

**1000 & 1500 Windlass
Manual**

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Part No: P103103 Rev. 4.00

16/01/09

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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

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 Lever
- Deckplate gasket
- Motor Bolt Kit
- Template (At rear of manual)
- Small parts:
 - Nuts
 - Flat washer
 - Spring washer

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 chain.
- For automatic operation to be possible, the anchor must be self launching.
- Never use the windlass under power with the lever inserted in the clutch nut.
- 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.
- When operating the chainwheel pawl, keep fingers away from incoming chain.
- 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 chain rode to a secure fixture in the chain locker.
- Do NOT use the windlass to haul a person up a mast.

VW and VWLP Windlass Parts

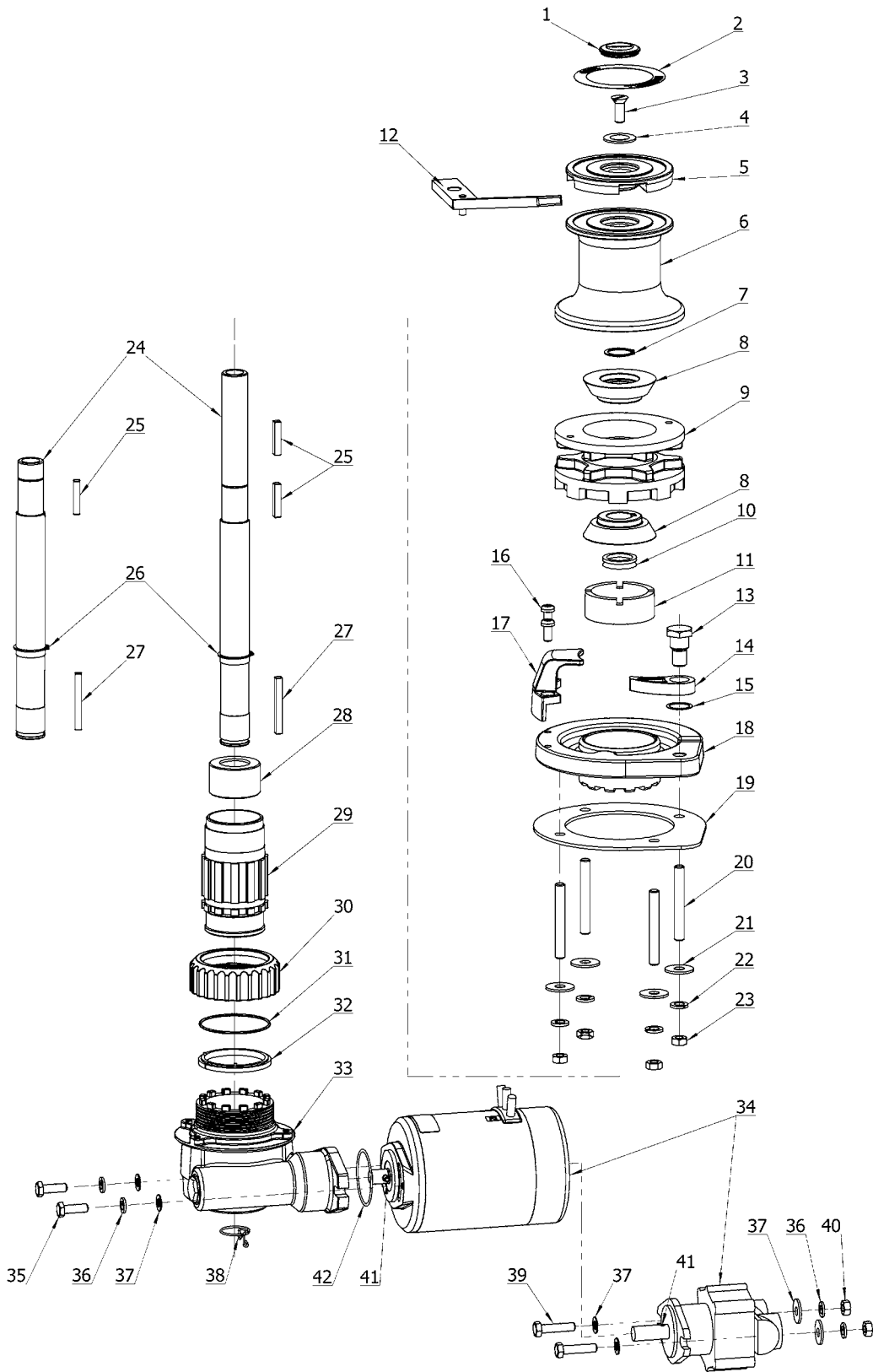


Fig 1: VW and VWLP Windlass Parts

VW and VWLP Windlass Parts

Item No.	Component description	Qty	Part to order	Includes items
1	Cap	1	P101615	1,3,4,7,10,15,25(x2)
2	Label - 1000	1	6424	2
	Label - 1500	1	6425	2
3	Screw - 3/8" x 1"	1	P101615	1,3,4,7,10,15,25(x2)
4	Washer	1	P101615	1,3,4,7,10,15,25(x2)
5	Clutch Nut	1	*P101621 or P101622	1,2,5
6	Drum - VWC	1	3436	6
7	Circlip	1	P101615	1,3,4,7,10,15,25(x2)
8	Clutch Cone	2	P101623	8(x2)
9	Chainwheel	1	3173	9
10	"V" Ring Seal	1	P101615	1,3,4,7,10,15,25(x2)
11	Retaining Collar	1	**P101664 or P101665 or P101666	11,28,29
12	Emergency Crank Lever	1	P20044	12
13	Pin - Pawl	1	P101620	13,14,15
14	Pawl	1	P101620	13,14,15
15	Washer	1	P101615	1,3,4,7,10,15,25(x2)
16	Cheese Head Screw - M8 x 16	2	P101626	16(x2),17(x1)
17	Stripper	1	P101626	16(x2),17(x1)
18	Deckplate	1	**P101627 or P101628 or P101629	11,18,20(x4),21(x4),22(x4),23(x4),28,29
19	Gasket	1	3474	1
20	Stud - 50TDC	4	P101612	20,21,22,23
	Stud - 100TDC	4	P101613	20,21,22,23
	Stud - 150TDC	4	P101614	20,21,22,23
21	Washer	4	**P101612 or P101613 or P101614	20,21,22,23
22	Spring Washer - 3/8"	4	**P101612 or P101613 or P101614	20,21,22,23
23	Nut - 3/8"	4	**P101612 or P101613 or P101614	20,21,22,23
24	Shaft - VW - 50TDC	1	6152	24
	Shaft - VW - 100TDC	1	6151	24
	Shaft - VW - 150TDC	1	6150	24
	Shaft - VWLP - 50TDC	1	6203	24
	Shaft - VWLP - 100TDC	1	6204	24
	Shaft - VWLP - 150TDC	1	6205	24
25	Key - VW	2	P101615	1,3,4,7,10,15,25(x2)
25	Key - VWLP	1	P101615	1,3,4,7,10,15,25(x2)
26	Circlip	1	P101619	26,27,38,41
27	Key	1	P101619	26,27,38,41
28	Bearing	1	**P101664 or P101665 or P101666	11,28,29
29	Spacer Tube - 50TDC	1	**P101664	11,28,29
	Spacer Tube - 100TDC	1	**P101665	11,28,29
	Spacer Tube - 150TDC	1	**P101666	11,28,29
30	Locknut	1	P100088	30,31,32
31	O-Ring	1	P100088	30,31,32
32	Collar	1	P100088	30,31,32
33	Gearbox - 1000 - 44:1	1	P100900	
	Gearbox - 1500 - 56:1	1	P102730	
34	Motor - 12v - 1000W - with 1000 VWC/VWLP	1	P11112	34
	Motor - 24v - 1000W - with 1000 VWC/VWLP	1	P11114	34
	Motor - 12v - 1200W - with 1500 VWC/VWLP	1	P11165	34
	Motor - 24v - 1200W - with 1500 VWC/VWLP	1	P11166	34
	Motor - Hydraulic	1	P14366	34
35	Bolt - Hex Hd M8x25 - With 12 or 24V Motor	2	P12487	35(x2),36(x2),37(x2),42(x1)
36	Washer - Spring - M8 - With 12 or 24V Motor	2	P12487	35(x2),36(x2),37(x2),42(x1)
	Washer - Spring - M8 - With Hydraulic Motor	2	P12488	36(x2),37(x4),39(x2),40(x2)
37	Washer - Flat - M8 - With 12 or 24V Motor	2	P12487	35(x2),36(x2),37(x2),42(x1)
	Washer - Flat - M8 - With Hydraulic Motor	4	P12488	36(x2),37(x4),39(x2),40(x2)
38	Clip	1	P101619	26,27,38,41
39	Bolt - Hex Hd M8x30 - With Hydraulic Motor	2	P12488	36(x2),37(x4),39(x2),40(x2)
40	Nut - M8 - With Hydraulic Motor	2	P12488	36(x2),37(x4),39(x2),40(x2)
41	Tension Pin	1	P101619	26,27,38,41
42	O-Ring	1	P12487	35(x2),36(x2),37(x2),42(x1)

**P101621 = 1000, P101622 = 1500

**P101627 = 50mm TDC, P101628 = 100mm TDC, P101629 = 150mm TDC

**P101612 = 50mm TDC, P101613 = 100mm TDC, P101614 = 150mm TDC

**P101664 = 50mm TDC, P101665 = 100mm TDC, P101666 = 150mm TDC

VWC and VWCLP Windlass Parts

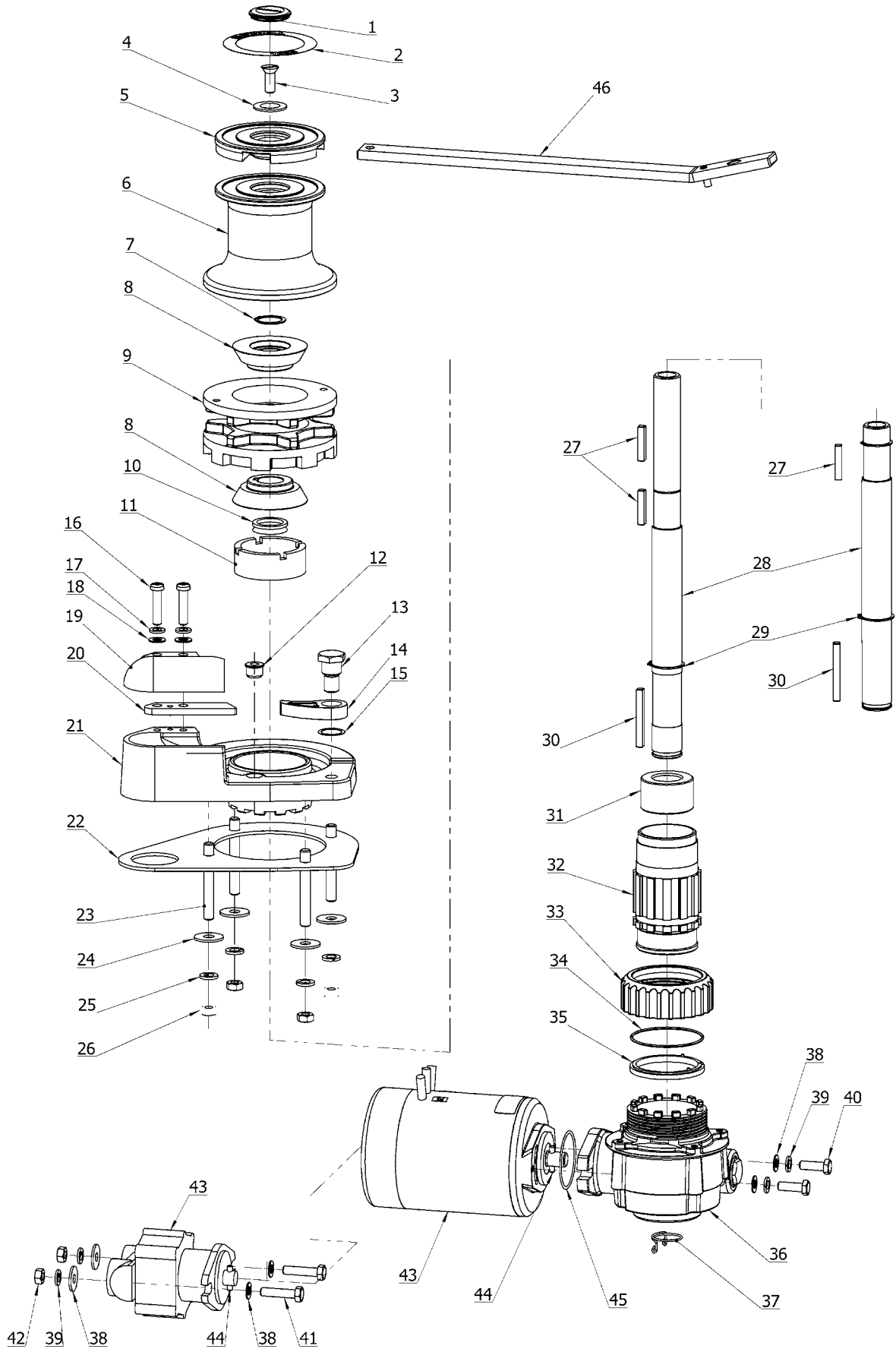


Fig 2: VWC and VWCLP Windlass Parts

VWC and VWCLP Windlass Parts List

Item no.	Component description	Qty	Part/Kit to order	Kit items
1	Cap	1	P101615	1,3,4,7,10,15,27(x2)
2	Label - 1000 VWC VWCLP	1	6424	2
	Label - 1500 VWC VWCLP	1	6425	2
3	Screw - 3/8" x 1"	1	P101615	1,3,4,7,10,15,27(x2)
4	Washer	1	P101615	1,3,4,7,10,15,27(x2)
5	Clutch Nut	1	*P101621 or P101622	1,2,5
6	Drum - VWC	1	3436	6
7	Circlip	1	P101615	1,3,4,7,10,15,27(x2)
8	Clutch Cone	2	P101623	8(x2)
9	Chainwheel	1	3173	9
10	"V" Ring Seal	1	P101615	1,3,4,7,10,15,27(x2)
11	Retaining Collar	1	**P101664 or P101665 or P101666	11,31,32
12	Plug	1	**P101616 or P101617 or P101618	11,12,21,23(x4),24(x4),25(x4),26(x4),31,32
13	Pin - Pawl	1	P101620	13,14,15
14	Pawl	1	P101620	13,14,15
15	Washer	1	P101615	1,3,4,9,14,26(x2)
16	Cap Screw - M8 x 35	1	P101600	16(x2),17(x2),18(x2),19,20
17	Spring Washer - M8	1	P101600	16(x2),17(x2),18(x2),19,20
18	Flat Washer - M8	1	P101600	16(x2),17(x2),18(x2),19,20
19	Chain Cover	1	P101600	16(x2),17(x2),18(x2),19,20
20	Stripper	1	P101600	16(x2),17(x2),18(x2),19,20
21	Deckplate	1	**P101616 or P101617 or P101618	11,12,21,23(x4),24(x4),25(x4),26(x4),31,32
22	Gasket	1	3473	1
23	Stud - 50TDC	4	P101612	23,24,25,26
	Stud - 100TDC	4	P101613	23,24,25,26
	Stud - 150TDC	4	P101614	23,24,25,26
24	Washer	1	**P101612 or P101613 or P101614	23,24,25,26
25	Spring Washer - 3/8"	4	**P101612 or P101613 or P101614	23,24,25,26
26	Nut - 3/8"	1	**P101612 or P101613 or P101614	23,24,25,26
27	Key - VWC	2	P101615	1,3,4,7,10,15,27(x2)
	Key - VWCLP	1	P101615	1,3,4,7,10,15,27(x2)
28	Shaft - VWC - 50TDC	1	6152	1
	Shaft - VWC - 100TDC	1	6151	1
	Shaft - VWC - 150TDC	1	6150	1
	Shaft - VWCLP - 50TDC	1	6203	1
	Shaft - VWCLP - 100TDC	1	6204	1
	Shaft - VWCLP - 150TDC	1	6205	1
29	Circlip	1	P101619	29,30,37,44
30	Key	1	P101619	29,30,37,44
31	Bearing	1	**P101664 or P101665 or P101666	11,31,32
32	Spacer Tube - 50TDC	1	**P101664	11,31,32
	Spacer Tube - 100TDC	1	**P101665	11,31,32
	Spacer Tube - 150TDC	1	**P101666	11,31,32
33	Locknut	1	P100088	33,34,35
34	O-Ring	1	P100088	33,34,35
35	Collar	1	P100088	33,34,35
36	Gearbox - 1000 - 44:1	1	P100900	
	Gearbox - 1500 - 56:1	1	P102730	
37	Clip	1	P101619	29,30,37,44
38	Washer - Flat - M8 - With 12 or 24V Motor	2	P12487	38(x2),39(x2),40(x2),45(x1)
	Washer - Flat - M8 - With Hydraulic Motor	2	P12488	38(x2),39(x4),41(x2),42(x2)
39	Washer - Spring - M8 - With 12 or 24V Motor	2	P12487	38(x2),39(x2),40(x2),45(x1)
	Washer - Spring - M8 - With Hydraulic Motor	4	P12488	38(x2),39(x4),41(x2),42(x2)
40	Bolt - Hex Hd M8x25 - With 12 or 24V Motor	2	P12487	38(x2),39(x2),40(x2),45(x1)
41	Bolt - Hex Hd M8x30 - With Hydraulic Motor	2	P12488	38(x2),39(x4),41(x2),42(x2)
42	Nut - M8 - With Hydraulic Motor	2	P12488	38(x2),39(x4),41(x2),42(x2)
43	Motor - 12v - 1000W Motor - with 1000 VWC/VWLP	1	P11112	43
	Motor - 24v - 1000W Motor - with 1000 VWC/VWLP	1	P11114	43
	Motor - 12v - 1200W Motor - with 1500 VWC/VWLP	1	P11165	43
	Motor - 24v - 1200W Motor - with 1500 VWC/VWLP	1	P11166	43
	Motor - Hydraulic	1	P14366	43
44	Tension Pin	1	P101619	29,30,37,44
45	O-Ring	1	P12487	38(x2),39(x2),40(x2),45(x1)
46	Emergency Crank Lever	1	P20044	45

*P101621 = 1000 VWC VWCLP, P101622 = 1500 VWC VWCLP

**P101616 = 50mm TDC, P101617 = 100mm TDC, P101618 = 150mm TDC

**P101612 = 50mm TDC, P101613 = 100mm TDC, P101614 = 150mm TDC

Gearbox Parts (44:1 & 56:1)

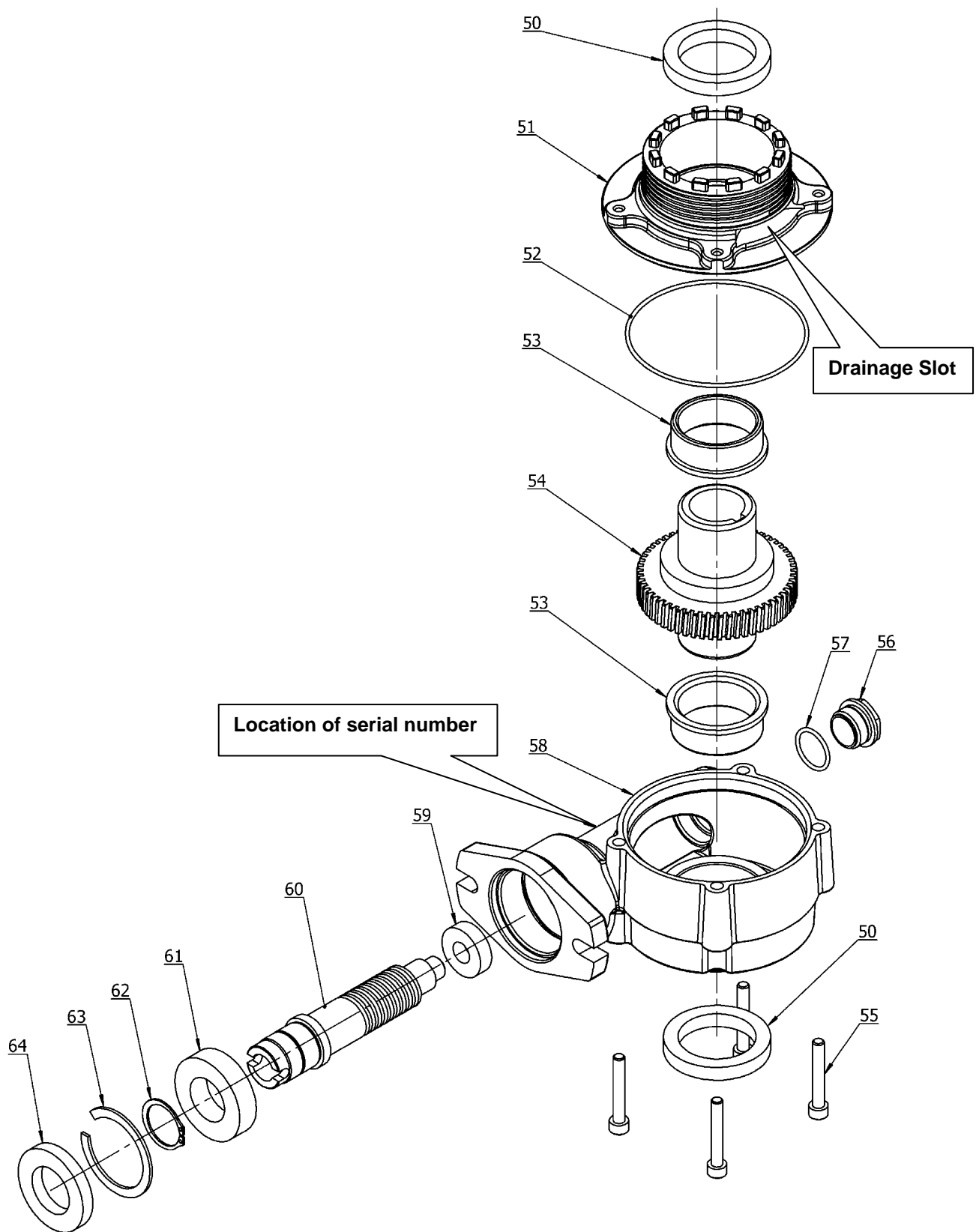


Fig 3: Gearbox Parts (44:1 & 56:1)

Gearbox Parts List (44:1 & 56:1)

Item	Component description	Qty	Parts to order	Includes items
50	Oil Seal	2	P90006	50(x2),52,56,57,64
51	Gearbox Top	1	P101624	51,53
52	O-ring	1	P90006	50(x2),52,56,57,64
53	Bush	2	3145	
54	Wormwheel 44:1	1	3403	
	Wormwheel 56:1	1	3584	
55	Capscrew - M6 x 40	4	SP0159	
56	Sight Glass	1	P90006	50(x2),52,56,57,64
57	O-Ring	1	P90006	50(x2),52,56,57,64
58	Wormbox	1	P101625	53,58
59	Bearing	1	P90007	59,61,62,63
60	Worm 44:1	1	5950	
	Worm 56:1	1	3400	
61	Bearing	1	P90007	59,61,62,63
62	Circlip	1	P90007	59,61,62,63
63	Circlip	1	P90007	59,61,62,63
64	Oil Seal	1	P90006	50(x2),52,56,57,64

Ordering Spare Parts

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

Windlass Model

VWC VWCLP VW VWLP

50TDC 100TDC 150TDC

Serial number (located on gearbox housing – Fig 3 Page 8)

Power supply

12V 24V Hyd

Part details

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

Chain Selection

THE MAXWELL WINDLASSES ARE DESIGNED FOR ALL CHAIN SYSTEMS USING: 6-10mm (1/4" – 3/8") short link

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 CHAIN TO CHAINWHEEL IS ESSENTIAL FOR THE WINDLASS TO OPERATE PROPERLY.

A range of chainwheels is available to suit your windlass.

The correct fit can only be guaranteed where a standard chain known to us is used. Alternatively a 450mm (18") or 12 links (whichever is longer) sample must be forwarded to us to match fit. Where patterns to suit are not held by us we are able to manufacture to instructions and reserve the right to charge cost thereof.

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

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.

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 line from twisting as the anchor is raised or lowered.

To prevent build up of 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 chain *must* gravity feed into the locker. If the chain outlet cannot be positioned directly over the locker, heavy wall flexible plastic pipe can be used to direct the chain to the required area. It is important that the chain slips through easily, completely unaided. It may be necessary to provide the pipe with a bell mouth or to bell mouth the entrance to the chain outlet from the locker to assist the free flow of the chain from the locker.

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

Required clearances

Ideally the outlet for the chain should be directly over the chain locker. The chain should have at least 300mm (1ft) clear fall to allow the 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 Lever. Refer to Figures on page 27 and 28 for overall dimensions

The chain locker must be of such a size that the 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 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 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 chain and with the left hand side parallel to the line of the incoming chain. This arrangement allows the 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.

If the windlass is installed horizontally, on a bulwark (mainly VW type), make sure that the gearbox is installed with worm on the lower side to ensure good lubrication of the gears. The stripper should also be positioned at the lowest end of the deckplate

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 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 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.

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.

Installation procedure

**** ATTENTION ****

Please note, when installing winch and in particular the chain wheel. The shaft and bronze clutch cones **MUST** be coated in Shell Nautilus NLG12 Marine Grease, Castrol Boating Grease, Valvoline Val Plex EP or equivalent grease. See "Typical Greasing Instructions" on Pg 30.

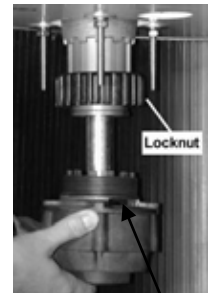
1. Use the Deck Cutout Details drawing as a guide for marking and cutting the holes.
Tip: On GRP boats, running the drill in reverse first will reduce chipping of the gel coat.
Using hole saws, cut the holes for the spacer tube and chain pipe.
2. On GRP or wooden decks, seal the edges of the holes with epoxy to avoid ingress of moisture.
3. Remove the gearbox from the spacer tube by undoing the Locknut. With gearbox held horizontally, check that oil is showing half way up the sight glass. If necessary, top up with SAE 90 (Shell Omala 320, Castrol Alpha SP320 or equivalent), by removing the sight glass and adding the required amount. **DO NOT OVER FILL!**
4. Use the gasket supplied to seal the windlass to the deck. For aluminium boats fit a non-conductive gasket to insulate the deckplate from the deck to prevent electrolysis.

5. Fasten the windlass to the deck using the nuts and washers supplied. Tighten the nuts progressively and evenly. Do NOT use power tools. Make sure the installation is firm, but do not over tighten the nuts.



6. Smear a coating of grease on the shaft and spacer tube. Fit the gearbox/motor assembly to the bottom of the spacer tube. Orientate the motor away from the incoming chain and then tighten the plastic locknut by hand.

NOTE: If the unit is going to be mounted in such a way, that it may be tilted, ensure the drainage slot on the gearbox is at the lowest point to prevent excess water etc. sitting around the seals.



Drainage Slot

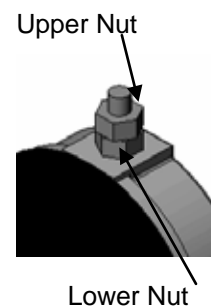
7. Rotate the shaft by hand (or by using the manual crank handle) to align the keyway in the shaft with the keyway in the gearbox. Insert the key into the keyway.



8. Fit the quick-release clip into the groove in the bottom of the shaft to secure the key. Make sure the eyelets are facing down and away from the keyway.



9. When tightening the cables to the motor, ensure the lower nut is secure against turning when tightening the upper nut. This will prevent damage occurring within the motor.



Assembling the chainwheel.

Refer Fig 1, page 4 for VW and VWLP Windlass and Fig 2, page 6 for VWC and VWCLP Windlass

1. With a pen knife or similar, carefully remove the Cap.
2. Remove the screw and retaining washer.
3. Remove the Clutch Nut, drum (except for low profile) and upper clutch cone.
4. Remove the stripper arm by undoing the two screws.
5. Grease the two clutch faces of the chainwheel and insert with the side that has two holes facing upwards.
6. Assemble the components in the reverse order they were removed.

Assembling the motor.

1. Bring the motor up to the gearbox and align the roll pin with the slot in the worm.
2. Use parts from the "motor bolt kit" to assemble as per diagram on page 4.

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.

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.

Wiring Instructions

Electrical component layout

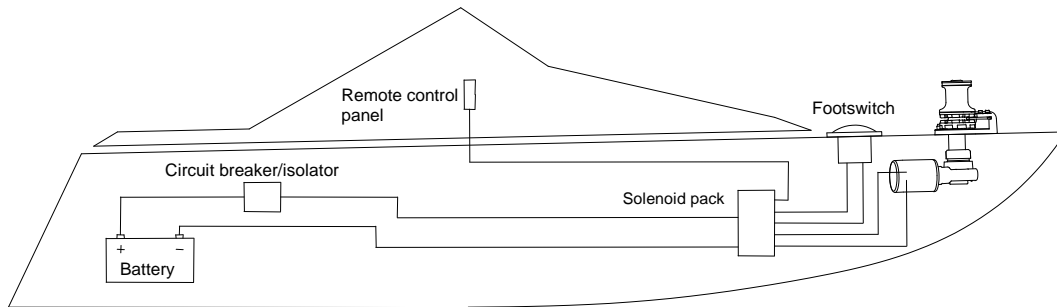


Figure 3 - Electrical component layout

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 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 the breather holes must be kept clear.

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

Wiring schematic (series wound motor)

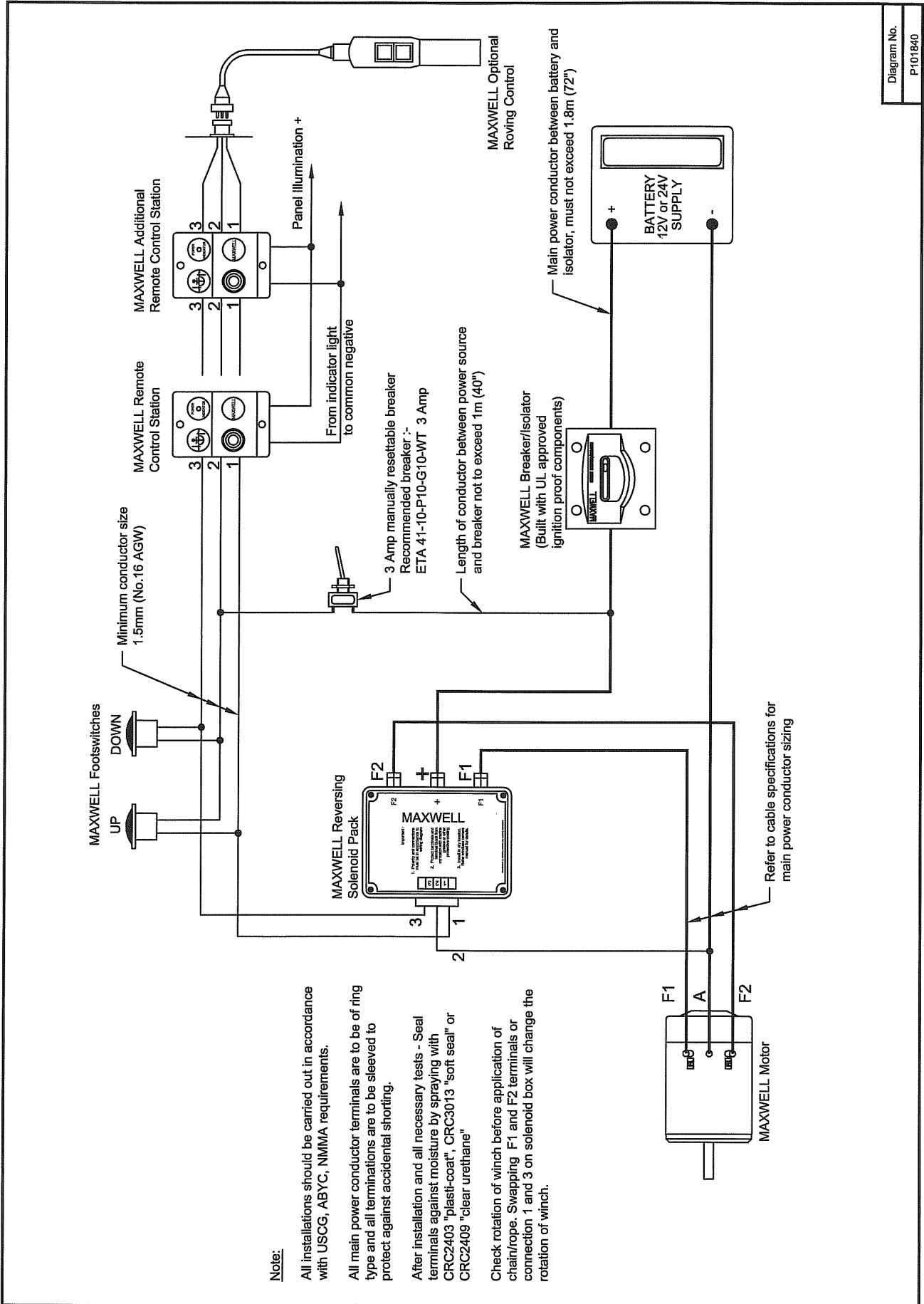
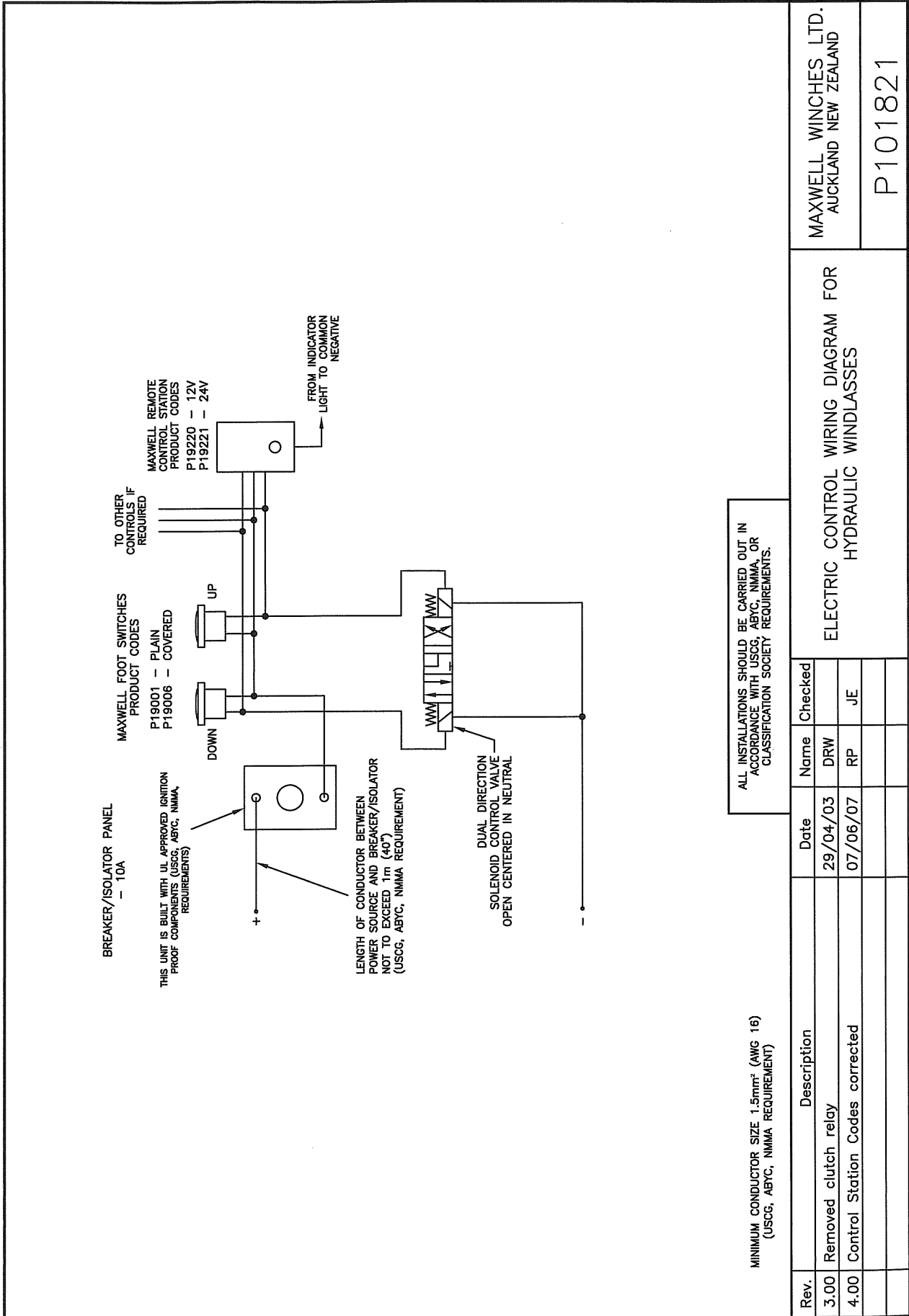


Diagram No.
P101840



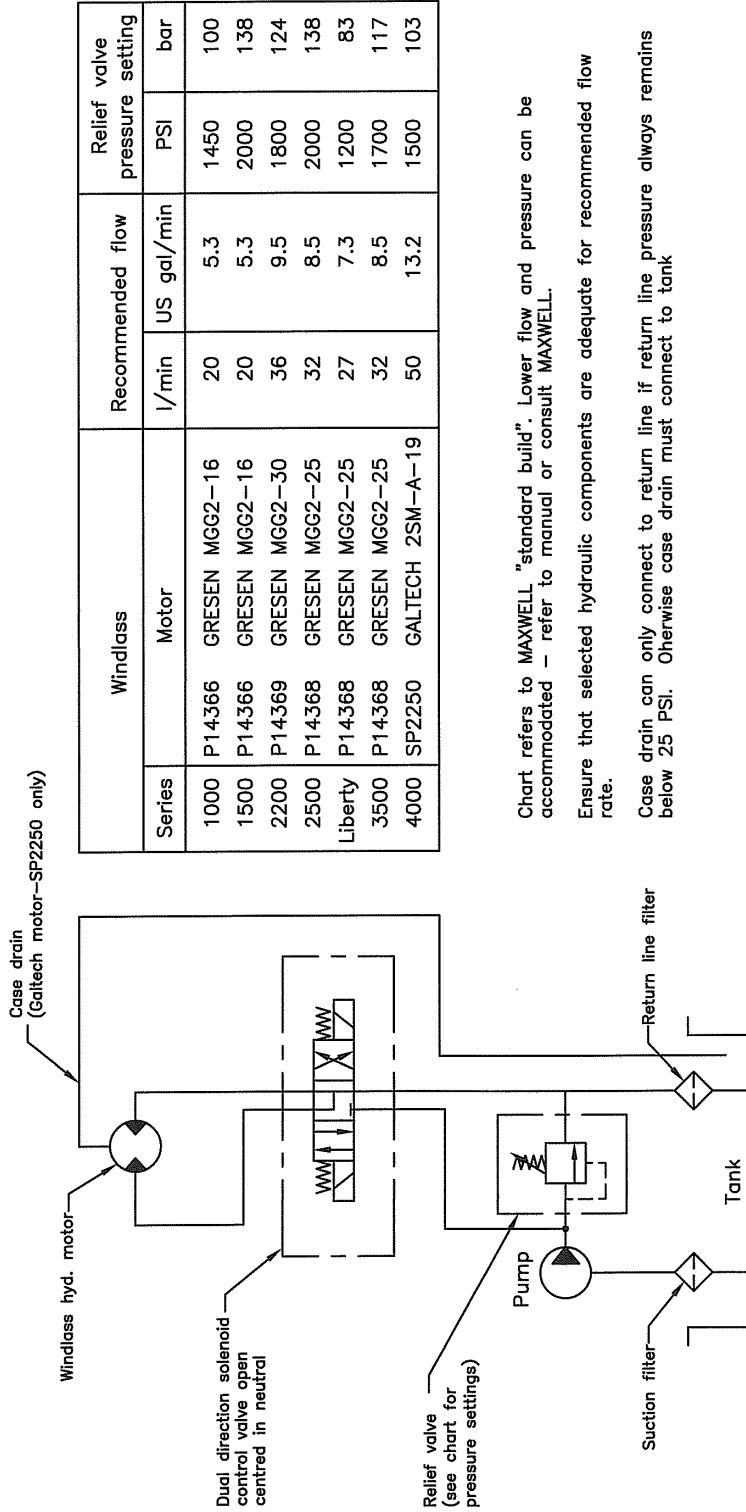
MAXWELL WINCHES LTD.
AUCKLAND NEW ZEALAND

ELECTRIC CONTROL WIRING DIAGRAM FOR HYDRAULIC WINDLASSES

P101821

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

Wiring schematic (Hydraulic motor)



Series	Windlass		Recommended flow		Relief valve pressure setting	
	Motor	I/min	US gal/min	PSI	bar	
1000	P14366	20	5.3	1450	100	
1500	P14366	20	5.3	2000	138	
2200	P14369	36	9.5	1800	124	
2500	P14368	32	8.5	2000	138	
Liberty	P14368	27	7.3	1200	83	
3500	P14368	32	8.5	1700	117	
4000	SP2250	50	13.2	1500	103	

Chart refers to MAXWELL "standard build". Lower flow and 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 always remains below 25 PSI. Otherwise case drain must connect to tank

Revision	Description	Date	Name	Checked
7.00	Removed pressure switch, Added liberty	29/04/03	DRW	
8.00	Corrected Liberty and 4000 flow & pressure setting figures. Corrected case drain flow detail	08/09/06	RP	DH
9.00	SP2250 Galtech motor was SP2224 Eaton	06/06/07	RP	JE

HYDRAULIC SCHEMATIC WINDLASSES 1000 - 4000	MAXWELL WINCHES LTD. AUCKLAND NEW ZEALAND
P203103	

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

<u>12v systems</u>				
Total Cable Length From Battery to Winch Then Back to Battery	Cable Size		Engine room Size Correction*	
	mm²	AWG	mm²	AWG
Up to 13 m (43')	26	3	34	2
13m – 17m (43' – 56')	34	2	42	2
17m – 22m (56' – 72')	42	1	-	-
22m – 27m (72' – 88')	54	0	-	-
27m – 35m (88' – 115')	68	00	-	-

<u>24v systems</u>				
Total Cable Length From Battery to Winch Then Back to Battery	Cable Size		Engine room Size Correction*	
	mm²	AWG	mm²	AWG
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.

Hydraulic specification

Pressure/flow quoted in the specifications section, assumes operation at rated capacity with standard motor fitted.

Levels below that specified can be accommodated by a motor change.

Contact Maxwell Marine Ltd, for a representative. who can help with this selection.

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 Lever 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 LEVER.** NOTE: Over tightening the clutches can cause damage to the motor when docking the anchor.
3. With the circuit breaker/isolator switch "On," press the toggle switch down on the remote up/down control panel to pay out the chain (or press the "Down" footswitch if fitted).
4. Pay out sufficient chain to set the anchor.
5. Watch as the chain is being fed out. Any jam might cause damage to the windlass.

Raising the Anchor

1. Run the boat's motor(s) at sufficient rpm to activate the charging system.
2. Insert the Clutch Lever 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 LEVER.** 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 rode 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 chain has unrestricted travel over the bow roller.
2. Ensure the clutch is tight enough to hold the anchor.
3. Dis-engage the pawl from the chainwheel and/or chain from the chain stopper.
4. Standing well clear of the chain, insert the clutch lever into the clutch nut and loosen by slowly turning the handle anticlockwise.
5. 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 chain speeds to build up.

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

Raising the Anchor Manually

1. Tie off the chain so that it does not pay out when the clutch is released.
2. Insert the crank handle into the clutch nut and turn anticlockwise to loosen the clutch.
3. Engage the pawl on the chainwheel and/or chain stopper onto the chain.
4. Disassemble winch until the top of the chain wheel is showing.
5. Insert the Clutch Lever spigot into the chain wheel hole and by levering on the shaft, turn the chainwheel.
6. Before releasing pressure, always make sure the pawl is engaged into the chainwheel or the chain stopper is engaged. This is to prevent the anchor from releasing while manually winching.

Using the Warping Drum

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 with the pawl and/or chain stopper engaged.
2. Insert the Clutch Lever 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 less load 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.

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: 70ml (2.4 fl oz)

Type: SAE viscosity grade 90 -110,

(e.g. Shell Omala 320, Castrol Alpha SP 320,
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 clutch is adjusted correctly				
Strip and grease clutch				
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 “Assembling the chainwheel” on page 13, for disassembly instructions

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.

Regular use of CRC3097 “Long Life” will assist maintaining the bright chrome finish.

Natural lustre of bronze units can be restored by polishing with mild abrasive liquid polish. DO NOT use on chrome units.

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 as per step 4 of the installation procedure”.

The gearbox is a self-contained sealed unit. We recommend that the gearbox be removed and 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

DC and Hydraulic Motors

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.

12V and 24V Motors

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.

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.

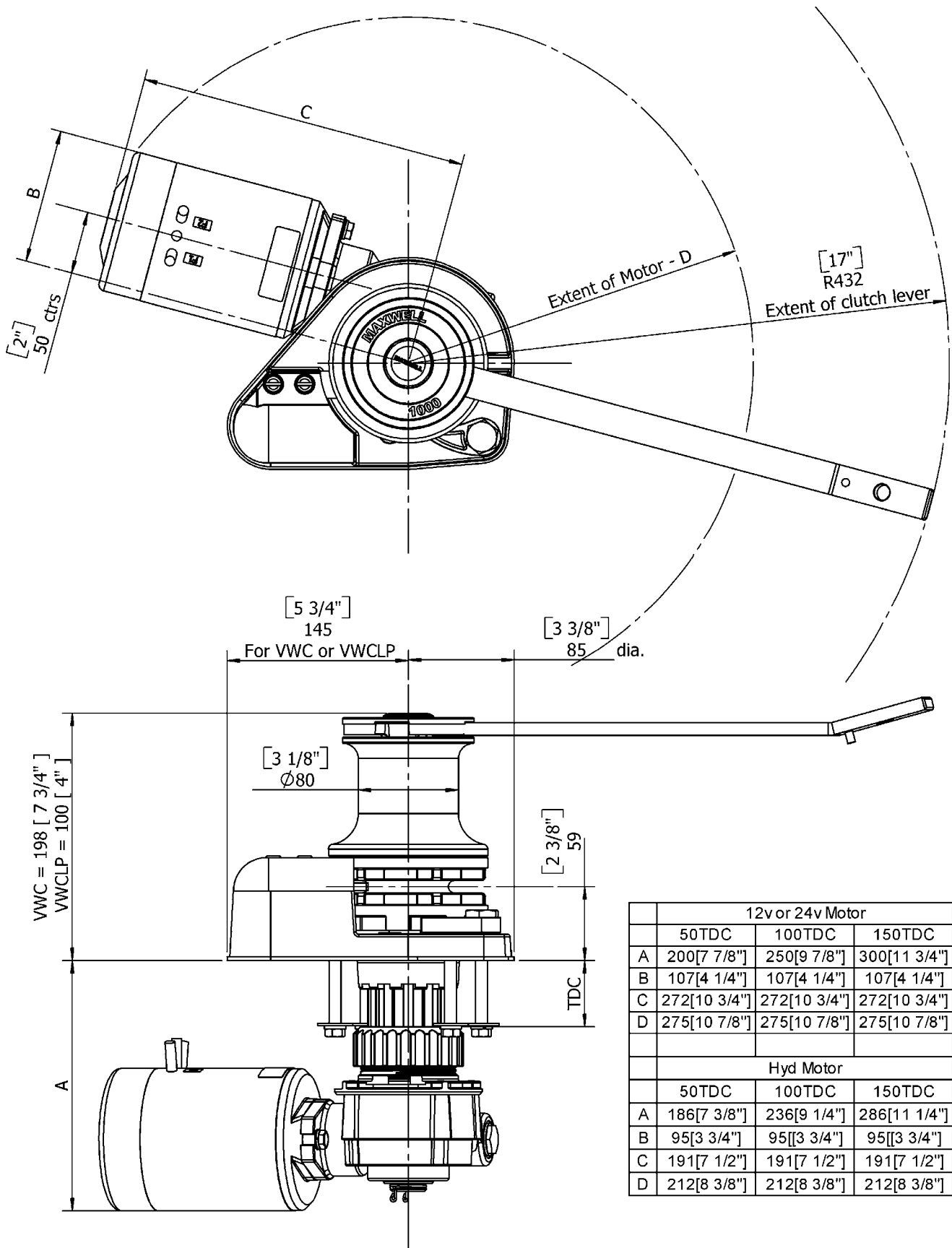
Reference Information

Specifications

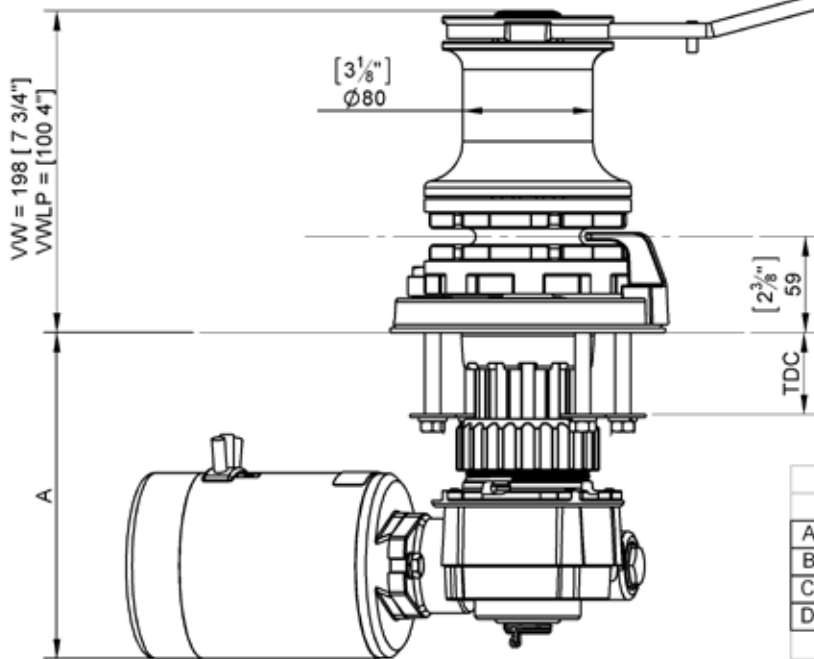
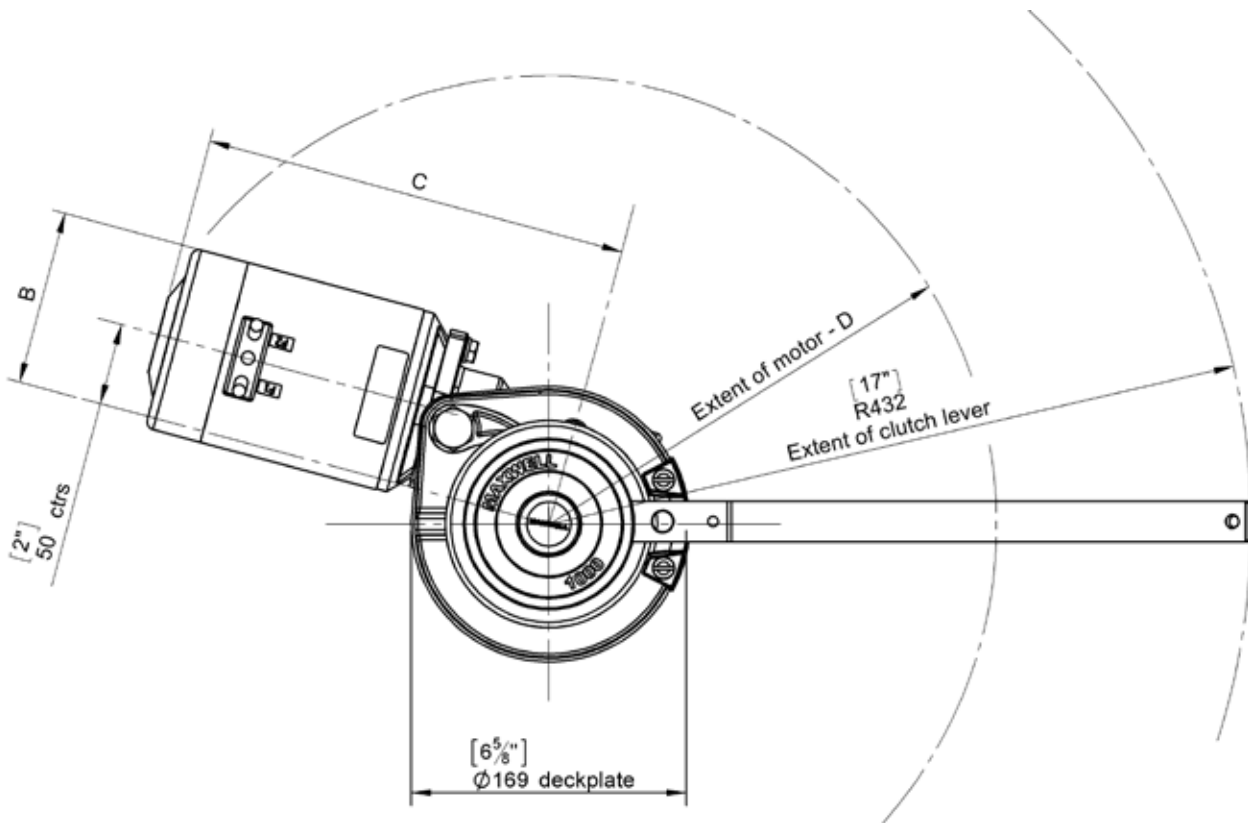
	VWC & VWCLP 1000	VWC & VWCLP 1500
Max. Pull Rating	456kg (1000 lbs)	680kg (1500 lbs)
Chain Speed (Normal Working Load)	20 m/min (65 ft/min)	17 m/min (56ft/min)
Chain Size	6-10mm (1/4" - 3/8") short link	
Gearbox Ratio	44:1	56:1
Motor Rating (Electric)	1000w	1200w
Current at normal working loads - 12v	120-160A	160-200A
Current at normal working loads - 24v	100-140A	140-180A
Hyd. Motor Max. Recommended Flow	20 l/min (5.3 US Gal/min)	
Hyd. Motor Max. Recommended Pressure	100 Bar (1450 psi)	138 Bar (2000 psi)
Hyd. Motor Ports	SAE 8 (3/4" 16 UNF)	
Hyd. Oil	Viscosity ISO 32 - ISO 68 @ 20-50°C *	

*Suitable oils: Shell Rimula X 15W-40; Shell Myrina M 15W-40; Penzoi SAE 10W-40; Texaco 2109 SAE 15W; Texaco 1814 SAE 10W40. BP HLPHM 32-68; Castrol Hysin AWS 32-68; BP AuTRANS T0410.

Dimensions - VWC

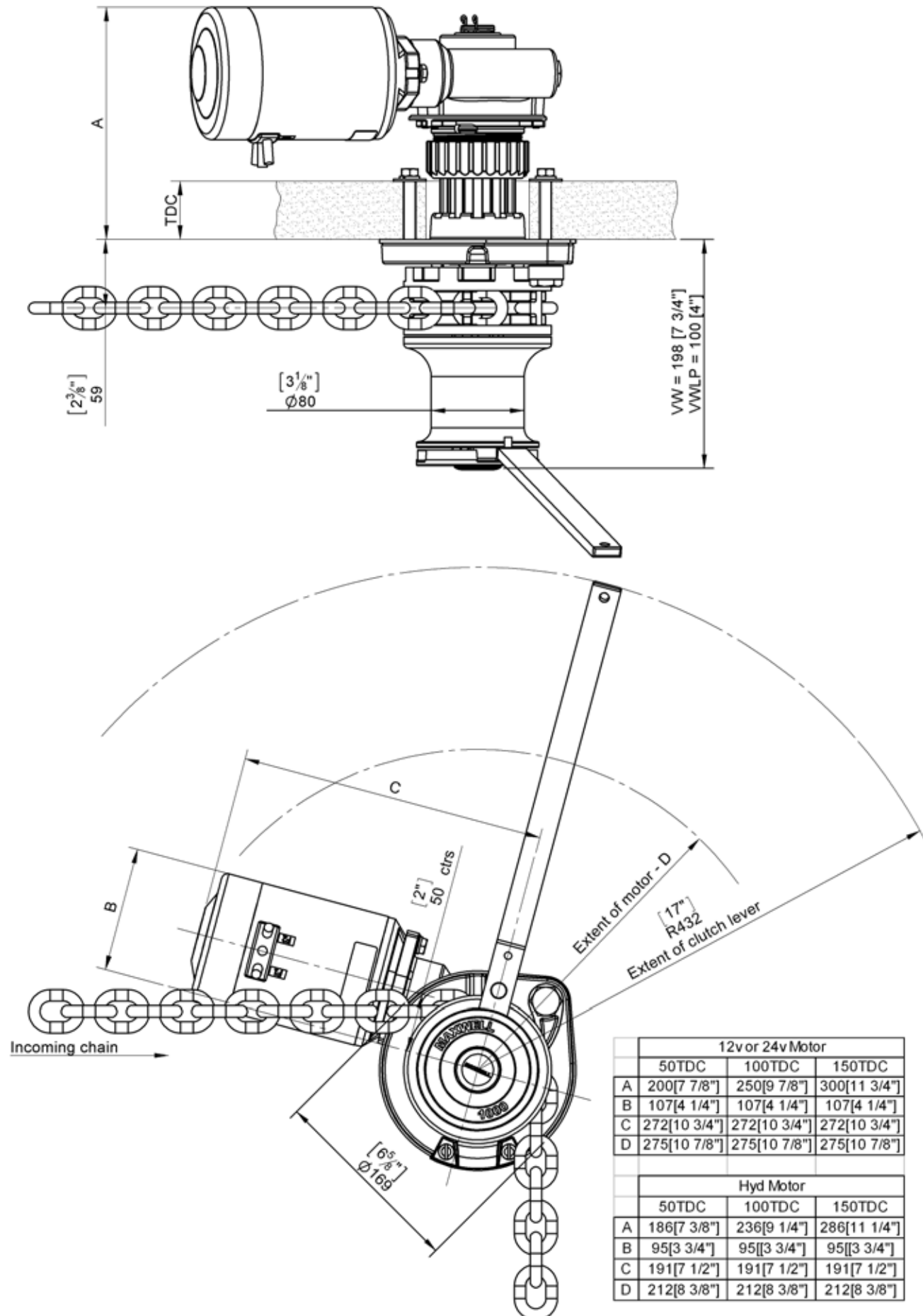


Dimensions – VW



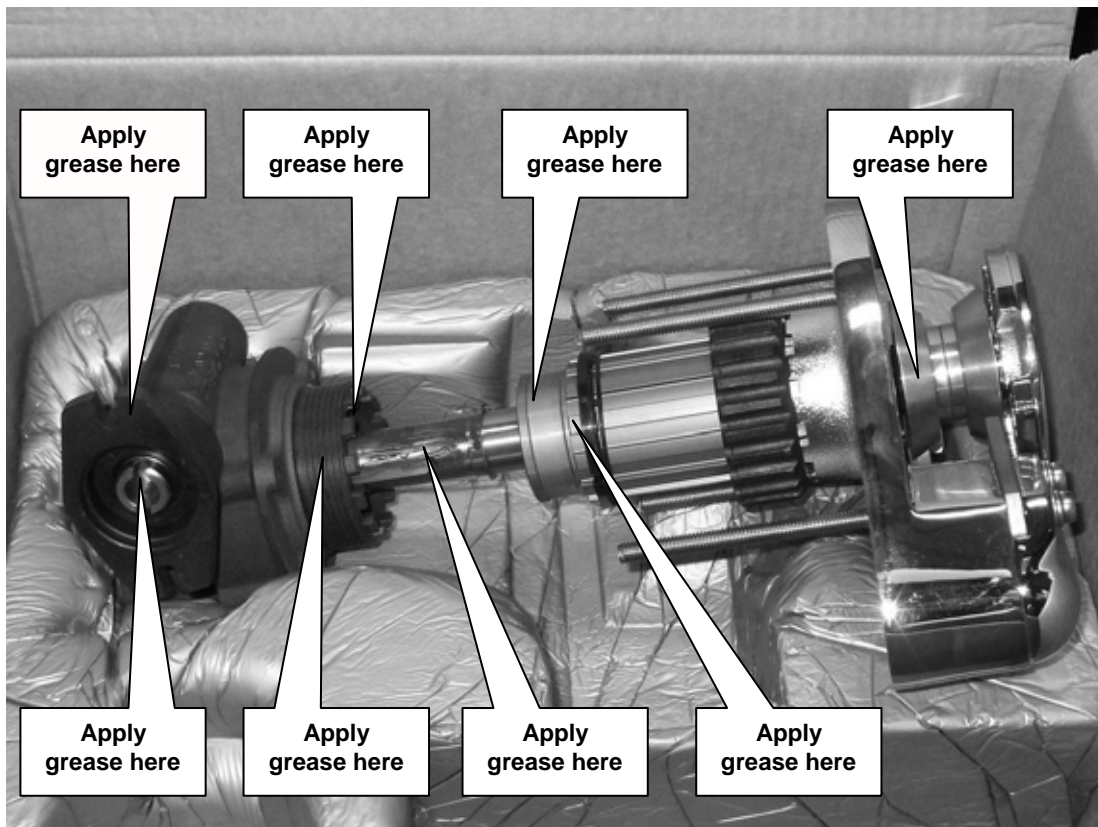
12v or 24v Motor			
	50TDC	100TDC	150TDC
A	200[7 7/8"]	250[9 7/8"]	300[11 3/4"]
B	107[4 1/4"]	107[4 1/4"]	107[4 1/4"]
C	272[10 3/4"]	272[10 3/4"]	272[10 3/4"]
D	275[10 7/8"]	275[10 7/8"]	275[10 7/8"]
Hyd Motor			
	50TDC	100TDC	150TDC
A	186[7 3/8"]	236[9 1/4"]	286[11 1/4"]
B	95[3 3/4"]	95[[3 3/4"]	95[[3 3/4"]
C	191[7 1/2"]	191[7 1/2"]	191[7 1/2"]
D	212[8 3/8"]	212[8 3/8"]	212[8 3/8"]

Dimensions – VW horizontal arrangement

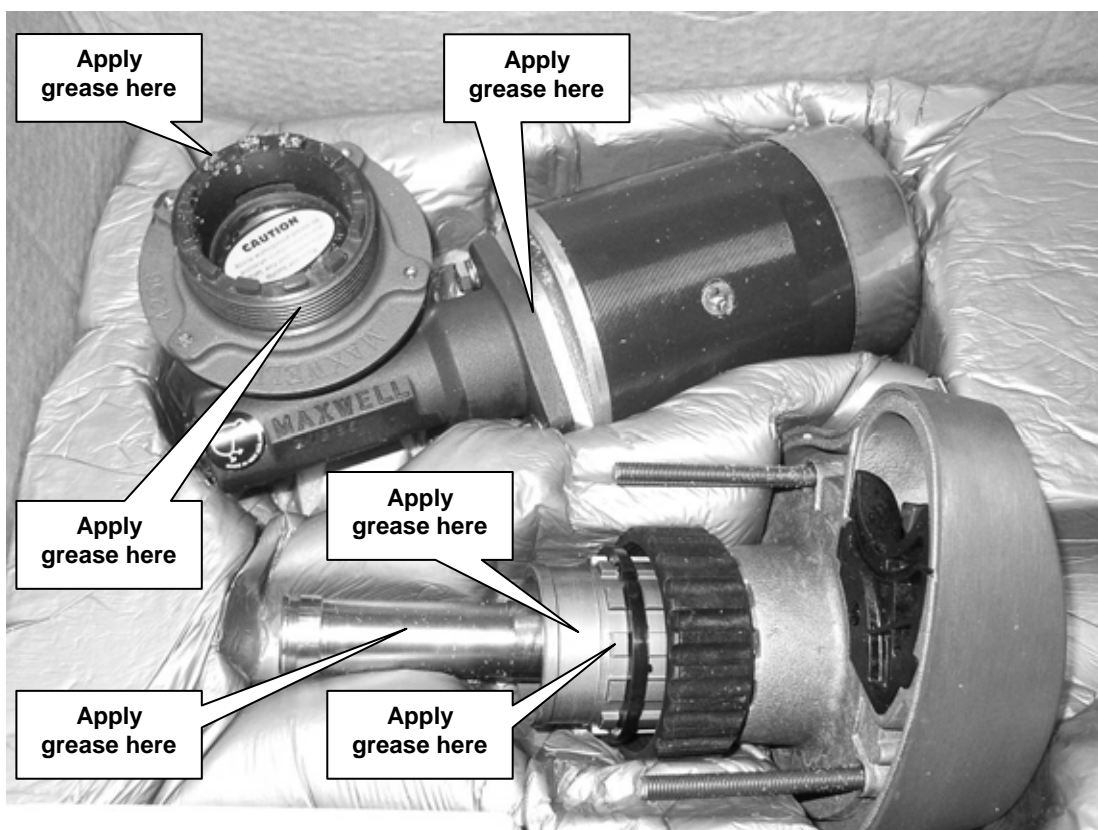


Typical Greasing Instructions

Note: Picture shows typical winches, greasing instructions apply to all types using this motor gearbox and spacertube arrangement

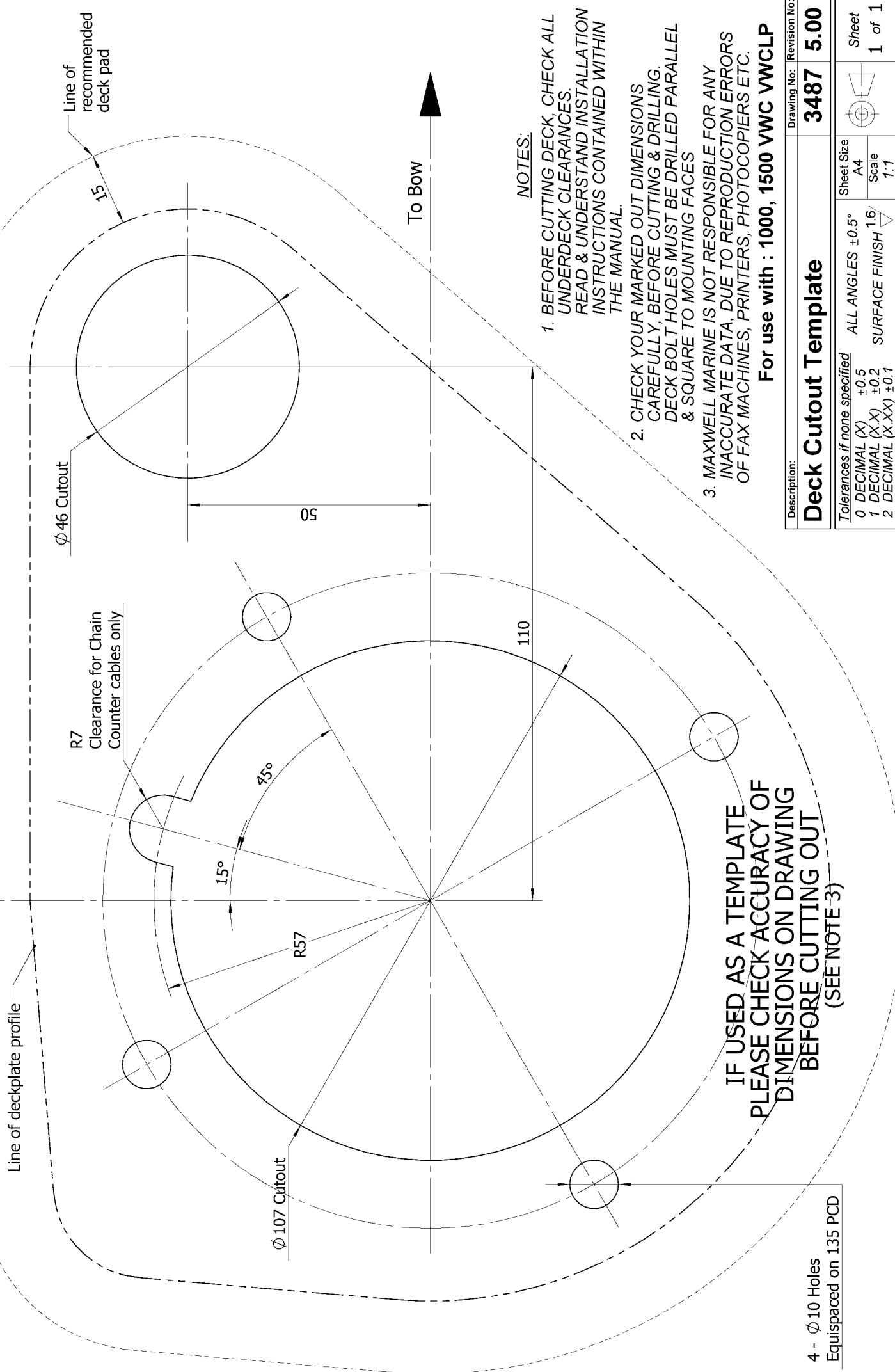


Grease must be applied to motor face, gearbox locating lugs, spacer tube, gearbox thread, shaft and clutch cone faces where shown. Use CRC 3097 (or equivalent) spray to coat all under deck components to help guard against corrosion. ***Failure to do so will void warranty.***



Rev.	Change	Made on	Des/Drawn/Checked
5.00	New Border Layout	1/10/2007	RP GB

PORT SIDE



4 - Ø 10 Holes
Equipaced on 135 PCD

Description:	Deck Cutout Template	Drawing No:	3487	Revision No:	5.00
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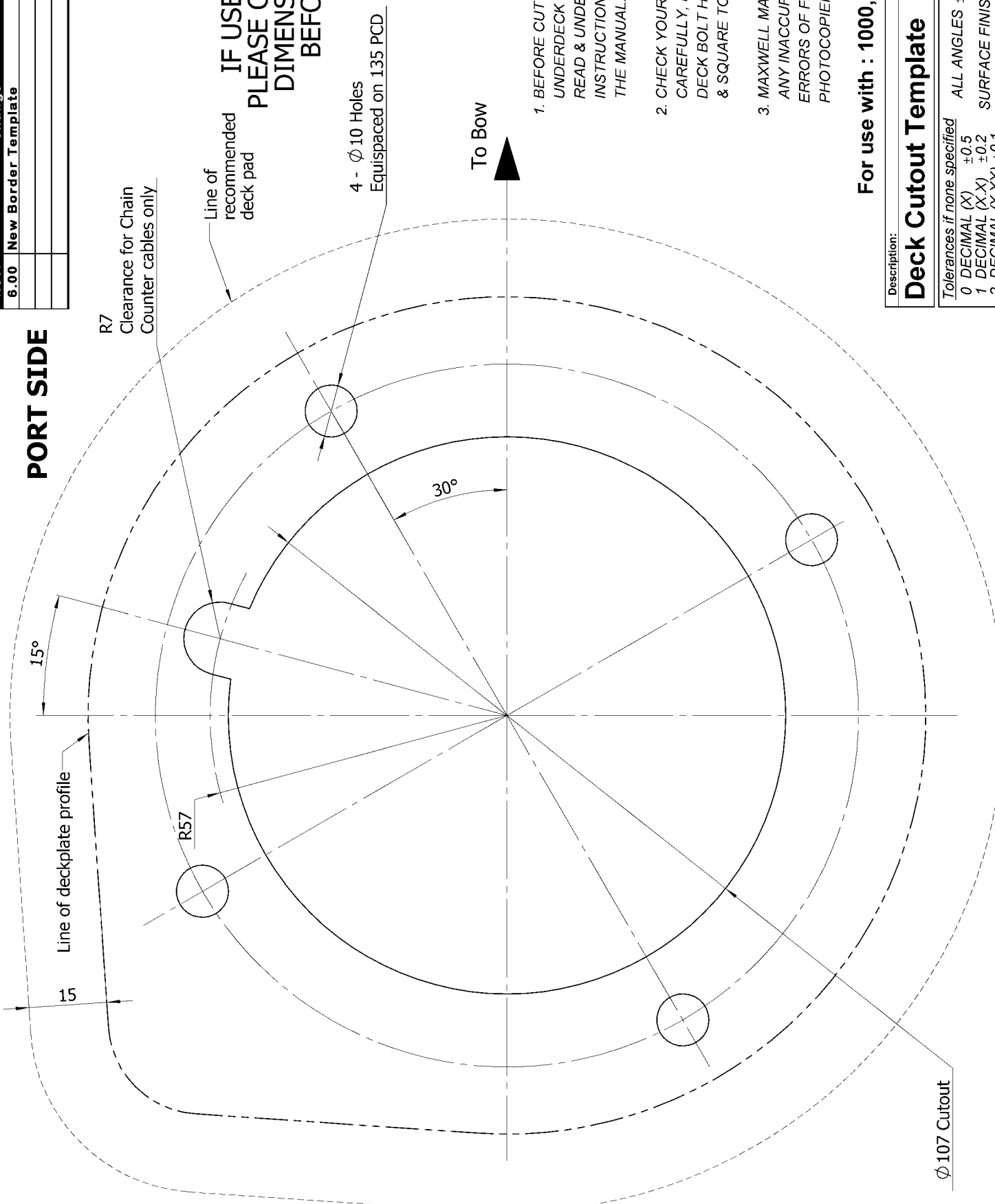
Tolerances if none specified		Sheet Size	Sheet 1 of 1
0 DECIMAL (X) ± 0.5	ALL ANGLES ± 0.5°	A4	
1 DECIMAL (X.X) ± 0.2	SURFACE FINISH 1.6	Scale 1:1	
2 DECIMAL (X.XX) ± 0.1			

For use with : **1000, 1500 VVC VWCLP**

Rev.	Change	Made on	Des/Drawn	Checked
6.00	New Border Template	1/10/2007	RP	GB

PORT SIDE

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



R7
Clearance for Chain
Counter cables only

Line of
recommended
deck pad

4 - Ø 10 Holes
Equispaced on 135 PCD

To Bow

NOTES:

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.

For use with : 1000,1500 VW VWLP

Description:		Drawing No:	Revision No:
Deck Cutout Template		3485	6.00
Tolerances if none specified		Sheet Size	Sheet
0 DECIMAL (X) ±0.5	ALL ANGLES ±0.5°	A4	1 of 1
1 DECIMAL (X.X) ±0.2	SURFACE FINISH 1.6	Scale	
2 DECIMAL (X.XX) ±0.1		1:1	

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:

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:

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



