IMPORTANT INSTALLATION INSTRUCTIONS FOR **AUTOSTREAM 1000** SERIES 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:-

6mm Hex key	supplied with propeller
3mm Hex key	supplied with propeller
Valvoline Val Plex M grease	supplied with propeller
262 loctite	supplied with propeller
242 loctite	supplied with propeller
Grease gun	
Flat blade screwdriver	may be required for pitch adjustment
9/16"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. Position blades in 'zero' pitch position ie: 90% to the shaft axis. As shown in Fig 2.
2. Remove nyloc nut and anodic tail cone.
3. Remove 3 screws 'A' in end cap using 6mm hex key supplied.
4. Remove end cap and blades, as an assembly.
5. Remove 4 screws 'B' using 6mm hex key supplied.
6. Split body halves and remove main gear.

7. After boring and keying reassemble main body and gear only. Apply 1 drop of loctite supplied to screws 'B'. Torque screws to 20Nm (15ft/lbs).
8. Check that the gear still rotates freely from stop to stop.

Machining the taper.

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 to 38mm (1" to 1 ½") diameter.
B. The maximum size for the propeller shaft thread that will allow a standard nut and socket to be used is m22 (3/4") unc. A 316 stainless steel nyloc nut and suitable washer is recommended. Special nuts to accommodate thread sizes to M25 (1"unc) are available from Autostream.
C. Maximum keyway width is 9.5mm (3/8") Key way is to be positioned to pass through the stop lug of the main gear.

Installation instructions for propellers already bored and keyed.

1. Position blades in zero pitch position as shown in fig 2.
2. Remove nyloc nut and anodic tail cone.
3. Remove 3 screws 'A' in end cap using 6mm hex key supplied.
4. Remove end cap and blades as an assembly.
5. Check that the taper is matching correctly by gently sliding the main body and gear assembly onto the shaft without the key, feeling for any miss match of the taper. Any miss match must be rectified. Mark the propeller shaft with a felt pen or similar at forward end of the propeller hub. **NOTE** The propeller shaft thread must not protrude past the end of the main gear.
6. Remove the propeller hub assembly. Fit he key to the shaft and refit the propeller hub assembly to the shaft. The hub must still go up to the mark on the shaft. If not the key is fouling and will have to be 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.
7. 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 and key. Fit the washer and nut and tighten firmly to the correct torque for the thread size.
8. If not using a nyloc nut apply several drops of loctite to both the shaft thread and nut. Fit the propeller hub assembly to the shaft and key. Fit the washer and nut and tighten firmly to the correct torque for the thread size.
9. Check that the propeller body still rotates freely from stop to stop. Ie: forward to reverse.
10. Align marks on the centre hub to the propeller body split line see fig 3.

11. Apply 2 drops of loctite to each of the 3 threaded holes and to end thread of screws 'A'.
12. With numbers on blades facing aft and all blades in zero pitch position fit blade assembly to the body assembly. Note blade bearing bores in main body must correspond ie:1, 2 & 3 see fig 2.
13. Fit and tighten screws 'A' lightly.
14. Check that the propeller blades rotate freely from forward to reverse and alignment marks are still aligned. See figure 3. It should be as free as the pre-installation check. If not the blade assembly will have to be removed and cause rectified. Check for dirt or damage to the gear teeth.
15. Tighten screws 'A' to 20Nm (15ft-lbs) torque. Fit 3-6mm grub screws around the circumference of body, applying the 242 loctite supplied to both threaded hole and grub screw. Using 3mm hex key, supplied tighten grub screws.
16. Fit the tail cone anode and nyloc nut.
17. Grease the propeller with Val Plex M or equivalent through the grease nipple until grease appears at the blade journals. The propeller should be greased whenever convenient.

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 the 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.