

U.S. DEPARTMENT OF TRANSPORTATION  FEDERAL AVIATION ADMINISTRATION  TYPE CERTIFICATE DATA SHEET E11NE	TCDS NUMBER E11NE  REVISION: 2* DATE: March 23, 2007  WYTWORKNIA SPRZETU KOMUNIKACYJNEGO (WSK) "PZL-KALISZ"  MODELS:  AI-14RA AI-14RC
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Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E11NE) 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 Federal Aviation Regulations, provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

TYPE CERTIFICATE (TC) HOLDER    Wytworknia Sprzetu Komunikacyjnego "PZL-KALISZ"  
 ul. Czestochowska 140  
 62-800 Kalisz  
 Poland

I. MODELS	AI-14RA	AI-14RC	
TYPE	9RA, 0.787:1 reduction gearing counter-clockwise rotation (viewed from rear) crankshaft-driven supercharger		
RATINGS			
Maximum continuous hp, r.p.m., in. Hg., at:			
Sea level pressure altitude (full throttle)	213 - 2050	--	
Takeoff (5 min.) hp, r.p.m., in. Hg., at:			
Sea level pressure altitude (full throttle)	251 - 2350	--	
FUEL			
Minimum grade aviation fuel	91 octane	--	
LUBRICATING OIL	Aero shell 100W / usable quantity N/A (dry sump)	--	
COMPRESSION			
Bore and stroke, in.	4.13x5.12	--	
Displacement, cu. in.	620	--	
Compression ratio	5.9:1	--	
WEIGHT (DRY) (lb)	441	--	

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REV.	2	2	1	2	

LEGEND: "- -" INDICATES "SAME AS PRECEDING MODEL"

"---" NOT APPLICABLE

NOTICE: ALL PAGES ARE REFORMATTED. SIGNIFICANT CHANGES, IF ANY ARE BLACK-LINED IN THE LEFT MARGIN.

I. MODELS (Continued)	AI-14RA	AAI-14RC	
CENTER OF GRAVITY (in)			
From crankcase centerline, forward of mounting frame	5.901	5.905	
CRANKSHAFT DAMPERS	One pendulum type, 4.5 order, on rear arm of crankshaft.		
PROPELLER SHAFT	Spline	--	
CARBURETION	K-14A	--	
FUEL PUMP	702M	--	
IGNITION	Two M-9 Magnetos	--	
IGNITION TIMING, $\phi$ BTC			
Right	$30^{\circ} \pm 2^{\circ}$	--	
Left	$30^{\circ} \pm 2^{\circ}$	--	
SPARK PLUGS	Eighteen SD-49SMM or equivalent	--	
NOTES	1-7, 9	1-5, 7-9	

## CERTIFICATION BASIS

FAR 21.29 and FAR 33, including amendments 1 through 3.

Type Certificate E11NE issued/revised:

<u>Models</u>	<u>Date of Application</u>	<u>Date TC issued/revised</u>
AI-14RA	11/12/77	09/21/81
AI-14RC	11/12/77	09/21/81

The General Inspectorate of Civil Aviation of Poland originally type certificated this engine. The FAA validated this product under U.S. Type Certificate Number **E11NE**. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of this product on behalf of Poland.

## PRODUCTION BASIS

FAR 21.500 for production of engines or replacement parts under this type certificate by WSK "PZL-KALISZ" under control of the Republic of Poland General Inspectorate of Civil Aviation (GICA).

## IMPORT REQUIREMENTS

To be considered eligible for installation on U.S. registered aircraft, each new engine to be exported to the United States with the General Inspectorate of Civil Aviation of Poland or EASA airworthiness approval shall have a Joint Aviation Authorities (JAA) or EASA Form 1, Authorized Release Certificate. The JAA or EASA Form 1 should state that the engine conforms to the type design approved under the U.S. Type Certificate **E11NE**, is in a condition for safe operation and has undergone a final operational check.

Additional guidance is contained in FAA Advisory Circular 21-23, Airworthiness Certification of Civil Aircraft, Engine, Propellers, and Related Products, imported into the United States.

**NOTES**

NOTE 1. Maximum permissible temperatures are as follows:  
Cylinder head                      Oil Inlet  
 (gasket type thermocouple)  
 482°F max. 5 minutes              185°F max. 15 minutes continuous  
 464°F max. 15 minutes              167°F no limit  
 446°F no limit

NOTE 2. Fuel and oil pressure limits

	<u>Max</u>	<u>Min</u>
Fuel carburetor inlet pressure (psi)		
at rated power	7.1	2.8
at idle	--	2.1
Oil pressure (psi)		
at rated rpm	85.3	56.9
at idle	--	21.3

NOTE 3. The following accessory provisions are available:

ACCESSORY	AI-14RA	AI-14RC	Rotation	Speed Ratio to Crankshaft	Maximum Torque in. lb.	Maximum Overhang Moment in. lb.
Propeller governor (R-2)	X	X	C	1.045:1	14.5	4.8
Magnetos (M-9)	X	X	CC	1.125:1	26.6	35.14
Fuel Pump (702M)	X	X	C	1.125:1	14.5	---
Main Oil Pump, integral	X	X	CC	1.125:1	24.3	---
Auxiliary Oil Pump, Dwg. No. K4.11.203	---	X	C	0.9:1	4.2	1.04
Tachometer Drive, integral	X	X	CC	0.5:1	6.1	---
Air Distributor, integral	X	---	CC	0.5:1	6.1	---
Piston Air Compressor (AK-50P-12)	X	XX	C	0.9:1	40.4	15.6
Generator (GSK-1500M)	X	---	CC	2.5:1	48.5	---
Generator-starter (MR-04x)	---	X	CC			
- at starting				72.75:1	86.8	---
- at generating				5.625:1	52.7	---
"X" - Standard accessory              "XX" - optional accessory "C" - clockwise                              "CC" - counter clockwise						

NOTE 4.

Engine rating basis:

Ratings are based on static sea level standard condition of dry inlet air at 59°F and 29.92 in. Hg, with no aircraft accessory drive, generator, or piston compressor loads.

Production engines conforming with this Type Certificate must be capable of producing not less than 100 percent rated power at rated r.p.m. and manifold pressure.

NOTE 5.

Engine Model Differences:

Weight of piston compressor, generator or generator-starter, mounting air ring with parts and exhaust pipe flanges are not included in engine weight.

AI-14RA - Basic Model

1. Incorporates a direct drive centrifugal blower which gives some supercharging (1.2 - 1.5 in. Hg.) at full throttle, max. continuous, and takeoff ratings.
2. Pneumatic engine starting.

AI-14RC - Differs from AI-14RA as follows:

1. Electrical starting.
2. Has an auxiliary oil pump scavenging oil from the engine rear cover/accessory gearbox.

NOTE 6.

The engine pneumatic starting system includes:

Piston air compressor type AK-50P-12, air distributor starting valves, compressor air delivery lines and priming system. The air tank is not located on the engine.

NOTE 7.

Time between overhauls is presented in section 4.11. of the GICA (CACA) - approved AI-14RA and AI-14RC document number WI-14.02.01, Operation Instructions. Until approved engine overhaul manuals are published, only the engine manufacturer is permitted to perform engine overhauls.

NOTE 8

The AI-14RC engine starter-generator unit transmission gear (Part Number 374-ZO) has a life limit of 400 hours time in service.

NOTE 9

SERVICE INFORMATION:

Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or, for approvals made before September 28, 2003 by the General Inspectorate of Civil Aviation of Poland. Any such documents including those approved under a delegated authority, are accepted by the FAA and are considered FAA approved.

- Service bulletins,
- Structural repair manuals,
- Vendor manuals,
- Aircraft flight manuals, and
- Overhaul and maintenance manuals.

These approvals pertain to the type design only

---THE END---