

**RC12 Vertical  
Rope/Chain Windlass**

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Part No: P103133

23/01/12

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## Additional Resources

The following resources are included at the back of this manual:

Deck Cutout Details

Warranty Form

Contact Details (on back cover)

**Note:** For your nearest retailer, service agent or representative please refer to our website

[www.maxwellmarine.com](http://www.maxwellmarine.com)

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# ***Preliminary Information***

## ***Introduction***

Congratulations on your purchase of a Maxwell windlass. Please read these instructions carefully to enable you to correctly install and maintain the windlass for years of trouble-free operation.

### **Note**

Failure to follow the correct installation, operation or maintenance instructions will jeopardise your safety and could invalidate the warranty.

## ***Components***

In addition to this instruction manual, the following components may be included with the windlass:

- Windlass
- Remote up/down control panel
- Circuit breaker/isolator panel
- 12V or 24V reversing solenoid
- Clutch (Bi –square)Handle
- Emergency retrieval handle
- Motor Bolt Kit
- Deck Cutout Details (At rear of manual)
- Small parts:
  - Nuts
  - Flat washer
  - Spring washer

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## **Important Safety Information**

- Make sure your windlass has been correctly specified before installation - Personal safety may depend on it. The windlass must have a maximum pull capacity of at least three times the combined weight of the anchor and rope/chain.
- For automatic operation to be possible, the anchor must be self launching.
- Correct fit of the chain to the chainwheel is essential. See "Rope and Chain Selection Guide" on page 9.
- Keep hands, feet, loose clothing and hair well clear of the windlass and rope/chain during operation.
- While raising the anchor, run the boat's engine above idle. This will minimise the power drain on the batteries.
- Never operate the windlass from a remote station without having a clear view of the windlass.
- Do NOT use the windlass as a mooring point. When anchoring or mooring, secure the line directly to a bollard or deck cleat.
- Do NOT use the windlass to pull the boat forward when raising the anchor. Use the boat's engine to drive the boat up to the anchor.
- Do NOT attempt to break free a fouled anchor with the windlass. Secure the line to a bollard or cleat and use the boat's engine to break the anchor out.
- Always firmly tie down the anchor when under way or in heavy seas. Do not rely on the windlass as a securing device.
- Always turn the circuit breaker/isolator switch off when the windlass is not in use and before you leave the boat.
- Tie the end of the anchor rope/chain to a secure fixture in the rope/chain locker.
- Keep the anchor rope/chain in good condition, free from knots and twists. Inspect the rope regularly for chafe. Where this has occurred, repair by cutting away the affected portion and re-splice.  
**Tip:** The rope can be swapped end-for-end to extend its life.
- Do NOT use the windlass to haul a person up a mast.

# Windlass Parts

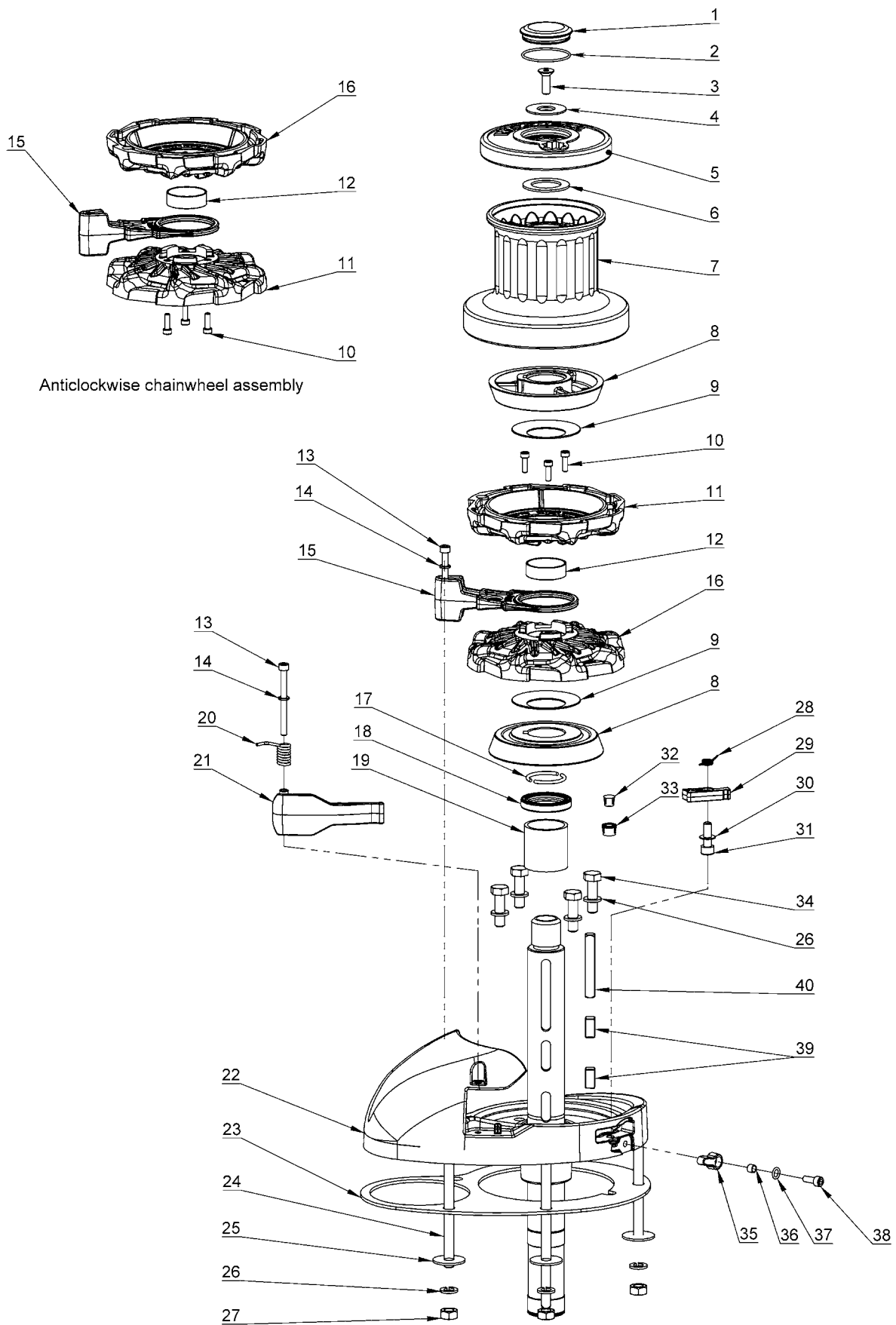


Fig 1: Windlass Parts

## Windlass parts

Item	Component description	Qty	Part No.
1	Cap	1	7191
2	O-ring	1	SP2790
3	Screw M8 x 25	1	SP0095
4	Retaining Washer	1	3267
5	Clutch Nut	1	7440
	Clutch Nut Capstan	1	7441
6	Washer - Capstan only	1	7527
7	Capstan	1	7443
8	Clutch Cone	2	7439
9	Bellville Washer	2	5015
10	Cap screw -M5 x 16	3	SP0178
11	Chainwheel -upper -10mm- 3/8" CW	1	7448
	Chainwheel -upper -12mm-1/2" CW	1	7452
	Chainwheel -lower -10mm- 3/8" ACW	1	7448
	Chainwheel -lower -12mm-1/2" ACW	1	7452
12	Bush	1	7544
13	Cap screw -M6 x 70	2	SP4509
14	Spring washer	2	SP0474
15	Stripper	1	7444
16	Chainwheel -lower-10mm-3/8" CW	1	7447
	Chainwheel -lower-12mm-1/2" CW	1	7451
	Chainwheel -upper-10mm-3/8" ACW	1	7447
	Chainwheel -upper-12mm-1/2" ACW	1	7451
17	Retaining Clip	2	2311
18	Seal	1	SP2799
19	Bearing	1	SP0657
20	Spring CW	1	7037
	Spring ACW	1	7436
21	Pressure Arm	1	7435
22	Deckplate CW	1	7430
	Deckplate ACW	1	7431
23	Gasket	1	7515
24	Stud - 90TDC	5	5225
	Stud - 190TDC	5	7482
25	Washer	5	3843
26	Spring Washer	9	SP0466
27	Nut - M10	5	SP0371
28	Spring	1	7458
29	Pawl	1	7456
30	Washer	1	SP0413

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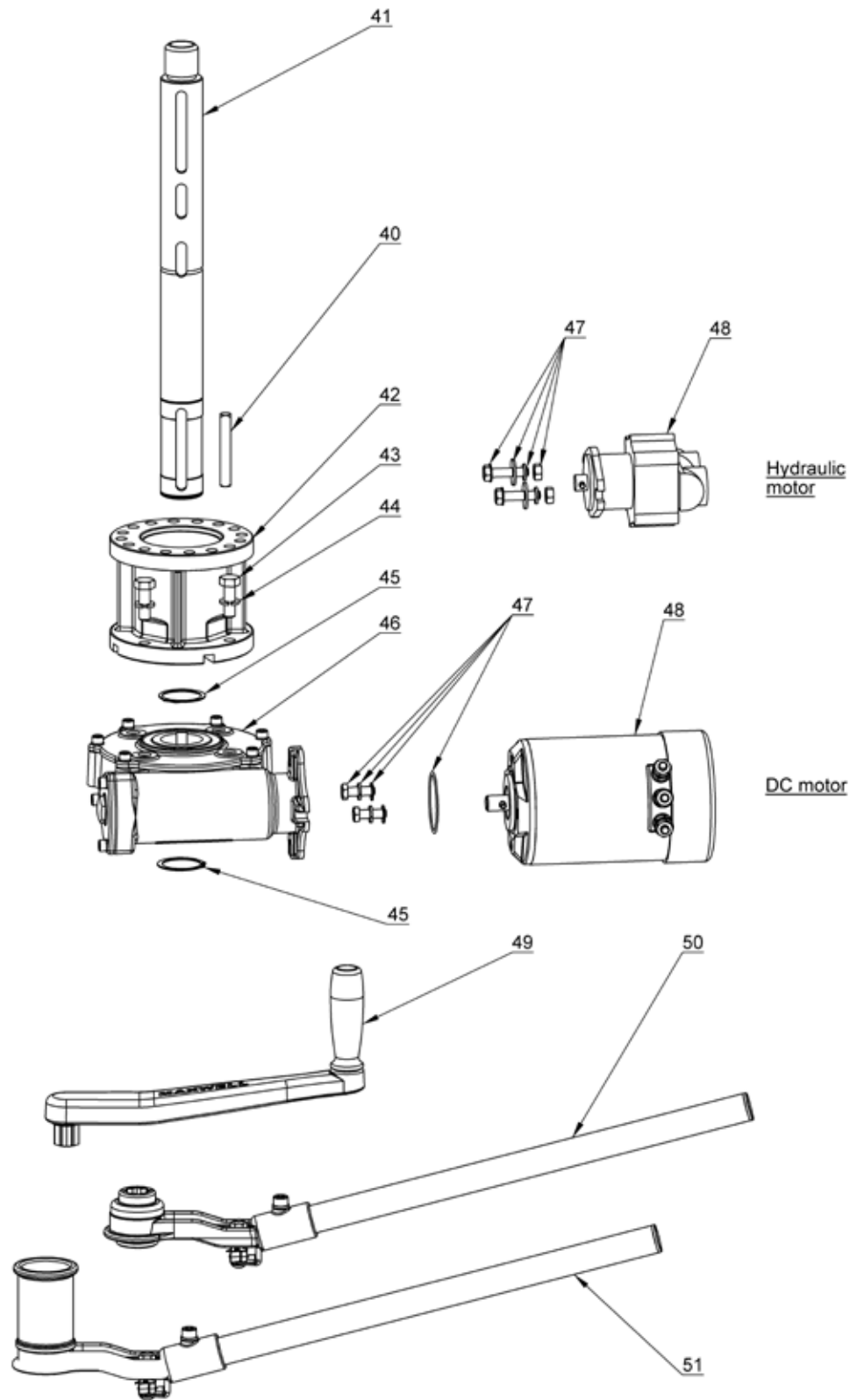
<b>Item</b>	<b>Component description</b>	<b>Qty</b>	<b>Part No.</b>
31	Cap screw -M8 x 25	1	SP0158
32	Plug	1	SP3519
33	Bush	1	SP3518
34	Screw -M10 x 35	4	SP3221
35	Pawl	1	7457
36	Bush	1	7480
37	O-ring	1	SP2785
38	Cap screw -M6 x 16	1	SP0170
39	Key	2	7465
40	Key - Capstan	1	3150

CW - clockwise  
ACW - anticlockwise



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## Bottomworks /Handle list



**Fig 2: Bottomworks/handle parts**

## Bottomworks /Handle list

Item	Component description	Qty	Part No.
40	Key	1	3165
41	Shaft -LP-90TDC	1	7437
	Shaft -Capstan -90TDC	1	7438
	Shaft -LP-190TDC	1	7463
	Shaft -Capstan - 190TDC	1	7464
42	Spacer tube - 90TDC	1	7433
	Spacer tube - 190TDC	1	7434
43	Cap Screw -M10 x 35	4	SP3221
44	Spring washer	4	SP0466
45	Circlip	2	SP0846
46	Wormbox 75:1	1	P102180
	Wormbox 100:1	1	P102181
47	Motor Bolt Kit _DC	1	P12487
	Motor Bolt Kit _Hydraulic	1	P12488
48	Motor - 12V 1200W	1	P12073
	Motor - 24V 1200W	1	P12074
	Motor - Hydraulic	1	P14368
49	Bi-square handle	1	P103865
50	Emergency handle - LP CW	1	P103319
	Emergency handle - LP ACW	1	P103323
51	Emergency handle -Capstan CW	1	P103320
	Emergency handle -Capstan ACW	1	P103324

Some listed parts are sold as a kit only.

CW - clockwise

ACW - anticlockwise

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## Ordering Spare Parts

When ordering spare parts, please refer to the parts list above and quote the following details.

### Windlass Model

RC12 10mm - 3/8"

RC12 12/13mm – 1/2"

90TDC  190TDC

CW  ACW

### Serial number

### Power supply

12V

24V

Hyd

### Part details

Part number	Description	Quantity
<input type="text"/>	<input type="text"/>	<input type="text"/>
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Refer back cover for web details.

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## ***Rope and Chain Selection***

**THE MAXWELL WINDLASSES ARE DESIGNED FOR ROPE/CHAIN SYSTEMS USING: 16-20mm (5/8"- 3/4") rope, 10 - 13mm (3/8" – 1/2") short link chain.**

Your Windlass should have a rating of approximately 3 times total combined weight of the anchor and chain.

The ground tackle should have been selected taking into account:

- a) Boat size, displacement and windage.
- b) Conditions of operation such as maximum depth of water, type of bottom and weather conditions.
- c) Holding power and size of anchor, taking special note of the manufacturers' recommendations.

**CORRECT FIT OF ROPE/CHAIN TO CHAINWHEEL IS ESSENTIAL FOR THE WINDLASS TO OPERATE PROPERLY.**

Selection of chainwheel:

16mm - 20mm (5/8"- 3/4") rope / 10mm (3/8") chain CW = P103317

16mm - 20mm (3/4") rope / 12mm/13mm (1/2") chain CW = P103318

16mm - 20mm (5/8"- 3/4") rope / 10mm (3/8") chain ACW = P103321

16mm - 20mm (3/4") rope / 12mm/13mm (1/2") chain ACW = P103322

**THE WINDLASS SHOULD BE USED IN CONJUNCTION WITH A MAXWELL CHAIN STOPPER, OR SNUBBER, OF THE APPROPRIATE SIZE.**

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# Installation

## General Requirements

### Foredeck layout

Make sure that the area of deck between the windlass and the bow roller is clear of obstructions.

The bow roller should have a central groove suitable for the chain size.

Use a chain guide if necessary to prevent the chain from running against the deckplate and potentially causing damage to the windlass.

Provide a chain stopper, snubber or cleat to secure the anchor line when under way. Tie the anchor line to a bollard or cleat when at anchor.

### Anchor and rope/chain considerations

When purchasing an anchor, make sure it fits into the bow roller and is self-launching.

Use a swivel between the anchor and the chain to prevent the line from twisting as the anchor is raised or lowered.

To prevent build up of rope/chain on deck causing possible damage, the bow roller must allow the anchor to free fall immediately when the anchor is deployed.

Make sure that at least three links of chain are exposed when the anchor is docked.

The rope/chain *must* gravity feed into the locker.

NOTE: Make sure you securely fasten the end of the rope/chain to the boat.

### Required clearances

Ideally the outlet for the rope/chain should be directly over the rope/chain locker. The rope/chain should have at least 200mm (8") clear fall from bottom of motor to rope/chain pile to allow the rope/chain to straighten before passing through the windlass.

Position the windlass clear of pulpit, lifelines and bulwark so that there is room to swing the Clutch Handle.

The rope/chain locker must be of such a size that the rope/chain will heap up and feed out naturally without fouling the windlass motor.

Allow access for conveniently connecting the supply lines under deck after the windlass is bolted in position.

It should be noted that the gearbox can be indexed at different positions in relation to the deck plate. Be sure to select the most convenient position and allow for the best run for the rope/chain to clear the motor.

### Aligning the windlass

"UP" is the clockwise rotation when looking down on the windlass.

The windlass must be positioned to allow the rope/chain to have a clear run from the bow roller to the chainwheel.

The deck plate should be mounted pointing in the direction of the incoming rope/chain. This arrangement allows the rope/chain to have maximum engagement with the chainwheel.

The bow roller should have a vertical groove to suit the profile of the chain. This will align the chain so that it enters the chainwheel without twisting.

---

# **Installation Instructions**

## **Before you start**

Before installing the windlass, identify any bulkheads, wiring or piping under the deck. This may determine where the windlass can be positioned. Ensure the deck is flat, if not; a plinth will be required to ensure the windlass sits on a flat surface.

## **Deck thickness**

It is imperative that the deck and under-deck pad (not supplied) are of sufficient thickness and structural strength to support the loads imposed on or by the windlass.

An under-deck pad should spread the load as widely as possible.

## **Preventing electrolysis**

For aluminium boats, it is essential that the deckplate be insulated from the deck with a non-conductive gasket (not supplied), that the mounting studs pass through insulators (not supplied), and that the under-deck fastenings are insulated from the deck with nylon washers (not supplied).

It is also important that the anchor and chain are insulated from the hull, including rubber lining the rope/chain locker and insulating the fixing for the end of the rope/chain to the hull.

Without these precautions, severe electrolysis can occur.

Because the motor is of the isolated earth type, it is not necessary to separately earth the windlass.

## **Locating the chain stopper**

The chain stopper should be positioned and aligned in a convenient position between the windlass and the bow roller, so that it clears the anchor stock. The chain should pass through the stopper without being deflected.

## **Preparing windlass**

Remove windlass from its packing case. Disassemble it in the following order :

1. Remove the cap from the top of the windlass
2. Undo and remove the retaining screw and retaining washer under the cap, using a 5mm Allen key.
3. Undo and remove clutch nut
4. For Capstan models only - remove washer, drum and key
5. Remove upper clutch cone, key and Belleville washer
6. Undo screw that retain chain stripper and remove it.
7. Remove chainwheel assembly (together with stripper ),Belleville washer, lower clutch cone, key and retaining clips
8. Undo bolts and remove the deckplate

Refer to drawing in this Manual and identify all parts. If any parts are damaged or missing, contact your Maxwell distributor. Some smaller parts might not be assembled on the windlass by the factory, but supplied in a plastic bag in the packing case.

Maxwell strongly recommends generous application of a high quality anti-corrosive paste or coating to the mating sections of main shaft, drive key, flanges, screw threads and other surfaces that are likely to seize after being in contact for a prolonged period of time.

Also ensure anti-corrosive coating is liberally applied to the inside wall of the spacer tube.

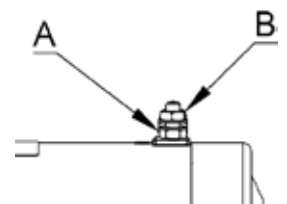
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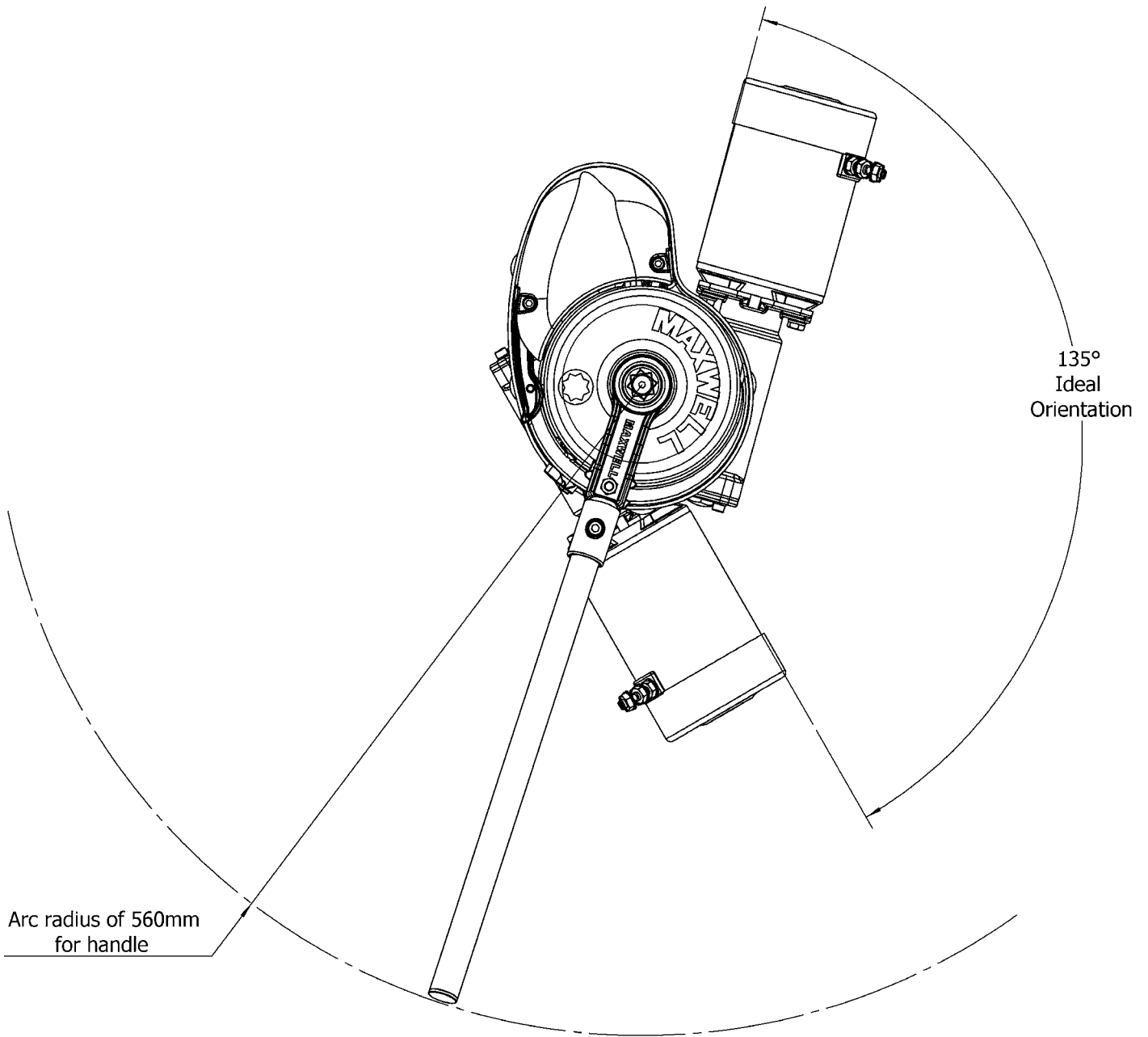
## Installation procedure

1. Use the Deck Cutout Details drawing as a guide for marking and cutting the holes.  
**Tip:** On GRP boats, running the drill in reverse first will reduce chipping of the gel coat.  
Using hole saws, cut the holes for the spacer tube and rope/chain pipe.
2. On GRP or wooden decks, seal the edges of the holes with epoxy to avoid ingress of moisture.
3. Use of silicon sealant, to seal the windlass to the deck, is highly recommended. For aluminium boats fit a non-conductive gasket to insulate the deckplate from the deck to prevent electrolysis.
4. Bolt the deckplate to the deck using mounting studs , washers and nuts. Tighten the nuts progressively and evenly. Do NOT use power tools. Make sure the installation is firm, but do not over tighten the nuts.
5. Offer up, from below deck, the drive assembly sliding the mainshaft through the deckplate, taking care not to damage the deck bearing.
6. After aligning them correctly, bolt the deckplate and spacer tube together, from above deck, using the M10 hex head screws and spring washers. Tighten them evenly to 35-40 Nm (25-30 ft lb).
7. Re-check that the position of the drive assembly is satisfactory and convenient for connecting power supply lines to the motor. Also, make sure that the drive is not in the way of rope/chain coming into the locker.
8. If a chain counter is used, its sensor should be fitted into the Ø15mm hole in the deckplate, currently covered with a plastic plug. Make sure the deck is drilled below for the sensor cable. See brochure supplied with chain counter for detailed assembly instructions.
9. Insert the two retaining clips into the upper groove in the mainshaft; apply some grease to help keep them in position.
10. Apply anti-seize compound generously over the mainshaft and keyway. Insert key into the keyway on the mainshaft.
11. Assemble the lower clutch cone making sure it sits nicely on the retaining clips. Apply lithium based marine grease generously to the conical surface of the clutch cone, to assist with free falling the anchor.
12. Put the Belleville washer on top of the lower clutch cone and install the chainwheel assembly
13. Insert key on mainshaft and install upper clutch cone, after applying marine grease to its conical surface
14. Insert key on mainshaft, assemble drum and washer (Capstan models only).
15. Assemble clutch nut .
16. Put retaining washer on top of the mainshaft and secure it with the screw .
17. Insert the cap into the clutch nut.
18. When tightening the cables to the motor, ensure the lower nut (A) is secure against turning when tightening the upper nut (B).

This will prevent damage occurring within the motor.

Complete wiring as per diagram on page18.





**Fig 3: Motor Orientation**



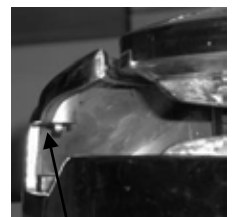
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### ***Pressure arm and spring replacement***

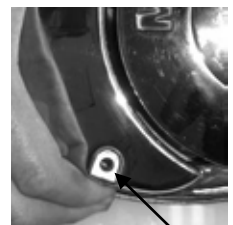
1. Using a 5mm hex key undo the capscrew on chaincover.  
Be very careful when releasing the capscrew as the pressure of the pressure arm spring may spring out.
2. Remove the spring and pressure arm.
3. Apply liberal amounts of grease on the spring and insert it into the pressure arm.
4. Ensure the lower spring pin sits in the groove of the pressure arm
5. With the spring in the pressure arm, align the spring pin into the groove located inside of the chaincover, and slide the pressure arm in.
6. Looking from above, align the pressure arm with the hole for the capscrew.
7. While holding the pressure arm in this position, assemble the capscrew.



Groove



Groove



Hole and spring alignment

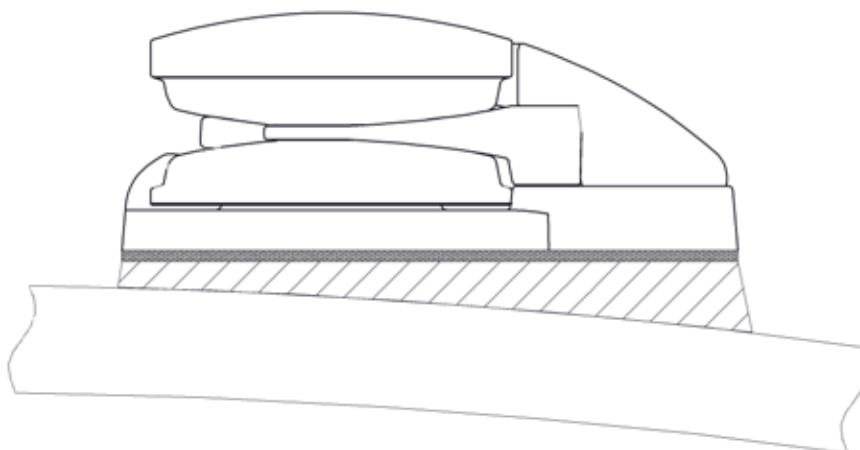


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### ***Installing on a sloping or curved deck***

Ensure that the windlass has the correct vertical alignment with the bow roller.

If necessary, use a mounting pad as shown below.



**Fig 4: Using a mounting pad on a curved deck**

### ***Important note to Boat Builders***

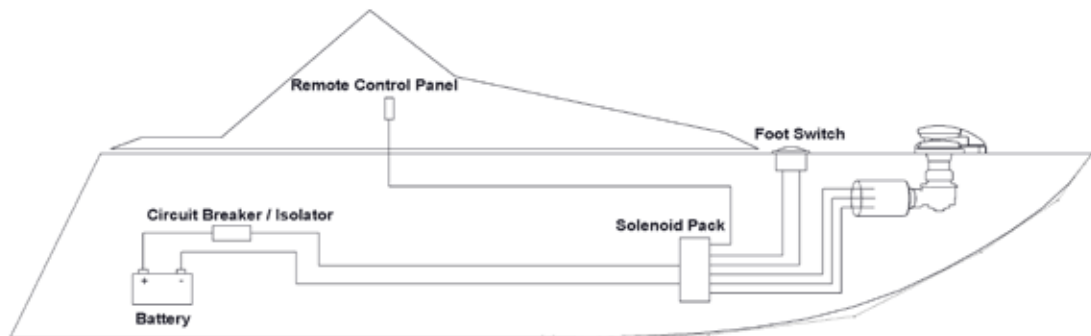
Experience has shown that on long ocean deliveries as deck cargo, sulphur (from the ships exhaust and condensation) settles and severely damages the chrome plating and stainless steel of the windlass by breaking down the protective chrome oxide film.

We recommend, after completing installation, you spray the top works of the windlass with CRC 3097 "long life" and wrap the windlass with plastic film and tape.

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# Wiring Instructions

## Electrical component layout



**Figure 5 - Electrical component layout**

### **Solenoid pack**

The solenoid pack should be located in a dry area (not in the rope/chain locker) close to the windlass.

### **Circuit breaker/isolator panel**

This unit provides limited protection for the motor and full protection for the power supply cables. It also provides the means to isolate the system from the battery.

Position the circuit breaker/isolator no further than 1.8 m (6 ft) away from the battery in an accessible and dry location.

This equipment or equivalent is mandatory to meet USCG requirements.

### **Remote control panel**

The remote control panel should be mounted in a convenient location (such as the bridge, helm or cockpit) so that the operator can see the windlass. Mount and seal the panel so that the terminals project into a dry area.

### **Optional footswitches**

For safe operation, the footswitches must be at least 500 mm (20") from the windlass.

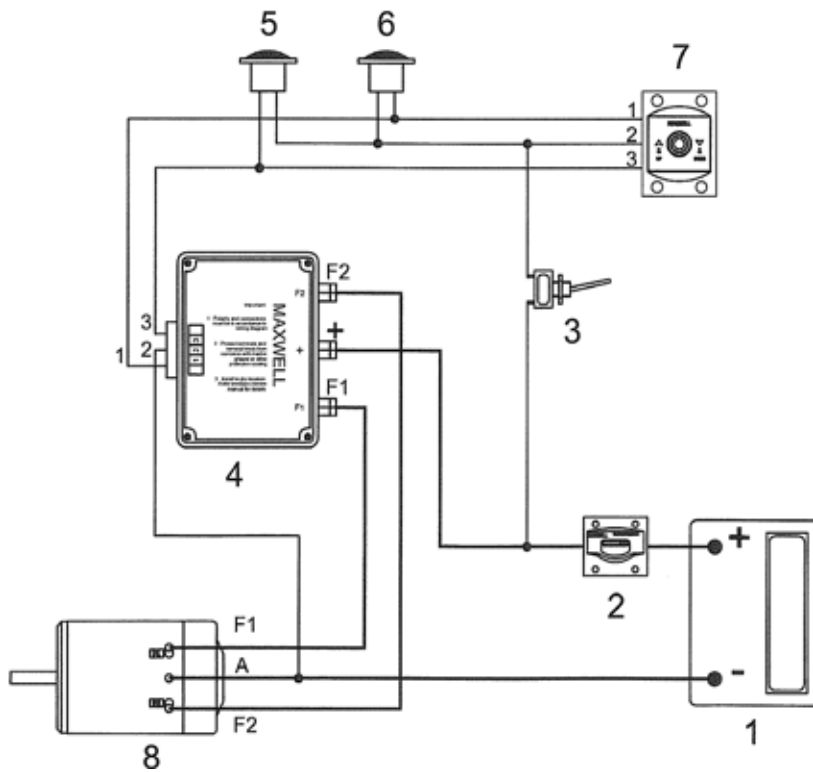
The below-deck part of the footswitch must be in a dry environment and installed per instructions.

The arrows on the footswitches should be arranged to indicate the direction of operation.

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**Wiring schematic**

- 1 Battery
- 2 Breaker/Isolator
- 3 Manually resettable breaker
- 4 Solenoid Pack
- 5 Up Foot Switch
- 6 Down Foot Switch
- 7 Remote control panel
- 8 Motor



**Series Wound Motor**

## Cable specifications

Cable lengths given are from the battery terminal to the terminal on the windlass motor via the solenoid box and back to the battery.

Where a portion of cable runs through the engine room, a size increase should be made as indicated.

After all connections have been made and system tested, seal terminals against moisture by spraying with: CRC2043 "Plasti-Coat", CRC3013 "Soft Seal" or CRC2049 "Clear Urethane".

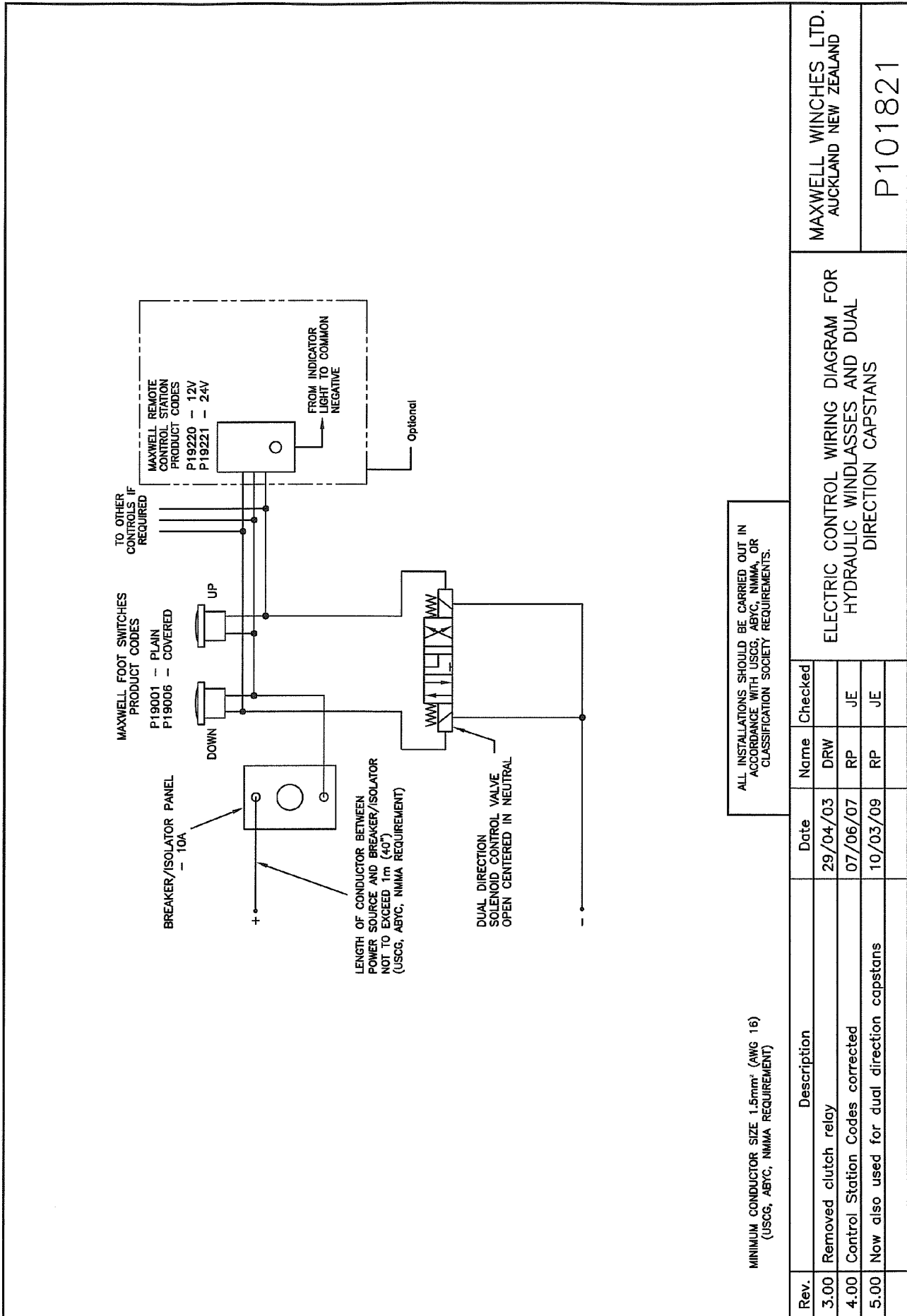
All installations must be carried out in accordance with USCG, ABYC, NMMA or other local electrical requirements.

Recommended conductor sizes allow for a maximum 10% voltage drop over the total length

<b>12v systems</b>				
<b>Total Cable Length From Battery to Winch Then Back to Battery</b>	<b>Cable Length</b>		<b>Engine room Size Correction*</b>	
	<b>mm<sup>2</sup></b>	<b>AWG</b>	<b>mm<sup>2</sup></b>	<b>AWG</b>
Up to 12 m (40')	26	3	42	1
12m – 16m (40' – 52')	34	2	68	00
16m – 20m (52' – 65')	42	1	-	-
20m – 26m (65' – 85')	54	0	-	-
26m – 33m (85' – 108')	68	00	-	-

<b>24v systems</b>				
<b>Total Cable Length From Battery to Winch Then Back to Battery</b>	<b>Cable Length</b>		<b>Engine room Size Correction*</b>	
	<b>mm<sup>2</sup></b>	<b>AWG</b>	<b>mm<sup>2</sup></b>	<b>AWG</b>
Up to 27 m (88')	14	6	6	5
27m – 43m (88' – 141')	22	4	42	1

\* Engine room size correction factor is based on the ambient temperature of the engine room to be 60° C.



MINIMUM CONDUCTOR SIZE 1.5mm<sup>2</sup> (AWG 16)  
(USCG, ABYC, NMMA REQUIREMENT)

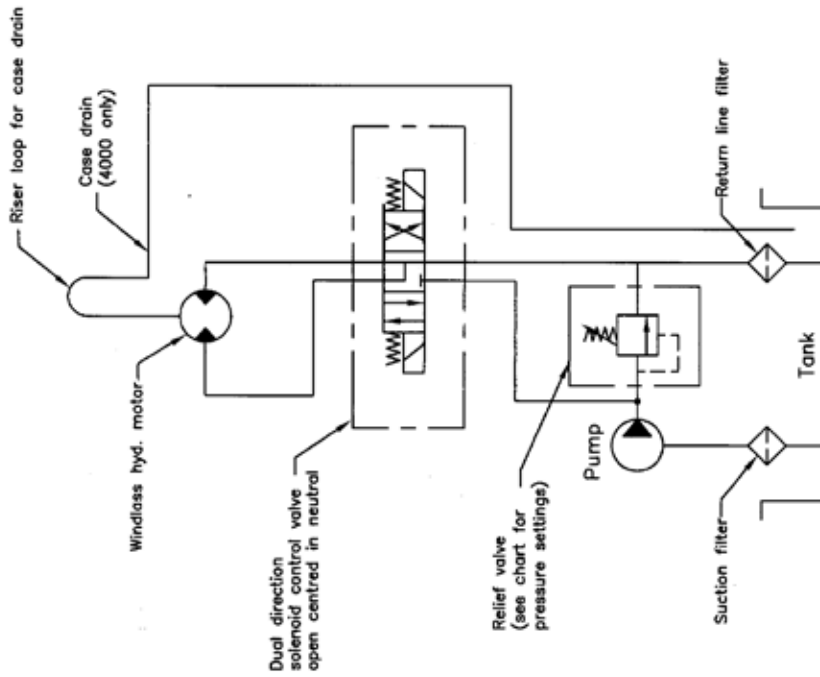
ALL INSTALLATIONS SHOULD BE CARRIED OUT IN ACCORDANCE WITH USCG, ABYC, NMMA OR CLASSIFICATION SOCIETY REQUIREMENTS.

Rev.	Description	Date	Name	Checked
3.00	Removed clutch relay	29/04/03	DRW	
4.00	Control Station Codes corrected	07/06/07	RP	JE
5.00	Now also used for dual direction capstans	10/03/09	RP	JE

ELECTRIC CONTROL WIRING DIAGRAM FOR  
HYDRAULIC WINDLASSES AND DUAL  
DIRECTION CAPSTANS

MAXWELL WINCHES LTD.  
AUCKLAND NEW ZEALAND

P101821



Series	Windlass		Recommended flow		Relief valve pressure setting	
	Motor	I/min	US gal/min	PSI	bar	
1000	GRESEN MGG2-16	20	5.3	1450	100	
1500	GRESEN MGG2-16	20	5.3	2000	138	
2200	GRESEN MGG2-30	36	9.5	1970	135	
2500	GRESEN MGG2-25	32	8.5	2000	138	
Liberty	GRESEN MGG2-25	32	8.5	2000	138	
RC12	GRESEN MGG2-25	40	11	2000	138	
3500	GRESEN MGG2-25	40	11	2000	138	
4000	Galtech 2SM-A-19	50	13.2	1500	103	

Chart refers to MAXWELL "standard build". Lower flow or lower pressure can be accommodated - refer to manual or consult MAXWELL.

Ensure that selected hydraulic components are adequate for recommended flow rate.

Case drain can only connect to return line if return line pressure is below 25 PSI. Otherwise case drain must connect to tank

Revision	Description	Date	Name
7.00	Removed pressure switch, Added liberty	29/04/03	DRW
8.00	Directional control valve changed back	22/10/04	JE
9.00	4000 motor changed from SP2224 to SP2250	20/03/07	JE
10.00	Riser loop for case drain added	08/10/09	RP/JE

HYDRAULIC SCHEMATIC  
WINDLASSES  
1000 - 4000

MAXWELL WINCHES LTD.  
AUCKLAND NEW ZEALAND

P101820

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# Operation

## Warnings

- When using the windlass, do not switch immediately from one direction to the other. Wait for the windlass to stop in one direction before applying power in the other direction.
- When the isolator switch is on, the windlass can be started from either the remote control panel or the optional footswitch. Always make sure the isolator switch is turned off when the system is not being used.
- The system provides protection for the motor from excessive current or short circuit. It does not provide protection against heat build up due to prolonged operation or excessive loads. Make sure you give the motor time to cool off; otherwise the warranty may be invalidated.

## Anchoring Tips

- Use a chart to ensure that there is sufficient depth of water and shelter in the location where you want to anchor.
- Slowly cruise around the anchorage and check the boats already at anchor.
- Allow adequate room. Remember that power vessels swing differently from yachts. Boats on rope lines swing around more than those on chains.
- Always anchor the boat from the bow.
- Slow down and keep the bow into the wind or current, whichever is stronger. When the boat comes to a complete stop, start to lower the anchor.
- After lowering the anchor, either drift back or slowly reverse while paying out the anchor line.
- The length of line you pay out should be at least three times the depth of water.
- Do not switch off the engine until you are sure the anchor is holding.
- Once anchored, secure the anchor line with a chain stopper etc. Do not anchor off the windlass.
- Use reference points, such as prominent landmarks, to check that the anchor is holding.
- Check the boat's position regularly in case the anchor drags.

## Lowering the Anchor

1. Run the boat's motor(s) at sufficient rpm to activate the charging system.
2. Insert the Clutch Handle into the clutch nut and tighten the clutches by turning the nut clockwise. Only tighten sufficiently so that you could easily pull up the anchor. **REMOVE THE HANDLE.** With the circuit breaker/isolator switch "On," press the toggle switch down on the remote up/down control panel to pay out the rope/chain (or press the "Down" footswitch if fitted).
3. Pay out sufficient rope/chain to set the anchor.
4. Watch as the rope/chain is being fed out. Any jam might cause damage to the windlass.



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## **Raising the Anchor**

1. Run the boat's motor(s) at sufficient rpm to activate the charging system.
2. Insert the Clutch Handle item into the clutch nut and tighten the clutches by turning the nut clockwise. Only tighten sufficiently so that you could easily pull up the anchor. **REMOVE THE HANDLE.** NOTE: Over tightening the clutches can cause damage to the motor when docking the anchor.
3. With the circuit breaker/isolator switch "On," operate the windlass by pressing the toggle switch up on the remote up/down control panel (or press the "Up" footswitch if fitted).
4. Motor up to the anchor while retrieving it. Do not use the windlass to pull the boat to the anchor.
5. To avoid damaging the bow fitting, retrieve the last metre (3') of rope/chain very slowly and take care when docking the anchor.

**Tip:** Mark the chain at suitable intervals with coloured line, or purchase and install a Maxwell AutoAnchor rope/chain counter.

### **Note**

To avoid applying the full force of the windlass to the bow fitting when docking the anchor, adjust the clutch nut so that there is some slippage when docking the anchor.

## **Free falling the Anchor**

1. Check that the rope/chain has unrestricted travel over the bow roller.
2. Standing well clear of the chain, insert the clutch Handle into the clutch nut and loosen by slowly turning the handle anticlockwise.
3. Tightening the clutch nut clockwise will control the rate of descent.

### **CAUTION**

*Do Not* allow the chainwheel to free wheel as this will allow dangerously high speeds to build up.

4. When the required amount of rope/chain is out, reset the clutch and remove the handle and stow.

## **Raising the Anchor Manually with Low Profile Windlass**

1. Tie off the rope/chain so that it does not pay out when the clutch is released. Use chainstopper or small pawl on deckplate turning it anticlockwise.
2. Pawl should be engaged with chainwheel preventing chainwheel from freefalling.
3. Insert the clutch handle into the clutch nut and turn anticlockwise to loosen the clutch.  
Remove cap, washer, screw and clutch nut using 5mm Allen key.



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4. Insert emergency handle on shaft ...



5. ....and using clutch handle tighten emergency handle on shaft.



6. Make sure pawl is not sandwiched on top of chainwheel



7. Ensure that emergency handle pawl is engaged with upper chainwheel.



8. Rotate clockwise to pull in the line.

Ensure that self locking mechanism is engaged with bottom chainwheel before you remove handle.

### ***Raising the Anchor Manually with Capstan Windlass***

1 Tie off the rope/chain so that it does not pay out when the clutch is released using chainstopper or small pawl on deckplate turning it anticlockwise.



2 Pawl should be engaged with chainwheel preventing chainwheel from freefalling.



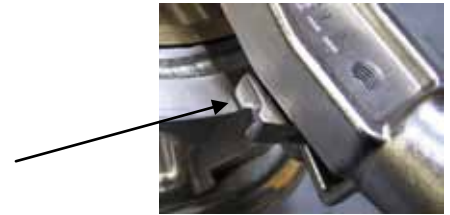
3 Insert the clutch handle into the clutch nut and turn anticlockwise to loosen the clutch.

Using 5mm Allen key remove cap, washer, screw, clutch nut, washer, key and capstan.

- 
4. Insert emergency handle on shaft.



5. Make sure pawl is not sandwiched on top of chainwheel



6. Ensure that emergency handle pawl is engaged with upper chainwheel. Replace clutch nut.



7. Rotate clockwise to pull in the line.  
Ensure that self locking mechanism is engaged with bottom chainwheel before you remove handle.

Above images are taken of the clockwise windlass.

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## ***Using the Capstan Drum for Rope Warping***

(Capstan models only)

The vertical capstan can be used independently from the chainwheel. This is ideal for handling mooring or docking lines, or retrieving a second anchor. For safety reasons, a footswitch is highly recommended.

To haul in using the warping drum:

1. Make sure the anchor is secured.
2. Insert the clutch handle into the clutch nut and turn anticlockwise until rotation stops. This will release the mechanism so that the chainwheel remains stationary while you operate the capstan.
3. Take three turns of rope around the drum in a clockwise direction.
4. While holding the tail of the rope, press the "Up" footswitch. The capstan will rotate clockwise.

### **Notes**

- To increase rate at which the rope is hauled in, increase the load on the tail.
- To decrease rate at which the rope is hauled in, decrease the load on the tail.
- Extra turns around the drum will increase the grip and require lower loads on the tail.

### **CAUTIONS**

- Make sure that you do not operate the footswitch accidentally while putting extra turns on the capstan.
- Keep your fingers clear of the capstan.
- Do not put so many turns on the drum that easing the load on the tail will not allow the rope to slip on the drum.

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# Maintenance

Carrying out the following simple maintenance procedures will provide years of trouble-free service from the windlass and will ensure that the warranty remains valid.

## Recommended lubricants

- Gearbox oil                      **Capacity:** 330 ml (10.14 fl oz)  
**Type:** SAE viscosity grade 90-110 (e.g., Shell Omala 320, Castrol Alpha SP320 or other approved equivalents).
- Main shaft, bearing, and clutch surfaces      Marine grease, Lithium or Lithium complex based (e.g. Duckhams Keenol or Castrol LMX).  
Do not use soap based greases.

## Service Intervals

	Every trip	3 monthly	12 monthly	3 yearly
Ensure clutches are adjusted correctly				
Strip and grease clutches				
Remove windlass components, grease with suitable lubricant				
Split gearbox from spacer tube, clean and re-grease mating faces				
Spray fresh water into drainage slot on gearbox, to breakdown and flush away any build up of salt/debris, that may have accumulated				
Service motor				
Remove gearbox, replace oil and seals				

## Topworks

The above-deck parts of the windlass should be washed down with fresh water regularly.

Every three months, remove the chainwheel. Refer to exploded diagram, on page 4, for disassembly.

Use the grease (specified above) and with the aid of a clean brush or non-fluffy rag, lightly grease the thread on the top end of the shaft and the bores and clutch faces of the parts removed.

Re-assemble in reverse order. **IMPORTANT** – care must be taken to ensure the key/keys are properly seated in the shaft.

Clean the Windlass with a cloth damp with Kerosene (paraffin). Spray preferably with CRC3097 "Long Life" or alternatively, CRC6-66 or WD40. Polish off with a clean non-fluffy cloth.

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## **Below Deck**

Every three months.

The under deck components should be sprayed, preferably with CRC 3097 "Long Life" or alternatively, CRC6-66 or WD40.

Particular attention should be paid to electric motors, including the motor terminals, footswitch terminals, terminals on the Reversing Solenoid plus the battery and isolator terminals.

## **Gearbox**

Every 3 months, check level of oil in gearbox using the sight glass. If necessary top up .

We recommend that the gearbox be removed and serviced by an authorised Maxwell service technician every three years. Visit our website ([www.maxwellmarine.com](http://www.maxwellmarine.com)) for a list of service centres and agents.

## **Motor**

For maximum protection, we recommend that the motor and electrical connections be sprayed periodically with CRC Soft Seal.

The motor can be removed from the gearbox by undoing two bolts and washers.

A replaceable roll pin is a press fit in the output end of the drive shaft.

Providing the windlass is properly installed with the Maxwell Overload Control Box and Breaker Panel, and the windlass is not abused, trouble free operation can be expected.

Remove the brush cover from the motor. Clean out accumulated carbon dust using a compressed air hose.

Check and replace brushes if worn.

Remove any rust build up from the casing and paint with a suitable coating

DO NOT wrap the motor with grease cloth as this prevents the cooling of the motor

Replacement brush sets are available – order:

Part No. P100807 – 12 Volt.

Part No. P100808 – 24 Volt.

## **Rope**

To reduce stiffening caused by salt build up, wash the rope regularly with fresh water. We recommend that the rope be soaked for a day in cool water and fabric conditioner once a year and rinsed thoroughly afterwards.

Regularly check the rope for wear. Swap end-for-end and re-splice if necessary.

Over time, 3-strand rope can develop twists that may impair the performance of the windlass. Remove the twists by laying out the rope in a straight run. A good quality swivel between the anchor and chain will minimise this problem

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# ***Trouble Shooting Guide***

## **Windlass does not operate when activated**

- Check that the breaker/isolator panel is "On."
- Check the connections to the following:
  - Remote up/down control panel and footswitches (if fitted)
  - Circuit breaker/isolator panel
  - Reversing solenoid
  - Windlass motor
- Check the battery condition by operating other electrical equipment.
- Check that the solenoid is working. You should hear the solenoid click when activated.

## **Motor is working but the chainwheel does not rotate**

- Check that the clutch nut is not too loose, causing slippage.
- Check that the chainwheel is not jammed with the chain. If necessary, reverse the windlass to free the jam.
- Check that the key between the shaft and the gearbox is installed.
- If the windlass does not rotate smoothly or there is excessive noise, the gearbox may be damaged.
- Check the motor drive pin by unbolting the motor from the gearbox.

## **Motor is working and chainwheel rotating, but the rope does not retrieve or pay out**

- Check that the rope and anchor are not fouled.
- The rope may be slipping due to twists or knots jammed in the rope/chain pipe. Reverse the windlass to clear the jam and try again.
- The rope may be slipping on a worn section. Cut out the worn section and rejoin the rope with a splice.
- The rope may be stiff due to salt and sun exposure. Wash with fresh cool water and fabric softener.
- There may be too much rope in the rope/chain locker. See "Required clearances" on page 11.
- The splice may be worn or frayed. Re-splice the rope to the chain.
- The rope or splice may be catching on the hole through the deck. Make sure the hole is free from rough edges.
- The chain may be twisting. Install a swivel between the chain and anchor.

# Reference Information

## Specifications

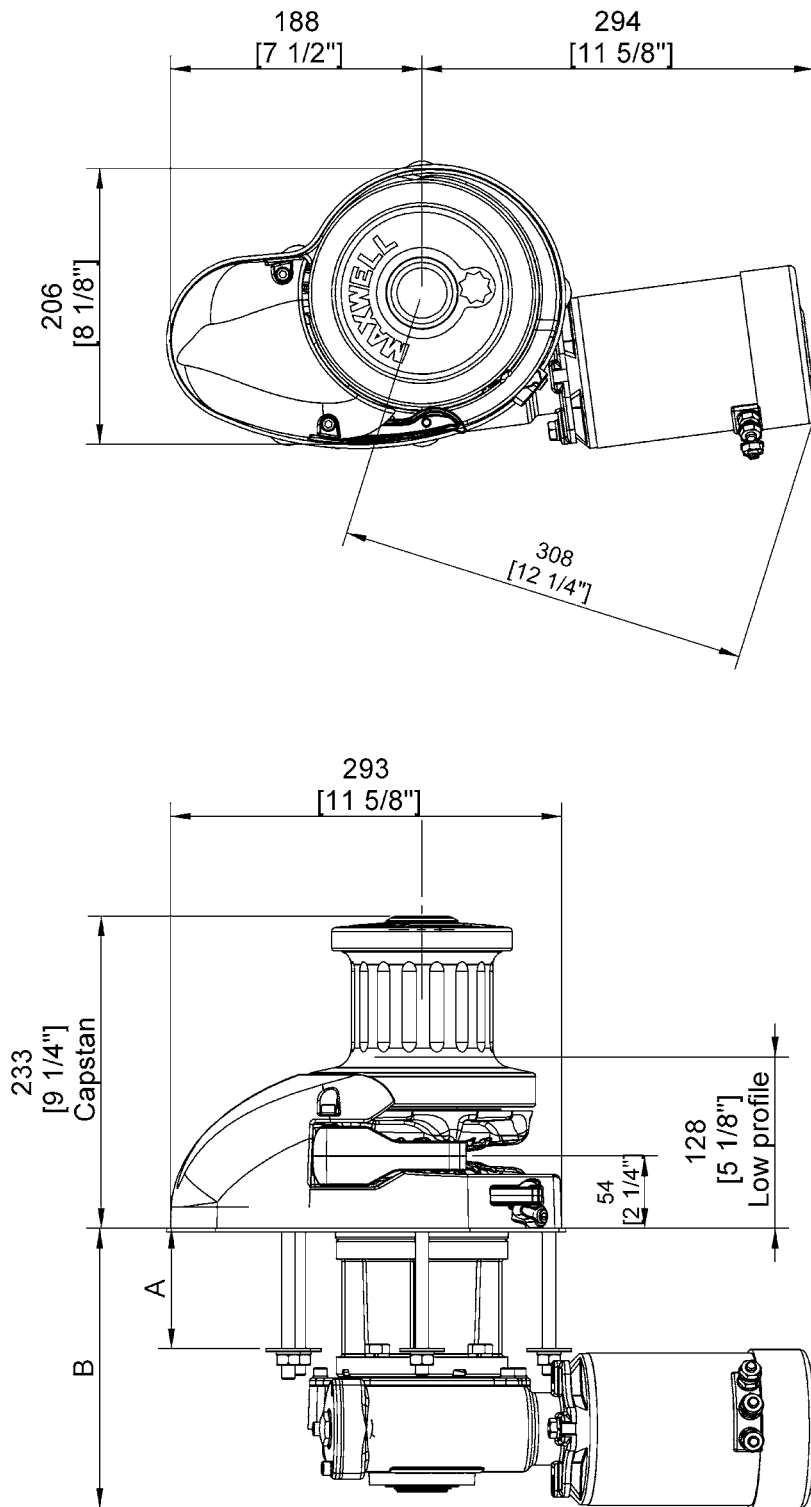
GENERAL		
Model	RC12 10mm -3/8"	RC12 12mm/13mm-1/2"
Max. Pull Rating	1134kg (2500 lbs)	1590kg (3500 lbs)
Chain Size	10mm (3/8") short link	12mm/13mm (1/2")short link
Rope Size	16mm-20mm (5/8"-3/4")	16mm-20mm (5/8"-3/4")
Chain Speed (Normal Working Load)	24m/min (79 ft/min)	15m/min (50 ft/min)
Rope Speed (Normal Working Load)	20 m/min (65 ft/min)	13m/min (43ft/min)

ELECTRIC DC DRIVE		
Power Supply (DC)	12V or 24V	12V or 24V
Motor Rating (Electric)	1200W	1200W
Gearbox Ratio	75:1	100:1
Net Weight	Low Profile	29kg (64lbs)
	Capstan	32kg (71lbs)
		29kg (64lbs)
		32kg (71lbs)

HYDRAULIC DRIVE		
Maximum hydraulic oil pressure	138bar (2000PSI)	
Recommended hydraulic oil flow	40 l/min (11 USgal/min)	
Maximum hydraulic oil flow	48 l/min (13 USgal/min)	
Motor port size (pressure and return)	7/8"-14 UNF	
Minimum size of oil supply/return lines	16mm (5/8")	
Net Weight	Low Profile	23kg (51lbs)
	Capstan	26kg (57lbs)
		23kg (51lbs)
		26kg (57lbs)

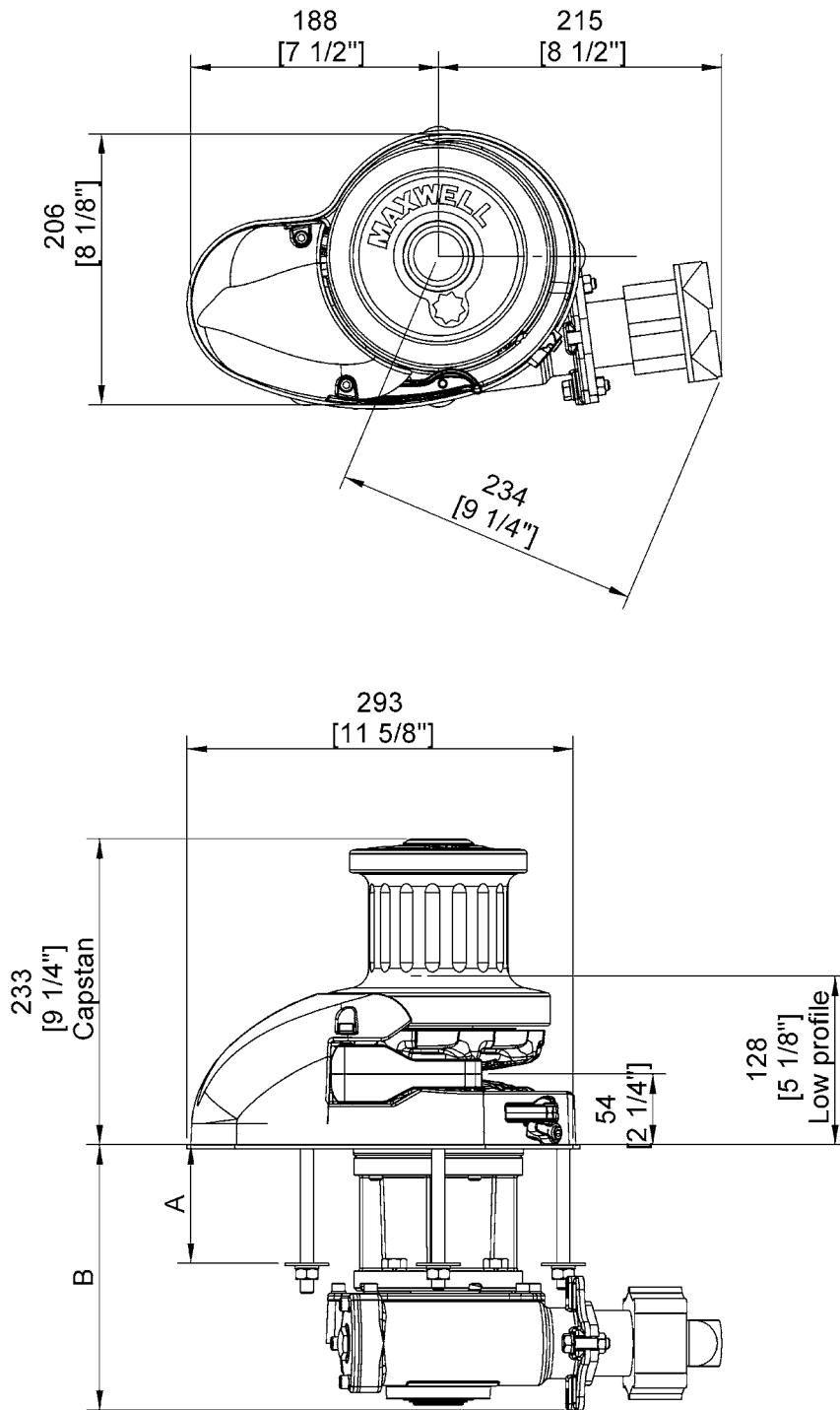


## Dimensions



	90TDC	190TDC
A	90 [3 5/8"]	190 [7 1/2"]
B	210 [8 3/8"]	317 [12 1/2"]

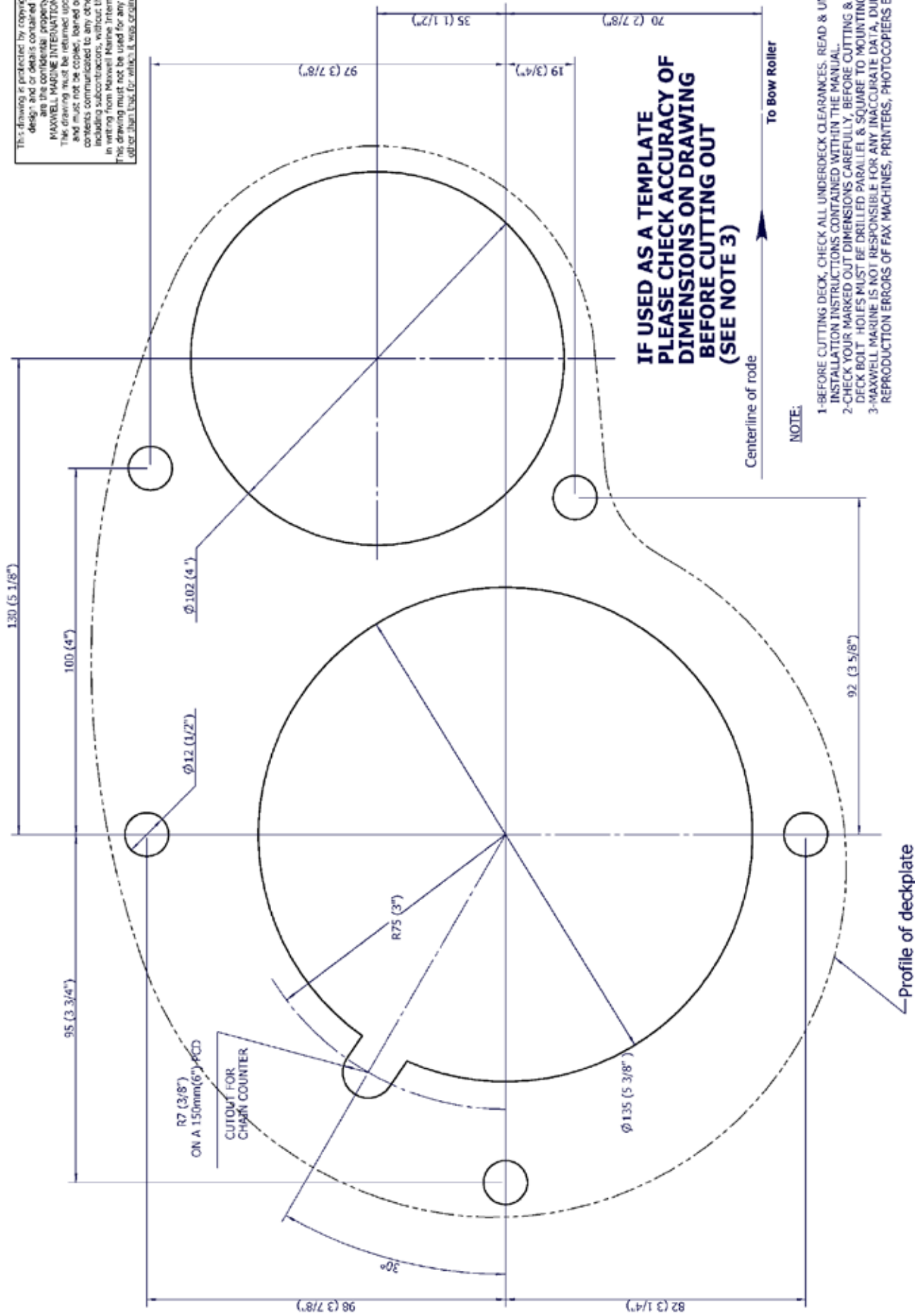
Figure 6: Dimensions - DC motors



	90TDC	190TDC
A	90 [3 5/8"]	190 [7 1/2"]
B	202 [8"]	302 [12"]

**Figure 7: Dimensions - Hyd motors**

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**IF USED AS A TEMPLATE  
PLEASE CHECK ACCURACY OF  
DIMENSIONS ON DRAWING  
BEFORE CUTTING OUT  
(SEE NOTE 3)**

Centerline of rode  
To Bow Roller

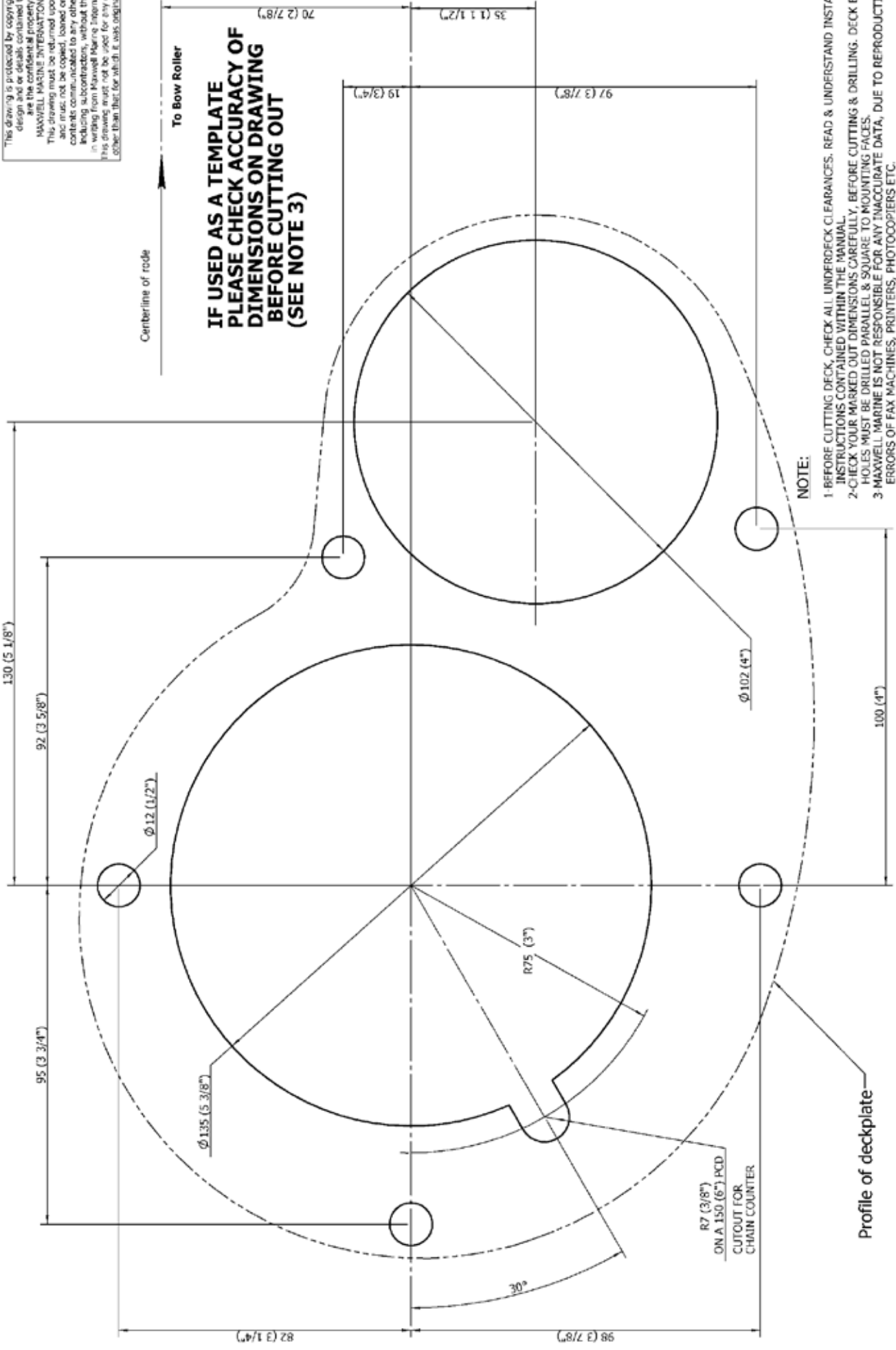
**NOTE:**

- 1-BEFORE CUTTING DECK, CHECK ALL UNDERDECK CLEARANCES, READ & UNDERSTAND INSTALLATION INSTRUCTIONS CONTAINED WITHIN THE MANUAL.
- 2-CHECK YOUR MARKED OUT DIMENSIONS CAREFULLY, BEFORE CUTTING & DRILLING. DECK BOLT HOLES MUST BE DRILLED PARALLEL & SQUARE TO MOUNTING FACES.
- 3-MAXWELL MARINE IS NOT RESPONSIBLE FOR ANY INACCURATE DATA, DUE TO REPRODUCTION ERRORS OF FAX MACHINES, PRINTERS, PHOTOCOPIERS ETC.

Rev.	Initial issue	Change	Made on	Des/Drawn	Checked
1.00			22/01/11	DH	GB

Description: <b>Deck Cutout RC12 CW</b>		Drawing No: <b>7516</b>	Revision No: <b>1.00</b>
Material:	Tolerances if none specified	Sheet Size	Sheet
	0 DECIMAL (X) ±0.5	A3	1 of 1
	1 DECIMAL (XX) ±0.2	16	
	2 DECIMAL (XXX) ±0.1	ALL ANGLES ±0.5°	
		SURFACE FINISH	

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Rev.	Initial issue	Change	Made on	Des/Drawn	Checked
1.00			13/01/12	DH	GB

Description: <b>Deck Cutout RC12 ACW</b>		Drawing No: <b>7547</b>	Revision No: <b>1.00</b>
Material:		Sheet Size: <b>A3</b>	Sheet: <b>1 of 1</b>
Tolerances if not specified:		ALL ANGLES: <b>±0.3°</b>	SURFACE FINISH: <b>16</b>
0 DECIMAL (X) ±0.5			
1 DECIMAL (XX) ±0.2			
2 DECIMAL (XXX) ±0.1			

# LIMITED WARRANTY

**Warranty:** Maxwell Marine International Ltd provides a three year limited warranty on all windlasses for pleasure boat usage, and a one year limited warranty for those systems used on commercial or charter vessels. Warranty, service and parts are available around the world. Contact your nearest Maxwell office for a complete list of service centres and distributors.

**This warranty is subject to the following conditions and limitations:**

- This Warranty will be null and void if
  - there is any neglect or failure to properly maintain and service the products.
  - the products are serviced, repaired or maintained improperly or by unauthorised persons.
  - loss or damage is attributed to any act, matter or omission beyond the reasonable control of Maxwell or the purchaser.
- Maxwell's liability shall be limited to repair or replacement (as determined by Maxwell) of the goods or parts defective in materials or workmanship.
- Determination of the suitability of the product and the materials for the use contemplated by the buyer is the sole responsibility of the buyer, and Maxwell shall have no responsibility in connection with such suitability.
- Maxwell shall not be liable for any loss, damages, harm or claim attributed to:
  - use of the products in applications for which the products are not intended.
  - corrosion, wear and tear or improper installation.
  - improper use of the product.
- This Warranty applies to the original purchaser of the products only. The benefits of the Warranty are not transferable to subsequent purchasers.
- Maxwell shall not be responsible for shipping charges or installation labour associated with any warranty claims.
- There are no warranties of merchantability, fitness for purpose, or any other kind, express or implied, and none shall be implied by law. If any such warranties are nonetheless implied by law for the benefit of the customer they shall be limited to a period of three years from the original purchase by the user.
- Maxwell shall not be liable for consequential damages to any vessel, equipment, or other property or persons due to use or installation of Maxwell equipment.
- This Warranty sets out your specific legal rights allowed by Maxwell, these may be varied by the laws of different countries. In addition, the purchaser may also have other legal rights which vary from country to country.
- To make a claim under this Warranty, contact your nearest Maxwell Marine office or distributor. Proof of purchase and authorisation from Maxwell will be required prior to any repairs being attempted.



To be eligible for warranty protection, please either complete the form below at the time of purchase and return it to the appropriate address above, or fill out the electronic Warranty Form on our website, [www.maxwellmarine.com](http://www.maxwellmarine.com)

### Purchaser

Name:

Address:

Telephone:

Facsimile

### Supplier / Dealer

Name:

Address:

Telephone:

Facsimile

### Windlass Model

### Serial Number

Date of Purchase

Boat Type

Windlasses Supplied

Name

L.O.A.

With boat

Fitted by boat yard/dealer

Purchased from dealer/chandler

Built by





