MAX PROP®

Automatic Feathering Propeller

Instruction Manual

FOUR BLADE ECOWIND

1) INTRODUCTION:

Thank you for having chosen a MAX PROP® automatic feathering propeller for your vessel. This instruction booklet is designed to answer your questions on installation and use of the MAX PROP®. Please read it carefully and verify that the propeller is working correctly before installing it on your boat.

2) PITCH ADJUSTMENT:

MAX PROP® ECOWIND does not require a pitch setting. On this model the blades rotate automatically to the desired pitch within an adjustable range, under any sailing conditions. This unique feature radically improves both the vessel performance under power as well as the fuel consumption.

A) PITCH RANGE ADJUSTMENT IN FORWARD

MAX PROP® ECOWIND is delivered assembled with a pitch setting that we will call "basic-pitch". The basic pitch corresponds to the angle that the blades achieve in a non-load conditions, when the torque opposing propeller rotation is = 0. The best basic pitch is generally between 50 and 60 degrees (depending on the diameter).

When you engage the engine in forward and the propeller starts rotating, the blades angle decreases automatically, and sets itself at a pitch that corresponds to the load demand and keeps changing according to changes of sailing conditions or throttle demand (against the wind or with, yacht position to the waves, full or partial tanks, clean or dirty bottom, etc).

If, at full throttle, the engines cannot achieve manufacturer recommended maximum RPM or if the engines reaches max RPM too easily, the" basic pitch" can be easily adjusted as follows, referring to fig.2.

- Remove the Set Screw from the hub reference hole in front of the regulation ring.
- Pull the regulation ring towards the bow of the vessel and turn it to increase or decrease the number according to your need.
- Set the regulation ring so that the hub reference hole matches with the number on the ring corresponding to the chosen number.
- In order to make this operation easier we suggest screwing two screws into the threaded holes on the regulation ring and using these screws for leverage.
- Once you have aligned the reference to the selected number, make sure that you reset the ring so it snaps back in place.
- For security lock the regulation ring by placing a set screw into its hub reference hole in the propeller hub.
- Please note that for the MAX PROP® CLASSIC and FAST models, the same propeller can be used as right or left rotation, however for the ECOWIND model the rotation must be chosen upon order and cannot be changed.

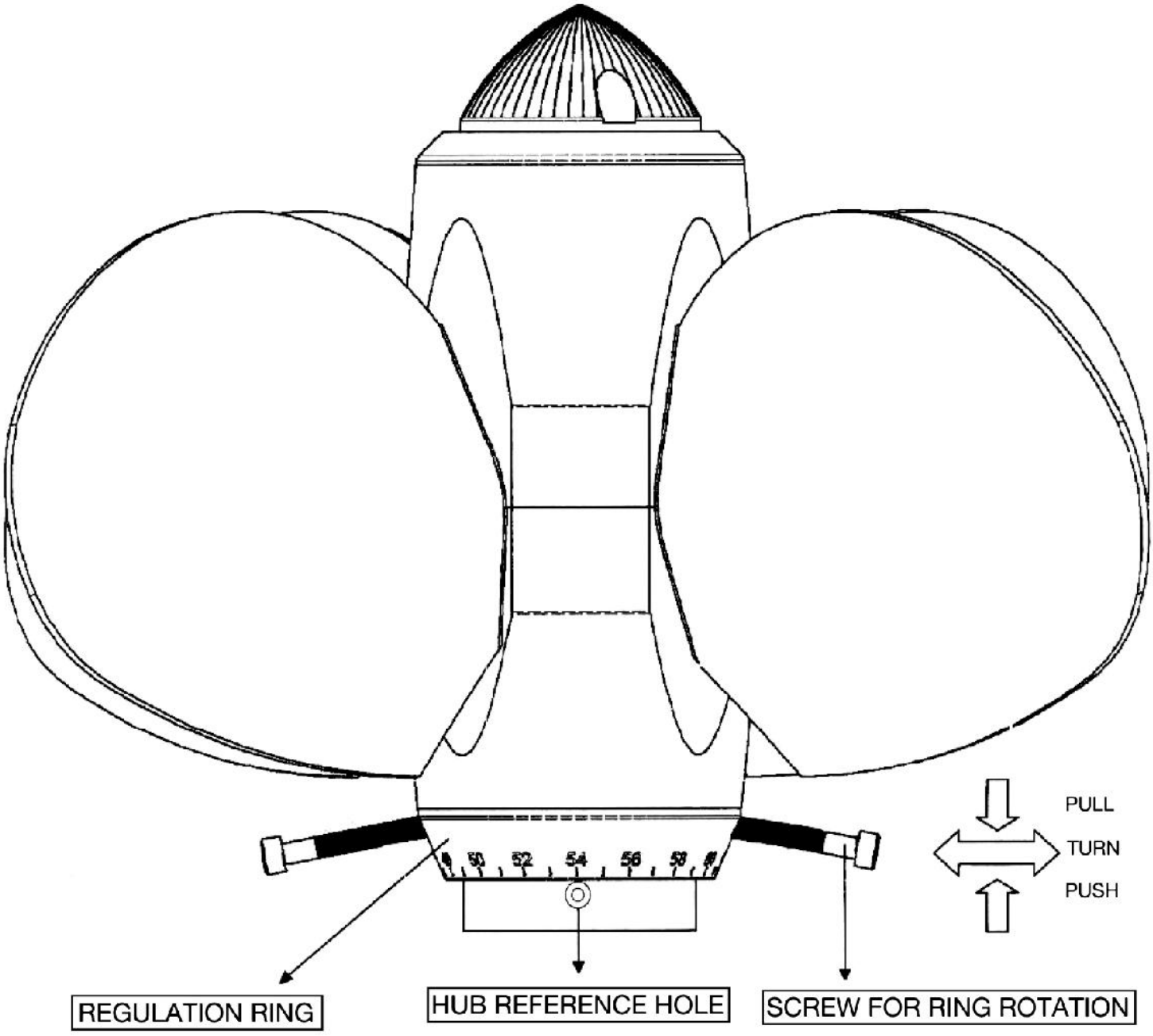
PULL
TURN
PUSH
REGULATION RING
HUB REFERENCE HOLE
SCREW FOR RING ROTATION

Fig. 2

B) PITCH REGULATION IN REVERSE:

Only after finding the ideal setting in forward, should you adjust the pitch in reverse. The ECOWIND is delivered with the most common insert already in place. If adjustment is required, choose a different insert and fit it into the slot in the propeller (see fig. 4). There are 7 inserts available, and each one has a particular thickness. Fitting a different insert will produce a specific pitch in reverse as noted in fig. 3. Once the insert size is chosen remove the original by removing the two screws and place the new size into the slot and lock it with the two screws as in fig. 4.

TYPE OF INSERT	7	6	5	4	3	2	1
DIFFERENCE IN BLADES ANGLE BETWEEN FORWARD POSITION AND REVERSE POSITION	22	28	34	40	46	52	58

	BLADES ANGLE IN FORWARD POSITION										
	42	45	48	51	54	57	60	63	66		
BLADES ANGLE IN REVERSE POSITION	20	23	26	29	32					7	TYPE OF INSERT
	14	17	20	23	26	29	32			6	
	8	11	14	17	20	23	26	29	32	5	
		5	8	11	14	17	20	23	26	4	
				5	8	11	14	17	20	3	
						5	8	11	14	2	
								5	8	1	

Fig 3

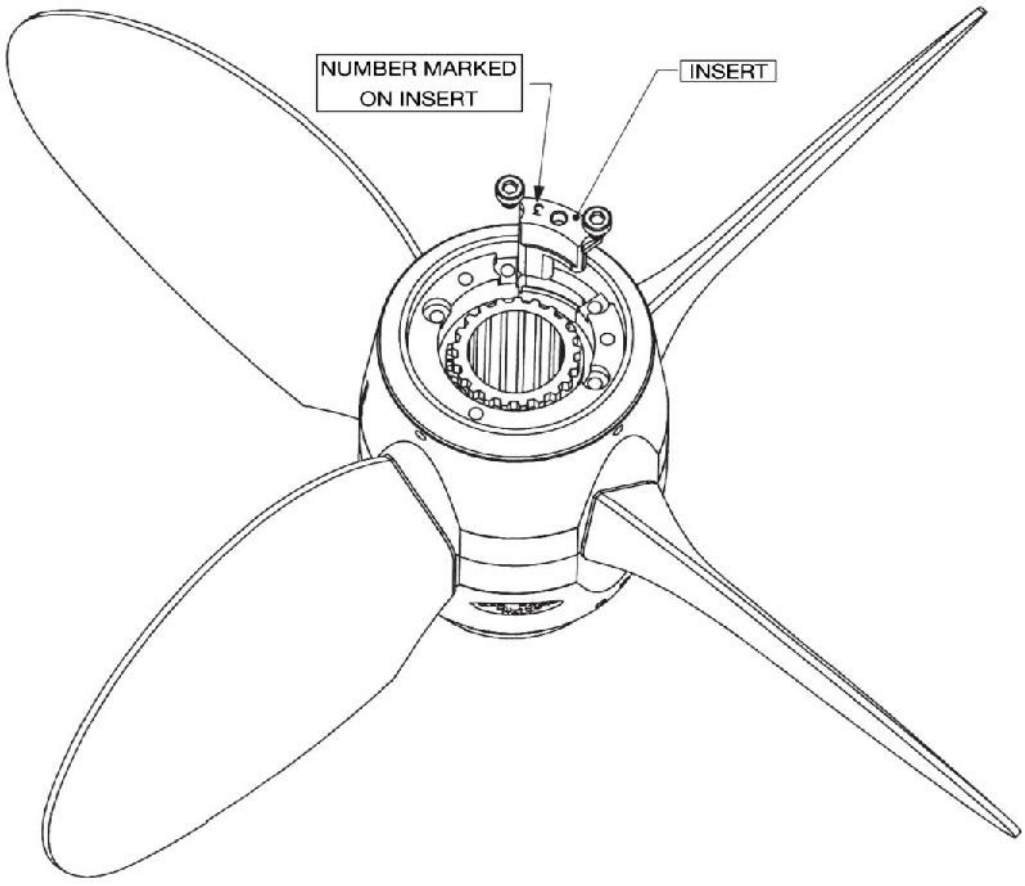

Fig. 4

3) INSTALLATION:

The propeller is supplied already assembled for right or left rotation, according to the information received at order and with the pitch required, and so can be fitted on the shaft. MAX PROP parts are NOT interchangeable. Make sure, if you receive more than one propeller, that you do not interchange parts. Please use Fig. 4.

A. Fit the MAX PROP® to the shaft, like a fixed propeller, and be sure that the key is the proper dimension: a good key has almost no clearance side to side but a very small clearance on its upper surface. This clearance is to avoid the propeller to be pushed off center by a key, which is too tall. If you are not sure, remove the key and slide the propeller onto the shaft making a mark on the shaft where the front of the hub stops on the shaft. Re-insert the key and slide the propeller back on to the shaft, if it slides up to your mark , it is fine. If not, you will need to file down the sides or top of the key until the propeller slides completely onto the shaft.

B. Tighten the nut and secure it in place using the two allen head screws.

C. Fill the prop with marine grease (Lubriplate 130-AA is supplied), insert the grease fitting into the grease holes marked "GREASE". The MAX PROP® propeller works properly only if the central body is completely filled with the correct grease. Verify that the grease is oozing from the rotating joints between the central part and the hub, so that all of the moving surfaces are perfectly lubricated. The grease used must be a type of grease approved by MAX PROP® so it will remain fluid after years of use and will not get too stiff in cold water

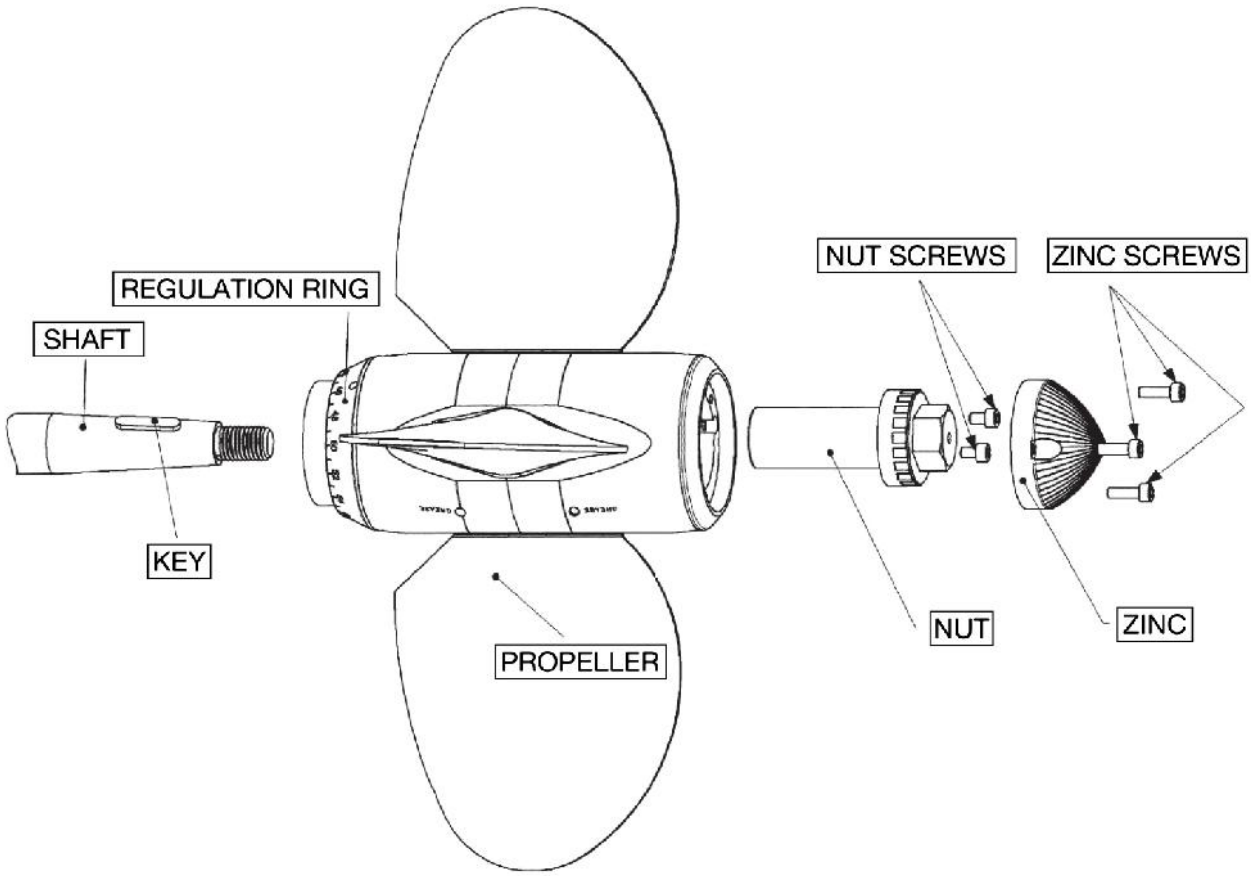

Fig. 4

D. Move the blades into the feathered position, making sure that the rounded trailing edges of the blades are aft as shown in Fig. 5

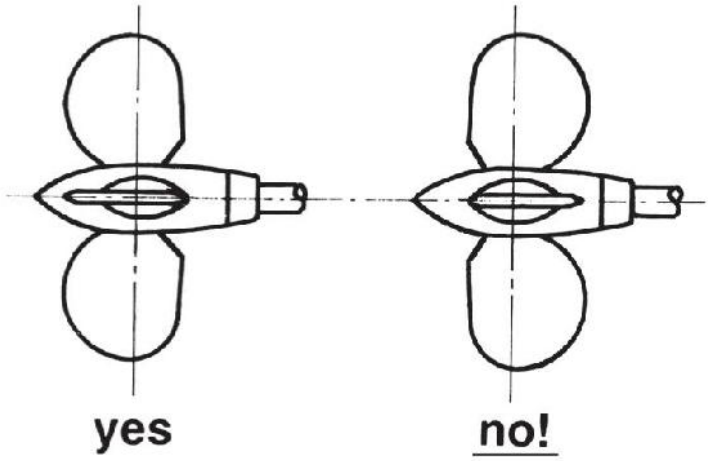

Fig.5

E. Before launching the boat, it is absolutely necessary to operate as follows:
- Hold the propeller shaft.
- Check that the blades of the propeller rotate freely from the forward to the reverse position with just a light effort
- In the feathered position the blades must be perfectly lined up and set like Fig. 5
- Check that the propeller body is full of fluid marine grease
- Make sure that the propeller is protected from galvanic corrosion by using zinc anodes on the propeller and the shaft.

4) PROPELLER USE:

The MAX PROP® ECOWIND works automatically. By putting the engine in gear the blades will engage in either forward or reverse and feathers from forward position when you turn of the engine and block the shaft.

WARNING: do not change from forward to reverse and vice versa when the engine is running at high RPM.

The best way to feather the propeller is as follows:
- Power at 2 to 3 knots in forward.
- Kill the engine while still engaged in forward.
  If your propeller has been greased properly it will feather in a fraction of a second as soon as you stop the shaft from freewheeling. **DO NOT** kill the engine while in reverse. In this case the blades will be in the reverse position and will not feather. You can actually use this feature to drive a shaft alternator.
  Modern engine transmissions are either mechanical or hydraulic. With a mechanical transmission, the best way to stop the shaft freewheeling is to engage the transmission in reverse (WARNING: engage the reverse only after the engine has stopped completely). With a hydraulic transmission you must shut off the engine while still engaged in forward. The remaining hydraulic pressure will in effect lock the shaft for a few moments, enough for the MAX PROP® to feather.

5) PROPELLER MAINTENANCE

The MAX PROP® ECOWIND needs to be regreased a minimum of once every year, optimally every 6 months. We recommend Lubriplate "130 AA" grease. There are two holes in the spinner of the propeller to grease. Remove the set screw from one of the holes with a #3 metric Allen wrench and screw in the zerc tower, attach your grease gun and fill the propeller with grease until the grease starts to come out of the propeller housing. Replace the set screw and remove the set screw from the more aft hole. Reinstall the zerc tower and attach your grease gun and fill the propeller with grease until the grease starts to come out of the propeller housing. Remove the zerc tower and reinsert the set screw into the propeller. Do not leave the zerc tower in the propeller.

- With each pump of the grease gun rotate the propeller from forward to reverse to allow the grease to work through the propeller.
- Make sure that you always keep the zinc anodes in good condition. They must be replaced at least once a year. The propeller must be protected by a lot of zinc. Use a anode on the shaft when possible. When replacing it make sure that you clean the contact point between the zinc and propeller. Use a wire brush or fine sandpaper to clean the aft of the end cap and the forward face of the zinc to give the zinc good contact with the propeller.

6) WARNING:

It is important to follow the instruction below carefully so as to avoid a shock to the gears on the blades and conegear that could be damaging the teeth.

- When going from forward to reverse and the opposite, it is necessary to idle down and shift at low RPM's between gears
- The propeller must always be completely filled with the recommended grease.
- Make sure that you always keep the zinc anodes in good condition.

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