



STORM

VR – VRC 850/1250/2200 VERTICAL WINDLASS



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INTRODUCTION

Thankyou for purchasing a Muir Windlass. Muir go to great lengths to develop anchoring systems that meet all your performance and safety requirements and are designed with a style and finish that enhances the aesthetics of your vessel. With Muir's commitment to quality and use of superior materials and processes we know you will be pleased with your investment. Rest assured that through the correct installation, operation and maintenance your new Muir Windlass will give you years of reliable performance.

IMPORTANT INFORMATION

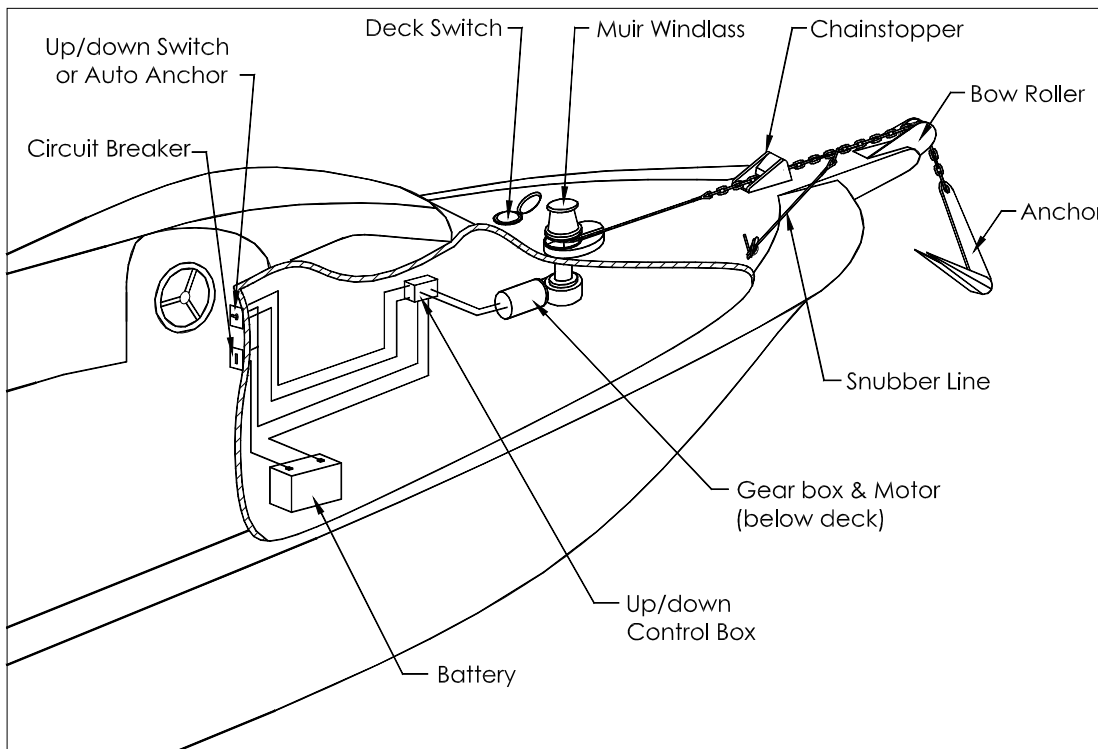
To avoid damage to the gear drive, windlass or vessel when bringing the anchor up hard, it is a preferred practice to mark the chain at approximately 5-meter intervals from the anchor, to alert the operator to the anchor position. Alternatively an Auto Anchor can be used.

Under no circumstances should the windlass be operated if it is stalled or overloaded.

If anchor retrieval is impaired by high wind, heavy seas or the anchor is snagged, ease the load by motoring slowly forward into the wind with a chain stopping device in place. The rope or chain should be cleated off and the anchor driven out by the engine, otherwise the gearbox or shaft can be damaged.

SAFE OPERATION

- Ensure that hands, feet, hair and clothing are kept clear of the windlass and other loose gear when in operation.
- Ensure no one is swimming nearby as anchor is lowered or retrieved.
- Keep hands well clear of capstan, gypsy, chain and line.
- The windlass should never be used for lifting people aloft.
- Do not use a windlass as a bollard for mooring, towing or being towed.
- Always ensure that the windlass clutch is tightened with the clutch handle. When the windlass is not in use a Chain Lock, Devil's Claw or Snubber Line should be fitted to retain the anchor. The use of these accessories will prevent excessive loads on the geardrive and accidental release of the anchor when travelling.



INSTALLATION INSTRUCTIONS

Figure (i)

Locate the windlass centrally fore and aft. Check that the chain leads unhindered to the anchor roller. The chain runs onto the starboard side of the gypsy, wraps around 180° and falls below deck through the chain pipe. Ensure there is sufficient room around the windlass to allow full rotation of the manual/clutch handle (if supplied).

Figure (ii)

The centre height of the gypsy must be in the same plane as the chain lead from the bow roller. If the deck is angled (fore & aft) or curved (port to starboard) a suitably shaped mounting block will be required to spread the load evenly over the deck surface and mount the windlass base on a level and even footing.

Figure (iii)

Place the shaped mounting block (if required) onto the deck. Using the layout template supplied, mark the mounting centres and drill the holes. (Refer template).

Figure (iv)

The nylon insulation gasket supplied with your windlass must be fitted between the deck (or mounting block if required) and the windlass base. Apply an appropriate sealant to the nylon gasket (and mounting block if required).

The nylon insulation gasket also acts to insulate between dissimilarity of metals and helps avoid corrosion.

For aluminium or steel hull vessels, it is important to insulate the mounting bolts, nuts and washers with a non-conductive gasket to avoid corrosion. Apply Loctite 222 or equivalent to the threaded studs under the deck and carefully tighten the nuts & washers. Remove excess sealer.

Where the deck construction is light or of foam sandwich construction, a plywood stiffener of at least 16mm (5/8") thickness should be fitted to the underside of the deck to spread the load and to prevent the bolts from pulling through the deck. Large diameter washers on the underside of the stiffener assist to spread the load.

Figure (v)

1. Mount the windlass from above as shown.

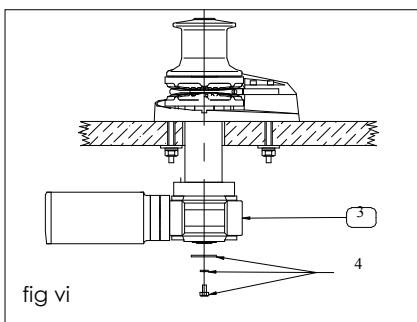
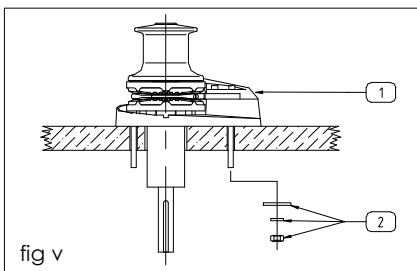
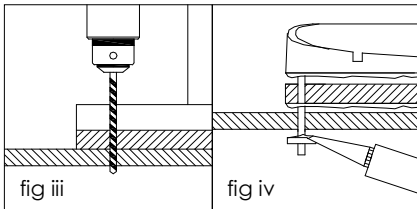
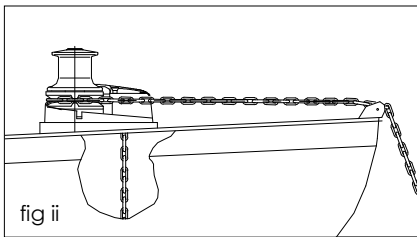
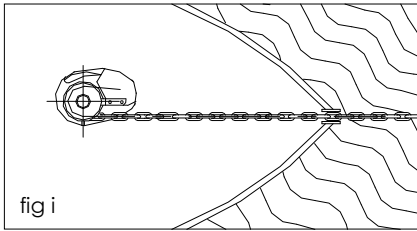
2. From below, apply Loctite 222 or equivalent and place washers and nut on each stud and tighten.

Figure (vi)

3. Grease shaft, key, and gearbox hub, slide gear drive onto shaft ensuring key is aligned. Rotate gearbox to preferred mounting position and push further up into the base adaptor until retaining clip is locked securely in the groove. (See installation diagram for Quick Fit Adaptor)

4. Apply Loctite 222 or equivalent and place washers and bolt in the end of the shaft and tighten.

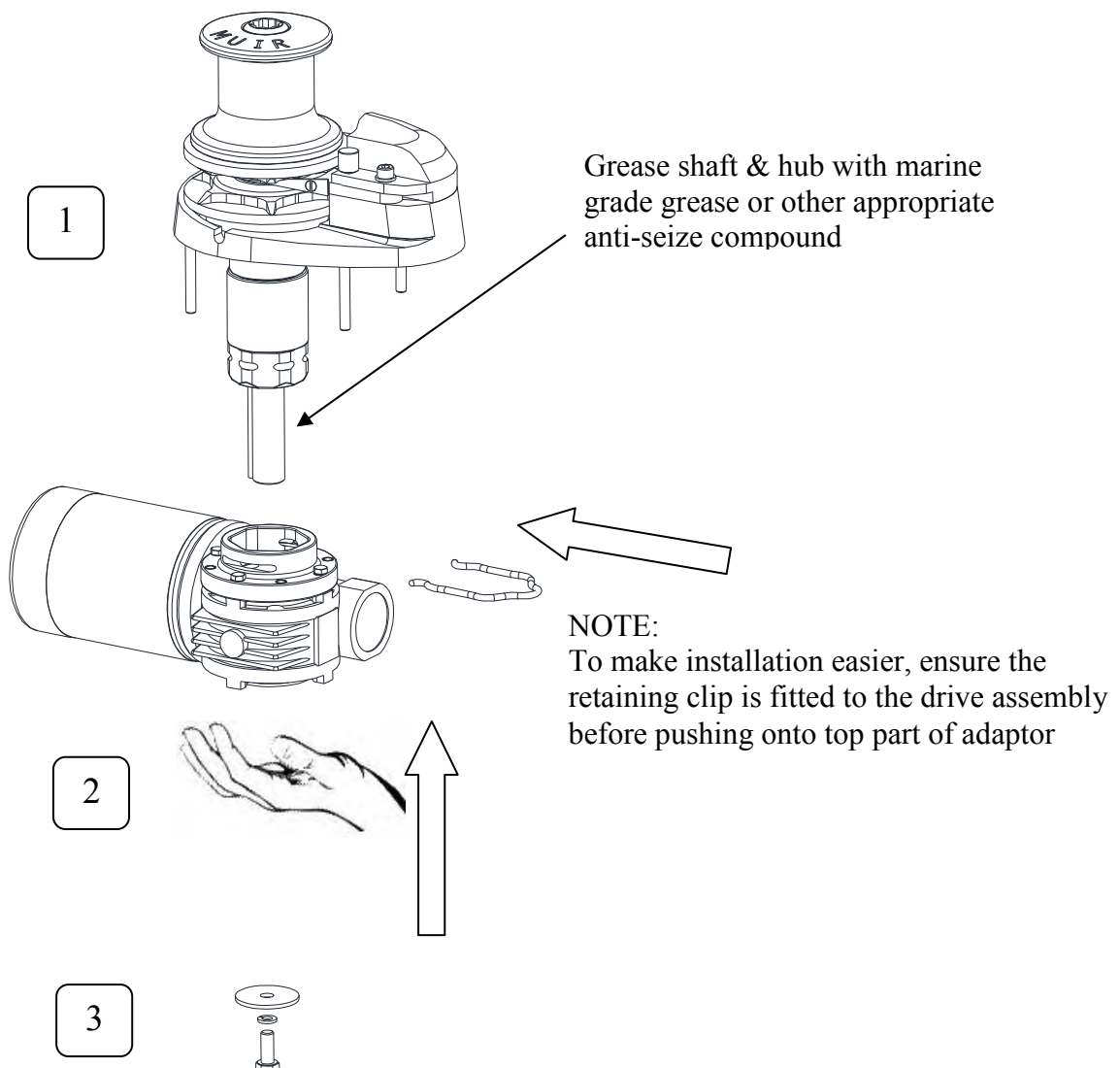
NOTE: On assembly, grease all moving parts with appropriate marine grade grease. The motor / gear drive assembly should be protected with anti-corrosion film or grease tape.



REFERENCE GUIDE

WINDLASS INSTALLATION using QUICK FIT ADAPTOR

1. *Mount Windlass to the deck using supplied deck bolts*
2. *From underneath slide Motor/Gearbox assembly into the base adaptor making sure key and keyway are aligned, then push until retaining clip locks securely in the groove*
3. *Apply Loctite 222 or equivalent to the retaining bolt, then attach washers and bolt to the end of the shaft and tighten*



To disassemble:

Remove the bottom bolt and washers, pull out the retaining clip and then slide down the Motor/Gearbox assembly.

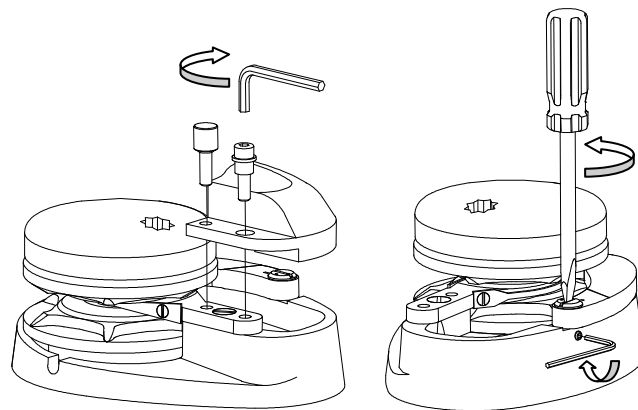
ROPE CHAIN MANAGEMENT SYSTEM INSTALLATION

If you require the use of the Rope Chain Management System (RCMS), follow these instructions to fit and adjust the finger and spring. You will require allen keys and a large flat tip screw driver to fit and adjust the RCMS, which is easy to do and will only take approximately 5 minutes to complete.

Firstly, ensure that power to the windlass is isolated so it can not accidentally operate whilst you are working on it and that it is safe to work on or near it. It is also recommended to store all removed parts in a secure place, so that they do not roll off the deck during this operation.

Refer to the Windlass manual Exploded View to help identify parts.

1. Remove the chain cover, by removing the thumb screw and swivel the chain cover around so it is out of the way.
2. Using the correct size of allen key, loosen the grub screw and remove the finger pin from the base.
3. Fit the spring into the hole and slot in the finger, with spring ends pointing upwards.
4. Fit the finger and spring to the base, by lining up the finger and spring hole over the finger pin hole in the base, and reinstall the finger pin. The hole in the finger pin must fit over the end of the spring that is sticking up.
5. To tension the spring, use the flat tip screw driver to turn the Finger Pin anti-clockwise to line up the slot in the pin with the slot in the finger, then whilst holding against the spring tension, tighten the grub screw to lock the Finger Pin in place. This applies the correct tension to the finger.

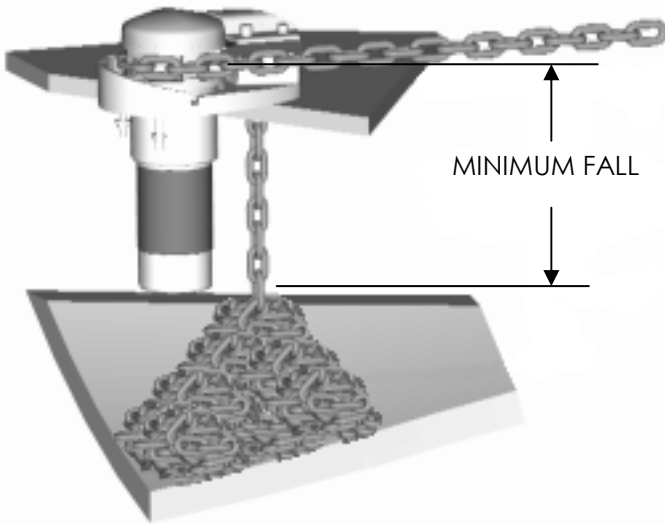


6. Re-fit the chain cover and tighten the thumb or socket head cap screw as appropriate.

Once installed and adjusted, proper maintenance and operation will provide many years of service.

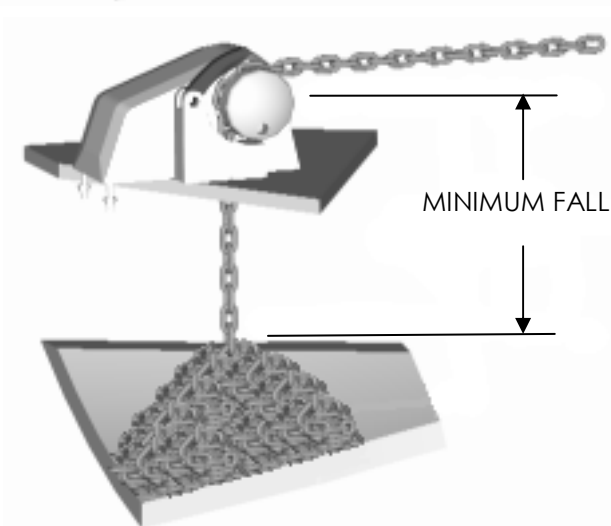
DEPTH OF THE CHAIN LOCKER

Measuring the vertical distance (minimum fall) underside of the deck and the top of the completely stored and heaped anchor rode in the locker will assist in determining the installation to suit your vessel. Refer to the fall depth diagrams and the options detailed below. It is also recommended that the chain be directed to the centre of the chain locker.



Vertical Windlass:

The running gear, gypsy and capstan are positioned above the deck with the motor and gear drive below. Vertical windlasses operate at best with greater anchor rode fall than the horizontal windlass and a minimum fall of 300mm from top of stacked anchor rode is recommended. This is particularly important if using nylon line, which does not fold and stack as well as chain. Vertical windlasses minimise deck intrusion and the modern curved lines of the Muir windlass enhance the look of any vessel. A vertical windlass provides the advantage of a 180-degree wrap of the anchor rode around the gypsy.



Horizontal Windlass:

Fully enclosed, above deck, this style is usually preferred where locker space is limited or additional fall is required. The motor and gear drive is fully enclosed in the housing with nothing protruding below deck. The horizontal windlass operates with optimum anchor rode fall of at least 300mm from the top of the stacked anchor rode, and due to the horizontal orientation of the gypsy higher above the deck there is additional fall provided. These units are ideally suited for vessels with less locker space.

Vertical Windlass Model	Horizontal Windlass Model	Minimum Fall (Dist. Top of Pile)
VR/C 600	HR 600 / 700 / 806 / 808	300 mm
VR/C 850 / 1250 / 2200	HR 1200	450 mm
VR/C 2500 / 3500	HR 2500 / 3500	650 mm
VR/C 4000	HR 4000/- 4200	800 mm

HANDY HINTS

It is a common error to locate the windlass too far forward, or too close to the bulk head, where there is insufficient room for chain and anchor stowage. The chain fall should be positioned in the centre of the chain locker to maximise the fall of the chain. If the chain falls alongside a bulkhead or onto the stem it will typically pyramid and jam.

If the windlass requires positioning such that chain falls into an undesirable position, a metal tube can be fitted under the hawser to redirect the chain to a preferred position. This pipe should be at least 2 times the diameter of the chain. It should also be as vertical as possible. Position the windlass in the best location with the chain hawser facing forward.

Ensure sufficient room to run electric cables to the windlass. Follow the installation instructions, including underdeck stiffening, deck camber, alignment, mounting blocks and sealing procedures. The gearbox and motor can be located in one of 8 positions.

ELECTRICAL

See Wiring Diagrams for wiring instructions.

Circuit breaker (must be fitted to ensure warranty)

If the windlass is overloaded or stalled the circuit breaker will automatically cut power to the windlass and protect the wiring and motor. The circuit breaker should not be used as an isolating switch.

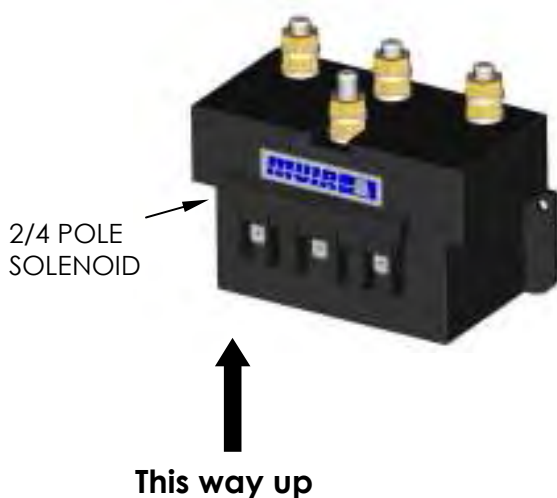
Deck Switches are best located out to either port or starboard or directly behind the windlass in a position where it can be easily reached with your foot or knee, preferably where you can view the anchor and chain coming aboard.

Isolating Switch should be fitted in an accessible position for safety, ideally close to the battery or switches. The isolating switch is not a circuit breaker.

Batteries are best located as close to the windlass as possible. Larger cables will reduce the voltage drop to the motor and the heat generated when running the windlass. Small diameter cables drop voltage considerably. Use the following table as a guide to your required wire size:

Distance from battery to motor (m)	Cable Size		Cable Diameter (mm)
	(mm ²)	AWG	
7 (23')	25	3	8 (5/16")
9 – 17 (30' – 55')	50	1/0	10 (3/8")

Rotation: Windlasses may be wired for single or dual direction, using single or dual deck switches for raising or lowering. Alternatively a remote control solenoid package with Toggle Switch, Hand Pendant or Auto Anchors are available.



Solenoid Installation

We recommend that the solenoid is installed in an upright position, where it has **no exposure** to sea water and in close proximity to the electric motor of the windlass.

Do not place the solenoid in the chain locker.

For wiring information, please refer to the appropriate wiring diagram listed in the table below.

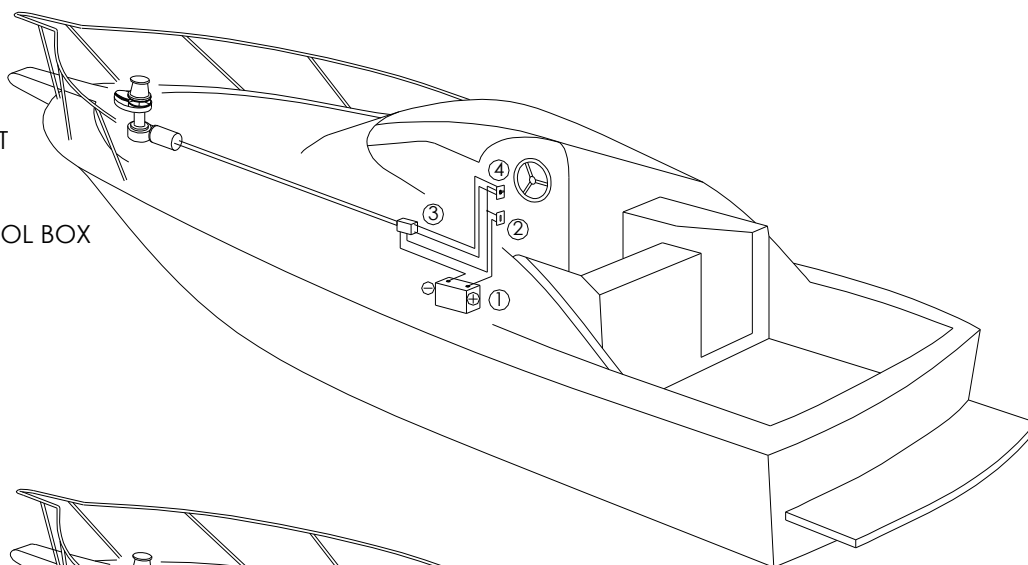
WINCH MODEL	MOTOR TYPE	DRAWING NO.
VR/C 850	2 POLE	WIRE1076
VR/C 1250	3 POLE	WIRE0086
VR/C 2200	3 POLE	WIRE0086

WARNING: Keep solenoid away from salt and fresh water

WIRING LAYOUT

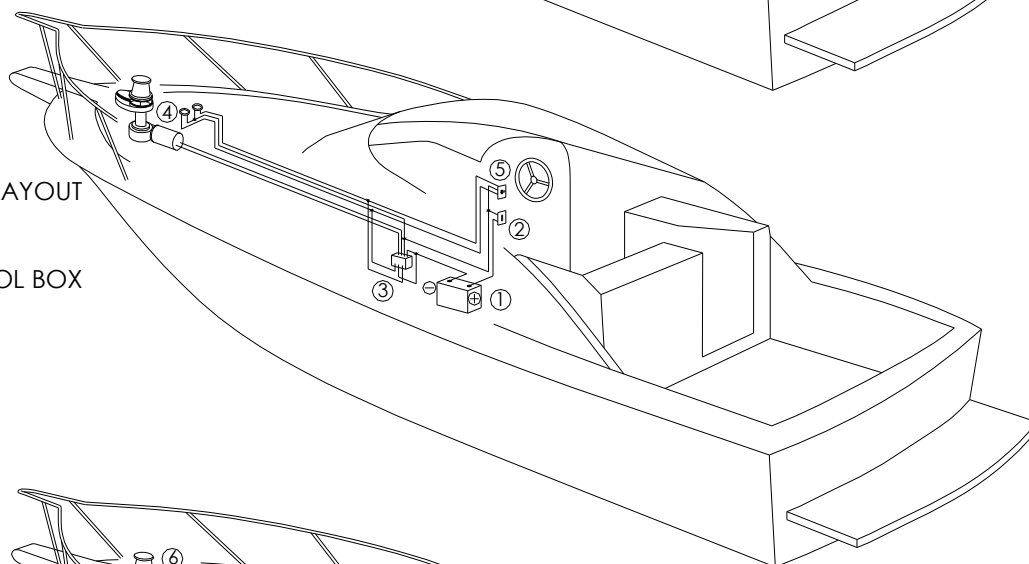
REMOTE SWITCH LAYOUT

1. BATTERY
2. CIRCUIT BREAKER
3. SOLENOID/CONTROL BOX
4. REMOTE SWITCH



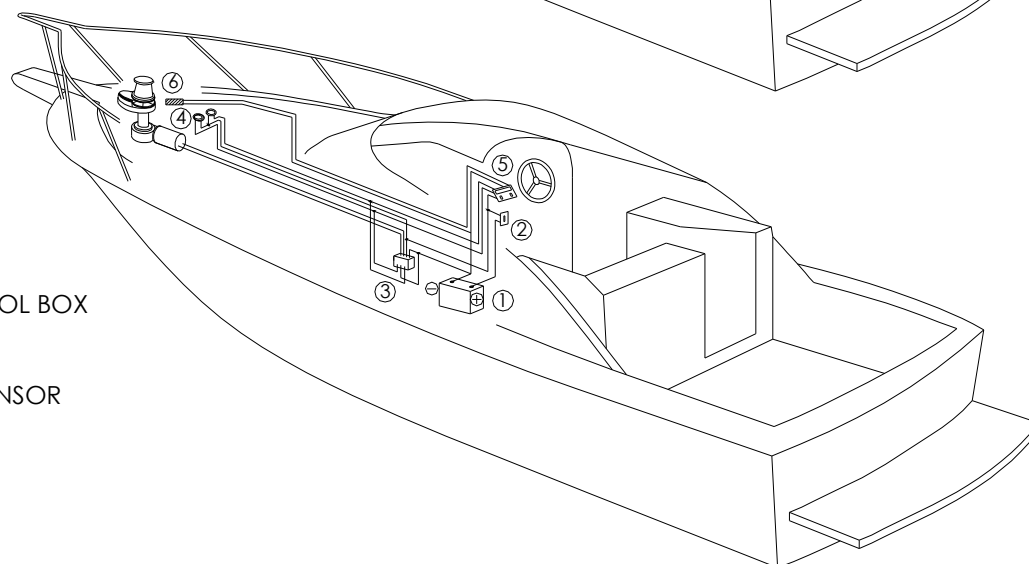
REMOTE / DECK SWITCH LAYOUT

1. BATTERY
2. CIRCUIT BREAKER
3. SOLENOID/CONTROL BOX
4. DECK SWITCHES
5. REMOTE SWITCH



AUTO ANCHOR LAYOUT

1. BATTERY
2. CIRCUIT BREAKER
3. SOLENOID/CONTROL BOX
4. DECK SWITCHES
5. AUTO ANCHOR
6. AUTO ANCHOR SENSOR



NOT TO BE USED AS WIRING DIAGRAMS

OPERATING INSTRUCTIONS

Manually Releasing chain: To release the anchor rode, place the handle into the clutch drive bi-square as shown in the diagram at the bottom of the page and turn **anti-clockwise** to release the clutch brake. Let the anchor fall and control the run of the chain by tightening handle **clockwise** using the clutch mechanism as a brake.

Anchoring: When laying at anchor, use a chain stopper, nylon/chain bridle or snubber line to prevent snatching and direct loading on the windlass main shaft. Never use the windlass as a mooring bollard.

Retrieving Chain: Before operating the windlass tighten the clutch with the handle in a **clockwise** direction, then remove the handle. If anchor retrieval is impaired by high wind, heavy seas or the anchor is buried hard, ease the load by motoring slowly forward into the wind with a chain stopping device in place. This way, the anchor is driven out by the engine, otherwise the gearbox or shaft can be damaged.

Rope hauling on the Capstan (VRC models only): The capstan can be operated independently of the gypsy. Secure the anchor rode (via chain lock, Gypsy lock or Snubber) then release the clutch. The capstan can then be operated using the manual handle or by operating the windlass motor.

Electric / Hydraulic operation: Releasing and retrieving the anchor rode is identical when operating an electric or hydraulic windlass. Always keep well clear of the windlass when releasing or retrieving chain and anchor. Keep fingers, hair and clothing well clear when the windlass is in operation.

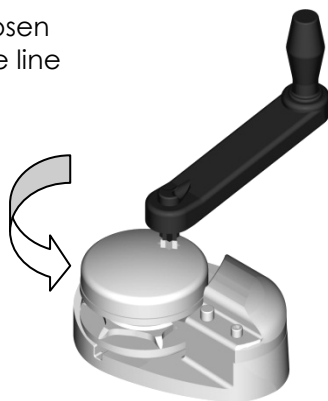
Auto Anchor Launching: If the anchor roller can be positioned so that the anchor falls as soon as the windlass is reversed, the whole operation can then be carried out remotely. Remote switching controls are self centering and stop the windlass when the switch is released. Mark the anchor end of the chain at 2 and 5 metre (6.5' & 16.5') intervals to enable the operator to judge when the anchor is almost up. For the last few metres of chain retrieval, decrease retrieval speed by letting go of the switch, rather than waiting for the anchor to fly up over the roller and bang tight, as this will put excessive load onto the bow roller, windlass and foredeck.

SERVICING

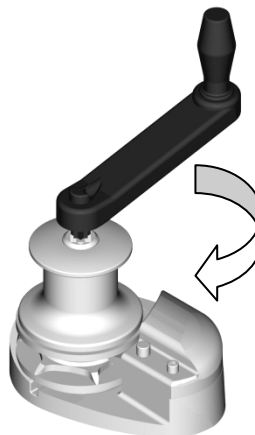
Rinsing all deck gear with fresh water after every excursion ensures that salt deposits and corrosion are kept to a minimum. We recommend the windlasses of Pleasure Vessels are stripped yearly and all moving parts cleaned and greased with an appropriate marine grade grease. Servicing should be carried out more frequently with increased usage (e.g. in the case of Work and Charter Vessels). **Do not use soap based grease.**

The geardrive is filled and sealed at factory with long life synthetic oil that does not require replacement for the life of the geardrive.

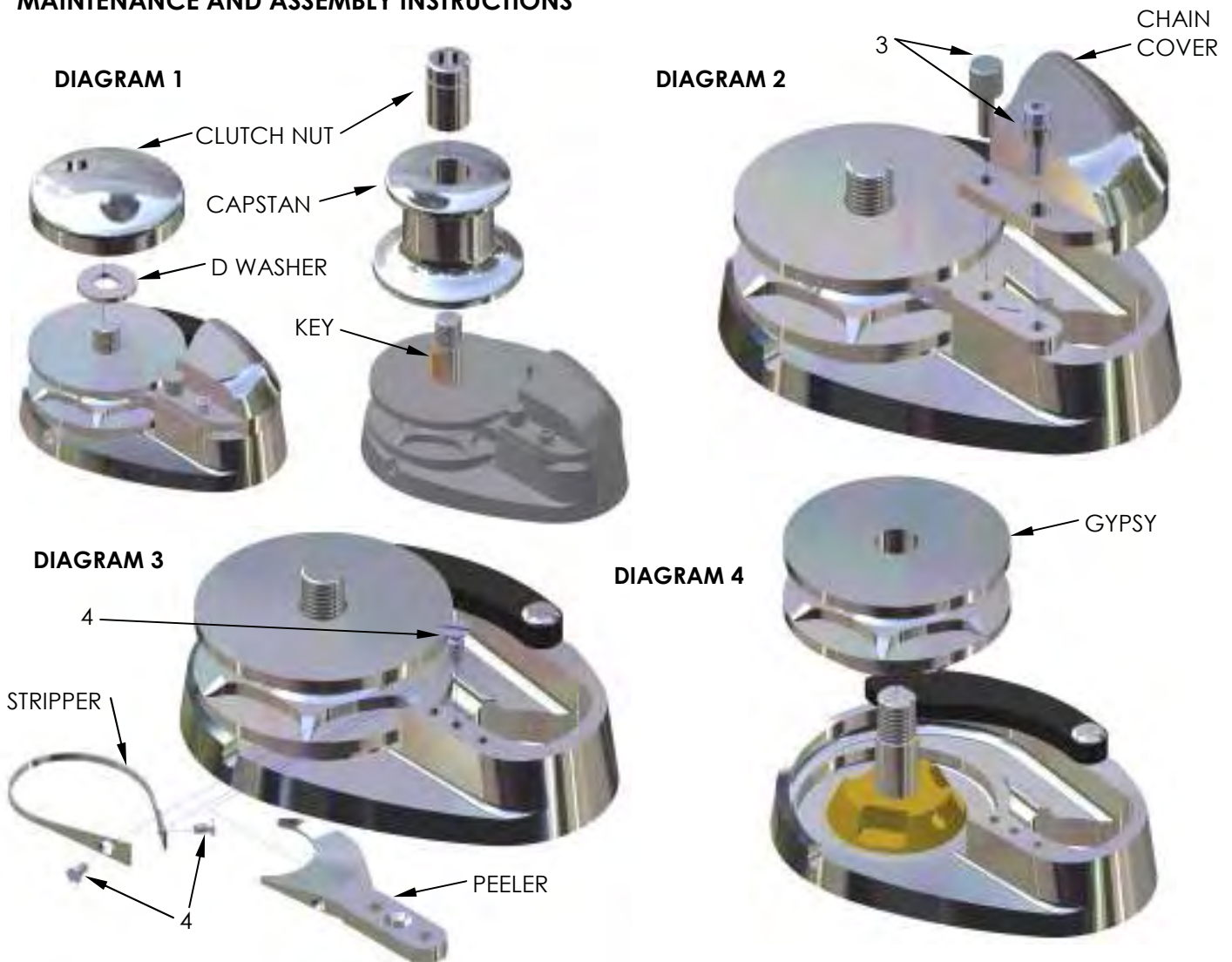
Gradually loosen to release the line manually.



Tighten to handle to slow the rate of the outgoing line. Fully tighten prior to retrieving the anchor under power.



MAINTENANCE AND ASSEMBLY INSTRUCTIONS



PROCEDURE:

Tools Required: Clutch handle, Allen keys, small and large flat bladed screwdrivers & marine grade grease.

VR MODELS ONLY (DIAGRAM 1 LHS)

1. Remove clutch nut with handle supplied
2. Slide the 'D' washer off the shaft.

VRC MODELS ONLY (DIAGRAM 1 RHS)

1. Remove clutch nut with handle supplied
2. Slide the capstan off the shaft taking care not to lose the shaft key

VR AND VRC MODELS

3. Undo the thumb screw and socket head screw with an allen key to remove the chain cover.
4. Undo the stripper screws with a flat bladed screwdriver and remove the stripper. The securing screw for the peeler should now be removed with a flat bladed screwdriver, followed by the peeler.
5. The gypsy can now be removed from the main shaft.

NOTE: We recommend the use of a marine grade grease.

- Before re-assembly, grease the exposed main shaft/cone & gypsy bore.
- The Motor / geardrive assembly should be protected with anti-corrosion film or grease tape.

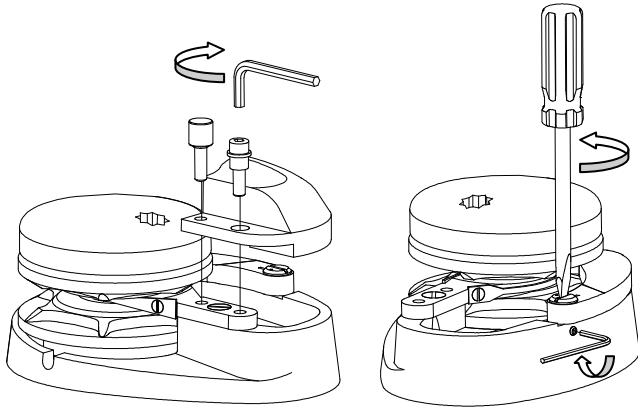
ROPE CHAIN MANAGEMENT SYSTEM (RCMS) ADJUSTMENT

Firm tension of the finger is required to reduce rope (nylon line) slipping through the gypsy. To adjust this tension (if line slippage is occurring) refer to the diagrams and procedure below.

PROCEDURE:

Tools Required: Allen keys and a large flat bladed screwdriver.

1. Undo the thumb screw and open the chain cover by rotating it.
2. Loosen the grub screw on the side of base with an allen key for finger adjustment.
3. Turn screwdriver **anti-clockwise** to tension the spring. While maintain this tension, re-tighten the grub screw.
4. Reattach the chain cover to finish the adjustment.

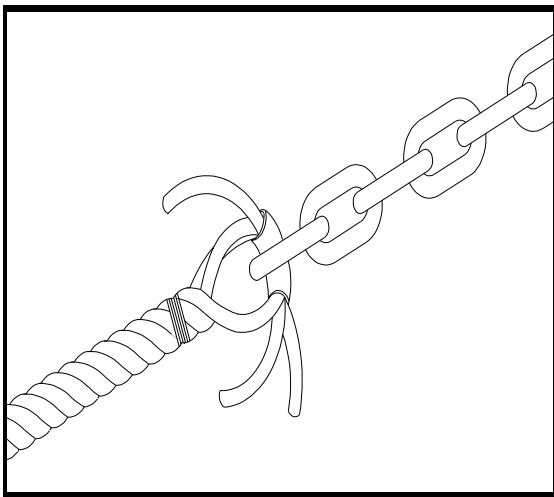


Line Care

Using the wrong type of line may cause the line to jam causing excessive line wear. Muir Windlasses are designed to run on 3-strand nylon line (supplied by Muir) which has been specially treated to prevent it from hardening. It is recommended to soak your rope in fresh water containing fabric softener every 3 months.

In case of a rope jam, slacken off the windlass clutch to free the jammed line. When retrieving the anchor rode do not continue to run the windlass if the anchor or chain is jammed, as line slippage in the gypsy will cause damage to the line.

Rope/Chain Splice



1. To stop rope unravelling, seize rope 400mm (16") from end with whipping twine. Unlay strands.
2. After placing 20mm (3/4") of heat shrink sleeve tubing through the last link of chain, pass one strand of rope through sleeve and chain from one side and the other two strands of rope from the opposite side, (see illustration).
3. While pulling all three strands tight, shrink the sleeve tightly onto the rope using a hairdryer / fan heater or by immersing in boiling water.
4. Remove seizing and complete back splice in normal manner for two full tucks. With a hot knife pare down the three strands by one third and insert two further tucks. Pare down by another third and finish with two tucks. Cut any remaining tails.

Troubleshooting

ELECTRICAL

1. Check the battery circuit breaker and ensure that the isolating switch is on.
2. Check battery is charged up to 12 or 24 volts (as relevant to the vessel).
3. Check that the foot switch plunger is contacting.
4. Check that the remote control solenoid is contacting. If this is clicking the problem may be low voltage, a faulty solenoid or a wire not properly connected.
5. Check wiring between controls, solenoid and motor are intact.
6. If the motor will not turn after checking the above points, check that the motor bushes are not worn or sticking.

MECHANICAL

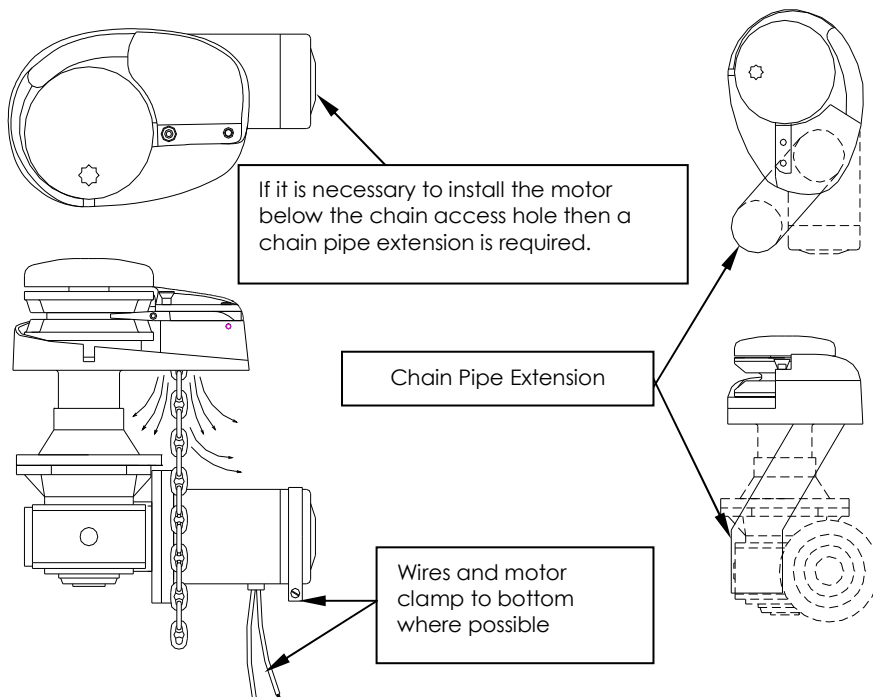
If the windlass running gear will not turn or operate check the following:

1. Check that the clutch above the chain gypsy is tightened to the chain gypsy drive using the handle supplied (see operating instructions).
2. If the line slips check the tension on the finger and increase spring tension (refer to section on RCMS adjustment).
3. Check the drive key between the gearbox output and the main shaft.
4. Check the drive key between the gearbox and motor input.

HYDRAULIC MOTOR

Refer any problems with your hydraulic motor to a Muir service agent or Muir Engineering.

WATER PROTECTION DIAGRAM

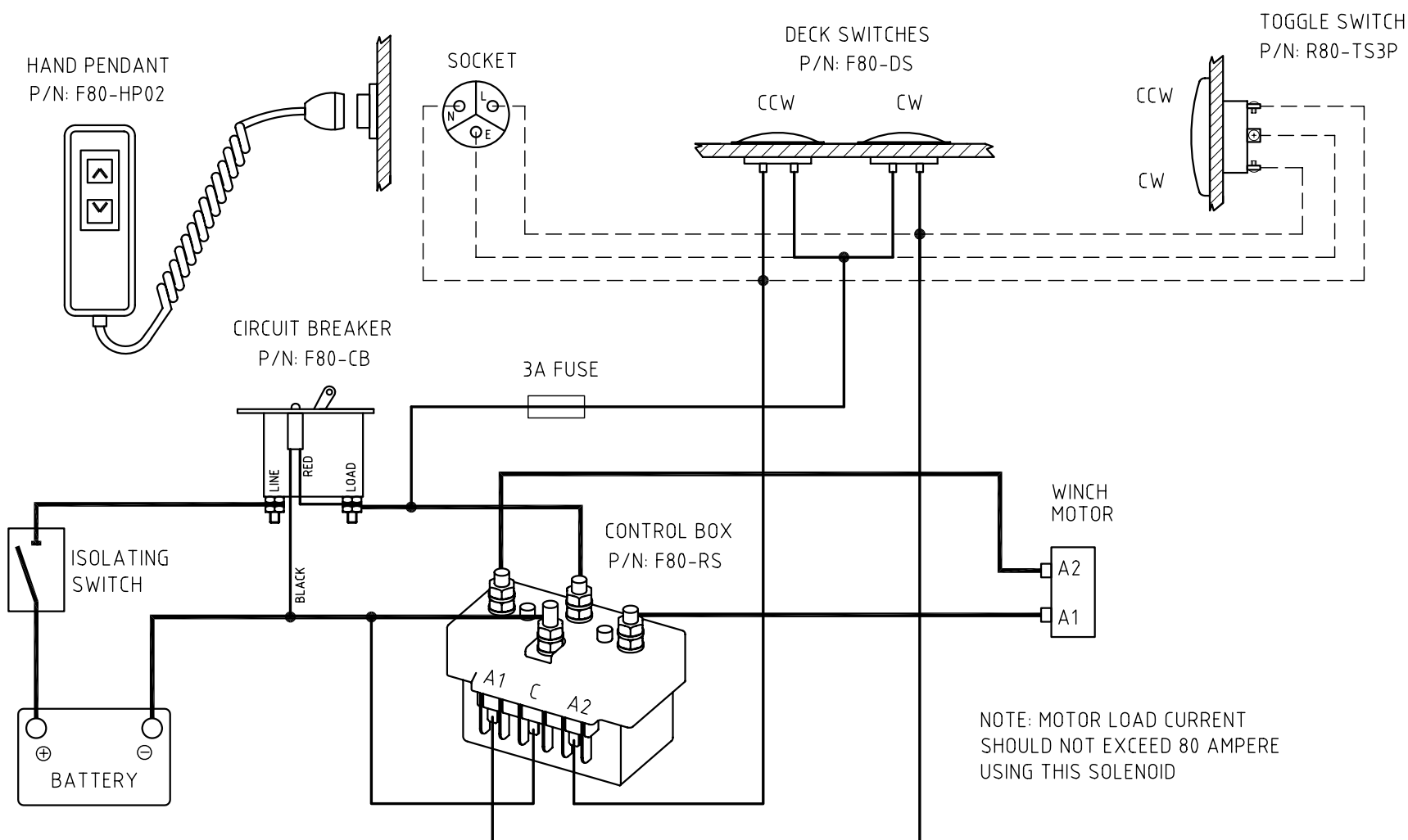


NOTE:

It is important to thoroughly lubricate all mating surfaces with a grease suitable for marine applications.

Corrosion protection should be applied to the external surfaces of the motor, gearbox and adaptor and also in any areas in which water may lie.

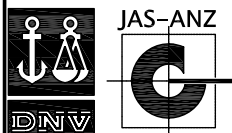
Recommended products for anti corrosion protection are Techtyl under body anti corrosion film and Denso grease tape.



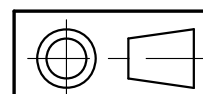
- REFER TO MANUAL FOR WIRING INDICATED BY HEAVY LINES
- LIGHTER LINES INDICATE LIGHT WIRING.
- - DASHED LINES INDICATE OPTIONAL WIRING.

NORMALLY APPLIES TO THESE WINCHES AND MOTORS

MOTOR 12/24V	600W
WINCH MODEL	DW 08

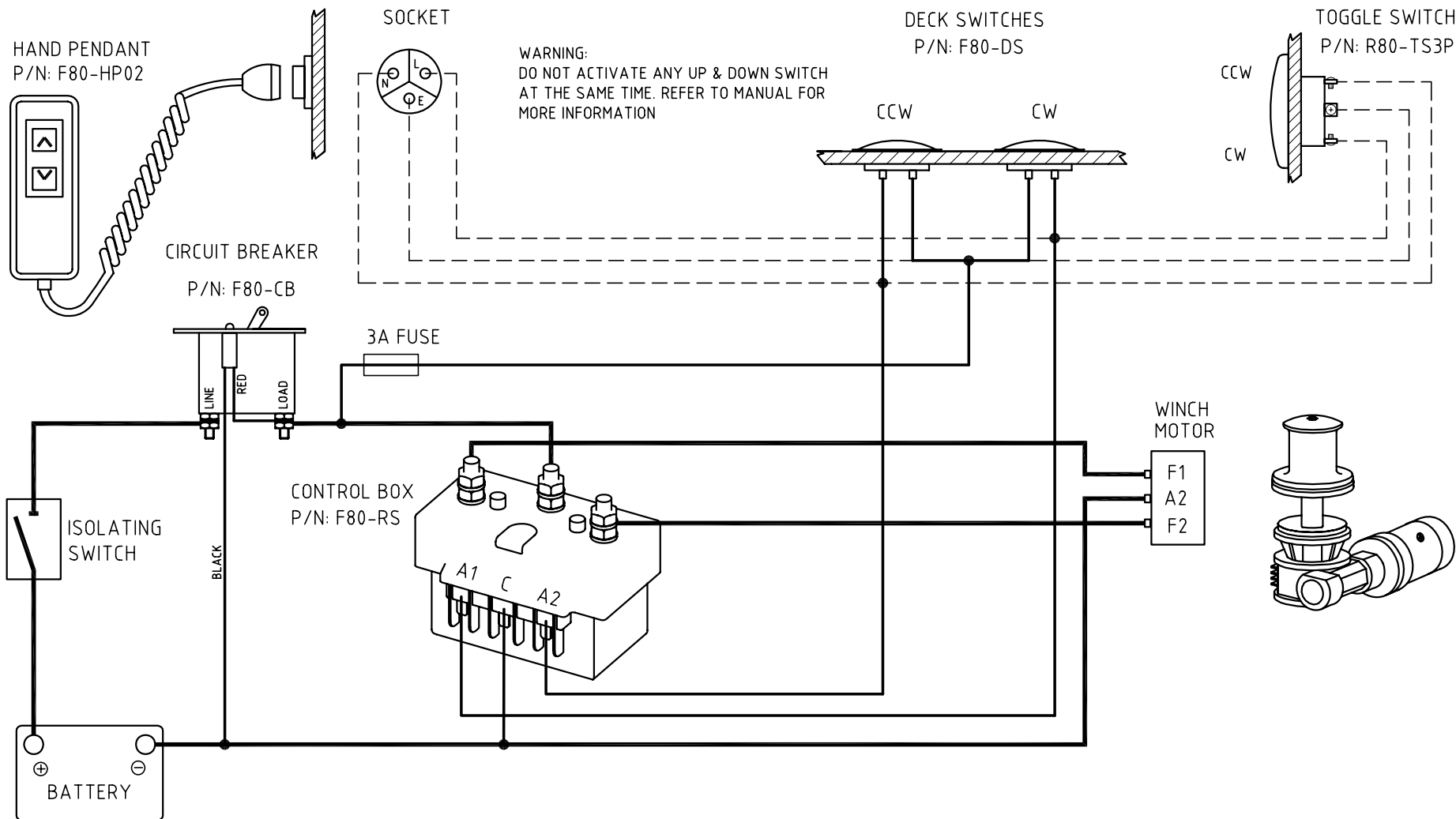


DNV Certification Pty Ltd
Quality Assured ISO9001:2000



TOLERANCES (mm)	
X.	±
X.X	±
X.XX	±
UNLESS OTHERWISE SPECIFIED	
MATERIAL	
FINISH	

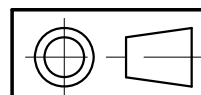
MUIR WINDLASSES AUSTRALIA			
TITLE TWO TERMINAL MOTOR (REVERSING) WIRING DIAGRAM (POSITIVE ACTING SOLENOID)			
PART No.			
DRN DD	DATE 01/09/06	DRG No. WIRE0085-A	
SCALE NTS	APP1	APP2	SIZE A4
© COPYRIGHT MUIR ENGINEERING PTY. LTD.			



- REFER TO MANUAL FOR WIRING INDICATED BY HEAVY LINES
- LIGHTER LINES INDICATE LIGHT WIRING.
- DASHED LINES INDICATE OPTIONAL WIRING.

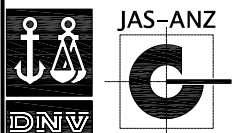
NORMALLY APPLIES TO THESE WINCHES AND MOTORS

MOTOR 12/24V	1000W	1200W	1500W
WINCH MODEL	VC 850	VC 2500	VC 3500

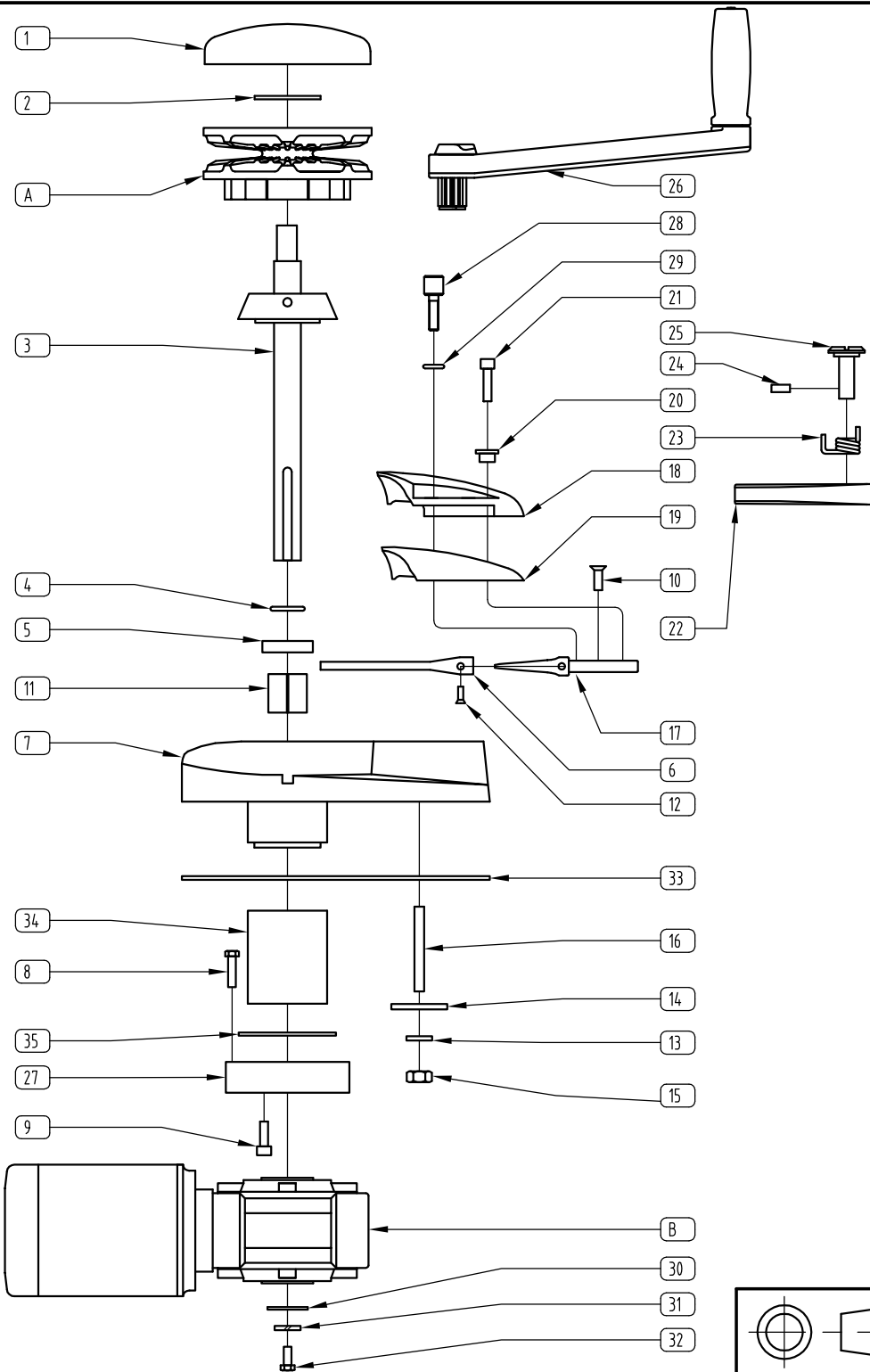


TOLERANCES (mm)	
X.	±
X.X	±
X.XX	±
UNLESS OTHERWISE SPECIFIED	
MATERIAL	
FINISH	

MUIR WINDLASSES AUSTRALIA			
TITLE THREE TERMINAL MOTOR (REVERSING) WIRING DIAGRAM (POSITIVE ACTING SOLENOID)			
PART No.			
DRN WQ	DATE 10/06/05	DRG No. WIRE0086	
SCALE NTS	APP1	APP2	SIZE A4
© COPYRIGHT MUIR ENGINEERING PTY. LTD.			



DNV Certification Pty Ltd
Quality Assured ISO9001:2000

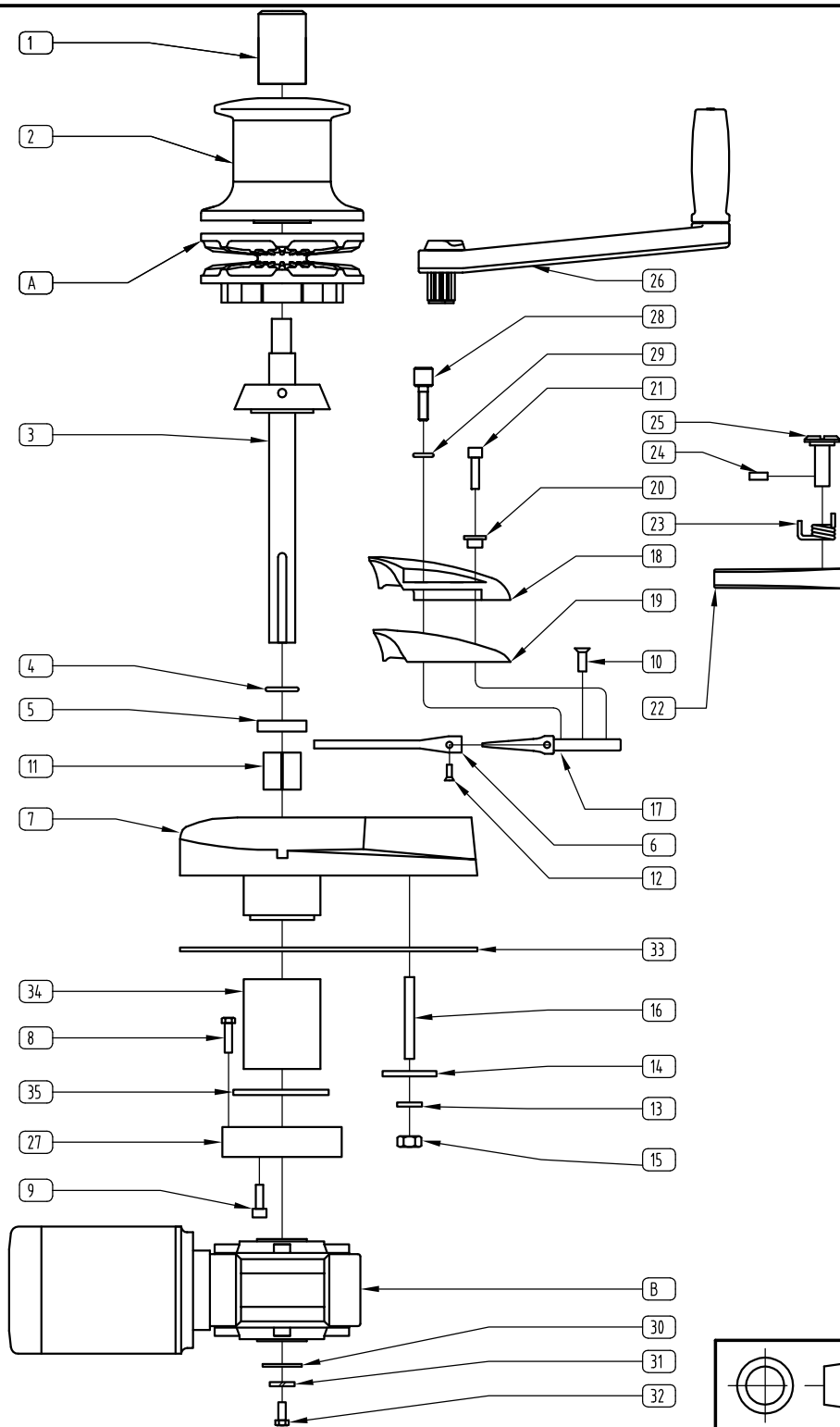


ITEM	PART NUMBER	DESCRIPTION	QTY
1	P07-CLN316VR00850A	CLUTCH NUT SS316 VR850A	1
2	P23-316050.8022.305	'D' WASHER SS 316 2" x 7/8" x 5MM	1
3	K06-SFTVR00850A	SHAFT ASSEMBLY VR850A	1
4	R41-ORG02802501.8	'O' RING SEAL 28.5X25X1.75 (BS022)	1
5	R42-SEA0350025.06.5	SEAL 25 X 35 X 7 (TC12463)	1
6	P19-STR3040850AF	STRIPPER SS304 VR/C850AF-SPOON TYPE	1
7	P22-BSE31600850A	BASE SS316 VR/C850A	1
8	S36-30406.00025	BOLT HEX HD SS304 6MM X 25MM	4
9	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	4
10	S33-30408.00020	SCREW CSK SL MT 304 8MM X 20MM	1
11	R51-DU252830	BASE BUSH BRONZE SELF LUBRICATING	1
12	S33-30404.76010	SCREW CSK SL MT 304 0-3/16 X 0-3/8 INCH	2
13	S76-30410.00	WASHER SPRING SS304 10MM	3
14	S75-30410.00	WASHER FLAT SS304 10MM	3
15	S20-30410.00	NUT HEX SS304 10MM	3
16	P24-STD3040850A	STUD SS304 VR/C850A	3
17	P05-PLR3160850	PEELER SS316 VR/C850AF SPOON TYPE	1
18	P05-CCV3160850A	CHAIN COVER SS316 VR/C850A	1
19	P05-CCV3160850AINS	CHAIN COVER INSERT	1
20	P02-304012.2008.109	BUSH SS304 VR/C1000A CHAIN COVER	1
21	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	1
22	R40-FGRPVC0850A	FINGER PVC VR/C850A	1
23	S36-SPR304FGRATL	SPRING FINGER ATLANTICS	1
24	S35-30406.0006	SCREW GRUB 304 M6 X 6MM	1
25	P15-PIN30419.05X27	PIN - FINGER ATLANTICS	1
26	F90-HANHDPE200	HANDLE HDPE 8" (200mm)	1
27	R50-QADP3160850AB	QUICK FIT ADAPTOR - GEARBOX SIDE	1
28	S46-30408.00030	SCREW THUMB SS303 M8 X 30MM	1
29	R41-ORG01100701.8	'O' RING SEAL 11 X ID7.5 X 1.75 (BS011)	1
30	S75-30410.00030	WASHER SS304 30 X 10 X 2.5MM	1
31	S76-30410.00	WASHER SPRING SS304 10MM	1
32	S36-30410.00025	SCREW HEX HD SS304 10MM X 25MM	1
33	P22-BSE31600850B	BASE INSULATION PAD	1
34	R50-QADP3160850AT	QUICK FIT ADAPTOR - BASE SIDE	1
35	R50-QADP3160850AC	QUICK FIT ADAPTOR - RETAINING CLIP	1

A GYPSY

B MOTOR / GEARBOX ASSEMBLY

REV No.	DESC.	BY.	DATE.
1	ADDED QUICK FIT ADAPTOR	MW	30-01-12
		MUIR WINDLASSES AUSTRALIA	
TOLERANCES (mm)		TITLE	
X. ±		STORM VR850	
X.X ±		EXPLODED VIEW	
X.XX ±		PART No.	
UNLESS OTHERWISE SPECIFIED		K08-STORMVR0850	
MATERIAL		DRN	DATE
		JT	22/5/07
		SCALE	APP1
		NTS	APP2
		FINISH	SIZE
			A4
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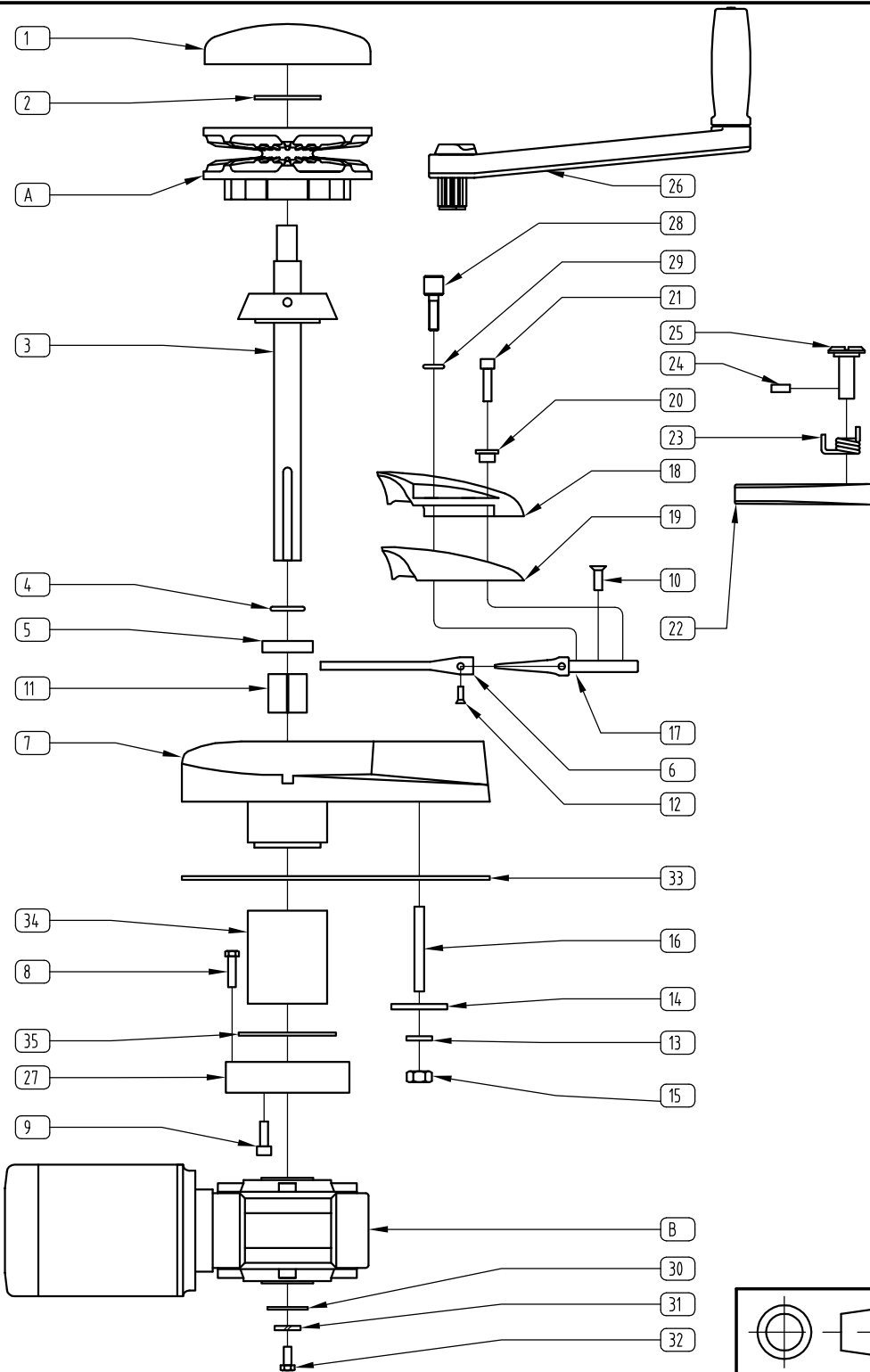


ITEM	PART NUMBER	DESCRIPTION	QTY
1	P07-CLN316VRC00850	CLUTCH NUT SS316 VRC850	1
2	P04-CAPSS00850A	CAPSTAN SS316 VRC850A	1
3	K06-SFTVR00850A	SHAFT ASSEMBLY VRC850A	1
4	R41-ORG02802501.8	'O' RING SEAL 28.5X25X1.75 (BS022)	1
5	R42-SEA0350025.06.5	SEAL 25 X 35 X 7 (TC12463)	1
6	P19-STR3040850AF	STRIPPER SS304 VR/C850AF-SPOON TYPE	1
7	P22-BSE31600850A	BASE SS316 VR/C850A	1
8	S36-30406.00025	BOLT HEX HD SS304 6MM X 25MM	4
9	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	4
10	S33-30408.00020	SCREW CSK SL MT 304 8MM X 20MM	1
11	R51-DU252830	BASE BUSH BRONZE SELF LUBRICATING	1
12	S33-30404.76010	SCREW CSK SL MT 304 0-3/16 X 0-3/8 INCH	2
13	S76-30410.00	WASHER SPRING SS304 10MM	3
14	S75-30410.00	WASHER FLAT SS304 10MM	3
15	S20-30410.00	NUT HEX SS304 10MM	3
16	P24-STD3040850A	STUD SS304 VR/C850A M10	3
17	P05-PLR3160850	PEELER SS316 VR/C850AF SPOON TYPE	1
18	P05-CCV3160850A	CHAIN COVER SS316 VR/C850A	1
19	P05-CCV3160850AINS	CHAIN COVER INSERT	1
20	P02-304012.2008.109	BUSH SS304 VR/C1000A CHAIN COVER	1
21	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	1
22	R40-FGRPVC0850A	FINGER PVC VR/C850A	1
23	S36-SPR304FGRATL	SPRING FINGER ATLANTICS	1
24	S35-30406.0006	SCREW GRUB 304 M6 X 6MM	1
25	P15-PIN30419.05X27	PIN - FINGER ATLANTICS	1
26	F90-HANHDPE200	HANDLE HDPE 8" (200mm)	1
27	R50-QADP3160850AB	QUICK FIT ADAPTOR - GEARBOX SIDE	1
28	S46-30408.00030	SCREW THUMB SS303 M8 X 30MM	1
29	R41-ORG01100701.8	'O' RING SEAL 11 X ID7.5 X 1.75 (BS011)	1
30	S75-30410.00030	WASHER SS304 30 X 10 X 2.5MM	1
31	S76-30410.00	WASHER SPRING SS304 10MM	1
32	S36-30410.00025	SCREW HEX HD SS304 10MM X 25MM	1
33	P22-BSE31600850B	BASE INSULATION PAD	1
34	R50-QADP3160850AT	QUICK FIT ADAPTOR - BASE SIDE	1
35	R50-QADP3160850AC	QUICK FIT ADAPTOR - RETAINING CLIP	1

A GYPSY

B MOTOR / GEARBOX ASSEMBLY

REV No.	DESC.	BY.	DATE.
1	ADDED QUICK FIT ADAPTOR	MW	30-01-12
MUIR WINDLASSES AUSTRALIA			
TOLERANCES (mm)		TITLE	
X. ±		STORM VRC850	
X.X ±		EXPLODED VIEW	
X.XX ±		PART No.	
UNLESS OTHERWISE SPECIFIED		K08-STORMVRC0850	
MATERIAL		DRN	DATE
		JT	22/5/07
		SCALE	APP1
		NTS	APP2
FINISH		DRG No.	SIZE
		K08-STORMVRC0850	A4
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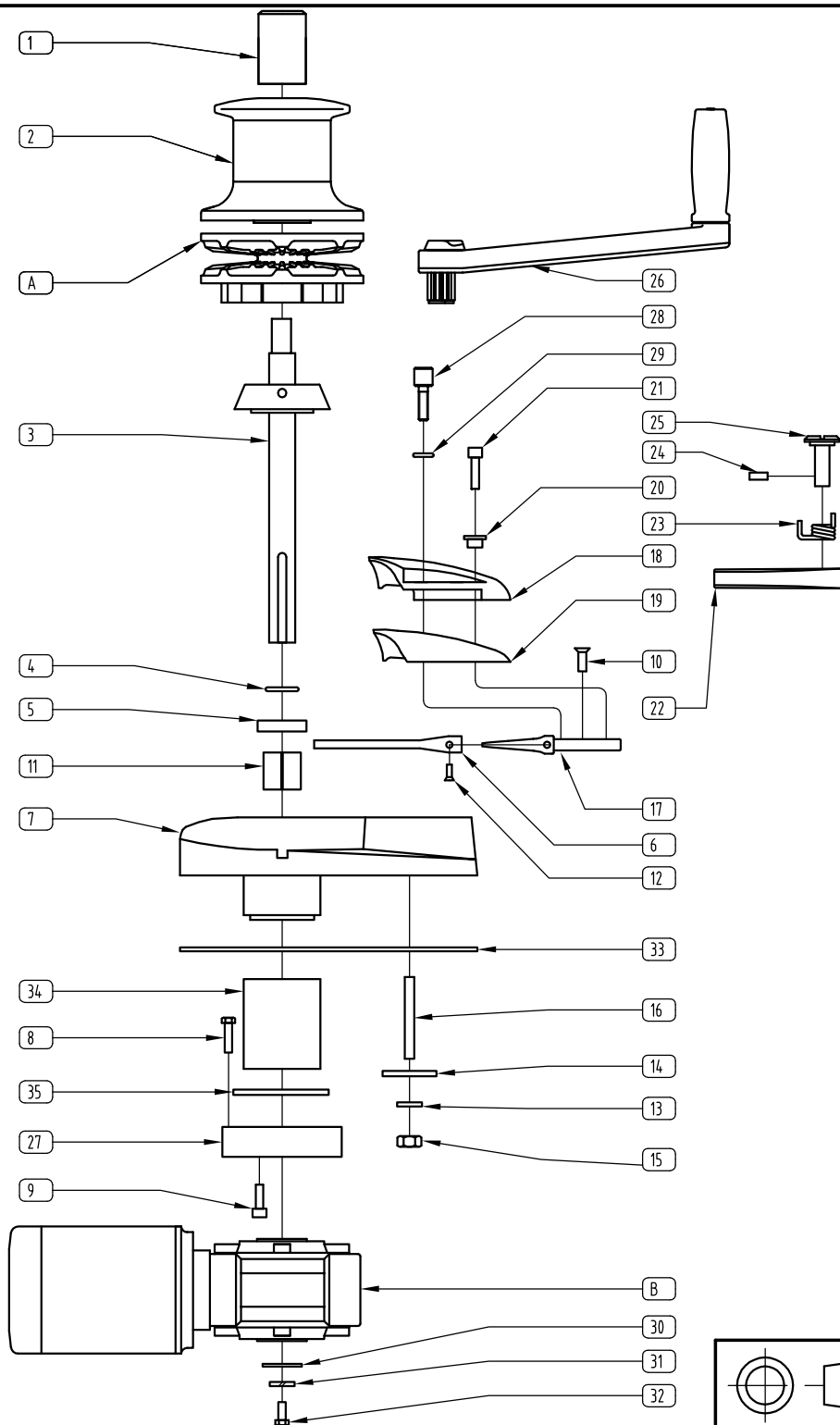


ITEM	PART NUMBER	DESCRIPTION	QTY
1	P07-CLN316VR00850A	CLUTCH NUT SS316 VR850A	1
2	P23-316050.8022.305	'D' WASHER SS 316 2" x 7/8" x 5MM	1
3	K06-SFTVR00850A	SHAFT ASSEMBLY VR850A	1
4	R41-ORG02802501.8	'O' RING SEAL 28.5X25X1.75 (BS022)	1
5	R42-SEA0350025.06.5	SEAL 25 X 35 X 7 (TC12463)	1
6	P19-STR3040850AF	STRIPPER SS304 VR/C850AF-SPOON TYPE	1
7	P22-BSE31600850A	BASE SS316 VR/C850A	1
8	S36-30406.00025	BOLT HEX HD SS304 6MM X 25MM	4
9	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	4
10	S33-30408.00020	SCREW CSK SL MT 304 8MM X 20MM	1
11	R51-DU252830	BASE BUSH BRONZE SELF LUBRICATING	1
12	S33-30404.76010	SCREW CSK SL MT 304 0-3/16 X 0-3/8 INCH	2
13	S76-30410.00	WASHER SPRING SS304 10MM	3
14	S75-30410.00	WASHER FLAT SS304 10MM	3
15	S20-30410.00	NUT HEX SS304 10MM	3
16	P24-STD3040850A	STUD SS304 VR/C850A	3
17	P05-PLR3160850	PEELER SS316 VR/C850AF SPOON TYPE	1
18	P05-CCV3160850A	CHAIN COVER SS316 VR/C850A	1
19	P05-CCV3160850AINS	CHAIN COVER INSERT	1
20	P02-304012.2008.109	BUSH SS304 VR/C1000A CHAIN COVER	1
21	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	1
22	R40-FGRPVC0850A	FINGER PVC VR/C850A	1
23	S36-SPR304FGRATL	SPRING FINGER ATLANTICS	1
24	S35-30406.0006	SCREW GRUB 304 M6 X 6MM	1
25	P15-PIN30419.05X27	PIN - FINGER ATLANTICS	1
26	F90-HANHDPE200	HANDLE HDPE 8" (200mm)	1
27	R50-QADP3160850AB	QUICK FIT ADAPTOR - GEARBOX SIDE	1
28	S46-30408.00030	SCREW THUMB SS303 M8 X 30MM	1
29	R41-ORG01100701.8	'O' RING SEAL 11 X ID7.5 X 1.75 (BS011)	1
30	S75-30410.00030	WASHER SS304 30 X 10 X 2.5MM	1
31	S76-30410.00	WASHER SPRING SS304 10MM	1
32	S36-30410.00025	SCREW HEX HD SS304 10MM X 25MM	1
33	P22-BSE31600850B	BASE INSULATION PAD	1
34	R50-QADP3160850AT	QUICK FIT ADAPTOR - BASE SIDE	1
35	R50-QADP3160850AC	QUICK FIT ADAPTOR - RETAINING CLIP	1

A GYPSY

B MOTOR / GEARBOX ASSEMBLY

REV No.	DESC.	BY.	DATE.
1	ADDED QUICK FIT ADAPTOR	MW	30-01-12
		MUIR WINDLASSES AUSTRALIA	
TOLERANCES (mm)		TITLE	
X. ±		STORM VR1250	
X.X ±		EXPLODED VIEW	
X.XX ±		PART No.	
UNLESS OTHERWISE SPECIFIED		K08-STORMVR1250	
MATERIAL		DRN	DATE
		JT	22/5/07
		SCALE	APP1
		NTS	APP2
		FINISH	SIZE
			A4
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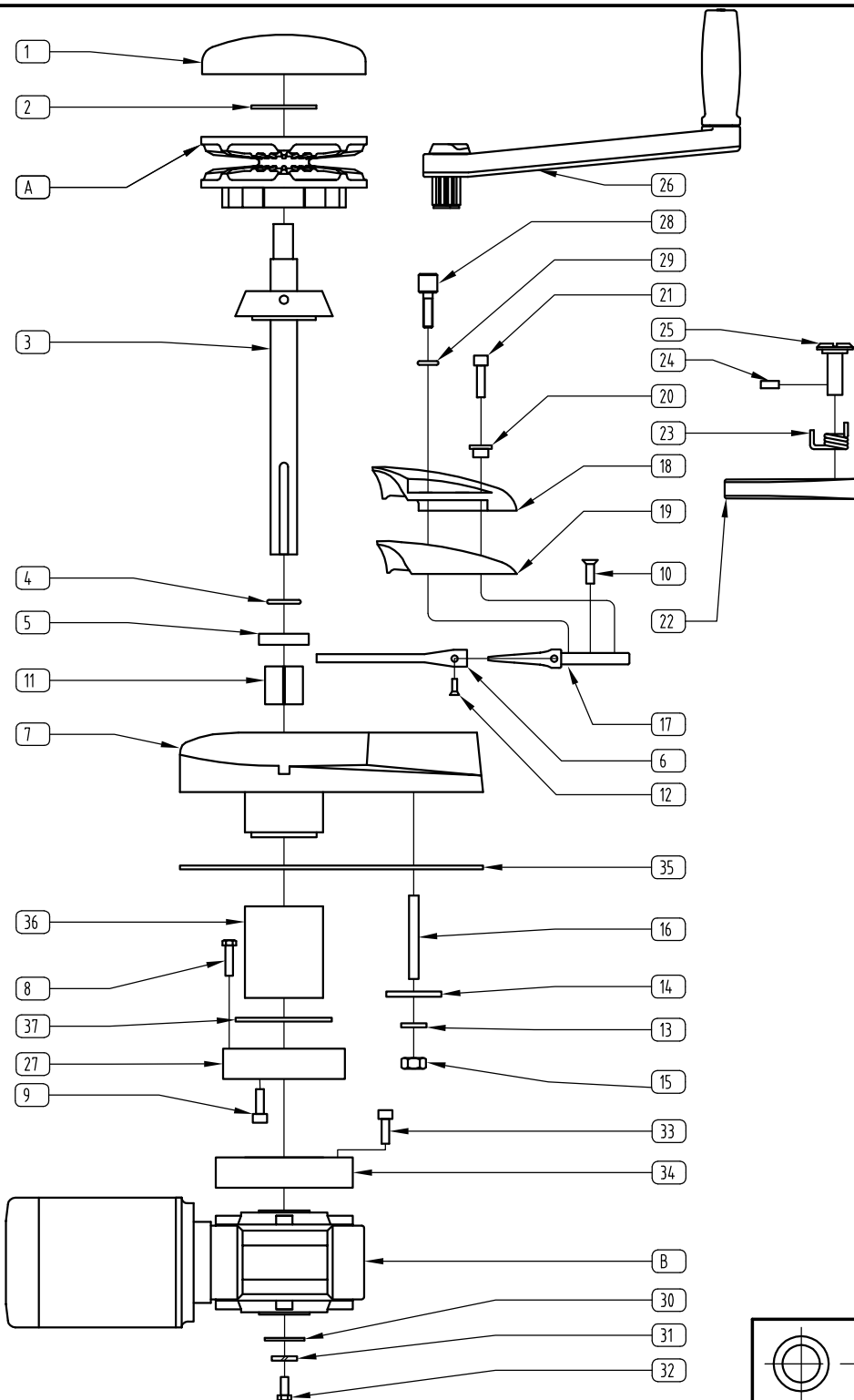


ITEM	PART NUMBER	DESCRIPTION	QTY
1	P07-CLN316VRC00850	CLUTCH NUT SS316 VRC850	1
2	P04-CAPSS00850A	CAPSTAN SS316 VRC850A	1
3	K06-SFTVR00850A	SHAFT ASSEMBLY VRC850A	1
4	R41-ORG02802501.8	'O' RING SEAL 28.5X25X1.75 (BS022)	1
5	R42-SEA0350025.06.5	SEAL 25 X 35 X 7 (TC12463)	1
6	P19-STR3040850AF	STRIPPER SS304 VR/C850AF-SPOON TYPE	1
7	P22-BSE31600850A	BASE SS316 VR/C850A	1
8	S36-30406.00025	BOLT HEX HD SS304 6MM X 25MM	4
9	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	4
10	S33-30408.00020	SCREW CSK SL MT 304 8MM X 20MM	1
11	R51-DU252830	BASE BUSH BRONZE SELF LUBRICATING	1
12	S33-30404.76010	SCREW CSK SL MT 304 0-3/16 X 0-3/8 INCH	2
13	S76-30410.00	WASHER SPRING SS304 10MM	3
14	S75-30410.00	WASHER FLAT SS304 10MM	3
15	S20-30410.00	NUT HEX SS304 10MM	3
16	P24-STD3040850A	STUD SS304 VR/C850A M10	3
17	P05-PLR3160850	PEELER SS316 VR/C850AF SPOON TYPE	1
18	P05-CCV3160850A	CHAIN COVER SS316 VR/C850A	1
19	P05-CCV3160850AINS	CHAIN COVER INSERT	1
20	P02-304012.2008.109	BUSH SS304 VR/C1000A CHAIN COVER	1
21	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	1
22	R40-FGRPVC0850A	FINGER PVC VR/C850A	1
23	S36-SPR304FGRATL	SPRING FINGER ATLANTICS	1
24	S35-30406.0006	SCREW GRUB 304 M6 X 6MM	1
25	P15-PIN30419.05X27	PIN - FINGER ATLANTICS	1
26	F90-HANHDPE200	HANDLE HDPE 8" (200mm)	1
27	R50-QADP3160850AB	QUICK FIT ADAPTOR - GEARBOX SIDE	1
28	S46-30408.00030	SCREW THUMB SS303 M8 X 30MM	1
29	R41-ORG01100701.8	'O' RING SEAL 11 X ID7.5 X 1.75 (BS011)	1
30	S75-30410.00030	WASHER SS304 30 X 10 X 2.5MM	1
31	S76-30410.00	WASHER SPRING SS304 10MM	1
32	S36-30410.00025	SCREW HEX HD SS304 10MM X 25MM	1
33	P22-BSE31600850B	BASE INSULATION PAD	1
34	R50-QADP3160850AT	QUICK FIT ADAPTOR - BASE SIDE	1
35	R50-QADP3160850AC	QUICK FIT ADAPTOR - RETAINING CLIP	1

A GYPSY

B MOTOR / GEARBOX ASSEMBLY

REV No.	DESC.	BY.	DATE.
1	ADDED QUICK FIT ADAPTOR	MW	30-01-12
		MUIR WINDLASSES AUSTRALIA	
TOLERANCES (mm)		TITLE	
X. ±		STORM VRC1250	
X.X ±		EXPLODED VIEW	
X.XX ±		PART No.	
UNLESS OTHERWISE SPECIFIED		K08-STORMVRC1250	
MATERIAL		DRN	DATE
		JT	22/5/07
		SCALE	DRG No.
		NTS	K08-STORMVRC1250
		APP1	APP2
			SIZE
			A4
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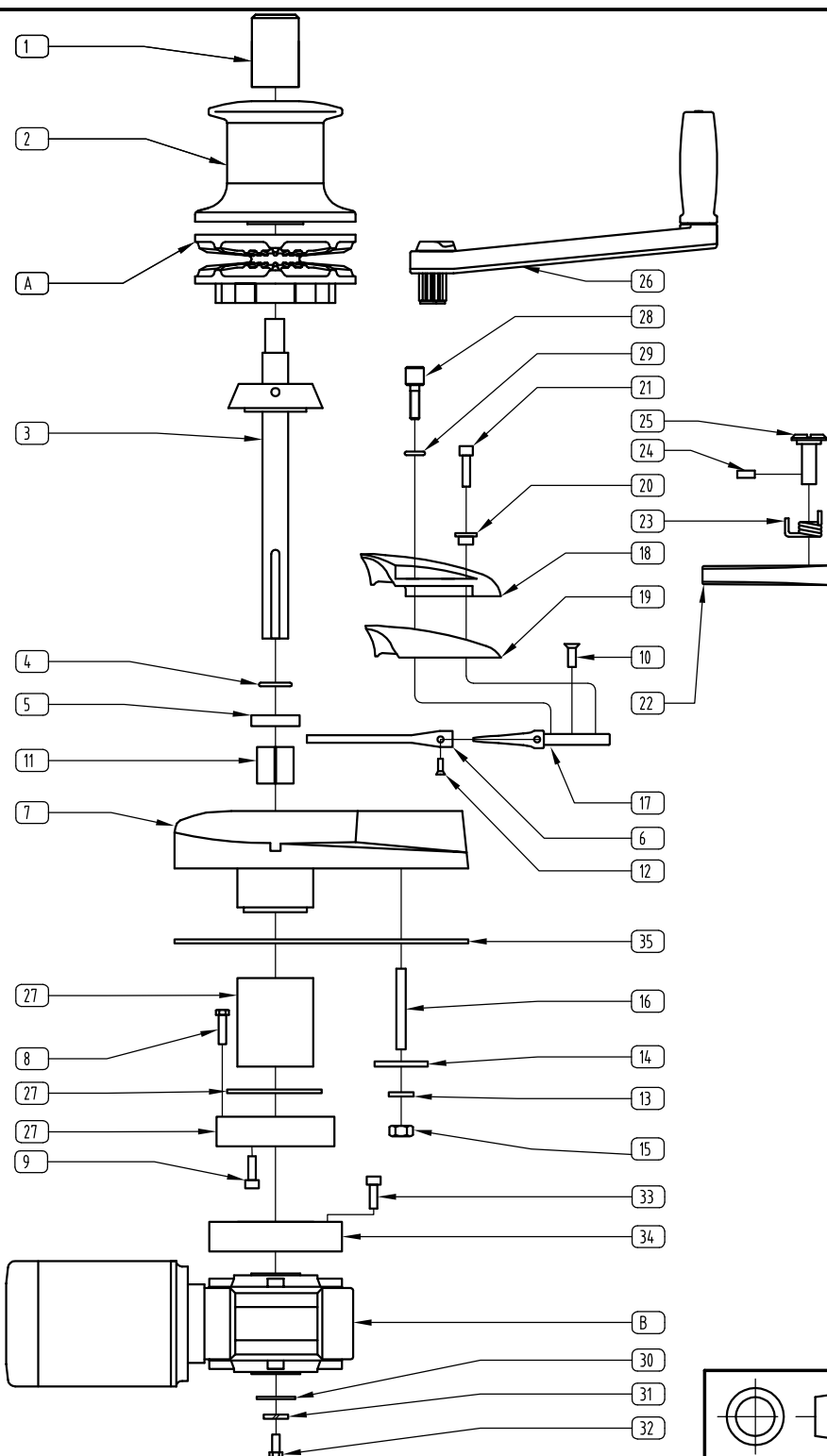


ITEM	PART NUMBER	DESCRIPTION	QTY
1	P07-CLN316VR00850A	CLUTCH NUT SS316 VR850	1
2	P23-316050.8022.305	'D' WASHER SS 316 2" x 7/8" x 5MM	1
3	K06-SFTVR02200A	SHAFT ASSEMBLY VR2200A	1
4	R41-ORG02802501.8	'O' RING SEAL 28.5X25X1.75 (BS022)	1
5	R42-SEA0350025.06.5	SEAL 25 X 35 X 7 (TC12463)	1
6	P19-STR3040850AF	STRIPPER SS304 VR/C850AF-SPOON TYPE	1
7	P22-BSE31600850A	BASE SS316 VR/C850A	1
8	S36-30406.00025	BOLT HEX HD SS304 6MM X 25MM	4
9	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	4
10	S33-30408.00020	SCREW CSK SL MT 304 8MM X 20MM	1
11	R51-DU252830	BASE BUSH BRONZE SELF LUBRICATING	1
12	S33-30404.76010	SCREW CSK SL MT 304 0-3/16 X 0-3/8 INCH	2
13	S76-30410.00	WASHER SPRING SS304 10MM	3
14	S75-30410.00	WASHER FLAT SS304 10MM	3
15	S20-30410.00	NUT HEX SS304 10MM	3
16	P24-STD3040850A	STUD SS304 VR/C850A	3
17	P05-PLR3160850	PEELER SS316 VR/C850AF SPOON TYPE	1
18	P05-CCV3160850A	CHAIN COVER SS316 VR/C850A	1
19	P05-CCV3160850AINS	CHAIN COVER INSERT	1
20	P02-304012.2008.109	BUSH SS304 VR/C1000A CHAIN COVER	1
21	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	1
22	R40-FGRPVC0850A	FINGER PVC VR/C850A	1
23	S36-SPR304FGRATL	SPRING FINGER ATLANTICS	1
24	S35-30406.0006	SCREW GRUB 304 M6 X 6MM	1
25	P15-PIN30419.05X27	PIN - FINGER ATLANTICS	1
26	F90-HANHDPE200	HANDLE HDPE 8" (200mm)	1
27	R50-QADP3160850AB	QUICK FIT ADAPTOR - GEARBOX SIDE	1
28	S46-30408.00030	SCREW THUMB SS303 M8 X 30MM	1
29	R41-ORG01100701.8	'O' RING SEAL 11 X ID7.5 X 1.75 (BS011)	1
30	S75-30410.00030	WASHER SS304 30 X 10 X 2.5MM	1
31	S76-30410.00	WASHER SPRING SS304 10MM	1
32	S36-30410.00025	SCREW HEX HD SS304 10MM X 25MM	1
33	S45-30408.00020	SCREW SHCS SS304 8MM X 20MM	4
34	P01-GADP063P049P	ADAPTOR ALLOY VF63 - VR/C2200	1
35	P22-BSE31600850B	BASE INSULATION PAD	1
36	R50-QADP3160850AT	QUICK FIT ADAPTOR - BASE SIDE	1
37	R50-QADP3160850AC	QUICK FIT ADAPTOR - RETAINING CLIP	1

A GYPSY

B MOTOR / GEARBOX ASSEMBLY


REV No.	DESC.	BY.	DATE.
1	ADDED QUICK FIT ADAPTOR	MW	30-01-12
		MUIR WINDLASSES AUSTRALIA	
TOLERANCES (mm)		TITLE	
X. ±		STORM VR2200	
X.X ±		EXPLODED VIEW	
X.XX ±		PART No.	
UNLESS OTHERWISE SPECIFIED		K08-STORMVR2200	
MATERIAL		DRN	DATE
		JT	22/5/07
		SCALE	DRG No.
		NTS	K08-STORMVR2200
		APP1	APP2
			SIZE
			A4
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ITEM	PART NUMBER	DESCRIPTION	QTY
1	P07-CLN316VRC00850	CLUTCH NUT SS316 VRC850	1
2	P04-CAPSS00850A	CAPSTAN SS316 VRC850A	1
3	K06-SFTVRC02200A	SHAFT ASSEMBLY VRC2200A	1
4	R41-ORG02802501.8	'O' RING SEAL 28.5X25X1.75 (BS022)	1
5	R42-SEA0350025.06.5	SEAL 25 X 35 X 7 (TC12463)	1
6	P19-STR3040850AF	STRIPPER SS304 VR/C850AF-SPOON TYPE	1
7	P22-BSE31600850A	BASE SS316 VR/C850A	1
8	S36-30406.00025	BOLT HEX HD SS304 6MM X 25MM	4
9	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	4
10	S33-30408.00020	SCREW CSK SL MT 304 8MM X 20MM	1
11	R51-DU252830	BASE BUSH BRONZE SELF LUBRICATING	1
12	S33-30404.76010	SCREW CSK SL MT 304 0-3/16 X 0-3/8 INCH	2
13	S76-30410.00	WASHER SPRING SS304 10MM	3
14	S75-30410.00	WASHER FLAT SS304 10MM	3
15	S20-30410.00	NUT HEX SS304 10MM	3
16	P24-STD3040850A	STUD SS304 VR/C850A	3
17	P05-PLR3160850	PEELER SS316 VR/C850AF SPOON TYPE	1
18	P05-CCV3160850A	CHAIN COVER SS316 VR/C850A	1
19	P05-CCV3160850AINS	CHAIN COVER INSERT	1
20	P02-304012.2008.109	BUSH SS304 VR/C1000A CHAIN COVER	1
21	S45-30408.00030	SCREW SHCS SS304 8MM X 30MM	1
22	R40-FGRPVC0850A	FINGER PVC VR/C850A	1
23	S36-SPR304FGRATL	SPRING FINGER ATLANTICS	1
24	S35-30406.0006	SCREW GRUB 304 M6 X 6MM	1
25	P15-PIN30419.05X27	PIN - FINGER ATLANTICS	1
26	F90-HANHDPE200	HANDLE HDPE 8" (200mm)	1
27	R50-QADP3160850AB	QUICK FIT ADAPTOR - GEARBOX SIDE	1
28	S46-30408.00030	SCREW THUMB SS303 M8 X 30MM	1
29	R41-ORG01100701.8	'O' RING SEAL 11 X ID7.5 X 1.75 (BS011)	1
30	S75-30410.00030	WASHER SS304 30 X 10 X 2.5MM	1
31	S76-30410.00	WASHER SPRING SS304 10MM	1
32	S36-30410.00025	SCREW HEX HD SS304 10MM X 25MM	1
33	S45-30408.00020	SCREW SHCS SS304 8MM X 20MM	4
34	P01-GADP063P049P	ADAPTOR ALLOY VF63 - VR/C2200	1
35	P22-BSE31600850B	BASE INSULATION PAD	1
36	R50-QADP3160850AT	QUICK FIT ADAPTOR - BASE SIDE	1
37	R50-QADP3160850AC	QUICK FIT ADAPTOR - RETAINING CLIP	1

A GYPSY
B MOTOR / GEARBOX ASSEMBLY

REV No.	DESC.	BY.	DATE.
1	ADDED QUICK FIT ADAPTOR	MW	30-01-12

 WINDLASSES AUSTRALIA	
TITLE STORM VRC2200 EXPLODED VIEW	
PART No. K08-STORMVRC2200	
TOLERANCES (mm)	
X. ±	
X.X ±	
X.XX ±	
UNLESS OTHERWISE SPECIFIED	
MATERIAL	DRN JT DATE 22/5/07 DRG No. K08-STORMVRC2200
FINISH	SCALE NTS APP1 APP2 SIZE A4
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Warranty Limited for period of Three years (First Owner)

We warrant each new product manufactured by us to be free from defects in material and workmanship for a period of 3 years (first Owner).

This warranty shall become effective only upon receipt of a completed warranty registration, which shall identify the product so registered by serial number. This warranty shall remain in effect for a period of three (3) years from the date of purchase. For vessels in charter or hire the warranty is one (1) year due to various operators and overloading which may occur.

Conditions

While this warranty applies to defects in material and workmanship, it does not apply to:

- Normal worn parts or to damage caused by neglect, lack of maintenance, accident or improper service/installation or service by persons other than an authorised Muir representative.
- Muir shall not be responsible for failures due to products being used in applications that they are not intended for, or exceed the products performance specifications.
- For warranty claim, defective product must be returned to Muir for inspection.
- Muir will not be responsible for freight charges, removal or installation labour on warranty claims.
- Damage due to unsatisfactory storage or use of equipment prior to installation in the approved/intended manner.

Exclusions

Warranty is limited to twelve months for:

- Electric motors / controls / equipment
- Hydraulic pumps / controls / valves
- Weather seals
- Use on charter/hire/commercial boats

All incidental and/or consequential damages are excluded from this warranty. Warranties of merchantability and fitness are excluded from this warranty. Implied warranties are limited to the life of this warranty. Some countries do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

We reserve the right to improve the design or materials used on any product without assuming any obligation to modify any product previously manufactured or used.

Liability

Muir Engineering liability under this warranty shall be to the exclusion of all other warranties or liabilities (to the extent permitted by law). In particular (but without limitation):

Muir Engineering shall not be liable for:

Any indirect or consequential loss including (without limitation) any loss of anticipated profits, damage to reputation or goodwill, loss of expected future business, damages, costs or expenses payable to any third party or any other indirect losses. Any damage to yachts or equipment. Death or personal injury (unless caused by Muir Engineering negligence).

✂ -----

WARRANTY REGISTRATION CARD

Return To

MUIR ENGINEERING PTY. LTD.
100 Browns Rd, Kingston
Tasmania, Australia, 7050

**WARRANTY VOID UNLESS CIRCUIT
BREAKER OR RELIEF VALVE FITTED**

Customer / Company Name:	Winch Model:
Contact (if Company):	Serial Number:
Address:	Purchase Date: <div style="text-align: center; font-size: 1.2em; margin-top: 5px;">dd / mm / yyyy</div>
Phone / Email:	Purchased From:
	Invoice Number / Receipt Number / Proof of Purchase:

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Head Office:

100 Browns Road,
Kingston Tasmania,
Australia 7050
Tel Int: +61 (0) 3 6229 0600
Fax Int: +61 (0) 3 6229 7030
Email: info@muir.com.au
www.muir.com.au

WINDLASS
SERIAL NUMBER

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