1500 HWC

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HWC 1500
OWNERS MANUAL

INSTALLATION, OPERATING INSTRUCTIONS AND SERVICE MANUAL
HWC 1500 WINDLASS - SINGLE DRUM/SINGLE CHAINWHEEL

INTRODUCTION

You now own a Windlass from **MAXWELL'S** premier range, designed for automatic anchor handling.

Used in conjunction with MAXWELL'S control equipment, you will get system protection and finger-tip control of anchor raising or lowering.

This Windlass offers exceptional power, ease and smoothness of operation. The construction allows for these Windlasses to be arranged as a handed pair for dual installations on larger craft.

Clutches allow manual control for lowering the anchors under free fall and also allows independent operation of the warping drums.

**** IMPORTANT ****

FAILURE TO ADHERE TO THE CORRECT APPLICATION, INSTALLATION, OPERATION AND TO CARRY OUT THE MAINTENANCE SERVICE AS DESCRIBED HEREIN, COULD JEOPARDISE YOUR SAFETY AND INVALIDATE THE WARRANTY.

Your **MAXWELL** Windlass is a precision engineered product. Please read these instructions carefully.

SPECIFICATIONS: MAXWELL HWC 1500 WINDLASS

Maximum chain size	10mm (3/8") short link
Maximum rated load at chainwheel	1500 lbs (680 Kg)
Gearbox ratio	56:1
Chain haul speed at no load	30 metres/mim (98 Feet/min)

POWER OPTIONS
HWC 1500

SUPPLY CABLES See Page 10

HYDRAULIC MODELS *

Maximum Recommended Flow	20 Litre/min (5.3 US Gal/min)
Maximum Recommended Pressure	138 BAR (2000 p.s.i.)
Hydraulic Supply Lines	12mm (½") diameter
Hydraulic Motor Ports	¾" U.N.F.
Oil	Viscosity ISO 32 - ISO 68 @ 20-50ºC Suitable oils: Shell Rimula X 15W-40; Shell Myrina M 15W-40; Penzoil SAE 10W-40; Texaco 2109 SAE 15W; Texaco 1814 SAE 10W40. BP HLPHM 32-68; Castrol Hysin AWS 32-68; BP Autrans T0410.

*** Levels of flow/pressure below that specified can be accommodated with a motor change - see options below.**

Motor Option	Max Flow/Min Lt	US Gal	Max Pressure Bar	P.S.I.	Max Pull Kg	Lbs	Normal Rate/Min Metres	Feet
P14365	15	4.0	138	2000	273	600	25	81

WEIGHT		KGS	LBS
(Nett including Emergency Crank)	DC	23.5	51.7
	Hydraulic	17.1	37.6

IMPORTANT

PERSONAL SAFETY WARNINGS

WHEN USING YOUR WINDLASS AT ALL TIMES PRACTICE GOOD SEAMANSHIP AND AVOID ANY LIKELIHOOD OF INJURY OR ACCIDENT BY ADHERING TO THE FOLLOWING RULES.

AT ALL TIMES KEEP HANDS, FEET, LOOSE CLOTHING AND HAIR WELL CLEAR OF THE WINDLASS.

NEVER USE THE WINDLASS UNDER POWER WITH THE LEVER INSERTED IN THE CLUTCH NUT OR THE EMERGENCY CRANK COLLAR.

WHEN OPERATING THE CHAINWHEEL PAWL, KEEP FINGERS AWAY FROM THE INCOMING CHAIN.

WHEN THE WINDLASS IS NOT IN USE, OR WHEN USING THE EMERGENCY CRANK, MAKE SURE THE WINDLASS IS ISOLATED FROM THE POWER SUPPLY BY TURNING THE WINDLASS ISOLATOR SWITCH TO “OFF”.

NEVER OPERATE THE WINDLASS FROM A REMOTE STATION WITHOUT A CLEAR VIEW OF THE WINDLASS AND HAVING MADE SURE THAT EVERYONE IS WELL AWAY FROM THE WINDLASS.

IF YOUR WINDLASS DOES NOT HAVE A REMOTE CONTROL STATION AND IS OPERATED FROM THE FOOTSWITCHES ONLY, ALWAYS IMMEDIATELY AFTER USE, TURN THE WINDLASS ISOLATOR SWITCH TO “OFF”. THIS WILL PREVENT ACCIDENTAL WINDLASS OPERATION IF YOU OR PASSENGERS ACCIDENTALLY STAND ON FOOTSWITCHES.

** IMPORTANT HINTS FOR SAFE USE OF WINDLASS **

BE SURE YOUR WINDLASS HAS BEEN CORRECTLY SPECIFIED AND INSTALLED, YOURS AND OTHERS SAFETY MAY DEPEND ON IT. THE WINDLASS SHOULD BE USED IN CONJUNCTION WITH A CHAINSTOPPER OF THE APPROPRIATE SIZE. FOR AUTOMATIC OPERATION TO BE POSSIBLE, THE ANCHOR MUST BE SELF LAUNCHING.
MAXWELL WILL NOT IN ANY WAY BE HELD RESPONSIBLE FOR SELECTION OF A WINDLASS BY OTHERS, INCLUDING DISTRIBUTORS AND AGENTS. IF IN DOUBT, SEND FULL DETAILS OF YOUR CRAFT TO OUR SALES DEPARTMENT FOR APPRAISAL AND WRITTEN RECOMMENDATION.

1. **Run the engine whilst raising or lowering the anchor. Not only is this a safety precaution, it also helps minimise the drain on the batteries.**

2. **Always motor up to the anchor while retrieving the chain.**
   Do not use the Windlass to pull the boat to the anchor.

3. **If the anchor is fouled, do not use the Windlass to break it out.**
   With the chainstopper taking the load, use the boat's engine to break the anchor loose.

4. **Do not use the Windlass as a Bollard.**
   Engage the chainstopper after completing the anchoring manoeuvre.

5. **In heavy weather conditions, always use a heavy anchor snub from the chain directly to a Bollard or Sampson Post.**

6. **DO NOT USE THE CHAINSTOPPER OR WINDLASS AS A MOORING POINT.**

7. **ALWAYS TURN THE ISOLATOR SWITCH "OFF" BEFORE LEAVING THE BOAT.**

8. **When using the Windlass DO NOT SWITCH IMMEDIATELY FROM ONE DIRECTION TO THE OTHER WITHOUT WAITING FOR THE WINDLASS TO STOP AS THIS COULD DAMAGE THE WINDLASS. Abuse is not covered by Warranty.**

9. **The Circuit Breaker and Isolator Switch Panel provides high current protection for the main supply cables and also the means to isolate the circuit. When the Isolator Switch is "ON" (red indicator light shows) the system can be activated at either the foot switches or the remote control station. <u>When the system is not being used, ensure that the Isolator Switch is turned "OFF".</u>**

10. **Never proceed at speed with a bow mounted self launching anchor in position, without first ensuring that your winch clutches are fully engaged, and having made fast the anchor and engaged your chainstopper.**

    DO NOT DEPEND ON THE WINDLASS TO HOLD THE ANCHOR IN ITS BOW ROLLER. A NYLON LINE SHOULD BE USED TO SECURE THE ANCHOR INTO ITS STOWED POSITION WHEN UNDERWAY AND WILL NEED TO BE REMOVED BEFORE OPERATION OF THE WINDLASS. ALTERNATIVELY, A PIN THROUGH THE BOW ROLLER AND THE SHANK OF THE ANCHOR CAN BE USED FOR SECURING.

    Most Windlass models have clutches for the manual pay out of ground tackle in the event of a loss of power. It is therefore prudent to secure the anchor to the boat by the means described above.

APPLICATION

THE MAXWELL HWC 1500 SERIES WINDLASSES ARE DESIGNED FOR ALL CHAIN SYSTEMS USING UP TO A MAXIMUM CHAIN SIZE OF 10MM (3/8") SHORT LINK IN ONE CONTINUOUS LENGTH.

To save weight, a smaller size High Tensile Chain may be used.

NOTE: Care must be taken when Kenter type shackles are used. These must be arranged so that they pass though the chainwheel in the vertical plane. In accordance with good practice an anchor swivel shackle should be fitted between the anchor and chain. The bow/chain roller should properly align the chain so that it enters the chainwheel squarely.

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.

CHAIN FIT

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

A wide 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.

CHAINSTOPPER

THE WINDLASS SHOULD BE USED IN CONJUNCTION WITH A MAXWELL CHAINSTOPPER OF THE APPROPRIATE SIZE.

INSTALLATION

WHERE TO LOCATE THE WINDLASS

The MAXWELL HWC 1500 Single Drum/Single Chainwheel Windlass operates in dual direction power UP/DOWN.

This Windlass is supplied as standard with the chainwheel fitted to the starboard side. It should be noted that this arrangement can be changed in the field to the opposite hand.

This arrangement allows for dual Windlass installations on larger craft or for you to select the arrangement most suited to your application.

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

The 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.

Ideally the outlet from the chainpipe should be directly over the chain locker an the chain should have at least 600mm (2ft) clear fall to allow the chain to straighten before pushing through the windlass.

The chain must gravity feed into the locker. If the chainpipe cannot be positioned directly over the locker, heavy wall 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 chainpipe from the locker to assist the free flow of the chain from the locker.

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

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

**** IMPORTANT ****

FOR AUTOMATIC OPERATION TO BE POSSIBLE, THE ANCHOR MUST BE SELF LAUNCHING. That is, once the Windlass is operated to reverse out the chain, the anchor must free fall, or the bow/chain roller arrangement be such that the anchor is automatically launched.

When positioning the Windlass, make sure that there is room to swing the clutch lever so that it will clear the pulpit, life lines, Bulwark and other obstructions.

Allow access through the deck, for conveniently connecting the supply lines.

WHERE TO LOCATE THE CHAINSTOPPER

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

WHERE TO LOCATE THE CHAINPIPE

Position the chainpipe relative to the Windlass as shown on the deck cutout detail drawing provided (refer installation drawings).

WHERE TO LOCATE THE FOOTSWITCHES

FOOTSWITCHES SHOULD BE POSITIONED FAR ENOUGH AWAY FROM THE WINDLASS TO ENSURE OPERATOR SAFETY.

To allow the operator to tail from the warping drum, footswitches should be at least 250mm (10”) from the rear Windlass.
THE BELOW DECK PORTION OF THE FOOTSWITCH SHOULD NOT BE EXPOSED TO WATER OR WET ENVIRONMENT AND THE BREATHER HOLES MUST BE KEPT CLEAR.
Ideally, they should be external to the chain locker.
The arrows on the footswitches should be arranged to indicate the direction of operation.

WHERE TO LOCATE THE REVERSING SOLENOID (Electric Windlass Only)

This unit is used ONLY when a Dual Direction Control System is being installed. (Refer wiring diagrams). **The Reversing Solenoid should be located in a dry area in close proximity to the Windlass.**
IT MUST NOT BE LOCATED IN THE WET ENVIRONMENT OF THE CHAIN LOCKER.
Locating close by the Windlass considerably shortens the total length of the main power supply conductors required.

WHERE TO LOCATE THE BREAKER/ISOLATOR PANEL (Electric Windlasses Only)

The Maxwell Breaker/Isolator Panel is used when either the Dual Direction system or the Single Direction system is used. (Refer wiring diagrams).

The Breaker/Isolator Panel is selected to provide limited protection only for the motor and full protection for the supply cables.

This unit also provides the means for isolating the electrical system from the battery.
It should be mounted in a dry place within 1.8 metres (72”) of cable length from battery.
This equipment or equivalent is mandatory to meet U.S.C.G. requirements.

WHERE TO LOCATE THE CONTROLS

The remote control stations can be positioned as required, i.e. Bridge, Helm, Cockpit or Foredeck to suit your requirements.
Mount the panels where the terminals project into a dry area and if mounted in an area where the face is exposed to the weather, i.e. Fly Bridge, **the mounting must be bedded down with sealant.**
They may be wired directly to, or linked together in series to the Reversing Solenoid (refer wiring diagrams).

CONTROL CIRCUITS

MAXWELL Windlasses may be installed for single direction or dual direction operation. The control circuits are detailed in Drawings at the rear of the manual

These systems should be wired throughout using 1.5mm² (16AWG) cable. **A manually resettable ignition proof 3 amp fuse or breaker should be fitted within one metre (40”) of the Breaker/Isolator Panel as shown in wiring diagrams.**
The above requirements are mandatory for this system to meet USCG, ABYC and NMMA.

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”.

MAIN ELECTRICAL SYSTEM

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

12v systems				
Total Cable Length From Battery to Winch Back to Battery	**Cable Length**		**Engine room Size Correction**	
	mm²	**AWG**	**mm²**	**AWG**
Up to 13 m (43’)	26	3	34	2
13m – 17m (43’ – 56’)	34	2	-	-
17m – 22m (56’ – 72’)	42	1	-	-
22m – 27m (72’ – 88’)	54	0	-	-
27m – 35m (88’ – 115’)	67	00	-	-

24v systems				
Total Cable Length From Battery to Winch Back to Battery	**Cable Length**		**Engine room Size Correction**	
	mm²	**AWG**	**mm²**	**AWG**
Up to 17 m (56’)	14	6	14	6
17m – 21m (56’ – 69’)	14	6	-	-
21m – 33m (69’ – 108’)	22	4	-	-

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

HYDRAULIC SYSTEMS

Pressure/flow quoted in specification on page 4 assumes operation at rated capacity with standard motor fitted. Levels below that specified can be accommodated, by a motor change, with a corresponding change to stall torque and/or speed. (Refer to Specifications section).

Several levels of supply and control are possible.

BASIC SYSTEM (Refer to Hydraulic diagrams/skhematics).

This covers applications where the Windlass is supplied from an engine driven pump or single function power pack. Control of the Windlass is via a hydraulic bi-directional solenoid valve which is operated by a self centering UP/DOWN toggle switch type remote control or the footswitches. **Use of MAXWELL'S Hydraulic Single Function Controller** will enhance the system and allow the interfacing of self centering UP/DOWN toggle switch control and footswitches, with the hydraulic bi-directional solenoid valve controlling the oil flow to the Windlass. This unit also provides for remote controlling the electric clutch of a main engine pump or the hydraulic power pack motor starter.
The controller must be located in a dry area.
IT MUST NOT BE LOCATED IN THE WET ENVIRONMENT OF THE CHAINLOCKER.

MAXWELL LINK-SYSTEM MULTI-FUNCTION ELECTRO-HYDRAULIC POWER PACKS
See separate manual for these multi-function, multi-purpose systems.

PREPARATION AND MOUNTING

The Windlass should be bolted to the deck using four 12mm (½") 316 stainless steel bolts of suitable length to accommodate the deck thickness.

The nuts under the deck should be backed up with larger diameter thick stainless steel washers or a stainless steel clamp plate bridging between each of the forward bolts and rear bolts to spread the load.

For decks of steel or aluminium construction:
It is very important that the Windlass is insulated from the deck with a timber pad or non-conductive gasket. That the fixings pass through the insulators provided and that the underdeck fixings are insulated from the deck. 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 chain to the hull.
Without these precautions severe electrolysis can occur.

**** IMPORTANT ****

1. **IT IS IMPERATIVE THAT THE DESIGNER/INSTALLER ENSURES THAT THE DECK AND UNDERDECK PAD ARE OF SUFFICIENT THICKNESS AND STRUCTURAL STRENGTH TO SUSTAIN THE LOADS CAPABLE OF BEING IMPOSED ON OR BY THE WINDLASS. THE UNDERDECK PAD SHOULD SPREAD THE LOADS AS WIDELY AS POSSIBLE AND IF USE CAN BE MADE OF A BULKHEAD OR CROSS MEMBER TO PROVIDE STIFFENING, THIS SHOULD BE DONE.**

2. **IT IS VERY IMPORTANT THAT THE ABOVE DECK PAD TOP SURFACE OR DECK AREA COVERED BY THE TEMPLATE SUPPLIED, IS SMOOTH, AND FLAT.**

3. Refer to deck cutout detail drawing and accurately mark out the mounting holes and access hole as convenient for passing supply lines through deck. The mounting holes must be drilled parallel to each other and square to the mounting face.

Refer to the appropriate assembly drawing provided for the Windlass being installed and proceed as follows:

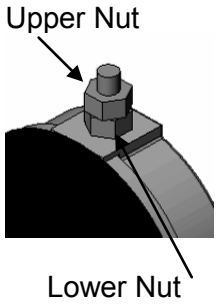
4. Remove the Windlass from the packing crate and with the Windlass on its side and the shaft vertical check that oil is showing half way up the sight glass in the side of the gearbox. If necessary, top up with SAE 90 (Shell Omala 320, Castrol Alpha SP320 or equivalent). **DON'T OVER FILL.**

5. Make sure the mounting area on the deck is properly prepared, as per step 3 above and is clean.
   Make sure the underside of the Windlass case is clean.
   Use sealant/bedding compound between deck, pad/gasket and the Windlass case and lower the Windlass, aligning the mounting holes in the case with the pre drilled mounting holes in the deck and bed the Windlass down.
   Make sure that the four insulating bushes are in place in the mounting holes in the case. Stainless steel washers should be used under the head of the mounting bolts to spread the load on the insulating bushes.

6. Apply a little sealing compound to the four mounting bolts and feed the bolts down through the bushes in the case and deck.
   From the underside of the deck offer up the clamp plates or large washers and fix in place with the nuts.
   IMPORTANT
   Tighten the nuts progressively and evenly.
   DO NOT USE POWER TOOLS.
   Do not overtighten. Ensure installation is firm.

7. The chainpipe should now be fitted. **If the deck is steel or aluminium the chainpipe and fastenings must be insulated from the deck.** The chainpipe must be through bolted using 316 stainless steel countersunk screws with the nuts underdeck backed up with large stainless steel washers. When fixing ensure that the stripper arm is aligned squarely in the groove of the chainwheel with the bevelled end in close proximity to but clear of the root of the groove. The chain must pass over the wheel and cleanly through the pipe without fouling on the stripper.
   IMPORTANT
   Tighten the nuts progressively and evenly.
   DO NOT USE POWER TOOLS.
   Do not overtighten. Ensure installation is firm.

8. 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.



Proceed as follows on the starboard running gear.

***** 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".

9. Remove stripper arm from chainpipe by undoing the two bolts, nuts and washers.
   With a pen knife, or similar, carefully remove cap.
   Remove the screw and retaining washer .
   Unscrew clutch nut.
   Slide outer clutch cone, chainwheel and inner clutch cone from shaft.
   NOTE: The port running gear can be disassembled in a similar fashion and the Windlass can be reassembled with the chainwheel either port or starboard to suit requirements. When the chainwheel is assembled to port the pawl and pawl pin must be removed and reassembled on the port side.

10. Ensure parts removed in step 8 above and the shaft are clean.

11. Use Shell Alvania R2, Castrol AP2 or equivalent grease and with the aid of a clean brush or non-fluffy rag, **lightly grease the thread** on the shaft and **the bores and clutch faces of the parts removed** in step 9 above, reassemble them as you go in reverse order.
    IMPORTANT: Care must be taken to ensure that the keys are properly seated in the shaft keyways.

IMPORTANT NOTE TO BOAT BUILDERS

After completing installation we suggest that you spray the top works of the winch with CRC3097 "Long Life".
Also protect the winch by wrapping with plastic film and tape.
Experience has shown that on long ocean deliveries as deck cargo sulphur from the ship's exhausts settles and severely damages the chrome plating and stainless steel by breaking down the chrome oxide protective film.
PLEASE LET YOUR CUSTOMER RECEIVE THE WINDLASS FROM YOU IN THE SAME TOP QUALITY CONDITION THAT YOU RECEIVED IT FROM US.

OPERATION OF THE CONTROL SYSTEM

DUAL DIRECTION SYSTEM (Refer electrical diagrams)

This system provides means of controlling the Windlass via a Reversing Solenoid which is actuated by a self centering UP/DOWN toggle switch type remote control or the footswitches. An indicator light on the remote control glows when the power is "ON" and the system can be operated.

WARNING: When using the Windlass DO NOT SWITCH IMMEDIATELY FROM ONE DIRECTION TO THE OTHER WITHOUT WAITING FOR THE WINDLASS TO STOP AS THIS COULD DAMAGE THE WINDLASS. Abuse is not covered by Warranty.
The Breaker/Isolator Panel provides protection for the main supply cables and means to isolate the circuit.

WARNING: When the Isolator Switch is "ON" the system can be activated at either the footswitches or the remote.
When the system is not being used, ensure that the Isolator Switch is turned "OFF".

WARNING: This system provides protection for the motor from excessive current and short circuit. It does not provide protection against excessive heat build up due to prolonged operation or repeated operation under overload conditions. Make sure you give the motor time to cool. Abuse is not covered by warranty.

OPERATING THE WINDLASS

LOWERING THE ANCHOR UNDER POWER

Proceed as follows:

1. Insert the lever into the clutch nut and check that the clutches are tightened down firmly by turning the nut clockwise.
   REMOVE THE LEVER.

2. Check that the chainstopper is open and the pawl is disengaged from the chainwheel.
   NOTE: This may require jogging the Windlass "UP" by momentarily operating the footswitch.

3. If clutches are tightened down and the chainstopper and pawl are disengaged, the Windlass may be operated under power by either using the "DOWN" footswitch or the "DOWN" button on the Remote Control Station. Hold until the required amount of chain is out.

RAISING THE ANCHOR UNDER POWER

Proceed as follows:

1. Carry out step 1 above.

2. If the clutches are tightened down, the Windlass may be operated under power by either using the "UP" footswitch or the "UP" button on the Remote Control Station. Hold until the required amount of chain has been brought in.

   Care should be taken when docking the anchor. Jog in the last metre (few feet) carefully seating the anchor home.

   NOTE: It is not necessary to disengage the pawl or open the chainstopper to operate the Windlass in the "UP" direction.

LOWERING THE ANCHOR UNDER MANUAL CONTROL

This method is generally used in tight anchorage or an emergency situation, where a fast dump is required.

Proceed as follows:

1. Insert the lever into the clutch nut and check that the clutches are tightened down firmly by turning the nut clockwise.
   REMOVE THE LEVER.

2. Check that the chainstopper is open and the pawl is disengaged from the chainwheel.
   NOTE: This may require jogging the Windlass "UP" under power or easing the load on the chain.
   IF JOGGING UNDER POWER MAKE SURE THAT THE LEVER IS REMOVED FIRST.

3. **Standing well clear,** insert the lever into the clutch nut.
   Slowly back off the clutch nut.
   This will release the chain.
   Regulate the speed at which the chain goes out by tightening to slow, or easing to increase.

**** CAUTION ****

DO NOT ALLOW THE CHAINWHEEL TO FREE WHEEL AS THIS WILL ALLOW DANGEROUSLY HIGH CHAIN SPEEDS TO BUILD UP AND DAMAGE COULD OCCUR.

4. When the required amount of chain is out, tighten the clutch nut firmly, **remove the lever and stow.**

RAISING THE ANCHOR MANUALLY IN AN EMERGENCY

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.

7. Repeat cycle, progressively bring in the anchor.

USING THE WARPING DRUM

The Capstan can be used independently of the chainwheel.
This facilitates handling mooring lines, docking lines or handling additional winching requirements.

To use proceed as follows:

1. Check that the pawl are engaged with the chainwheel.

2. Insert the lever in to the clutch nut and back off in a counter clockwise direction until it stops. The Capstan will now operate whilst the chainwheel remains stationary.

3. Take several turns of line around the drum in a clockwise direction.

   Whilst pulling on the tail press the "UP" footswitch. The Capstan will rotate in a clockwise direction.
   Increasing or decreasing the load on the tail, whilst holding the footswitch down will increase/decrease the rate at which the line will be hauled in.
   Extra turns around the drum will increase the grip and require less load on the tail.

   CAUTION: ENSURE THAT FOOTSWITCH IS NOT OPERATED ACCIDENTALLY WHILST EXTRA TURNS ARE BEING TAKEN. KEEP FINGERS CLEAR.
   DON'T 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.

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				
Service motor				
Remove gearbox, replace oil and seals				

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)

Mainshaft & Bearing: Marine Grease, Lithium based or Lithium complex based, e.g. Duckhams 'Keenol'; 'Castrol LMX'. Do not use soap based grease.

Above deck components: CRC 3097 Spray.

Topworks
The parts external of the case should be washed down with fresh water regularly.
Every three months, remove the chainwheel set and lubricate the clutch faces and shaft bore inside the deckplate with marine grease.

Gearbox
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.
Check the gearbox oil level every six months using the sight glass.

To remove the gearbox, proceed as follows:

1. **Remove both sets of running gear** as per step 9 of installation instructions above.

2. Remove the two circlips from shaft either side of the gearbox and slide shaft from case.

3. **On port side proceed as follows:**
   Remove four bolts and washers .
   Gently tap gearbox assembly releasing it from the case.

4. For disassembly of gearbox refer to gearbox assembly drawing and accompanying parts list.

Motor
For maximum protection, we recommend that the motor be sprayed periodically with CRC Soft Seal.
For Electric motors spray also around electrical connections
The electric motors should be serviced by a qualified electrician annually (or more frequently in commercial applications).

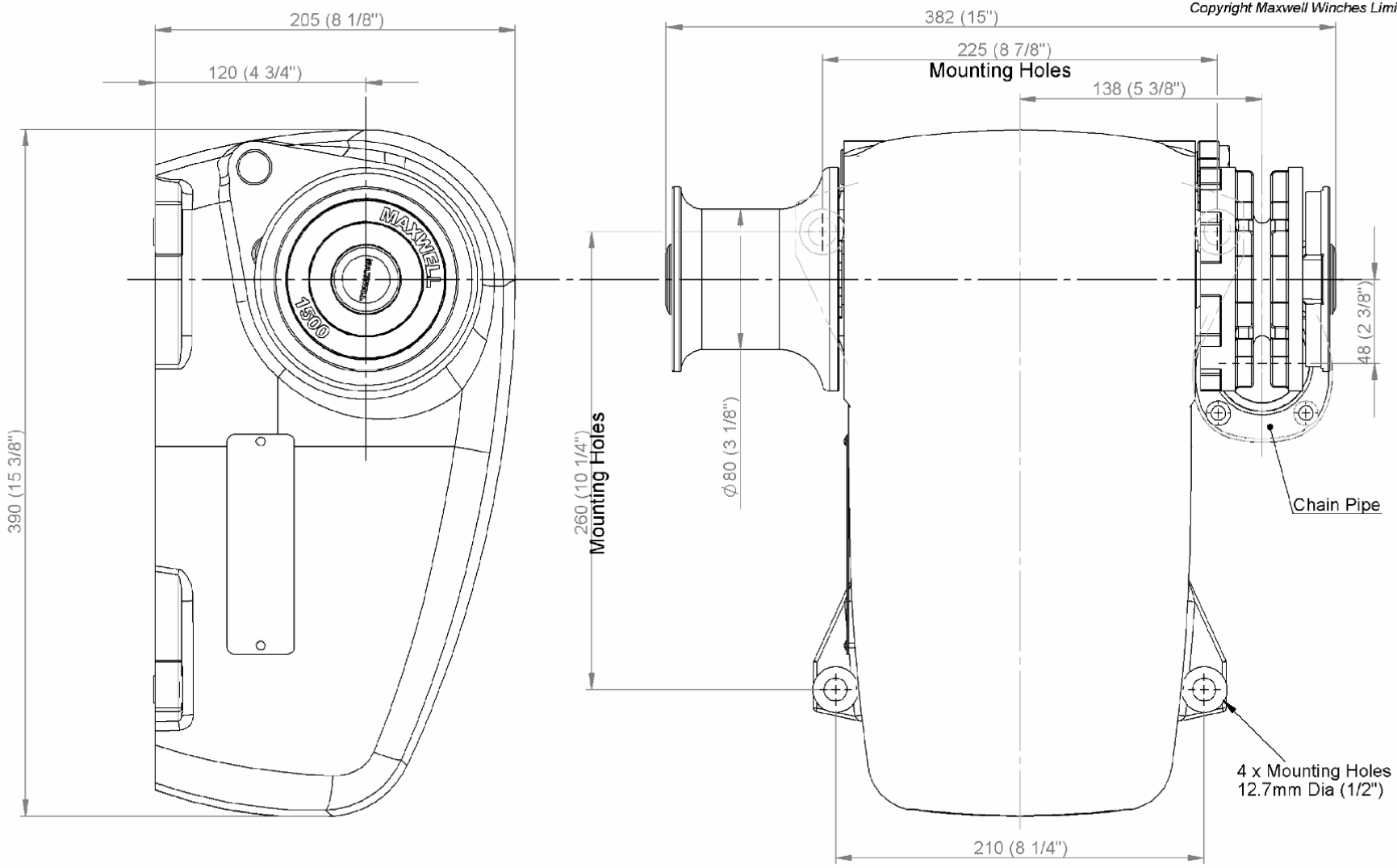
Replacement brush sets are available - order Part No. P100807 - 12 Volt, Part No. P100808 - 24 Volt.

ORDERING SPARE PARTS AND TECHNICAL SUPPORT

Please refer back cover for your nearest MAXWELL distributor
or visit our website www.maxwellmarine.com.

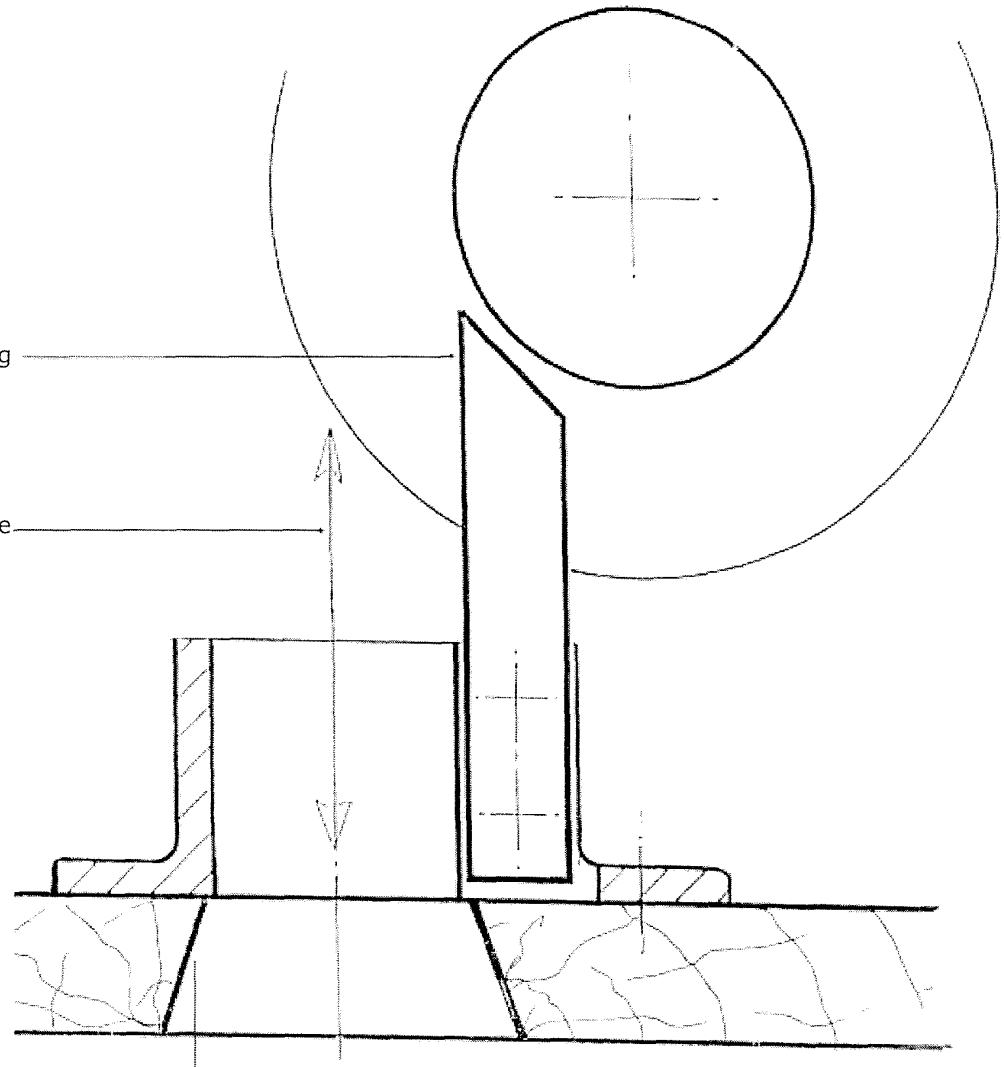
When ordering spare parts and for technical support, please quote the following:

Windlass Model…….
Serial Number……
Power Supply 12V, 24V or Hydraulic
Drawing Reference Number……..
Item No……
Part No……
Description……
Quantity Required……



Revision	Change	Made on	Des/Drawn
1.00	Entered in CAD	GB	5/12/2005

Pbv/Dwg No.	Description	Assy No.
201229	1500 HWC Physical Dimensions	--
Drawing Type.		
DFTMR		
Sheet Size / Scale		
A4 / 1:3		
Sheet 1 of 1		



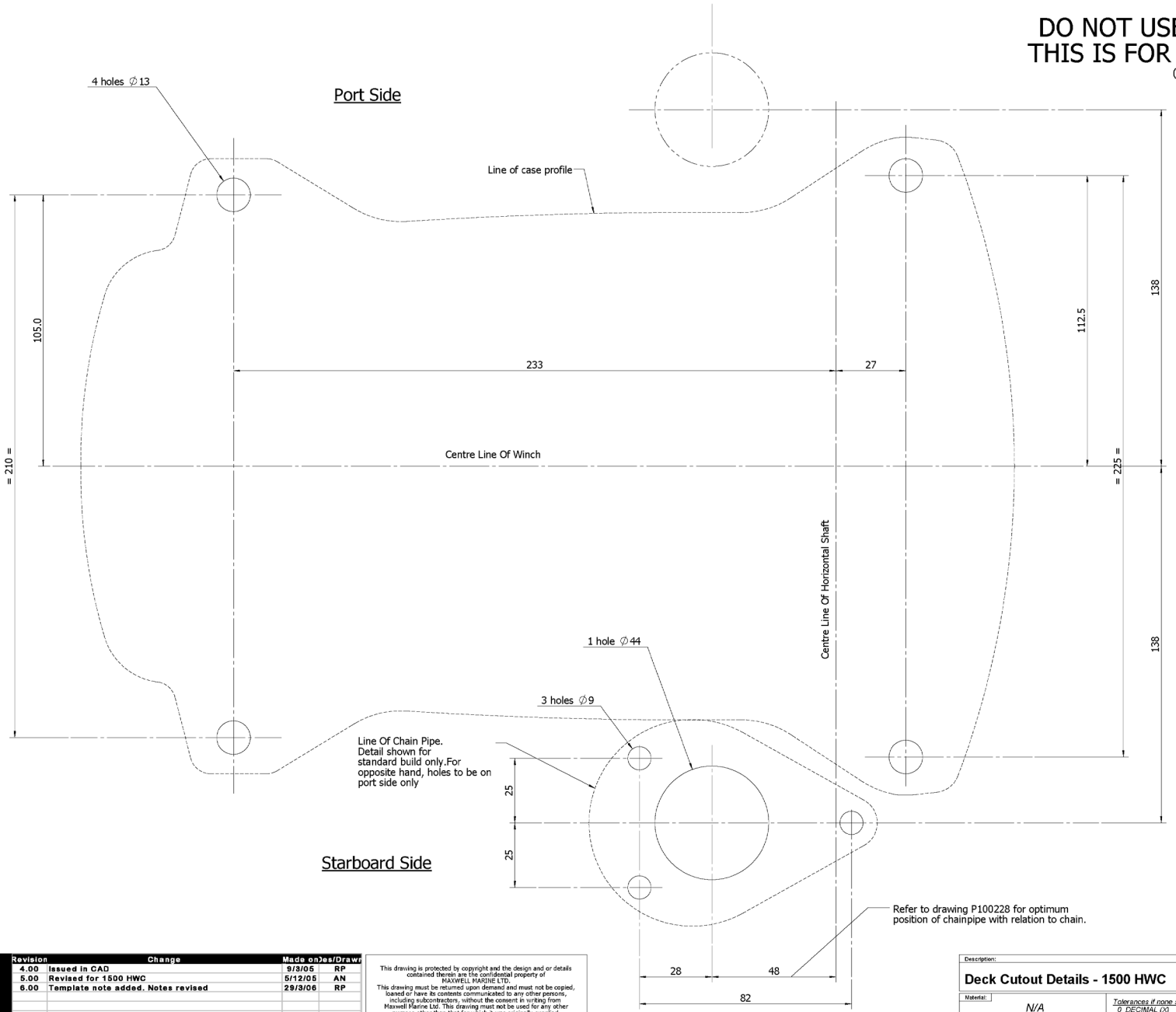
Revision	Change	Made on	Des/Drawn
1.00	Initial Issue	5/10/2004	/RP

MAXWELL

BVT/Dwg No.	
BVT View	
Sheet Size	Scale
A4	NTS
Sheet 1 of 1	

Description	Assy No.
HWC Chainpipe Instalation	P100228

DO NOT USE AS A TEMPLATE
THIS IS FOR REFERENCE ONLY
(SEE NOTE 3)



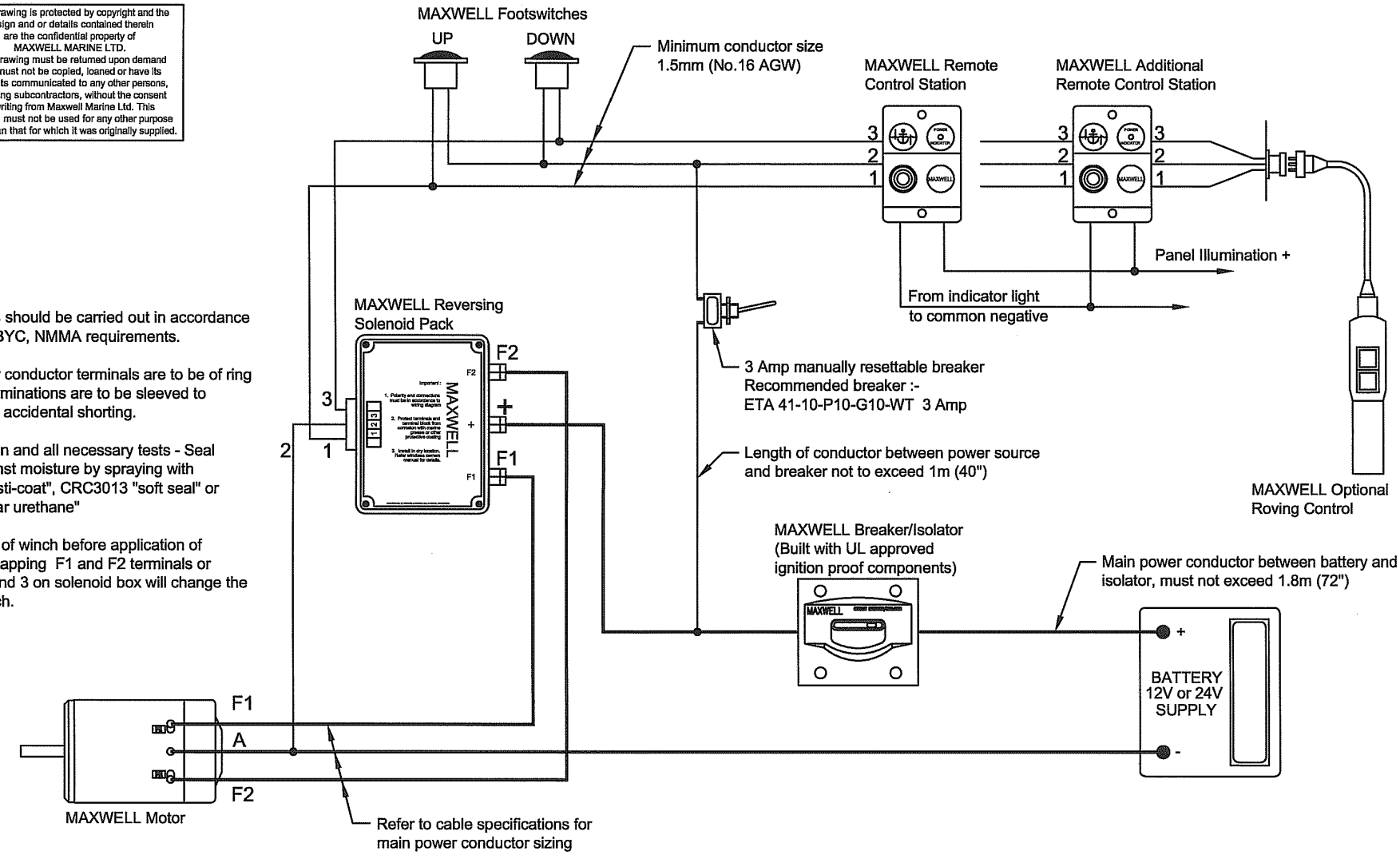
NOTES:

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.*

Revision	Change	Made on	Des/Drawn
4.00	Issued in CAD	9/3/05	RP
5.00	Revised for 1500 HWC	5/12/05	AN
6.00	Template note added. Notes revised	29/3/06	RP

Description:	Drawing No:	Revision No:
Deck Cutout Details - 1500 HWC	**3515**	**6.00**

Material:	Tolerances if none specified	Sheet Size	Sheet
N/A	0 DECIMAL (X) ±0.5 1 DECIMAL (X.X) ±0.2 2 DECIMAL (X.XX) ±0.1 ALL ANGLES ±0.5°	A2 Scale 1:1	1 of 1



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 "plasti-coat", 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	Checked	BVT/Dwg No.	Description	Assy No.
1.00	Initial Issue	21/7/2004	DI/RP		N/A	Wiring Diagram - Typical For Series Wound Motors	P101840
2.00	Terminal 3 routing from solenoid box corrected	25/05/2005	RP	GB	BVT View		
					N/A		
					Sheet Size / Scale		
					A4 / NTS		
					Sheet 1 of 1		

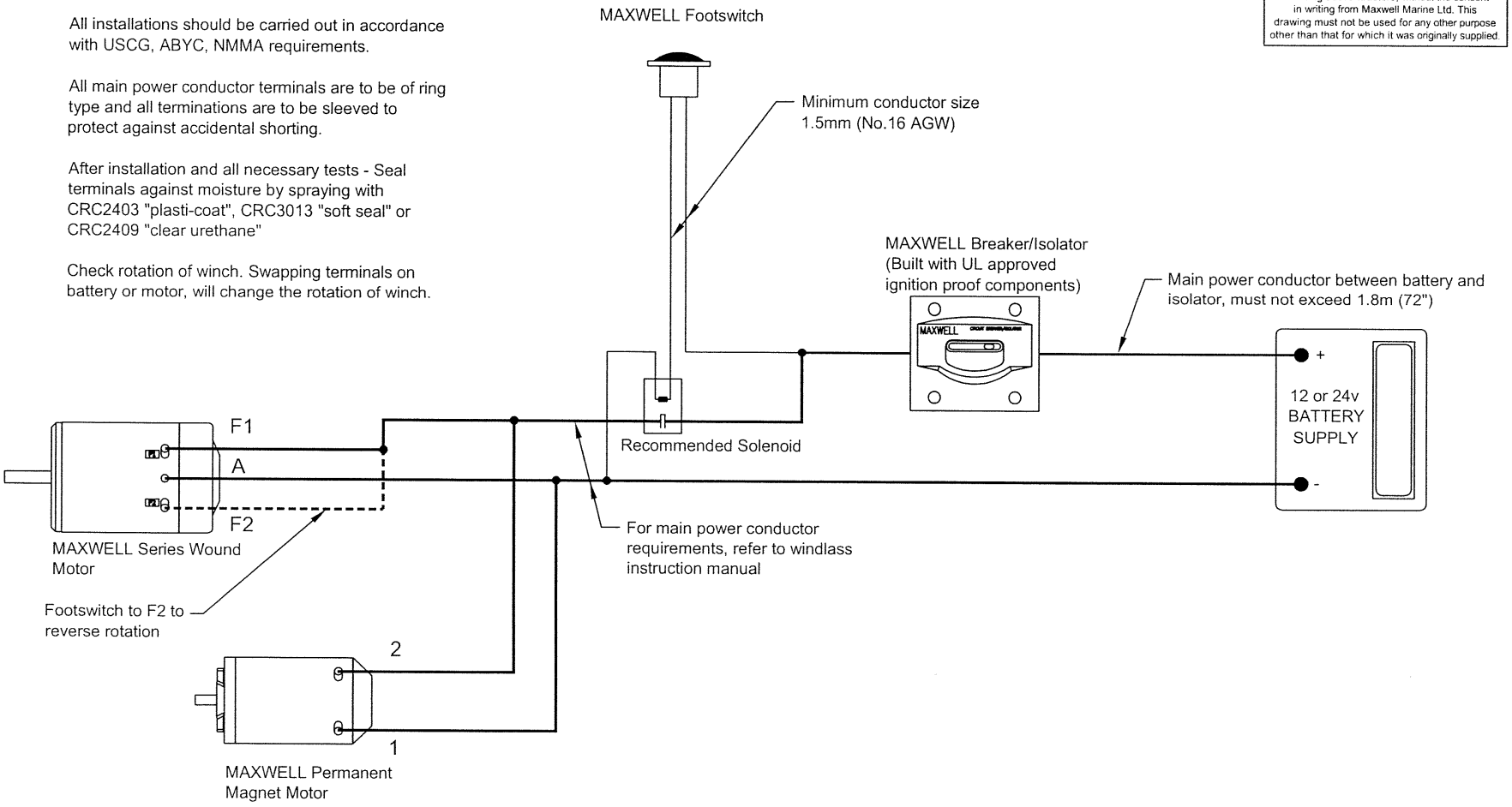
Note:

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

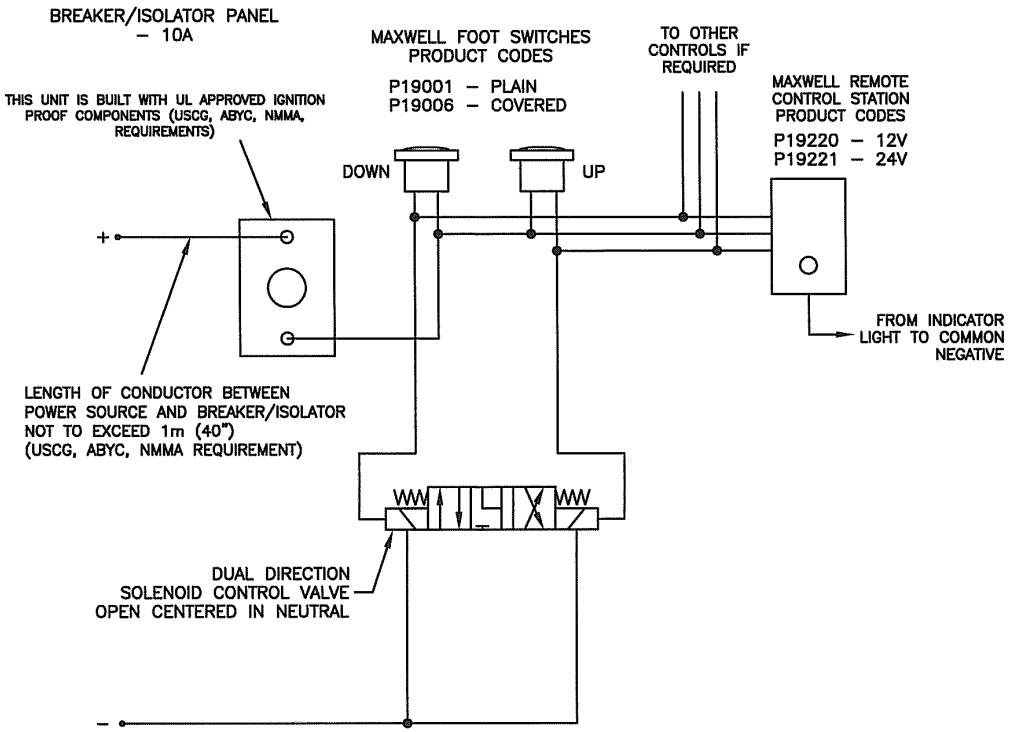
All main power conductor terminals are to be of ring type and all terminations are to be sleeved to protect against accidental shorting.

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

Check rotation of winch. Swapping terminals on battery or motor, will change the rotation of winch.



Revision	Change	Made On	Des/Drawn	BVT/Dwg No.	Description	Assy No.
1.00	Initial Issue	21/7/04	DI/RP	N/A	Wiring Diagram - Typical For Single Direction	P101844
				BVT View		
				N/A		
				Sheet Size / Scale		
				A4 / NTS		
				Sheet 1 of 1		



MINIMUM CONDUCTOR SIZE 1.5mm² (AWG 16)
(USCG, ABYC, NMMA REQUIREMENT)

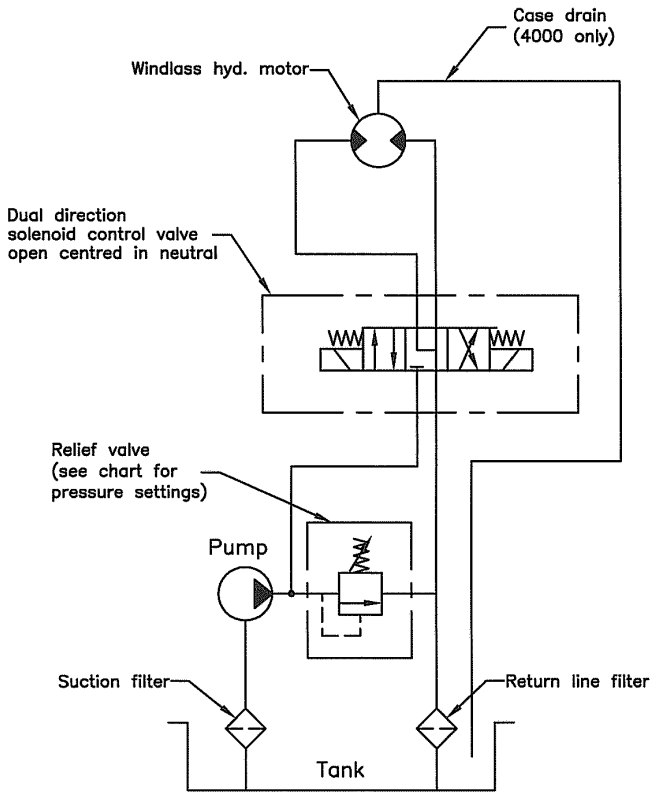
ALL INSTALLATIONS SHOULD BE CARRIED OUT IN ACCORDANCE WITH USCG, ABYC, NMMA, OR CLASSIFICATION SOCIETY REQUIREMENTS.

Rev.	Description	Date	Name	Checked
3.00	Removed clutch relay	29/04/03	DRW	
4.00	Control Station Codes corrected	07/06/07	RP	JE

ELECTRIC CONTROL WIRING DIAGRAM FOR HYDRAULIC WINDLASSES

MAXWELL WINCHES LTD.
AUCKLAND NEW ZEALAND

P101821



Windlass			Recommended flow		Relief valve pressure setting	
Series	Motor		l/min	US gal/min	PSI	bar
1000	P14366	GRESEN MGG2–16	20	5.3	1450	100
1500	P14366	GRESEN MGG2–16	20	5.3	2000	138
2200	P14369	GRESEN MGG2–30	36	9.5	1800	124
2500	P14368	GRESEN MGG2–25	32	8.5	2000	138
Liberty	P14368	GRESEN MGG2–25	32	8.5	2000	138
3500	P14368	GRESEN MGG2–25	40	11	2000	138
4000	SP2250	Galtech 2SM–A–19	50	13.2	1500	103

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

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

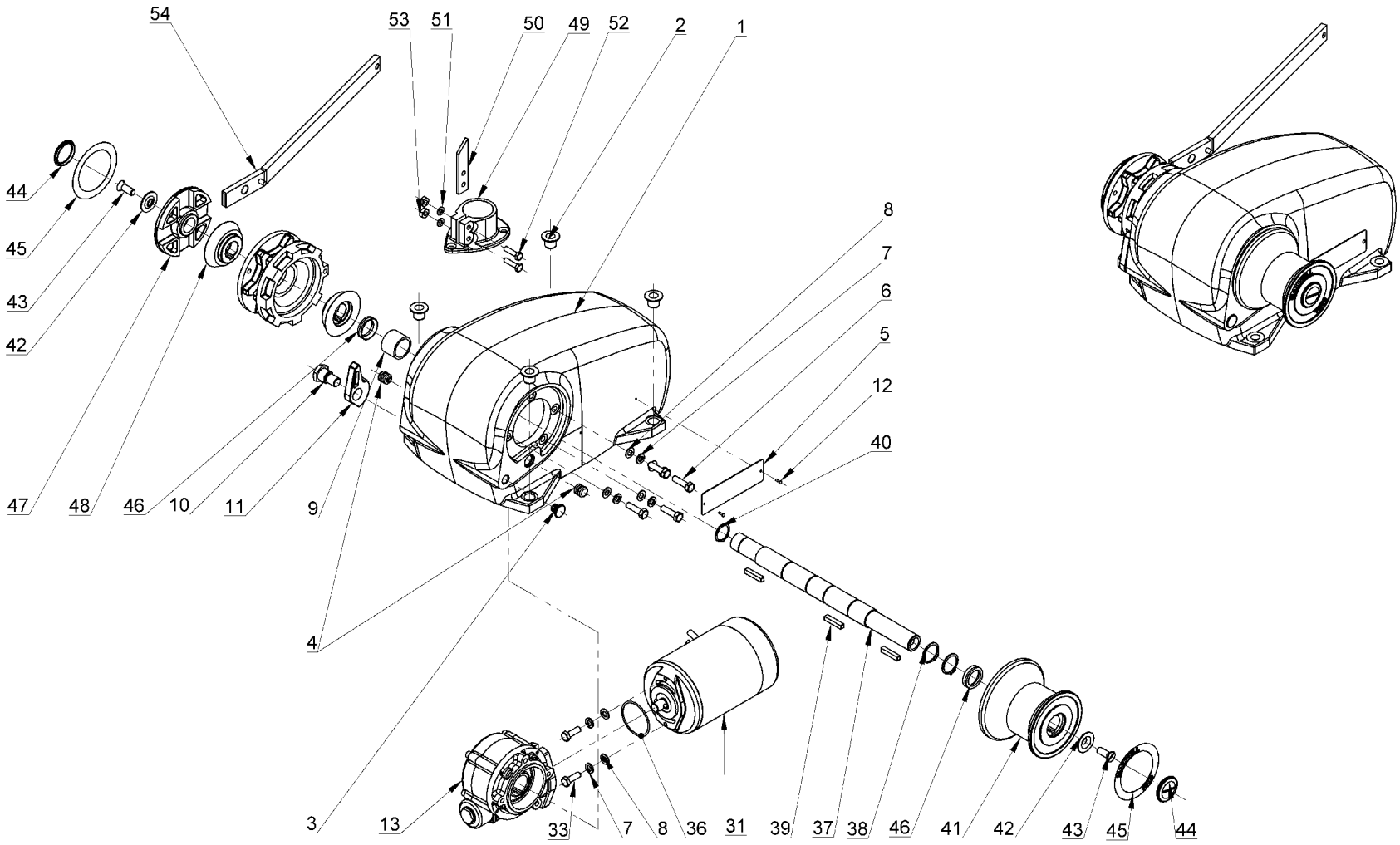
Case drain can only connect to return line if return line pressure is below 25 PSI. Oherwise case drain must connect to tank

Revision	Description	Date	Name
7.00	Removed pressure switch, Added liberty	29/04/03	DRW
8.00	Directional control valve changed back	22/10/04	JE
9.00	4000 motor changed from SP2224 to SP2250	20/03/07	JE

HYDRAULIC SCHEMATIC
WINDLASSES
1000 – 4000

MAXWELL WINCHES LTD.
AUCKLAND NEW ZEALAND

P101820

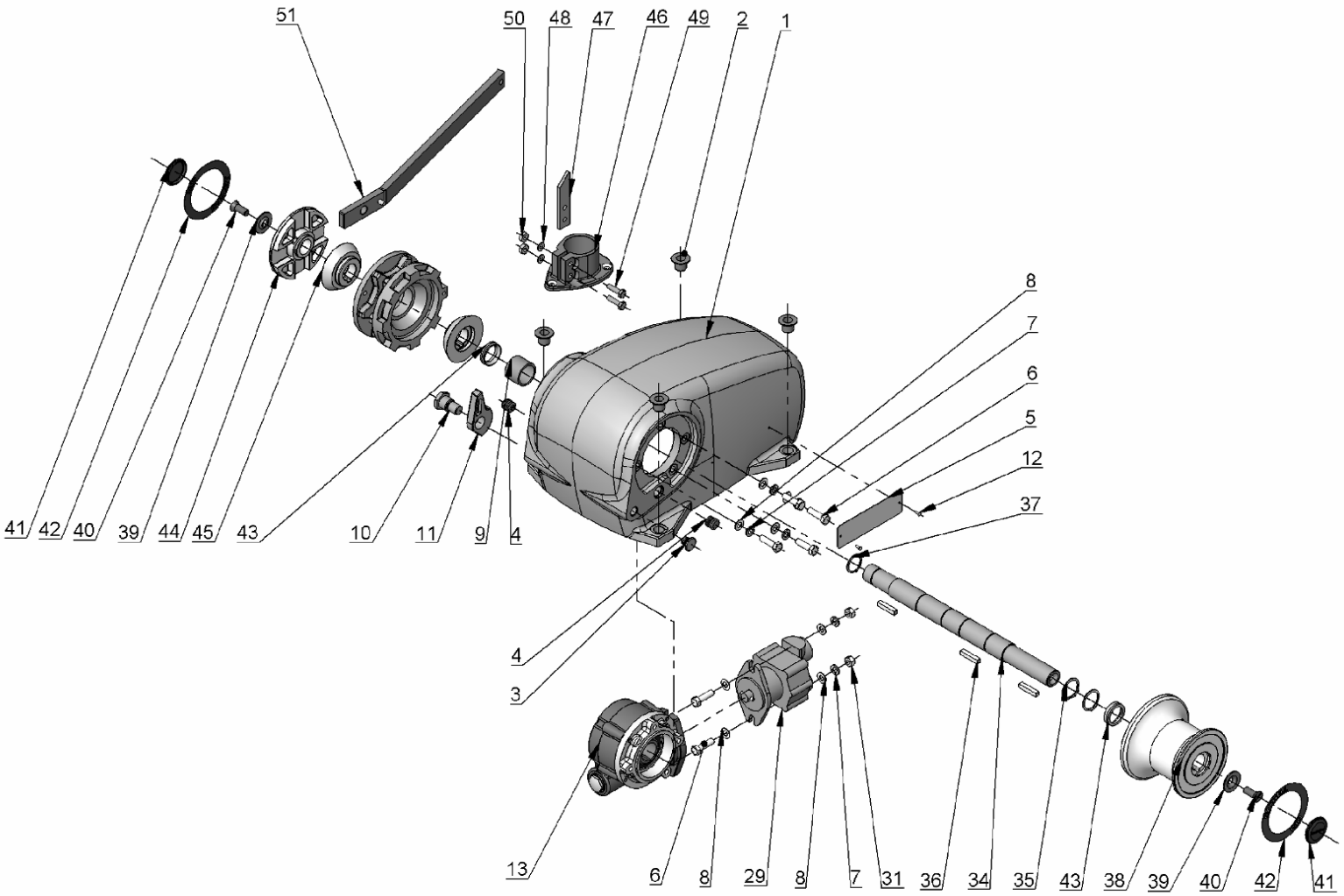


Revision	Change	Made on	Des/Drawn
1.00	initial issue	02/12/05	CX
2.00	P103700_2.00 Bottom Works 1500 HWC 56:1 was _1.00	15/08/06	CX

Pbv/Dwg No.	
P100231	
Drawing Type.	
dftmr	
Sheet Size	Scale
A4	1:8
Sheet 1 of 4	

Description	Assy No.
1500 HWC Port DRM STR CHW 12V	P100231
1500 HWC Port DRM STR CHW 24V	P100232

Item No.	Description	Part No.	Qty
1	Case	6199	1
2	Bush	SP0622	4
3	Plug	3573	1
4	Plug	SP0875	2
5	Label	3041	1
6	Bolt – Hex Hd M8 x 25 s/s	SP0288	4
7	Washer – M8 spring	SP0467	6
8	Washer - Flat	SP0413	6
9	Bearing	SP0663	1
10	Pawl Pin	6148	1
11	Pawl	3514	1
12	Rivet	SP0529	2
13	Gearbox	P12436	1
31	Motor - 12V - 24V	P11164 P11166	1 1
33	Bolt – Hex Hd M8 x 25 s/s	SP0288	2
36	O-Ring	SP2787	1
37	Mainshaft	6197	1
38	Circlip - external	SP0878	2
39	Key	3462	3
40	Circlip - external	SP0848	1
41	Drum	3436	1
42	Retaining Washer	3467	2
43	Screw – CSK 3/8” x 1”	SP0040	2
44	Cap	3465	2
45	Label	6425	2
46	V28 A ring seal	SP0708	2
47	Clutch Nut	6195	1
48	Clutch cone	3497	2
49	Chainpipe	2259	1
50	Stripper	2260	1
51	Washer – Flat	SP0412	2
52	Bolt – Hex Hd ¼” UNC x 1 s/s	SP0259	2
53	Nut – Hex Hd ¼” UNC x 1 s/s	SP0319	2
54	Clutch Lever	P20044	1

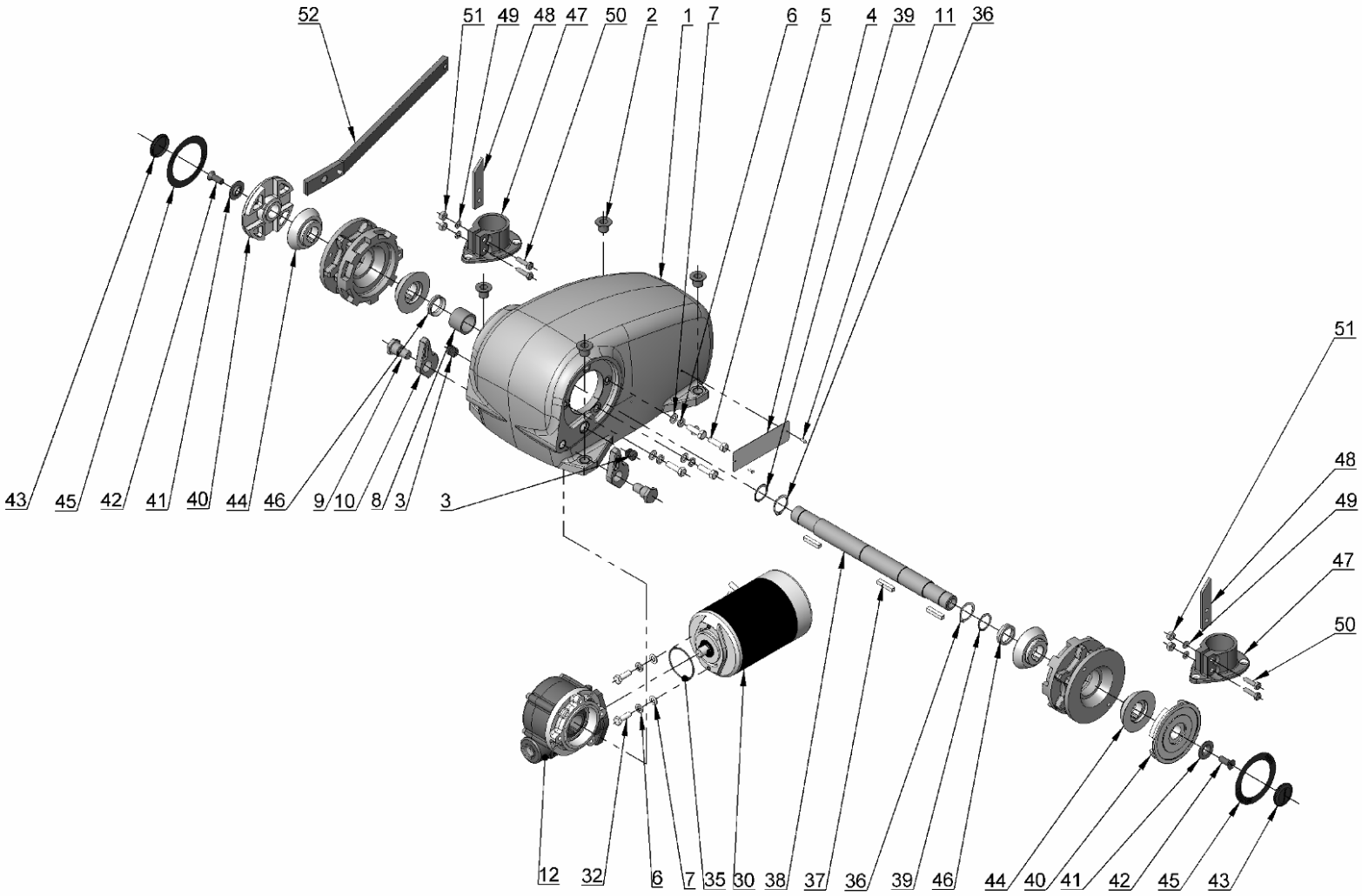


Revision	Change	Made on	Des/Drawn
1.00	initial issue	01/12/05	CX

Pbv/Dwg No.	
P100233	
Drawing Type.	
dftmr	
Sheet Size	Scale
A4	1:8
Sheet 3 of 4	

Description	Assy No.
1500 HWC Port DRM STR CHW Hyd	P100233

Item No.	Description	Part No.	Qty
1	Case	6199	1
2	Bush	SP0622	4
3	Plug	3573	1
4	Plug	SP0875	2
5	Label	3041	1
6	Bolt – Hex Hd M8 x 25 s/s	SP0288	4
7	Washer – M8 spring	SP0467	6
8	Washer - Flat	SP0413	6
9	Bearing	SP0663	1
10	Pawl Pin	6148	1
11	Pawl	3514	1
12	Rivet	SP0529	2
13	Gearbox	P12436	1
29	Hydraulic Motor	SP0995	1
31	Nut – Hex Hd M8 s/s	SP0366	2
34	Mainshaft	6197	1
35	Circlip - external	SP0878	2
36	Key	3462	3
37	Circlip - external	SP0848	1
38	Drum	3436	1
39	Retaining Washer	3467	2
40	Screw – CSK 3/8” x 1”	SP0040	2
41	Cap	3465	2
42	Label	6425	2
43	V28 A ring seal	SP0708	2
44	Clutch Nut	6195	1
45	Clutch cone	3497	2
46	Chainpipe	2259	1
47	Stripper	2260	1
48	Washer – Flat	SP0412	2
49	Bolt – Hex Hd ¼” UNC x 1 s/s	SP0259	2
50	Nut – Hex Hd ¼” UNC x 1 s/s	SP0319	2
51	Clutch Lever	P20044	1

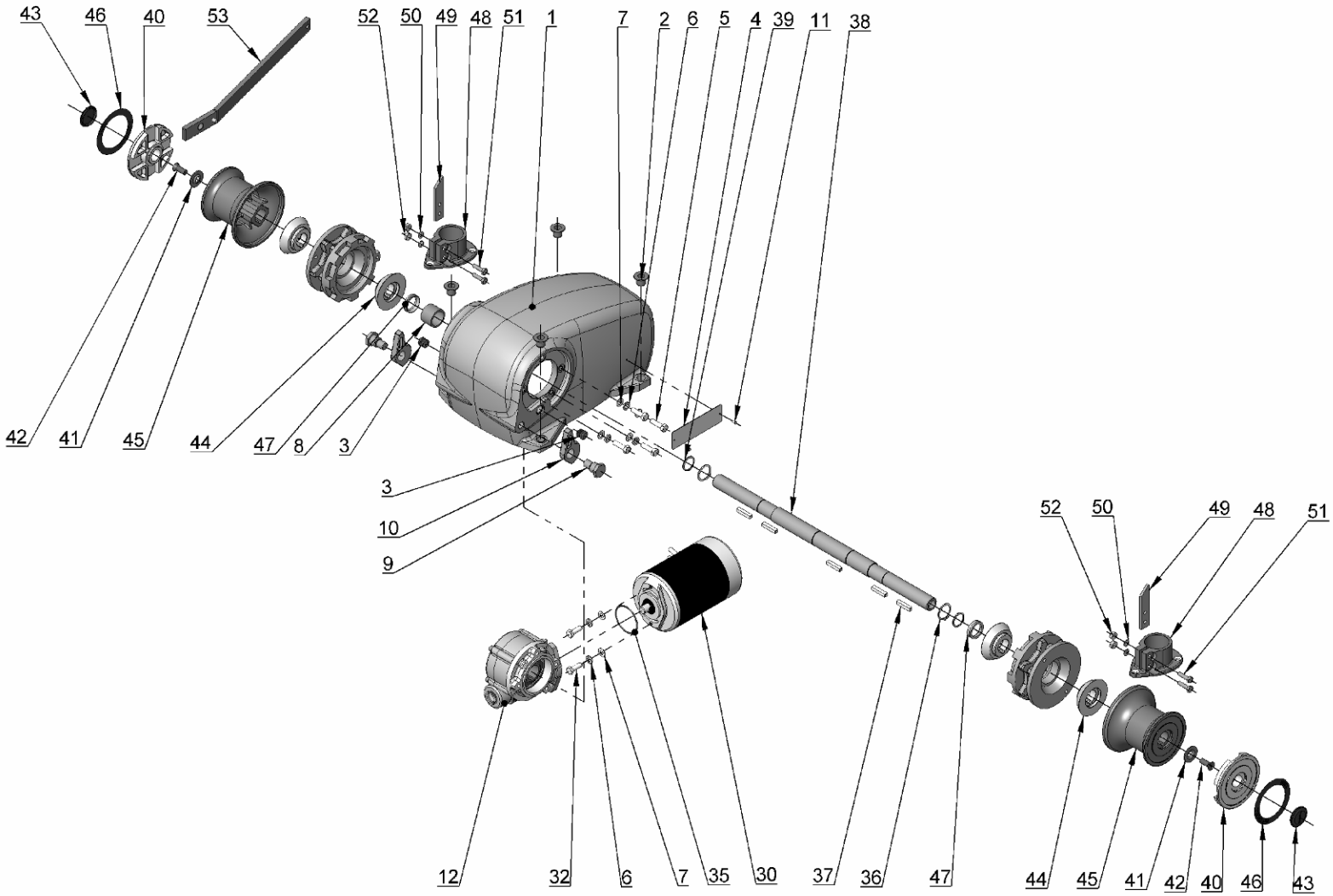


Revision	Change	Made on	Des/Drawn
1.00	initial issue	06/12/05	CX
2.00	P103700_1.00_pbv_Bottomworks 1500 HWC was _1.00	18/08/06	CX

Pbv/Dwg No.	
P100237	
Drawing Type.	
dftmr	
Sheet Size	Scale
A4	1:9
Sheet 1 of 4	

Description	Assy No.
1500 HWC DBL CHW 12V	P100237
1500 HWC DBL CHW 24V	P100238

Item No.	Description	Part No.	Qty
1	Case	6199	1
2	Bush	SP0622	4
3	Plug	SP0875	2
4	Label	3041	1
5	Bolt – Hex Hd M8 x 25 s/s	SP0288	4
6	Washer – M8 spring	SP0467	6
7	Washer - Flat	SP0413	6
8	Bearing	SP0663	1
9	Pawl Pin	6148	2
10	Pawl	3514	2
11	Rivet	SP0529	2
12	Gearbox	P12436	1
30	Motor - 12V - 24V	P11164 P11166	1 1
32	Bolt – Hex Hd M8 x 25 s/s	SP0288	2
35	O-Ring	SP2787	1
36	Circlip - external	SP0878	2
37	Key	3462	3
38	Mainshaft	6196	1
39	Circlip - external	SP0848	2
40	Clutch Nut	6195	2
41	Retaining Washer	3467	2
42	Screw – CSK 3/8” x 1”	SP0040	2
43	Cap	3465	2
44	Clutch cone	3497	4
45	Label	6425	2
46	V28 A ring seal	SP0708	2
47	Chainpipe	2259	2
48	Stripper	2260	2
49	Washer – Flat	SP0412	4
50	Bolt – Hex Hd ¼” UNC x 1 s/s	SP0259	4
51	Nut – Hex Hd ¼” UNC x 1 s/s	SP0319	4
52	Clutch Lever	P20044	1

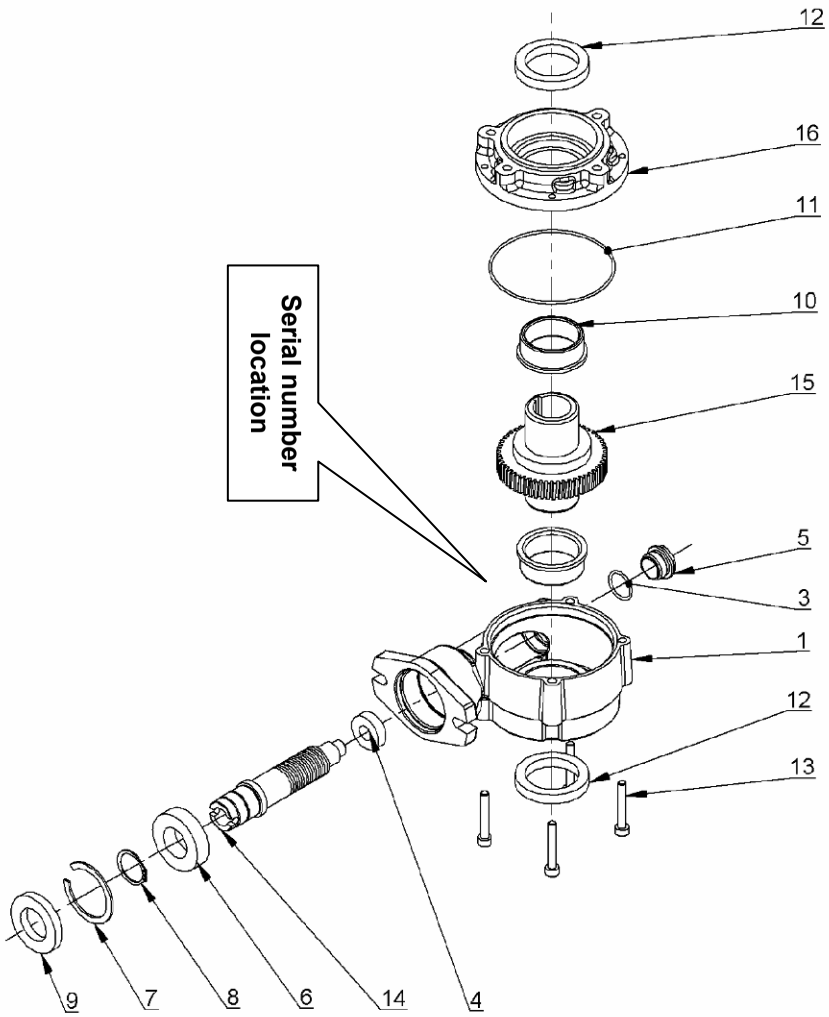


Revision	Change	Made on	Des/Drawn
1.00	Initial issue	05/12/05	CX
2.00	P103700_2.00_pbv_Bottom Works 1500HWC was _1.00	18/08/06	CX

Pbv/Dwg No.	P100234
Drawing Type.	dftmr
Sheet Size	A4
Scale	1:10
Sheet 1 of 4	

Description	Assy No.
1500 HWC DBL CHW DRM 12V 3436DRM	P100234
1500 HWC DBL CHW DRM 24V 3436DRM	P100235

Item No.	Description	Part No.	Qty
1	Case	6199	1
2	Bush	SP0622	4
3	Plug	SP0875	2
4	Label	3041	1
5	Bolt – Hex Hd M8 x 25 s/s	SP0288	4
6	Washer – M8 spring	SP0467	6
7	Washer - Flat	SP0413	6
8	Bearing	SP0663	1
9	Pawl Pin	6148	2
10	Pawl	3514	2
11	Rivet	SP0529	2
12	Gearbox	P12436	1
30	Motor - 12V - 24V	P11164 P11166	1 1
32	Bolt – Hex Hd M8 x 25 s/s	SP0288	2
35	O-Ring	SP2787	1
36	Circlip - external	SP0878	2
37	Key	3462	5
38	Mainshaft	6196	1
39	Circlip - external	SP0848	2
40	Clutch Nut	6195	2
41	Retaining Washer	3467	2
42	Screw – CSK 3/8” x 1”	SP0040	2
43	Cap	3465	2
44	Clutch cone	3497	4
45	Drum	3436	2
46	Label	6425	2
47	V28 A ring seal	SP0708	2
48	Chainpipe	2259	2
49	Stripper	2260	2
50	Washer – Flat	SP0412	4
51	Bolt – Hex Hd ¼” UNC x 1 s/s	SP0259	4
52	Nut – Hex Hd ¼” UNC x 1 s/s	SP0319	4
53	Clutch Lever	P20044	1



ITEM NO.	PART NUMBER	QTY.
1	3133_22.00_3d_Worm Box	1
3	SP0720_1.00_3d_O-ring - 20 x 2	1
4	SP0643_1.00_prt_Bearing - Ball - 12 x 28 x 8	1
5	3223_2.00_3d_sight glass	1
6	SP0642_1.00_prt_Bearing - Ball - 25 x 12 x 47	1
7	SP0844_1.00_3d_Circlip - Int - 47 x 1.85	1
8	SP0838_1.00_3d_Circlip - Ext - 1in	1
9	SP0721_1.00_3d_25 x 47 x 7 oil seal	1
10	3145_5.00_3d_Bush	2
11	SP0726_1.00_3d_O-ring ID 90mm section dia 2mm	1
12	SP0724_1.00_3d_40 x 55 x 8 oil seal	2
13	SP0159_1.00_prt_Cap Screw - M6 x 40	4
14	3400_13.00_3d_Worm 500,650,R700	1
15	3584_4.00_3d_Wormwheel 56T VW800-1200	1
16	3513_5.00_3d_Adaptor Flange HWC800-1100	1

Fill the gearbox with 65mils of Castrol Alpha SP 320 Oil

Revision	Change	Made on	Des/Drawn
1.00	initial issue	29/11/05	CX

Pbv/Dwg No.	
P12436	
Drawing Type.	
dftmr	
Sheet Size	Scale
A4	1:5
Sheet 1 of 1	

Description	Assy No.
Gearbox 1500 HWC 56:1	P12436

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

☐ With boat

☐ Fitted by boat yard/dealer

☐ Purchased from dealer/chandler

Name L.O.A.

Built by