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Assembling, setting the pitch and testing your KievProp:

(PLEASE READ ALL THIS INFORMATION BEFORE STARTING TO ASSEMBLE AND TEST YOUR PROP)

1. General

As a general guide, coarsening the pitch (giving the blades more 'bite') may give a faster cruise speed, with some decrease in take-off and climb performance for the same engine RPM. Fining the pitch (giving the blades less 'bite') may give a better take-off and climb performance but a lower cruise speed for the same engine RPM.

2. Assembling the propeller

(a) The smaller centre hole in the hub faces away from the engine. The larger hole fits over the raised lip on the Rotax engine/propeller flange.
Please note – if a prop-flange spacer is used, the factory inserts a fitting ring in the large hole, enabling correct location of the prop hub/spacer. Do not remove this fitting ring unless you use the prop without the spacer.

(b) On a flat surface with a covering to protect the propeller, place the blades in the engine-side half of the hub, ensuring that the raised rings round the roots of the blades fit into their grooves in the hub sockets.

(c) The blades must be located in the hub with their convex surface facing the direction of flight. The scimitar sweep of the propeller must be in the correct sense - ie, curving back from the direction of rotation.

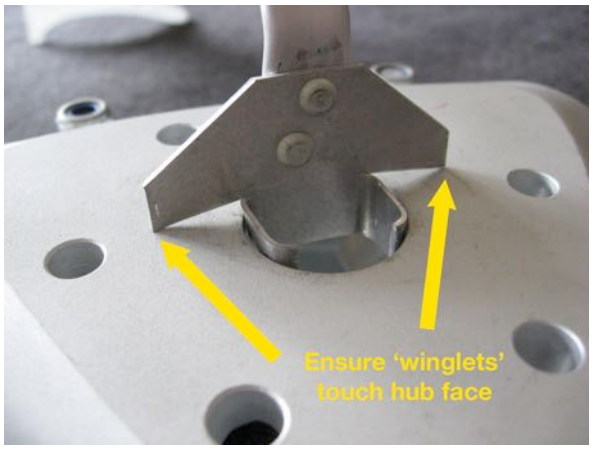
(d) Carefully place the front half of the hub over the blades, ensuring the locating reference marks stamped on the hub halves align with each other and that the blade root ridges match the hub grooves. Loosely tighten the 3 pairs of blade retaining bolts/nuts – the bolts must be inserted from the engine-side, with the nuts showing on the 'outside'. At this stage ensure that you can gently twist the blades in their sockets without a lot of force.

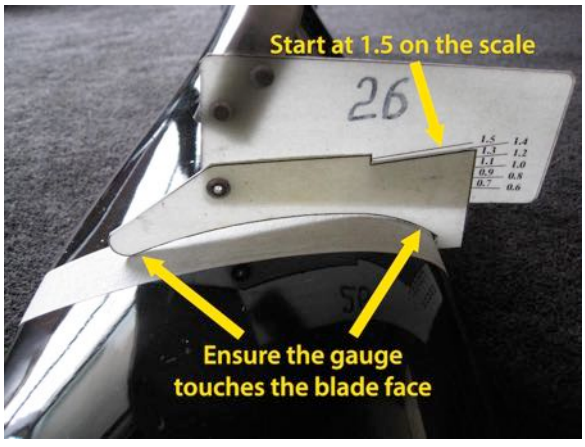
Do not use any kind of lubricant or sealer on the propeller-hub joint.

3. Setting the pitch *(before mounting the prop on the aircraft)*

(a) The small 'hooked' end of the pitch adjustment tool fits into the small centre hole in the hub front. Ensure that the two little 'wing' extensions either side of the 'hook' rest flat against the face of the hub. The other end of the pitch tool has a moving scale, which fits over the convex face of the blade with the raised positioning lug snugly positioned over the blade trailing edge.

We recommend using masking tape on the propeller blades where the end of the pitch adjustment tool fits over them to ensure you don't scratch the blades with the pitch tool.





(b) A suggested starting point for the pitch angle on the 263-series propeller with the 100 hp Rotax 912 engine is around 1.5 on the scale on the pitch adjustment tool. This is a good all-round pitch for the propeller. For extra take-off capability you can reduce the pitch to around 1.4, although you will lose some top speed. For more cruise speed, you can go to 1.6 on the scale but no higher.

(c) Ensure all blades are aligned to exactly the same pitch degree (you may wish to use a proprietary propeller pitch spirit level or laser tool to ensure an exact match) and tighten the 3 pairs of blade retaining bolts to 20Nm, being careful not to disturb the pitch angle you have set. *Do not over-tighten the prop bolts*; they do not need all your strength! If using castellated nuts, do not insert the split pins at this stage.

4. Fitting the prop to the aircraft

(a) Bolt the propeller to the prop flange on the engine using the 6 long bolts. The bolts should inserted towards the engine/prop flange with the nuts on the engine side. They should be tightened in opposite pairs to 25Nm each. Again, if using castellated nuts, do not insert the split pins yet.

(b) Check the 3 pairs of blade retaining bolts for tightness and re-tighten if necessary to 20Nm - do not over-tighten these bolts.

5. Pitch testing

DO NOT FLY THE PLANE WITHOUT LOCKING ALL THE PROPELLER BOLTS/NUTS WITH LOCKWIRE, SPLIT PINS OR NYLOCS!!

(a) Depending on your requirements for climb/cruise compromise, a good starting point is for the engine to pull about 90% of redline revs at full power on take-off and climb at around 60 knots - for example, a Rotax 912 max revs are 5800, so the full power take-off target is around 5200rpm. At this pitch setting, the aircraft will generally hit maximum rpm at full power when flown straight and level.

(b) ***If the engine revs faster*** *than 90% redline at full power:*

- either coarsen the pitch (that is, turn the blades so they 'bite' more) a degree or so to reduce the rpm, following steps 3&4 above, and re-test. In general terms, with a Rotax 912, one degree on the scale is equal to around 250-300 rpm.

- or, provided the redline is not exceeded at static full power, accept the setting. This will give you a good rate of climb but will limit your cruise speed.

PLEASE NOTE: IF YOU ACCEPT A FULL POWER RPM CLOSE TO OR AT REDLINE, BEWARE YOU DO NOT EXCEED REDLINE WHEN CRUISING!

(d) ***If the engine revs slower*** *than 90% redline at full power:*

- either fine up the pitch (that is, turn the blades so they 'bite' less) a degree or so to increase the rpm, following steps 3&4 above, and re-test. In general terms, with a Rotax 912, one degree is equal to around 250-300 rpm.

- or accept the setting. This will give you a good cruise speed but will increase your take off run and reduce your rate of climb.

PLEASE NOTE: IF YOU ACCEPT A STATIC FULL POWER AT LOWER RPM, BEWARE YOU DO NOT EXCEED VNE IN STRAIGHT AND LEVEL FLIGHT, PARTICULARLY ON FULL THROTTLE!

6. Test flying

(a) When test flying, check if Vne can be exceeded in straight and level flight on less than full throttle. Also check if redline rpm can be exceeded in straight and level before reaching Vne. Placard the ASI and/or tachometer with appropriate warnings!

(b) If required, re-pitch and test the propeller after test flying, following steps 3 – 6

7. Happy flying!

Care & Maintenance of your KievProp

1. Warranty

Subject to normal use and no abuse or accidental damage, your propeller is guaranteed against defects for 12 months from the date of delivery to you, irrespective of the number of hours used. Should any defect appear – such as a crack in a blade, hub or bolt (or spinner) – STOP using the propeller immediately, take detailed photos of the fault and send them to Foxbat Australia with a note of the serial number (printed on the blade root ends) and number of hours flown – if possible by e-mail to ***info@foxbat.com.au*** We will assess the problem, if necessary in consultation with the factory. Replacement items will be supplied as needed.

2. Blade & hub life

The propeller blades have a nominal life of 6 years, with no limit to the number of hours flown. There are KievProps with over 2,000 hours on them, and still in excellent condition. After 6 years, you should replace the blades – however, if you have less than 600 hours on the prop, and the blades are free of any significant damage, it is acceptable to extend the use of the prop for at least a further year or up to 750 hours, whichever occurs first.

The hub has a life of 15 years, with no limit to the number of hours flown. After this time it must be replaced.

The factory is continually developing their product and it may be that blade life will be extended in the future.

3. Maintenance

(a) Blades
The propeller blades should be inspected before every flight. Small stone chips on the leading edge (up to about 1.5mm in depth) can be repaired with 2-part epoxy filler or adhesive. However, be aware that blade weight and balance is very important and so take care not to add large amounts of filler.

Over time, in particular if the aircraft is operated from gravel strips and/or the prop has a small ground clearance, the backs of the blades can show light pitting. The blades are painted with automotive 2-part acrylic paint and, provided the weight and balance of the blades is not affected, it is acceptable to LIGHTLY rub down and re-paint the backs of the blades.

(b) Hub
After the first 10 hours from installation, the prop hub and blade bolts should be re-torqued to their correct values – **25Nm for the main hub bolts and 20Nm for the blade retention bolts**.

Every 50 hours or 6 months (whichever comes first), the spinner (if fitted) should be removed and the hub and all attachment bolts and nuts inspected for corrosion. This is particularly important if the propeller is used on a seaplane or float aircraft. Any corrosion should be investigated to ensure it does not threaten the strength of the propeller. If in doubt replace corroded parts!

Every 50 hours or 6 months (whichever comes first), check the torque of all the hub bolts at 25Nm and prop blade bolts at 20Nm. Check hub bolt tightness in opposite pairs. Note that if you remove the propeller, Nyloc nuts should be replaced when you can finger-tighten them.

When assembling the propeller and during use, **do not use grease or lubricant of any kind** as this could affect the composite material of the blades and lead to an unsafe condition. However, provided that it does not come into contact with the blades, it is permissible, if absolutely necessary, to use a corrosion inhibition treatment on the hub and bolts.

(c) Pitch

Every 12 months or 100 hours (whichever comes first) you should check the pitch of the blades (see section 3 of the assembly and pitch setting instructions).