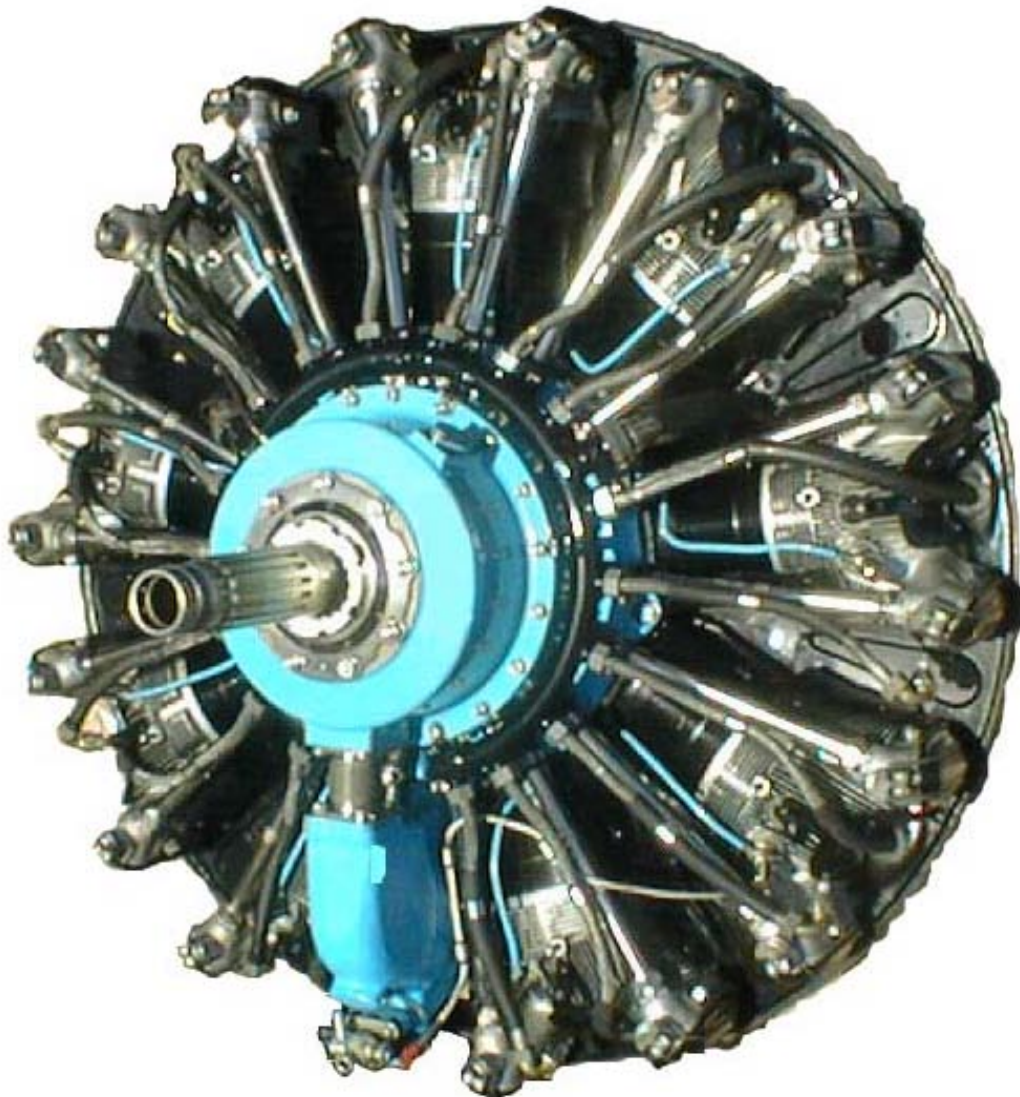


Specifications

Number of cylinders -----	9 radial cylinders
Cooling system -----	Ambient air
Piston diameter (Bore) -----	4.13 in. (105mm)
Piston Travel (Stroke) -----	5.12 in. (130mm)
Total displacement -----	620 in. ³ (10.16 L)
Compression ratio -----	6.3 : 1
Sense of rotation -----	Clockwise (looking from front)
Starting system -----	Compressed air
Air Compressor -----	AK-50A or AK50T
Ignition system -----	Dual Magnetos M9-35
Sparkplugs -----	Champion REL37B
Ignition wire -----	U.S. made silicone type
Sequence of ignition -----	1-3-5-7-9-2-4-6-8
Ignition timing -----	23° BTC;
Carburetor type -----	AK-14V Pressure type
Fuel pump -----	Rotary type
Oil System -----	Pressure pump MN-14A with scavenge pump
Horsepower -----	220 at 2000 r.p.m.
Fuel consumption -----	22 gal./hr @ full power. 11 gal./hr @ 63% power
Fuel type gasoline -----	80/87 min 100 octane
Oil type -----	AEROSHELL W100
Dry engine weight -----	473 Lb. with accessories
Diameter -----	38 ¾ in. (985 mm)
Length -----	38 in. (924 mm)
Position of C.G. on longitudinal axis -----	6.5 in from the mounting surface toward the propeller.

M14D



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Basic Information

The M14D engine is a development of the Russian standard M14P engine. It is designed for applications where an air-cooled radial power plant is required in the 220 Hp range. The engine is a direct drive left hand rotation radial engine. It uses the similar magnetos, pressure carburetor and oil pump as used on its larger sister the M14P. It is designed to be used where a lower weight and lower horsepower are required. Measuring just 38 inches from the tip of the propeller shaft to the rear of the accessory case and 38 ¾ inches in diameter, it makes the engine just one and one half inches larger than the 145 Hp. Warner engine. The engine with a wooden propeller weighs some 75 to 80 Lbs. less than the M14P installation.

The design actually stems from the M14 variant called the M14-V26. This was designed for the Kamov helicopter. A pair of these V-26 engines ran the counter rotating blades of the Kamov. They were originally fitted with a 90 deg. gearbox to the transmit the power to the main rotor gearbox. They also had a large cooling fan.

Motorstar, the designer and manufacturer of the M14D, is the successor to the original division of AeroStar that manufactured the Kamov engines and rotor gearboxes. They produce the M14P engine in both the 360 hp. and 400-hp. variant as well. They have been producing these engines for 17 years.

The M14D is made of new parts produced in house, parts from first run used M14P engines that meet new part tolerances, or from new old stock parts that they have in inventory. The newly designed propeller shaft for this engine is made of a single forging and then machined and broached to the tolerances called for by the U.S. standards. The new parts are all made to aircraft standards, as the factory is both ISO 9000 qualified as well as meeting the Romanian airworthiness production quality standards. The FAA recently accepted these standards under a bi lateral agreement.

Each engine is assembled to new part tolerances and standards. It is then pre piled and test run. After the first run, it is disassembled and checked for any abnormal ware. It is then re assembled and put on the test stand again for the final run in. The results of the run in are recorded in the logbooks.

The engines are then preserved with preservative oils, bagged with desiccant and boxed for shipment. Each engine is supplied with a specialty tool kit that contains the special tools required to maintain the engine. It also has a spare parts kit which contains the gaskets, lock tabs etc. that are usually necessary to maintain the engine.

The new nose case was designed to meet the same torque and loading standards as the M14P. It uses the same nose case roller bearing as in the M14P. The new propeller shaft is a standard AN series 20 spline drive shaft as could be found on the W670 220 hp. Continental, the six cylinder Ranger or the older Lycoming geared engines.

The engine cases are painted blue, the cylinder fins are black, the baffles are black and all the small parts are chrome or nickel plated as part of the dress kit that is standard on each engine.

Each engine comes with the mounting ring, Champion spark plugs, the magnetos, air compressor, air start systems, fuel pump and oil pump. It is equipped with fluid fittings that connect directly to standard western fittings. It has a drive pad for a standard 3-phase electric tachometer transducer. The upper generator drive pad can accept adapters for the B&C 35 amp alternator, the Skytronics 50 amp alternator or the Russian 3000 watt generator. These adapters are sold separately. Additional options include standard tachometer drive and vacuum pump drives.

Motorstar is also making new propeller hubs for the wooden propeller. These new hubs are made to the original Army Air Corps drawings. They are of forged steel construction and heat treated to all the original military specifications. Each hub assembly includes all the bolts, nuts, bronze cones, propeller nut and the associated hardware to completely install a wooden propeller to the engine.

DATA

DATA FROM TEST CELL ON FIRST PRODUCTION ENGINE Load is Sensenich W98AAL-66 Propeller

TEST Condition	R.P.M.	Absolute Manifold Pressure	Power	Specific Fuel Consumption	Fuel Consumption	Oil Pressure	Oil inlet temp	Oil outlet temp	Cylinder head temp
		in. Hg.	H.P.	Lb/HP/Hr.	Gal/Hr	Lb/in ²	° F	° F	° F
Take Off	2000	32.2	220.4	0.609	22.37	76.8	122	162	356
	1900	30.3	189.5	0.5	15.79	75.3	126	180	356
	1800	29.1	153.9	0.49	12.57	75.3	131	180	338
	1700	27.2	126	0.491	10.31	73.9	135	180	327
	1600	25.6	102.6	0.493	8.43	73.9	135	176	311
	1500	24.0	85.5	0.547	7.79	72.5	135	169	293
	1400	22.8	69.8	0.661	7.69	72.5	135	162	270
Idle	780					54.1	135	162	270

