非挥发性颗粒物排放标准: CCAR 34.21(e)款(CAEP/10与CAEP/11)

The following emissions standards promulgated in CAAC regulation CCAR-34R1, effective January 1st, 2023, have been complied with for: engine models with engine S/N after S/N V19014: V2533-A5, V2530-A5, V2527-A5, V2527E-A5, V2527M-A5,

V2524-A5, V2522-A5.

- Non-volatile Particulate Matter emission standards: CCAR 34.21(e) (CAEP/10 and CAEP/11)

第 3 部分 管理信息

Section 3 ADMINISTRATIVE INFORMATION

1. 型号认可证持有人记录/ Validation of Type Certificate Holder Record

序号/No.	时间/Time	持证人名称/Name of Validation of Type Certificate Holder
1	2001年06月08日之后/ After June 08, 2001	IAE公司/ International Aero Engines AG (IAE)

—完—

—END—