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H20

FITTING, REMOVAL AND MAINTENANCE OF YOUR H20 2 blade MODEL AUTOPROP.

The Autoprop is supplied assembled, tested, and ready to fit to your yacht. Observing the following notes will ensure correct fitting and trouble free service. Please also register your purchase by going to our website www.autoprop.info/register and complete the online form.

Disclaimers

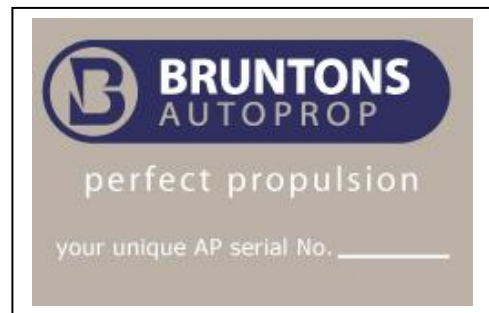
All information in this fitting and maintenance manual are based on the information available at the time of Publishing. The diagrams are for reference only and help explain the make-up of your Autoprop. Our description of the parts and instructions are there to help you maintain and service your Autoprop.

Tools required for maintenance and fitting/removal.

Selection of Allen keys.
Small flat blade screwdriver.
Socket spanner for propeller shaft nut.
Propeller extractor tool. (Brunton's) special tool for Autoprop removal)

Spare Parts

Zinc anode with screws
Bearing service kit
Individual components
Blade fitting and removal Instructions
Corrosion resistant waterproof grease
Grease gun
Greasing nozzle (supplied with Autoprop)
Replacement blades



Fitting.

Before fitting your new Autoprop ensure that the cutlass bearing is not worn. A worn bearing will be problematic and may cause vibration. Replace your bearing with a good quality bearing preferably with a brass shell, which uses nitrile rubber.

1. After removing the old propeller check that the shaft taper, key, and thread are undamaged. Try the new shaft nut on to the thread. The taper should be clean and dry. Check that the key will slide through the keyway in the Autoprop without jamming at any point.
2. Fit the key into its seat on the shaft. Push the Autoprop on to the shaft making sure it fits snugly on the taper. If it does not appear to fit well, there may be some foreign objects on the taper, or you may need to file the key down until the Autoprop fits snugly on to the taper.
3. Screw the new shaft nut up tight using a 24mm socket spanner, finishing with one of the flats of the nut coming under the shaft nut locking screw. If the shaft nut locking screw does not bear on to the body of the shaft nut, you may dimple the body of the shaft nut, with a drill or punch.
4. Smear the thread of the shaft nut locking screw (10) with thread locking compound and screw it down on to the shaft nut.
5. Hold the anode nose cone in place and screw down to fit. Do not over tighten.

Your Autoprop is now ready for use

Removal.

1. We recommend that you use a special extractor available from your Autoprop supplier. This is simple to use and avoids having to remove the rope cutter, if fitted. Most three legged pullers will fit the Autoprop.
2. Remove the anode nose cone by removing the nylon screws.
3. Unscrew the shafts nut locking screw until it is clear of the shaft nut.
4. Unscrew the shafts nut remembering whether it has a right or left hand thread.
5. You can now use your three-legged puller to remove your Autoprop from the shaft. With the Brunton's extractor tool, screw the extractor plate on to the end of the propeller boss using the socket head screws provided. Screw in the jacking screw and tighten until the Autoprop loosens on the taper, and remove from the shaft.
6. Tape the key on to the shaft, or remove and keep in a safe place.

AUTOPROP MAINTENANCE

Your new AVP Autoprop is fitted with greasing channels in each blade; therefore blade removal is not necessary in order to re-grease your Autoprop. The Autoprop needs to be re-greased once every year. Alternatively grease whenever you haul the boat for anti fouling.

The Autoprop needs good protection from electrolytic and chemical corrosion. Ensure that you replace the anode each year. For extra protection it is advisable to fit a shaft anode or shaft brushes connected to a hull anode, as the Autoprop anode will only protect the Autoprop.

The bearings should not need replacement for upwards of 700 to 1000 engine hours, depending on power of your engine and usage. It may be prudent to check the bearings and the seals after 700 engine hours. Eventually, the bearings will need replacing. This is a straightforward procedure covered in the maintenance sheet supplied with our bearing kit. To order this kit simply contact your Autoprop distributor or visit our shop online <http://bruntonsshop.oxatis.com/>

GREASING YOUR AUTOPROPS BEARINGS

You will see these channels on the blade palm situated near the bearing mechanism (7). Inserted into a 5mm diameter hole you will find a pan head screw, which is fastened into the blade using an Allen key. The retaining cap (1) facilitates a grease exit hole sealed with a pan head socket screw and this also needs to be removed when greasing. O-rings are fitted to these greasing channel screws. Always use good quality Lithium waterproof grease as supplied by your Autoprop distributor. We recommend **SKF LGWA 2/A4**

A special grease nozzle is supplied with your Autoprop, which fits into the greasing channel. This nipple will attach to a hose type grease gun.

Greasing procedure

1. Remove the pan head screws from the grease channel (7) on the blade.
2. Fit the grease nipple by screwing it into the grease channel (7) on the blade and connect to the grease gun.
3. Remove the grease exit screw (1) in the retaining cap.
4. Your hub can now be applied with the grease. Pump the gun until the new grease pushes through the grease exit hole. You may need to rotate the blade, working the new grease around the bearing.
5. Clean any excess grease from the retaining cap and replace the pan head screw (1) with the o-ring.
6. Remove the grease nipple and clean the excess grease and replace the grease channel screw.
7. Ensure that all three blades are greased as per instructions.

LAYING-UP.

Whenever you haul-out for antifouling or laying-up for example, the Autoprop needs to be given a high pressure wash before it has a chance to dry out. This will remove any deposits or growth from the propeller. After this, rotate the blades by hand to ensure they are free moving. At this stage re-greasing can be carried out to the Autoprop. **Ensure that you grease the Autoprop bearings before laying up your yacht for a long period.**

Automatic Variable Pitch

The Autoprop's blades are custom designed by Brunton's Propellers for the particular power, shaft revolutions, and vessel speed. The components of hydrodynamic and centrifugal forces balance, to set the blades at the correct pitch angle. As the yacht's speed or engine revolutions change, the blades will automatically readjust to keep the optimum angle of attack to the water flow at all time.

Feathering your Autoprop under sail

Follow the instructions in your engine manual or operators guide for use of folding and feathering propellers. With engines fitted with hydraulic gearboxes, engage your shaft lock. Your Autoprop distributor will be able to advise you if this is necessary. Details of the Autolock manufactured by Brunton's Propellers are also available on request.

Water Intrusion (wet exhaust system)

On long distance passages and especially when sailing in a rough sea state with a following sea, you must ensure that the vessels exhaust system is protected from being overfilled. In addition to this, the water cooling inlet should always be shut at sea and only opened when required. This is especially important when sailing at high speeds, particularly on catamarans. Further instructions should be available from your engine operator's manual. It is vitally important that your wet exhaust system installation meets the necessary requirements to prevent any damage to your engine in the unlikely event of water intrusion.

Anodes and corrosion prevention

You must ensure that your yacht uses a proper galvanic corrosion system to reduce and regulate the attack of any exposed metals onboard, including the propeller. The boat operator must frequently monitor the wear of the anodes on the propeller and on the yacht. It is particularly important to monitor corrosion when alongside the dock or berthed in a marina for long periods, and especially when connected to shore power. The Marina environment can be more active with low voltage DC current leaks or stray currents. Galvanic corrosion should be prevented with the use of an isolation transformer or galvanic isolator. This device offers protection from stray currents and galvanic currents which can attack your boat via the shore power earth cable. Without it anodes and zincs will rapidly wear out leaving your propeller exposed to galvanic corrosion.

Heavily fouled Autoprop blades

The performance of the Autoprop will be impaired by marine growth just as any conventional propeller. With heavy fouling, thrust diminishes, and there is a reduction in the maximum engine revolutions attainable. However, the Autoprop will still pitch correctly. In areas of high fouling, smoothly coating the Autoprop with a high quality marine propeller antifouling may help to reduce the amount of growth.

Manoeuvring characteristics of the Autoprop?

Due to the self pitching action of the Autoprop, manoeuvring is different to conventional propellers. Firstly, in most cases, there is noticeably less 'prop-walk' experienced. This is due to the finer pitch setting at low speeds giving a reduced 'paddle wheel' effect. Secondly, due to this finer pitch, at low speeds there is less 'bite' felt when engaging ahead or astern from a standstill. This means that more engine revolutions than normal should be used when moving off from a standstill, or at very low speeds. Once some speed has been attained, the engine revolutions may be reduced. This unique feature of the Autoprop, enables the full power of the engine to be used in situations such as towing, or in emergencies. With conventional propellers the pitch is too coarse at very low speeds, the engine cannot achieve its full revolutions, and therefore full thrust is not achievable.

Damaging your Autoprop

The Autoprop is some 40% stronger than conventional propellers, as it is made from a special high grade bronze alloy called Superston. The high resistance to impact damage means that you are less likely to damage the Autoprop. In the unlikely event that a blade becomes damaged, you only need to replace that blade, and not the complete Autoprop.

Fitting a new engine or gearbox with the Autoprop

It is not usually necessary to fit a new Autoprop when re-engining your yacht. Unless the new engine or gearbox necessitates a large change in the diameter of Autoprop needed, Brunton's Propellers can supply replacement blades only, matched to the new engine or gearbox. This will reduce the cost of your new installation.

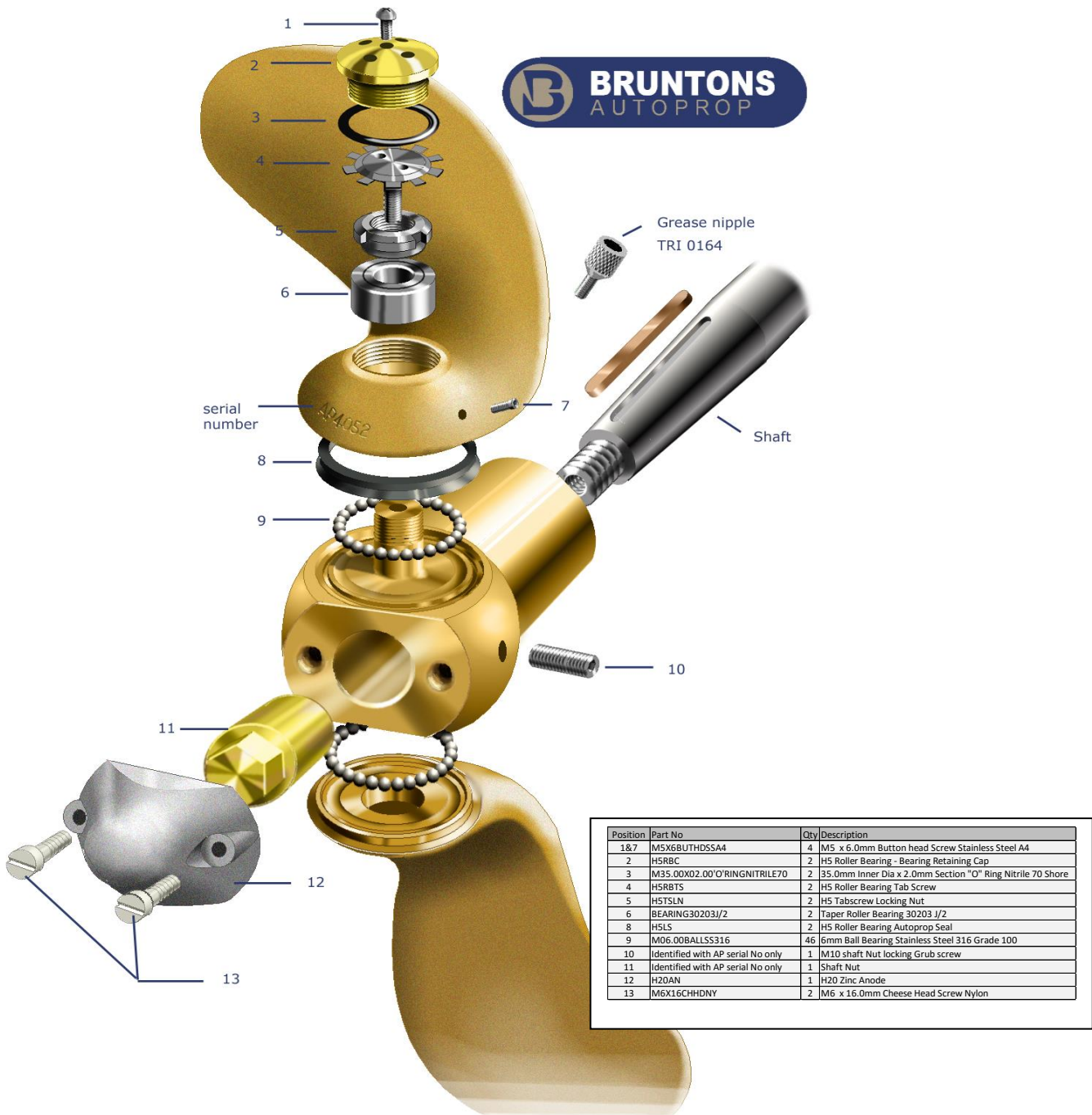
Fitting a rope cutter with the Autoprop

You may fit a rope cutter with the Autoprop in the same way as any other propeller. Follow the manufacturers fitting instructions for a two or three bladed propeller. With conventional propellers you need to dismantle the rope cutter in order to use a puller for propeller removal. Although you can use most conventional three legged pullers to remove the Autoprop, with Brunton's Propellers purpose made puller there is no need to disturb the rope cutter.

Warranty

The Autoprop is guaranteed against faulty materials or workmanship for one year from installation.

Thank you for choosing Autoprop for your propulsion package.



Torque settings for shaft nuts

40Nm or 30ft/lb	60Nm or 45ft/lb	70N/m or 50 ft/lb	100Nm or 75ft/lb	125Nm or 75ft/lb
M14 X 2.0	M16 X 2.0	M16 x 1.5	M20 x 2.0	M20 X 2.5
M14 X 1.5	5/8" BSW	5/8" BSF		¾ BSW
½" UNC	5/8" UNC	5/8" UNC		¾" UNC
½" BSF				

135Nm or 100ft/lb	160Nm or 115ft/lb	225Nm or 165ft/lb
M20x1.5	7/8" UNC	M24 x 2.0
¾" BSF		1" BSF
¾" UNC		1" UNF

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