AUTOPROP
Automatic Variable Pitch Propellers Since 1986

Autoprop serial No.
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. Additional information and video instructions are available on the Bruntons’ YouTube page. Just type ‘how to fit an Autoprop’ into your web browser.

Tools required for maintenance and fitting/removal
- Selection of Allen keys
- Small flat blade screwdriver
- Socket spanner for propeller shaft nut
- Propeller extractor tool. (Bruntons special tool for Autoprop removal)
- Locktite (thread locking compound) supplied

Spare Parts
(our online shop can be located here www.bruntonspropellers.com)
- Zinc anode with screws
- Bearing service kit
- Individual components
- Blade fitting and removal Instructions
- Corrosion resistant waterproof grease. USE ONLY BRUNTONS’ APPROVED 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 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 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.
AUTOPROP MAINTENANCE

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 Bruntons’ 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 shaft, and remove from the shaft.

6. Tape the key on to the shaft, or remove and keep in a safe place.

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 grease channel screws.

Always use good quality waterproof grease as supplied by your Autoprop distributor.

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 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.

Feathering your Autoprop under sail

All you need to do, is to stop the engine whilst motoring in ahead, and thereafter leave the engine engaged in ahead. With engines fitted with some 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 Bruntons Propellers are 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.

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 stay 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 zins will rapidly wear out leaving your propeller exposed to galvanic corrosion.

Automatic Variable Pitch

The Autoprop’s blades are custom designed by Bruntons 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.
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, Bruntons 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 or three bladed propellers. 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 Bruntons 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.

<table>
<thead>
<tr>
<th>Position</th>
<th>Part No</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&amp;7</td>
<td>MSX8BU7HDSSA4</td>
<td>6</td>
<td>M5 x 6.0mm Button head Screw Stainless Steel A4</td>
</tr>
<tr>
<td>2</td>
<td>H5RBC</td>
<td>3</td>
<td>H5 Roller Bearing - Bearing Retaining Cap</td>
</tr>
<tr>
<td>3</td>
<td>M35.00X02.00’O’RINGNITRI70</td>
<td>3</td>
<td>35.0mm Inner Dia x 2.0mm Section “O” Ring Nitrile 70 Shore</td>
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<tr>
<td>4</td>
<td>H5RBT5</td>
<td>3</td>
<td>H5 Roller Bearing Tab Screw</td>
</tr>
<tr>
<td>5</td>
<td>HSTSLN</td>
<td>3</td>
<td>H5 Tapscrew Locking Nut</td>
</tr>
<tr>
<td>6</td>
<td>BEARING30203J2</td>
<td>3</td>
<td>Taper Roller Bearing 30203 J2</td>
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<tr>
<td>8</td>
<td>H5LS</td>
<td>3</td>
<td>H5 Roller Bearing Autoprop Seal</td>
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<tr>
<td>9</td>
<td>M6.00BALL5316</td>
<td>69</td>
<td>6mm Ball Bearing Stainless Steel 316 Grade 100</td>
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<tr>
<td>10</td>
<td>Identified with AP serial No only</td>
<td>1</td>
<td>M10 shaft Nut locking Grub screw</td>
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<tr>
<td>11</td>
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<td>Shaft Nut</td>
</tr>
<tr>
<td>12</td>
<td>HSAN</td>
<td>1</td>
<td>H5 Zinc Anode</td>
</tr>
<tr>
<td>13</td>
<td>M6X16CHHDNY</td>
<td>3</td>
<td>M6 x 16.0mm Cheese Head Screw Nylon</td>
</tr>
</tbody>
</table>
### Torque settings for shaft nuts

<table>
<thead>
<tr>
<th>40Nm or 30ft/lb</th>
<th>60Nm or 45ft/lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14 X 2.0</td>
<td>M16 X 2.0</td>
</tr>
<tr>
<td>M14 X 1.5</td>
<td>5/8&quot; BSW</td>
</tr>
<tr>
<td>½&quot; UNC</td>
<td>5/8&quot; UNC</td>
</tr>
<tr>
<td>⅝&quot; BSF</td>
<td></td>
</tr>
<tr>
<td>70N/m or 50 ft/lb</td>
<td>100Nm or 75ft/lb</td>
</tr>
<tr>
<td>M16 x 1.5</td>
<td>M20 x 2.0</td>
</tr>
<tr>
<td>5/8&quot; BSF</td>
<td></td>
</tr>
<tr>
<td>5/8&quot; UNC</td>
<td></td>
</tr>
<tr>
<td>125Nm or 75ft/lb</td>
<td>150Nm or 100ft/lb</td>
</tr>
<tr>
<td>M20 X 2.5</td>
<td>M20 X 1.5</td>
</tr>
<tr>
<td>¾ BSW</td>
<td>¾&quot; UNC</td>
</tr>
<tr>
<td>¾&quot; BSF</td>
<td>¾&quot; UNC</td>
</tr>
<tr>
<td>160Nm or 115ft/lb</td>
<td>225Nm or 165ft/lb</td>
</tr>
<tr>
<td>7/8&quot; UNC</td>
<td>M24 x 2.0</td>
</tr>
<tr>
<td>1&quot; BSF</td>
<td>1&quot; UNF</td>
</tr>
</tbody>
</table>

### Autoprop Periodic Maintenance

Your Autoprop has been manufactured from the finest marine grade materials using the latest engineering techniques together with an advanced quality control process to ensure trouble free performance for your enjoyment. To keep your propeller in fine form and 100% reliable, it is highly recommended that your propeller is serviced and maintained as described in our fitting and maintenance instruction book.

You can carry out a basic service yourself, particularly for greasing the blades and zinc anode replacement. We do advise that you use original parts, as well as our recommended grease. These parts are available through our network or world-wide sales outlets.

For prescribed manufacturers recommended bearing and seal replacement. It is highly recommended to use a trained technician or a Bruntons Propellers Authorized Service Centre. Details of approved service centres are available on our website.

Thank you for choosing the World’s only Automatic Variable Pitch propeller for your propulsion package. Happy Sailing.
TERMS & CONDITIONS OF WARRANTY AND PRODUCT LIABILITY

DEFINITIONS
These Conditions shall be incorporated in all Contracts entered into by Bruntons Propellers Ltd ("Company") to the exclusion of any other terms and conditions whether or not the same are endorsed upon, delivered with or referred to in any purchase order or other document delivered by the Purchaser to the Company.

REPAIR, SERVICING & OTHER WORKS
In the event of the Company undertaking the repair or servicing of any other work (whether of a similar nature or not) on goods made available for the purpose by a Purchaser:

1. Every care will be taken to carry out the work satisfactorily but no guarantee is given to return goods to their original state or as to their performance, nor is any liability accepted in connection with the time taken to carry out the work.

2. Where goods are not of the Company’s design, the Purchaser shall indemnify the Company against all damages, penalties, costs, claims and liability in respect of the infringement of any letter patent, registered design or other industrial rights resulting from the manufacture or design of the goods delivered under this Contract.

INTELLECTUAL PROPERTY RIGHTS
Unless expressly stated to the contrary and embodied in the contract, all intellectual property rights in respect of the goods and services remain vested in the Company.

DELIVERY takes OVER AND PASSING OF PROPERTY
Without prejudice to any of the Company’s other rights under these terms and conditions notwithstanding delivery of any goods and at the Company’s sole discretion, title in the goods shall remain with the Company until they have been paid for in full.

1. If such payment is overdue in whole or in part the Company may (without prejudice to any of its other rights) recover or re-sell the goods or any of them and may enter upon your premises for that purpose, a licence to work outside normal hours the Purchaser will use his best endeavours to facilitate such work and to provide the necessary access and services.

2. The Company shall have no responsibility for goods or services under the Contract received only such guarantee as shall be given by the manufacturer or supplier thereof to the Company.

3. In respect of parts of components with a finite life not manufactured by the Company the Purchaser shall indemnify the Company against any consequential loss and liability whatsoever, howsoever arising, directly or indirectly, from the provision of work, goods or services under the Contract.

4. The Company shall be liable for general damages to the Customer’s arising, directly or indirectly, from the provision of work, goods or services under the Contract.

5. The Company shall indemnify the Company against any consequential loss and liability whatsoever, howsoever arising, directly or indirectly, from the provision of work, goods or services under the Contract.

6. The Company shall indemnify the Company against, any consequential loss and liability whatsoever, howsoever arising, directly or indirectly, from the provision of work, goods or services under the Contract.

7. The Company shall indemnify the Company against, any consequential loss and liability whatsoever, howsoever arising, directly or indirectly, from the provision of work, goods or services under the Contract.

8. Parts not serviced correctly in the prescribed time frame with OEM parts, tools and grease, will be void of warranty.

TESTS
Goods if manufactured by the Company and requiring tests or inspection shall be tested at a place nominated by the Company. If the Purchaser or his representative does not attend, the Company will have the test or inspection carried out in accordance with the specifications and the Purchaser shall be deemed to have accepted such test or inspection. If any additional or special tests by more than one Classification Society or Inspection Authority are required, the extra costs shall be borne by the Purchaser.

LIMITATION ON LIABILITY
The Company does not accept, and the Client indemnifies the Company against, any consequential loss and liability whatsoever, howsoever arising, directly or indirectly, from the provision of work, goods or services under the Contract.

1. The Company shall be liable for general damages to the Customer’s arising, directly or indirectly, from the provision of work, goods or services under the Contract.

INTELLECTUAL PROPERTY RIGHTS
If the goods delivered under this Contract have been sold by the Purchaser in a frame with OEM parts, tools and grease, will be void of warranty.

Packaging
Unless otherwise stated packaging will be in accordance with the Company’s standard packaging and is not returnable.

1. The Company accepts no liability whatsoever for damage in transit on the grounds of alleged unsuitability of packaging.

GUARANTEE
1. The Company undertakes during a period of twelve months from the date of delivery and provided the goods have been subject to proper use and storage to replace or at its option repair at a location of its choice goods which prove to be defective due to faulty materials or workmanship. The guarantee is given in lieu of any liability or guarantee implied by law in respect of the liability of the Company.

2. Defective items or parts thereof must be promptly returned to a location chosen by the Company. If the defect is found to have arisen under conditions covered by this guarantee then the Company will repair or replace the defective part and send the repaired or replacement part free of charge. If, however, the goods are found to be either to be serviceable or to be defective for reasons outside the guarantee then, the entire costs of the test repair or replacement and carriage shall be borne by the Purchaser. The Company decision as to whether or not a defect is covered by this guarantee or not shall be final and binding on both parties.

3. In respect of parts of components with a finite life not manufactured by the Company the Purchaser shall indemnify the Company against all damages, penalties, costs, claims and liability in respect of the infringement of any letter patent, registered design or other industrial rights resulting from the manufacture or design of the goods delivered under this Contract.

4. The benefits of sub-clause .1 and .2 shall apply to any goods repaired or replaced in accordance with the terms hereof.

5. The Company shall have no responsibility for goods or parts thereof altered by the Purchaser without the Company’s express written agreement or exhibiting wear or suffering damage before the expiration of the Company’s guarantee period due wholly or partially to improper or careless treatment or operation, excessive stressing, sandy or polluted water, deposit or of intrusion of extraneous bodies, or defective shipbuilding or machinery installation work, or for defects caused by or causing or contributing to vibration characteristics of a ship or engine.

6. In the event of the Company providing a member of its engineering staff to attend at the installation of a propeller manufactured or repaired by it, it is to be understood that except as otherwise agreed in writing with the Company any advice and/or assistance will be given in good faith but without any acceptance of responsibility.

JURISDICTION
1. All Contracts shall be construed in accordance with English Law and all disputes which may arise under or in connection with the Contract shall be submitted to arbitration in accordance with the Arbitration Act 1958 and any statutory modification or re-enactment thereof.

2. The Purchaser and the Client shall be deemed to have accepted such test or inspection.

3. The Company does not accept, and the Client indemnifies the Company against, any consequential loss and liability whatsoever, howsoever arising, directly or indirectly, from the provision of work, goods or services under the Contract.

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5. The Company shall have no responsibility for goods or parts thereof altered by the Purchaser without the Company’s express written agreement or exhibiting wear or suffering damage before the expiration of the Company’s guarantee period due wholly or partially to improper or careless treatment or operation, excessive stressing, sandy or polluted water, deposit or of intrusion of extraneous bodies, or defective shipbuilding or machinery installation work, or for defects caused by or causing or contributing to vibration characteristics of a ship or engine.

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