



CT550 MANUAL

INSTALATION OPERATION MAINTENANCE

Last update: June 2020

Serial N° :

Date of Installation :

IT IS IMPORTANT TO KEEP THIS MANUAL ON BOARD!

Address :5, Via Philips Str, 20900 Monza (MI),
Italy Tel: +39 039 2001973 Fax: +39 039 2004299

Table of Contents

1.	GENERAL INSTALLATION GUIDELINES	4
2.	TUNNEL	4
3.	PROPELLER DRIVE LEG & MOTOR SUPPORT	5
4.	THE HYDRAULIC MOTOR.....	6
5.	PROPELLERS	6
6.	PROTECTION GRILLS.....	6
7.	HYDRAULIC (general remarks)	7
8.	HYDRAULIC SPECIFICATIONS.....	8
9.	MAINTENANCE.....	8
10.	CT550 PART LIST	10
11.	WIRING DIAGRAM	12
12.	HYDRAULIC DIAGRAM.....	13
13.	POSITIONING AND MESURMENTS.....	14
14.	PROPELLER ASSEMBLY	15
15.	MAIN DIMENSIONS.....	16
16.	WARRANTY COVERAGE.....	17
	Definitions.....	17
	Period of Coverage	17
	Warranty Registration	17
	Warranty Terms	17
	Warranty Exclusions	17
	Procedural Guidelines.....	17

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.

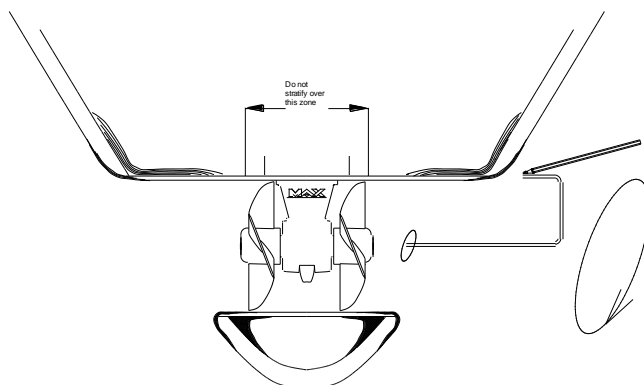
2. TUNNEL

When the final tunnel position is determined (and all dimensions have been checked), mark the centre of the tunnel's position and drill a \varnothing 10 mm hole. Make up a metal compass from 8 mm rod with 212 mm radius.

Fit compass into the \varnothing 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.



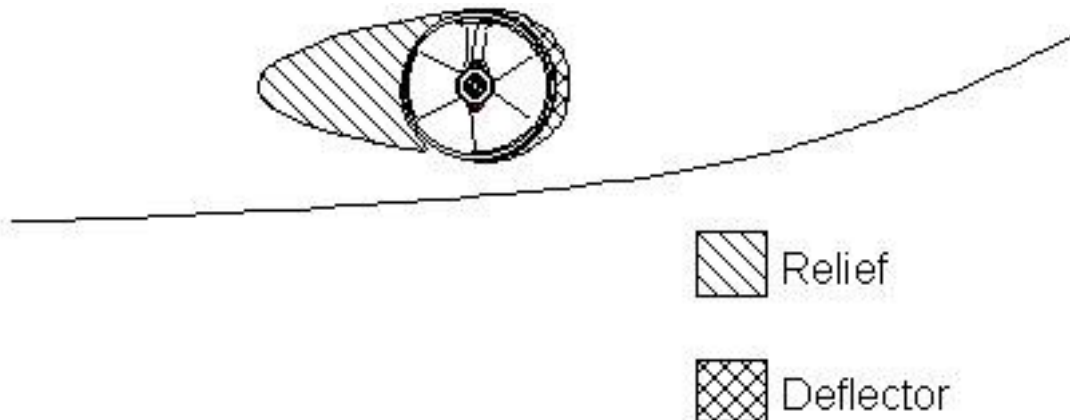
Fit the tunnel and mark the areas to be fibre-glassed. Sand these areas inside and out.

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 \varnothing 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 ASSEMBLY".

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 the gear oil a minimum of every second year. Check the gearoil quality in the gearhouse every time the boat is out of the water
- CHECK the oil and the hydraulic filtration circuit (only if necessary).

EVERY 5 YEARS:

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

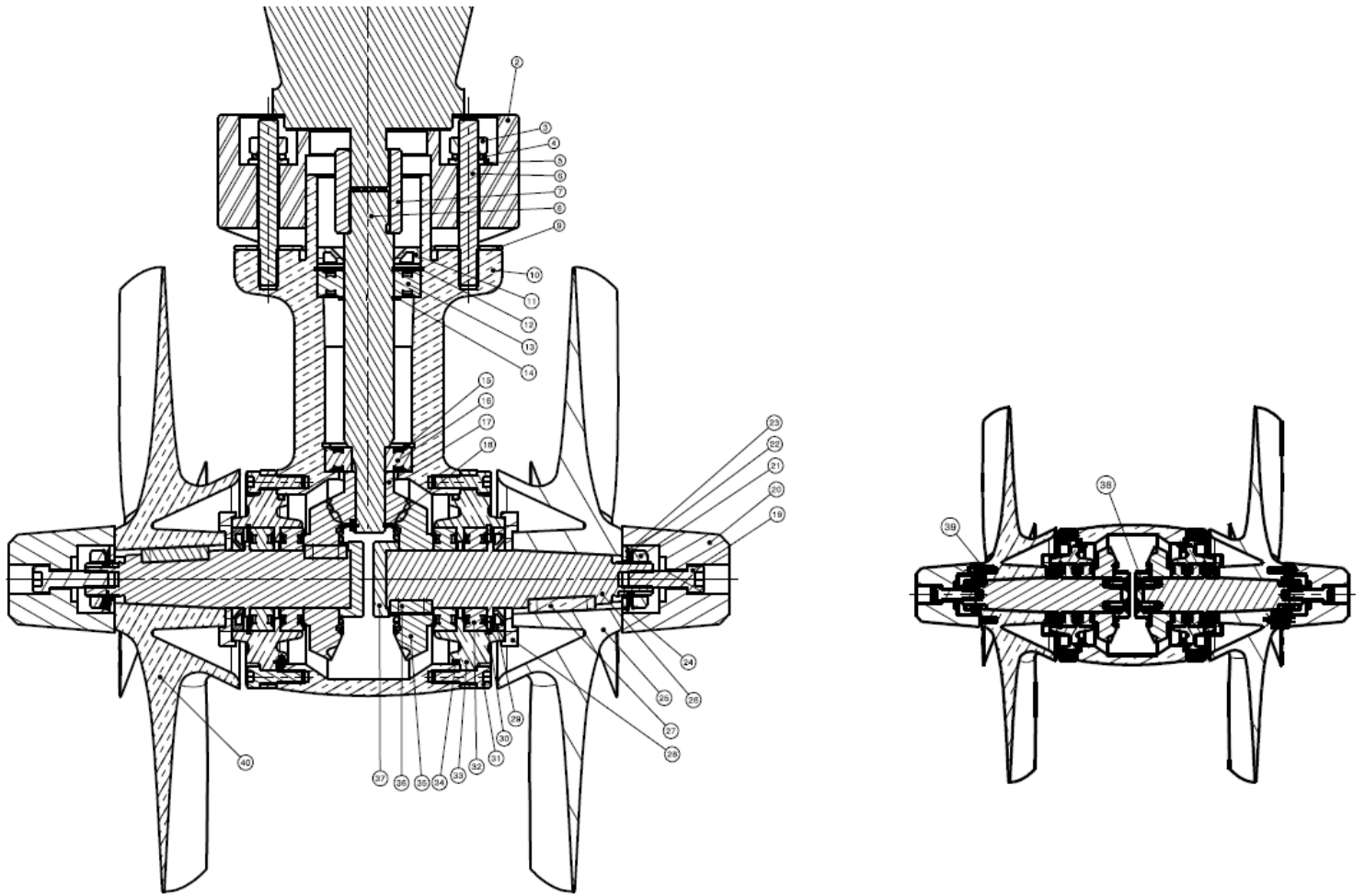
Installation Notes

A large rectangular box with a black border, containing 20 horizontal lines for writing notes. The lines are evenly spaced and extend across the width of the box.

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

IT IS IMPORTANT TO KEEP THIS MANUAL ON BOARD!

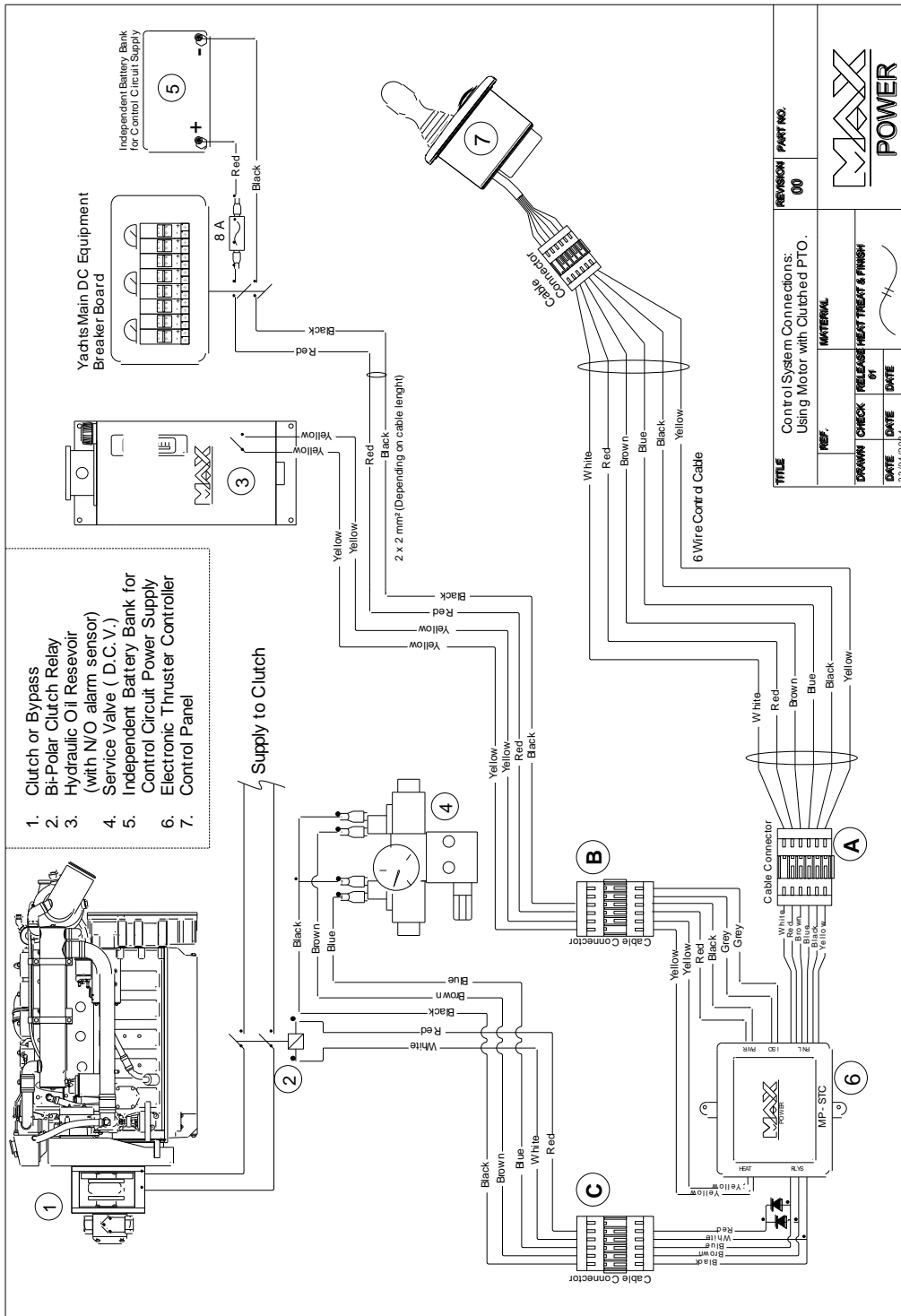
10. CT550 PART LIST



SPARE PART LIST

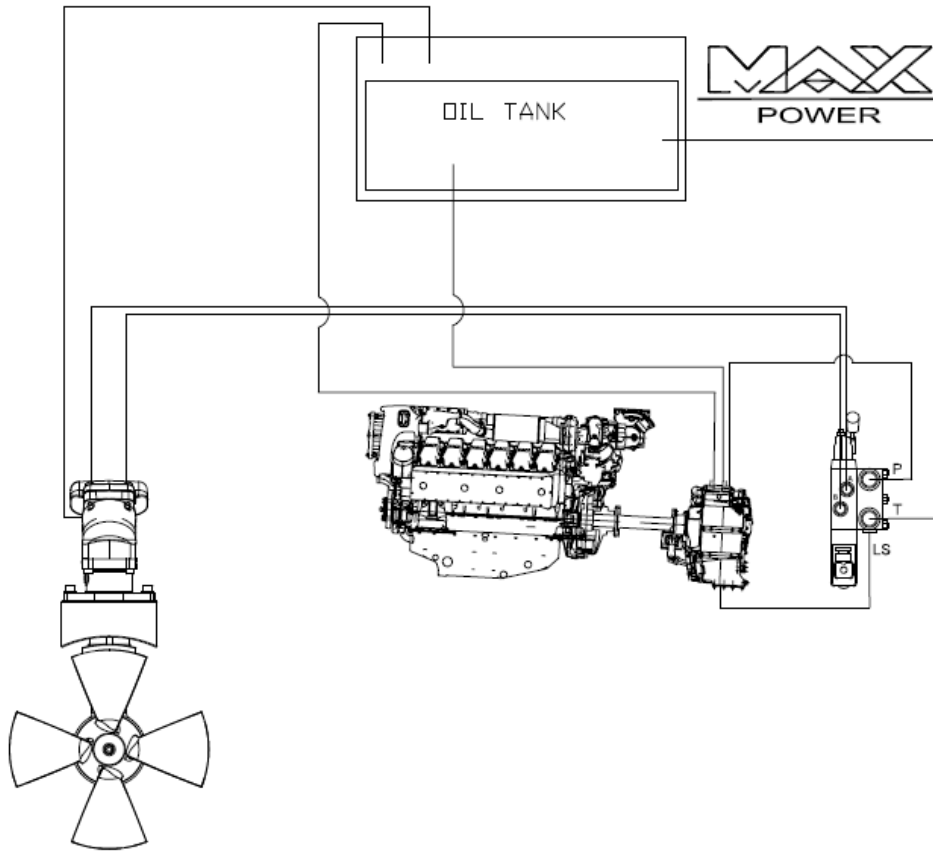
N°	Description	Quantity	Reference code
1	MOTOR	1	636278
2	MOTOR SUPPORT	1	636220
3	NUT M12	2	631790
4	SPRING WASHER M12	2	636225
5	WASHER M12	2	634876
6	STUD M12	2	636224
7	COUPLING	1	313365
8	MOTOR SHAFT	1	636241
9	GASKET	1	636236
10	DRIVELEG	1	636218
11	SEAL	1	630859
12	CIRCLIP	1	635232
13	BEARING	1	631753
14	CIRCLIP	2	635425
15	CIRCLIP	1	636136
16	BEARING	1	636131
17	PINION	1	636239
18	CIRCLIP	1	636136
19	SCREW M10	2	633637
20	ANODE	2	636138
21	NUT M20	2	636141
22	WASHER	2	636142
23	WASHER	2	636222
24	WASHER	2	636140
25	PROPELLER RH	1	636243
26	PROPELLER SHAFT	2	636237
27	KEY	2	632050
28	SEAL shield	2	636235
29	SEAL	2	630859
30	CIRCLIP	2	635232
31	SCREW M8	12	635721
32	BEARING	4	631744
33	COVER	2	636219
34	O RING	2	634578
35	GEAR	2	636238
36	KEY	2	632049
37	CAP	2	636415
38	COUNTERSUNK SCREW	4	
39	ALLEN SCREW	2	
40	PROPELLER LH	1	636242

11. WIRING DIAGRAM

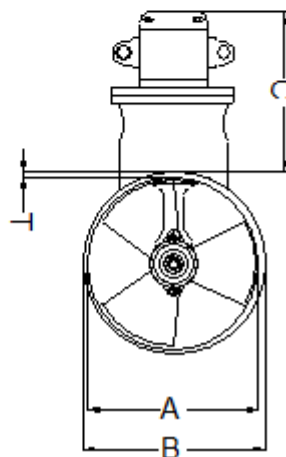
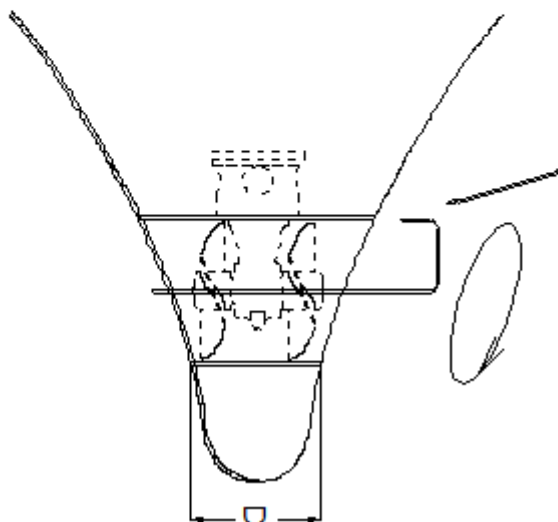
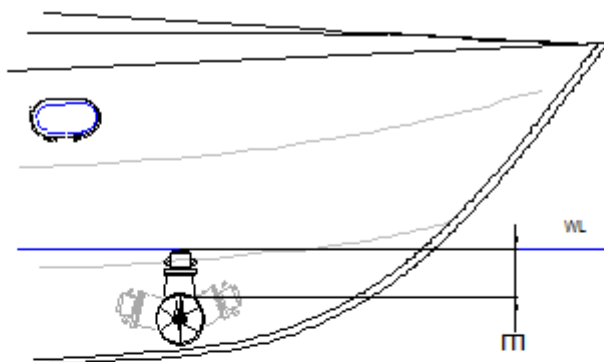


TITLE	Control System Connections: Using Motor with Clutched PTO.	REVISION	PART NO.
		00	
DRAWN	CHECK	RELEASE	HEAT TREAT & FINISH
DATE	DATE	DATE	DATE
25.04.2014			
MAXX POWER			

12. HYDRAULIC DIAGRAM



13. POSITIONING AND MESURMENTS



MODEL	125	225	325	550
DIM(mm)				
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



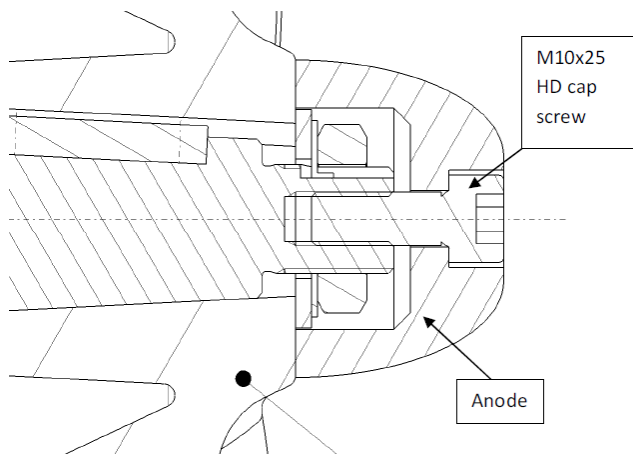
3) Insert the lock washer into the slot of the propeller shaft



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

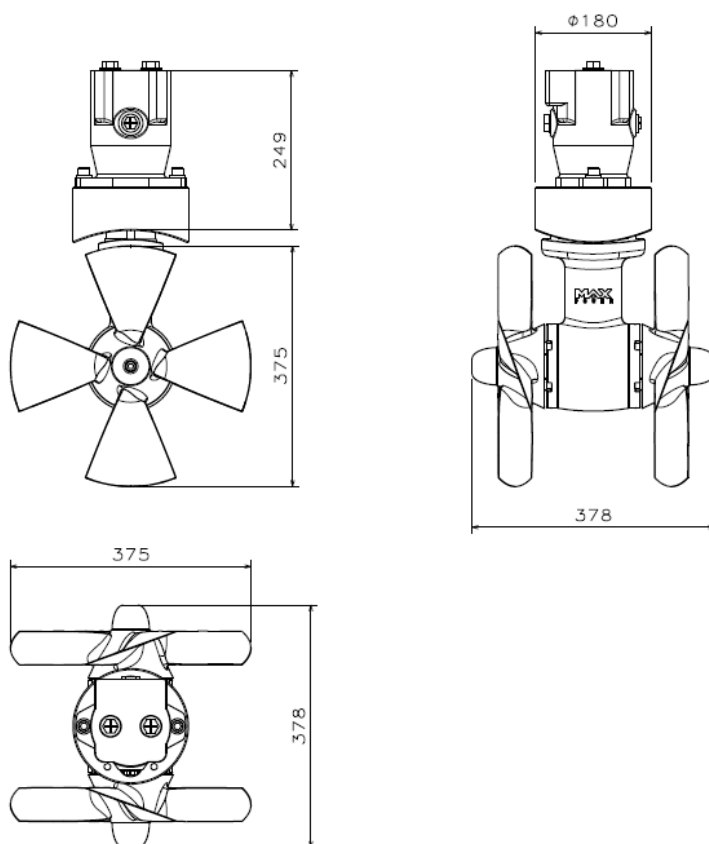


5) Insert the nut M20 on the propeller shaft and screw it. Max 180Nm tightening torque



- 6) Insert the anode on the shaft. The anode is 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



16. WARRANTY COVERAGE

Introduction

The purpose of this document is to set out the terms of warranty cover offered in relation to products purchased by the End User from Max Power or its approved network of resellers. This document will adhere to the following format:-

Section 1	Definitions
Section 2	Period of Coverage
Section 3	Warranty Registration
Section 4	Warranty Terms
Section 5	Warranty Exclusions
Section 6	Procedural Guidelines
Section 7	Service Centers

Definitions

Authorized Repair Number – The number given by Max Power on reporting a fault with your thruster

Dealer – An authorized Max Power sales centre

End User – The boat supplied with supplied equipment and the owner thereof

Installer – The authorized centre responsible for the installation of your thruster

Manufacturer – supplier of the equipment under warranty

Pleasure Craft – Vessels used for owner's personal use that have no commercial use (i.e Charter boats or work boats)

Resellers – Max Power approved distributors and dealers

Serial Number – Number in upper right hand corner of Warranty document

Supplier – The manufacturer (Max Power)

Warranty – The terms and conditions that are covered by the manufacturer

Period of Coverage

The equipment manufactured by the Supplier is guaranteed to be free from defective workmanship, components and materials under normal usage conditions for a period of two years from the date of purchase by the End User. This warranty is transferable to subsequent owners of this equipment during the period of coverage.

Warranty Registration

Register your purchase now to receive free extended warranty coverage. This can be done using one of the following methods (NB. proof of purchase must be included to establish that equipment is still under warranty):

- a) The quickest and easiest method to register your warranty is to fax the attached installation check list and warranty registration to the Manufacturer (Fax: +33 4 92 19 60 61)
- b) Mail in your warranty registration document, please ensure that you make a copy before sending it.

Warranty Terms

If the material is used for anything other than for pleasure craft, the guarantee is limited to a six-month period.

Year 1 - All factory testing, diagnosis, repairs and replacements are performed at no charge to the End User. All parts and up to two hours of labor are covered for repairs and replacements conducted in the field.

Year 2 - All factory testing, diagnosis, repairs and replacements are performed at no charge to the End User. This excludes any damage or faults occurring from normal wear and tear on the following items: engine, oil seals, relay contacts (If warranty is registered within the 3 month period following installation)

Warranty Exclusions

Damage due to modifications or installation contrary to published specifications
 Cost of hauling the boat
 Damage due to repairs performed by an unauthorized service centre
 Damage due to lack of normal maintenance services
 Damage due to water
 Parts replaced due to normal wear and tear
 Repairs performed without knowledge of manufacturer (please contact dealer to receive Repair Authorization Number)
 Tampering of equipment by the End User
 Cost of travel to and from the job site
 Cost of economic loss, including injury to any person, damage to property, loss of income or profit, communication, lodging, inconvenience
 Consequential damage due to failure, including those arising from collision with other vessels or objects

Procedural Guidelines

PLEASE VIEW THE TROUBLE SHOOTING LIST TO ASCERTAIN OR SOLVE ORIGIN OF PROBLEM PRIOR TO CONTACTING THE DEALER/INSTALLER

- 1) Contact your dealer/installer to report the problem.
 - a. If you do not know who this is contact the nearest Max Power distributor
 - b. If you are in foreign waters please contact the nearest Max Power distributor
- 2) Ensure you have your serial number and model number to hand (top right hand corner of warranty)
- 3) Dealer/Installer will come to site to decipher the cause of the fault
- 4) If the cause of fault is due to a manufacturing problem the dealer will contact Max Power to receive Repair Authorization Number.
- 5) If the problem is due to an installation error please contact your installer.

PLEASE TAKE PHOTOGRAPHS TO SHOW THE PROBLEM, IF POSSIBLE

The warranty as outlined above is only applicable to Max Power manufactured thrusters and optional equipment as used in marine pleasure industry. The supplier holds the exclusive right to test the product and determine whether it is defective

