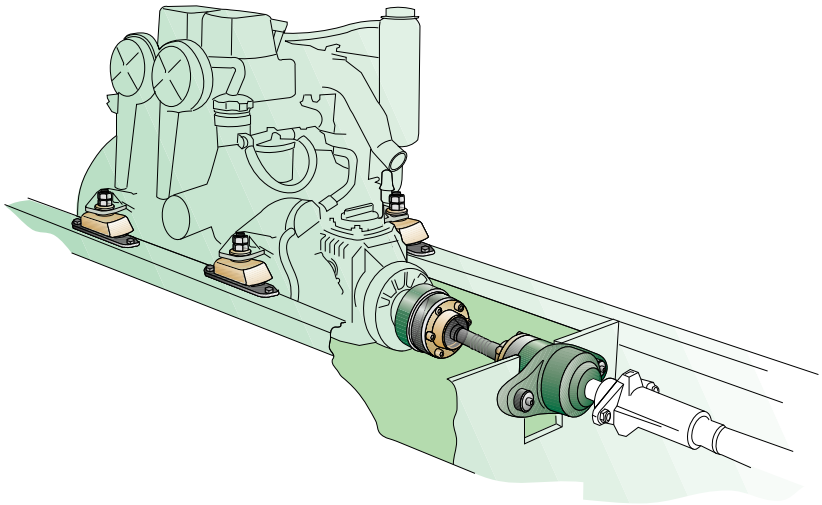
aquadrive antivibration system

B10 Installation instructions



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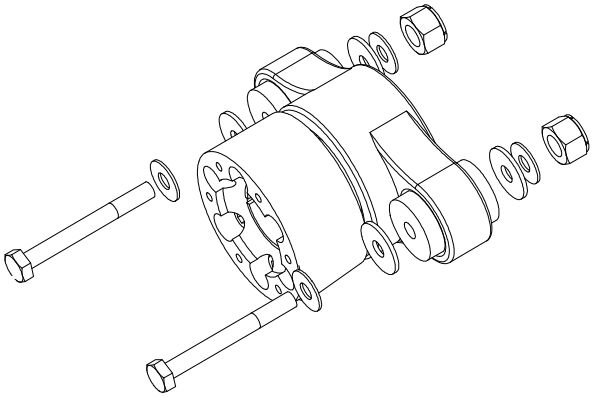
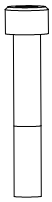
1. Parts included.





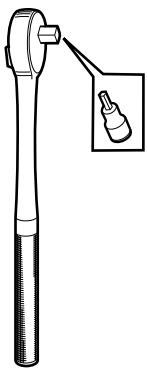
x 6

x 3

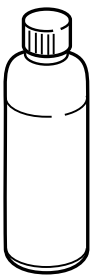
x 1

2. Tools required.

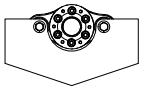
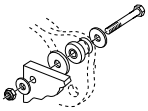
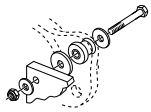
Spanners



Torque wrench with hexagon bits for socket head screws

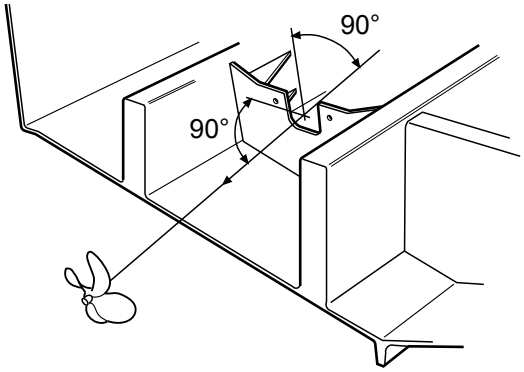


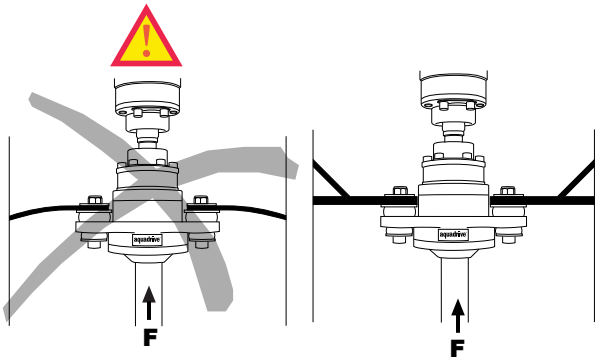
Degreaser for cleaning screw threads

		A	B
	M10	8mm	
	M10		17mm
	M10		16mm

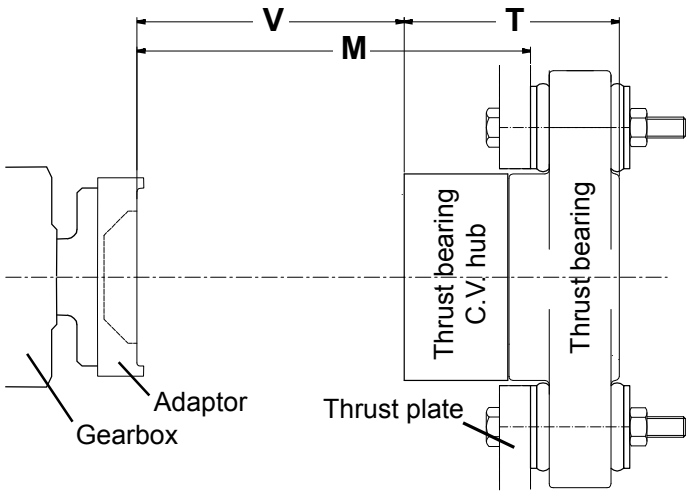
3. Thrust bearing installation.

A. Thrust plate must be installed at 90 degrees to the propeller shaft and be constructed in such a way as to resist deflection.



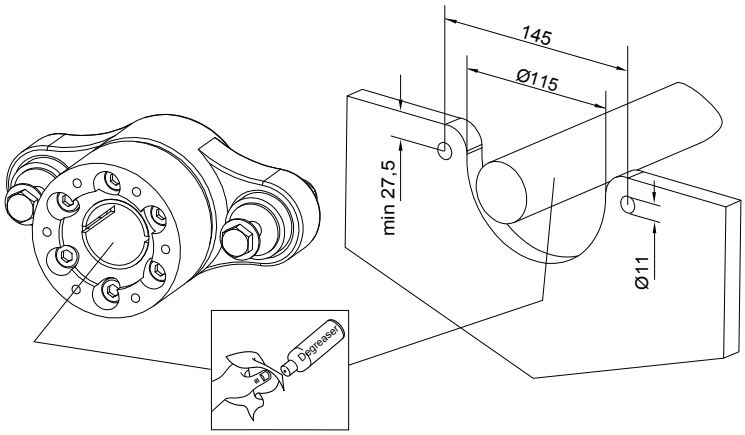


Thrust plate position

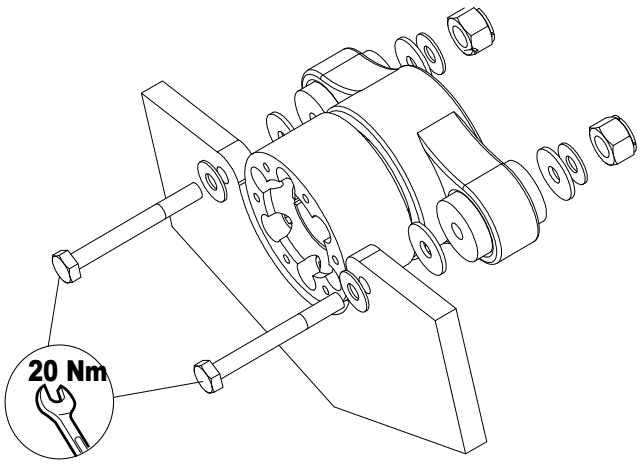


Model No.	V *	M	T
CVB05.10	130mm	191mm	105mm
CVB10.10	154mm	213mm	102mm
CVB15.10	170mm	232mm	105mm
CVB21.10	210mm	275mm	108mm

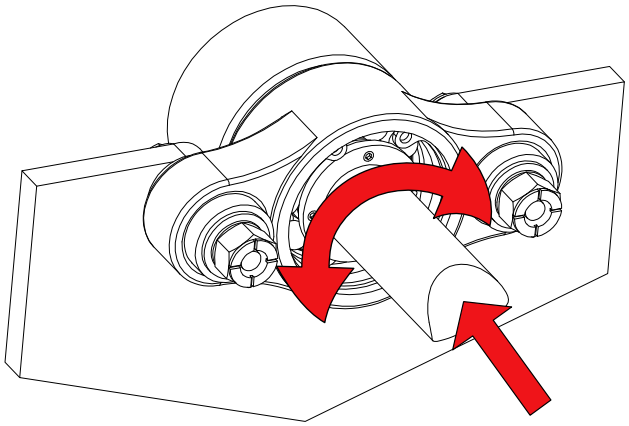
* see note on page 3



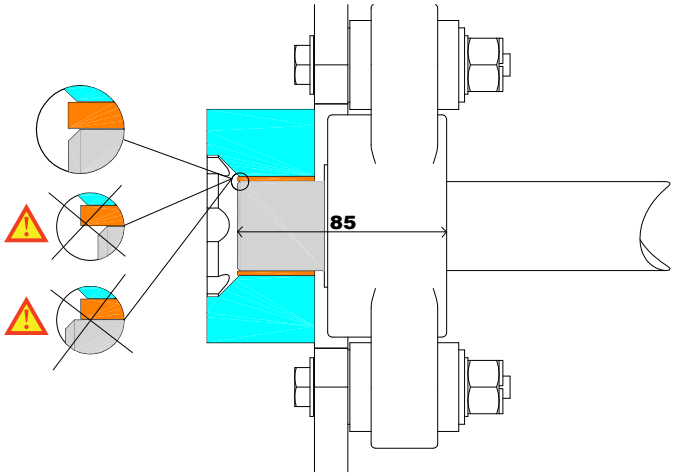
B. Degrease the inside of the thrust bearing and outside diameter of the propeller shaft. Note: the diameter of the propeller shaft should be measured accurately to check it is within tolerance +0.0mm / -0.1mm (+0.000" / -0.004").



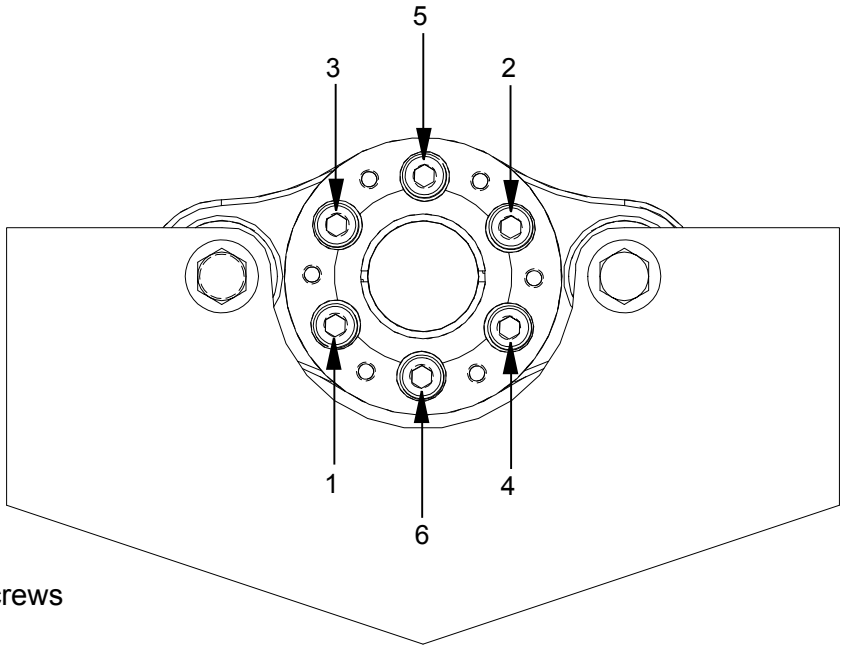
C. Bolts securing thrust bearing to the plate must be tightened up to 20Nm.



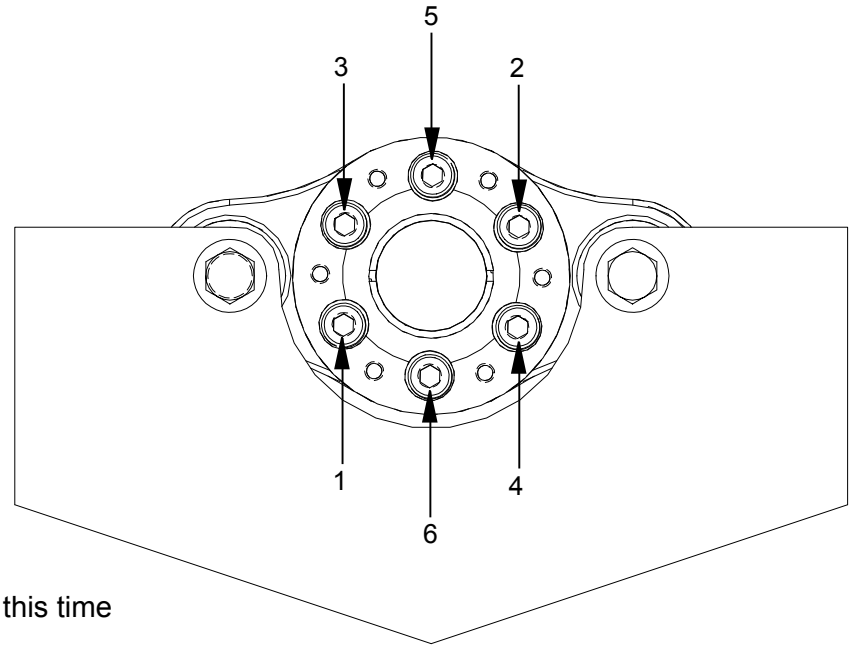
D. Rotate the propeller shaft at the same time as pushing it in to the thrust bearing.



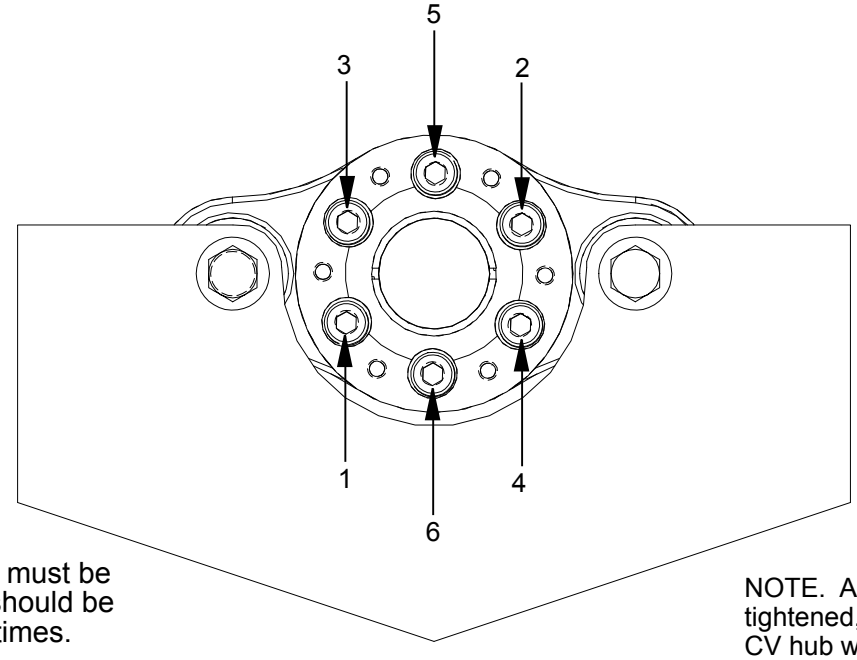
E. Make sure that the end of the propeller shaft is flush with the end of the sleeve.



F. Tighten clamp screws to 10 Nm.



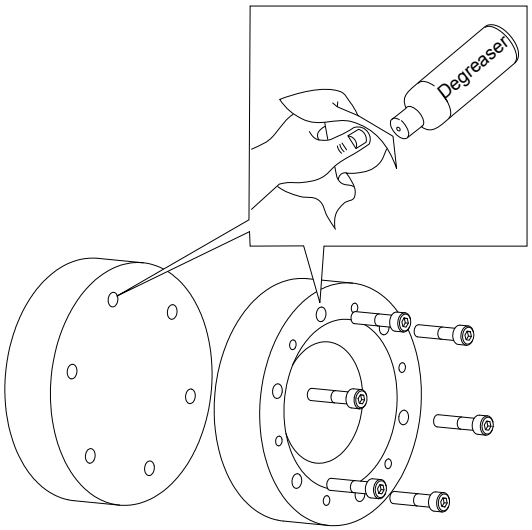
G. Tighten again, this time to 40 Nm.



H. Final tightening must be to 66 Nm and should be repeated 3 - 5 times.

NOTE. As the clamp screws are tightened, the thrust bearing CV hub will be pulled back towards the thrust bearing housing.

4. Adaptor kit.



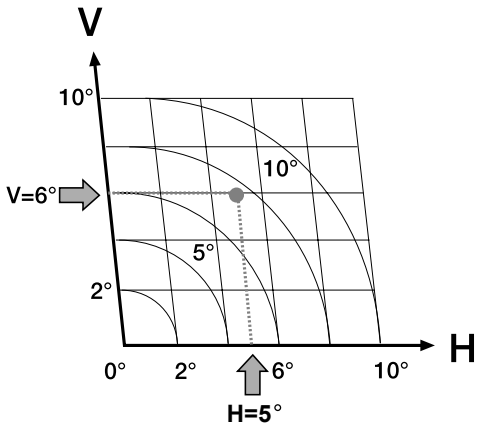
	Nm	lbf ft
M8	33.5	25
M10	66	49
M12	115	85
M16	280	207
1/4"UNC	21	15
5/16"UNC	42	31
3/8"UNC	75	55
7/16"UNC	120	88
1/2"UNC	180	133
5/8"UNC	240	177

The nuts and bolts which are used to fasten the adapter to the gearbox flange must have a small amount of Loctite glue applied to their threads. For the glue to work correctly it is necessary to degrease the threads beforehand.

5. C.V. joint installation.

Maximum recommended joint angle is dependent on shaft speed, as shown in the table below. The effective lifetime is determined by the amount of angle. The C.V. joints do not need to run at equal angles, but when installing the C.V. joints try to have as equal an angle distribution as possible, to attain maximum length of life.
One way to determine the total installation angle as well as the distribution between the two joints, at the same time, is to use two short straight edges as shown in the figures below. In "**A**" the intersection between the straight edges is badly placed, one joint taking all the angle. In figure "**B**" the intersection is midway between the joints and thus, the total installation angle is equally divided. If the installation angle is both vertical and horizontal, the effective compound angle can be determined by using the diagram below. Example: V = 6 degrees, H = 5 degrees, the combined angle would be 8 degrees. **Note !** The greater the total angle, the more important it is to attain equally divided joint angles. When in doubt, please contact us for further advice.

0 - 2000 rpm = 8 degrees
2500 rpm = 6 degrees
3000 rpm = 5 degrees
4000 rpm = 4 degrees
5000 rpm = 3 degrees



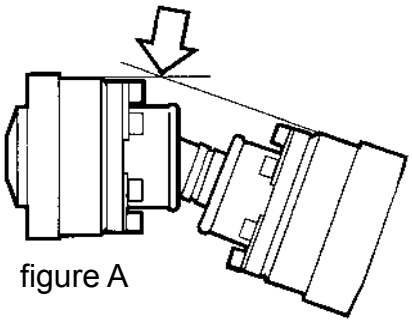


figure A

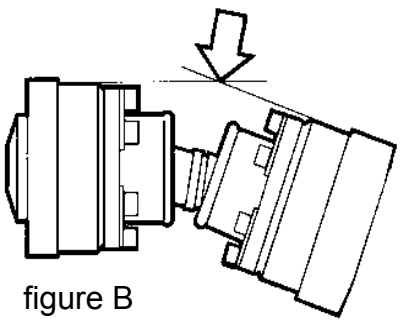
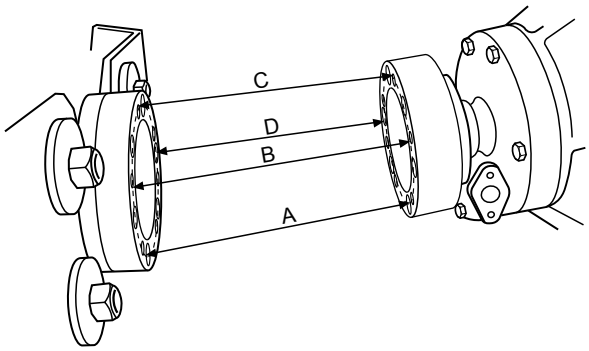
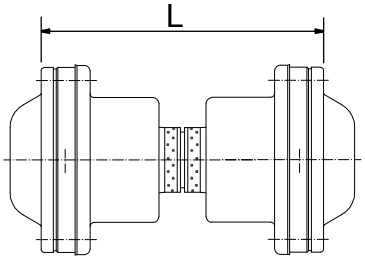


figure B

C.V. joint installation length





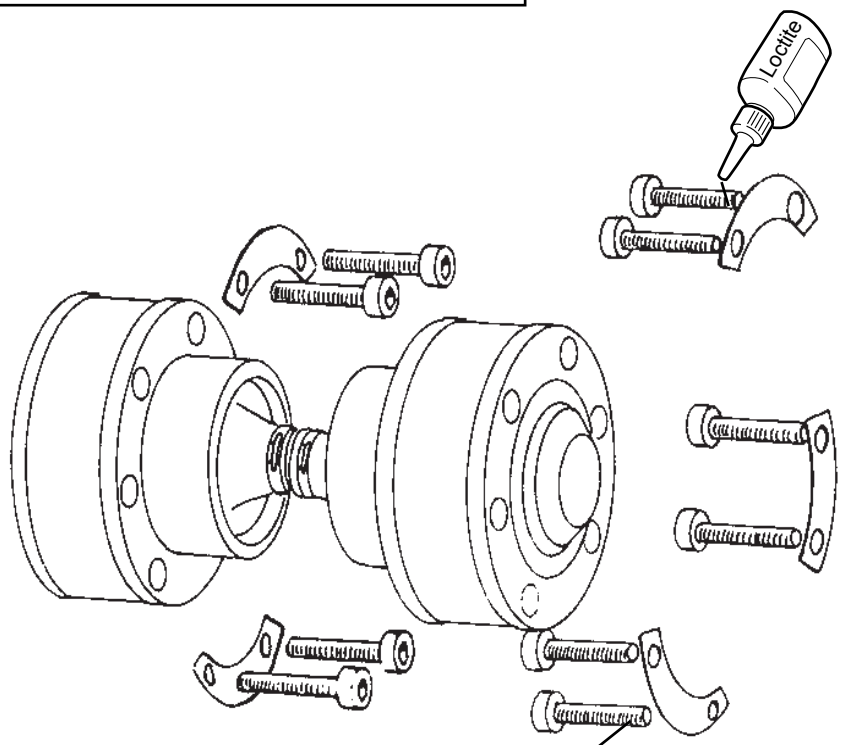
$$\frac{A + B + C + D}{4} = L$$

L =

CV05	130 - 131mm*
CV10	154 - 155mm
CV15	170 - 172mm
CV21	208 - 212mm

* Note for CVB05.10
The gearbox adaptor and the thrust bearing hub both have a 2mm deep recess in the face. The L dimension must be made from the recessed faces.

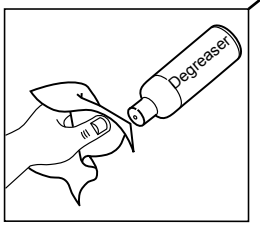
C.V. joint mounting



Bolt Torques

Stainless Steel bolts.

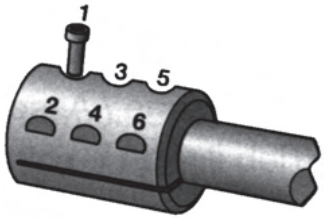
	Nm	lbf ft
M8	33.5	25
M10	66	49
M12	115	85



The bolts which are used to fasten the CV joints to the gearbox flange and thrust bearing hub must have a small amount of Loctite glue applied to their threads. For the glue to work correctly it is necessary to degrease the threads before hand.

6. Tightening of clamp screws.

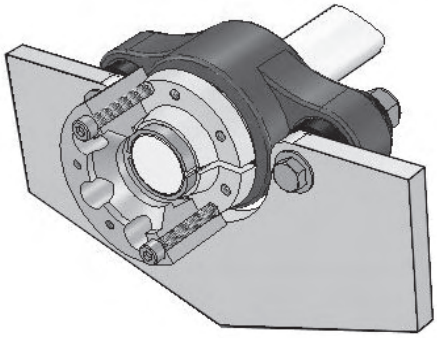
Models CVB05.11, CVB10.11, CVB15.11 and CVB21.11 all have an external clamp to secure the propeller shaft. The bolts in this clamp should be tightened in two stages to the torque figures found in the tabe to the right.



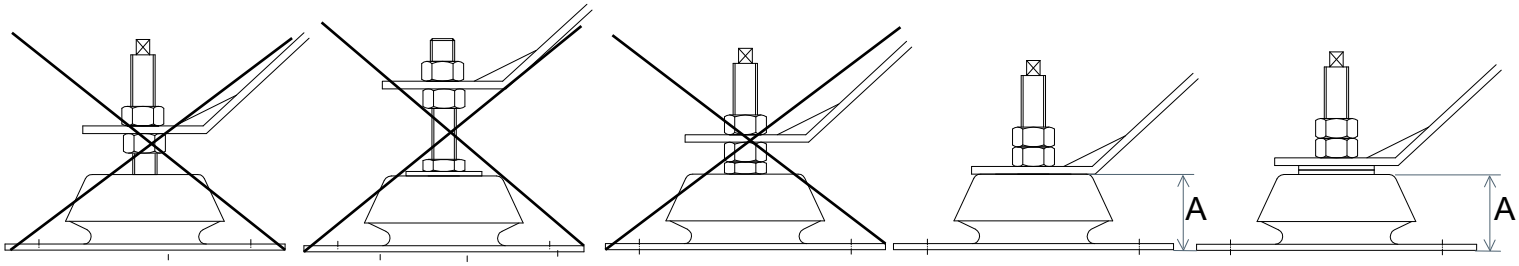
	Nm	lbf ft
stage 1		
M10	30	22
M12	55	40
M16	140	100
stage 2		
M10	66	49
M12	115	85
M16	280	207

7. Shaft removal.

In order to remove the shaft from the thrust bearing it is necessary to release the clamp hub from the front of the thrust bearing. With the C.V. joint removed to expose the front of the hub, first unscrew the six hexagon socket screws which hold the hub to the thrust bearing. On early versions of the models CVB05.10 and CVB10.10 you will see that two of the M8 tapped holes (which are used to secure the C.V. joint to the hub) are through holes. Into these holes, two M8 x 50mm high tensile set screws need to be screwed. As they are screwed in, the hub will be jacked off and the shaft released. Later versions of the CVB05.10 and CVB10.10 have six through holes. Two of these holes line up with a slot across the hub, do not screw the M8 x 50mm high tensile set screws into these.
With models CVB15.10 and CVB21.10, the tapped holes which are used to jack off the hub can be found in between the six hub clamping bolts. Jacking screws to be used on models CVB15.10 and CVB21.10 are M10 x 50mm and M12 x 50mm respectively.



8. Engine mounts.



Choosing and correctley installing the correct hardness of Aquadrive engine mounts is vital. If the engine needs to be raised, the best way is to put a plate between the engine bed and the mount.

Engine mount	A = unloaded	A = loaded
6050210	38mm	34 - 35mm
6050220	50mm	45 - 47mm
6050230	68mm	62 - 64mm

DO NOT raise the engine by transferring the fixing point of the stud screw upwards. Measure the actual deflection or downward compression of each engine mount after the engine`s weight is placed on them. Check to determine if each mount has been compressed downward the correct amount “A” according to the figure. The deflection measurement “A” on all mounts should be within 1 mm(.04”)of each other. If any “A” measurement is not in the acceptable range, first confirm that the proper stiffness of the mounts has been selected and placed in the correct forward or aft position. Next, determine if the engine beds or stringers are perfectley parallel.To compensate the height difference place shims under the mount.