IMPORTANT INSTALLATION INSTRUCTIONS for **AUTOSTREAM 500 Series** 2 Blade Shaft Drive Propellers

Please read and follow these instructions precisely, failure to do so may result in unsatisfactory results, additional slipping costs, and loss of propeller or voiding warranty.

Our experience has shown virtually all problems stem from faulty installation – avoid frustration and extra expense and read on.

Pre installation points

1. Before disassembling the propeller note which is the leading and trailing edge of the blades when feathered.

2. Note how freely the blades rotate.

3. Note that the propeller is the same hand in forward and reverse positions.

4. Points 1 to 3 must be the same after installation. Marking the blade positions with a felt tip pen prior to disassembly may help.

5. Check that the correct hand has been ordered. The letter R or L in the serial number denotes left or right hand rotation. Right hand rotation requires clockwise rotation of the propeller shaft (when viewed from astern) to drive the boat forward. Vies versa for left hand.

6. Tools required for installation:-

5mm Hex key	supplied with propeller
Valvoline Val Plex M grease	supplied with propeller
262 loctite	supplied with propeller
Grease gun	
Flat blade screwdriver	may be required for pitch adjustment
1/2"A/F ring spanner	may be required for pitch adjustment
Suitable socket for propeller nut	
Soft-faced hammer	

To dismantle the propeller to machine the taper into main gear:-

1. Remove the nyloc nut and anodic tail cone.
2. Unlock the ½" A/f hex nut under the tail cone and remove the stud.
3. Undo and remove the 7 cap head screws holding the two halves of the body together.

Machining the taper

4. It is recommended where possible the SAE standard be adhered to. Details of SAE tapers are available on request.

A. The hub will accommodate shaft tapers 25mm – 32mm diameter (1"-1 1/4") diameter.
B. Maximum keyway width 9.5mm (3/8")
C. The maximum size for the propeller shaft thread that will allow a standard nut and socket to be used is m20 (3/4 UNC). A 316 stainless steel nyloc nut and suitable washer is recommended. Special nuts to accommodate threads to M22 (7/8unc) are available from Autostream.
D. Key way to be positioned to pass through the stop lug of the main gear.
E. When clamping the main gear for machining purposes take care not to damage or distort it.

Fitting to Propeller shaft

4. Check that the taper is matching correctly by gently sliding the main gear onto the shaft taper without the key fitted feeling for any miss match of the taper. Any miss match must be rectified. Mark the propeller shaft with a felt tip pen or similar at the forward end of the main gear.
7. Fit one half on the body and check for clearance to the end of the shaft thread See fig 1.
8. Remove the main gear. Fit the key to the shaft and refit the main gear to the shaft. It must still go up to the mark on the shaft. If not the key is fouling and will have to be re-machined correctly. The most common problem is the key sitting too high out of the shaft. Check that the key is sitting fully into the shaft keyway then machine or file the key to the correct height.
9. Check that the propeller nut screws onto the shaft freely. Damaged threads must be rectified. Forcing a stainless steel nut may result in the nut seizing onto the shaft. A very difficult problem to rectify.
10. If not using a nyloc nut apply 3 drops of loctite to both the propeller shaft thread and nut.
11. Fit the main gear to the propeller shaft with the key fitted. Fit the washer and nut. Tighten firmly to 68Nm (50ft/lbs) torque.
12. Lightly grease the Delrin bearings on the main gear. Avoid getting grease on the body parting faces and in the tapped holes.
13. Fit the half of the propeller body with the pitch adjusting screws to the main gear with the stop lug pointing out of the body.
14. Align the mark on the main gear with the parting face. See fig 3.
15. Fit the blades with the leading edges aligned to the parting face and numbers 1 & 2 on both blades and body corresponding.
16. Fit the other body half and tighten lightly the central cap screw.
17. Check that both blades are correctly feathered when the alignment mark on the main gear aligns with the parting face of the propeller bodies. See fig 3.
18. Fit the remaining six cap screws and tighten lightly. It should be as free as in the pre-installation check. If not, tap the blades with a soft face hammer as it should be as in fig 2 until movement is free than tighten the screws securely to

9Nm (6.5ft/lbs) torque. If tapping the blades does not achieve free movement the propeller will have to be dismantled and checked for dirt etc.

19. Apply 2 drops of the loctite supplied to the end of the tail cone stud and to the threaded hole in the end of the propeller body. Fit the stud and lock nut.
20. Fit the anodic tail cone and nyloc nut.
21. Grease the propeller with Val Plex M or equivalent until grease appears at the blade journals.

General Notes:

If not using a torque wrench for tightening screws and nuts:- All screws should be done up very tight. You will break the screws before you strip threads in the bronze.

Anti-fouling of the propeller

Modern self-abating anti-fouls will not last very long if the boat is used under motor power. We suggest if the boat is moored for long periods, especially in high fouling areas, that the propeller is anti – fouled.
If the boat is mainly used in clean ocean water then anti-fouling is not required.
If anti-foul is used on the propeller:-
1.**Do not** allow paint to run into the blade journals and restrict the ease of blade movement.
2. **Do not** paint the tail cone anode or grease nipple.

Sea trials

The propeller pitch is generally preset using the information supplied when the propeller was ordered. However fine-tuning may be required to achieve optimum performance. The correct pitch is achieved when the engine just reaches max rpm under flat-water conditions. Over revving is not enough pitch, black smoke or under revving is too much pitch. The pitch adjustment screws are marked F and R for forward and reverse adjustment. Half a turn of the screw will make about 150rpm alteration on most installations.
To increase the pitch ahead screw 'F' in.
To increase the pitch astern screw 'R' out and vies versa
Reverse rarely needs adjustment and is set at a finer pitch than forward.

NOTE AUTOSTREAM propellers are much more efficient in reverse than other types of propellers, take care reversing in confined areas as you may be doing 3 to 4 times the speed for the same rpm that you were previously.

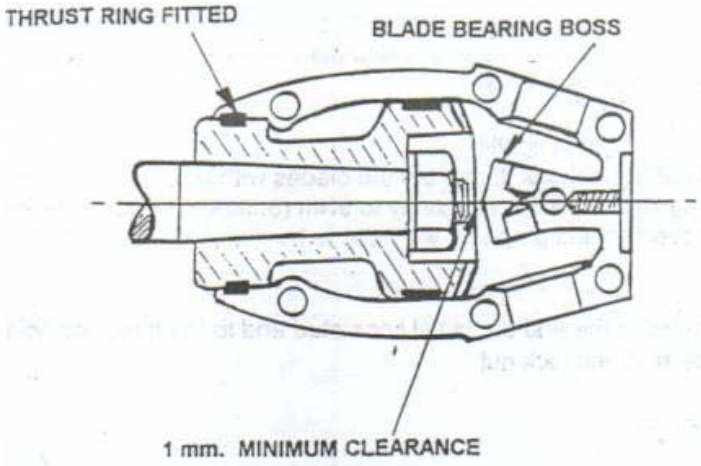

Fig. 1

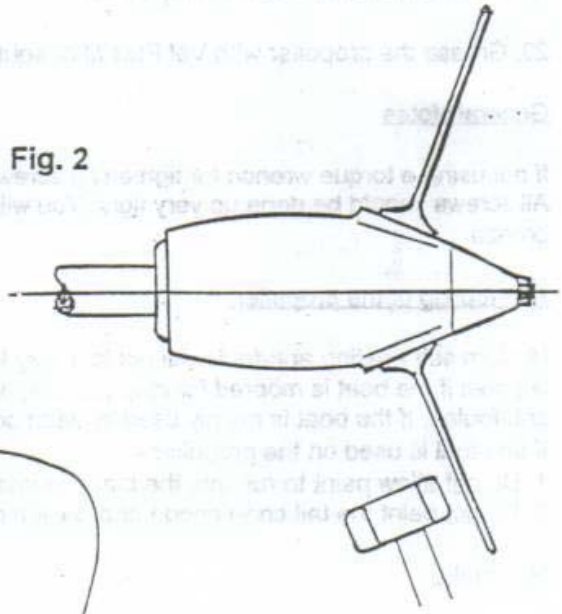

Fig. 2

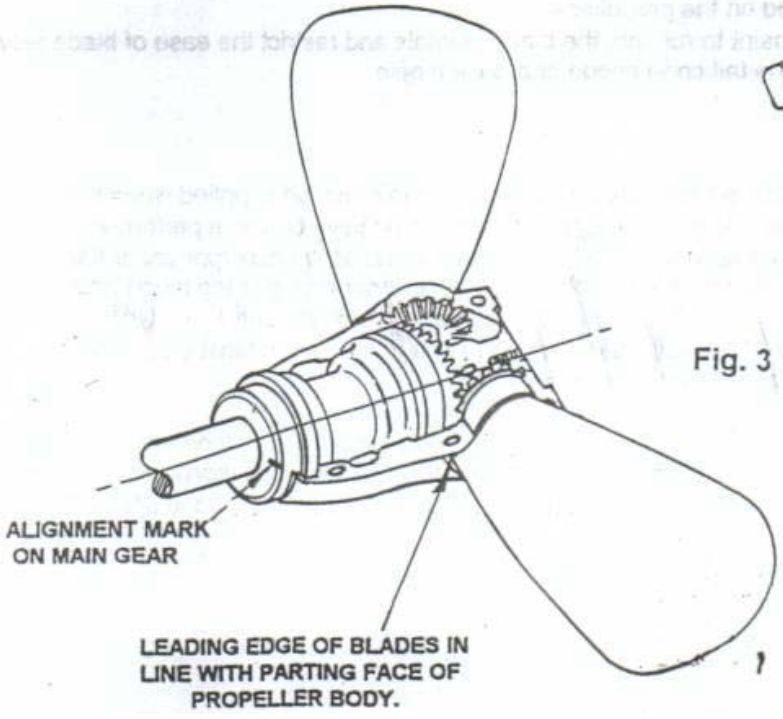

Fig. 3