

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

1E15
Revision 6
Textron Lycoming
IO-720-A1A, -A1B, -A1BD,
-B1A, -B1B, -B1BD,
-C1B, -C1BD, -D1B,
-D1BD, -D1C, -D1CD

February 15, 1988

TYPE CERTIFICATE DATA SHEET NO. 1E15

Engines of models described herein conforming with this data sheet (which is a part of Type Certificate No. 1E15) 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 Aviation Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Manufacturer Textron Lycoming/Subsidiary of Textron, Inc.
Williamsport Plant
Williamsport, Pennsylvania 17701

	Lycoming
Model	IO-720-A1A, -A1B, -A1BD -B1A, -B1B, -B1BD -C1B, -D1B, -D1C-C1BD -D1BD, -D1CD
Type	8H0A Direct Drive
Rating	--
Max. continuous hp., r.p.m., full throttle at:	
Sea level pressure altitude:	400-2650*
Takeoff, hp., r.p.m., full throttle at:	
Sea level pressure altitude	400-2650
Fuel (Min. grade aviation gasoline), Service Instruction No. 1070	100/130
Lubricating oil (Lubricating should conform to the Specifications as listed or subsequent revisions thereto)	Lycoming Spec. No. 301-F Service Instruction No. 1014
Bore and stroke, in.	5.125 x 4.375
Displacement, cu. in.	722
Compression ratio	8.7:1
Weight (dry), lb.	See NOTE 9
Propeller shaft flange, SAE No.	Type 2 modified
Crankshaft dampers (torsional)	one 3.5 order six 4th order one fifth order
Fuel injection	Bendix RSA-10AD1 RSA-10ED1 (-B1B, -B1BD)
Fuel pump	See NOTE 2 RG9080-J4A (D1B, -D1C)
External fuel filtration requirements	150 micron, max.
Ignition, dual	See NOTE 9
Ignition timing °BTC	20°
Spark plugs	See NOTE 6
Oil sump capacity, qt.	19
Usable oil sump capacity, qt.	16
NOTES	1,2,3,4,5,6,7,8,9

*Models IO-720-D1B, -D1C, -D1BD, -D1CD have an alternate rating of 375 hp at 2500 r.p.m.

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Certification basis:

<u>Regulations & Amendments</u>	<u>Model</u>	<u>Date of Application</u>	<u>Date Type Certificate IE15 Issued/Revised</u>
CAR 13 as amended to June 15, 1956	IO-720-A1A	December 6, 1960	October 25, 1961
& 13-1, 13-2, 13-3	IO-720-B1A	February 19, 1963	November 4, 1965
13-4	IO-720-A1B	February 12, 1971	February 22, 1971
	IO-720-B1B	February 12, 1971	February 22, 1971
	IO-720-C1B	December 16, 1971	December 22, 1971
	IO-720-D1B	October 22, 1973	October 29, 1973
	IO-720-A1BD	August 21, 1975	December 30, 1976
	IO-720-B1BD	December 28, 1976	December 30, 1976
	IO-720-C1BD	January 24, 1977	January 28, 1977
	IO-720-D1BD	January 24, 1977	January 28, 1977
	IO-720-D1CD	June 6, 1977	June 10, 1977
	IO-720-D1C	March 11, 1982	April 15, 1982

Production basis: Production Certificate No. 3

NOTE 1. Maximum permissible temperatures are as follows:
 Cylinder head 500°F (well-type thermocouple)
 Oil inlet 245°F

NOTE 2. Fuel pressure limits:

	<u>Maximum</u>	<u>Minimum</u>	<u>Idle (min.)</u>
<u>Inlet to fuel pump when supplied with engine</u>			
-D1B, -D1C	55 p.s.i.	-2 p.s.i.	#
All others	45 p.s.i.	-2 p.s.i.	#
<u>Inlet to injector</u>			
-B1A, -B1B	35 p.s.i.	25 p.s.i.	#
All others	45 p.s.i.	18 p.s.i.	12 p.s.i.
Oil pressure limits:			
Idling	#	25 p.s.i.	
Normal operation	95 p.s.i.	55 p.s.i.	(50 p.s.i.: -A1A, -A1B)
Start & warm-up	115 p.s.i.		
<u>Fuel Pump (optional)</u>		<u>Lear Siegler Model</u>	
-A1A, -A1B, -A1BD		RG17980 or RG9080	
-B1BD, -C1B, -C1BD, -D1B, -D1BD, -D1C, -D1CD		RG9080	

NOTE 3. The following accessory drive provisions are available.

IO-720 Model Accessory	-B1B -B1A -A1B -A1A	-D1C -D1B -C1B	-C1BD -B1BD -A1BD	-D1CD -D1BD	Rotation Facing Drive Pad	Speed Ratio to Crankshaft	Maximum Torque (in.-lb.)		Maximum Overhang Moment (in.-lb.)
							Cont.	Static	
Starter	X		X		CC	13.556:1	#	450	150
Alternator	X		X		C	3.20:1	60	120	175
Generator (Optional)	X		X		C	2.50:1	60	120	175
Generator (Opt)	X		X		C	3.1:1	60	120	175
Accessory #1	X		X		CC	1.3:1	70	450	25
Accessory #2	X		#		C	1.3:1	100	800	40
Accessory #2	#		X		C	1.3:1	180	2200	40
Accessory #2 (Opt)	#		X		C	1.3:1	180	2200	100
Tachometer	X		X		C	0.5:1	7	50	5
Fuel Pump	X		#		CC	1:1	25	450	25
Fuel Pump	#		X		C	1:1	25	450	25
Spray Pump (Opt)	X		X		C	1.346:1	250	1600	40
Propeller Gov	X		X		C	0.895:1	125	1200	25

"C" - Clockwise "CC" - Counter-clockwise.
 "#" indicates "does not apply"

NOTE 4. These engines incorporate provisions for absorbing propeller thrust in both tractor and pusher type installations.

NOTE 5. These engines are equipped with all-weather ignition harness as standard equipment.

NOTE 6. Spark plugs: See latest revision of Lycoming Service Instruction No. 1042 for approved equipment.

NOTE 7. These engines incorporate the following additional characteristics:

<u>Model</u>	<u>Characteristics</u>
IO-720-A1A	Basic model. Eight cylinder, horizontally opposed, air-cooled direct drive fuel injection engine, internal oil jet piston cooling.
IO-720-A1B	Same as -A1A except equipped with Bendix S8LN-1208 and S8LN-1209 magnetos.
IO-720-B1A	Same as -A1A except for top exhaust cylinders and offset exhaust valve shroud tubes.
IO-270-B1B	Same as -B1A except equipped with Bendix S8LN-1208 and S8LN-1209 magnetos and Bendix RSA-10ED1 fuel injection.
IO-720-C1B	Same as -A1B except that it has up-exhaust cylinder heads.
IO-720-D1B	Same as -A1B except has a rear type air inlet housing instead of a front inlet.
IO-720-D1C	Same as -D1B except equipped with an angled fuel injector adapter.
IO-720-A1BD	Same as -A1B except has a dual magneto.
IO-720-B1BD	Same as -B1B except has a dual magneto.
IO-720-C1BD	Same as -C1B except has a dual magneto.
IO-720-D1BD	Same as -D1B except has a dual magneto.
IO-720-D1CD	Same as -D1C except has a dual magneto.

NOTE 8. Starters, generators and alternators approved for use on these engines are listed in the latest revision of AVCO Lycoming Service Instructions No. 1154.

NOTE 9. IO-720 Model, Weight (dry), ignition, dual, and C.G.

<u>Model</u>	<u>Weight</u>	<u>Magnetos</u>	<u>C.G. Location (dry) including starter and generator</u>		
			<u>Propeller Flange Front Face, in.</u>	<u>Below Crankshaft C.L., in.</u>	<u>Off Crankshaft C.L. in.</u>
-A1A	565	Bendix S8LN-701, S8LN-705	21.33	0.91	0.20 Left
-A1B	565	S8LN-1208, S8LN-1209	21.33	0.91	0.20 Left
-B1A	557	S8LN-701, S8LN-705	21.90	0.80	0.10 Left
-B1B	557	S8LN-1208, S8LN-1209	21.90	0.80	0.10 Left
-C1B	566	S8LN-1208, S8LN-1209	21.33	0.91	0.20 Left
-D1B	580	S8LN-1208, S8LN-1209	21.33	0.91	0.20 Left
-A1BD	561	D8LN-2200	21.13	0.81	0.00 Left to Right
-B1BD	557	D8LN-2230	21.70	0.70	0.10 Right
-C1BD	563	D8LN-2230	21.13	0.81	0.0 Left to Right
-D1BD, -D1CD	571	D8LN-2200	21.70	0.70	0.10 Right
-D1C	580	S8LN-1208, S8LN-1209	21.33	0.91	0.20 Left

.....END.....