

型号认可证数据单

THE VALIDATION DATA SHEET

编号/No.: VTC0299E

版次/Revision: 1

型号/Type:

IO-390-A1A6, -A3A6, -A1B6, -A3B6,

-C1A6, -C3A6, -C1B6, -C3B6

AEIO-390-A1A6, -A3A6, -A1B6, -A3B6

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职务/Title: Director General of CAAC-AAD

日期/Date: 2018-5-14

本数据单是型号认可证（编号 VTC0299E）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: VTC0299E), 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:

莱康明发动机公司/Lycoming Engines

An Operating Division of AVCO Corporation

Williamsport, Pennsylvania 17701

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							

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	VTC0299E, 版次1, 2018年5月14日 VTC0299E, Revision 1, May 14, 2018	FAA TCDS No. E00006NY, 第7版, 2017年11月22日 FAA TCDS No. E00006NY, Revision 7, November 22, 2017
历史 History	VTC0299E, 版次0, 2014年7月4日 VTC0299E, Revision 0, July 4, 2014	FAA TCDS No. E00006NY, 第4版, 2012年5月24日 FAA TCDS No. E00006NY, Revision 1, May 24, 2012

2. 类别/Category:

航空发动机/Aeroengine

3. 认可当局/Validation Authority:
审定当局/Certifying Authority:中国民用航空局/CAAC
美国联邦航空局/FAA

4. 型号合格证持有人/Type Certificate Holder:

Lycoming Engines
An Operating Division of AVCO Corporation
Williamsport, Pennsylvania 17701

5. 双发延程飞行/ETOPS:

不适用/NA

6. CAAC专用要求/CAAC Special Requirements:

不适用/NA

第2部分 数据单

Section 2 DATA SHEET

型号/Model:	IO-390-A1A6, -A3A6, -A1B6, -A3B6 AEIO-390-A1A6, -A3A6, -A1B6, -A3B6	IO-390-C1A6, -C3A6, -C1B6, -C3B6
类型/Type	4 HOA 直驱/Direct Drive	--
海平面压力高度下全油门起飞和最大连续额定 值, 马力 hp., 转速 rpm Rating Takeoff and Maximum continuous, hp., r.p.m. full throttle at: Sea level pressure altitude	210-2700-FT	215-2700-FT
燃油/Fuel 最低等级航空汽油 Minimum grade aviation gasoline 压力/Pressure 燃油喷嘴和泵/Injector and pump 燃油泵驱动/Pump drive	Lycoming服务指令1070号 Lycoming Service Instruction 1070 注释 2/NOTE 2 注释 6/NOTE 6 注释 3/NOTE 3	-- -- -- --
润滑油/Oil, Lubrication (润滑油应该符合列出的规范或之后改版 列出的规范/Lubricants should conform to the specification as listed or to subsequent revisions thereto) 温度/Temperature 压力/Pressure 滑油箱容量/Sump capacity, qt. 可用润滑油/Usable oil, qt. 发动机位置/Engine Position	1014 号服务指令/Service Instruction 1014 注释 1/NOTE 1 注释 2/NOTE 2 8 2 注释 9/NOTE 9	-- -- -- 7 3.5 --
点火, 双/Ignition, dual 磁电机/Magnetos 定时°BTC/Timing °BTC 火花塞/Spark plugs 内径和冲程, 英寸/Bore and stroke, in. 排气量, 立方英寸/Displacement, cu. in. 压缩比/Compression Ratio	注释 6/NOTE 6 20 注释 4/NOTE 4 5.319×4.375 389 8.9:1	-- -- -- -- -- --
重量(干), 磅/Weight (dry) lb. 重心位置/C.G. Location 螺旋桨轴/Propeller shaft, SAE No. A.S.127 注释/NOTES	注释 6/NOTE 6 注释 6/NOTE 6 改装的第 2 型法兰/Flange, Type 2 Modified 1, 2, 3, 4, 6, 9	-- -- -- 1, 2, 3, 4, 6, 9

"- "表示“与前面的型号一样”/indicates “same as preceding models”

"—"表示“不适用”/indicates “does not apply”

审定基础/Certification Basis

规章和修正案

1965年2月1日生效的FAR 33部, 33-1到33-24修正案

Regulations & Amendments

FAR 33 effective February 1, 1965, as amended by 33-1 through 33-24

型号/Models	申请日期/Date of Application	E00006NY 型号合格证的颁发/修正日期 Date T.C.No. E00006NY Issued/Revised
IO-390-A1A6	2008 年 4 月 11 日/April 11, 2008	2009 年 3 月 30 日/March 30, 2009
IO-390-A3A6	2009 年 2 月 20 日/February 20, 2009	2009 年 8 月 27 日/August 27, 2009
IO-390-A1B6, -A3B6	2009 年 7 月 9 日/July 9, 2009	2010 年 1 月 21 日/January 21, 2010
AEIO-390-A1A6, -A3A6	2010 年 4 月 6 日/April 6, 2010	2012 年 4 月 5 日/April 5, 2012
AEIO-390-A1B6, -A3B6	2010 年 4 月 6 日/April 6, 2010	2012 年 4 月 5 日/April 5, 2012

规章和修正案

1965年2月1日生效的FAR 33部, 33-1到33-34修正案 (除了§33.8, 被符合CAR 13.16(c)替代)

Regulations & Amendments

FAR 33 effective February 1, 1965, as amended by 33-1 through 33-34 (except §33.8 replaced by compliance with CAR 13.16(c))

型号/Models	申请日期/Date of Application	E00006NY 型号合格证的颁发/修正日期 Date T.C.No. E00006NY Issued/Revised
IO-390-C1A6, -C3A6, -C1B6, -C3B6	2017 年 2 月 10 日/February 10, 2017	2017 年 1 月 25 日/January 25, 2017

生产基础/Production Basis

生产合格证/Production Certificate No. 3

注1/Note 1.

最大允许温度/Maximum permissible temperatures:

型号/Model	气缸头 (井型热电偶) Cylinder Head (Well Type Thermocouple)	润滑油进口 Oil Inlet
IO-390-A1A, -A3A6, -A1B6, -A3B6 AEIO-390-A1A6, -A3A6, -A1B6, -A3B6 IO-390-C1A6, -C3A6, -C1B6, -C3B6	465°F	235°F

注2/Note 2. 压力限制/Pressure limits:

燃油/Fuel:	进口到燃油泵 Inlet to Fuel Pump		进口到喷嘴 Inlet to Injector		
	最大 Maximum	最小 Minimum	最大 Maximum	最小 Minimum	最小慢车 Minimum Idle
IO-390-A1A, -A3A6, -A1B6, -A3B6 AEIO-390-A1A6, -A3A6, -A1B6, -A3B6 IO-390-C1A6, -C3A6, -C1B6, -C3B6	35 p.s.i.	-2 p.s.i.	45	14	—

滑油/Oil:	最大/Maximum	最小/Minimum
正常/Normal	95 p.s.i.	55 p.s.i.
慢车/Idle	—	25 p.s.i.
起动和热车/Starting and warm-up	115 p.s.i.	—

注3/Note 3. 以下附件规定/The following accessory provisions are available:

(AE)IO-390 系列/(AE)IO-390 Series					旋转方向 Direction of Rotation [♦]	传动比 Drive Ratio	最大扭矩 (英寸磅) Maximum Torque (in. lb)		最大悬臂力矩 Maximum Overhang Moment
附件/Accessory	-A1A6 -A3A6	-A1B6 -A3B6	-C1A6 -C3A6	-C1B6 -C3B6			连续 Continuous	静止 Static	
起动机/Starter*	*	*	*	*	CCW	13.556:1	--	450	150
交流发电机 Alternator*	*	*	*	*	CW	3.20:1	60	120	175
#1 附件传动装置 Accessory Drive #1 ^x	*	*	*	*	CCW	1.300:1	70	450	25
#2 附件传动装置 Accessory Drive #2 ^x	-	*	*	*	CW	1.300:1	100	800	40
转速计/Tachometer	*	*	**	**	CW	0.500:1	7	50	5
燃油泵/Fuel Pump	*	*	*	*	柱塞 Plunger	0.500:1	-	-	10
螺旋桨调速器 Propeller Governor	*	-	*	-	CW	0.866:1	125	1200	40
螺旋桨调速器 Propeller Governor	-	*	-	*	CW	0.895:1	125	1200	40

"C" – 顺时针/Clockwise, "CC" – 逆时针/Counter-Clockwise, * 典型/Typical** 可选的/Optional

• 这些附件为选装, 经批准的参见最新版的 SI 1154

These accessories are optional, see latest revision of SI 1154 for the approved alternates.

× 这些驱动装置为选装, 安装座可能盖住/These drives are optional and accessory pads may be cast over.

♦ 面对驱动安装座确定旋转方向/Rotation facing drive pad

- 注4/Note 4. 已被认可用于该发动机的火花塞列在 Lycoming 第 1042 号服务指令的最新版本中。
Spark plugs approved for use on this engine are listed in the latest revision of Lycoming Service Instruction No.1042
- 注5/Note 5. 在牵引式和推进式安装中，这些发动机包含了吸收螺旋桨推力的设备。
These engines incorporate provisions for absorbing propeller thrust in both tractor and pusher installations.
- 注6/Note 6. 下表给出了该型号的标准干重（去掉交流发动机和起动机）、重心、燃油喷嘴、燃油泵和磁电机。
The following tabulations show std. dry weight (less alternator and starter), C.G.'s, fuel injectors, fuel pumps and magnetos for this model.

型号/Model	重量 Weight*	重心/Center of Gravity		燃油喷嘴 Fuel Injector ⁺	燃油泵 Fuel Pump	点火，双 Ignition, Dual Slick [*]
		至螺旋桨轴法兰盘前 端面，英寸 From Front Face of Prop Shaft Flange in.	偏离曲轴中心线，英寸 Off Crankshaft Center Line, in.			
IO-390-A1A6, -A3A6	307	14.13	.64 偏下/below .16 偏左/left	RSA-5AD1	膜片型 Diaphragm Type	4345 4370
IO-390-A1B6, -A3B6	307	14.13	.64 偏下/below .16 偏左/left	RSA-5AD1	膜片型 Diaphragm Type	4345 4370
AEIO-390-A1A6, -A3A6	312	14.13	.64 偏下/below .16 偏左/left	RSA-5AD1	膜片型 Diaphragm Type	4345 4370
AEIO-390-A1B6, -A3B6	312	14.13	.31 偏下/below .02 偏左/left	RSA-5AD1	膜片型 Diaphragm Type	4345 4370
IO-390-C1A6, -C3A6	298	14.44	.31 偏下/below .02 偏左/left	RSA-10AD1 or RSA-10AD2	膜片型 Diaphragm Type	4345 4370
IO-390-C1B6, -C3B6	300	14.44	.37 偏下/below .44 偏左/left	RSA-10AD1 or RSA-10AD2	膜片型 Diaphragm Type	4345 4370

* 去掉起动机和交流发电机/Less Starter and Alternator

+ 经批准的参见最新版的 Lycoming SI 1154/See latest revision of Lycoming SI 1532 for the approved alternates.

* 经批准的参见最新版的 Lycoming SI 1443/See latest revision of Lycoming SI 1443 for the approved alternates.

注7/Note 7. 列出的型别还包括以下异同点：

The listed models incorporate the following additional similarities or differences:

IO-360 A1A6	基本型。四缸，空气冷却，水平对置，直驱，燃油喷射，调整过的进气式发动机具有为冷却内置活塞的润滑油喷射，装有单个运行的可控螺距螺旋桨 Basic Model. Four cylinder air-cooled, horizontally opposed, direct drive, fuel injected, tuned induction engine having oil jets for internal piston cooling. Provisions for single action controllable pitch propeller.
IO-390-A3A6	除了螺旋桨法兰盘的轴套重新索引以外，与-A1A6相似。 Same as the -A1A6 except propeller flange bushings are reindexed.
IO-390-A1B6	除了螺旋桨调速器位于曲轴箱的左前部以外，与-A1A6相似。 Same as the -A1A6 except propeller governor located on left front of crankcase.
IO-390-A3B6	除了螺旋桨调速器位于曲轴箱的左前部以外，与-A3A6相似。 Same as the -A3A6 except propeller governor located on left front of crankcase.

AEIO-390-A1A6	除了装备为特技飞行用的倒飞润滑油系统以外，与IO-390-A1A6相似。 Same as the IO-390-A1A6 except equipped with an inverted oil system kit for aerobatic flight.
AEIO-390-A3A6	除了装备为特技飞行用的倒飞润滑油系统以外，与IO-390-A3A6相似。 Same as the IO-390-A3A6 except equipped with an inverted oil system kit for aerobatic flight.
AEIO-390-A1B6	除了装备为特技飞行用的倒飞润滑油系统以外，与IO-390-A1B6相似。 Same as the IO-390-A1B6 except equipped with an inverted oil system kit for aerobatic flight.
AEIO-390-A3B6	除了装备为特技飞行用的倒飞润滑油系统以外，与IO-390-A3B6相似。 Same as the IO-390-A3B6 except equipped with an inverted oil system kit for aerobatic flight.
IO-360 C1A6	除了减重滑油收油池，冷气进气道，调整的进气管和RSA-10燃油喷射器外，与IO-390-A1A6相似。 Similar to IO-390-A1A6 except lightweight oil sump, cold air induction housing, tuned intake pipes, and an RSA-10 fuel injector.
IO-390-C3A6	除了螺旋桨法兰盘的轴套重新索引以外，与-C1A6相似。 Same as the -C1A6 except propeller flange bushings are reindexed.
IO-390-C1B6	除了螺旋桨调速器位于曲轴箱的左前部以外，与-C1A6相似。 Same as the -C1A6 except propeller governor located on left front of crankcase.
IO-390-C3B6	除了螺旋桨调速器位于曲轴箱的左前部以外，与-C3A6相似。 Same as the -C3A6 except propeller governor located on left front of crankcase.
HIO-390-A1A	除了配重，后进气喷射器调整为收油池，RSA-10燃油喷射器，2型动力学安装底座和无螺旋桨调节器以外，与IO-390-A3A6相似。 Similar to IO-390-A3A6 except without counterweights, rear inlet injector tuned sump, RSA-10 injector, Type 2 dynafocal mounts, and no propeller governor provisions.

注8/Note 8. 被批准用于该发动机的起动机和交流发电机列于最新版的Lycoming服务指令No. 1154。
Starters and alternators approved for use on this engine are listed in the latest revision of Lycoming Service Instruction No. 1154.

注9/Note 9. IO-390-A系列与IO-390-A1A的最大飞行高度是30度仰角和30度俯角。AEIO-390-A系列的最大飞行高度是30度仰角和20度俯角。IO-390-C系列的最大飞行高度是30度仰角和12度俯角。
Maximum flight attitudes for the IO-390-A Series and HIO-390-A1A are 30° nose up and 30° nose down. Maximum flight attitudes for the AEIO-390-A Series are 30° nose up and 20° nose down. For the IO-390-C Series, the maximum flight attitudes are 30° nose up and 12° nose down.

注10/Note 10. IO-390-C系列发动机和HIO-390-A1A型号的发动机功率容限在-2%到5%之间。
Engine Power variation of -2% to +5% is applicable to IO-390-C Series engine models and the HIO-390-A1A model.

结束
.... END....