

**MINISTÉRIO DA AERONÁUTICA
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO
CENTRO TÉCNICO AEROESPACIAL**

TYPE CERTIFICATE DATA SHEET Nº EM-8206-03

Type Certificate Holder:

TEXTRON LYCOMING - AVCO CORPORATION
652, Oliver Street.
Williamsport, Pennsylvania PA 17701
USA

EM-8206-03
Sheet 01

LYCOMING
O-360-A1D, -A4M,
-A1AD, -A1P, -C1G,
-J2A, -C1F, -C4F

October 98

Engines of models described herein conforming with this data sheet, which is part of Type Certificate No. 8206, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Brazilian Aeronautical Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other instructions.

MODEL	O-360-A1D, -A4M, -A1AD, -A1P, -C1F, -C4F, -C1G, -J2A				
TYPE	4HO-A DIRECT DRIVE				
RATINGS	-A1D, -A4M	-A1AD, -A1P	-C1F, -C4F	-C1G	-J2A
Max. continuous, h.p. - r.p.m. full throttle at Sea level pressure altitude:	180-2700	180-2700	180-2700	180-2700	145-2400 thru 2700+ 26.5 in Hg MP @ 2400 24.6 in Hg MP @ 2700
Takeoff, h.p. - r.p.m. full throttle at Sea level pressure altitude:	180-2700	180-2700	180-2700	180-2700	145-2400 thru 2700+ 26.5 in Hg MP @ 2400 24.6 in Hg MP @ 2700

		-A1D, -A4M	-A1AD, -A1P	-C1F, -C4F	-C1G	-J2A
FUEL TYPE	Min. grade aviation gasoline	100/100LL ⁽¹⁾				
	(1) See latest revision of Lycoming Service Instruction No. 1070 for alternate fuel grades.					
CARBURETION / INJECTION	Carburetion Pump drive	See Note 8 See Note 2				
OIL, LUBRICATION	Lubricants should conform to the specifications as listed or to subsequent revisions thereof.	Lycoming Spec. No. 301 and Service Instruction No. 1014				
	Oil sump capacity, qt.	8	8	8	8	8
	Usable oil, qt.	6	6	6	6	6
TEMPERATURE LIMITS	(Maximum permissible)					
	Cylinder head (well type thermocouple)	500°F	500°F	500°F	500°F	500°F
	Cylinder base	325°F	325°F	325°F	325°F	325°F
	Oil inlet	245°F	245°F	245°F	245°F	245°F
PRESSURE LIMITS		See Note 1				
IGNITION	Dual magnetos	See Note 8				
	Timing, °BTC	25	25	25	25	25
	Spark Plugs	See Note 3				

		-A1D, -A4M	-A1AD, -A1P	-C1F, -C4F	-C1G	-J2A
COMPRESSION	Bore and stroke, in.	5.1250 x 4.3750	5.1250 x 4.3750	5.1250 x 4.3750	5.1250 x 4.3750	5.1250 x 4.3750
	Displacement, cu. in.	361	361	361	361	361
	Compression ratio	8.5:1	8.5:1	8.5:1	8.5:1	8.5:1
WEIGHT	(dry) lb.	See Note 4	See Note 4	See Note 4	See Note 4	See Note 4
	C. G. location	See Note 7	See Note 7	See Note 7	See Note 7	See Note 7
PROPELLER SHAFT-SPECIFICATIONS	Propeller shaft, SAE No. AS-127	Flange, Type 2 modified	Flange, Type 2 modified	Flange, Type 2 modified	Flange, Type 2 modified	Flange, Type 2 modified
	Crankshaft dampers	See Note 10	See Note 10	See Note 10	See Note 10	See Note 10
IMPORT REQUIREMENTS	Each engine imported separately and/or spare parts must be accompanied by an Airworthiness Certificate for Export and/or an Airworthiness Approval Tag, respectively, issued by FAA, attesting that the particular engine and/or parts were submitted to the governmental quality control before delivery and are in conformity with the CTA approved type design.					
CERTIFICATION BASIS	CAR 13 effective 15, June 1956 as amended by:	13-1, 13-2 and 13-3	-A1D	Application	Issued TC	
		13-1, 13-2, 13-3 and 13-4	-A4M, -A1AD,	5 Dec. 1980	13 May 1982	
				5 Dec. 1980	13 May 1982	
				25 Sep. 1990	20 Sep. 1991	
		13-1, 13-2 and 13-3	-A1P,	5 Sep. 1997	14 May 1998	
			-C1G,	5 Sep. 1997	14 May 1998	
			-J2A,	3 Dec. 1997	14 May 1998	
	-C1F,	27 July 1998	18 Aug. 1998			
	-C4F	27 July 1998	18 Aug. 1998			
PRODUCTION BASIS	Production Certificate No. 3					

NOTES**NOTE 1** Pressure Limits:

Fuel - At inlet to carburetor, above carburetor inlet air pressure.

	Minimum	Maximum	
Bendix PSH-5BD carburetor	9 psi	18 psi	
Facet(Marvel Schebler)MA-4,HA-6 Series carb.	0.5 psi	8 psi	
Oil - (Normal Operation)	55 psi	95 psi	
(Idling)	25 psi	#	
(Starting and Warm-up)	#	115 psi	# Does Not Apply

NOTE 2 The following accessory drive provisions are incorporated; (See also Note 9)

O-360

Accessory	-A1AD	-A series	-C1F	Rotation facing	Speed Ratio	Max. Torque (in lb)		Max. Overhang
				Drive Pad	to Crankshaft	Cont	Static	Moment (in lb)
Starter	*	*	*	CC	16.5560:1	#	450	150
Generator	#	**	#	C	1.9100:1	60	120	175
Generator	#	**	#	C	2.50:1	60	120	175
Alternator	*	*	*	C	3.25:1	60	120	175
Vacuum Pump	**	**	**	CC	1.30:1	70	450	25
Hydraulic Pump	**	#	#	C	1.30:1	100	800	40
Hydraulic Pump	**	#	#	C	1.30:1	180	2 200	150
Fuel Pump	#	#	#	CC	0.866:1	25	450	25
Fuel Pump (Plunger)	**	**	**	#	0.50:1	#	#	10
Tachometer	*	*	*	C	0.50:1	7	50	5
Prop. Governor	#	(**)	**	C	0.866:1	125	1 200	40

Optional Dual Drive Mounting on Vacuum Pump Drive Pad

Vacuum Pump	#	**	**	CC	1.30:1	70	450	6
Hydraulic Pump	#	**	**	CC	1.30:1	Total	Total	10
or								
Vacuum Pump	#	(**)	**	CC	1.30:1	70	450	6
Prop. Governor	#	(**)	**	CC	1.30:1	Total	Total	10

O-360

Accessory	-C4F	-C1G	-J2A	Rotation facing	Speed Ratio	Max. Torque (in lb)		Max. Overhang
				Drive Pad	to Crankshaft	Cont	Static	Moment (in lb)
Starter	*	*	*	CC	16.5560:1	#	450	150
Generator	#	#	#	C	1.9100:1	60	120	175
Generator	#	#	#	C	2.50:1	60	120	175
Alternator	*	*	*	C	3.25:1	60	120	175
Vacuum Pump	**	**	*	CC	1.30:1	70	450	25
Hydraulic Pump	#	**	#	C	1.30:1	100	800	40
Hydraulic Pump	#	#	#	C	1.30:1	180	2 200	150
Fuel Pump	#	#	#	CC	0.866:1	25	450	25
Fuel Pump (Plunger)	**	**	**	#	0.50:1	#	#	10
Tachometer	*	*	*	C	0.50:1	7	50	5
Prop. Governor	#	**	#	C	0.895:1	125	1 200	40

Optional Dual Drive Mounting on Vacuum Pump Drive Pad

Vacuum Pump	**	#	#	CC	1.30:1	70	450	6
Hydraulic Pump	**	#	#	CC	1.30:1	Total	Total	10
or								
Vacuum Pump	**	#	#	CC	1.30:1	70	450	6
Prop. Governor	#	#	#	CC	1.30:1	Total	Total	10

"#" Does not apply * Standard ** Optional "C" Clockwise "CC" Counter Clockwise

Total –refers to total torque of dual drives () except A4M is not eligible

NOTE 3 Spark Plugs: See latest revision of Lycoming Service Instruction No. 1042 for approved equipment.

NOTE 4 The above models incorporate additional characteristics as follows:

Models	Wt (dry) Lb.	Characteristics
O-360-A1AD	257	Similar to O-360-A1A except is equipped with Bendix D4LN-2021 magneto instead of incorporating two inle magnetos.
O-360-A1D	256	Similar to O-360-A1A except has Bendix 200 series magnetos.
O-360-A4M	261	Identical to O-360-A4A except is equipped with Slick 4051 and 4050 magnetos instead of with Bendix S4LN-21 and S4LN- 204 magnetos.
O-360-A1P	292	Same as O-360-C1G except has dynafocal engine mounts
O-360-C1F	288	Similar to O-360-A1G except has Slick 4050 and 4051 magnetos and rear type engine mounting instead of dynafocal type mount .
O-360-C1G	292	Similar to O-360-C1A except propeller governor drive is located on the left front of the crankcase, location same as O-360-A1H.
O-360-C4F	275	Similar to O-360-C1F except has a solid crankshaft and no provisions for a prop governor
O-360-J2A	289	Similar to the O-360-C1C except has O-320-B2C prop flange bushings, light weight cylinders and lower power rating.

NOTE 5 These engines incorporate provisions for absorbing propeller thrust in both tractor and pusher type installations.

NOTE 6 These engines are approved for horizontal helicopter applications and operation.

NOTE 7 C. G. location (dry and without dual accessory drive).

Model	From Front Face of Prop. Shaft Flange in.	Off Propeller Shaft C.L. in.
O-360-A1D, -A4M, -A1P	13.88	0.87 Below & 0.14 left
O-360-C1G	13.88	0.87 Below & 0.14 left
O-360-J2A	13.88	0.87 Below & 0.14 left
O-360-C1F, -C4F	14.04	0.76 Below & 0.14 left
O-360-A1AD,	13.77	0.82 Below & 0.30 left

NOTE 8

Model	Ignition, Dual ⁽²⁾	Carburetion
-A1D	TCM ⁽⁴⁾ S4LN-200; S4LN-204	PAC ⁽³⁾ MA-4-5
-A1AD	TCM ⁽⁴⁾ D4LN-2021	PAC ⁽³⁾ MA-4-5
-A1P	Slick 4373, 4370	PAC ⁽³⁾ MA-4-5
-A4M	Slick 4051; 4050 or 4051	PAC ⁽³⁾ MA-4-5
-C1F	Slick 4050; 4051	PAC ⁽³⁾ HA-6
-C1G	TCM ⁽⁴⁾ S4LN-21; S4LN-20	PAC ⁽³⁾ MA-4-5
-C4F	Slick 4371; 4370	PAC ⁽³⁾ MA-4-5
-J2A	TCM ⁽⁴⁾ S4LN-200;S4LN-204	PAC ⁽³⁾ MA-4-5

(2) For alternate magnetos see latest revision of Textron Lycoming Service Instructio 1443

(3) Precision Airmotive (PAC) formally Facet Aerproducts Inc. (formerly Marvel Schebler Co.) and Bendix on PSH-5BD carburetors

(4) Teledyne (TCM) formally Bendix

NOTE 9 Starters, generators and alternators approved for use on these engines are listed in the latest revision of Textron Lycoming Service Instruction No. 1154.

NOTE 10 Engines of this series incorporate no crankshaft dampers unless the digit "6" follows the model designation, i.e. -A1F "6". Engines so designated have one 6.3 and one 8th order pendulum type counter-weight.

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