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WORLD LEADERS IN RUSSIAN SPORTING AIRCRAFT

Running In

Running in is critical to the long-term life and performance of the AI14/M14 family of engines.

However some very important points:

- The engine will have been fully conserved – that is filled with oil and this needs to be removed completely from the cylinders; carburettor etc. before any attempt is made to run it.
- The engines are run on a test-bed, at up to maximum power for a minimum of 3 hours before delivery. However this does not mean that they should immediately be operated at continuous full power settings, but short periods will assist running in.
- It is critical not to allow engines to become hot while cylinders/pistons are “bedding in”.
- It is critical not to use detergent oil for the first forty hours. Oil should therefore be “straight”. I.e. 80/100/120, without “W”.
- In cold weather (below +10ºC) use 80; up to +25 ºC use 100 and above that 120 weight oil.
- Before the first start, remove one set of plugs and turn engine on the air-starter to build up oil pressure.
- The engine should be run for at least one hour on the ground before any attempt is made to fly.
- After first hour check very carefully for any loose attachments nuts/bolts etc. around the engine (particularly the exhaust).
- It is critical that the engine is not overheated during the initial twenty hours of running – it might be necessary to change the compensating jets in the carburettor.
- Warm the engine up carefully, and do not use higher power settings until the engine is properly warm.
- No problem to use high revolutions for short periods – indeed this is good, and certainly revolutions should be varied.
- We suggest that the governor is set to 97% maximum for the first ten hours and then increased to 99% (or 103% for PF engines) if you want maximum power.
- BUT do not use high throttle settings with low revolutions.
- Allow the engine to cool down slowly after flying.
- After five hours the oil should be changed and the filters checked.
- Typically there will be the odd small piece of swarf in the filters, but this is not a problem. You might get “chip in oil” once or twice, but again likely to be very small remnants of metal from the overhaul, and, again, no problem.
- We emphasise that careful running in will significantly pay for itself in the long-term!

Avoiding cylinder corrosion

This is particularly true with Barrett pistons where one side effect of these pistons exceptional oil control capabilities is that, on shutdown, much less oil is left on the cylinder walls, and the particular steel that the Russians use is susceptible to corrosion, so it is wise to do what is possible to prevent this. But this is also valid with Russian and SPC pistons, although to a smaller degree:

- The engines should be run with Aeroshell 100 Plus. If this is not available, then you should add a product called "camguard" to the oil. But this should not be mixed with Aeroshell 100 Plus.

- The engine should be run at least every 30 days (I would point out that the original Russian instructions are that engine should be run each week, and conserved if not run).

- If they are not going to be run for that length of time, then one plug from each cylinder should be removed and a product called LPS 3 (in an easy aerosol can) should be sprayed into each cylinder, and a desiccant plug replacing the sparking plug installed.

- In normal use, the exhaust ports should be covered with a plug as soon as convenient after shutting down, and also the throttle should always be left closed.