






TECHNICAL MANUAL

KW-30 PROPELLER PERFORMIG 100-HOUR INSPECTION

TN - 30

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2. Revision history

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3. List of valid pages

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1	N	21.01.2014	11		
2	4	30.03.2022	12		
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4. Purpose of the document

This document – technology instruction (manual) defines the repair, assembly, and inspection procedures used during performing 100-hour inspection. This document is based on current version of KW-30 propeller's documentation, as well as the state of knowledge and practical experience from production and operation of the type. This document may be amended based on information newly obtained during manufacturing and operation of manufactured propellers.

5. Validity

This technology instruction applies to maintenance and inspection performed within Woodcomp Propellers s.r.o. organization with CZ.145.0082 Authorization, and within manufacturer's authorized service facilities.

6. Propeller inspection after 100 operating hours

Periodic 100-hour inspection is performed on the propeller mounted on the aircraft every 100 operating hours. The purpose of this 100-hour inspection is to ascertain actual situation of the propeller to provide safety and trouble-free operation until next inspection.

In the case of a defect found, the propeller must be removed from operation.

7. Basic rules

- !! The inspection must be performed according to current versions of KW-30 documentation.**
- !! All assembly, adjustment and inspection procedures must be performed by personnel with required qualification. These activities may only be performed in enclosed facilities using clean, undamaged tools and equipment approved for the purpose.**
- !! Protect propeller parts from damage during disassembly, assembly, and adjustment. Use protective pouches for propeller blades.**
- !! Use only prescribed lubricants and/or materials to lubricate and secure propeller parts, or allowed/approved equivalents.**
- !! Maintain clean and tidy workplace including its surroundings; do not smoke.**
- !! All components destined for scrapping by this procedure must be red tagged or painted red and their disposal must be documented.**
- !! When securing screws using locking wire, the following rule applies:
! SCREWS MUST TIGHTEN EACH OTHER AFTER SECURING !**
- !! Completion of every inspection shall be recorded to Propeller Logbook.**

B. PERFORMING 100-HOUR INSPECTION

Before commencing inspection clean the propeller completely and to remove all surface dirt.

1. Removal of propeller spinner and engine cowling

- 1.1 Use flat-bladed screwdriver to remove 9 spinner screws with washers and remove the spinner by pulling away from propeller. Save removed screws and washers for reassembly.
- 1.2 Remove engine cowlings to gain access to engine flange. Follow respective A/C manual. Protect removed cowlings from damage.

2. Check for leaking pressurized oil

- 2.1 Check front part of propeller hub in front of propeller spinner, it must not be wet and greasy by leaking oil. If any oil leakage at this area is found, it indicates possible oil penetration into propeller hub. In this case contact manufacturer or authorized service facility for further instructions.
- 2.2 Check the connection of propeller hub to engine flange. If oil leaks between propeller hub and engine flange, there are following possible causes:
 - a) Loosen or un-tightened self-locking nuts holding propeller on engine flange.
 - b) Improperly inserted and/or damaged O-ring at engine flange neck.
 - c) Damaged engine flange and/or rear face of propeller—damage to sealing surfaces (edges deformed by impact and/or scratched/otherwise damaged faces), which prevent complete contact and sufficient joining of parts.
 - d) Damaged O-ring on engine flange.

Perform check-tightening of self-locking nuts on engine flange using torque wrench set to nuts to 22Nm (for M8 nuts) resp. 43Nm (for M10 nuts). If nuts have not been completely tightened, this could have been the reason for oil leak.

If there is oil leak observed even though the nuts have been found completely tightened, remove the propeller from the aircraft according to user manual.

After removal of propeller, check condition of sealing surfaces of propeller flange and engine flange. Edges and surfaces of both flanges must not be damaged.

Remove O-ring from engine flange neck and visually check its condition. If it is damaged, it is the source of oil leak.

If flanges—edges and/or faces—are damaged, deformed by impact, clean them using white spirit and dry them. Insert clean rag into opening of engine shaft and into piston area within propeller head, to prevent ingress of dirt. Use fine-toothed small flat file to clean damaged edges and surfaces. Polish using 600 to 800 grit sandpaper afterwards. Remove metal chips from all surfaces. Clean again using white spirit and dry. Remove rags from opening of engine shaft and from piston area. Recheck that no chips are present.

! NOTICE !

No chips resulting from repair of flanges are allowed behind the piston and in the opening of engine shaft!

Fit new O-ring (P/N: A-1015-01) onto engine flange neck and reinstall the propeller onto aircraft according to propeller user manual.

! NOTICE !

When threading the propeller onto engine flange neck, O-ring must not be damaged.

! NOTICE !

**Always use new self-locking nuts P/N: A-1008-01 (M8) resp. A-1011-01 (M10)
when installing the propeller onto engine.**

If propeller is equipped by spacer between engine flange and propeller hub, check connection between propeller and spacer and repair in the same manner as stated above.

3. Inspection of propeller hub and spinner

- 3.1 Clean surface of the propeller which has been hidden under propeller spinner.
- 3.2 Check intactness of propeller hub. Focus on developing corrosion, deformations or cracks. If any unusual damage found contact manufacturer or authorized service facility.
- 3.3 Check for grease leakage at blade roots. Negligible leakage may be found especially after first 100 hours of operation and this condition may not be considered as defect. If excessive grease leakage is found contact manufacturer or authorized service facility.
- 3.4 Check tightening (locking wire and/or red paint marks presence) at the following locations:
 - low pitch adjustment self-locking nut; older version of propeller has two adjustment nuts secured by locking wire;
 - two screws holding the spring housing on front part of propeller hub
 - six screws holding spinner backplate
 - blade retention nuts securing screws (six on each blade).
 - balance weights on propeller hub and on spinner backplate (if present)
- 3.5 Clean propeller spinner and check for cracks. Check that frontplate inside the spinner is not loose. Check condition of rubber grommet in the centre of this plate. Small surface hair-cracks and cuts on spinner are acceptable and could be repaired according to propeller User manual. Spinners with cracks in fiberglass layers or with loosened frontplate must be repaired by manufacturer or authorized service facility.

4. Inspection of propeller blades

Inspect propeller blade carefully. Propeller blade must not show signs of damage, cracks, nor deformation exceeding the limits listed below. If bigger damage, cracks or deformation is found, propeller must be repaired by manufacturer or authorized service facility.

Repair small damage which is within limits listed below according to propeller user manual.

Pay special attention on leading edge or trailing edge damage. Such damage may cause penetrating of moisture to wooden core and must be repaired as soon as possible.

Common wear and tear from operation (by friction, operation, washing, etc.) is not considered blade damage.

- 4.1 Check of blade surface:

Maximum permitted depth of damage to suction or pressure side of blade is 0.7mm. Surface area of single repaired spot must not exceed 0,5cm².

Maximum permitted depth of damage to trailing edge is 2mm, repaired locations must be farther than 80mm away from each other, and must not be longer than 15mm.

Hair-cracks on the blade surface are permitted if they are only in outer gelcoat layer. If they start growing quickly and penetrating into the fiberglass (or carbon) layers, stop using the propeller immediately and contact the manufacturer or authorized service station

4.2 Check of leading edge:

Check that plastic protective tape is intact and check its adhesion. If damaged replace the tape according to propeller user manual.

Polyurethane leading edge:

Maximum permitted depth of damage to PU leading edge is 2mm, repaired locations must be farther than 80mm away from each other, and must not be longer than 15mm. No cracks on the leading edge are permitted. The leading edge must always fully adhere to blade along the entire length.

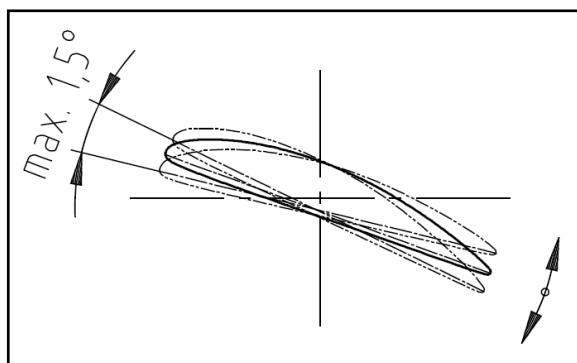
The repair may be done only by filling and sanding, to achieve smooth shape. Don't try to add any material to damaged areas.

Stainless steel leading edge:

Maximum permitted depth of damage to stainless leading edge is 1mm, damaged locations must be farther than 80mm away from each other and must not be longer than 5mm. Only deformations with blunt edges are permitted; any sharp edges could be starting points of growing defects. No punctures or cracks are permitted, on entire length of leading edge. The leading edge must fully adhere to blade, and no gap between stainless strip edge and blade surface is permitted. Any sign of separation of stainless leading edge from blade surface is not permitted.

No repairs of stainless leading edge are permitted.

- 4.3 Check axial play of individual blades in propeller hub – blades must not move (when pressed into and/or pulled off the hub).
- 4.4 Check angular play of individual blades in propeller hub – blades must not move by more than 1,5°. Measure play with blade in horizontal position, using digital protractor attached approximately in 75% of propeller diameter. Turn blade between end positions around its longitudinal axis.



! CAUTION!

If excessive axial or angular play is discovered, propeller must be repaired by manufacturer or authorized service facility.

5. Completion of inspection

- 5.1 Apply thin layer of Aeroshell 5 grease to the center of grommet in propeller spinner. Thread propeller spinner onto propeller hub. Orient the spinner with its red mark on external surface towards blade 1. Blade numbers 1-3 are marked on front part of propeller hub. Press spinner to bottom on propeller hub, while also setting 9 holes for screws against nuts riveted on the backplate. Thread plastic washers onto screws, apply few drops of Loctite 243 onto screw tips, and tighten the screws.

- 5.2 Reinstall engine cowlings according to respective A/C operating manual.
- 5.3 Start the engine, let it run and check that installation of propeller spinner and engine cowlings is OK. Bleed the control system according to propeller user manual. Check that blade angle adjustment works normally; blade movement must be smooth. If movement is jerky, propeller must be repaired by manufacturer or authorized service facility.
- 5.4 Record performed inspection into propeller log. Record any faults discovered, including the method of correction, as well as the date/place of inspection, and who has performed it.