



STERN POD

With electronic thruster control
Conform to ISO8846

INSTALLATION OPERATION MAINTENANCE

Serial No.:

Installation date:

THIS MANUAL MUST BE KEPT ONBOARD AT ALL TIMES

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The use of **qualified marine personnel**, with experience in bow thruster installation, is strongly advised. Where possible, the boat manufacturer's design departments, architects, 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.

IT IS ESSENTIAL TO READ THE FOLLOWING MANUAL CAREFULLY BEFORE INSTALLING THE THRUSTER

WARNING

Under no circumstances should the thruster casing be opened.
Opening or modifying the thruster may result in it no longer being Ignition Protected.
In case of a problem please contact your local Max Power distributor.

NB: The thruster is delivered without accessories (fuse, fuse holder, control panel).

TECHNICAL SPECIFICATIONS

Model	Product ref.	Typical boat size	Tunnel diameter	Nominal power voltage	Control system voltage	Weight	Amperage	Thrust kg/lbs
CT45	317625	20 – 34'	125mm	12V	12V	21 Kg	300	40 / 88
CT80/12V	317628	28 – 46'	185mm	12V	12V	31 Kg	446	69 / 152
CT80/24V	317629	28 – 46'	185mm	24V	24V	31 Kg	240	75 / 165
CT100	317630	32 – 51'	185mm	12V	12V	41 Kg	660	96 / 211
CT125	317631	34 – 59'	185mm	24V	24V	41 Kg	389	115 / 253
CT165	317632	40 – 66'	250mm	24V	24V	61 Kg	540	160 / 352
CT225	317633	46 – 73'	250mm	24V	24V	61 Kg	680	195 / 430

NB. Performance data is given for a thruster installed at one tunnel diameter immersion depth, in a tunnel no longer than twice the tunnel's diameter and this within a variation of + / - 6%. Higher voltages will result in higher thrust ratings, higher power consumption and a reduced duty cycle. Longer tunnels will result in lower thrust ratings and higher power consumption.

1. POSITION AND DIMENSIONS

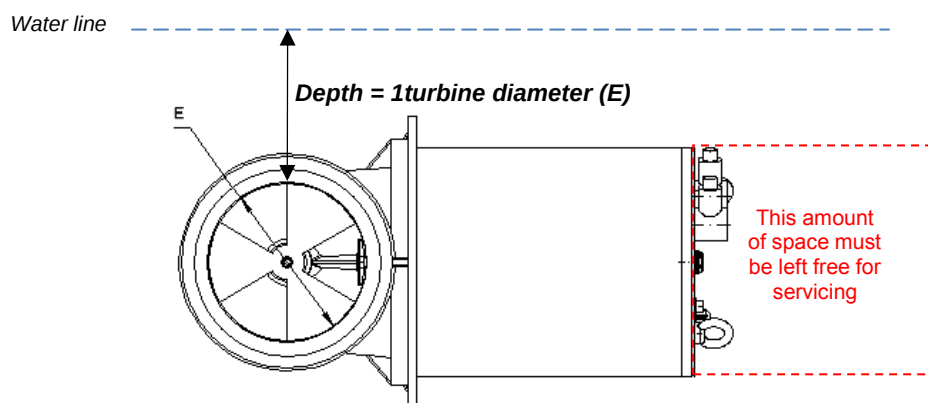
Please refer to "GENERAL DIMENSIONS"

Correct positioning is essential for the correct operation of this unit.

The tunnel is ideally positioned when the distance between the waterline and the top of the turbine is one diameter (E).

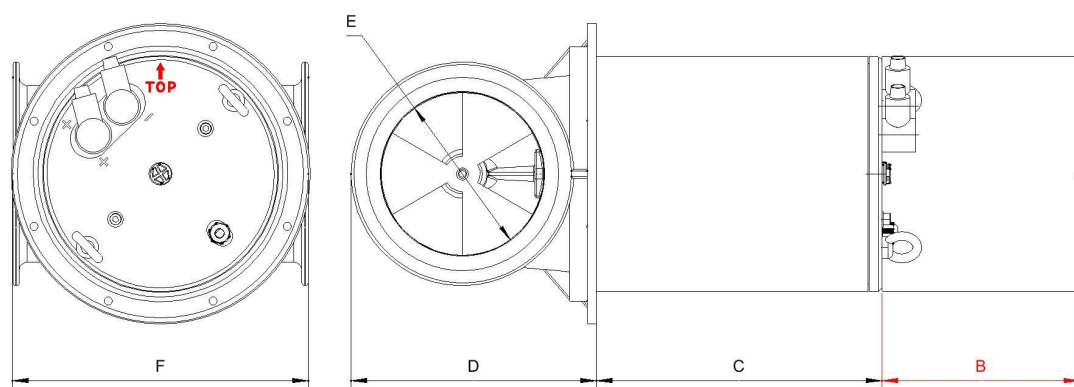
- Find the best position while keeping in mind the space available, given the vessel's fixtures, space and shape ensuring you respect the minimum immersion depth.

STERN POD	Minimal immersion depth (E)
CT35 / CT45	125 mm
CT60 / CT80 / CT100 / CT125	185 mm
CT165 / CT225	250 mm



- To install the STERN POD on the transom of the boat, make sure that the water flow is clear of all obstacles (sterndrives, trimtabs...), or select the best possible compromise.
- Always check and make sure that there is enough room to allow for the complete removal of the thruster unit (servicing) and enough room for the connection of the electric cables.

STERN POD – GENERAL DIMENSIONS



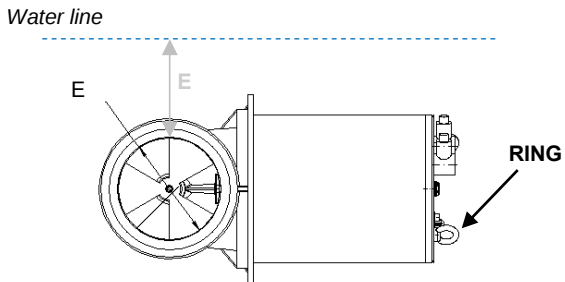
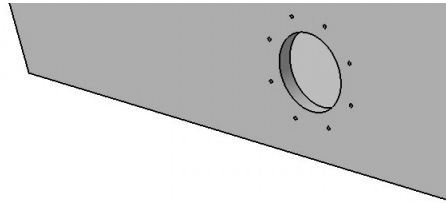
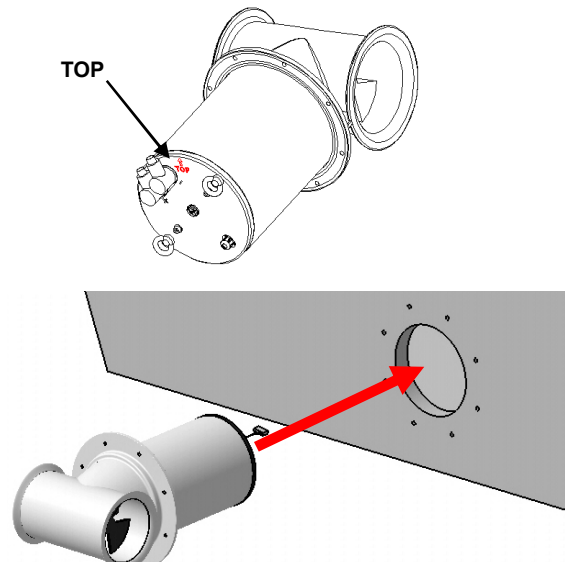
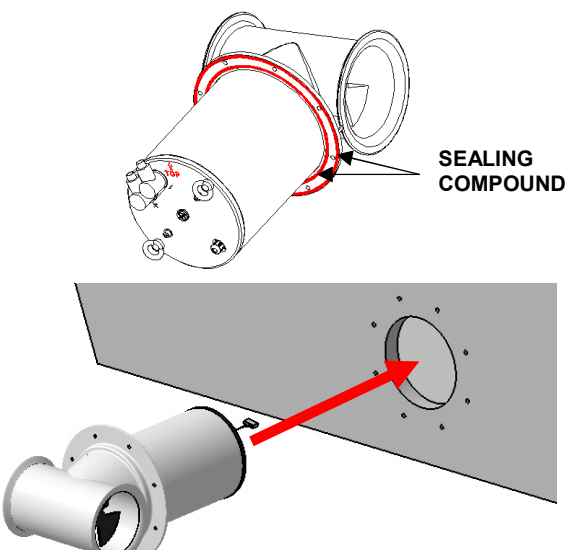
STERN POD	A	B	C	D	E	F
CT35 / CT45	Ø 266	180 mini	260	215	Ø 125	336
CT60 / CT80	Ø 266	225 mini	325	278.5	Ø 185	336
CT100 / CT125	Ø 266	270 mini	435	278.5	Ø 185	336
CT165 / CT225	Ø 335	320 mini	484	345	Ø 250	415

Dimensions in mm

2. MECHANICAL INSTALLATION

Please refer to "GENERAL DIMENSIONS" and "DRILLING TEMPLATE"

CAUTION: TO POSITION THE STERNPOD YOU CAN USE THE TWO RING ON THE COVER

1. Define the position and the depth. Find the best position while keeping in mind the <u>space available inside</u> and <u>outside</u> and the shape of the stern. The depth of the turbine must be equal at least to its diameter (E) Make sure no part of the STERN POD is lower than the transom of the boat.	
2. Using the drilling template and drill the holes.	
3. Position the STERN POD and check cut, holes and space. WARNING RESPECT THE ASSEMBLY THE <u>TOP</u> MARK ON THE COVER HAS TO BE <u>UPWARDS</u> 4. Remove the STERN POD 5. Clean the surface of the STERN POD which will be in contact with the hull. 6. Check the hull. The surface need to be clean and flat. If no, the hull will have to be flattened.	
7. Apply a thin coating of sealing compound to both grooves of the STERN POD. This must be resistant to hydrocarbons and water 8. Fitting the thruster as before, positioning and then tightening the screws. → The thruster must be in right direction (mark TOP) The screws must be tightening alternatively. WARNING <u>USE ONLY SCREWS INOX A4</u> <i>If necessary it's better to strengthen the transom of the boat to support the weight and the thrust</i>	

3. ELECTRICAL INSTALLATION

3.1 GENERALITY

CAUTION: an incorrect electrical installation will cause quick deterioration or even failure of the thruster. Excessive voltage drop will cause premature wearing of the relays and brushes. Special attention should be given to the quality, capacity and condition of your batteries, as well as cable sections used.

Ensure that all electrical connections are correctly tightened.

3.2 POWER FUSE

A power fuse, of the correct size must be installed in the positive supply cable, as close as possible to the thruster's battery bank and it must be easily accessible and clearly marked.

3.3 BATTERY ISOLATOR

A manual battery isolator, of the correct size, should be installed in the positive supply cable, as close as possible to the thruster's battery bank and must be easily accessible and clearly marked

An electric battery isolator, as supplied by Max Power, should be installed in the positive supply cable, as close as possible to the thruster's battery bank, in order to benefit from all automatic safety features of the electronic control system.

3.4 BATTERIES

When choosing the type of batteries needed for your thruster's battery bank, keep in mind that it is the CCA (Cold Cranking Amps) capacity that is the most important and not the Ah (Amp-hour) capacity. This is because thrusters draw high currents, but only for very short periods of time (maximum 3 min.)

Max Power would recommend using Exide, Maxxima 900 type batteries, which have an 800CCA and 50Ah capacity.

	CT 45		CT 80	CT 80	CT 100	CT 125	CT 165	CT 225
Voltage	12V	1	12V	24V	12V	24V	24V	24V
Power fuse	125		200	125	315	200	250	
Number of battery	1		2	2	3	4	4	6

3.5 POWER WIRING

Measure the shortest and most direct way possible between the battery(ies) and the electric motor; remembering to allow for both "positive **and** negative" cables.

Recommended cable sections

	CT35 CT45	CT60 CT80	CT60 CT80	CT100	CT125	CT165	CT225
Cable lengths	12V	12V	24V	12V	24V	24V	24V
L ≤ 5 m (2,5 x 2)	35 mm ²	50 mm ²	35 mm ²	70 mm ²	50 mm ²	70 mm ²	70 mm ²
5 < L ≤ 10 m (5 x 2)	50 mm ²	70 mm ²	50 mm ²	100 mm ²	70 mm ²	95 mm ²	95 mm ²
10 < L ≤ 15 m (7,5 x 2)	70 mm ²	95 mm ²	70 mm ²	150 mm ²	95 mm ²	120 mm ²	120 mm ²
15 < L ≤ 20 m (10 x 2)	95 mm ²	120 mm ²	95 mm ²	200 mm ²	120 mm ²	150 mm ²	150 mm ²

For all connections, use appropriate terminals for the cable sections chosen. It is possible to reduce the cable section to facilitate easy connection but **only over a short distance**. In this case, appropriated crimp fittings should be used at the connections.

3.6 ELECTRONIC CONTROL BOX

Please refer to the drawing "RELAY AND CONTROL BOX CONNECTIONS"

The thruster electronic control box should be installed in a completely dry and ventilated area.

WARNING: The **electronic controller** and the **electric battery isolator** are not ignition protected. It should be installed outside of the zone where flammable gases can be.

Install a fused circuit breaker / switch in the boat's main DC distribution panel marked STERN THRUSTER. This circuit breaker / switch should ideally be supplied from a different battery bank to the one used for powering the thruster.

The installer must protect the positive supply cable of the thruster's control box by means of a **8A fuse**. The size of the power cables (red & black) depends on the length of the cable run, the voltage drop in these cables should not exceed 5% of the nominal battery voltage.

For safety reasons, and in order to obtain all the functions provided by the thruster controller, an electric battery isolator needs to be installed in the thruster motor positive supply cable. Max Power advises the use of an electric battery isolator ref. **318400 (12V) 318401 (24V)**.

If an electric battery isolator is not used then simply seal-off the two grey wires coming out of the control box. It is important to isolate the thruster motor power circuit by means of a manual battery isolator after having used the thruster.

3.7 CONTROL PANEL

Control panels should be protected from the natural elements while the thruster is not in use. Install the control panel(s) in easily accessible positions, without obstructing the main engine and/or steering controls.

When fixing the panel with the stainless steel screws, make sure to install the pre-cut rubber seal, as supplied with the panel, ensuring that it is in the correct place.

WARNING: Only when totally finished and satisfied with the wiring and positioning of the unit, clip-on the face panel/cover.

Please note that panels are only fully waterproof from the front, if installed correctly. However the area behind the dashboard should be kept dry to avoid the risk of oxidation of the cable connector contacts.

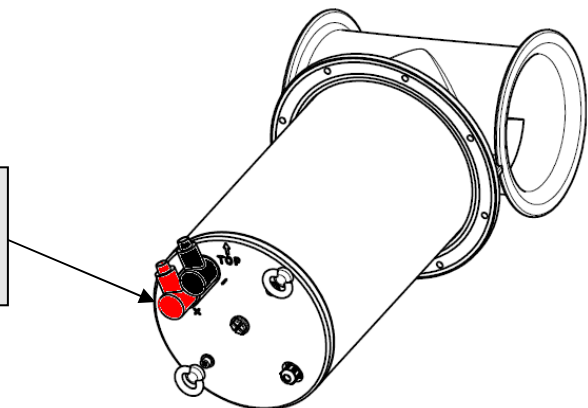
For full control panel installation instructions, please refer to the "Installation Guidelines" as supplied with each control panel.

3.8 POWER BUSHING

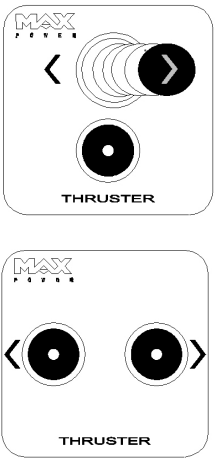
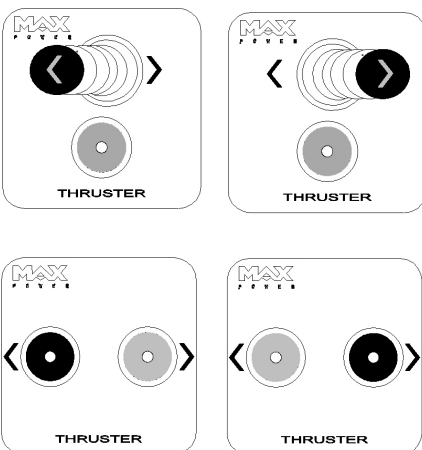
The nut on the power bushing is **3/8" - 16**

Use a key **11/16"**

WARNING
Weatherproofing terminal cover must be fitting on each power wiring (+ and -)



3.8 CONTROL PANEL AND THRUSTER CONTROL BOX FUNCTIONS

	SWITCH ON OR SWITCH OFF <u>To switch the thruster ON</u> - Push and hold down the red button whilst pushing the joystick to the right for several seconds. - Push and hold down both the red and green buttons for several seconds The control panel will beep once and the green LED in the red push-button will light up. <u>To switch the thruster OFF</u> - Push and hold down the red button whilst pushing the joystick to the right for several seconds. - Push and hold down both the red and green buttons for several seconds The control panel will beep twice and the green LED in the red push-button will go out.
	HOW TO USE THRUSTER Push the red button or incline the joystick to the left and the boat moves to the left. Push the green button or incline joystick to the right and the boat moves to the right. The thruster controller provides a time delay between left and right thrust in order to avoid rapid direction changes. There is no delay when thrusting to same side.

CAUTION: If, during tests the boat moves in the wrong direction, change around the **BLUE** and the **BROWN** wires on the back of your **CONTROL BOX**.

When manoeuvring remember that the boat's momentum continues after you release the joystick / button, therefore remember to release the control prior to reaching your desired position. Care must be taken not to use the thruster in areas where there may be people swimming or floating debris.

If the thruster motor overheats the control panel will start beeping and the green LED will flash until the thruster motor has cooled down.

As soon as the overheating alarm sounds, there are **10 seconds** of actual thruster use before the unit automatically shuts down. It will then not be possible to switch the thruster on until the motor has cooled down.

If the thruster has not been used for a period of 30 minutes it will automatically switch itself off.

Before switching off automatically the control panel will beep once followed by a second beep a few seconds later, after which the thruster switches itself off.

4. TEST

Activating the thruster when the boat is out of the water is not advised under any circumstances.

Tests must be carried out with the boat in the water, the battery(ies) charged at 100% and in charge, and the engines running.

The maximum continuous operating runtime corresponds to S2-3mn norm.
However, this can be affected by the ambient temperature.

5. ELECTRICAL MEASUREMENTS

In normal "usage" mode, i.e. thrusters running, boat in the water, with fully charged batteries under ongoing charge (alternator), electrical measurements should be made at the following points:

- At the batteries
- At the battery cut-off switch
- At the fuse
- At the electric motor's connections
- At the power supply arriving at the thruster control box

These measurements will enable you to detect voltage drop.

NOTE: the voltage reading between the motor's negative and positive connections should be approximately **10.5V for 12V models or 22V for 24V models during operation.**

WARNING

The cumulative effect of voltage drops at these points can severely impair the thruster's performance.

Should the voltage measured be too low, the following points need checking:

- Are the batteries of sufficient capacity?
- Are the batteries good quality?
- Are the batteries sufficiently charged?
- Are appropriate cable sections being used?
- Are the connections sufficiently tightened?

6. SAFETY

Switch off means to cut the power at both the DC equipment panel (control power supply) & the thruster battery isolator (thruster power supply) after having used the thruster. Under no circumstances should any flammable products be stored next to the electric components of the thruster.

CAUTION

Care must be taken not to use the thruster in areas where there may be people swimming or in the water close to the thruster.

Never tamper with the thruster / thruster turbine if not 100% sure that both the control and power circuits have been isolated, except if taking electrical measurements on the thruster motor or relay.

7. MAINTENANCE

WARNING: Under no circumstances should the thruster casing be opened.
Opening or modifying the thruster may result in it no longer being Ignition Protected.
In case of a problem please contact your local Max Power distributor.

Control panels should be protected from the natural elements while the thruster is not in use.

The thruster requires a minimum of ongoing maintenance:

- Check the condition and charge of the batteries regularly, as voltage drop is the most frequent cause of rapid deterioration of the relay.
- Carry out a regular check of all electric components: batteries, connections, power cables.

NOTE: All maintenance should be carried out by qualified and authorised personnel.

After each opening the technician must change the 4 o-rings (part 10 on the spare parts)

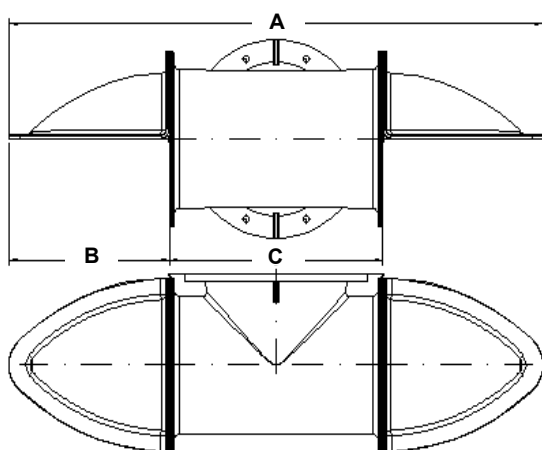
Composite drive leg and propellers

- The composite drive leg is pre-filled with oil and sealed for life. It does not require the oil changing.
- The composite drive leg does not require an anode.
- The composite drive leg must not be disassembled, even partially (this would void the warranty).
- When the boat is out of the water, check that there are no fishing lines, plastic bags, etc. caught in the propellers.
- Paint the drive leg and propellers with antifouling (make sure that they were well prepared and primer has been used).
- Always keep the propellers and tunnel clean.
- To prevent the build up of calcium on the drive shafts, which would damage the oil seals, cover the drive shaft and the oil seals' stainless steel covers with silicon grease before fitting the propeller(s). This should be done on an annual basis after the cleaning of the outside of the leg. Do not use aggressive solvents as they may damage drive leg seals.
- If drive leg oil seals are found to be worn, replace the drive leg with a standard exchange unit.

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

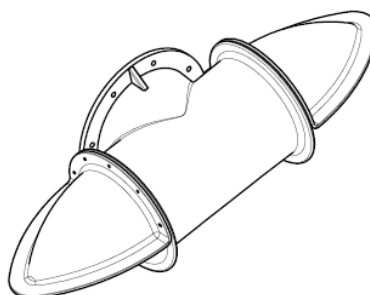
8. ACCESSORIES

Max Power's **STERN ADAPTOR COWLS** are easily fitted to our STERN ADAPTOR or STERN POD and allow the use of stern thrusters in relatively shallow draft applications



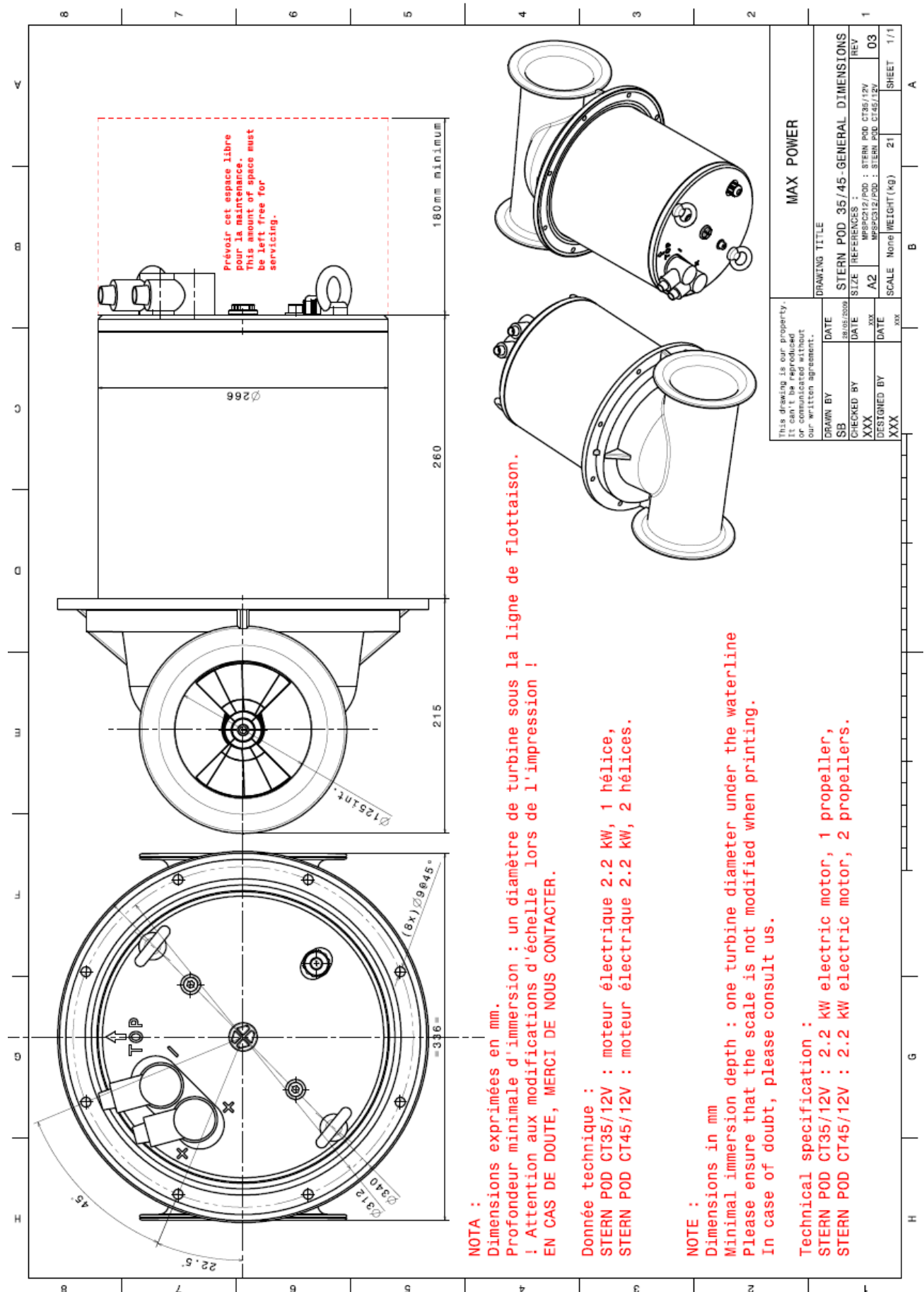
COWLS	E	A	B	C
for Ø125	125	672	168	336
for Ø185	185	842	253	336
for Ø250	250	1019	303	415

Dimensions in mm

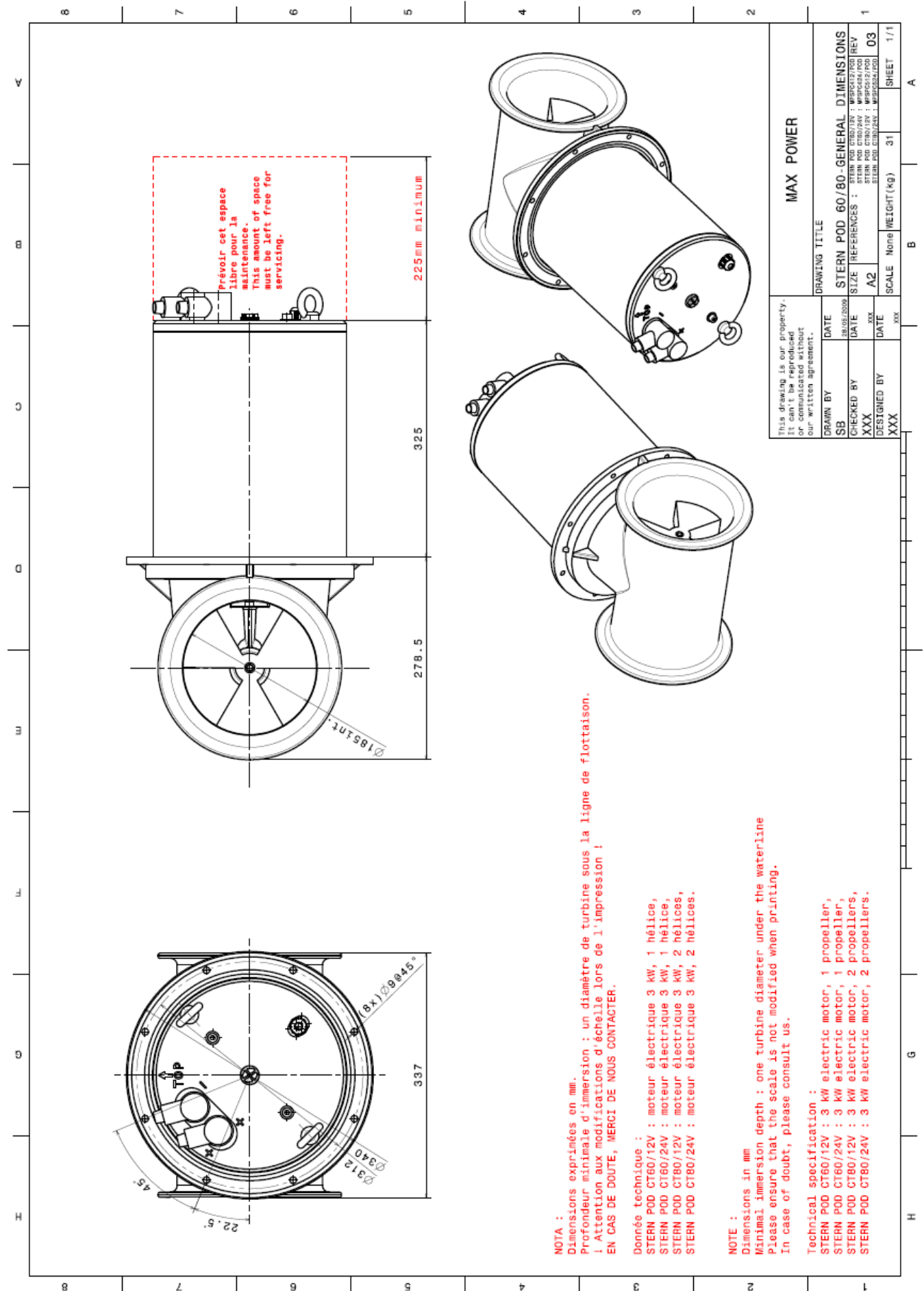


9. GENERAL DIMENSIONS

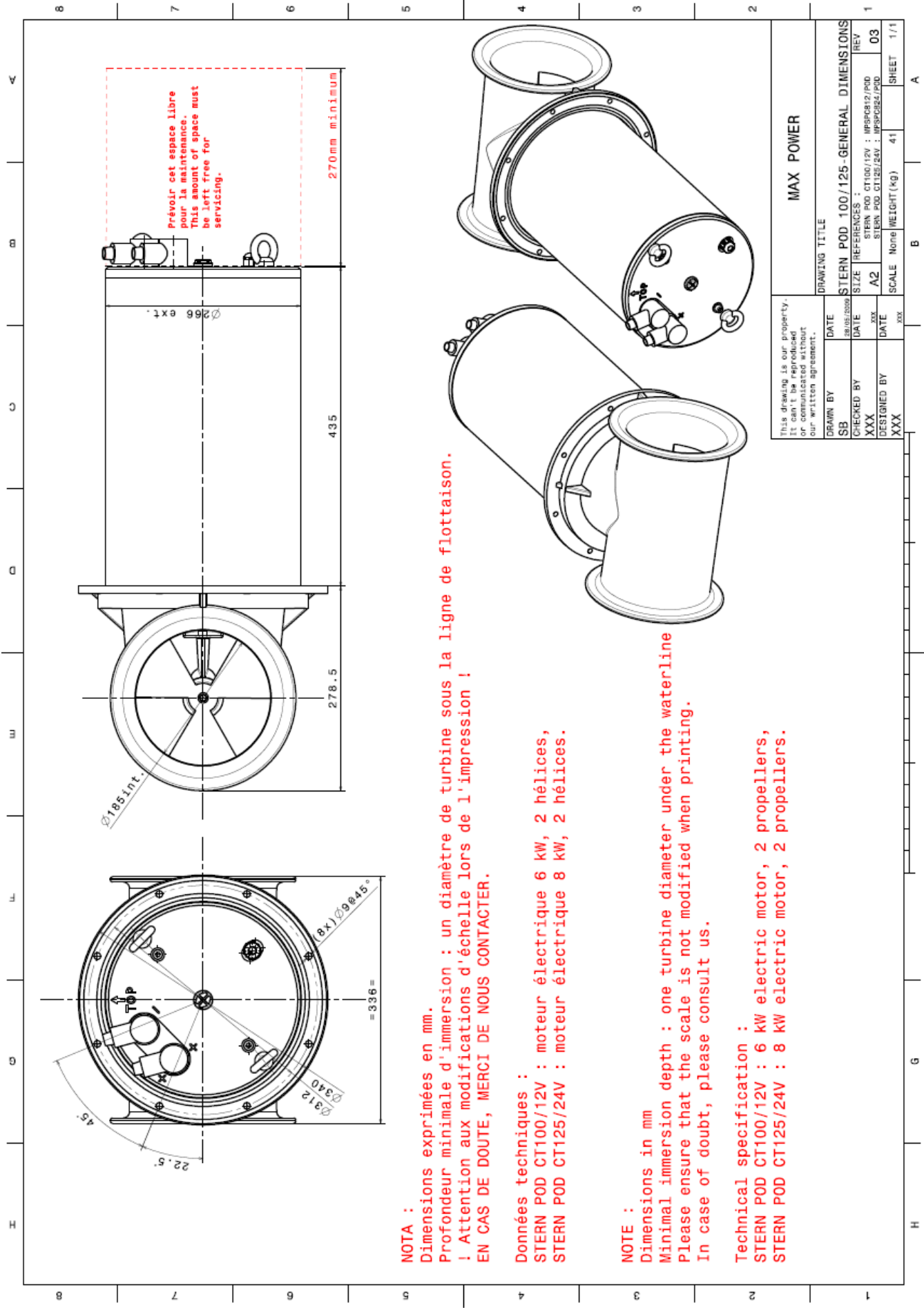
STERN POD CT 45 : GENERAL DIMENSIONS



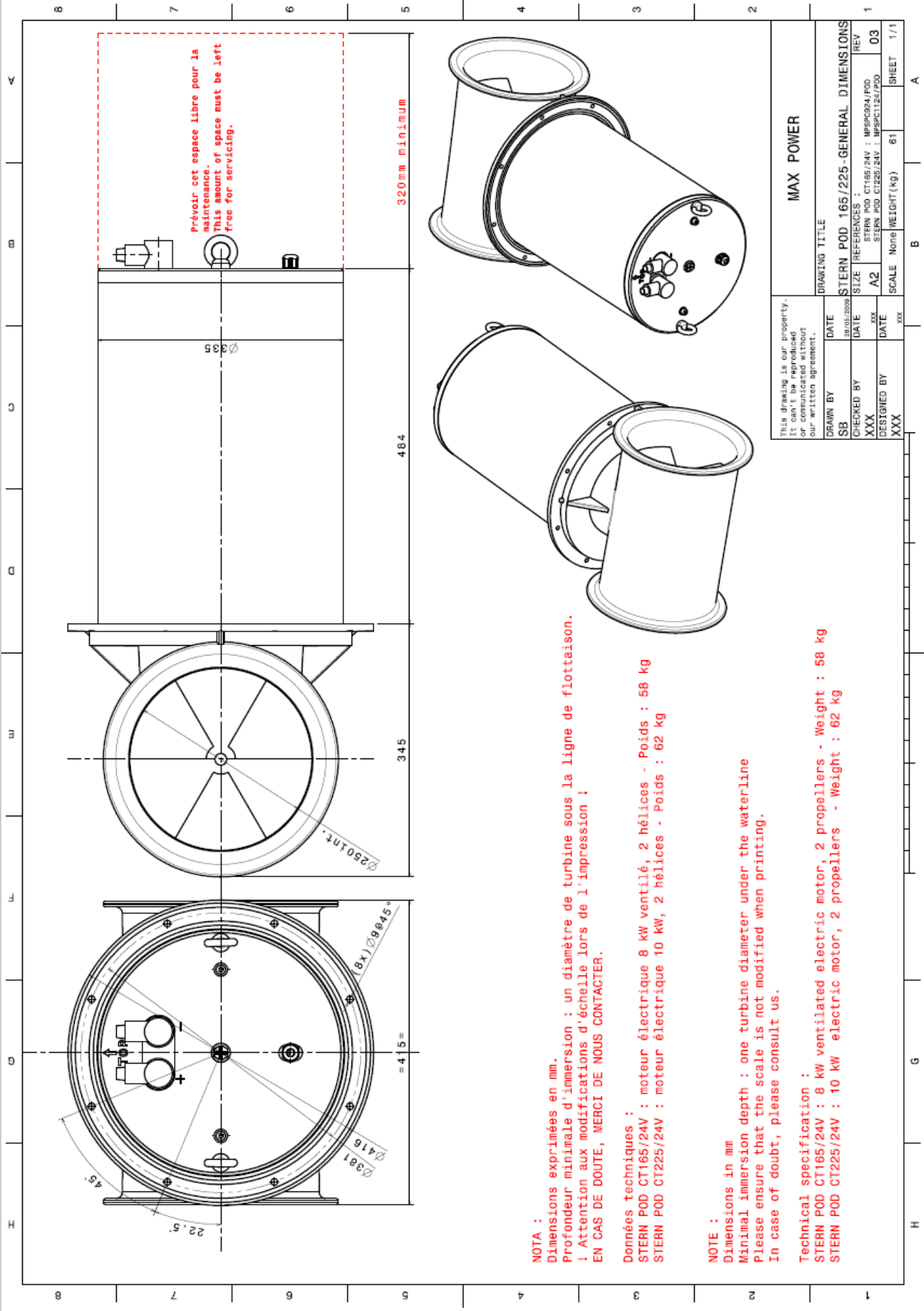
STERN POD CT 80 : GENERAL DIMENSIONS



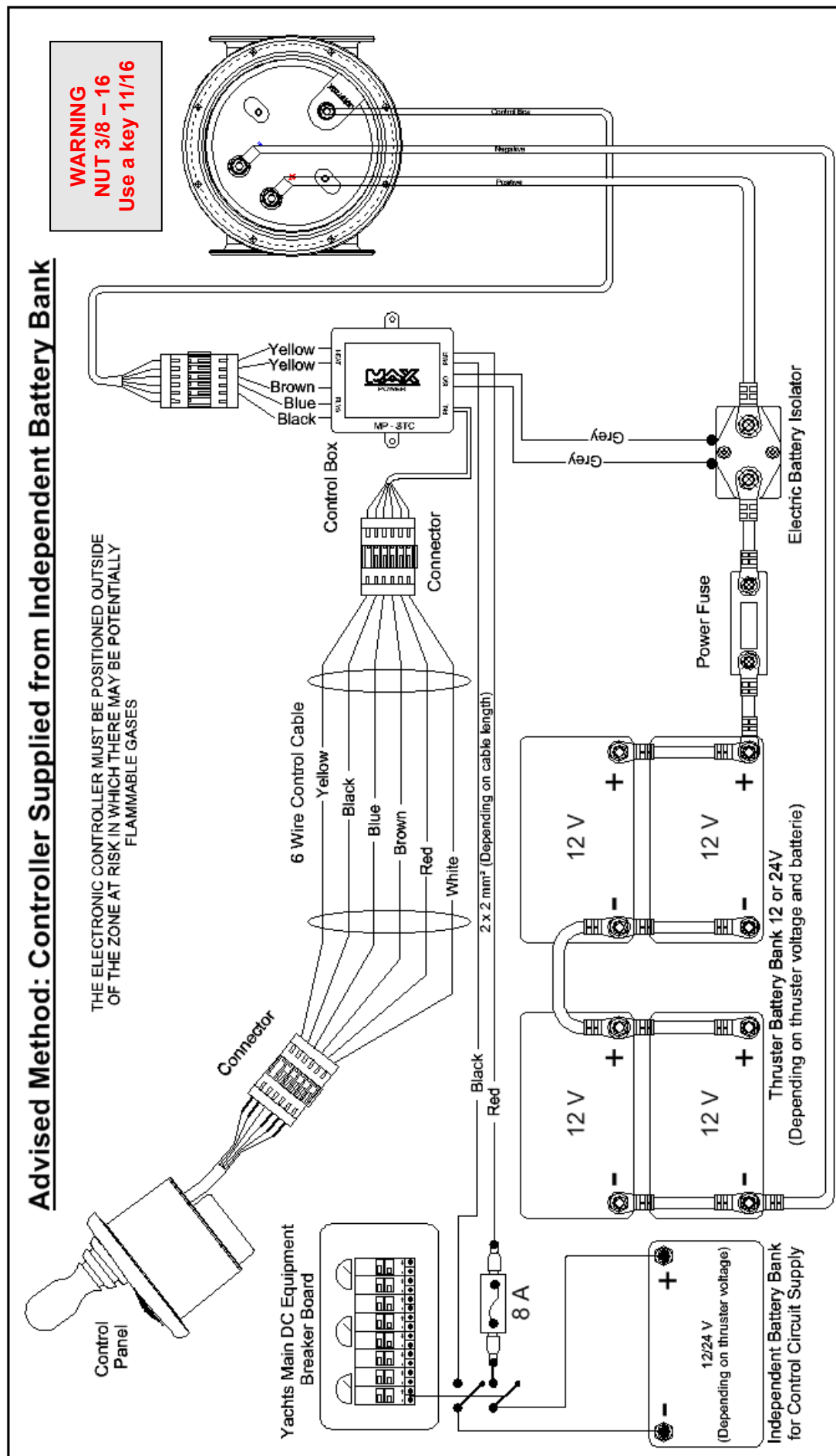
STERN POD CT 100 / CT 125 : GENERAL DIMENSIONS



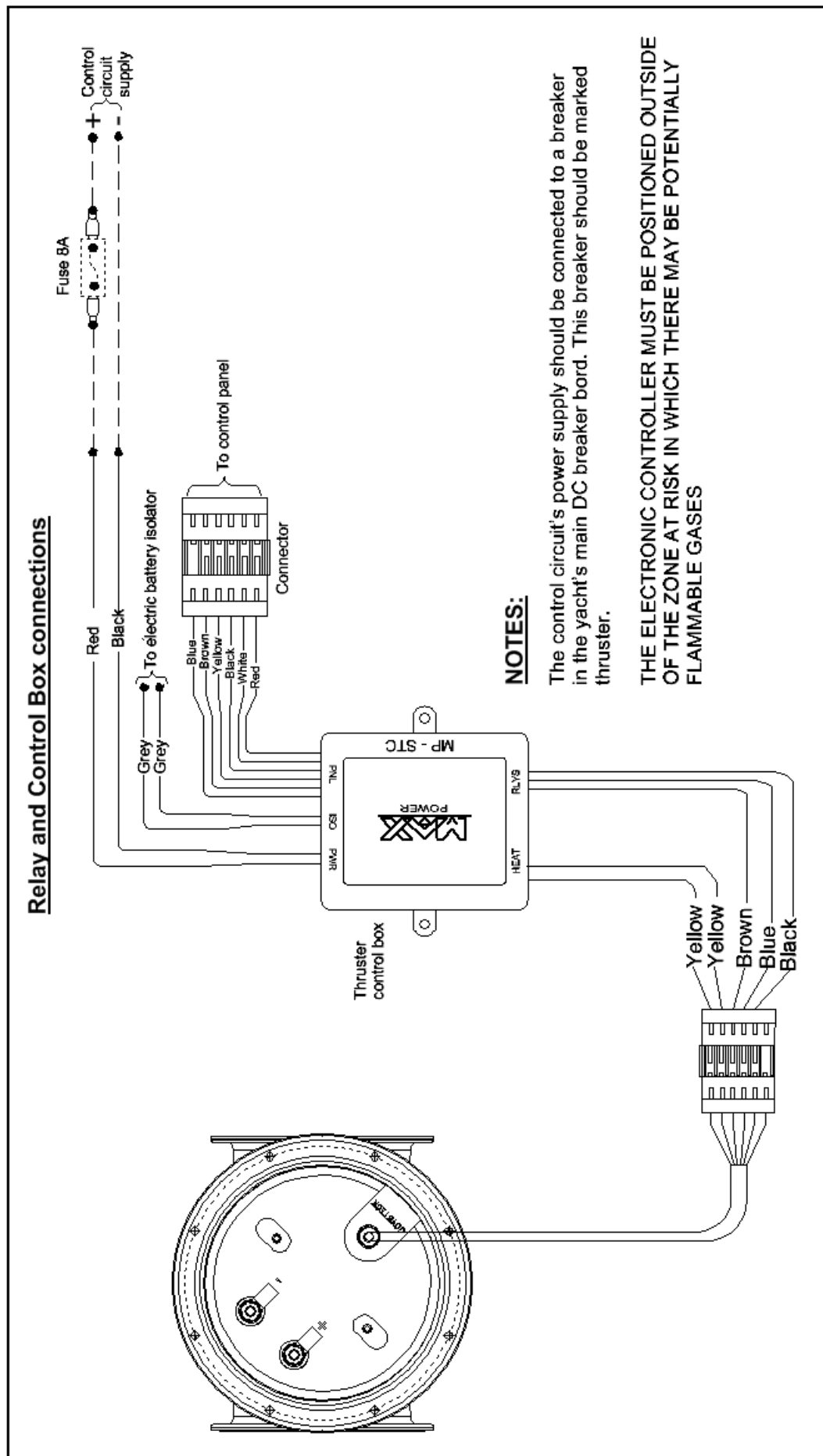
STERN POD CT 165 / CT 225 : GENERAL DIMENSIONS



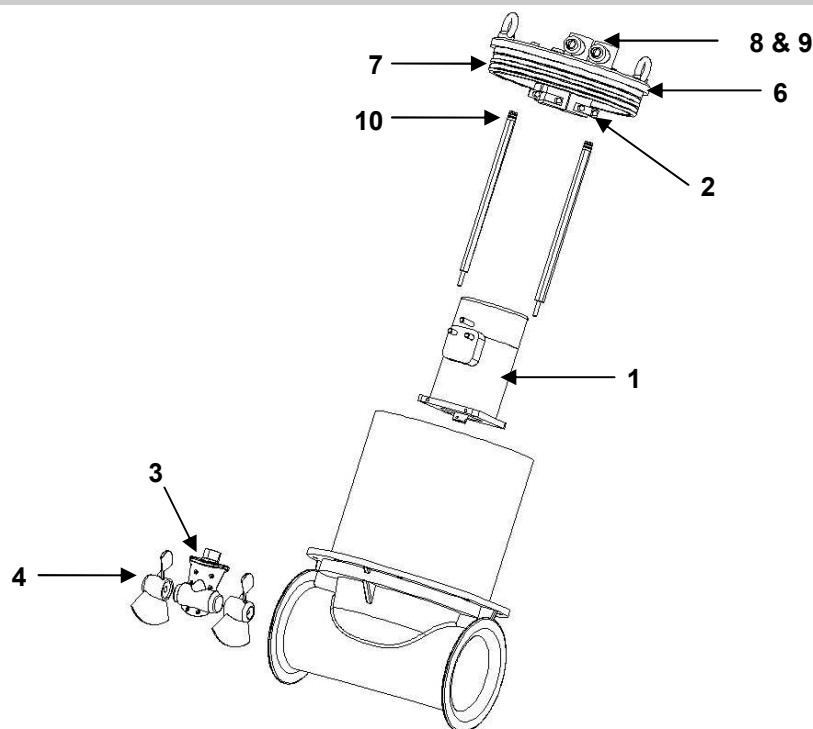
10. ELECTRICAL INSTALLATION DIAGRAM



11. RELAY AND CONTROL BOX CONNECTIONS



12. SPARE PARTS



N°	Description	Quantity	Reference
1	Electric Motor CT35 / CT45 12V	1	MP052020
	Electric Motor CT60 / CT80 12V		MP053030
	Electric Motor CT60 / CT80 24V		MP053031
	Electric Motor CT100 12V		MP083010
	Electric Motor CT125 24V		MP083011
	Electric Motor CT165 24V		MP083015
	Electric Motor CT225 24V		MP113010
2	Complete relay CT35-CT45	1	MP023011
	Complete relay CT60-CT80 12V		MP053024
	Complete relay CT60-CT80 24V		MP053026
	Complete relay CT100 12V		MP083053
	Complete relay CT125 24V		MP083054
	Complete relay CT165-CT225 24V		MP118051
3	Composite drive leg mono Ø125 (Complete)	1	MP028000
	Composite drive leg duo Ø125 (Complete)		MP028002
	Composite drive leg mono Ø185 (Complete)		MP058100
	Composite drive leg duo Ø185 (Complete)		MP088100
	Composite drive leg duo Ø250 (Complete)		MP118100
4	Propeller Ø125	1	MP025000
	Propeller Ø185	1	MPOP8080
	Propeller Ø250	1	MPOP5400
	Propeller nut Ø125	1	RT204070
	Propeller nut Ø250	1	MPOP5410
5	Electronic control box	1	MPOP5701
6	Cover CT35-CT45	1	MPOP6041/35
	Cover CT60-CT80		MPOP6041/60
	Cover CT100-CT125		MPOP6041/100
	Cover CT165-CT225		MPOP6041/165
7	O-ring cover CT35-CT45-CT60-CT80-CT100-CT125	2	MPOP6028
	O-ring cover CT165-CT225	2	MPOP6029
8	Power bushing (Red) + Weatherproofing terminal	1	MPOP6038
9	Power bushing (Black) + Weatherproofing terminal	1	MPOP6039
10	O-ring	4	RT085053

13. TROUBLE SHOOTING GUIDE

Before contacting your nearest Max Power distributor, please check the below troubleshooting guide.

Problem	Check
The control panel does not light up	• Check the 6 wire connector behind the joystick • Check the thruster's electronic control box 6 wire connector • Check the circuit breaker / switch in the boat's main DC distribution panel • Check the control box's power fuse (8 A)
The relay is clicking but the motor is not running	• Check the motor's power fuse • Check the main battery isolator • Check battery conditions and connections • Check the internal relay contacts <u>WARNING</u> Only a qualified technician should check these points to ensure that the thruster is correctly reassembled and remains Ignition Protected.
The motor is running but the thruster is not working	• Check the propellers are fitted • Check the motor / drive leg assembly • Check that the tunnel is not obstructed or the propellers blocked
The thruster lacks power	• Check the propellers are fitted • Check the size of the batteries • Check the batteries are sufficiently charged • Check the connections are tightened correctly • Check the power cables sections (See p. 6 : Recommended cable sections)

14. WORLDWIDE DISTRIBUTION NETWORK

To locate the nearest Max Power distributor, please consult the section "Worldwide Distribution" on our website: www.max-power.com

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.

1. 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

2. 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 three (3) 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.

3. Warranty Registration

Register your purchase now at www.max-power.com. (NB. proof of purchase must be kept throughout the warranty period)

4. 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 labour are covered for repairs and replacements conducted in the field.

Year 2 & 3: 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)

5. 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

6. Procedural Guidelines

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

1. Contact your dealer/installer to report the problem.
 - If you do not know who this is, contact the nearest Max Power distributor
 - 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.

IF POSSIBLE: PLEASE TAKE PHOTOGRAPHS OF THE THRUSTER TO SHOW PROBLEM

7. Service Centers

Please go online www.max-power.com to find the authorized service station of your area.

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