CT550 MANUAL

INSTALATION OPERATION MAINTENANCE

Serial N° : .....

Date of Installation : ……..

IT IS IMPORTANT TO KEEP THIS MANUAL ON BOARD!

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Your thruster is a high quality technical product and should be treated as such. The employment of qualified marine personnel, with experience in bow thruster installation, is strongly advised. Where possible, the boat manufacturer's architects, design departments and/or shipyards should be consulted, prior to installation taking place. For any boat requiring official classification, bodies of approval should also be consulted at the earliest opportunity. In any case, all other bodies, governmental or otherwise, should be contacted to ensure conformity with legal regulations relating to the boat in question.

Congratulations on choosing a Max-Power thruster – Characterised by its performance, durability, reliability and ease of installation.

To ensure a proper installation, correct usage and long-lasting enjoyment of this equipment, please take time to read this manual thoroughly.

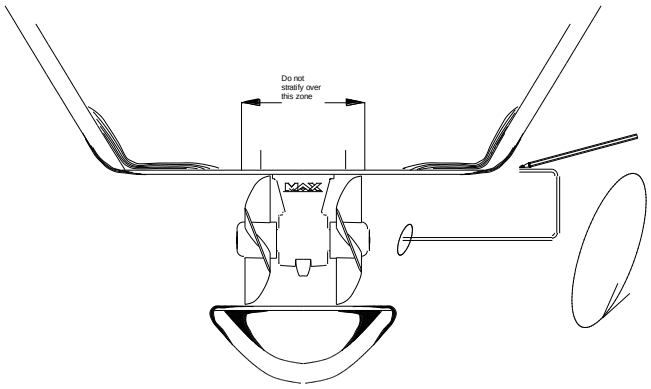
1. GENERAL INSTALLATION GUIDLINES

Decide on the best location for the thruster. (See drawing: “Positioning & Measurements” at back of manual).
The tunnel must be as low as possible and as far forward as possible.
The propellers must not protrude beyond the hull line.
The ideal position of the tunnel is such that there is at least the depth of one tunnel diameter from the water line to the top of the fitted tunnel. Decreased performance of the thruster due to inadequate immersion depth can be compensated by fitting the tunnel as far forward as possible (increasing lever arm movement).
Hydraulic thrusters can be fitted vertically, horizontally or tilting.

IMPORTANT: When using tunnels of different thickness (example: metallic tunnel) it is imperative that the area between the drive leg/gasket and the motor support, matches the thickness as indicated in the table on the drawing “Positioning & Measurements” at back of manual and that the motor support is stable.
If you have less than 12 mm thickness, you will require an extra hard rubber gasket between the motor support and the tunnel.

2. TUNNEL

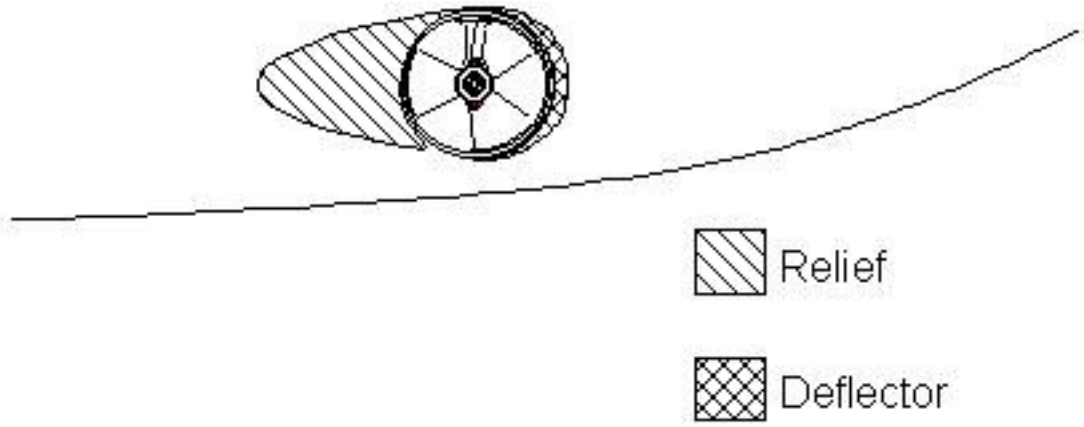
When the final tunnel position is determined (and all dimensions have been checked), mark the centre of the tunnel’s position and drill a Ø 10 mm hole. Make up a metal compass from 8 mm rod with 212 mm radius.
Fit compass into the Ø 10 mm holes and trace the form of the tunnel on to the hull (elliptical).
After cutting out the elliptic hole, disc the interior surface of the hull, by approx. 10 to 15 cm around the holes.
The outside surface of the tunnel is then ready to be fibre-glassed.



Fit the tunnel and mark the areas to be fibre-glassed. Sand these areas inside and out.
In certain installations it is preferable to drill the position of the thruster support before the installation of the tunnel.
Refit the tunnel. Apply reinforced fibreglass filler to all areas, taking care that you fill the gap between hull and tunnel. Stratify with a minimum of 8 coats of material and ISOPHTALIQUE RESINE alternating with mat and roving. In inaccessible areas (i.e. under the tunnel), it is possible to simply apply reinforced filler.

CAUTION: Do not fibre glass the area of the motor support. It is recommended to lightly sand down the area where the motor support is fitted.

On the outside, when the ISOPHTALIQUE RESIN has set, finish with an application of resin and material, followed with an additional coat on the hull, in the tunnel area. To optimize the flow of water while sailing, deflectors & a relief should be fashioned. These can be made up with several coats of reinforced filler in order to obtain the required hydrodynamic lines.



Once all fibreglass work is complete, apply a coat of epoxy or gel-coat to waterproof the entire area.

3. PROPELLER DRIVE LEG & MOTOR SUPPORT

The leg's gasket and the motor's support can be used to mark up the drilling position, in some cases it might be easier, to mark out the position, and drill before the stratification of the tunnel.
Centre and trace the drilling positions for the leg and its support.
Fit the leg along with the gasket, in the tunnel.
Check general positioning of the propellers.
Small pieces of folded cardboard can be used to check the spacing between the propeller tips and the tunnel is even all round. Slight adjustment to align the leg in its tunnel may be necessary.
After checks, remove leg etc; remount the assembly, covering the gasket with an oil and salt water resistant jointing compound. After fitting, remove all excess compound.

The gasket must be between the leg and the tunnel, and not between the motor support and the tunnel.
Care must be taken at all times when fitting the leg into the motor support to ensure that the mating components are dirt free and covered with a light film of grease.

IMPORTANT: GRAPHITE GREASE MUST NOT BE USED.

Torque values: screw Ø 12 mm = 80 Nm screw; tighten the two fixing screws alternately.

Once tightened, ensure that the propeller/s turn freely without touching the tunnel.

4. THE HYDRAULIC MOTOR

Insert the lower drive coupling onto the leg drive shaft (lightly grease the shaft before doing this).
Then position the motor and tighten the 4 x 12 mm to 80Nm.

IMPORTANT: Please note that the above coupling might need to be adjusted if any other tunnel than a Max Power tunnel (thickness 12-14mm) is used.
The top and bottom coupling pieces should fit tightly together to ensure maximum gripping between them.
Check that the propellers turn freely and that there is no tight spot. A certain amount of resistance is normal from the motor. When all is assembled recheck the tightness of all the motor bolts.

NOTE: The coupling on the motor side is in place when delivered, do not touch this.

5. PROPELLERS

The positioning of the propellers is indicated at the end on chapter “PROPELLER ASSEMPLY”.

6. PROTECTION GRILLS

With a shallow tunnel installation, we recommend that you protect the propellers by fitting horizontal protection grills. These grills will however modify thruster performance.

7. HYDRAULIC (general remarks)

A typical installation of the hydraulic power thruster requires the following elements:

- oil reservoir/tank
- hydraulic pump
- directional control valve
- hydraulic motor
- circuit piping
- oil cooler (depending on type of installation)

The oil reservoir/tank with return filter and suction strainer should be as close to the pump as possible and on charge. Meaning that the level of the oil should be above the pump, preferably with the oil tank above the water line.
For future maintenance, make sure that the return filter is easily accessible. **An isolation valve can be fitted to the suction.**

The pump can be driven only by internal combustion engine (crankshaft pulley or gearbox PTO).
For an internal combustion engine with fixed or variable speed, 2 types of pumps can be used, depending on the unit to be fitted:

Direct PTO:

1. Fixed flow pump (***)
2. Variable displacement pump, depending on the model (**) (*)
3. Fixed flow pump with bypass (**) (*)

PTO with clutch:

1. Fixed flow pump (**) (*)
2. Variable displacement pump depending on the model (**) (*)
3. Fixed flow pump with bypass (**) (*)

(***) always require oil cooler
(**) require oil cooler when time of operation exceeds 15 minutes,
(*) oil cooler not necessary

Note: The above choices also depend on capacity of the oil tank etc.

The hydraulic directional control valve (DCV) must be equipped with a pressure gauge and pressure relief valve and should preferably be placed as close as possible to the thruster unit.
The piping can be flexible or a mix of rigid and flexible type and should have crimp-connected fittings.
The piping should match interior diameters and the service pressure equal or above that which has been recommended.
The circuits must be as direct as possible and avoid any bends and joints.
The circuits must be clean and closed-off until final connection takes place.
The thruster hoses arriving at the thruster must be of the thermo-plastic non-conductive type.
The hydraulic motor drain line and the return T-line of the DCV should each go separately and directly, back into the top of the oil tank.
Use synthetic, mineral or vegetable hydraulic oil, to ISO standard 32 to 48

8. HYDRAULIC SPECIFICATIONS

CT550 Specifications

Power	*49 KW*
Pressure	*250 bar*
Flow	*125 - 141 lt/min*

Detailed instructions and diagrams are delivered with each pack, specific to the installation chosen.

9. MAINTENANCE

In order to ensure peak performance from your thruster, the tunnel, the leg and the propellers must be kept clean.

IMPORTANT: In order to prevent chalky deposits, which cause damage to the oil seals, we recommend cleaning the shaft and the oil seals first, then applying a layer of silicon oil before assembling the propellers.

ANNUAL BASIS:

- CHANGE the anode (if necessary).
- CHANGE drive leg oil, if classic (bronze) leg.
- CHECK the oil and the hydraulic filtration circuit (only if necessary).

EVERY 5 YEARS:

- DRAIN hydraulic oil system and change the filter and refill.

Installation Notes

THE MAX-POWER TEAM WISHES YOU SUCCESSFUL MANOEUVRING AND ENJOYABLE CRUISING.

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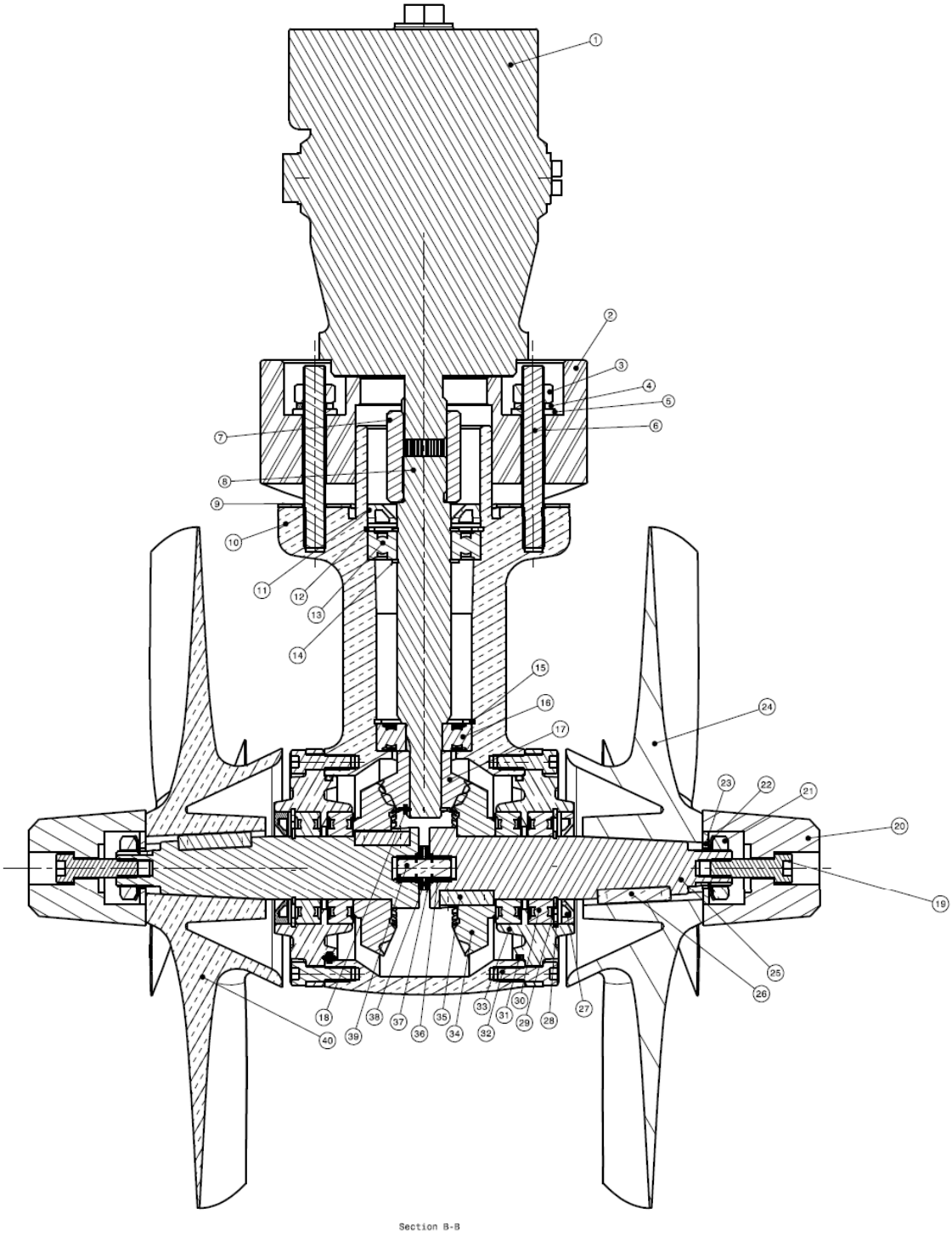
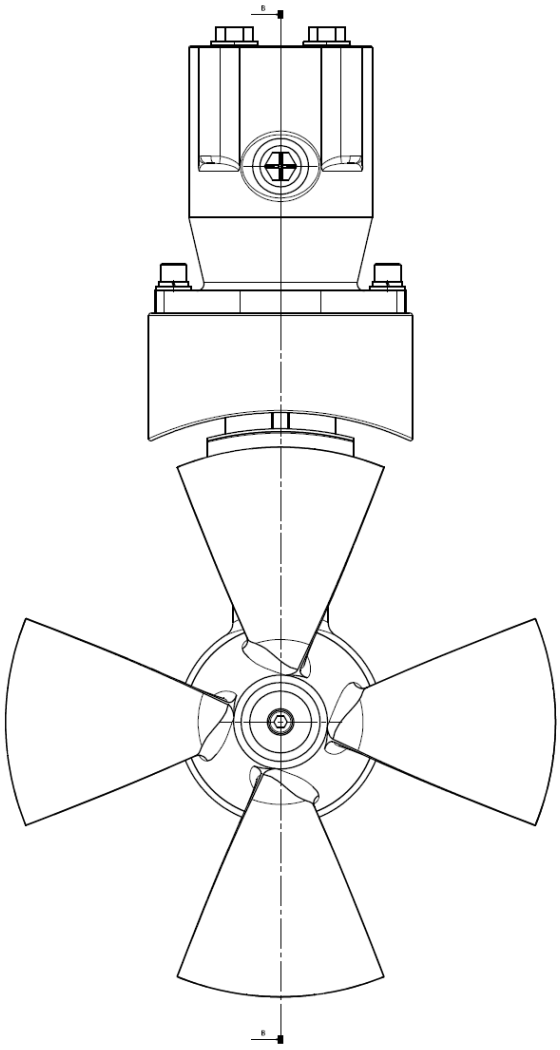
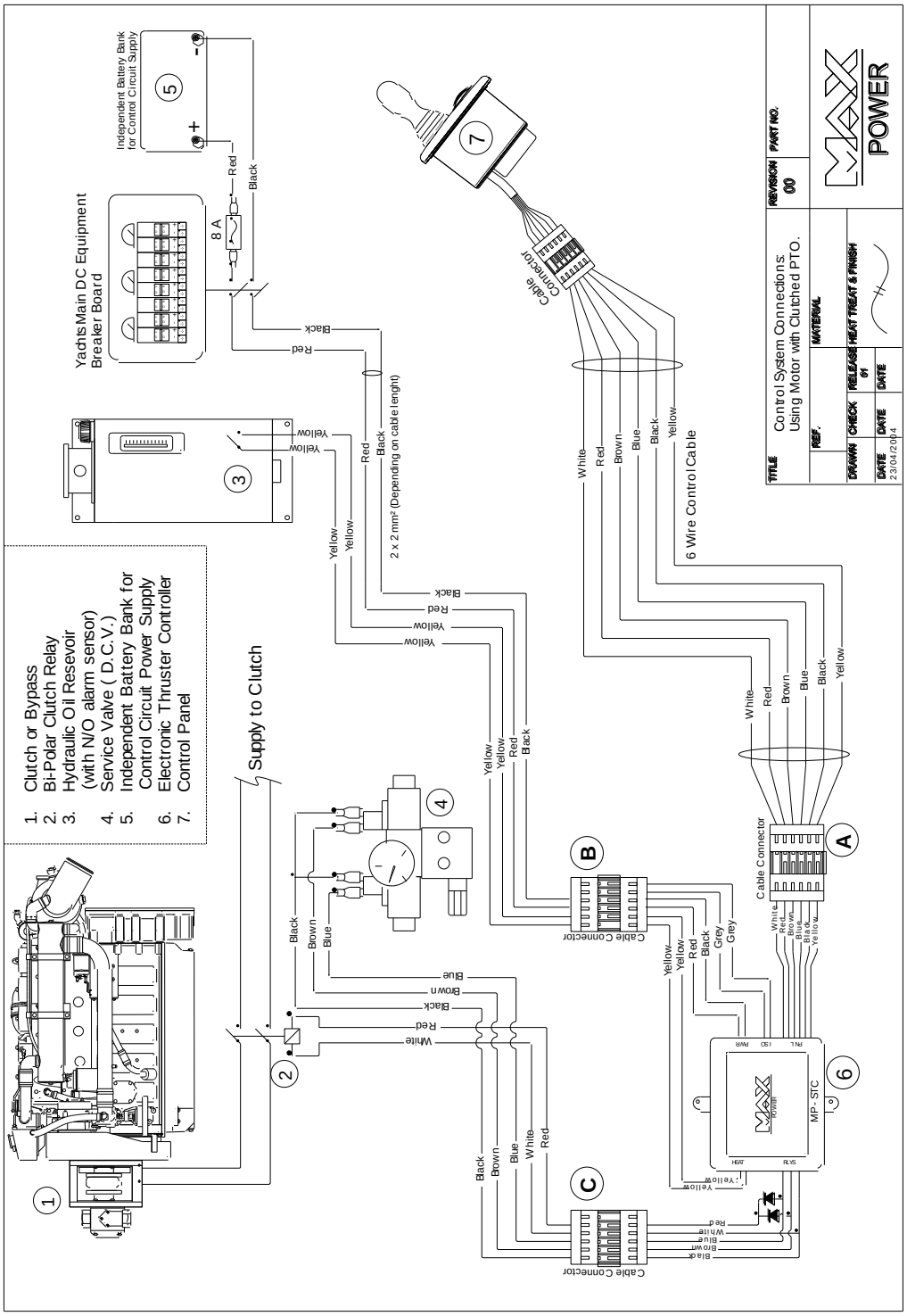
10. CT550 PART LIST



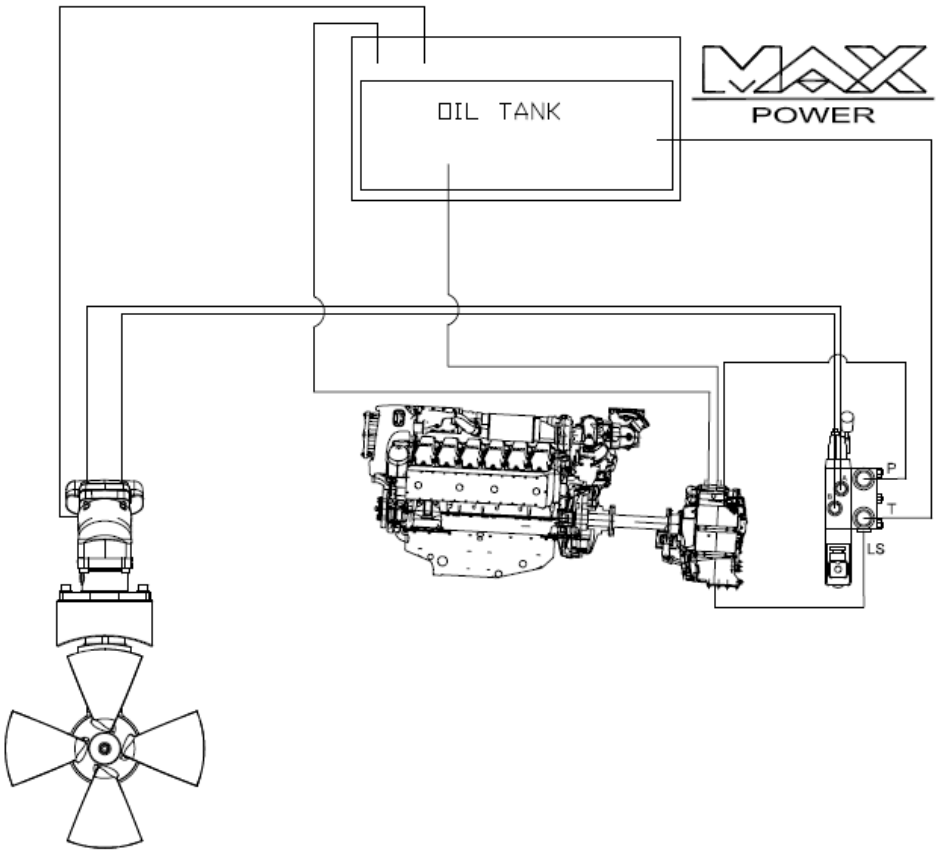


Item	Description	Qty
1	Motor	1
2	Motor support	1
3	Nut M12	2
4	Spring washer M12	2
5	Washer M12	2
6	Stud M12	2
7	Coupling	1
8	Motor shaft	1
9	Gasket	1
10	Driveleg	1
11	Seal	1
12	Circlip	1
13	Bearing	1
14	Circlip	2
15	Circlip	1
16	Bearing	1
17	Pinion	1
18	Circlip	1
19	Screw M10	2
20	Anode	2
21	Nut M20	2
22	Washer	2
23	Washer	2
24	Propeller RH	1
25	Propeller shaft	2
26	Key	2
27	Seal	2
28	Circlip	2
29	Circlip	2
30	Bearing	4
31	O Ring	2
32	Screw M8	12
33	Cover	2
34	Gear	2
35	Key	2
36	Bearing	2
37	Washer	4
38	Bearing	1
39	Pin	1
40	Propeller LH	1

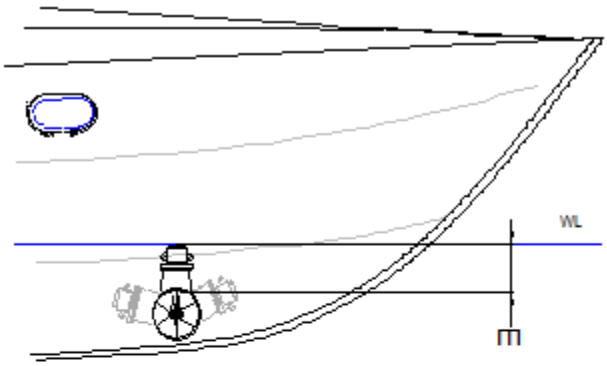
11. WIRING DIAGRAM

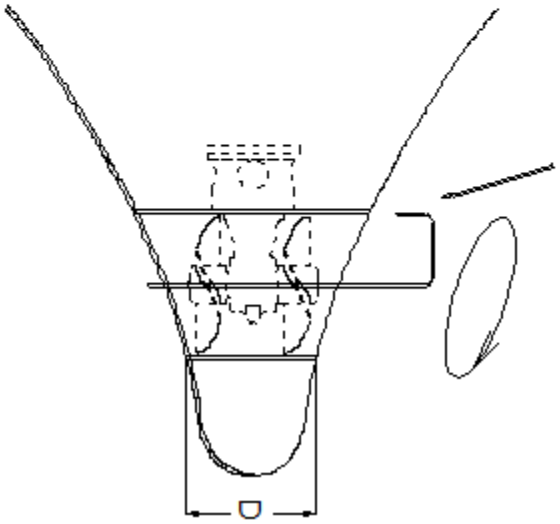


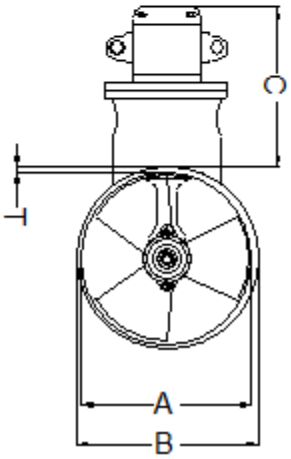
12. HYDRAULIC DIAGRAM



13. POSITIONING AND MESURMENTS







DIM(mm) \ MODEL	125	225	325	550
A	185	250	315	375
B	197	264	333	420-430
C	210	210	220	249
D	190	220	280	378
T	6	7	9	12-14
E ideal	185	250	315	375
E min	110	140	160	190
Weight (Kg)	9	12	20	65

14. PROPELLER ASSEMBLY

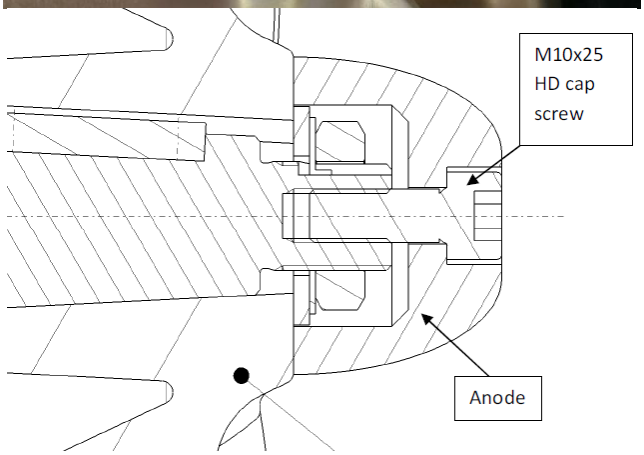
1) Insert the key into the keyslot of the propeller shaft

2) Insert the washer for M20 into the shaft. This washer is to center the anode. Center the washer on the propeller shaft

3) Insert the lock washer into the slot of the propeller shaft

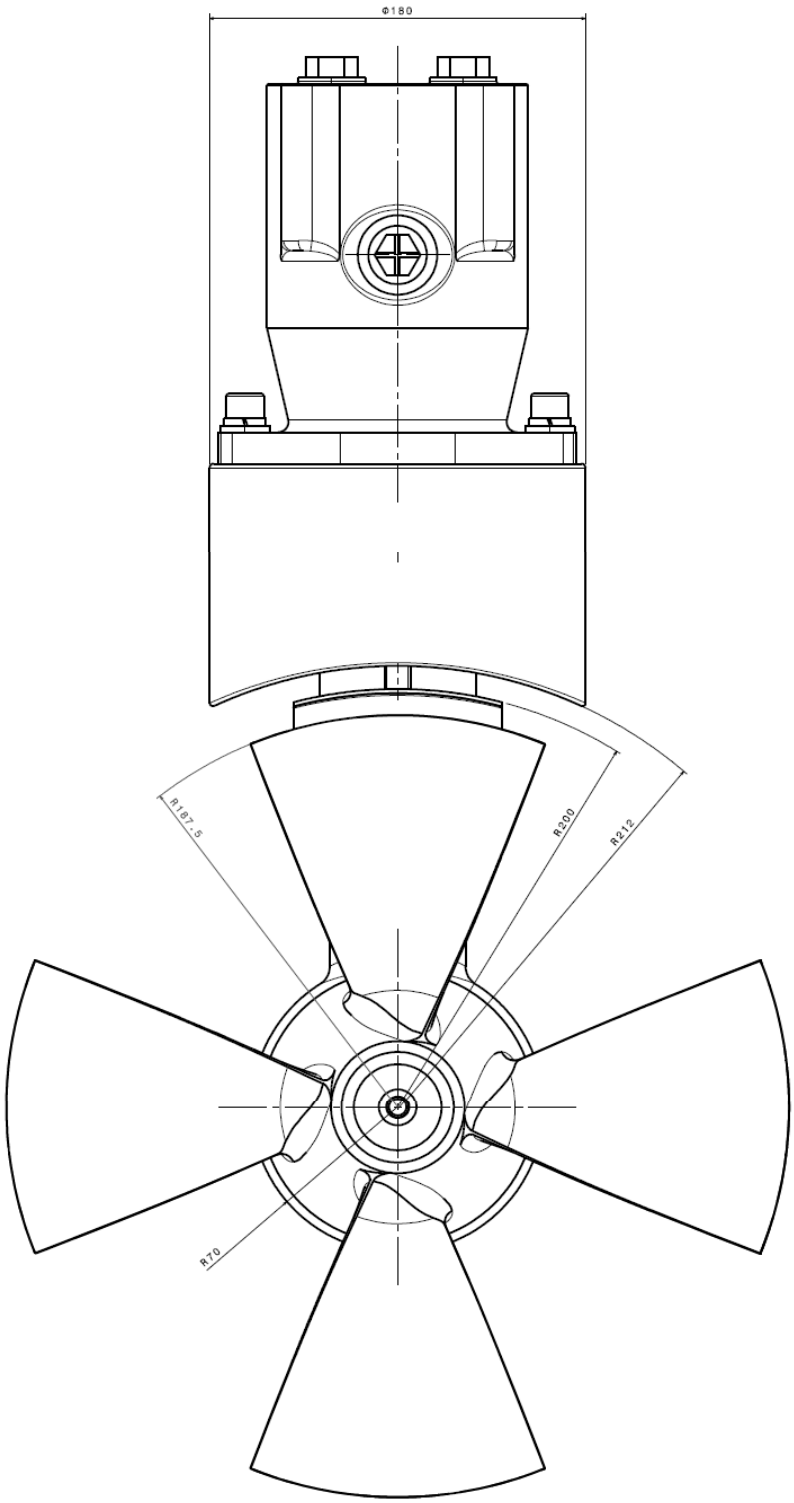
4) Use Loctite 243 medium grade on the thread of the propeller shaft

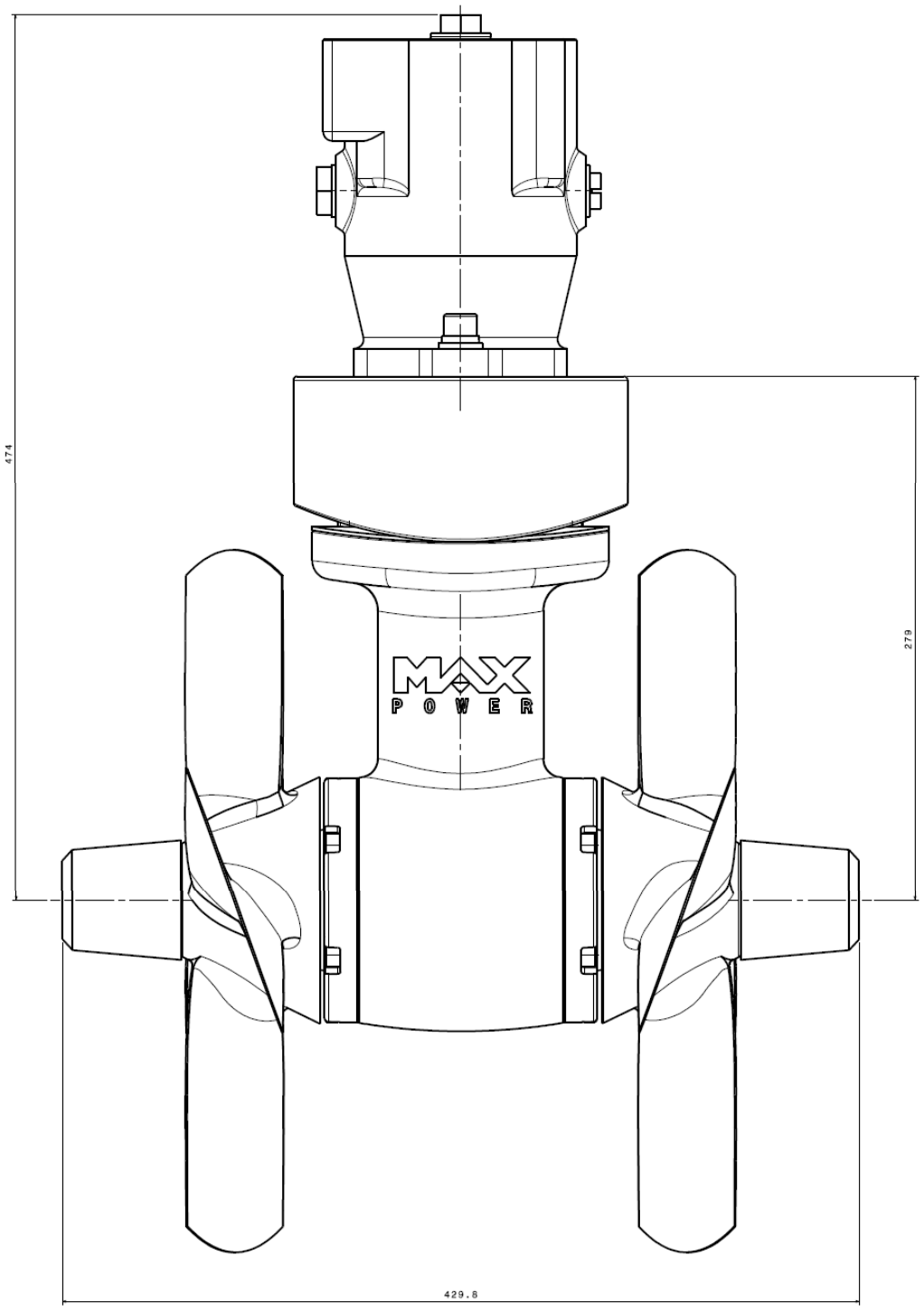
5) Insert the nut M20 on the propeller shaft and screw it. Min 300Nm - Max 340Nm tightening torque



6) Insert the anode on the shaft. The anode in centered by the washer M20. Then screw the hd cap screw M10x25 on the propeller shaft putting on the thread of the screw a few quantity of Loctite 243 medium grade.

15. MAIN DIMENSIONS

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279
MAX
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429.6