Luga Prop

General info:

The Luga Prop is a ground-adjustable air propeller intended for Ultralight and Homebuilt aircraft and other uncertified recreational light machines with internal-combustion engines (airboats, hovercrafts etc).

Prop blades are hand-made with high-strength carbon-fiberglass-epoxy composite. Each blade has integrated stainless steel leading edge protection. Some models have antivortex blade tips. Prop hub is made with aluminum allow, CNC machined and anodized (polished). Bolt pattern is standard used for Rotax engines. Usually the hub has 2 pilot holes. 1" for 503, 582 etc, 47mm for Rotax 912-914. The basic set included 3 blades, hub, blade covers, pitch protractor and hardware.

There is a serial blade number at each blade root. If you need a replacement, you can provide this number so replacement blade(s) can be balanced to fit exactly to your propeller.

Technical performances:

Max prop RPM 2800 (3000 for some models) rev/min

Recommended pitch adjustment +/- 5 degrees (using pitch protractor)

Allowable air temperature -10 : 150 F, humidity up to 80%

Warranty against manufacturer's defects 100hours for 1 year

There are 7 standard Lugo Prop models, both made left and right hand rotation. Special reinforced blades can be ordered for more powerful engines.

Model	R / L42	R / L62(64)	R / L83 Scimitar	R / L81(82)	R / L 104	R/L 106 Scimitar	R / L 102 (103)
Diameter	63"	67.3"	67"	69"	69"	69"	73.2"(66)
Pitch R=0.75D degrees +/- 5	12	12	10	10	10	10	13.5
Appr. engine power HP	40-60	60-80	60-90	60-85	80-110	80-120	90-120

Appr. moment of inertia	3100	3700	3800	3900	5000	5100	5900
Appr. weight kg	3.2	3.5	3.7	3.7	4	4	4.2

Assembling and installation:

Recommended for Pusher layout. For Tractor layout another pitch protractor can be recommended, or it is necessary to adjust the pitch before the prop installation on the engine hub and remove the prop from the engine hub each time you have to change the pitch

1. Disassemble prop hub.

2. Install propeller blades into their positions between the hub halves (be careful, drilled points inside the halves must be positioned in front of each other). Install outer bolts with lock nuts and tighten slightly to hold blades in place.

3. Install the prop hub (with spinner base and spacer if necessary) on the engine (gearbox) flange with the six 8mm metric bolts and washers.

4. With all bolts slightly tightened, you should be able to easily adjust the pitch on the blades. Make sure at this time that the leading edge of all blades are facing in the right direction and are not backwards.

5. Set the scale on the protractor to 0 or about the degree recommended by engine manufacturer pitch. Due to variations in gearboxes, etc. more adjustments are usually required to dial in the "perfect" pitch setting. Clamp the scale with a side clamp Cleco or small C-clamp.

NOTE: Some supplied protractors work on the flat side of the prop and some work on the curved side of the prop. Depending on if you use your prop in a tractor or pusher configuration you may need to adjust the pitch using the protractor when the prop is removed from the aircraft. An alternative method is possible using a protractor level. Most smart phones support this function. We use the "Clinometer" app on our Android phone. Below is additional information for this method.

6. Fit the other sheet metal end of the protractor into the center hole of the prop hub so that the sheet metal ears are both touching the flat face of the hub.

7. Place the notch on the other end of the protractor against the trailing edge of the prop blade. Rotate the blade until the leading edge side just touches the protractor scale surface. Ensure that sheet metal ears are both touching the flat face of the hub and there are no gaps between the scale part, blade leading and trailing edge surfaces. Torque the two outer

bolts to 3-4 foot lbs. to hold this blade at this setting. Then repeat the procedure for the other blades.

8. When all blades have been set, torque the lock outer bolts sequentially with 5 ft. lb. increments to 14-15 ft lb. This will help to insure proper tracking. Check the pitch of all blades again, and once satisfied, begin torqueing the inner Hub bolts sequentially, opposing and with 5 ft. lb. increments to 15-17ft lb.
WARNING!!! DO NOT OVER OR UNDER TORQUE BOLTS! NEVER START ENGINE WITHOUT PROPER TORQUE ON BOLTS!!!

9. Install the six lock nuts on the ends of the protruding prop bolts and torque to approximately 13-foot lbs. If your bolts have the drilled heads (if not you could drill them), secure them appropriately with steel wire. If your bolts have the drilled shaft and castle nuts, you can add a thin washer to line up the cotter pin holes, but **DO NOT UNDER OR OVERTORQUE!** A static check of rpm must be performed before flight. Refer to engine manual for specific instructions. NOTE: DO NOT FLY UNTIL YOU HAVE CHECKED AND RECHECKED YOUR PROPELLER FOR PROPER MOUNTING AND PERFORMED A STATIC CHECK OF RPM. If you cannot reach recommended RPM, you may be Over/Under Pitched. Do not run in this condition or engine damage may result. Install the spinner fairing (if you use spinner) after the static RPM test.

10. Re-check torque of prop bolts after first hour of operation and as routine maintenance. Never over torque or "STRETCH" prop bolts! The standard prop bolt for this propeller is a Grade 8.8 M8 metric and will fit the Rotax 75mm bolt pattern. M8 or AN 5 prop bolts will fit the Rotax 912 application depending on the prop hub, use the same torque.

Clinometer Method

Please follow all applicable information above! This method only replaces the use of the protractor.

Install and calibrate the Clinometer application.

Using the clinometer, level the prop hub. Rotate the props so that one blade is horizontal using the clinometer. Place the clinometer vertically at the beginning of the white tip with one side of the clinometer along the flat side of the blade. Adjust this blade to 9 degrees from vertical and slightly tighten as above. Using another not yet adjusted blade rotate the next blade to horizontal and repeat the above until all blades are adjusted. Torque bolts to the first level and recheck the pitch of each blade. You should be able to get within +- 0.1 degrees with a little practice.

For lower speed (sub 100 mph) aircraft you should get about 5400 rpm static. For higher speed aircraft the static RPM should be lower. Your best static RPM depends greatly on the aircraft.