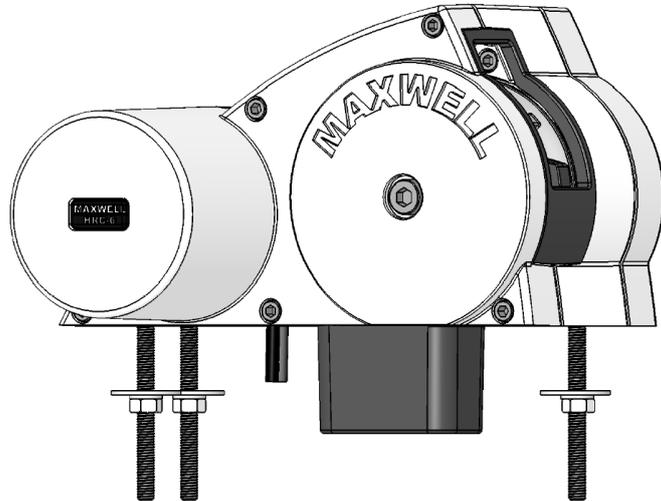


HRC 6 & 8

HORIZONTAL ROPE/CHAIN
ANCHOR WINDLASS



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Table of Contents

Preliminary Information	2
Rope and Chain Selection Guide	3
Parts of the Windlass	4
Installation	6
Installation Instructions	7
Wiring Instructions (HRC Fitted with Solenoid Pack)	9
HRC wiring schematic (HRC Fitted with Solenoid Pack)	10
Wiring Instructions (HRC Fitted with Optional Heavy Duty Switch).....	12
HRC wiring schematic (HRC Fitted with Optional Heavy Duty Switch)	13
Rope Splicing Notes	14
Operation	15
Maintenance	16
Trouble Shooting Guide	17
Reference Information	18
Ordering Spare Parts	18
Dimensions and Specifications	19

Additional Resources

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

Warranty Form

Deck Drilling Template

Contact Details (on back cover)

Preliminary Information

Introduction

Congratulations on your purchase of a Maxwell Horizontal Rope/Chain (HRC) windlass. Please read these instructions carefully to enable you to correctly install and maintain the windlass, ensuring years of trouble-free operation.

Note

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

Components

In addition to this instruction manual, the following components are included in the HRC box:

- Windlass
- Circuit breaker/isolator
- Up/down remote control panel
- Dual direction control system
- Emergency free fall activation lever
- Mounting kit and spare pressure arm

Important Safety Information

- Make sure you have the correctly specified windlass before beginning installation. Personal safety may depend on it. The windlass must have a rating of at least three times the combined weight of the anchor and chain.
- Correct fit of the chain to the chainwheel is essential. See "Rope and Chain Selection Guide" on page 3.
- 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 bollard. 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 rode to a secure fixture in the chain locker.
- Do NOT use the windlass to haul a person up a mast.

Rope and Chain Selection Guide

Use the following table to select the correct rope and chain to suit the windlass.

Chain Type \ Rope Type	12mm 3 Strand 12mm 8-plait 1/2" 3-strand 1/2" 8-plait	14mm 3 Strand 14mm 8-plait 9/16" 3-strand 9/16" 8-plait
6mm DIN 766 6mm PWB grade L 6mm Bradlink SGC 6mm Maggi Cantene 6mm Beaver	HRC6	NO
1/4" Acco G40 1/4" Acco BBB 7mm DIN 766 7mm Maggi Cantene	HRC6	NO
8mm DIN 766 8mm PWB grade L 8mm Bradlink 8mm Beaver	NO	HRC8
5/16" Acco G40 SL 5/16" Acco BBB 8mm Serafini	NO	HRC8

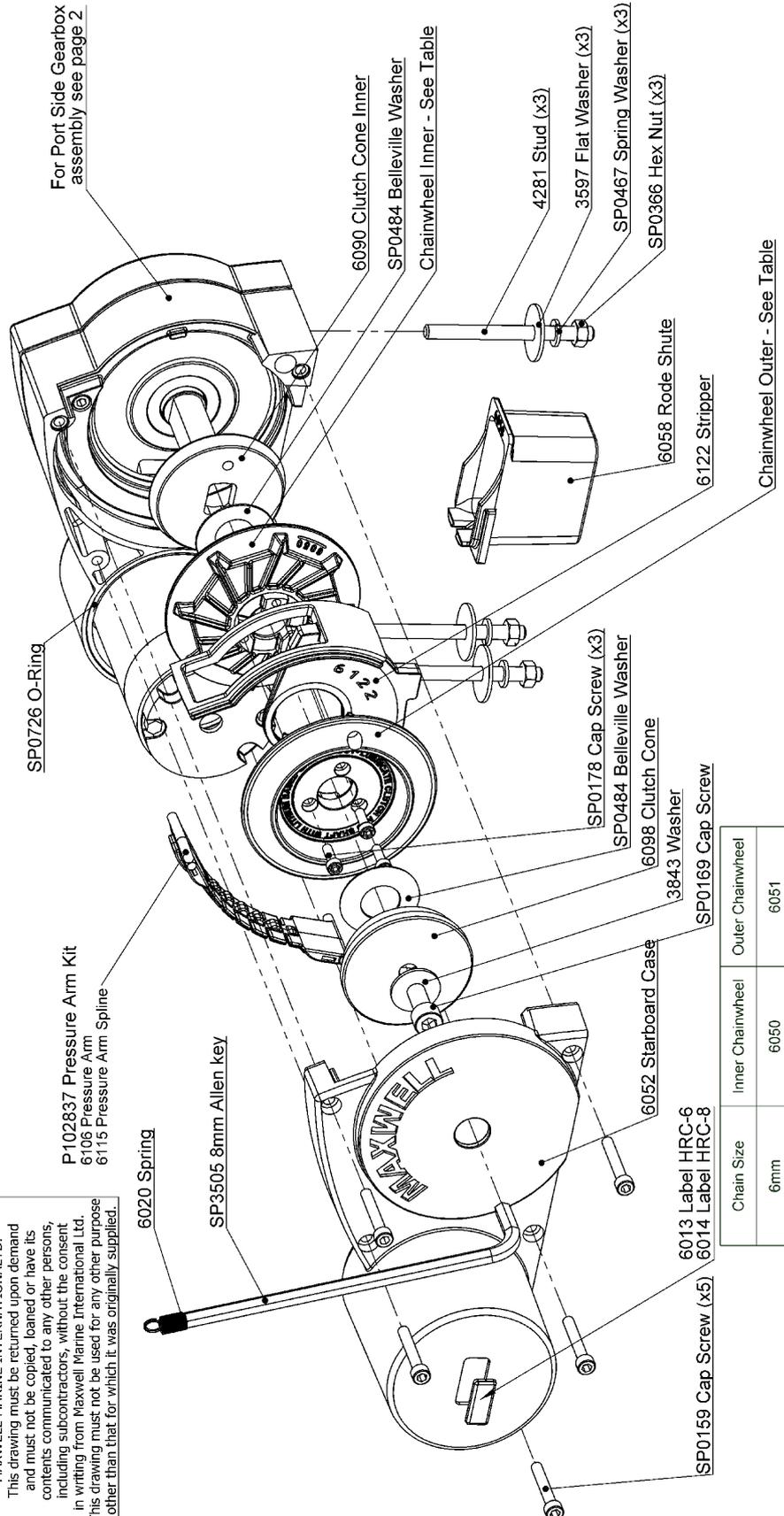
Anchor and chain considerations

- 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 rode from twisting as the anchor is raised or lowered.
- To prevent damage caused by chain build up on deck, the bow roller must allow the anchor to descend immediately when the anchor is deployed.

Parts of the Windlass

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Chain Size	Inner Chainwheel	Outer Chainwheel
6mm	6050	6051
7mm & 1/4"	6062	6063
8mm & 5/16"	6109	6110

Description	Assy No.
HRC-6 6mm 12v	P102801
HRC-6 7mm & 1/4" 12v	P102802
HRC-6 6mm 24V	P102803
HRC-6 7mm & 1/4" 24v	P102804
HRC-8 8mm & 5/16" 12v	P102807
HRC-8 8mm & 5/16" 24v	P102811

Rev.	Change	Made on	Des/Dwn	Checked
3.00	Redrawn	15/08/08	GB	DB

File location: \\Product Data\assemblies\P102800-P102899\P102800_3.00_pvw_HRC_exploved views

Sheet: 1 of 2

HRC - Assembly Exploded Views

P102800

Installation

General Requirements

- Identify any bulkheads, wiring or piping under the deck. This may determine where the windlass can be positioned.
- If footswitches are to be fitted, position them for easy and safe operation while using 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.

Required clearances

Position the windlass so that the anchor rope/chain falls into the deepest and widest section of the chain locker and with the clearances shown below.

At least 200 mm (8") clearance under the deck when all the rode is in the locker.

At least 250 mm (10") from the rode chute to the rear bulkhead of the locker.

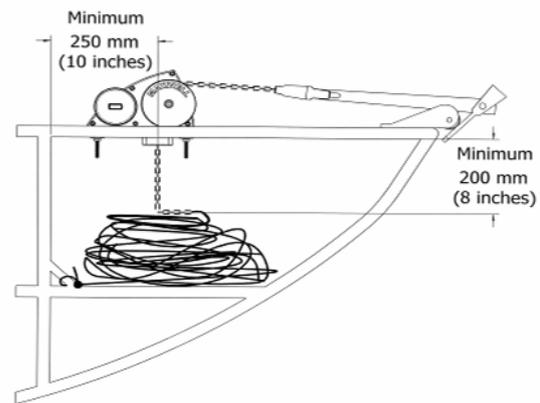


Figure 1 - Clearances in the chain locker

Aligning the windlass with the bow roller

- The windlass must be positioned to allow the rope/chain to have a clear run to the bow roller.
- To prevent possible snags, make sure that the area of deck between the windlass and the bow roller is clear of obstructions.
- 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.

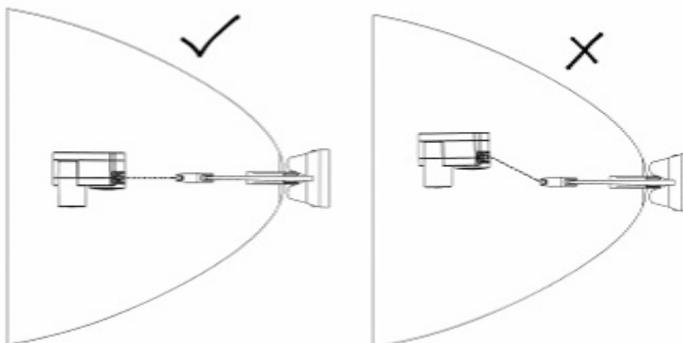


Figure 2 - Aligning the windlass with the bow roller

Deck thickness

It is imperative that the deck and under-deck pad are of sufficient thickness and structural strength to support the loads imposed on or by the windlass. The under-deck pad should spread the load as widely as possible. If possible, use a bulkhead or cross member to provide stiffening.

Preventing electrolysis

For aluminium boats, it is essential that the windlass 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 fibre washers (not supplied).

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

Installation Instructions

1. Tape the template to the deck as shown, align with the bow roller and mark the hole positions.

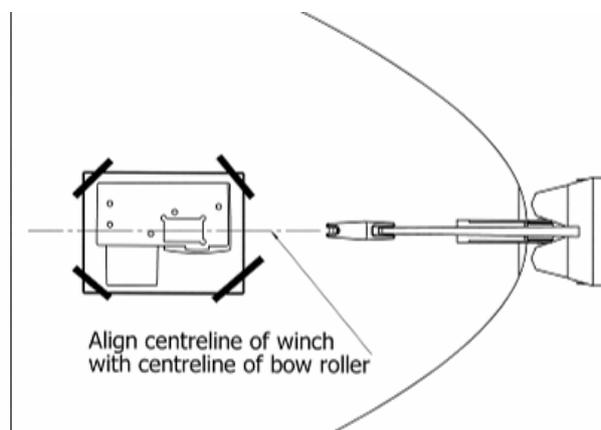


Fig 3 - Aligning the template

2. Drill holes through template for fixing bolts, corners of rode chute and wiring
3. With a jig saw, or similar, create opening in deck for rode chute.
4. On wooden and cored decks, seal the edges of the rode chute hole with resin or paint.

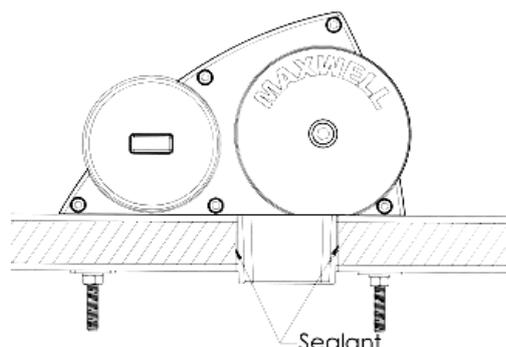


Figure 4 - Sealing the deck

-
5. Screw the fixing studs into the base of the windlass. Fasten the windlass to the deck using the nuts and washers supplied. Do not overtighten the nuts.

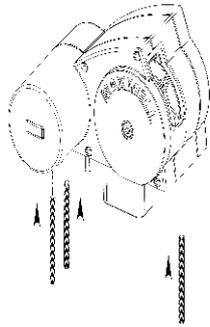


Figure 5 - Attaching the fixing studs

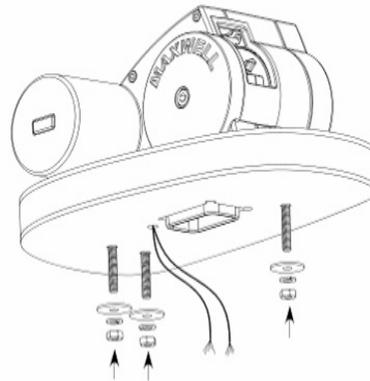


Figure 6 - Bolting to the deck

Installing on a sloping or curved deck

If necessary, use a mounting pad as shown below. Rope and chain should have clear, unobstructed flow to windlass from bow roller.

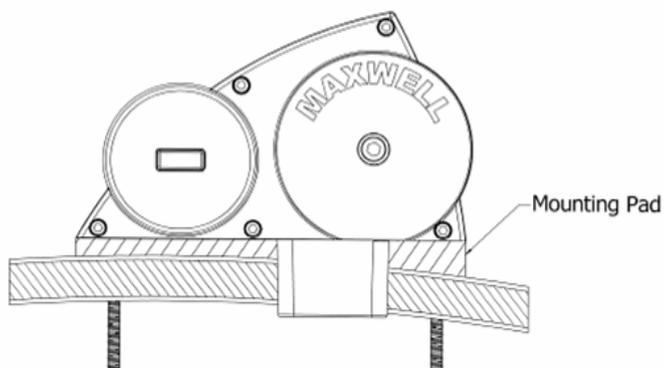


Figure 7 - Using a mounting pad on a curved deck

If the winch is mounted in a position where the pull of the rode can be upwards relative to the winch, then a roller should be fitted to direct the rode downwards. This will allow the chainwheel to get the maximum amount of grip.

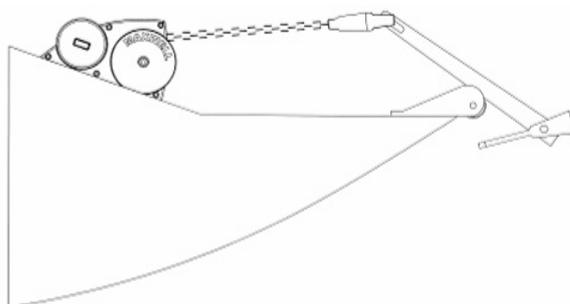


Figure 8 - Pull of rode is upwards

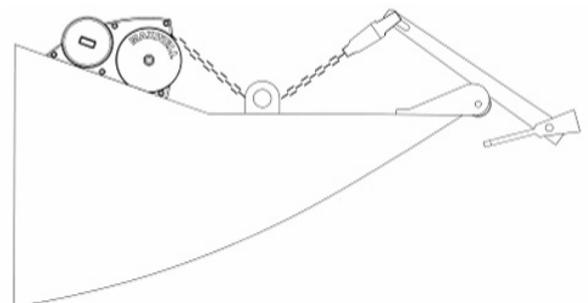


Figure 9 - Roller fitted to keep rode pull downwards

Wiring Instructions (HRC Fitted with Solenoid Pack)

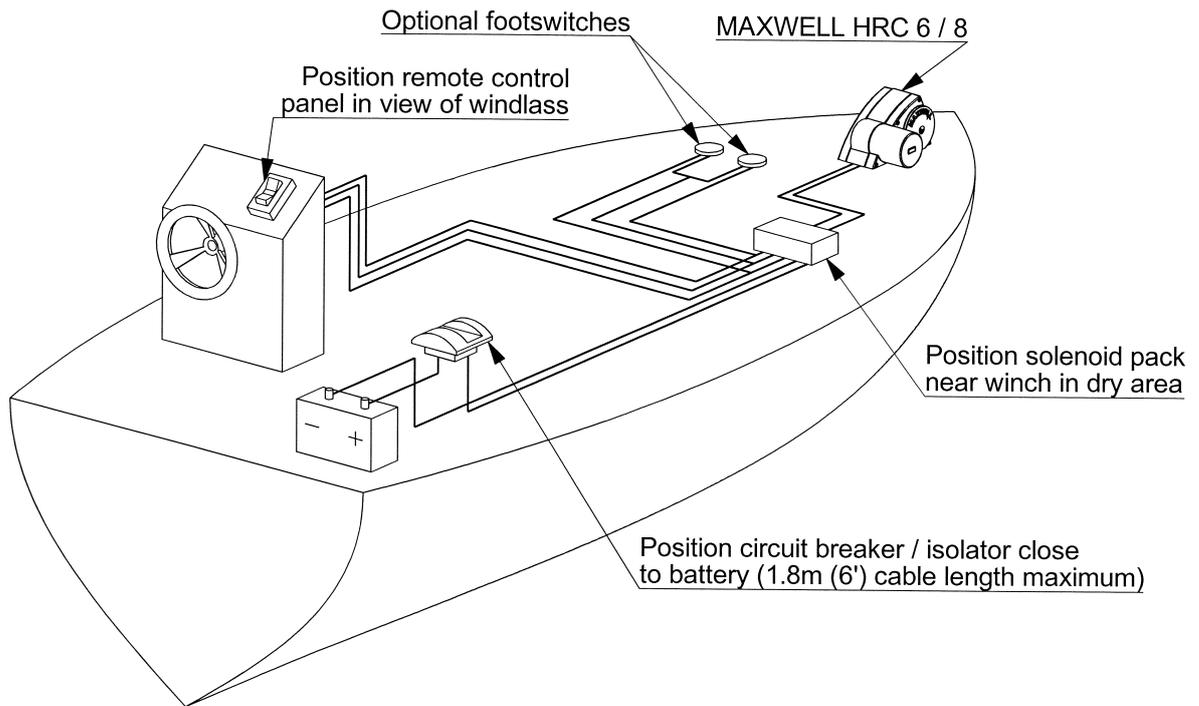


Figure 9 - Electrical component layout

Solenoid pack

The solenoid pack should be located in a dry area (not in the 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') away from the battery in an accessible and dry location.

Remote control panel

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

Optional footswitches

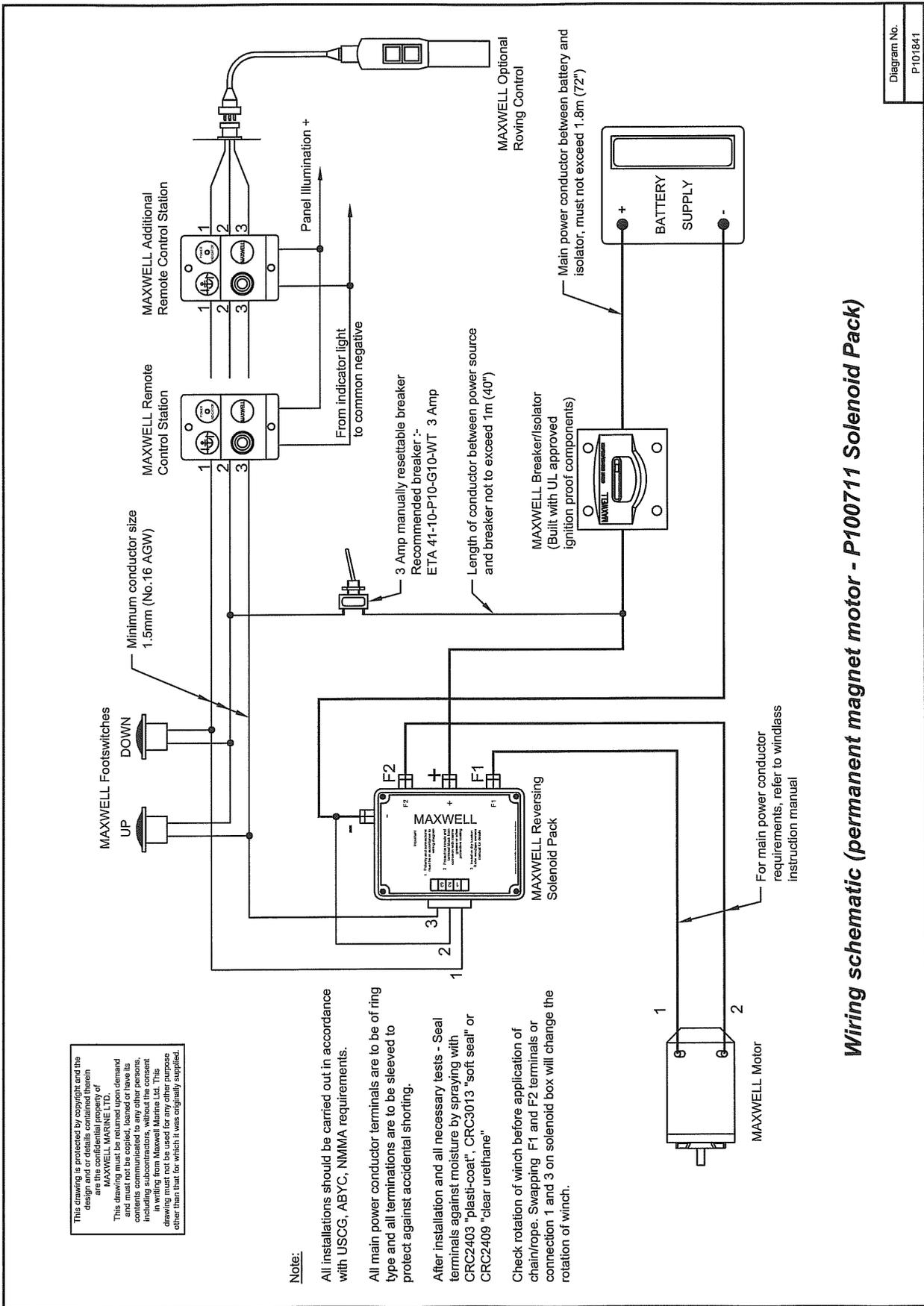
For safe operation, the footswitches must be at least 500 mm (20") from the windlass.

The below-deck part of the footswitch must be in a dry environment and the breather holes must be kept clear.

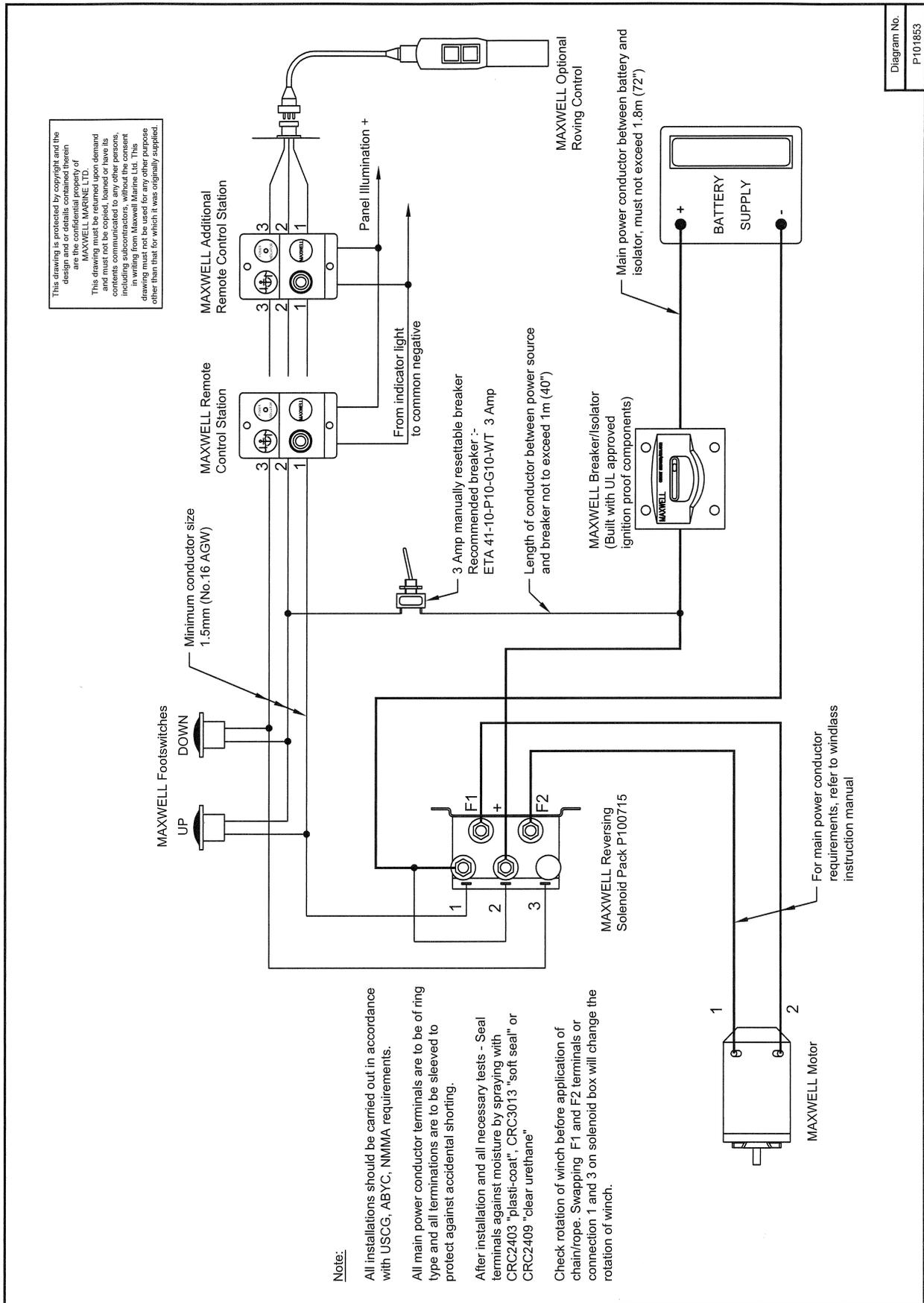
The arrows on the footswitches should be arranged to indicate the direction of operation.

Total Cable Length From Battery To Winch Then Back To Battery	HRC 6, 12V		HRC 8, 12V		HRC 8, 24V	
	mm ²	AWG	mm ²	AWG	mm ²	AWG
Up to 10m (33')	6.5	9	16	5	6.5	9
10m – 17m (33' – 56')	10.5	7	26	3	6.5	9
17m – 27m (56' – 88')	16	5	42	1	10.5	7

HRC wiring schematic (HRC Fitted with P100711 Solenoid Pack)



HRC wiring schematic (HRC Fitted with P100715 / P11121 Solenoid Pack)



Wiring Instructions (HRC Fitted with Optional Heavy Duty Switch)

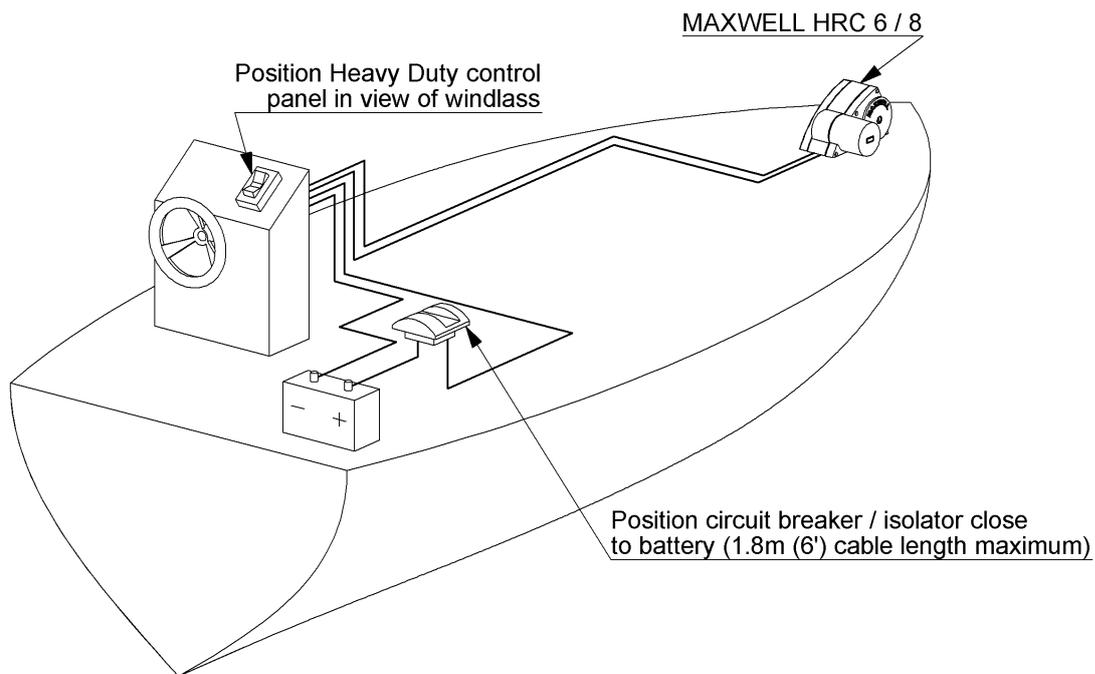


Figure 10 - Electrical component layout

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') away from the battery in an accessible and dry location.

Heavy Duty control panel

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

Total Cable Length From Battery To Winch Then Back To Battery	HRC 6, 12V		HRC 8, 12V		HRC 8, 24V	
	mm ²	AWG	mm ²	AWG	mm ²	AWG
Up to 10m (33')	6.5	9	16	5	6.5	9
10m – 17m (33' – 56')	10.5	7	26	3	6.5	9
17m – 27m (56' – 88')	16	5	42	1	10.5	7

HRC wiring schematic (HRC Fitted with Optional Heavy Duty Switch)

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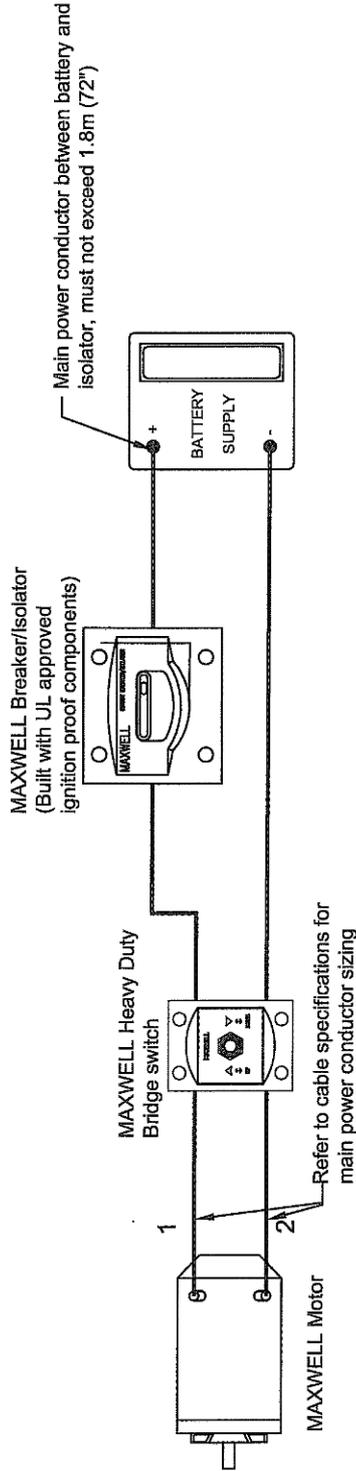
Note:

All installations should be carried out in accordance with USCG, ABYC, NMMA requirements.

All main power conductor terminals are to be of ring type and all terminations are to be sleeved to protect against accidental shorting.

After installation and all necessary tests - Seal terminals against moisture by spraying with CRC2403 "plasticoat", CRC3013 "soft seal" or CRC2409 "clear urethane"

Check rotation of winch before application of chain/rope. Swapping F1 and F2 terminals or connection 1 and 3 on solenoid box will change the rotation of winch.



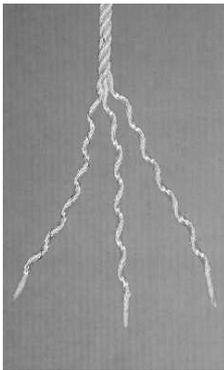
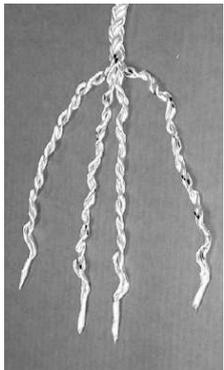
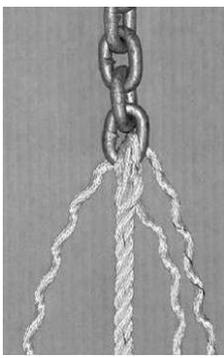
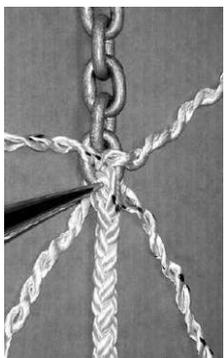
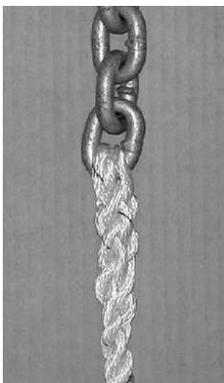
Revision	Change	Made On	Des/Drawn	Des/Drawn	BVT/Dwg No.	Description	Assy No.
1.00	Initial Issue	22/11/2007	RP	GB	N/A	Wiring Diagram - Typical For Permanent Magnet Motors with Heavy Duty Bridge Switch	P-101688
					BVT View		
					N/A		
					Sheet Size		
					A4		
					Scale		
					NTS		
					Sheet 1 of 1		

Rope Splicing Notes

WARNING

It is vitally important that the splicing of rope to chain be performed properly to ensure the service longevity of the windlass and to maintain the safety of the vessel and crew.

The following instructions are for illustration only and are for people who are experienced with splicing. If you are not experienced with the use of a marlinspike or fid, obtain help from an experienced person, or contact your local yacht rigger to make sure the splicing is carried out correctly.

3-strand rope	8-plait rope
<p>1. Lay out the rope strands as shown and tape the ends.</p> 	<p>1. Lay out the rope strands as shown and tape the ends.</p> 
<p>2. Pass the outer strands down through the link. Pass the inner strand up through the link and tuck back under itself.</p> 	<p>2. Pass the top 2 pairs of strands down through the link. Pass the bottom 2 pairs of strands up through the link.</p> 
<p>3. Once finished splicing, cut and seal the ends of the strands with a hot knife.</p> 	<p>3. Once finished splicing, cut and seal the ends of the strands with a hot knife.</p> 

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 operated from either the remote control panel or the optional footswitches. 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.

Loading the Rope/Chain

1. Remove the starboard side case and the pressure arm.
2. Lay the end of the rope between the chainwheel halves and feed through the rode chute into the locker.
3. Fasten the end of the rode securely to an eyebolt in the chain locker.
4. Relocate the pressure arm and refasten the starboard case.

Lowering the Anchor

1. Run the boat's motor(s) at sufficient rpm to activate the charging system.
2. With the isolator switch "On," press the toggle switch down to pay out the rope/chain (or press the "Down" footswitch if fitted).
3. Watch as the rope/chain is being fed out. Any jam might cause damage to the windlass. Pay out sufficient rope/chain to set the anchor.

Raising the Anchor

1. Run the boat's motor(s) at sufficient rpm to activate the charging system.
2. With the isolator switch "On," operate the windlass by pressing the toggle switch up (or press the "Up" footswitch if fitted).
3. Motor to the anchor while retrieving it. Do not use the windlass to pull the boat to the anchor.
4. To avoid damaging the bow fitting, retrieve the last metre (36") of rode very slowly and take care when docking the anchor. To avoid applying the full force of the windlass to the bow fitting when docking the anchor, adjust the clutch with the emergency freefall activation lever so that there is some slippage when docking the anchor.

Tip: Mark the chain at suitable intervals with coloured line. An alternative, for automatic anchor docking is to fit the Maxwell Autoanchor 500 RC.

Free falling the Anchor

1. Check that the rope/chain has unrestricted travel over the bow roller.
2. Standing well clear of the rope/chain, insert the emergency free fall activation lever into the cap screw in the centre of the chainwheel and loosen by slowly turning the handle anticlockwise thus releasing the clutch.
3. Tightening the clutch clockwise will control the rate of descent. When the anchor is deployed retighten the clutch with the emergency freefall activation lever.

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.

Service Intervals

	Every trip	3 monthly	12 monthly	3 yearly
Ensure clutch is adjusted correctly *				
Strip and grease clutch				
Service motor				
Service gearbox, replace grease and seals				

* Correct clutch adjustment should allow the chainwheel to slip slightly when docking the anchor, but should be tight enough to exert sufficient pull on rode to retrieve anchor.

Recommended lubricants

For the gearbox, main shaft and clutch surfaces:

Lithium or Lithium complex based waterproof marine grease. E.g. Duckhams Keenol or Castrol LMX.

Do not use soap or mineral based greases.

Topworks

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

Gearbox

The gearbox is a sealed unit. We recommend that the gearbox be serviced by an authorised Maxwell service technician every three years. Visit our website (www.maxwellmarine.com) for a list of service centres and agents.

Motor

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

The motor should be serviced by a qualified electrician annually (or more frequently in commercial applications).

Rope

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

Trouble Shooting Guide

Windlass does not operate when activated

- Check that the circuit breaker/isolator panel is "On."
- Check the connections to the following:
 - Toggle/footswitches
 - Circuit breaker/isolator
 - Reversing solenoid unit
 - 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 is not too loose, causing slippage. If clutch is loose, insert emergency freefall activation lever into cap screw at centre of chainwheel and tighten by rotating clockwise.
- Check that the chainwheel is not jammed with rope or chain. If necessary, reverse the windlass to free the jam.
- If the windlass does not rotate smoothly or there is excessive noise, the gearbox may be damaged.

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

- Check that the size and type of rope is correct for the windlass model. See "Rope and Chain Selection Guide" on page 3.
- Check that the rope and anchor are not fouled.
- The rope may be slipping due to twists or knots jammed in the rode chute. Reverse the windlass to clear the jam and try again.
- The rope may be slipping due to a broken pressure arm, replace pressure arm if necessary, When installing pressure arm ensure coloured, fibreglass spine is on the outside, i.e. away from the rode.
- 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 chain locker. See "Required clearances" on page 6.
- The splice may be worn or frayed. Re-splice the rope to the chain. See "Rope Splicing Notes" on page 10.
- 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

Ordering Spare Parts

When ordering spare parts, please quote the following details. Refer pages 4 and 5 for part numbers.

Model

HRC 6 HRC 8

Serial number (located inside of the starboard case and also bottom of the main case)

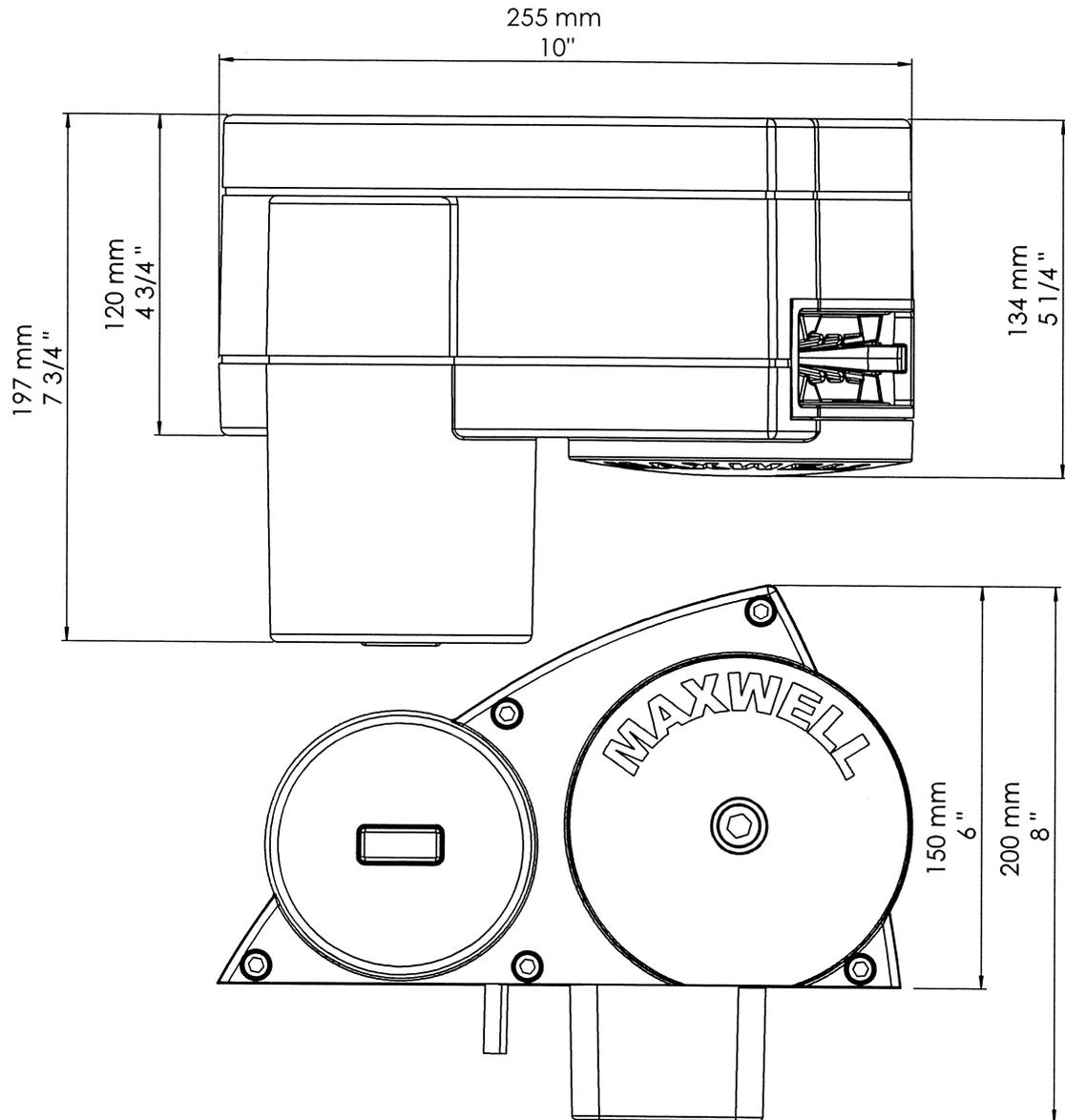
Power supply

12V 24V

Part details

Part number	Description	Quantity
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<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
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Dimensions and Specifications



	HRC 6	HRC 8
Maximum pull	600 lb (270 kg)	900 lb (405 kg)
Working load	200 lb (90 kg)	300 lb (135 kg)
Chain speed (normal work)	81 ft/min (25 m/min)	108 ft/min (33 m/min)
Power supply	DC 12 V	DC 12/24 V
Motor rating	600 W	600 W
Chain size	6 mm 7 mm 1/4"	8 mm 5/16"
Net weight	24 lb (11 kg)	25 lb (11.5 kg)

LIMITED WARRANTY

Warranty: Maxwell Marine International Ltd provides a three year limited warranty on the 300/500 VC windlasses used for pleasure boat usage and a one year limited warranty when 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:

1. This Warranty will be null and void if
 - (a) there is any neglect or failure to properly maintain and service the products.
 - (b) the products are serviced, repaired or maintained improperly or by unauthorised persons.
 - (c) loss or damage is attributed to any act, matter or omission beyond the reasonable control of Maxwell or the purchaser.
2. Maxwell's liability shall be limited to repair or replacement (as determined by Maxwell) of the goods or parts defective in materials or workmanship.
3. 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.
4. Maxwell shall not be liable for any loss, damages, harm or claim attributed to:
 - (a) use of the products in applications for which the products are not intended.
 - (b) corrosion, wear and tear or improper installation.
 - (c) improper use of the product.
5. This Warranty applies to the original purchaser of the products only. The benefits of the Warranty are not transferable to subsequent purchasers.
6. Maxwell shall not be responsible for shipping charges or installation labour associated with any warranty claims.
7. 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.
8. 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.
9. 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.
10. 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 retailer or supplier of the goods, or fill out the electronic warranty form on our website, www.maxwellmarine.com

Purchaser

Name:	
Telephone:	Facsimile

Address:

Supplier / Dealer

Name:	
Telephone:	Facsimile

Address:

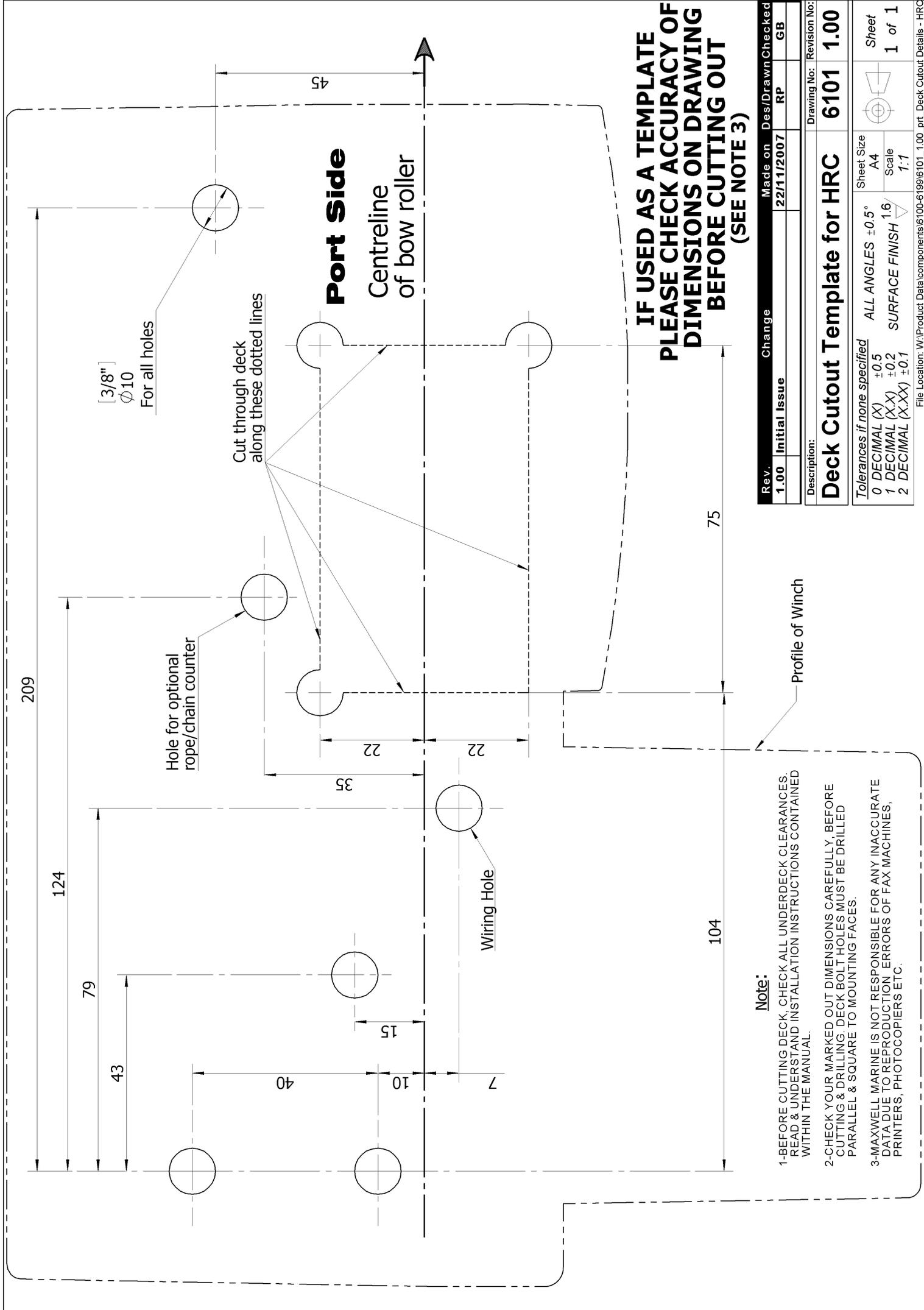
Capstan/Windlass Model

Serial Number

Date of Purchase	Boat Type
Name	L.O.A.
Built by	

Capstan/Windlass Supplied
<input type="checkbox"/> With boat
<input type="checkbox"/> Fitted by boat yard/dealer





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

Rev.	Change	Made on	Des/Drawn/Checked
1.00	Initial Issue	22/11/2007	RP GB

Description:	Drawing No:	Revision No:
Deck Cutout Template for HRC	6101	1.00

Tolerances if none specified		Sheet Size
0 DECIMAL (X) ±0.5	ALL ANGLES ±0.5°	A4
1 DECIMAL (X.X) ±0.2	SURFACE FINISH 1.6	Scale
2 DECIMAL (X.XX) ±0.1		1:1

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

