



**4- blade fitting instructions. (120-model)      18" to 25" in diameter**

The varifold is supplied assembled, dynamically balanced and requires disassemble before you can fit it to the yacht. Observing the following notes will ensure correct fitting and trouble free service from your Varifold.

Tools required for maintenance and fitting/removal

- Selection of Allen keys
- Blade pin extractor tool
- Socket spanner for propeller shaft nut
- Bruntons special hub extractor tool (removal)

Spare parts kits

Code	Description	Qty	
			Four Blade Varifold (120)
VF4AH(120)	Anode Holder		1
VF3AN(1)	Anode		1
VF4BB(120)	Blade Bush		4
VF3BP	Buffer Pad		4
VF4PP(120)	Pivot Pin		4
VF4PB(120)	120mm diameter Pilot Bored Hub		1
SWM10x30GRUBA4	M10x30 lg Grub Screw		1
SWM12x12GRUBA4	M12x12 lg Grub Screw		4
SWM4x12DKHDCPA4	M4x12 lg Skt Hd Screw		4
SWM6x25SKHDCPA4	M6x25 lg Skt Hd Screw		4
TRI-0279(1)	Slide Weight		1
	Allen Key 3mm		1
	Allen Key 4mm		1
	Allen Key 5mm		1
	Allen Key 6mm		1
	Loctite 242 Matchpack	Threadlock	2

## **Fitting**

**Before fitting the Varifold ensure that the cutlass bearing is not worn. A worn bearing will not be suitable and may cause vibration. If it is worn, replace it with a good quality bearing preferably with a brass shell.**

1. Disassemble the propeller completely.
2. After removing the old propeller check that the shaft taper, key and thread are undamaged. Try the new shaft nut on the thread and check that it runs all the up the thread. Check that the key will slide through the keyway in the Varifold hub without jamming at any point
3. Fit the key into its seat on the shaft and ensure that the taper is clean. Smear a small amount of waterproof grease over the shaft taper. Push the Varifold hub up the shaft taper making sure that it fits snugly on the taper. Look up the aft end of the hub and make that the key (3) is not binding on the hub keyway. You should see light showing between the top of the key and the hub keyway.
4. Screw the new shaft nut (15) up tight using a socket spanner. Insert the shaft nut locking screw (7) and tighten against the body of the nut. The hub is now secure.
5. Locate number one blade (1) into the hub position marked with the number one. Locate the first blade pin (4) in the hub with the securing hole outermost and the c/bore hole to the hub end face. Align and locate the pin through the blade until the c/bored hole is visible. You may need to use the blade pin extractor tool to align the pin which takes the blade pin securing screw (6)
6. Repeat this procedure for the remaining blades. Once they are all in place smear a small amount of waterproof into the blade gears.
7. With the blades in place and secured with the blade pin screws (6) Locate the buffer secondary locking screw (8) using a small amount of thread locking compound
8. Now fit the anode holder (14) using the 4 screws provided (12), again using a small amount of thread locking compound.
9. Screw the anode (10) on to the anode holder thread using thread locking compound

Your Varifold is now ready to use.

## **Removal**

To disassemble the blades from the hub, remove all the screws that secure the blades, screw the blade pin extractor tool into the pin and remove the first pin, repeat other blades. Note: hold the blade when removing the pin. The rest of the procedure is a reversal of the fitting instructions.

## **VARI FOLD MAINTENANCE**

The Varifold 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, as the Varifold anode will only protect the Varifold. Check the anode from time to time or whenever possible

The propeller performance is best when the propeller is kept clean from fouling.

The Varifold blade pins as well as the blade bushes will wear down overtime and will eventually need replacing. The blade buffer pads should also be checked when the yacht is hauled out of the water for annual maintenance.

Eventually, the bearings in the blade 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 Varifold distributor and advise them of your VF serial number stamped on the blades and aft end of the hub.

## **LAYING-UP.**

Whenever you haul-out for antifouling or laying-up for example, the Varifold 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 blade gears. Also check that the blade buffer pads (2) are not worn or damaged

## **Heavily fouled Varifold blades**

The performance of the Varifold 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. In areas of high fouling, smoothly coating the Varifold with a high quality marine antifouling may help to reduce the amount of growth.

## **Damaging your Varifold**

The Varifold has a high resistance to impact damage. In the unlikely event that a blade becomes damaged, you only need to replace that blade, and not the complete Varifold, although we need the propeller returned to our works for dynamic balancing.

## **Fitting a new engine or gearbox with the Varifold**

It is not usually necessary to fit a new Varifold when re-engining your yacht. Unless the new engine or gearbox necessitates a large change in the diameter of Varifold 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 Varifold**

You may fit a rope cutter with the Varifold in the same way as any other propeller. Follow the manufacturers fitting instructions for four 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 Varifold, with Brunton's Propellers purpose made puller there is no need to disturb the rope cutter.

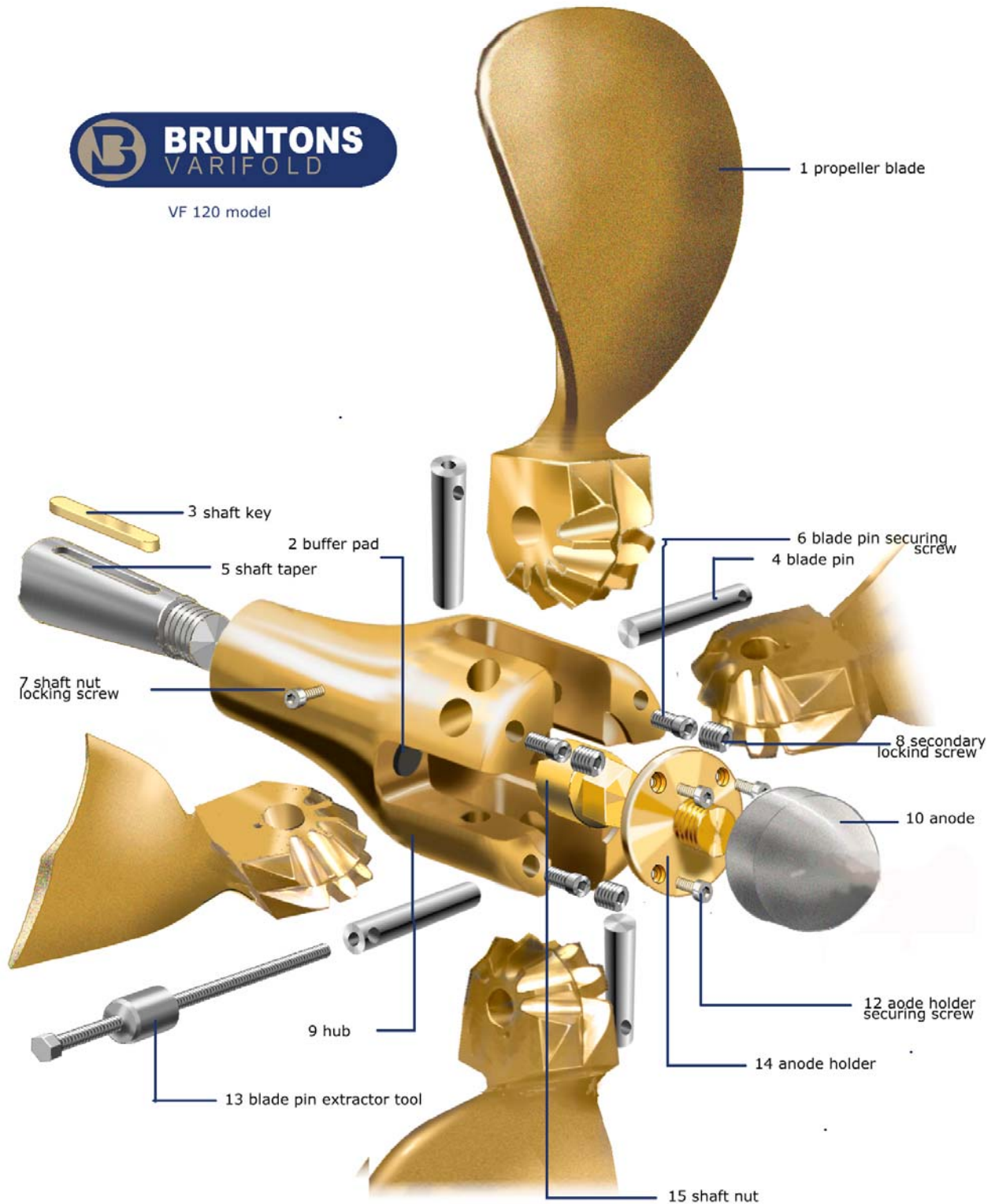
## **Warranty**

The Varifold is guaranteed against faulty materials or workmanship for on year from installation.

Thank you for choosing Varifold for your propulsion package.



VF 120 model



Brunton's Propellers Ltd, Oakwood Business Park, Stephenson Road, Clacton-on-Sea, Essex, CO15 4TL, UK  
T: +44 (0) 1255 420 005  
F: +44 (0) 1255 427 775  
W: [www.bruntons-propellers.com](http://www.bruntons-propellers.com)