



VARIO LSA Propeller

Operations Manual

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General



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Introduction

This manual contains all information needed for appropriate and safe use of Pipistrel VARIO LSA propeller.

In case of aircraft damage or people injury resulting from disobeying instructions in the manual PIPISTREL denies any responsibility.

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IT IS MANDATORY TO CAREFULLY STUDY THIS MANUAL PRIOR TO USE OF PROPELLER

Notes and remarks

Safety definitions used in the manual:

WARNING! Disregarding the following instructions leads to severe deterioration of flight safety and hazardous situations, including such resulting in injury and loss of life.

CAUTION! Disregarding the following instructions leads to serious deterioration of flight safety.

Propeller description

The Pipistrel VARIO propeller is an adjustable propeller specifically designed for LSA Aircraft.

Propeller pitch may be varied between “normal” fine position and feathered position either automatically or by movement of a knob on the instrument panel with adjusts a cable to feather the propeller. The propeller has only 2 positions in either automatic or manual control and this is a fine and feathered it cannot be adjusted in between these positions.

CAUTION! Always fly in such a manner that you are able to reach at least one landing-out site every moment of the flight. This especially applies to unpowered flight as ignition; engine and/or propeller malfunction may prevent you from restarting the engine and by that resuming normal flight.

Manufacturing method

The VARIO propeller's outer skin and inside parts are made of composite materials, namely fibre reinforced plastic. Blade's base is made of aluminium and stainless steel tube, which lies within to ensure blade's safe attachment to the propeller base (hub).

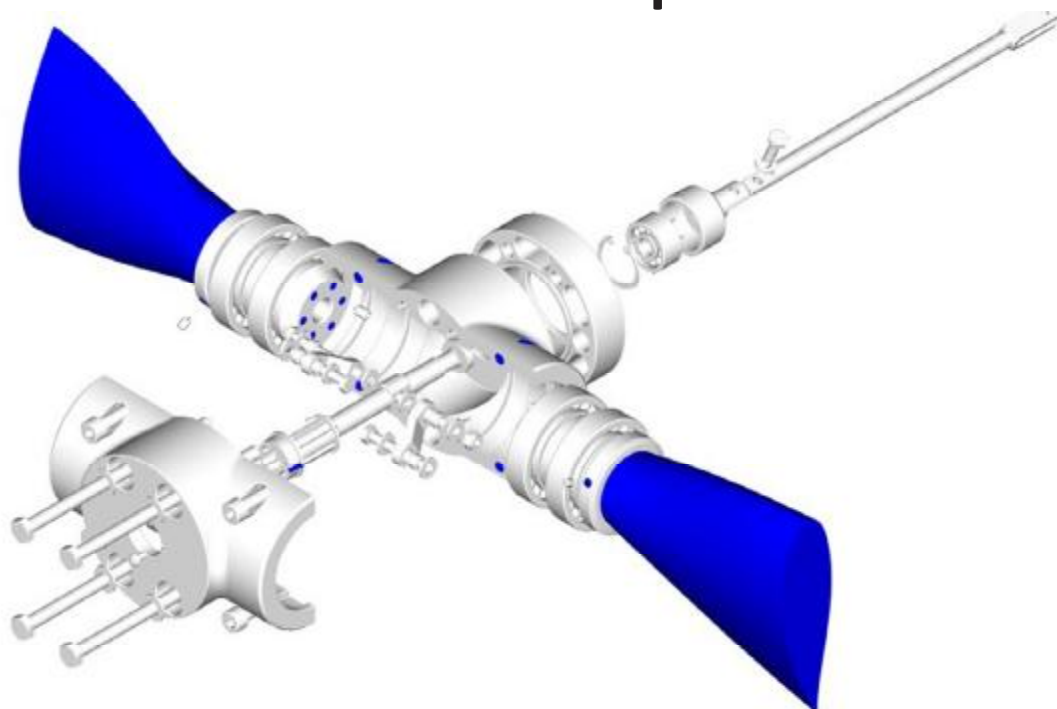
The propeller base (hub) is made of an aluminium alloy and features monolite construction. Inside, all parts are made of metal alloys.

To achieve highest levels of propulsion efficiency combined with lower noise output the manufacturer recommends a spinner to be mounted.

Technical data and operational limitations

Specifications	VARIO LSA Prop.
number of blades	2
propeller diameter	1720 mm
propeller pitch at 3/4 of prop. radius	25° - 80°
propeller pitch range w/o. feathering	25° - 38°
blade width	117 mm
max. safe propeller RPM	2550 RPM
max. safe engine power (permanent load)	75kW (100 HP)
central hole diameter	1" (25,4 mm)
propeller head (hub) bolts & nuts type	M8
mounting holes' circle diameter	75 mm

3D view of VARIO LSA Propeller



Handling and maintenance



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Introduction

This chapter provides information on handling and maintenance of Pipistrel LSA VARIO propeller.

Delivery

The VARIO propeller comes preassembled and mounted onto the aircraft you own. Should you desire to mount the VARIO propeller onto an aircraft, which does not ship with VARIO propeller, contact the manufacturer for further details.

WARNING! Only the manufacturer and/or authorised service personnel are allowed to assemble or disassemble the propeller unit due to the complexity of operation. Under no circumstances attempt to mount, detach or inspect the internals of the unit yourself!

Propeller pitch

The propeller pitch is set by the factory to the correct position before delivery of your aircraft. You are not able to adjust the pitch position of the propeller either on the ground or in-flight to achieve better performance. The only adjustment which can be made is to feather the propeller.

Daily check-up

Perform as follows:

Grab the propeller blades. Gently rock them towards the engine and back again to verify there is no free play.

Rotate one blade and make sure the adjacent blade rotates properly as well. The pitch deflections between fine and feathered position must be smooth and undisturbed.

Check for greasy spots on the blades and wipe them off using a soft piece of cloth. Check the spring (located at the engine part) for firmness, proper setting and condition (not de- formed!).

Check also:

blades surface: clean, no cracks, no paint and/or edge separations

blades base - no damage, cracks, paint and/or edge separations

propeller base (visible part) - intact

WARNING! Should the propellers status determined during daily check-up not comply with the stated above, flying may result in further damage and/or injury, including loss of life.

Propeller Feathering Systems

Pipistrel aircraft are fitted with two different types of Propeller feathering Systems. One system is completely automatic and requires no input from the pilot. The other system is manual and is detailed on the following page.

Automatic feathering propeller

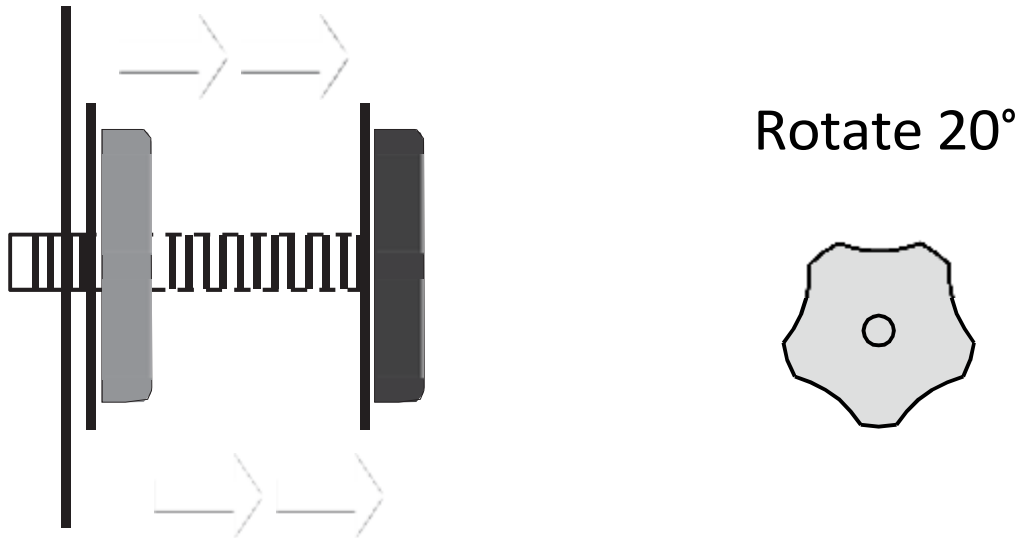
This new system of Propeller feathering is basically a conventional vario propeller with a special spring installed into the propeller hub to control the position of the propeller blades.

When the engine is stopped the blades will always return to the fully feathered position allowing you to glide without any additional adjustments necessary.

As soon as the starter button is engaged on the engine the propeller blades assisted by centrifugal force automatically return into the fine pitch position and allow conventional/normal operation.

There are no adjustments in this system it is completely automatic operation.

Propeller Feathering Manual System



1. Propeller feathering

WARNING! Feather propeller only after the engine has stopped and at minimum pitch.

To feather the propeller, first reduce airspeed to 50 knots, then pull the propeller pitch knobs base backwards fully and then rotate it 20° clockwise. A propeller pitch of approximately 80° is reached by doing so.

Propeller Unfeathering Manual System

To unfeather the propeller, first reduce airspeed to 50 knots. Now pull the propeller pitch knobs metal base slightly, then rotate it counter clockwise and gently push it all the way to the instrument panel.

WARNING! Do not, under any circumstances, attempt to restart the engine while the propeller is feathered. This would most definitely result in engine, propeller and/or aircraft's structural

Avoiding damage

On ground, keep your propeller in the absolute best condition by putting the propeller covers onto the blades. Also, try to keep your propeller out of the sun if possible for eventual damage caused by UV radiation.

When starting-up the engine, always make sure the space around the propeller is clear. Do not ever attempt to land on a runway covered by deep water patches for that can result in under- carriage and propeller damage.

Do not ever attempt to taxi through dense high grass for this causes propeller damage.

Be extremely careful when putting the aircraft into or out of the hangar not to damage the blades.

Do not ever attempt to move around your aircraft by pushing or pulling it at the propeller.

Overhauls

Overhauls must be done by the manufacturer once every 1000 flight hours.

Maximum life span of the propeller

Until present time, no boundaries of VARIO propeller's life span are known.

Repairs

Small damage (cracks) in the paint layer of the blades may be repaired by the owner him/herself using lacquer.

Should the blades be damaged during transportation and/or hangaring, the individual blades can be replaced.

All damage which occurs during engine operation requires for the entire power plant and propeller to be verified for structural damage by authorised service personnel.

New, replacement blades are available at reasonable prices therefore the manufacturer recommends blade replacement in case of extensive damage. However, should you desire to repair the damage yourself for whatever reason, you should **ONLY** use "Schoiffler" epoxy hardener of 38% durability together with "Interglas" fiber rowing of 180 and 280 g/m² density.

WARNING! After every repair job, the propeller must be re-balanced to prevent potentially lethal vibrations.

WARNING! For all repair jobs conducted by owners themselves, manufacturer denies any responsibility.

Paint jobs

Should you desire to repaint your propeller, please consult with the manufacturer prior to painting.

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