

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

E-284
Revision 10
Lycoming Engines
GSO-480-A1A6, -A1C6, -A2A6
GSO-480-B1A6, -B1B6 (O-480-1), -B1C6, -B1E6
-B1F6, -B1G6, -B1J6, -B2C6, -B2D6,
-B1B3, -B2G6, -B2H6
IGSO-480-A1A6 (O-480-3), -A1B6, -A1C6, -A1D6,
-A1E6, -A1F3-A1F6, -A1G6
June 23, 2010

TYPE CERTIFICATE DATA SHEET NO. E-284

Engines of models described herein conforming with this data sheet (which is a part of type certificate No. 284) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations/Federal Air Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

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

Type Certificate Holder Record Avco Lycoming Div., AVCO CORP., Williamsport, PA. transferred TC 284 to
Lycoming Engines, An Operating Division of AVCO Corporation on June 23, 2010

Model	Lycoming	GSO-480-A1A6, -A1C6, -A2A6, -B1A6, -B1B6, -B1C6, -B1E6, -B1F6, -B1G6, -B1J6, -B2C6, -B2D6, -B2G6, -B2H6, -B1B3	IGSO-480-A1A6, -A1B6, -A1C6, -A1D6, -A1E6, -A1F6, -A1G6, -A1F3
Type	6HOA-Reduction Gear Ratio	77:120	--
Rating			
	Max. continuous, hp, r.p.m., in Hg., at:		
	Rated pressure alt. (ft.)	320-3200-43.3-8000	320-3200-41.3-11,000
	Sea level pressure alt. (ft.)	320-3200-45.0-S.L.	320-3200-45.0-S.L.
	Takeoff (5 min.), hp, r.p.m. in. Hg., at:		
	Rated pressure alt. (ft.)	340-3400-45.8-8000	340-3400-44.0-11,000
	Sea level pressure alt. (ft.)	340-3400-48.0-S.L.	340-3400-48.0-S.L.
	Fuel (min. grade aviation gasoline)*	100/130	--
	Lubricating Oil (lubricant should conform to the specifications as listed or to subsequent revisions thereto)	Lycoming Spec. No. 301-G**	--
	Bore and stroke, in.	5.125 x 3.875	--
	Displacement, cu. in.	479.7	--
	Supercharging ratio	11.27:1	--
	Compression ratio	7.3:1	--
	Weight (dry) lb.	See NOTE No. 8	--
	C.G. location (dry)	See NOTE No. 8	--
	Propeller shaft, SAE No.	See NOTE No. 8	--
	Carburetion	See NOTE No. 8	--
	Ignition, dual	See NOTE No. 8	--
	Timing °BTC	25	--
	Spark Plugs	See NOTE No. 9	--
	Oil Sump - capacity	Dry Sump	--
	Notes 1 through 9 as applicable	1,2,3,4,5,6,7,8,9	--

"- -" indicates "same as preceding model"

"#" indicates "does not apply"

"**" See latest revision of Lycoming Service Instruction No. 1070 for alternate fuel grades.

** See latest edition of Lycoming Service Instruction 1014

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Certification basis:

<u>Regulations & Amendments</u>	<u>Model</u>	<u>Date of Application</u>	<u>Date of Type Certificate No. 284 Issued/Revised</u>
CAR 13 Effective March 5, 1952			
As Amended by 13-1 and 13-2	GSO-480-A1A6	December 13, 1954	June 30, 1955
CAR 13 Effective June 15, 1956	0-480-1	November 27, 1956	December 5, 1956
	GSO-480-B1A6	April 26, 1957	May 9, 1957
	GSO-480-B1B6	April 26, 1957	May 9, 1957
	GSO-480-B1C6	April 26, 1957	May 9, 1957
	GSO-480-A1C6	June 18, 1957	June 27, 1957
As Amended by 13-1	IGSO-480-A1A6	January 10, 1958	May 14, 1958
	GSO-480-B2D6	February 21, 1958	March 6, 1958
CAR 13 Effective June 15, 1956			
As Amended by 13-1, 13-2, 13-3	GSO-480-A2A6	April 13, 1960	May 3, 1960
	IGSO-480-A1B6	June 11, 1960	August 25, 1960
	GSO-480-B1E6	May 26, 1961	June 19, 1961
	GSO-480-B1F6	May 26, 1961	June 19, 1961
	GSO-480-B1G6	May 26, 1961	June 19, 1961
	GSO-480-B2H6	May 26, 1961	June 19, 1961
	GSO-480-B2C6	June 1, 1961	June 19, 1961
	GSO-480-B2G6	June 1, 1961	June 19, 1961
	O-480-3	June 26, 1961	June 14, 1961
	IGSO-480-A1C6	September 13, 1961	October 17, 1961
	IGSO-480-A1D6	May 2, 1962	May 6, 1963
And 13-4	IGSO-480-A1F6	July 6, 1962	August 16, 1962
	IGSO-480-A1E6	August 27, 1964	October 23, 1964
	IGSO-480-A1G6	August 16, 1966	August 26, 1966
	IGSO-480-B1J6	January 5, 1967	January 21, 1967
	GSO-480-B1B3	June 21, 1971	July 7, 1971
	IGSO-480-A1F3	January 28, 1980	February 21, 1980

Production basis: Production Certificate No. 3

NOTE 1. Maximum permissible temperatures:

Cylinder Head

Well type
500°F

Cylinder Base*
350°F

Oil Inlet

225°F - GSO-480-A1A6, -A2A6, -A1C6

245°F - All others

*This parameter dispensed with where pistons are internally cooled by oil jets.

NOTE 2. Fuel Pressure Limits:

Minimum
9 p.s.i.

Maximum

15 p.s.i. (17 p.s.i. min., 65 p.s.i. max. for
IGSO-480-A1E6, -A1D6, -A1G6)

Oil Pressure Limits:

(Normal Operations)
(Idling)

55 p.s.i.
25 p.s.i. (35 p.s.i. for IGSO-480-A1A6, -A1B6, -A1C6, -A1F6, -A1F3)

85 p.s.i.

NOTE 3. The following accessory provisions are made:

<u>Accessory</u>	Rotation Facing <u>Drive Pad</u>	Speed Ratio to <u>Crankshaft</u>	Maximum Torque (in. -lb.)		Maximum Overhang <u>Moment (in. -lb.)</u>
			<u>Continuous</u>	<u>Static</u>	
Starter	C	1.000:1	#	12000	300
Generator	C	2.600:1	500	2200	400
Fuel Pump	CC	.803:1	25	450	25
Vacuum Pump	C	1.219:1	200	800	25
Hydraulic Pump	C	1.083:1	400	1650	175
Tachometer	CC	.500:1	7	50	#
Propeller Governor	C	.801:1	125	1200	25
"C" - Clockwise, "CC" - Counter-Clockwise					
"#" Indicates "does not apply"					

NOTE 4. The "6" in the engine model designation indicates the crankshaft has five 3rd order and one 6th order torsional vibration dampers. The IGSO-480-A1F3 and GSO-480-B1B3 have four heavy 3rd order and two 6th order torsional vibration dampers.

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

NOTE 6. Military Models 0-480-1 and -3 are identical to the corresponding civil designated engines except for ignition, which are the TCM+ S6LN-22 and S6RN-23 with AN 3105, primary ground terminal. When installed in certificate aircraft, the corresponding commercial model designations and type certificate number should be added to the engine data plate.

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NOTE 7. The above models incorporate additional characteristics as follows:

<u>Models</u>	<u>Characteristics</u>
GSO-480-A1A6	Basic model. Geared drive, six cylinder, horizontally opposed, supercharged, dry sump, aircooled engine with side mounted accessory drives and accessories.
GSO-480-A1C6	Similar to GSO-480-A1A6 except has provisions for a supercharger bearing thermocouple.
GSO-480-A2A6	Similar to GSO-480-A1A6 except has flange type propeller shaft with 2-way oil for reversible propeller.
GSO-480-B1A6	Similar to GSO-480-A1C6 except incorporates crankcase oil jets for increased piston cooling, provisions for supercharger inlet and an updraft carburetor.
GSO-480-B1B6	Similar to GSO-480-B1A6 except has a horizontal elbow and carburetor under the engine.
GSO-480-B1B3	Same as GSO-480-B1B6 except that the torsional damper system has been modified. (SEE NOTE 4)
GSO-480-B1C6	Similar to GSO-480-B1A6 except has a horizontal carburetor mounted directly on a straight-through air inlet supercharger housing.
GSO-480-B1E6	Similar to GSO-480-B1A6 excepting magnetos.
GSO-480-B1F6	Similar to GSO-480-B1B6 excepting magnetos.
GSO-480-B1G6	Similar to GSO-480-B1C6 excepting magnetos.
GSO-480-B1J6	Same as GSO-480-B1A6 except incorporates 1200 series magnetos+ .
GSO-480-B2C6	Similar to GSO-480-B1C6 except has flanged propeller shaft and provision for reversible propeller.
GSO-480-B2D6	Similar to GSO-480-A2A6 except has internal piston cooling, special supercharger inlet for down-draft carburetor and is also similar to the -B1 series engines except incorporates a flange type propeller shaft.
GSO-480-B2G6	Similar to GSO-480-B2C6 excepting magnetos.
GSO-480-B2H6	Similar to GS-480-B2D6 excepting magnetos.
IGSO-480-A1A6	Basic fuel injection model.
IGSO-480-A1B6	Similar to IGSO-480-A1A6 except has retard breaker magnetos.
IGSO-480-A1C6	Similar to IGSO-480-A1A6 except has horizontal air inlet housing and throttle.
IGSO-480-A1D6	Similar to GSO-480-B1A6, except for incorporation of service kit which included RS10-FB1* fuel injector and supercharger air inlet housing assembly, P/N 74323.
IGSO-480-A1E6	Similar to IGSO-480-A1D6 except for different configuration of supercharger air inlet housing and incorporation of retard breaker magnetos.
IGSO-480-A1F3	Similar to IGSO-480-A1F6 except that it has two 6th and four heavy 3rd order dynamic counterweights.
IGSO-480-A1F6	Similar to IGSO-480-A1C6 except has retard breaker magnetos in place of impulse type magnetos.
IGSO-480-A1G6	Same as IGSO-A1E6 with 1200 series magnetos but without the modulator* unit.

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*PAC formerly Bendix

NOTE 8. For all models - weights, carburetion, ignition, C.G. location and propeller shaft SAE designations.

Models	Weight (dry) lb.	Carburetion*	Ignition, dual+	From front face of thrust nut, in.	C.G. Location, Dry		Propeller shaft, SAE No.
					Off propeller shaft C.L. in.		
					lateral	vertical	
GSO-480-A1A6	498	PS-7BD	S6LN-20, S6RN-21	21.74	0.22 left	0.59 above	20 spline
-A1C6	498	PS-7BD	S6LN-20, S6RN-21	21.74	0.22 left	0.59 above	20 spline
-A2A6	498	PS-7BD	S6LN-20, S6RN-21	21.74	0.22 left	0.59 above	flange, ARP 502
-B1A6	513	PS-7BD	S6LN-20, S6RN-21	22.32	0.18 left	0.22 above	20 spline
-B1B6	515	PSH-7BD	S6LN-20, S6RN-21	22.18	0.18 left	0.01 below	20 spline
*O-480-1							
-B1B3	517	PSH-7BD	S6LN-20, S6RN-21	22.18	0.18 left	0.01 below	20 spline
GSO-480-B1C6	512	PSH-7BD	S6LN-20, S6RN-21	22.54	0.16 left	0.59 above	20 spline
-B1E6	513	PS-7BD	S6LN-204, S6RN- 200 or S6LN-604, S6RN-600	22.32	0.18 left	0.22 above	20 spline
-B1F6	515	PSH-7BD	S6LN-204, S6RN- 200 or S6LN-604, S6RN-600	22.18	0.18 left	0.01 below	20 spline
-B1G6	512	PSH-7BD	S6LN-204, S6RN- 200 or S6LN-604, S6RN-600	22.54	0.16 left	0.59 above	20 spline
-B1J6	515	PS-7BD	S6LN-1209, S6RN- 1227	22.29	0.18 left	0.22 above	20 spline
-B2C6	512	PSH-7BD	S6LN-20, S6RN-21	22.54	0.16 left	0.59 above	flange, ARP 502
GSO-480-B2D6	513	PSD-7BD	S6LN-20, S6RN-21	22.39	0.25 left	0.71 above	flange, ARP 502
-B2G6	512	PSH-7BD	S6LN-20, S6RN-21, S6LN-204, S6RN-200, S6LN-604, S6RN-600	22.54	0.16 left	0.59 above	flange, ARP 502
-B2H6	513	PSD-7BD	S6LN-204, S6RN- 200, S6LN-604, S6RN-600	22.39	0.25 left	0.71 above	flange, ARP 502
IGSO-480-A1A6	512	Fuel Injector Simmonds Type 570	S6LN-20, S6RN-21	22.00	0.34 left	0.71 above	20 spline
*O-480-3							
IGSO-480-A1B6	512	Fuel Injector Simmonds Type 570	S6LN-204, S6RN- 200, S6LN-604, S6RN-600	22.00	0.34 left	0.71 above	20 spline
-A1C6	513	Fuel Injector Simmonds Type 570	S6LN-20, S6RN-21	22.00	0.34 left	0.71 above	20 spline
-A1D6	514	RS10-FB1	S6LN-20, S6RN-21	22.29	0.21 left	0.35 above	20 spline
-A1E6	514	RS10-FB1	S6LN-204, S6RN-200	22.29	0.21 left	0.35 above	20 spline
-A1F6	513	Simmonds Type 570	S6LN-204, S6RN-200, S6LN- 604, S6RN-600	22.00	0.34 left	0.71 above	20 spline
-A1G6	515	RS10-FB1	S6LN-1209, S6RN-1208	22.29	0.21 left	0.35 above	20 spline
-A1F3	517	Fuel Injector Simmonds Type 570	S6LN-204 S6RN-200	22.00	0.34 left	0.71 above	20 spline

* See NOTE No. 6.

+TCM formerly Bendix

*PAC formerly Bendix

NOTE 9. Spark Plugs: See latest revision of Lycoming Service Instruction No. 1042 for approved equipment.

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