

FeatherStream Instructions for fitting, use and maintenance.

Normally, the propeller is supplied fully assembled and filled with grease and there is no need to disassemble the propeller. In some cases where there is a very restricted amount of space for the propeller it can be disassembled and then assembled on the shaft. Please contact Darglow for special fitting instructions if this applies.

- 1.1 Firstly, remove the key from the shaft and clean any marine deposits off the taper (if the Nordlock washer / loctite method described later is to be used then clean, degrease and dry the shaft thread).



- 1.2 Then, offer the Featherstream Propeller onto the shaft without the key in place. This will allow you to check that the tapers are a good match. If there is any discrepancy between the shaft and propeller tapers this will be felt as a slight movement of the propeller hub on the shaft. If any discrepancy is found, the propeller should be lapped onto the shaft taper using valve grinding paste. When a good taper match has been established, slide the propeller onto the shaft **without the key in place** and with a pen or scribe, mark the position that the hub reaches on the shaft.



1.3 Remove the propeller and replace the key in the shaft



1.4 Replace the propeller on to the shaft making sure that the propeller hub meets the pen mark, if it does, continues with instruction 1.6. If it does not it is because the key is too tall for the keyway in the propeller if this is the case follow instruction 1.5



1.5 The top of the key now needs to be filed down until it allows the propeller to reach the pen mark on the shaft. This is very important because if the key is not filed down sufficiently, the propeller will be "key bound" and may cause operational problems or damage to the propeller.



1.6 Now that the propeller is a good fit on the taper and the key is not “keybound” the propeller can be fitted and the propeller nut tightened. In many cases, the propeller nut extends down into the hub of the propeller meaning that a split pin cannot be used to lock the propeller nut as would be the case with a fixed propeller. Because of this, Darglow recommend the use of Nordlock Washers and Locktite (or similar anaerobic adhesive). This method is described here. If the nut and shaft thread extend aft of the propeller hub then a split pin may be used but care must be taken to insure that it does not foul the inside of the anode.



1.7 Firstly, fit the nut **without the Nordlock washer** and tighten to approximately 45ft/lb torque. It is difficult to give an exact torque figure due to the many different thread sizes used and sometimes a torque wrench cannot fit in the available space so as a guide, the nut should be tightened as hard as possible using one hand and a normal size socket wrench or spanner.



1.8 At this point, check that the propeller movement from forward to reverse position is smooth and free. It should be possible to move it with the effort of one finger on a blade tip. Very rarely, tightening the propeller nut can cause the propeller movement to stiffen excessively. If this occurs contact Darglow and do not continue with the fitting. Provided that the movement of the propeller is free, the nut should now be undone again and removed.

1.9 The pair of Nordlock washers should now be fitted as shown with the wedge shaped cam faces touching each other. The pair of washers should be received glued together in the correct position cam face to cam face. There is no need to separate them.



1.10 Now locktite should be applied to the shaft thread which has been cleaned, degreased and allowed to dry.



1.11 Now the propeller nut can be re-fitted and again tightened to approximately 45ft/lb torque.



1.12 Now the anode can be fitted applying locktite to the two screws before tightening them.



Finally, the movement of the propeller should be checked again and should be free from forward to reverse position requiring only the effort of one finger on a blade tip.



Propeller use:

The propeller should automatically take up the required forward drive, sailing or reverse positions in use but there are some minor differences between it's' use and that of a fixed propeller.

When motoring it is very important to allow the engine speed to drop down to idling revs when changing from forward to reverse gear and vice versa. This reduced the force on the pitch stops inside the propeller. Rapidly changing from forward to reverse at high engine revs will cause damage to the pitch stops and premature wear of the propeller.

When sailing there are two different ways to ensure that the propeller feathers. If you have a mechanical gear box then the engine should be stopped as normal in neutral. Then, with the engine off, reverse gear should be engaged to lock the shaft. This will cause the propeller to feather. You can check to see if it has feathered by putting it back in neutral again. If the shaft remains stationary, the propeller has feathered. If you have a hydraulic gear box, it is not possible to lock the shaft. In this case when changing from motoring to sailing, the engine should be stopped in forward drive which will cause the propeller to feather. Again, if the shaft is

not rotating while you sail, the propeller has successfully feathered. In all cases, the propeller will only feather from the forward drive position i.e. having been motoring in forward prior to sailing. It will not feather from the reverse position.

Maintenance

ANODE: The propeller is protected from electrolysis by the zinc anode. This is designed to be used in addition to other anodes on the boat (hull, shaft anodes etc). If it is the only anode on the boat it is likely to be consumed quickly. The rate at which the anode is consumed varies enormously and it will be used up at whatever rate it needs to in order to protect the propeller. Most owners need to change the anode once per year (or less often) but in some rare circumstances it may not last a whole season so it is advisable to check it from time to time. When the anode is being replaced make sure that the face of the propeller that the anode sits on is cleaned to ensure good electrical contact all round the base of the anode.

GREASE: The grease inside the propeller needs to be topped up at least once per year. Under the anode there is a small hole blocked with a grub screw. This should be removed with a 3mm allen key and the grease nipple (supplied with the propeller) inserted in its' place. The two screws that hold the anode on should be re-fitted and then a grease gun is connected to the nipple. Grease can now be pumped into the hub and the propeller should be moved from stop to stop as the grease is injected. Once grease starts to exit the propeller either from the inner / outer hub junctions or the blade junctions, the hub is filled and you can stop. The grub screw should be replaced and the anode re-fitted. **It is very important that the correct grade of grease is used** and we recommend Darglow Feathering Propeller grease.

ANTI-FOULING: Like any bronze propeller, regular hull antifouling should not be used on the propeller. There are many propeller antifouling products available and almost any can be used provided the manufacturer states clearly that the product is safe to use on a bronze propeller. The only exception is the thick grease type products that require you to heat up the propeller to apply them. Applying excessive heat to the propeller may cause the grease inside the propeller to melt.



Adjustment

Should any change of blade angle (pitch) be required, the propeller should be returned to Darglow for this to be done. Before lifting the boat a sea trial should be performed noting engine speed and hull speeds at 200rpm intervals from tick over rpm to maximum achievable rpm underway (throttle fully open).

If you have any queries regarding the fitting, use or maintenance of Featherstream propellers or if you require grease / anodes etc. please contact:

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